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1962 IRE DIRECTORY

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THE INSTITUTE OF RADIO ENGINEERS
1961

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THE IRE

THE INSTITUTE OF RADIO ENGINEERS, founded through the efforts of three far-seeing engineers, Dr. A. N. Goldsmith, J. V. L. Hogan, and R. H. Marriott, has grown from its original roster of less than fifty members gained by the merger of two small professional societies in 1912, to an international membership of 90,000. It is an incorporated, nonprofit organization established for the advancement of the theory and practice of electronics and radio, including allied branches of engineering and the related arts and sciences.

The IRE publishes technical papers, reports, and general information of interest to electronics engineers. It holds meetings and discussions throughout the United States, Canada, and several countries abroad, and maintains committees for collating and standardizing the results of technical research and development. Among the fields covered are radio communication, sound broadcasting, television, marine and aerial guidance, electron devices, radio-frequency measurements, engineering education, electron optics, sound and picture electrical recording and reproduction, power and manufacturing applications of radio and electronic technique, industrial electronic control and processes, medical electrical research and applications, and space electronics.

The management of the Institute of Radio Engineers resides in a Board of Directors selected from the body of Fellows and Senior Members, acting through an Executive Committee and the officers of the IRE. The President and Vice-Presidents are elected annually from the body of Fellows and Senior Members.

Membership in the IRE is contingent upon experience and achievement in radio engineering and allied fields. The grade of Fellow is one of distinction, and appointment thereto by the Board of Director's is made on the basis of eminence and distinguished service. Other grades —Senior Member, Member, Associate, and Student— are filled from applicants whose age, experience, and attainments conform to the respective requirements set forth in Bylaw 203 on page 9. An application blank appears on pages 21–24.

COMMITTEES*

The IRE has established over twenty-five technical committees covering specialized fields of radio engineering. Through the IRE, these committees (sometimes in collaboration with technical committees of other engineering societies) publish standards of accepted definitions of terms, and methods of measurements of physical quantities used in radio engineering practices.

CONVENTIONS AND MEETINGS

Each year the IRE holds an international convention for its entire membership, during which technical papers are presented and the latest electronic equipment is displayed. Numerous additional meetings, many with exhibits, are held throughout the year by IRE Regions, Sections, and Professional Groups.

SECTIONS†

Sections have been established through the United States, Canada, Egypt, Israel, Japan, Argentina, Brazil, Chile, Colombia, Italy, India, Switzerland, and the Benelux countries, to hold meetings under the aegis of the IRE. The Sections of the IRE are grouped into eight Regions, and each Region is represented on the Board of Directors by a Regional Director elected bi-annually from, and by, the membership of the respective Region.

PROFESSIONAL GROUPS†

To serve many special fields of interest, Professional Groups have been formed on an Institute-wide basis in each of twenty-eight technical fields. These Groups organize meetings and conferences on subjects of special interest to their members. They issue technical publications called TRANSACTIONS to provide a means for ensuring their membership proper coverage of their fields in the publications of the IRE, and for promoting recognition of their leaders among the IRE membership at large.

PUBLICATIONS OF THE IRE

PROCEEDINGS OF THE IRE

Perhaps the most important single activity of the Institute is the publication of a technical journal. The first issue of the PROCEEDINGS OF THE INSTITUTE OF RADIO ENGINEERS appeared in 1913. Established first as a quarterly, since 1927 the PROCEEDINGS has been published in twelve numbers annually. In 1939, the name of the journal was shortened to PROCEEDINGS OF THE IRE.

The PROCEEDINGS OF THE IRE is the official publication of the Institute of Radio Engineers. In it appear technical papers, discussions, and communications approved by the Editorial Reviewers and Managing Editor, as well as IRE Standards prepared by the technical committees.

To date, over 7500 papers on advanced research topics have been published in PROCEEDINGS, including mathematico-physical analyses of engineering problems, current engineering developments of equipment and methods, and commercial applications of engineering methods and products, historical papers, and tutorial papers covering specific aspects of radio and electronic engineering. In addition, space is devoted to news, book reviews, new products, and abstracts of papers published in technical publications the world over. The PROCEEDINGS OF THE

* A list of Committees appears in the June and October issues of PROCEEDINGS OF THE IRE.

† A list of Sections and Professional Groups and their officers appears every odd-numbered month in PROCEEDINGS OF THE IRE.

IRE is mailed gratis to all members; subscription price to nonmembers is $18.00 per year, $19.00 to foreign destinations.

IRE Transactions

Each of the twenty-eight IRE Professional Groups publishes its own technical publication, called TRANSACTIONS, covering developments of particular interest within its own specialized field. The TRANSACTIONS is sent free to all paid members of the Professional Group. Frequency of issue varies from Group to Group, and ranges from one to six issues per year.

IRE Convention Record

The IRE annually publishes the papers presented at the IRE International Convention in New York in the IRE INTERNATIONAL CONVENTION RECORD.

Yearbooks and Directories

The first Yearbook was published in 1914, the second in 1916, and then annually between 1926 and 1932. Yearbooks were then published in 1937, 1942, and 1946. With the 1948 Yearbook, annual publication was resumed. In 1950 its name was changed to "Directory."

Standards

Standardization reports have been issued since 1913. Early reports were confined to the definition of technical terms and standard graphical symbols. Current reports include methods of testing equipment and measuring electronics quantities, and letter symbols and mathematical notation. Starting in 1949, IRE Standards have been published in the PROCEEDINGS, rather than as separate reports, to make them available to all members at no extra charge. Also, they are available in reprint form. All IRE standard definitions and symbols, as of December 1959, appear in the "IRE Dictionary of Electronics Terms and Symbols," which is available to members at $5.20, and to others at $10.40 per copy.

AWARDS

The IRE bestows seven awards, six annual and one nonannual, in recognition of outstanding technical and administrative achievements in the field of radio communication.

Medal of Honor

The Medal of Honor is given annually in recognition of outstanding scientific or engineering achievements in the fields of activity of the IRE. The recipient is named by the Board of Directors upon the recommendation of the Awards Committee.

Recipients of the Medal of Honor

E. H. Armstrong	1917	Lloyd Espenschied	1940
E. F. W. Alexanderson	1919	A. N. Goldsmith	1941
Guglielmo Marconi	1920	A. H. Taylor	1942
R. A. Fessenden	1921	William Wilson	1943
Lee De Forest	1922	Haradan Pratt	1944
John Stone-Stone	1923	H. H. Beverage	1945
M. I. Pupin	1924	R. V. L. Hartley	1946
G. W. Pickard	1926	L. C. F. Horle	1948
L. W. Austin	1927	Ralph Bown	1949
Jonathan Zenneck	1928	F. E. Terman	1950
G. W. Pierce	1929	V. K. Zworykin	1951
P. O. Pedersen	1930	W. R. G. Baker	1952
G. A. Ferré	1931	John M. Miller	1953
A. E. Kennelly	1932	William L. Everitt	1954
J. A. Fleming	1933	Harald T. Friis	1955
S. C. Hooper	1934	John V. L. Hogan	1956
Balth. van der Pol	1935	Julius A. Stratton	1957
G. A. Campbell	1936	Albert W. Hull	1958
Melville Eastham	1937	E. Leon Chaffee	1959
J. H. Dellinger	1938	Harry Nyquist	1960
A. G. Lee	1939	Ernst A. Guillemin	1961

Founders Award

The Founders Award is bestowed on special occasions only, for outstanding leadership in planning and administration of important technical developments. Recipient is named by the Board of Directors upon the recommendation of the Awards Committee.

Recipients of the Founders Award

David Sarnoff	1953
Alfred N. Goldsmith	1954
Raymond A. Heising	1957
W. R. G. Baker	1958
Haraden Pratt	1960
Ralph Bown	1961

Memorial Prize Award in Memory of Morris Liebmann

The Memorial Prize Award in Memory of Morris Liebmann was originally based on an endowment by E. J. Simon to preserve the memory of Colonel Morris N. Liebmann, who gave his life in the first World War. The award consists of a certificate and a monetary award. It is given annually to a member of the Institute who, in the opinion of the Board of Directors, upon the recommendation of the Awards Committee, shall have made an important contribution to the radio art.

Recipients of the Memorial Prize Award in Memory of Morris Liebmann

L. F. Fuller	1919	A. W. Hull	1930
R. A. Weagant	1920	Stuart Ballantine	1931
R. A. Heising	1921	Edmond Bruce	1932
C. S. Franklin	1922	Heinrich Barkhausen	1933
H. H. Beverage	1923	V. K. Zworykin	1934
J. R. Carson	1924	F. B. Llewellyn	1935
Frank Conrad	1925	B. J. Thompson	1936
Ralph Bown	1926	W. H. Doherty	1937
A. H. Taylor	1927	G. C. Southworth	1938
W. G. Cady	1928	H. T. Friis	1939
E. V. Appleton	1929	H. A. Wheeler	1940
P. T. Farnsworth	1941	William Shockley	1952
S. A. Schelkunoff	1942	John A. Pierce	1953
W. L. Barrow	1943	Robert R. Warnecke	1954
W. H. Hansen	1944	Arthur V. Loughren	1955
P. C. Goldmark	1945	Kenneth Bullington	1956
Albert Rose	1946	Oswald G. Villard, Jr.	1957
J. R. Pierce	1947	Edward L. Ginzton	1958
S. W. Seely	1948	Nicolaas Bloembergen	1959
C. E. Shannon	1949	Charles H. Townes	1959
O. H. Schade	1950	J. A. Rajchman	1960
R. B. Dome	1951	Leo Esaki	1961

Memorial Prize Award in Memory of Browder J. Thompson

The Memorial Prize Award in memory of Browder J. Thompson, established in 1945, is given annually to the author or joint authors under thirty years of age at date of submission of original manuscript for that paper of sound merit recently published in the technical publications of The Institute of Radio Engineers, and which, in the opinion of the Board of Directors, upon the recommendation of the Awards Committee, constitutes the best combination of technical contribution to radio and electronics and presentation of the subject.

The award comprises the income from a fund established by voluntary contributions to preserve the memory of Browder J. Thompson, a Director of the Institute killed in action in World War II while on a special mission for the Secretary of War.

Recipients of the Memorial Prize Award in Memory of Browder J. Thompson

G. M. Lee	1946	Richard C. Boonton, Jr.	1953
C. L. Dolph	1947	R. L. Petritz	1954
W. H. Huggins	1948	Blanchard D. Smith, Jr.	1955
R. V. Pound	1949	Jack E. Bridges	1956
J. F. Hull	1950	Dudley A. Buck	1957
A. W. Randalls	1950	Arthur Karp	1958
A. B. Macnee	1951	Franklin H. Blecher	1959
H. W. Welch, Jr.	1952	J. W. Gewartowski	1960
Eiichi Goto	1961		

Memorial Prize Award in Memory of Harry Diamond

The Memorial Prize Award in Memory of Harry Diamond, established in 1949, is given annually to a person or persons in Government service for outstanding contributions in the field of radio or electronics, as evidenced by publication in professional society journals such as the PROCEEDINGS OF THE IRE, or journals of similar standing. The award consists of a certificate provided for from proceeds of a fund established by friends who felt that the professional life of Harry Diamond, a Fellow of the Institute, exemplified the highest type of scientific effort in government service. Recipient of the award is named by the Board of Directors upon the recommendation of the Awards Committee.

Recipients of the Memorial Prize Award in Memory of Harry Diamond

A. W. Haeff	1950	Wilbur S. Hinman	1956
M. J. E. Golay	1951	Georg Goubau	1957
Newbern Smith	1952	Edward W. Allen, Jr.	1958
Robert M. Page	1953	Jack W. Herbstreit	1959
Harold A. Zahl	1954	K. A. Norton	1960
Barnard Salzberg	1955	Helmut L. Brueckmann	1961

Prize Award by W. R. G. Baker

The Prize Award by W. R. G. Baker is given annually to the author or authors of the most outstanding paper published in the IRE TRANSACTIONS of the Professional Groups. The award consists of a certificate and a monetary award derived from the income of a fund donated to the IRE by the late W. R. G. Baker, former Chairman of the IRE Professional Groups Committee. The recipient of the award is named by the Board of Directors upon the recommendation of the Awards Committee.

Recipients of the Prize Award by W. R. G. Baker

Réymond J. Kircher	1957	H. F. Webster	1958
Robert L. Trent	1957	Richard D. Thornton	1959
D. Raymond Fewer	1957	E. J. Nalos	1960
R. L. Kyhl	1958	Manfred Clynes	1961

Prize Award by Vladimir K. Zworykin

The Prize Award by Vladimir K. Zworykin will be awarded annually for twenty (20) times beginning in 1952 to that member who makes the most important technical contribution to electronic television during the preceding three calendar years, or the importance of whose contribution to electronic television shall have been realized during this period.

The award consists of a citation and a check for $500 drawn from a fund of $10,000 donated to the Institute by Vladimir K. Zworykin to encourage outstanding technical developments in fully electronic television. Recipient is named by the Board of Directors upon recommendation of the Awards Committee.

Recipients of the Prize Award by Valdimir K. Zworykin

B. D. Loughlin	1952	Frank J. Bingley	1956
Frank Gray	1953	Donald Richman	1957
Alda V. Bedford	1954	Charles P. Ginsburg	1958
Harold B. Law	1955	Paul Weiner	1959
Peter C. Goldmark	1961		

THE INSTITUTE OF RADIO ENGINEERS

(Incorporated)

CONSTITUTION

(Effective April 20, 1959)

ARTICLE I

NAME AND OBJECT

SEC. 1—The name of this organization shall be The Institute of Radio Engineers, Incorporated, hereinafter called the IRE.

SEC. 2—Its objects shall be scientific, literary, and educational. Its aims shall include the advancement of the theory and practice of electronics, radio, allied branches of engineering, and of the related arts and sciences, their application to human needs, and the maintenance of high professional standards among its members. Among the means to this end shall be the holding of meetings for the reading and discussion of professional papers and the publication of papers, discussions, communications, and such other matters as may be appropriate for the fulfillment of its objects.

SEC. 3—The territory in which its operations are to be conducted is the United States of America and other countries.

ARTICLE II

MEMBERSHIP

SEC. 1—The membership of the IRE shall consist of members qualified to hold professional membership grades, who shall be designated as voting members, and members admitted to non-professional grades, who shall be designated as non-voting members.

SEC. 2—The grades of membership and the member qualifications for each and the requirements for admission, transfer, and severance of members shall be specified in the Bylaws.

ARTICLE III

DEFINITIONS

SEC. 1—The term "member" when printed without an initial capital, where used in this Constitution and the Bylaws, includes all grades of membership. The term "voting member" where used in this Constitution and the Bylaws means a member entitled to vote on IRE matters.

SEC. 2—The term "allied" as used in this Constitution and the Bylaws refers to electronics, electrical communication, radio, and such other technical fields as are directly contributory to, or derived from, electrical science.

SEC. 3—The term "Bylaw" as used in this Constitution refers to any Bylaws adopted by the Board of Directors as herein set forth and amended as hereinafter provided.

ARTICLE IV

DUES AND FEES

SEC. 1—Dues and fees shall be specified in the Bylaws.

SEC. 2—Under exceptional circumstances, the payment of dues and fees may be deferred or waived in whole or in part by the Board of Directors.

ARTICLE V

ANNUAL ASSEMBLY, BOARD OF DIRECTORS, AND PRESIDENT

SEC. 1—There shall be an annual Assembly composed of Delegates elected by the voting members. The annual Assembly shall receive reports and perform such other functions as required by law or specified in the Bylaws.

SEC. 2—There shall be a Board of Directors which shall be the governing body of the IRE, shall manage its affairs, and shall consist of Directors elected by the voting members and Directors elected by the annual Assembly. These Directors shall include the President and the two most recent Past Presidents.

SEC. 3—The election by the voting members of each Delegate shall signify the election of the same individual as a Director.

SEC. 4—The President shall be elected by the voting members, by virtue of which election he shall also be a Delegate-at-large and a Director-at-large.

ARTICLE VI

DELEGATES, DIRECTORS, AND OFFICERS

SEC. 1—The number of Directors elected by the voting members together with the number of Directors elected by the annual Assembly shall be not less than nine nor more than fifty, but in no case below the minimum prescribed by law. The number of Directors elected by the voting members shall not be less than two-thirds of the total number.

SEC. 2—All of the Directors shall be of full age and at least one shall be a citizen of the United States and a resident of the State of New York.

SEC. 3—The term of each Delegate elected by the voting members shall run concurrently with the term of his office as Director and shall be not less than two nor more than five years, except that the term of office of the President as a Delegate-at-large and Director-at-large shall be three years, and such terms of office of such Delegates and Directors shall begin with the first annual Assembly after their election and acceptance.

The terms of office of Directors elected by the annual Assembly shall be one year.

SEC. 4—The United States and Canada and other areas, at the discretion of the Board of Directors, shall be divided into geographical districts known as Regions, which shall be specified in the Bylaws. The voting members of each Region shall elect a Delegate to the annual Assembly designated as its Regional Delegate who shall also by virtue of such election be a Director designated as its Regional Director. The election of Regional Delegates and Regional Directors under this paragraph shall be conducted as specified in the Bylaws.

The voting members of the IRE shall elect Delegates to the annual Assembly designated as Delegates-at-large who shall also by virtue of such election be Directors-at-large. The number of Directors-at-large elected by the voting members shall not be less than the number of Regional Directors.

The number and method of election of Delegates-at-large and Directors-at-large shall be specified in the Bylaws.

SEC. 5—If the Directors shall not be elected on the day designated by law or fixed in the Bylaws, the corporation shall not for that reason be dissolved; but every Director shall continue to hold his office and discharge his duties until his successor has been elected.

SEC. 6—The Corporate Officers of the IRE shall be the President, one or more Vice Presidents as specified in the Bylaws, the Secretary, the Treasurer, and the Editor.

SEC. 7—The terms of office for all Corporate Officers shall begin with the annual meeting of the Board of Directors and shall terminate at the beginning of the following annual meeting of the Board of Directors or at such time as their successors are elected and accept.

SEC. 8—The terms of office of the Vice Presidents, Secretary, Treasurer, and Editor, as Directors shall be one year.

SEC. 9—No Corporate Officer or Director shall receive, directly or indirectly, any salary, traveling expenses, compensation, or emolument from the IRE either as such Officer or Director or any other capacity, unless authorized by the Bylaws or by the concurring vote of two-thirds of all the Directors at a regularly constituted meeting.

No Director or other Officer shall be interested, directly or indirectly, in any contract relating to the operations of the IRE, nor in any contract for furnishing supplies thereto, unless authorized by the Bylaws or by the concurring vote of two-thirds of the Directors at a regularly constituted meeting.

ARTICLE VII

MANAGEMENT

SEC. 1—The President shall be the regular presiding officer at meetings of the Board of Directors and the annual Assembly. He shall be an ex-officio member of each committee.

A Vice President shall assume the duties of the President in the absence or incapacity of the President, as specified in the Bylaws. Duties of Vice Presidents and the order of priority regarding assumption of presidential duties shall be specified in the Bylaws.

In the event of the absence or incapacity of both the President and all of the Vice Presidents, the Board of Directors shall elect a chairman from its membership who shall perform the presidential duties during such absence or incapacity of the President and all of the Vice Presidents. The tenure of such temporary chairman shall be at the discretion of the Board of Directors provided, however, that said temporary chairman shall not serve longer than the unexpired term of the incumbent President.

SEC. 2—The Secretary shall be responsible for the preparation of all meetings of the Board of Directors, the annual Assembly, and all principal meetings of the IRE. He shall be responsible for the keeping of full records of all the meetings and activities of the IRE, the records of the membership, such other records as are required by law, and shall be responsible for the provision of such information from them as is requested by the Board of Directors.

SEC. 3—The Treasurer, under the control of the Board of Directors, shall have general supervision of the fiscal affairs of the IRE and shall be responsible for the keeping of records thereof.

SEC. 4—All funds received by the IRE shall be deposited in an account requiring the signatures of at least two of the Corporate Officers for withdrawal. The Board of Directors shall designate those Corporate Officers authorized to execute such withdrawals.

SEC. 5—The number of Directors required to constitute a quorum shall be stated in the Bylaws but shall not be less than one-third of the total number of Directors.

SEC. 6—The number of Delegates required to constitute a quorum at the annual Assembly shall be stated in the Bylaws but shall not be less than one-third of the total number of Delegates or if one-third be nine or more, not less than nine.

SEC. 7—The chairman of the Board of Directors shall have no vote on the Board unless the votes of the other Directors present are equally divided.

SEC. 8—The chairman of the annual Assembly shall have no vote on the Assembly unless the votes of the other Delegates present are equally divided.

SEC. 9—The Board of Directors may make, amend, or revoke the Bylaws made by the IRE. Proposed Bylaws changes and reasons therefore shall be mailed to all IRE Directors at least twenty days before the stipulated meeting of the Board of Directors at which the vote shall be taken. Two-thirds of all votes cast at that meeting shall be required to approve any new Bylaw, amendment, or revocation.

SEC. 10—All committees unless otherwise provided for in the Bylaws, shall be appointed by the Board of Directors in such manner as the Board of Directors may designate.

SEC. 11—The fiscal year of the IRE shall be defined in the Bylaws.

ARTICLE VIII

NOMINATION AND ELECTION OF OFFICERS, DIRECTORS AND DELEGATES

SEC. 1—On or before July first of each year, the Board of Directors shall submit to all voting members a list of nominees for Delegates, Directors, the President, and such Officers as may be specified in the Bylaws to be elected by the voting members for the coming term, in accordance with the Bylaws. Submission may be by publication.

SEC. 2—Nomination by petition may be made by letter to the Board of Directors setting forth the name of the proposed candidate and the office for which the candidate is desired to be nominated, provided such letter is received at the general offices of the IRE no later than 12 o'clock noon on the Friday prior to August fifteenth. Such a petition shall be signed by at least one per cent of the total number of voting members as listed in the official membership records of the IRE at the end of the previous year, but in no case shall the number be less than one hundred.

SEC. 3—On or before September first, the Board of Directors shall submit to all voting members as of August fifteenth, a ballot listing all nominees to be voted upon by the voting members, in accordance with the Bylaws.

SEC. 4—The annual Assembly of the IRE shall elect additional Directors and such of the Corporate Officers as shall also serve as Directors, as provided by the Bylaws. Other Corporate Officers as specified in the Bylaws shall be elected by the Board of Directors.

SEC. 5—The Board of Directors is authorized to fill a vacancy occurring in the Board of Directors or among the Corporate Officers for a period not to exceed the unexpired term of the office becoming vacant, provided, that if a vacancy shall occur in the office of a Regional Director, then the gegoraphical Region which elected such Director shall have the right to elect a Director to serve the remainder of such term. If such geographical Region shall fail to elect a Director within sixty days after notice of such vacancy, as provided in the Bylaws, then the same may be filled by the Board of Directors.

SEC. 6—The existence of vacancies in the Board of Directors or among the Corporate Officers shall be determined by the Board of Directors in accordance with the Bylaws.

ARTICLE IX

MEETINGS

SEC. 1—There shall be an annual Assembly of Delegates-at-large and Regional Delegates of the IRE during January of each year. The President of the IRE shall preside. The annual Assembly may be held elsewhere than in the State of New York.

SEC. 2—There shall be an annual meeting of the Board of Directors during January of each year following the annual Assembly. This annual meeting may be held elsewhere than in the State of New York.

SEC. 3—Additional meetings and special meetings of the Board of Directors shall be held in accordance with the Bylaws.

SEC. 4—The Board of Directors may authorize the establishment of groups of members for promoting the objectives and interests of the IRE in accordance with the Bylaws. The Board of Directors may, at its discretion, terminate the existence of any such group.

ARTICLE X

AMENDMENTS

SEC. 1—Amendments to this Constitution shall be made by ballot of the voting members. Amendments may be proposed by a resolution adopted by vote of at least two-thirds of those present at a regularly constituted meeting of the Board of Directors or by a petition signed by at least one per cent of the total number of voting members as listed in the official membership records of the IRE at the end of the previous year, but in no case shall the number be less than one hundred. A copy of such proposed amendment or amendments, if lawful, shall be mailed with a ballot to each voting member at least sixty days before the date designated for counting the ballots. Balloting shall be in accordance with the Bylaws.

SEC. 2—If the total ballot vote be at least twenty per cent of the total voting membership and if at least sixty-seven per cent of all ballot votes cast shall be favorable, the proposed amendment or amendments shall be adopted. Voting members shall be notified as soon as practicable after the adoption by publication.

SEC. 3—Amendments to this Constitution shall take effect thirty days after adoption, but if by amendment Officers and Officers-Elect are changed in status or the number of Directors is reduced, each Officer and each Director shall continue to serve until his term expires.

BYLAWS

(Effective April 28, 1961)

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100. DEFINITIONS

1. The term "all the rights and privileges" refers to right to participate fully in the activities of the IRE in furtherance of its objects as defined in the Constitution.
2. The term "group of members" refers to any classification of members whether on a geographical territorial basis or on a particular technical or professional interest basis, that has been authorized by the IRE.
3. The terms "meetings of the IRE" or "meetings of IRE members" refers to meetings authorized by the IRE, with or without geographical or other limitation, held to further the objects of the IRE.
4. The term "IRE Headquarters" refers to the principal office of the IRE at which the Executive Secretary and his staff are located.
5. The term "Constitution" refers to the IRE Constitution.
6. The term "Executive Committee" refers to the Executive Committee of the IRE.
7. The term "school of recognized standings" refers only to schools which award degrees for not less than four years of full-time academic study in electronics, radio, allied branches of engineering or the related arts and sciences, and are designated as such by the Executive Committee.
8. The word "junior" when used in the terms "junior past President," "junior past Regional Director," "junior past Chairman" or other titles of IRE official positions refers to the immediate past holder of the office referred to.
9. The word "senior" when used in term "senior past President" or other titles of IRE official positions refers to the holder of the office referred to next preceding the immediate past holder of the office.

200. MEMBERSHIP

201. *Grades*

1. The grades of IRE membership are:
   a. Fellows
   b. Senior Members
   c. Members
   d. Associates
   e. Students
   f. The designation "Life Member" is applicable to all members who have attained the age of 65 years and who have been members of the IRE for at least 35 years.
2. The designation "Group Affiliate" refers to persons entitled to participate in IRE Professional Group activities under provisions established by the Executive Committee under the Bylaws.

202. *Rights and Privileges*

1. Fellows shall be entitled to all rights and privileges of the IRE.
2. Senior Members shall be entitled to all rights and privileges of the IRE except the right to serve on the Awards and Fellow Committees.
3. Members shall be entitled to all rights and privileges of the IRE except the right to hold any corporate office and the office of Director, and to serve on the Admissions, Awards and Fellow Committees.
4. Associates shall be entitled to attend meetings of IRE members, to vote only on matters presented to groups of members, to be appointed on committees when specifically approved by the Board of Directors or the Executive Committee, but shall not have the right to hold any office.
5. All voting members shall have the right to use the IRE emblem (dark background) on letter heads and business cards to indicate their professional membership status in the IRE, provided that a sample of each letterhead or business card is first submitted for approval to the IRE Executive Secretary, who shall have the discretion to refuse such permission if the intended use of the emblem does not meet ethical and professional standards.
6. The emblem of the IRE is protected by trademark registrations and shall be reproduced only in connection with official business of the IRE or to indicate professional membership status in the IRE.
7. Emblems purchasable from IRE Headquarters may be worn by members.
8. Assertion of IRE membership by members is authorized, including the right to use the following abbreviations:
   Fellow IRE
   Sen. Mem. IRE
   Mem. IRE
   Assoc. IRE
9. Every member of the IRE shall receive the PROCEEDINGS OF THE IRE.
10. Every Student member shall receive the IRE STUDENT QUARTERLY.

203. *Qualifications*

1. Fellow: The grade of Fellow is one of unusual professional distinction and shall be conferred only by invitation of the Board of Directors upon a person of outstanding and extraordinary qualifications and experience in the fields of electronics, radio, allied branches of engineering or the related arts and sciences, who meets the requirements for Senior Member as stated in these Bylaws and who has been a member in any grade for a period of five years preceding the year of nomination, except that the five-year provision in any individual case may be waived for cause by the Board of Directors.
2. Senior Member is the highest professional grade for which application may be made and shall require experience or attainment reflecting professional maturity. For admission or transfer to the grade of Senior Member, a candidate shall be an engineer, scientist, technical executive, or teacher, in the fields of electronics, radio, allied branches of engineering or the related arts and sciences; as such, he shall have been in the active practice of his profession for at least ten years and shall have attained distinction as measured by performance over a period of at least five of these years, such performance including one or more of the following:
   a. Publication of important original engineering or scientific papers, books or inventions, or
   b. Technical direction with evidence of accomplishment of important scientific or engineering work, or
   c. Creative contributions to the welfare of the scientific or engineering profession, or
   d. Establishment or furtherance of important scientific or engineering courses in a school of recognized standing, or
   e. Contributions equivalent to those of "a" to "d" above in such areas as technical editing, patent prosecution or patent law, provided these contributions serve to advance progress substantially in the fields of electronics, radio, allied branches of engineering or the related arts and sciences.
3. Member is a professional grade limited to those who have demonstrated professional competence in the fields of electronics, radio, allied branches of engineering or the related arts and sciences. For admission or transfer to the grade of Member, a candidate shall be either:
   a. An engineer or scientist in the fields of electronics, radio, allied branches of engineering or the related arts and sciences, who shall have had at least three years of professional experience.
   b. A teacher of electronics, radio, allied branches of engineering or the related arts and sciences, for at least three years, who shall have held the rank of instructor or higher, and shall have participated in planning and conducting courses.
   c. A person regularly employed in the fields of electronics, radio, allied branches of engineering or the related arts and sciences, for at least six years who, by experience, has demonstrated competence in work of a professional character.
   d. An executive who, for at least six years, has had under his direction important technical, engineering or research work in the fields of electronics, radio, allied branches of engineering or the related arts and sciences.
4. Associate: For admission or transfer to the grade of Associate, a candidate shall be interested in the theory or practice of electronics, radio, allied branches of engineering or the related arts and sciences.
5. Under the membership grade of Student there shall shall be two classifications: Student, and Student Associate.
   a. For classification as a Student, a candidate shall be devoting a major portion of his time as a resident and registered student in a regular course of study in engineering or science in a school of recognized standing.
   b. For classification as a Student Associate, a candidate shall be devoting a major portion of his time as a resident and registered student in a regular course of study in electronics, radio, allied branches of engineering or the related arts and

sciences, in a school, other than a school of recognized standing, approved by the Executive Committee.

6. Membership in the Student grade shall not extend more than six months beyond the termination of his student status as described in these Bylaws.
7. Graduation from a course of study of at least four years duration in electronics, radio, allied branches of engineering or the related arts and sciences, in a school of recognized standing, may be accepted as equivalent to three years' professional experience in those fields.
8. Graduation from a course of study of at least two years' duration in electronics, radio, allied branches of engineering or the related arts and sciences, in a school, other than a school of recognized standing, approved by the Executive Committee, may be accepted as equivalent to one year's professional experience in those fields.
9. Full-time graduate work, or part-time graduate work with teaching or research, in the fields of electronics, radio, allied branches of engineering or the related arts and sciences, in a school of recognized standing, may be accepted as equivalent to professional experience.
10. The time requirements for admission or transfer to any grade of membership may be satisfied by applying *pro rata* the experience of the candidate under the various alternative requirements for the grade.

204. *Applications*

1. Applicants for membership shall furnish names of references as follows:
   For Senior Member—Five Fellows or Senior Members.
   For Member—Four Fellows, Senior Members or Members.
   For Associate—Three Fellows, Senior Members, Members, Associates or other responsible individuals.
   For Student—The IRE Representative at his school, if such a Representative exists; otherwise, a member of the faculty of his school.
2. When an applicant for Senior Member or Member shows that his work or location is such as to make impracticable compliance with the reference requirements of these Bylaws, the names of persons who are familiar with his professional work may be substituted. The Admissions Committee shall exercise discretion in determining suitability of substitute references.
3. Applications for admission or transfer to any grade of membership, except Fellow, shall be addressed to the Board of Directors and submitted to IRE Headquarters. Recommendation of election or transfer of an applicant to any grade, except Fellow, shall be by two-thirds affirmative vote of the Admissions Committee.
4. A re-application for admission or transfer to a particular grade may be made after the expiration of one year from the date of a rejection.
5. The Executive Committee is authorized to act for the Board of Directors in electing members, readmitting members or transferring their membership grades, except where involving Fellow grade, and may waive application and reference requirements in the transfer of members from Student to Associate or Member grade. The Board of Directors may, under special circumstances, waive reference requirements.

205. *Proposals*

1. Each year, the Fellow Committee shall recommend to the Board of Directors, nominees for Fellow grade not more than seventy-five in number. A citation summarizing the accomplishments of the nominee shall be a part of each recommendation.
2. Admission or transfer to any grade except Fellow may be proposed by any member acting as sponsor by supplying to the Admissions Committee sufficient information and testimonials from the required number of references to satisfy the Admissions Committee as to qualifications. Such proposals shall be acted upon by the Admissions Committee and, if approved, transmitted to the Executive Committee. If approved by the Executive Committee, an invitation blank shall be sent to the proposed member inviting him to accept the grade of membership proposed, which membership shall become effective automatically and immediately upon his supplying the biographical and professional information required and paying the necessary dues and fees. The name of an invitee shall be placed on the mailing list for the PROCEEDINGS OF THE IRE immediately upon receipt of dues and fees.

206. *Admissions and Transfers*

1. The entrance fee for all grades shall be three dollars ($3) except that there shall be no entrance fee for the Student grade. The Board of Directors may, under special circumstances, waive the entrance fee.
2. No entrance fee shall be charged any non-IRE member of a Joint Student Branch or Joint Student Associate Branch, who is a student member of another national engineering society which is a sponsor with IRE of the Joint Student Branch or Joint Student Associate Branch, and who applies for admission to membership in the IRE within six months after the termination of his student status.
3. There shall be no transfer fees. A notice of approval of a transfer shall be sent to the member. A member whose grade of membership is changed during his annual dues period shall be billed *pro rata* for the remainder of that period.
4. The name of every person newly-admitted or transferred to the grade of Senior Member, Member or Associate shall be published in the PROCEEDINGS OF THE IRE.
5. When an applicant for membership is elected, the membership period shall be dated as of the first day of the first month following receipt of application, if received on or before the nineteenth day of the month, or as of the first day of the second month following receipt of application, if received after the nineteenth day of the month.
6. The entrance fee and dues are payable on notification of election and if not received within six months from notification, the election shall be considered void.
7. A notice that he has been elected shall be sent to every newly-admitted member together with a bill for entrance fee and dues, if not previously paid, dues being computed for the annual period concurrent with the membership period. Entrance fee or dues remaining unpaid, additional bills shall be sent the newly-elected member two months and four months after notification of election, in the last instance accompanied by a warning that the election will be considered void if the entrance fee and dues are not received within six months of notification of election.

207. *Dues*

1. Every member's annual dues period and the period during which he shall receive at least one IRE publication shall run concurrently with his membership period. The annual dues shall be payable in advance at the beginning of the annual dues period.
3. The annual dues shall be ten dollars ($10) for the first three years of IRE membership in any grade other than Student, and fifteen dollars ($15) for each succeeding year. The annual dues for Student grade shall be five dollars ($5).
4. Dues shall be waived for all IRE members who have both attained the age of sixty-five (65) years and who have been IRE members for at least thirty-five (35) years.
5. Under exceptional circumstances, such as inability of a member to remit dues due to wartime conditions, the Board of Directors may, if it waives dues, also declare that during the period of such waiver, the member has maintained continuous membership.

208. *Billing, Termination, and Reinstatement*

1. A bill covering his dues for the following year shall be mailed to every member not later than one month prior to the beginning of his annual dues period. A second bill shall be mailed after a lapse of two months to every member whose dues remain unpaid. There shall be mailed with the second bill a notice that, if the member's dues remain unpaid for four months, it shall be the duty of the Executive Secretary, in accordance with the Bylaws of the IRE, to notify the member that his membership has terminated.
2. After a member has been in arrears four months, his membership shall terminate and his name shall be removed from the roll of membership. Every such person shall be mailed a notice to the effect that, according to the Bylaws of the IRE, his membership in the IRE has in fact terminated. Accompanying the notice of termination shall be a final bill, with the suggestion that the former member pay the bill and resume his membership.
3. Membership so terminated may be resumed on payment of all dues in arrears, or on payment of a new entrance fee and current dues.
4. On resuming membership and paying dues in arrears, a member may receive available copies of the PROCEEDINGS OF THE IRE during the period covered by the back dues. A rebate of 25 cents per copy shall be made in lieu of copies not available.
5. The mailing of bills or statements to the last known address of a member shall be considered a valid notice of indebtedness.

209. *Resignations*

1. A member in good standing may resign by submitting a written resignation to the Secretary.
2. Subject to the approval of the Executive Committee, a resigned member may resume his membership upon payment of current dues.

210. *Severances*

1. To initiate action toward expulsion of a member, a written complaint must be submitted to the Board of Directors which, if it deems the reason sufficient, shall notify the accused by letter of the charges against him and of the place and date of a hearing to consider such charges which shall be held not less than thirty days after mailing of the notice. The accused may present his defense in person, in writing, or by an authorized representative. There shall be a majority of the members of the Board present at the hearing and the votes cast must be unanimous in order to expel. The action of the Board of Directors shall be final and conclusive.

300. GROUPS OF MEMBERS

301. *Regions*

1. The United States shall be divided into seven geographical Regions which shall be given consecutive numbers for identification. There shall be an additional Region which shall consist of all of Canada.
2. When new Regions are established, or when changes are made in Regional boundaries, the changes shall be made effective so that no Regional Delegate-Regional Director shall have his term shortened by such changes.
3. Each Region shall have a Regional Committee which shall consist of at least the Regional Director, the junior past Regional Director, the Chairman of the Regional Education Committee and two representatives of each Section in the Region, one of these to be the Chairman of the Section and the other to be appointed by the Section's Executive Committee from among a group comprised of the junior past Chairman and the present elected officers of the Section. Each member of the Regional Committee shall be, ex-officio, a member of the Executive Committee of his own Section. In case of necessity, a Section may be represented at a Regional Committee meeting by alternates appointed by the Section Executive Committee.
4. Each Region shall establish a Regional Education Committee to be responsible to the Regional Committee. It shall be concerned with the handling of all educational problems of the Region including Student Member and Student Branch operations, general supervision of student papers, contests and similar activities when held on a Regional basis, and the fostering and coordination of the educational activities of the Sections. The Regional Education Committee shall be composed of all IRE Representatives in colleges and technical institutes in the Region and all Education Committee members residing in the Region, ex-officio. The Chairman of this Committee is to be appointed from the Region membership by the Regional Director; his term of office shall correspond with that of the Regional Director; he shall be a member of the Education Committee, ex-officio, and a member of the Regional Committee, ex-officio.
5. Pending installation of the first Regional Director of a Region, the Chairman of the largest Section, numerically, in the Region shall act as Chairman pro-tem of the Regional Committee, and the Chairman pro-tem shall appoint a Secretary-Treasurer pro-tem.
6. The Regional Committee may include additional voting members not exceeding in number one-fourth of the above mandatory number of members representing the Sections in the Region. The purpose for such additional members shall be determined by the Regional Committee based upon each Region's individual requirements. Such additional members shall be appointed on a year-to-year basis by the Regional Director, subject to approval of the Regional Committee.
7. Each member of the Regional Committee shall be of Member, Senior Member or Fellow grade in the IRE. The term of office of each member other than the Regional Director and the junior past Regional Director shall be one year concurrent with the term of office of the Section officers. Vacancies, except for Regional Director, shall be filled by appointment of the Section Executive Committee in which the vacancy exists.

8. The Regional Director shall be Chairman of the Regional Committee and shall appoint one or more Vice Chairmen from among the membership of the Committee. The Chairman of the Regional Committee shall appoint a Secretary-Treasurer from among the membership of the Region for a two-year term concurrent with that of the Chairman. The duties of the Secretary-Treasurer shall include correspondence, the keeping of the minutes of the Committee meetings, mailing notices, handling of funds, the keeping of financial records, the submission of a report at the end of each year and such other duties as are assigned to him by the Chairman. The Secretary-Treasurer shall not be a voting member of the Committee unless he shall be appointed a voting member for a term of one year by the Regional Director, subject to the approval of the Regional Committee.
9. The Regional Committee shall hold at least one meeting each year, within or without the Region. A quorum for a Regional Committee meeting shall consist of at least one-third of the members of the committee or their alternates and shall include representatives from at least half of the Sections in the Region. The Regional Director or, in the event of his unavailability, a Regional Committee Vice Chairman, shall be responsible for calling the necessary number of Regional Committee meetings.
10. The duties of the Regional Committee shall include the making of at least one nomination for Regional Delegate-Regional Director from its Region during election years, participation in the development of the IRE by means of suggestions on national and international matters to the Board of Directors and on Regional and Sectional matters to the Sections comprising the Region.
11. Regions failing to maintain reasonable activity may be dissolved and the Sections therein may be absorbed into other Regions the boundaries of which are to be correspondingly altered.

302. *Sections*

1. There shall be established throughout the territory in which IRE conducts operations groups of members residing in specified geographical districts designated as Sections.
2. A petition for the formation of a Section within the IRE Regional organization shall be signed by not fewer than twenty-five members other than Students, having mailing addresses within the territorial limits proposed in the petition. The territorial limits shall be specifically delineated.
3. A petition for the formation of a Section outside of the IRE Regional organization shall be signed by not fewer than ten members, other than Students, having mailing addresses within the territorial limits proposed in the petition. The territorial limits shall be specifically delineated.
4. The Executive Committee, upon receipt of a petition for the creation of a Section, may authorize its formation. Each Section so authorized shall within not more than six months thereafter adopt and conform to a Section Constitution approved by the Executive Committee, which Section Constitution shall provide for a Chairman, Secretary-Treasurer and a Section Executive Committee. After the Section is organized and a Section Constitution has been adopted, the Executive Committee may give final approval to its establishment.
5. Each Section shall conduct its activities within the Constitution and Bylaws of the IRE and other rules which by law affect the membership and activities of the IRE.
6. Sections outside the IRE Regional organization shall be represented on the Board of Directors by the senior past President in his capacity as a Director.
7. No Section or any officer or representative thereof shall have any authority to contract debts for, pledge the credit of, or in any way bind, the IRE.
8. All Sections shall be exclusively those of the IRE. No Section joint with any other organization, society, or group shall be recognized. However, IRE Sections may cooperate with other organizations in the holding of joint meetings and may invite members of such organizations and the public to their meetings.
9. Section Secretaries shall forward to the Executive Secretary a report of each meeting held by the Section and its Subsections, if any, for the presentation or discussion of papers and at the end of each fiscal year, a financial statement for that fiscal year.
10. Failure of a Section to maintain the required activities, which shall include the holding of at least five meetings each year and also the maintenance of a minimum membership of twenty-five members, other than Students in a Section within the IRE Regional organization, and a minimum membership of ten members, other than Students, in a Section outside of the IRE Regional organization, shall place the Section on probation. All members of the Section shall be informed of the probation by the Executive Secretary who shall also call their attention to the requirements for maintaining the Section. If the delinquency continues for a second year, a second notification to the Section membership shall be made by the Executive Secretary, and the Board of Directors shall be informed of the probationary status of the Section. If the delinquency continues for a third year, the Section shall, thereupon, automatically be dissolved. The Executive Secretary shall so report to the Board of Directors and so inform the members previously constituting that Section. The Board of Directors may waive the provisions herein regarding dissolution of a Section in case such Section becomes affected by war or any other force majeure, for the period of the duration thereof and for at least six months thereafter.
11. For the maintenance of a Section the IRE shall pay to the Section for each calendar year:
    a. One dollar and ten cents ($1.10) for each member, except Students, up to a total of seven hundred members plus one dollar and twenty-five cents ($1.25) for each member, except Students, in excess of a total of seven hundred; and
    b. Fifty cents ($.50) for each Affiliate of each and every Professional Group having a mailing address within the territory of the Section as of December 31 of the calendar year for which payment is made; and
    c. Ten dollars ($10) per meeting for not more than ten meetings of the Section within the calendar year.
12. Local noncompulsory financial contributions may be accepted by Sections.
13. The Board of Directors may dissolve any Section for any reason deemed sufficient by the Board of Directors.
14. Any Section that publishes a periodical shall inform the Executive Committee of the establishment thereof and shall provide IRE Headquarters with copies thereof, as published.

303. *Subsections*

1. In conformance with the Constitution for Sections, a Section may establish Subsections which shall be geographical subdivisions of the Section, subject to the same limitations and control as the Section itself, pursuant to the following conditions:
    a. In the case of Subsections to be formed in Sections within the IRE Regional organization, a petition shall be submitted to the parent Section Executive Committee signed by twenty or more members, except Students, with mailing addresses within the proposed territory of the Subsection;
    b. In the case of Subsections to be formed in Sections outside the IRE Regional organization, a petition shall be submitted to the parent Section Executive Committee signed by eight or more members, except Students, with mailing addresses within the proposed territory of the Subsection;
    c. Approval of the petition by the parent Section Executive Committee;
    d. Notification of the Executive Secretary of actions by a Section regarding Subsections with a copy of petition or petitions;
    e. Approval by the Executive Committee.
2. For each authorized Subsection, the IRE shall pay to the Section a meeting allowance of ten dollars ($10) per meeting up to a maximum of ten meetings per year, during the time the Subsection remains in good standing according to the Section Constitution.

304. *Professional Groups*

1. There shall be established within the scope and objectives of the IRE, groups of members interested in specific technical fields or related subjects, designated as Professional Groups.
2. A petition for the formation of a Professional Group shall be signed by not fewer than one hundred members, other than Students, shall state the proposed field of interest and shall be forwarded to the Executive Committee after review thereof by the Professional Groups Committee.
3. The Executive Committee, upon receipt of a petition to form a Professional Group, may authorize its formation. After the Group is organized and a Constitution for it is approved by the Executive Committee, the Executive Committee may give final approval to its establishment.
4. Each Professional Group authorized by the Executive Committee shall within not more than six months thereafter adopt and conform to a Professional Group Constitution which shall have been submitted to and approved by the Executive Committee. A Group Constitution may be amended by the Group subject to the approval of the Executive Committee. Such Group Constitution shall provide for a Group Chairman and a Secretary-Treasurer.
5. All Professional Groups shall consist exclusively of IRE members and such affiliates as may be recognized by the Executive Committee. No Professional Group joint with any other organization, society or group outside of the IRE shall be recognized. However, Professional Groups may co-operate with other organizations in the holding of joint meetings and may invite members of such organizations and the public to their meetings.
6. A Professional Group may not charge dues. A Professional Group may raise revenues by fees or other means approved by the Executive Committee.
7. For the maintenance of a Professional Group, the IRE shall pay a subsidy equal to one-third of the cost to the Group of printing and mailing all TRANSACTIONS, Newsletters and any other publications which are distributed to all paid members of a Group free-of-charge; and in addition, there shall be provided for each new Professional Group, matching funds of one dollar ($1) for each dollar of income derived by the Group from membership fees during the first two years.
8. All IRE members may become members of Professional Groups in conformance with the respective Group Constitutions.
9. All Professional Group meetings shall be open to all members of the IRE on an equal basis with Group members. Any IRE member or any Group Affiliate, upon payment of charges judged to be equitable by the Executive Committee, shall receive any notices of meetings of any Group.
10. A Professional Group may hold or join in holding conferences or conventions and may charge for registration; but a Group may not charge for registration at a meeting, conference or convention when it operates as part of an IRE Sectional, Regional, national, or international meeting, conference or convention.
11. All publications of Professional Groups, other than programs, notices, and the like, shall be subject to prior authorization of the Executive Committee and shall be made available to all IRE members and Group Affiliates on equitable bases approved by the Executive Committee.
12. Each Professional Group shall forward to the Executive Secretary a copy of each meeting notice of the Group, an annual report and a financial statement for each fiscal year prepared immediately following the end thereof.
13. No Professional Group or any officer or representative thereof shall have any authority to contract debts for, pledge the credit of, or in any way bind, the IRE.
14. Each Professional Group shall conduct its activities within the Constitution, Bylaws and other rules which by law affect the membership and activities of the IRE.
15. The Board of Directors may dissolve any Professional Group for any reason deemed sufficient by the Board of Directors.
16. Group Affiliates are non-IRE members who have been admitted by a Professional Group to some of the rights and privileges of Group membership. In general, a Group Affiliate must be a person whose professional life does not justify full membership in the IRE, but which may be helped by participation in Group activities or who may contribute benefits to Group members by his participation in their activities. The qualifications for Group Affiliation and the limits in rights and privileges shall be established by the Executive Committee.

305. *Professional Group Chapters*

1. A Professional Group Chapter may be established in a Section to function in the manner of a committee of a Section.
2. A petition to establish a Chapter must contain the following:
    a. Name of the Section.
    b. Name of the Professional Group.
    c. Name of the organizer (who becomes interim Chairman pending election of a regular Chairman at a later organization meeting).
    d. Signatures of at least ten IRE members, other than Students, who must indicate they are either members of the Professional Group involved, or

are prepared to become members if the petition is granted.

3. The petition for a Chapter shall be submitted to the Section Executive Committee for written approval and forwarded with this written approval to the Executive Secretary. The Executive Secretary shall endeavor to obtain written approval from the Executive Committee. Upon receiving approval, the existence of the new Chapter will be recorded at IRE Headquarters and the Section Executive Committee will be informed thereof.
4. For each Chapter, the IRE shall pay ten dollars ($10) to a Section for each meeting of the Section promoted by a Chapter up to five meetings per Chapter per year, provided such meeting is attended by ten or more Section members and a report of such meeting, including a statement of the number of members attending, signed by a Chapter officer, is forwarded to IRE Headquarters through the Section Secretary-Treasurer. A meeting of the Section promoted by a Chapter may be counted among the above five, or may be counted among the ten meetings of the Section as provided in these Bylaws, but not among both as such would result in duplicate payments for the same meeting.
5. A Chapter will be required to maintain the following activities:
   1. Hold not less than five meetings each year.
   2. Maintain a minimum membership of ten members.
6. Failure of a Chapter to maintain the required activities shall place the Chapter on probation. The Section Executive Committee and all members of the Chapter shall be informed of a condition of probation by the Executive Secretary who shall also call their attention to the requirements for maintaining the Chapter. If the delinquency continues throughout a second year, a second notification shall be issued by the Executive Secretary. If the delinquency continues throughout a third year, the Chapter shall, thereupon, automatically be dissolved. The Executive Secretary shall so report to the Executive Committee and inform the Section Executive Committee and the members previously constituting that Chapter, of the dissolution. The Executive Committee may waive the provisions herein regarding dissolution of a Chapter in case such Chapter becomes affected by war or any other force majeure, for the period of the duration thereof and for at least six months thereafter.

306. *Student Branches*

1. There shall be established throughout the territory in which IRE conducts operations, groups of Student members residing in specified geographical localities, designated as Student Branches.
2. There shall be established IRE Representatives who shall be IRE members and teachers of electronics, radio, allied branches of engineering or the related arts and sciences, at schools or technical institutes eligible for IRE Student members, and who shall be appointed and released by the Executive Committee. Each such IRE Representative is charged with promoting the welfare of the IRE at his school, particularly in matters relating to the Student membership.
3. Upon receipt of a petition signed by the IRE Representative, or in the event one has not been appointed, by a representative of the faculty of the school involved, and by fifteen or more IRE members who are students in a school of recognized standing, the Executive Committee may authorize the establishment of an IRE Student Branch in that school.
4. Upon receipt of a petition signed by the IRE Representative, or in the event one has not been appointed, by a representative of the faculty of the school involved, and by fifteen or more IRE members who are students in a school, other than a school of recognized standing, approved by the Executive Committee, the Executive Committee may authorize the establishment of an IRE Student Associate Branch in that school.
5. Each IRE Student Branch and each IRE Student Associate Branch shall adopt and conform to a Student Branch Constitution which shall have been submitted to and approved by the Executive Committee and which shall provide for a Chairman and a Corresponding Secretary.
6. The IRE, by action of the Executive Committee, may join with another national engineering or technical society to co-sponsor a Joint Student Branch in a school of recognized standing or a Joint Student Associate Branch in a school, other than a school of recognized standing, approved by the Executive Committee. The petition for the establishment of the Branch must be signed by the IRE Representative, or in the event one has not been appointed by a representative of the faculty of the school involved, and by ten or more members of either society, at least twenty-five per cent of which petitioners must be IRE members.
7. Each Joint Student Branch and each Joint Student Associate Branch shall adopt and conform to a Joint Student Branch Constitution which shall have been submitted to and approved by, both the Executive Committee and the other co-sponsoring society and which shall provide for a Chairman and a Corresponding Secretary.
8. No IRE Student Branch, IRE Student Associate Branch, Joint Student Branch or Joint Student Associate Branch, or any officer or representative thereof shall have any authority to contract debts for, pledge the credit of, or in any way bind the IRE.
9. Each IRE Student Branch, IRE Student Associate Branch, Joint Student Branch and Joint Student Associate Branch Corresponding Secretary shall forward to the Executive Secretary a report of each meeting held by the Branch for the presentation or discussion of papers, and, during June of each year, a financial statement for the preceding year.
10. An IRE Student Branch, IRE Student Associate Branch, Joint Student Branch or Joint Student Associate Branch may collect dues from its members as provided in its constitution and, in addition, may accept local non-compulsory financial contributions.
11. Failure of an IRE Student Branch or IRE Student Associate Branch to maintain a minimum of ten IRE Student members and to hold at least three meetings each year shall place the Branch on probation. All officers of the Branch and the IRE Representative, or in the event one has not been appointed, a representative of the faculty of the school or institute involved, shall be informed of the probation by the Executive Secretary who shall also call to their attention the requirements for maintaining the Branch. If the delinquency continues for a second year, the IRE sponsorship shall be withdrawn automatically. The Executive Secretary shall so report to the Executive Committee and the Board of Directors and so inform the former officers of the dissolved Branch and the IRE Representative.

12. Failure of a Joint Student Branch or Joint Student Associate Branch to maintain a minimum of ten Student members, of which at least twenty-five per cent must be IRE Student members, and to hold at least three meetings each year shall be reported by the Executive Secretary to the Executive Committee.
13. For maintenance of an IRE or Joint Student Branch upon certification by the IRE Representative or, in the event one has not been appointed, by a representative of the faculty of the school where the Branch is located, the IRE shall pay to each such Branch upon request the sum of twenty-five dollars ($25) for any one school year; and shall also pay to each such Branch the sum of one dollar ($1) for each IRE Student member of the Branch as of November fifteenth of each year and the sum of fifty cents ($.50) for each additional IRE Student member of the Branch as of the following February first.
14. For maintenance of an IRE or Joint Student Associate Branch, upon certification by the IRE Representative or, in the event one has not been appointed, by a representative of the faculty of the school where the Branch is located, the IRE shall pay to each such Branch upon request the sum of fifteen dollars ($15) for any one school year; and shall also pay to each such Branch the sum of fifty cents ($.50) for each IRE Student member of the Branch as of November fifteenth of each year and the sum of twenty-five cents ($.25) for each additional IRE Student member of the Branch as of the following February first.
15. The Executive Committee may dissolve an IRE Student Branch or IRE Student Associate Branch, or withdraw its sponsorship and support of a Joint Student Branch or Joint Student Associate Branch for any reason deemed sufficient by the Executive Committee.

400. ANNUAL ASSEMBLY

401. *How Constituted*

1. The annual Assembly shall consist of nine Delegates-at-large elected by the membership-at-large and eight Regional Delegates elected respectively by the members residing in the eight Regions of the IRE, making a total of seventeen.
2. The nine Delegates-at-large shall comprise the President, the senior past President, the junior past President, and six additional Delegates-at-large. The six additional Delegates-at-large shall serve three-year terms. Two of the six shall be elected each year so that the terms of two of the six additional Delegates-at-large shall expire each year.
3. The Delegates elected by Regions shall be members of and reside in the Regions electing them and shall have terms of office of two years, the Delegates from even-numbered Regions being chosen and elected in even-numbered and those from odd-numbered Regions in odd-numbered years. A vacancy shall occur in the office of Regional Delegate at such time as the incumbent ceases to reside in the Region that elected him.
4. All Delegates, both Regional Delegates and Delegates-at-large, shall be elected Directors by virtue of their election as Delegates and shall serve terms as Directors concurrent with their terms as Delegates.
5. The presiding officer of the annual Assembly, as provided by the Constitution, shall be the newly-elected President.
6. Prior to the election of the Secretary or in the event of his absence, the Executive Secretary shall perform the secretarial functions.

402. *Meetings*

1. The annual Assembly of the IRE, required to be held during January of each year, shall be held as early in that month as feasible, at IRE Headquarters. Notice of time and place shall be mailed not less than thirty days in advance. In the case of extraordinary circumstances, a special meeting of the Assembly or the designation of a place of meeting for the annual Assembly other than IRE Headquarters may be authorized by a two-thirds vote of those present at a regularly constituted meeting of the Board of Directors held at least thirty days in advance of the date of such specially designated meeting.
2. A meeting of the Assembly may be held without notice if waivers of notice signed by all of the Delegates are filed with the Secretary with notation thereof entered in the minutes of the meeting.
3. Ten Delegates shall constitute a quorum at meetings of the Assembly.
4. Any notices of meetings or other official business required by the Constitution or these Bylaws to be mailed to Delegates shall be sent by airmail if the addresses are located at places beyond the continental United States or Canada, or at any place where ordinary mail might be unusually slow and airmail more expeditious.
5. Reimbursement of necessary travel expenses incurred by Delegates for the purpose of attending any special or extraordinary meeting of the Assembly not associated with a meeting of the Board of Directors held contiguously with it, is authorized.

403. *Functions*

1. The annual Assembly shall elect six additional Directors for the required term of office of one year. Three of these Directors shall also be elected Corporate Officers, respectively designated as the Secretary, the Treasurer and the Editor. The annual Assembly shall also elect such alternate Directors as may be necessary to insure the attaining of a total number of six Directors including the three Corporate Officers, in the event that consent to serve by any of the electees cannot be secured prior to the conclusion of that Assembly meeting.
2. The annual Assembly shall receive reports, verified by the President and Treasurer, or by the Board of Directors, showing the amount and status of real and personal property owned by the IRE, its fiscal condition, changes in membership, changes in groups of members and other vital statistics, all of which are to be as of the most recent date available from the records kept by the Officers. These reports shall be filed with the records of the IRE and abstracts thereof entered in the minutes of the proceedings of the Assembly.

500. MANAGEMENT

501. *Board of Directors*

1. The Board of Directors shall consist of eleven Directors-at-large elected by the membership-at-large, eight Regional Directors elected respectively by the members residing in the eight Regions of the IRE and six Directors elected by the annual Assembly, making a total of twenty-five.
2. The Directors-at-large shall comprise the President,

the senior past President, the junior past President, the two Vice Presidents and six Directors elected for three year terms. Two of the six shall be elected each year so that the terms of two of the six Directors shall expire each year.

3. The Directors elected by Regions shall be members of and reside in the Regions electing them and shall have terms of office of two years, the Directors from even-numbered Regions being chosen and elected in even-numbered, and those from odd-numbered Regions in odd-numbered years. A vacancy shall occur in the office of Regional Director at such time as the incumbent ceases to reside in the Region that elected him.
4. The annual meeting of the Board of Directors, required to be held during January of each year, shall be held immediately after the adjournment of the annual Assembly and at the same place. Notices thereof shall be mailed at the same time that notices are mailed for the annual Assembly.
5. At the annual meeting, the Board shall determine the time and place of other meetings to be held throughout the year, which normally shall be scheduled for the first Wednesday of May, the first Wednesday after the second Monday of September and the first Wednesday after the second Monday of November.
6. The time and place of any scheduled Board meeting may be altered or the meeting cancelled only by consent of a majority of all Directors secured by or transmitted to the Secretary, not less than twenty days before the original date or the new date set for the meeting, whichever is the earlier. Notice of such approved change shall be mailed to all Directors not less than ten days before the original or the new date, whichever is the earlier.
7. Special meetings of the Board of Directors may be called by any five Directors on notice to all other Directors. Notice of such special meetings giving the time and place of meeting, the purpose of the meeting and the names of the Directors calling the meeting shall be mailed to all Directors not less than twenty days before the date set for the special meeting. The place of such special meetings may be only at IRE Headquarters unless otherwise authorized by a majority vote of all Directors, such vote to be secured by or transmitted to the Secretary.
8. In the absence or incapacity of the Secretary, the Executive Secretary shall perform the secretarial functions.
9. A meeting of the Board of Directors may be held without notice if waivers of notice signed by all of the Directors are filed with the Secretary with notation thereof entered in the minutes of the meeting.
10. Notices of meetings and any other documents required to be sent to Directors pursuant to provisions of the Constitution and these Bylaws shall be sent by airmail if the destination is beyond the continental United States or Canada, or at any place where ordinary mail might be unusually slow and airmail more expeditious.
11. Twelve Directors shall constitute a quorum at meetings of the Board of Directors.
12. Reimbursement of necessary travel expenses incurred by Directors for the purpose of attending meetings of the Board of Directors, the Executive Committee and meetings taking place during the IRE International Convention and Radio Engineering Show is authorized.
13. The Board of Directors may appoint or direct the appointment of representatives of the IRE on joint committees, boards and other local, national and international bodies.

502. *Executive Committee*

1. The Board of Directors at its annual meeting shall appoint an Executive Committee composed of Officers and Directors, to exercise powers and assume duties of management as directed by the Board of Directors and as may be outlined in the Bylaws, subject to the following limitations:
   a. That the Board of Directors may at any meeting overrule any act or decision of the Executive Committee except insofar as any act has in fact been carried out, or
   b. Suspend at any meeting any power conferred upon the Executive Committee, such suspension to remain in effect pending repeal of any Bylaw conferring such power, or
   c. Direct any action or plan of the Executive Committee.
2. The Executive Committee shall consist of eight members and shall comprise the President, the Vice President residing in North America, the junior past President, the Treasurer, the Secretary, the Editor and two other Directors. The President shall be Chairman, the Vice President shall be Vice Chairman and the Secretary shall be Secretary thereof.
3. At the first meeting of a newly-appointed Executive Committee, it shall schedule other meetings throughout the year. Minutes of the meetings of the Executive Committee shall be mailed to all Directors.
4. The terms of office of members of the Executive Committee shall begin with the annual meeting of the Board of Directors and shall continue until the succeeding annual Assembly.
5. The Executive Committee may divide its duties and responsibilities among its members as it sees fit and conduct its business as it finds necessary. Such activities as the Executive Committee shall direct shall be administered by the Executive Secretary.
6. The Executive Committee shall be responsible for the management of IRE Headquarters. The Executive Committee shall prepare and present an annual budget to the Board of Directors for approval.
7. The Executive Committee shall be charged with broadly considering IRE policies and making appropriate recommendations to the Board of Directors on its own initiative.
8. The Executive Committee shall appoint, direct and coordinate the work of all Standing Administrative Committees except those appointed directly by the Board of Directors.
9. The Executive Committee shall appoint, direct and coordinate the work of all Standing Technical Committees.
10. The Executive Committee shall approve or disapprove the formation, dissolution and operation of groups of members.
11. The Executive Committee may authorize conventions, conferences and meetings of the IRE and approve their dates and locations.
12. The Executive Committee shall direct and manage IRE standardization activities, relations with other organizations, special activities, technical activities, advertising and publications.
13. The Executive Committee shall establish an office account, limited in size, the funds for which shall be made available from the funds received by the IRE by authorization of at least two Corporate Officers, as provided in the Constitution. Funds shall be withdrawn from the office account only by authorized bonded employees of the IRE.

503. *Officers*

1. As provided in the Constitution, the Corporate Officers of the IRE shall be a President, two Vice Presidents, a Secretary, Treasurer and an Editor.
2. As provided in the Constitution, the President shall be elected by the voting members by virtue of which election he shall also be a Delegate-at-large and a Director-at-large. His term as President shall be one year but his term as Delegate-Director shall be three years.
3. There shall be two Vice Presidents of the IRE who shall be elected by the voting membership for terms of office of one year, by virtue of which election they shall also be Directors-at-large. One of these shall be a member residing in North America who, by reason of availability and qualifications, is able effectively to assist the President in the performance of his presidential duties, and the other shall be a member residing elsewhere than in North America. Both Vice Presidents shall serve terms as Directors concurrent with their terms as officers.
4. The Vice President residing in North America shall take precedence as regards assumption of presidential duties as provided in the Constitution.
5. The Secretary, Treasurer and Editor shall be elected by the annual Assembly by virtue of which election they shall also be Directors. The terms of the Secretary, Treasurer and Editor shall be one year and their terms as Director shall also be one year.
6. Reimbursement of necessary travel expenses of the President, incurred for the performance of his IRE duties other than his duties as Delegate or Director, is authorized. Reimbursement of necessary travel expenses of the Vice President residing in North America, incurred for the performance of his IRE duties other than his duties as Director, is authorized.
7. Incapacity of the President to perform his duties and the length of time such incapacity may continue shall be determined by the Board of Directors, or by the Executive Committee, if the incapacity occurs at a time when it is not feasible to convene a meeting of the Board and there is need for action. The President, however, may declare a condition of incapacity and the duration thereof by written communication to the Secretary, in which event the Secretary shall notify the Vice President residing in North America, to assume the presidential duties and the Secretary shall take such other action as provided in the Constitution if that Vice President is unavailable or incapacitated.
8. A vacancy among the Corporate Officers and the duration thereof shall be determined by the Board of Directors which may fill such vacancy as provided by the Constitution. If a vacancy occurs among the Corporate Officers at a time when it is not feasible to convene a meeting of the Board of Directors and there is need for action, the Executive Committee shall make such determination and fill such vacancy if the approval of a majority of all the Directors is secured by mail or telephone, such approval to be recorded by the Secretary with the names of the approving Directors.
9. The President shall determine the extent of the assistance to be rendered him by the Vice President charged with the duty of assisting the President.
10. The Secretary shall prepare an Annual Report on membership, meetings and IRE activities, to be submitted to the Board of Directors.
11. The Treasurer shall cause to be prepared an annual audit of the affairs of the IRE by certified public accountants and a report thereof submitted to the Board of Directors. The Treasurer shall also make a report to the Executive Committee semi-annually concerning the status of the IRE investments. The Treasurer, before making changes in the IRE portfolios, shall report the proposed changes to the Executive Committee and obtain its approval.

504. *Committees*

1. The IRE shall have Standing Committees each of which shall normally consist of five or more persons. These shall be classified as Standing Administrative Committees and Standing Technical Committees. Each Standing Committee shall have the right to create subcommittees of its own selection.
2. The Standing Administrative Committees shall be:

   Admissions
   Awards
   Editorial Board
   Education
   Fellow
   Finance
   History
   Nominations and Appointments
   Policy Study
   Professional Groups
   Tellers

   The Awards, Fellow, Nominations and Appointments, Policy Study and Tellers Committees and the Editorial Board shall be appointed by and be advisory to the Board of Directors. The others shall be appointed by and be advisory to the Executive Committee. The appointments to these committees, except the Nominations and Appointments Committee, shall start with the first day following appointment and shall continue until the date of the succeeding terms of appointments take effect.
3. The Standing Technical Committees shall be:

   Antennas and Waveguides
   Audio and Electroacoustics
   Circuits
   Electron Tubes
   Electronic Computers
   Facsimile
   Feedback Control Systems
   Industrial Electronics
   Information Theory and Modulation Systems
   Measurements and Instrumentation
   Medical Electronics
   Mobile Communication Systems
   Navigation Aids
   Nuclear Techniques
   Piezoelectric and Ferroelectric Crystals
   Radio Frequency Interference
   Radio Receivers
   Radio Transmitters
   Recording and Reproducing
   Reliability
   Solid State Devices
   Standards
   Symbols
   Television Systems
   Video Techniques
   Wave Propagation

   They shall be appointed by and be advisory to the Executive Committee; the appointments to them shall be made between January first and May first, and the terms of appointment shall be from May first of the year when the appointments are made through April thirtieth of the following year.

4. Additional appointments may be made to any standing committee to fill vacancies or to care for special cases as the need arises, but such appointments shall expire with the expiration of the term of the committee.
5. The functions and responsibilities of each Committee, together with rules for operation and guidance, shall be compiled by the Executive Secretary under the direction of the Executive Committee and contained in a document titled ". . . Committee Manual." Following appointment, each new member of a Committee shall be provided with a copy of the applicable Manual.
6. The Admissions Committee shall be responsible for advising the Executive Committee as to the admission and transfer of applicants to the professional grades of Senior Member and Member. It shall be concerned with determining whether the applicants meet the requirements of the Constitution and the Bylaws, functioning primarily as a jury and acting as a guardian of the membership standards of the IRE. As far as possible, its meetings shall be held just prior to the scheduled meetings of the Executive Committee in the interest of expediting the processing of applications. Members of the Admissions Committee shall be of Fellow or Senior Member grade.

   Applications for the grades of Associate and Student shall be handled by IRE Headquarters and periodic reports shall be made to the Executive Committee by the Executive Secretary.
7. The Awards Committee shall be responsible for making recommendations to the Board of Directors for the following IRE Awards:
   a. Medal of Honor
   b. Founders Award
   c. Memorial Prize Award in Memory of Morris Liebmann
   d. Memorial Prize Award in Memory of Browder J. Thompson
   e. Memorial Prize Award in Memory of Harry Diamond
   f. Prize Award by W. R. G. Baker
   g. Prize Award by Vladimir K. Zworykin

   The specifications for all of these awards shall be set forth in the Awards Committee Manual.

   The Awards Committee shall also be responsible, in odd-numbered years, for making a recommendation to the Board of Directors on the Norman W. V. Hayes Memorial Award of The Institution of Radio Engineers, Australia.

   The Board of Directors may assign other matters concerning IRE awards to the Committee.

   The Awards Committee shall consist of twelve members chosen from among those of Fellow grade, eight being selected so that each of the eight Regions will have representation. The twelve members shall be appointed for a term of one year, as well as the Chairman, who shall be appointed from among the twelve members.
9. The Editorial Board shall be advisory to the Board of Directors concerning all matters of editorial policy, the publication of the PROCEEDINGS OF THE IRE, including policy determination of its editorial and technical content, the general publication policies for IRE publications, including the IRE DIRECTORY, the TRANSACTIONS of the Professional Groups, the IRE STUDENT QUARTERLY and the IRE INTERNATIONAL CONVENTION RECORD.

   The Editorial Board shall consist of the Editor as Chairman, a Vice Chairman, the Managing Editor if such position exists, and not less than three nor more than five other members.
10. The Education Committee shall be a policy advisory group for the IRE in the field of education and shall report to the Executive Committee at periodic intervals concerning the status of and proposals affecting that field. These reports shall be simultaneously circulated to the members of the Board of Directors.

    The Committee shall study the needs of electronic engineering education in all areas, including the high schools, the universities and the technical institutes, determine whether the general area of electronics and basic electrical engineering is adequately covered in the colleges of the nation and consider a possible policy for accreditation if deficiencies are found.

    The Committee shall consider the needs of the profession in graduate education, and shall guide IRE policy in recognizing and promoting graduate work in electronics. Means whereby the IRE may improve the educational status of its members in general shall also be suggested.

    The Committee shall closely follow the use of electronics in education and shall make recommendations concerning means of promoting electronics as a teaching and learning medium in the schools and universities. The Committee shall consider and make recommendations concerning IRE policies and activities for the Student members and Student Branches.

    The Committee shall establish appropriate standing subcommittees, such as Student Branch, Graduate Education, Accreditation and for other areas where appropriate to carry out its responsibilities more adequately.

    The Committee shall seek contributions to the formulation of policy recommendations from the Professional Group on Education, encouraging that Group to provide for exchange of information through seminars and publications and for discussion of educational philosophy, problems and methods.

    The membership of the Education Committee shall include, ex-officio, the Chairmen of the Regional Education Committees and members-at-large not to exceed the number of ex-officio members.
11. The Fellow Committee shall be responsible for making recommendations to the Board of Directors for nominees to be conferred the grade of Fellow. The Committee shall also provide a citation for each such nominee. The recommendations may not exceed a total of seventy-five in any one year, approximately five thereof to be allocated for nominees residing elsewhere than in North America. Sources from which nominations of candidates and other useful information shall be obtained shall be set forth in the Fellow Committee Manual.

    The Fellow Committee shall consist of twelve members chosen from among those of Fellow grade, eight being selected so that each of the eight Regions will have representation. Six of the twelve members shall be appointed each year for terms of two years each. A Chairman shall be appointed from among the twelve members to serve for a term of one year.
12. The Finance Committee shall consist of not more than five members of the Board of Directors and shall include the Treasurer, ex-officio. The Chairman of the Finance Committee shall be chosen from among the members of the Executive Committee.

    The Committee shall be responsible for periodically reviewing the fiscal affairs of the IRE concerning which it is to take the initiative for making recommendations to the Executive Committee when warranted. It shall review the annual budget in advance of its submission to the Executive Committee and the Board of Directors.
13. The History Committee shall be responsible for considering questions concerning historical matters in the fields covered by IRE activities, including assistance to the Editorial Board, assisting institutions of a public nature such as the Smithsonian Institution where helpful information is requested and can be secured, and for providing information and recommendations to the Executive Committee when pertinent.
14. The Nominations and Appointments Committee shall be appointed at the last meeting of the Board of Directors held prior to December tenth. Its membership shall be chosen from among those members of the Board of Directors whose terms continue through the following year and shall include two Directors who are currently serving the first year of their terms. Its membership may additionally include not more than two junior past Regional Directors.

    At least fourteen days before the next annual Assembly, the Nominations and Appointments Committee shall mail to the Delegates whose terms continue through the following year and to the new Delegates-elect, a list of candidates for the offices of Secretary, Treasurer, Editor and Directors to be elected by the annual Assembly.

    A list of candidates to fill vacancies that will exist among the chairmen and members of the Awards, Constitution and Laws, Executive, Fellow, Policy Study and Tellers Committees and the Editorial Board shall be sent to all of the Directors whose terms continue through the following year, to the new Directors-elect and to those candidates recommended by the Nominations and Appointments Committee for election as Directors by the annual Assembly.

    The Nominations and Appointments Committee shall also, subsequent to the termination of the fiscal year in which it was appointed, carry out the other provisions of these Bylaws. In addition, the Nominations and Appointments Committee shall recommend to the Board of Directors nominees for the Nominations and Appointments Committee to be appointed later in that year.
15. The Policy Study Committee shall be responsible for making studies and recommendations as the basis for the possible establishment of policies by the Board of Directors or for the taking of action by the Board of Directors for the good of the IRE. Such problems for study shall be referred to the Committee by the Board of Directors.

    The Policy Study Committee shall consist of the most recent past President, two Regional Directors serving the second year of their two-year terms and two Directors-at-large serving the second or third years of their three-year terms. In the event a Director is unable to serve out a term, the Board of Directors may appoint another Director who is serving the second or third year of his term. The Chairman of the Committee shall be the junior past President. Should the junior past President be unable to serve as Chairman, the Board of Directors shall appoint another member of the Committee as Chairman.
16. The Professional Groups Committee shall administer the formation and discontinuance of Groups. It shall also recommend to the Executive Committee the establishment or dissolution of a Group, provide a uniform Constitution, approve Bylaws for Groups involving specialized matters, provide a Manual of Instructions and develop the Group system to its fullest capacity consistent with a healthy growth, all within the limits of whatever framework the Executive Committee shall establish for the conduct of Groups.

    The Professional Groups Committee shall consist of the Chairman of each Professional Group, the President of the IRE, the Vice-President residing in North America, the Professional Groups Coordinator of the Executive Committee, the Technical Secretary and the Executive Secretary. The Professional Groups Committee shall additionally include a Chairman and a Vice-Chairman, neither of whom shall be an officer of any Professional Group.
17. The Tellers Committee shall be responsible to the Board of Directors for the supervision of the counting of ballots required to be obtained by the Constitution on questions submitted to the membership of IRE or to groups of members. The staff at IRE Headquarters will assist the Committee in the performance of its work. Reports by the Committee to the Board of Directors shall be signed by the Chairman of the Committee.
18. The Standards Committee shall be responsible for the coordination of the standardization activities of the Standing Technical Committees, the initiation of Standards activities, the establishment of the scope of activity of each Technical Committee and the rendering of final approval of all Standards evolved by the IRE prior to publication.
19. Scopes of Technical Committee activities, organization and membership, procedures and methods of coordination between them, and with other standardization bodies shall be compiled in a Manual for Technical Committees (including the Standards Committee).
20. The Chairman of each Standing Technical Committee shall be a member of the Standards Committee, ex-officio.

505. *Executive Secretary*
   1. The Executive Committee shall appoint an Executive Secretary and shall fix his tenure of office and determine his salary.
   2. The Executive Secretary shall be in charge of IRE Headquarters, its staff and operations, for which he shall be responsible to the Executive Committee.

506. *Nominations and Elections*
   1. The Secretary shall circularize all Section Chairmen and Secretaries before March first of each year requesting the submission of suitable names to be considered by the Nominations and Appointments Committee for the various elective offices.
   2. The Nominations and Appointments Committee shall submit the name or names of one or more candidates for the office of President and for the office of the Vice President residing elsewhere than in North America and the names of more than one candidate for each of the other elective offices.
   3. The Nominations and Appointments Committee shall transmit its list of proposed nominees to all Directors at least one week before the date at which the Board of Directors is expected to act upon them. Under normal conditions, this date is the first Wednesday of May.
   4. Each Regional Committee shall submit to the Board

of Directors, the name of at least one qualified nominee for the office of Regional Delegate-Regional Director at least one week before the date at which the Board of Directors is expected to act upon them. Under normal conditions, this date is the first Wednesday of May. To qualify, each candidate shall indicate to the Regional Committee his acceptance of the nomination.

5. Nominations by petition for the office of Regional Delegate-Regional Director may be made by the submission, by the date stated and according to the procedure outlined in the Constitution, of a petition signed by at least one per cent of the total number of voting members residing within the Region, as listed in the official membership records of the IRE at the end of the previous year, but in no case shall the number be less than one hundred.
6. During the period between August fourteenth and September first of each year, the Executive Committee is authorized to take any necessary actions on any petitions and to approve the ballot.
7. Each proposed nominee named by the Board of Directors shall be consulted, and, if he so requests, his name shall be withdrawn.
8. The list of nominees required to be submitted to all voting members by the Constitution shall contain at least one name for the office of President, at least one name for each of the two offices of Vice President, and at least four names for the two offices of Delegate-at-large-Director-at-large. The ballot going to each of the Regions where an election of a Regional Delegate-Regional Director is to take place shall also contain the names of all nominees for the office of Regional Delegate-Regional Director for that particular Region.
9. The ballot required by the Const ution shall contain the number of names for each office to be voted upon, and the names of the nominees for Regional Delegate-Regional Director shall be suitably identified by Region since these will be voted on only by the voting members of each Region involved. The names of the nominees for each office shall be arranged in alphabetical order. The ballots shall carry a statement to the effect that the order of the names is alphabetical for convenience only and indicates no preference.
10. Voting members shall vote for the candidates whose names appear on the list of nominees, by written ballots in plain sealed envelopes, enclosed within mailing envelopes marked "Ballot" and bearing the member's written signature. No ballots within unsigned outer envelopes shall be counted. No votes by proxy shall be counted. Only ballots arriving at IRE Headquarters before twelve o'clock noon on the last working weekday prior to October twenty-fifth shall be counted. Ballots shall be checked, opened and counted under the supervision of the Tellers Committee between October twenty-fifth and the first Wednesday in November. The result of the count shall be reported to the Board of Directors at its next succeeding meeting and the nominee for each office for which the election is being held, receiving the greatest number of qualified votes shall be declared elected. In the event of a tie vote, the Board of Directors shall choose between the nominees involved.

507. *Amendments*

1. Before an amendment to the Constitution is submitted to the voting members, it shall be reviewed by legal counsel designated by the Executive Committee and a written opinion secured that such amendment is in accordance with the laws under which the IRE is incorporated and operated.
2. Ballots for Constitutional amendments shall carry a statement of the time limit for return to IRE Headquarters. The ballots after marking shall be placed in plain sealed envelopes, enclosed within mailing envelopes marked "Ballot" and bearing the member's written signature. Only ballots with signed outer envelopes shall be counted. No votes by proxy shall be counted. Only ballots arriving at IRE Headquarters prior to the stated time limit shall be counted. The votes will be counted under the supervision of the Tellers Committee and the results reported to the Board of Directors at its next meeting.
3. A complete history of amendments shall be kept in the files of the IRE.

508. *Fiscal Year*

The fiscal year of the IRE shall be the calendar year.

600. PUBLICATIONS

601. *Periodicals*

1. The IRE shall publish a periodical named PROCEEDINGS OF THE IRE.
2. The IRE shall publish periodicals of the various Professional Groups named IRE TRANSACTIONS.
3. The IRE shall publish a periodical named IRE STUDENT QUARTERLY.

602. *Standards*

1. The IRE shall publish from time to time, in the PROCEEDINGS OF THE IRE, Standards concerning technologies encompassed within the scope of the objects of the IRE, which have been issued by its Standards Committee.

700. CONVENTIONS

701. *Annual Convention*

1. There shall be held annually in New York City in the month of March or as near thereto as possible, a convention named the IRE International Convention and Radio Engineering Show. The IRE shall be the sole sponsor.

Fill out this application in complete detail and mail with remittance to IRE Headquarters

THE INSTITUTE OF RADIO ENGINEERS, INC., 1 EAST 79 STREET, NEW YORK 21, N. Y.

Membership dues include $9.00 per year for the subscription to PROCEEDINGS, which amount is included in, but is non-deductible from dues.

APPLICATION FOR ASSOCIATE, MEMBER OR SENIOR MEMBER GRADES

Made under Sec. ..... Clause .....

TO THE BOARD OF DIRECTORS

Gentlemen: I hereby make application for Transfer / Admission to ☐ Associate ☐ Member ☐ Senior Member grade in The Institute of Radio Engineers on the basis of my training and professional experience given herewith and refer to the references named, WHO ARE PERSONALLY FAMILIAR WITH MY WORK.

I certify that the statements made in the record of my training and professional experience are correct and agree, if elected, that I will be governed by the Constitution of the IRE as long as I continue a member. Furthermore, I agree to promote the objects of the IRE so far as shall be in my power.

DATE _____ SIGN FULL NAME WITH PEN _____

Names of References

For Associate grade, the names of at least three Fellows, Senior Members, Members, Associates, or other responsible individuals are required.
For Member grade, the names of at least four Fellow, Senior Member or Member references are required.
For Senior Member grade, the names of at least five Fellow or Senior Member references are required.
In exceptional circumstances, the Admissions Committee may accept other references than those stipulated, provided they are thoroughly familiar with the ability and experience of the applicant.

SIGNATURES ARE NOT NECESSARY. PRINT OR USE TYPEWRITER

(Be sure reference qualifications are met.)

Name of Reference _____ Mail Address _____

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Entrance fee ..... $ 3.00
Annual dues ..... $ .....
Total remittance enclosed..... $ .....

DO NOT USE THIS SPACE

Receipt Acknowledged .....
Elected .....
No. (For office use).....
Notified .....

ADDRESS FOR *PROCEEDINGS* AND OTHER MAIL
Print or Use Typewriter

First Name _____ Middle Initial _____ Last Name _____

Street Address _____

City _____ Postal Zone _____ State (Country) _____

D-62

RECORD OF TRAINING AND PROFESSIONAL EXPERIENCE

(PLEASE LETTER OR TYPE ALL INFORMATION)

FULL NAME (First Name) (Middle Initial) (Family Name) | BIRTHPLACE (State or Country) | NATIONALITY (Of what country is applicant a citizen?) | DATE OF BIRTH

EDUCATION

SECONDARY SCHOOL | DATES

OTHER SCHOOLS (Names and dates)

COLLEGE OR UNIVERSITY (1) | DATES

MAJOR COURSE | DEGREES RECEIVED | DATE

COLLEGE OR UNIVERSITY (2) | DATES

MAJOR COURSE | DEGREES RECEIVED | DATE

PRESENT OCCUPATION

Title or Position | Firm or Organization Name | Address

Nature of Work Done by Firm or Organization

Nature of Your Work

PROFESSIONAL EXPERIENCE

Present occupation first, followed by previous experience. Indicate nature of your own work and clearly indicate degree of your responsibility for the particular work on which application is based. Please be *complete*. The Admissions Committee, which must review your application, can judge your qualifications *only* from the information you supply here.

DATES

List membership grade in other professional societies:

Continue on separate sheet, if necessary

CUT HERE

CUT HERE

INSTRUCTIONS

(1) Applicants for Associate and Member fill in (a). Sections b, c, d, e optional.

(2) Applicants for Senior Member fill in a, b, c, d, e where applicable.

(3) Use extra sheets wherever necessary.

(4) *Give dates* where applicable.

a. Publication of important original engineering or scientific papers, books or inventions. Give the number of any issued patents and indicate those in use.

b. Technical direction with evidence of accomplishment of important scientific or engineering work. *Give Dates.*

c. **Creative contributions to the welfare of the scientific or engineering profession**

d. **Establishment or furtherance of important scientific or engineering courses in a school of recognized standing**

e. **Contributions equivalent to those of 'a' to 'd' above in such areas as technical editing, patent prosecution, or patent law, provided these contributions serve to advance progress substantially in the fields of electronics, radio, allied branches of engineering or the related arts and sciences.**

CUT HERE

OFFICERS AND DIRECTORS, 1912–1961

Name	Office held
Akerman, Ben	Bd. of Dir., 1949–50.
Alexanderson, E.F.W.	Bd. of Dir., 1917–23; Pres., 1921; V. Pres., 1920.
Appleton, E. V.	Bd. of Dir., 1932; V. Pres., 1932.
*Armstrong, E. H.	Bd. of Dir., 1916–22, 1936–38.
Ashbridge, Sir Noel	Bd. of Dir., 1947; V. Pres., 1947.
*Austin, L. W.	Bd. of Dir., 1914–17; Pres., 1914.
Bailey, Austin	Bd. of Dir., 1940–42.
Bailey, S. L.	Bd. of Dir., 1943–55, 1961; Pres., 1949; Treas., 1948, 1961.
*Baker, W. R. G.	Bd. of Dir., 1940, 1946–60; Pres., 1947; Treas., 1951–60.
*Ballantine, Stuart	Bd. of Dir., 1935–37; Pres., 1935.
Barclay, A. P. H.	Bd. of Dir., 1959–60.
Barkhausen, G. Heinrich	Bd. of Dir., 1935; V. Pres., 1935.
Barrow, W. L.	Bd. of Dir., 1943–45.
Barton, F. S.	Bd. of Dir., 1943; V. Pres., 1943.
Batcheller, Arthur	Bd. of Dir., 1928–32, 1934–36.
Batsel, M. C.	Bd. of Dir., 1933.
*Bennett, E. M.	Bd. of Dir., 1923–25.
Bennett, R. D.	Bd. of Dir., 1953.
Bereskin, A. B.	Bd. of Dir., 1961.
Berkner, L. V.	Bd. of Dir., 1959–61; Pres., 1961.
Beveridge, H. H.	Bd. of Dir., 1936–39; Pres., 1937.
Black, K. C.	Bd. of Dir., 1952.
Boone, E. M.	Bd. of Dir., 1955–56.
Bown, Ralph	Bd. of Dir., 1926–29, 1937–39; Pres., 1927; V. Pres., 1926.
Brainerd, J. G.	Bd. of Dir., 1956–57.
Brown, G. S.	Bd. of Dir., 1958–60.
Brown, J. E.	Bd. of Dir., 1938, 1947.
Browning, G. H.	Bd. of Dir., 1952–53.
Bullock, M. W.	Bd. of Dir., 1961.
*Bullard, W. H. G.	Bd. of Dir., 1920–21.
Burrows, C. R.	Bd. of Dir., 1956.
Byrne, J. F.	Bd. of Dir., 1955–57, 1961; V. Pres., 1961.
Cady, W. G.	Bd. of Dir., 1928–29, 1932–34; Pres., 1932; Editor, 1929.
Caldwell, O. H.	Bd. of Dir., 1932-35.
Carnaham, C. W.	Bd. of Dir., 1960–61.
Carter, E. F.	Bd. of Dir., 1943–45, 1961.
Chaffee, E. L.	Bd. of Dir., 1922; V. Pres., 1922.
Chamberlain, A. B.	Bd. of Dir., 1941–44.
Chambers, C. C.	Bd. of Dir., 1942.
Clark, T. H.	Bd. of Dir., 1950.
Clayton, J. M.	Bd. of Dir., 1928–29; Secy., 1928–29.
Clement, L. M.	Bd. of Dir., 1945.
Coggeshall, I. S.	Bd. of Dir., 1941–44, 1951–53; Pres., 1951.
Cole, R. I.	Bd. of Dir., 1958–59.
Coleman, J. B.	Bd. of Dir., 1948–49.
*Colpitts, E. H.	Bd. of Dir., 1921–23.
*Conrad, Frank	Bd. of Dir., 1927; V. Pres., 1927.
Cosentino, A. T.	Bd. of Dir., 1941; V. Pres., 1941.
Craven, T. A. M.	Bd. of Dir., 1937.
Crosby, M. G.	Bd. of Dir., 1947–49.
Cullum, A. E. Jr.	Bd. of Dir., 1948.
Cunningham, F. W.	Bd. of Dir., 1938–40.
Cutting, R. F.	Bd. of Dir., 1920–24; Pres., 1922; V. Pres., 1921.
Dart, H. F.	Bd. of Dir., 1951–52.
Dasher, B. J.	Bd. of Dir., 1960–61.
*Davis, G. S.	Bd. of Dir., 1915, 1917–19.
*deForest, Lee	Bd. of Dir., 1930–32; Pres., 1930.
Dellinger, J. H.	Bd. of Dir., 1924–31; Pres., 1925; V. Pres., 1924.
Deloraine, E. M.	Bd. of Dir., 1946; V. Pres., 1946.
Doherty, W. H.	Bd. of Dir., 1951–53; 1958–60.
Dyer, J. N.	Bd. of Dir., 1955–56, 1960; V. Pres., 1960.
Eastham, Melville	Bd. of Dir., 1922–41; Treas., 1927–40.
Eastman, A. V.	Bd. of Dir., 1950–51.
Eckersley, P. P.	Bd. of Dir., 1937; V. Pres., 1937.
Edwards, C. P.	Bd. of Dir., 1931; V. Pres., 1931.
Engstrom, E. W.	Bd. of Dir., 1949.
Espenschied, Lloyd	Bd. of Dir., 1912–13, 1915–26, 1931.
Everitt, W. L.	Bd. of Dir., 1942–47, 1949–51; Pres., 1945.
Fay, Frank	Bd. of Dir., 1912.
Fink, D. G.	Bd. of Dir., 1949–51, 1956–60; Pres., 1958; Editor, 1956–57.
Fisk, E. T.	Bd. of Dir., 1938; V. Pres., 1938.
Forbes, E. D.	Bd. of Dir., 1912; Treas., 1912.
*Forbes, H. C.	Bd. of Dir., 1940.
Fowler, G. A.	Bd. of Dir., 1958–59.
Friis, H. T.	Bd. of Dir., 1941–43.
Fuller, L. F.	Bd. of Dir., 1928.
Gershon, J. J.	Bd. of Dir., 1956–57.
Giordano, A. B.	Bd. of Dir., 1961.
Goldsmith, Alfred N.	Bd. of Dir., 1912–61; Pres., 1928; Secy., 1918–27; Editor, 1912–28, 1930–53; Editor Emeritus, 1954—.
*Graf, A. W.	Bd. of Dir., 1952–53, 1957.
Graham, Virgil M.	Bd. of Dir., 1935–41, 1946–48.
Granqvist, C. E.	Bd. of Dir., 1958; V. Pres., 1958.
*Grebe, A. H.	Bd. of Dir., 1924–26, 1928.
*Gustafson, G. E.	Bd. of Dir., 1943.
Guy, R. F.	Bd. of Dir., 1944–48, 1950–52; Pres., 1950; Treas., 1947.
Hackbusch, R. A.	Bd. of Dir., 1938, 1944–46; V. Pres., 1944.
Haggerty, P. E.	Bd. of Dir., 1960–61.
Hamburger, F., Jr.	Bd. of Dir., 1950–51, 1959–61; Editor, 1960–61.
Hammond, J. H., Jr.	Bd. of Dir., 1912–17; Treas., 1913–14.
Hanson, O. B.	Bd. of Dir., 1938–43.
Harp, C. E.	Bd. of Dir., 1959–60.
Hazeltine, Alan	Bd. of Dir., 1923–28, 1936–39; Pres., 1936.
Hegbar, H. R.	Bd. of Dir., 1957–58.
Heising, R. A.	Bd. of Dir., 1927–31, 1933–35, 1939–41 1943–45, 1947–49; Pres., 1939; Treas., 1943–45.
Henderson, J. T.	Bd. of Dir., 1953–59; Pres., 1957.
Henney, Keith	Bd. of Dir., 1945–48.
Herold, E. W.	Bd. of Dir., 1956–58.
Hewlett, W. R.	Bd. of Dir., 1950–57; Pres., 1954.
*Hill, Guy	Bd. of Dir., 1914–16, 1918–20.
*Hogan, J. V. L.	Bd. of Dir., 1912–36, 1948–50; Pres., 1920; V. Pres., 1916–19.
Hoover, P. L.	Bd. of Dir., 1951–52.
*Horle, L. C. F.	Bd. of Dir., 1934, 1936–42, 1944–46; Pres., 1940.
Horn, C. W.	Bd. of Dir., 1933–34.
Horne, C. F.	Bd. of Dir., 1960–61.
Houck, H. W.	Bd. of Dir., 1931–42.
Howes, F. S.	Bd. of Dir., 1948.
*Hubley, Warren	Bd. of Dir., 1915–27; Treas., 1915–16, 1918–27.
Huil, L. M.	Bd. of Dir., 1929–35; Pres., 1933.
Hunter, T. A.	Bd. of Dir., 1948–50, 1956.
Hutcheson, J. A.	Bd. of Dir., 1948.

(Continued on page 26)

* DECEASED.

OFFICERS AND DIRECTORS, 1912–1961 (Cont'd)

Name	Office held
Jansky, C. M., Jr.	Bd. of Dir., 1929–42; Pres., 1934.
Jensen, A. G.	Bd. of Dir., 1954–56.
Jett, E. K.	Bd. of Dir., 1938.
Johnson, J. K.	Bd. of Dir., 1942.
Jolliffe, C. B.	Bd. of Dir., 1936–37, 1944.
Kaar, I. J.	Bd. of Dir., 1939, 1948.
Kantebet, S. R.	Bd. of Dir., 1953; V. Pres., 1953.
*Kennelly, A. E.	Bd. of Dir., 1916–18; Pres., 1916.
Kirke, Harold L.	Bd. of Dir., 1952; V. Pres., 1952.
*Kolster, F. A.	Bd. of Dir., 1933–35.
Krantz, H. E.	Bd. of Dir., 1949–50.
Krumm, L. R.	Bd. of Dir., 1917, 1921; Treas., 1917.
Lack, F. R.	Bd. of Dir., 1940, 1946–47.
*Langmuir, Irving	Bd. of Dir., 1923–25; Pres., 1923.
Lee, A. G.	Bd. of Dir., 1930; V. Pres., 1930.
Lewis, G. H.	Bd. of Dir., 1918–19, 1923–26, 1935.
Llewellyn, F. B.	Bd. of Dir., 1939–48; Pres., 1946.
Loughren, A. V.	Bd. of Dir., 1952–58; Pres., 1956.
*Lowenstein, Fritz	Bd. of Dir., 1912; V. Pres., 1912.
Manson, R. H.	Bd. of Dir., 1927–33; Pres., 1931.
*Marriott, R. H.	Bd. of Dir., 1912–16, 1920–22, 1926–32; Pres., 1912; V. Pres., 1913.
Marshall, C. J.	Bd. of Dir., 1954–55.
*McDonald, A. S.	Bd. of Dir., 1949; V. Pres., 1949.
McFarlan, R. L.	Bd. of Dir., 1957–61; Pres., 1960.
*McNicol, Donald	Bd. of Dir., 1919–28; Pres., 1926; V. Pres., 1925.
*McRae, J. W.	Bd. of Dir., 1949–56; Pres., 1953.
*Meissner, Alexander	Bd. of Dir., 1929; V. Pres., 1929.
Moe, R. E.	Bd. of Dir., 1960–61.
*Morecroft, J. H.	Bd. of Dir., 1922–26; Pres., 1924; V. Pres., 1923.
Murray, A. F.	Bd. of Dir., 1936–39.
*Nelson, E. L.	Bd. of Dir., 1932–36.
Newton, K. V.	Bd. of Dir., 1957–58.
Nichols, H. W.	Bd. of Dir., 1924–25.
Niwa, Y.	Bd. of Dir., 1957; V. Pres., 1957.
Noble, D. E.	Bd. of Dir., 1957–59, 1961.
Oliver, B. M.	Bd. of Dir., 1959–61.
Ollendorff, Franz	Bd. of Dir., 1961; V. Pres., 1961.
Olson, H. F.	Bd. of Dir., 1959–60.
Oxley, A. B.	Bd. of Dir., 1951–52, 1957–58.
Packard, L. E.	Bd. of Dir., 1954–55.
*Pederson, P. O.	Bd. of Dir., 1939; V. Pres., 1939.
Petlit, J. M.	Bd. of Dir., 1954–55.
*Pickard, G. W.	Bd. of Dir., 1912–15; Pres., 1913.
*Pierce, G. W.	Bd. of Dir., 1915, 1918–21; Pres., 1918–19; V. Pres., 1915.
Pierce, J. R.	Bd. of Dir., 1954–55; Editor, 1954–55.
Piore, E. R.	Bd. of Dir., 1951.
Polkinghorn, F. A.	Bd. of Dir., 1957–58.
Ponte, M. J. H.	Bd. of Dir., 1954; V. Pres., 1954.
Poppele, J. R.	Bd. of Dir., 1947.
*Poulsen, Valdemar	Bd. of Dir., 1936; V. Pres., 1936.
Pounsett, F. H. R.	Bd. of Dir., 1949–50.
Pratt, Haraden	Bd. of Dir., 1935–61; Pres., 1938; Treas., 1941–42; Secy., 1943–61.
Priest, C. A.	Bd. of Dir., 1953–54.
*Pupin, M. I.	Bd. of Dir., 1917–19; Pres., 1917.
Ragazzini, J. R.	Bd. of Dir., 1953–54.
Rappaport, G.	Bd. of Dir., 1954–56.
Ratcliffe, J. A.	Bd. of Dir., 1960.
Reich, H. J.	Bd. of Dir., 1944, 1948–51.
Reid, J. D.	Bd. of Dir., 1950–51.
*Reoch, A. E.	Bd. of Dir., 1924–27.
Rinia, H.	Bd. of Dir., 1956; V. Pres., 1956.
Royden, G. T.	Bd. of Dir., 1946.
*Rush, W. A.	Bd. of Dir., 1942; V. Pres., 1942.
Russell, J. B., Jr.	Bd. of Dir., 1960–61.
Rust, W. M.	Bd. of Dir., 1951–52.
Rybner, Jorgen	Bd. of Dir., 1951; V. Pres., 1951.
Ryder, J. D.	Bd. of Dir., 1952–59; Pres., 1955; Editor, 1958–59.
Sarnoff, David	Bd. of Dir., 1915–20; Secy., 1915–17.
Schulz, E. H.	Bd. of Dir., 1958–59.
Seely, Samuel	Bd. of Dir., 1957–59.
Shackelford, B. E.	Bd. of Dir., 1945–50, 1953–55; Pres., 1948.
Shepherd, J. E.	Bd. of Dir., 1948–50.
Shepherd, W. G.	Bd. of Dir., 1960–61.
Shute, E. R.	Bd. of Dir., 1933–34.
Simon, E. J.	Bd. of Dir., 1912–15; Secy., 1912–14.
Sinclair, D. B.	Bd. of Dir., 1945–59; Pres., 1952; V. Pres., 1959; Treas., 1949–50.
Sinclair, G.	Bd. of Dir., 1960–61.
Sink, R. L.	Bd. of Dir., 1952–53.
Smith, D. B.	Bd. of Dir., 1947.
Smith-Rose, R. L.	Bd. of Dir., 1948; V. Pres., 1948.
*Squier, G. O.	Bd. of Dir., 1918–22.
*Stone, J. S.	Bd. of Dir., 1912–19; Pres., 1915; V. Pres., 1914.
Straiton, A. W.	Bd. of Dir., 1953–54.
Stratton, J. A.	Bd. of Dir., 1948–51, 1954.
Swinyard, W. O.	Bd. of Dir., 1945–46.
Tank, F.	Bd. of Dir., 1955; V. Pres., 1955.
Taylor, A. H.	Bd. of Dir., 1929–31; Pres, 1929.
Teal, G. K.	Bd. of Dir., 1959.
Terman, F. E.	Bd. of Dir., 1940–43, 1948–49; Pres., 1941; V. Pres., 1940.
*Thompson, B. J.	Bd. of Dir., 1937–44.
Town, G. R.	Bd. of Dir., 1949, 1951–53.
Tucker, D. J.	Bd. of Dir., 1955–56.
Tupper, B. R.	Bd. of Dir., 1961.
Turner, H. M.	Bd. of Dir., 1933–46; Pres., 1944.
Van Atta, L. C.	Bd. of Dir., 1961.
*van der Bijl, H. J.	Bd. of Dir., 1945; V. Pres., 1945.
*van der Pol, Balth.	Bd. of Dir., 1934; V. Pres., 1934.
Van Dyck, A. F.	Bd. of Dir., 1930–35, 1939–44; Pres., 1942.
Vollum, C. H.	Bd. of Dir., 1955.
Watson-Watt, R. A.	Bd. of Dir., 1950; V. Pres., 1950.
Waynick, A. H.	Bd. of Dir., 1959–60.
*Weagant, R. A.	Bd. of Dir., 1913–17.
*Webb, W. L.	Bd. of Dir., 1946.
Weber, Ernst	Bd. of Dir., 1952–61; Pres., 1959.
Webster, E. M.	Bd. of Dir., 1946.
Wells, H. W.	Bd. of Dir., 1954–55.
Westman, H. P.	Bd. of Dir., 1930–42; Secy., 1930–42.
Wheeler, H. A.	Bd. of Dir., 1934, 1940–45.
*Wheeler, L. P.	Bd. of Dir., 1940–45; Pres., 1943.
Whimnery, J. R.	Bd. of Dir., 1956–58.
White, W. C.	Bd. of Dir., 1943–47; Treas., 1946.
Whittemore, L. E.	Bd. of Dir., 1926–29, 1935–37; V. Pres., 1928.
*Wilson, William	Bd. of Dir., 1932–36.
Wolcott, C. F.	Bd. of Dir., 1956–57.
Wolff, Irving	Bd. of Dir., 1952–53.
Zahl, H. A.	Bd. of Dir., 1949.
*Zenneck, Jonathan	Bd. of Dir., 1933; V. Pres., 1933.

* DECEASED.

MEMBERSHIP LISTS
Including
BIOGRAPHIES OF FELLOWS
AND
AN ALPHABETICAL ROSTER
AND
A GEOGRAPHICAL LISTING

NOTE

In the following pages are set forth the names of the members of the Institute of Radio Engineers. These have been disposed under three headings, as follows:

Biographies of Fellows; a list of all Fellows, with a short biographical note on each.

Membership Roster; a complete listing of all members (not including Students) on record as of May 31, 1961; giving membership grades and business affiliations.

Geographical Listing of Membership; by states and countries, and by cities within such areas; including a designation of the present grade of each member.

All listings include appointments and elections up to May 31, 1961.

In the Roster the following symbols indicative of grades are used, along with numerals indicating the year of admissions to that grade:

(F) *Fellow*
(SM) *Senior Member*
(M) *Member*
(A) *Associate*
(VA) *Voting Associate.* Those who were Associates on or before March 1, 1939, automatically became Voting Associates as of that time. This grade no longer exists.
(S) *Student*
(J) *Junior.* This grade no longer exists.

The Board of Directors waives the dues of all members who have attained the age of 65 years and who have been members of the IRE for 35 years. The following symbol is used to indicate this status:

(L) *Life Member*

BIOGRAPHIES OF FELLOWS*

(As of May 31, 1961)

ABRAHAM, Leonard G. (SM'46—F'57), Director, Transmission Engineering, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: September, 1901, Watson, Ill. B.S.(E.E.), 1922, M.S. (E.E.), 1923, University of Illinois.

ACHESON, Marcus A. (A'36—M'37—F'41), Consulting Engineer, Sylvania Electric Products, Inc., 1740 Broadway, New York 19, N.Y.
Born: January 18, 1903, Denison, Tex. B.S.(E.E.), 1924, Rice Institute. **Committees:** Editorial Reviewer, 1954–60; Papers, 1937; Papers Review, 1951–53.

ADAIR, George P. (A'42—SM'44—F'47), Consulting Radio Engineer, 1610 Eye St., N.W., Washington 6, D.C.
Born: December 8, 1903, Rancho, Tex. B.S.(E.E.), 1926, Agricultural and Mechanical College of Texas. **Sections:** Washington, *secretary, 1946; vice-chairman, 1947; chairman, 1948;* Mid-Atlantic Regional, *vice-chairman, 1948.* **Awards:** Life Honorary Member, International Municipal Signal Association, 1944.

ADAMS, Paul R. (SM'52—F'61), Director, Research and Advanced Development, International Telephone and Telegraph Corporation, 320 Park Ave., New York 22, N.Y.
Born: June, 1907, Antwerp, Belgium. B.S.(Physics), 1929, Princeton University; LL.B., 1939, Fordham Law School. **IRE Representative:** Joint IRE-EIA Technical Advisory Committee, 1961.

ADAMS, Robert J. (A'42—M'51—SM'51—F'61), Electronics Engineer, Naval Research Laboratory, Washington 25, D.C.
Born: May 24, 1915, Solon, Iowa. B.A. (Physics), 1936, State University of Iowa; Ph.D. (Physics), 1941, University of Wisconsin. **Professional Groups:** Antennas and Propagation Administrative Committee, 1960–63. **Sections:** Washington; PGAP, Washington Chapter, *chairman, 1959–60.* **Awards:** Navy Meritorious Civilian Service Award, Naval Research Laboratory, 1945.

ADLER, Richard B. (S'44—A'48—SM'53—F'60), Professor of Electrical Engineering, Massachusetts Institute of Technology, Building 10, Cambridge 39, Mass.
Born: May 9, 1922, New York, N.Y. S.B., 1943, ScD., 1949, Massachusetts Institute of Technology. **Committees:** Editorial Reviewer, 1955–60; Papers and Program, Semiconductor Devices, 1952–54; Transistor Internal Parameters, 1956–60. **Sections:** Boston, IRE Transistor Lecture Series Committee, 1955–56. **IRE Representative:** IRE-AIEE, University of Pennsylvania Transistor Circuits Conference, 1955–56. **Awards:** Premium Award of Royal Aeronautical Society, 1955; Sloan Award for Teaching, Massachusetts Institute of Technology, 1955–56.

ADLER, Robert (A'42—SM'47—F'51), Vice President and Associate Director of Research, Zenith Radio Corporation, 6001 W. Dickens Ave., Chicago 39, Ill.
Born: December 4, 1913, Vienna, Austria. Ph.D., 1937, University of Vienna. **Committees:** Awards, 1957, 1960; Editorial Reviewer, 1954–60; Modulation Systems, 1948–50. **Professional Groups:** Electron Devices, Broadcast and TV Receivers.

ADORIAN, Paul (A'33—M'40—SM'43—F'61), Managing Director, Associated-Rediffusion, Ltd., Television House, Kingsway, London, England.
Born: November, 1905, Nagyuarad, Hungary. Electrical Engineering Student, 1927–32, City and Guilds (Eng.) College. London. **Awards:** Associate Fellow, Royal Aeronautical Society; Fellow, F.C.G.I., 1958.

AFFEL, Herman A. (A'14—M'40—SM'43—F'49)(L), Retired Consultant, RFD 2, Oakland, Me.
Born: August, 1893, Brooklyn, N.Y. S.B., 1914, Massachusetts Institute of Technology. **Committees:** Editorial Reviewer, 1954–60; Meetings and Papers, 1930; New York Program, 1939–41, *chairman, 1940;* Paper, 1931–45; Papers Review, 1946–53. **Awards:** Modern Pioneers Award, National Association of Manufacturers, 1940; Fellow, American Institute of Electrical Engineers; Fellow, Acoustical Society of America; Fellow, AAAS.

AIGRAIN, Pierre R. (S'46—A'49—M'58—F'61), Professor, University of Paris, 24 rue Lhomond, Paris V, France: Visiting Professor to Massachusetts Institute of Technology and Brussels Free University.
Born: September 28, 1924, Poitiers, France. M.S.(E.E.), 1946, D.Sc.(E.E.), Carnegie Institute of Technology; Ph.D. (Physics), 1950, University of Paris.

AIKEN, Howard H. (SM'56—F'60), Professor of Applied Mathematics, Director of Computation Laboratory, Computation Laboratory of Harvard University, 33 Oxford St., Cambridge 39, Mass.
Born: March 8, 1900, Hoboken, N.J. S.B., 1923, University of Wisconsin; S.M., 1937, Ph.D., 1939, Harvard University; Dr. Ing. (Honorary), 1952, Technische Hochschule, Darmstadt, Germany; LL.D. (Honorary), 1954, Wayne State University. **Awards:** Palmes de l'Academie Francais, 1949; Ingeniors Vetenskaps Akademien, 1950; National Fonds voor wetenschap Pelijk Onderzoek, Belgium, 1951; Chevalier, Legion of Honor, 1952; Consejero de Honor del Consejo Superior de Investigaciones Cientificas, Spain, 1954; Ralph E. Hackett Award, Science, 1954; Officer's Cross of the Order of the Crown, Belgium, 1955; Navy Distinguished Public Service Award, 1955; Decoration for Exceptional Civilian Service, Air Force, 1957; Testimonial of Eminent Professional Services, University of Wisconsin, 1958; La Medaille Vermeil de Paris, 1958; Fellow, American Academy of Arts and Sciences; Fellow, Association for Advancement of Science.

ALBERSHEIM, Walter J. (A'43—SM'48—F'57), Vice President, Engineering, Spencer-Kennedy Laboratories, Inc., 1320 Soldier's Field Road, Boston 35, Mass.; Senior Consultant in Radar, Electronics Research Laboratories, School of Engineering, Columbia University, New York 27, N.Y.
Born: April 22, 1897, Cologne, Germany. E.E., 1922, Eng.D. 1924, Institute of Technology, Aachen, Germany; Professional Engineer, 1936, New York. **Committees:** Editorial Reviewer, 1954–60; Papers, 1951–53. **Sections:** Monmouth County Subsection, Membership Committee, *chairman, 1949.* **Awards:** Journal Award, Society of Motion Picture Engineers.

ALBERT, Arthur L. (A'31—SM'47—F'50), Professor, Communication Engineering, Oregon State College, Corvallis, Ore.
Born: March 13, 1899, Forest Grove, Ore. B.S., 1923, M.S., 1926, E.E., 1938, Oregon State College. **Committees:** Membership 1947–48. **IRE Representative:** Oregon State College, 1942–59. **Awards:** Fellow, American Institute of Electrical Engineers, 1941.

ALEXANDER, Samuel N. (A'44—M'55—SM'55—F'56), Chief, Data Processing Systems Division, National Bureau of Standards, Department of Commerce, Connecticut Ave. & Van Ness St., Washington 25, D.C.
Born: February 22, 1910, Wharton, Tex. A.B., B.S.(E.E. and Physics), 1931, University of Oklahoma; M.S.(E.E.), 1933, Massachusetts Institute of Technology. **Committees:** Electronic Computers, 1948–59, *chairman, 1954–55.* **Sections:** Washington, D.C., Electronic Computers Group, *chairman 1954–55.* **Awards:** U. S. Department of Commerce Award for Exceptional Service, SEAC Staff, 1951; Silver Medal, Royal Academy of Engineering Sciences, Stockholm, 1956.

ALEXANDERSON, Ernest F. W. (A'13—M'13—F'15)(L), Retired. Consulting Engineer, 1132 Adams Road, Schenectady, N.Y.
Born: January 25, 1878, Uppsala, Sweden. E.E., 1900, Royal Technical University; Sc.D., 1926, Union College; Ph.D., 1938, Uppsala University; Dr. Technology, 1948, Royal Technical University, Stockholm, Sweden. **IRE Offices:** President, 1921; Vice President, 1920; Director, 1920–23; Manager, 1917–19. **Committees:** Meetings and Papers, 1928; Standardization, 1916–24; Wave Length Regulation, 1916–17, 1919–20. **Awards:** IRE Medal of Honor, 1919; John Ericsson Gold Medal, American Society of Swedish Engineers, 1928; Edison Medal, American Institute of Electrical Engineers, 1944; Cedergren Gold Medal, Royal Swedish Technical University, 1944; Valdemar Poulsen Gold Medal, Royal Danish Technical University, 1947.

ALFORD, Andrew (A'35—M'40—F'42), Owner, Andrew Alford Consulting Engineers; President, Alford Manufacturing Company; 299 Atlantic Ave., Boston 10, Mass.
Born: August 5, 1904, Samara, Russia. A.B., 1924, University of California. **Committees.** Annual Review, 1944–46; Antennas, 1946–49, *chairman, 1944–46;* Papers Procurement, 1947–50; Radio Transmitters, 1944–45; Standards, 1944–45; Transmitters and Antennas, 1943–44. **Awards:** Presidential Certificate of Merit, 1948.

ALFVEN, Hannes O. G. (SM'55—F'60), Professor, Royal Institute of Technology, Stockholm 70, Sweden.
Born: May 30, 1908, Norrkoping, Sweden. Dr. Phil., 1934, University of Uppsala.

ALLEN, Edward W., Jr. (M'44—F'53), Chief Engineer, Federal Communications Commission, 13 St. & Pennsylvania Ave., Washington 25, D.C.
Born: February 14, 1903, Portsmouth, Va. E.E., 1925, University of Virginia; LL.B., 1933, George Washington University. **Committees:** Papers Review, 1946–49; Wave Propagation, 1948–56. **Professional Groups:** Antennas and Propagation; Broadcast Transmission Systems Administrative Committee. **Awards:** IRE Harry Diamond Award, 1958.

ALMQUIST, Milton L. (A'43—SM'53—F'58), Retired. 94 Oakview Ave., Maplewood, N.J.
Born: August 7, 1895, San Francisco, Calif. B.Sc.(E.E.), 1920, University of California. **Awards:** Army-Navy Certificate of Appreciation, 1948; Fellow, American Institute of Electrical Engineers, 1951.

ANDERSON, A. Eugene (S'38—A'41—M'45—SM'58—F'59), Works Engineer of Manufacture, Western Electric Co., Inc., 555 Union Blvd., Allentown, Pa.
Born: April 22, 1916, Lima, Ohio. B.S.(E.E.), 1939, M.S.(E.E.), 1939, Ohio State University. **Committees:** Editorial Reviewer, 1954–59; Electron Devices, 1954–55; Solid State Devices, *chairman, 1954, 1956;* Symbols, 1946–47. **Professional Groups:** Electron Devices Administrative Committee, 1958–59.

ANDERSON, Clifford N. (A'19—F'34)(L), Retired. 2605 Castilla Isle, Ft. Lauderdale, Fla.
Born: September 22, 1895, Scandinavia, Wis. Ph.B., 1919, M.S., 1920, University of Wisconsin. **Committees:** Admissions, 1930–31; New York Program, 1932; Papers Review, 1953; Sections, 1941–44; Tellers, 1932–33.

ANDERSON, Earl I. (M'40—SM'43—F'54), Chief Engineer, Home Instruments Division, Radio Corporation of America, 600 Sherman Drive, Indianapolis 1, Ind.
Born: April 19, 1907, Chicago, Ill. **Professional Groups:** Administrative Committee, 1950–60; Broadcast and Television Receivers, *vice-chairman, 1952–53, chairman, 1954–55;* Editor of *Transactions,* 1957–58.

ANDREW, Victor J. (A'25—M'40—SM'43—F'55), Chairman, Board of Directors, Andrew Corporation, P.O. Box 807, Chicago 42, Ill.
Born: August 31, 1902, Medina County, Ohio. B.S., 1926, College of Wooster; M.S., 1928, Ph.D., 1932, University of Chicago; D.S. (Honorary), 1949, College of Wooster, **Committees:** Membership, 1942–44; Sections, 1940 **Sections:** Chicago, *secretary, 1937–38; chairman, 1939–40.*

ANGELLO, Stephen J. (SM'52—F'59), Consulting Engineer, Westinghouse Research Laboratories, Pittsburgh 35, Pa.
Born: March, 1918, Haddonfield, N.J. B.S.(E.E.), 1939, M.S. (E.E.), 1940, Ph.D. (Physics), 1942, University of Pennsylvania. **Committees:** Solid State Devices, 1949–59; Task Group, *chairman, 1953–55.* **Professional Groups:** Energy Sources Division, Electron Devices, *vice-chairman, 1960–61.*

ANKENBRANDT, Francis L. (SM'50—F'57), Major General, USAF, Retired. Manager, Defense Product Assurance, Defense Electronic Products, Radio Corporation of America, Front & Cooper Sts., Camden, N.J.
Born: January 27, 1904, Chicago, Ill. B.S., 1926, U. S. Military Academy; M.S., 1927, Yale University. **Professional Groups:** Military Electronics Administrative Committee, 1956–58, 1961–.

ANTON, Nicholas G. (M'44—SM'44—F'56), President and Director of Research and Engineering, Anton Electronics Laboratories, Inc., 1226–1238 Flushing Ave., Brooklyn 37, N.Y.
Born: December 14, 1906, Trieste, Italy. Graduate of the Technical Institute Leonardo da Vinci, 1925–26; Columbia University. **Professional Groups:** EIA, *chairman,* T.R.19; Member, ASA Nuclear Standard Board; ASA Sectional Committee, N.3; Nuclear Instrumentation and Control Committee, *chairman;* Advisory Nuclear Instrumentation Committee to the Federal Civil Defense Administration. **Awards:** Fellow, New York Academy of Sciences; Fellow, American Physical Society; Fellow, AAAS.

APSTEIN, Maurice (SM'51—F'59), Associate Director for Research, Diamond Ordnance Fuze Laboratories, Department of the Army, Washington 25, D.C.
Born: May 5, 1910, Bridgeport, Conn. B.S.(E.E.), 1932, City College of New York; M.E.A., George Washington University. **Sections:** Washington Chapter, PGEM, *vice-chairman, 1957–58, chairman, 1958–59.* **Awards:** Department of Commerce Gold Medal for "Outstanding Contributions to Technology in Fields of Aviation Ordnance and National and International Standardization of Weapons," 1951.

ARNAUD, Jean P. (A'35—M'40—SM'43—F'53), Manager, Special Telecommunication Projects (Latin America), RCA International, Clarktownship, N.J.
Born: September 1, 1905, London, England. E.E., 1929, University of Buenos Aires. **Sections:** Buenos Aires, *vice-chairman, 1941, chairman, 1942–43, 1949–50.* **IRE Representative:** La Plata, 1942.

ASHBRIDGE, Sir Noel (F'38), Director, Marconi's Wireless Telegraph Company, Ltd., Marconi House, Strand, London, W.C. 2, England.
Born: December 10, 1889, Wanstead, Essex, England. B.Sc. (Engineering), 1911, King's College, London University. **IRE Offices:** Vice President, 1947; Director, 1947. **Awards:** Fellow of King's College, London; Knight of Royal Order of Dannebrog (Danish), 1934; Knighted, 1935; James Watt Medal, The Institution of Civil Engineers, 1937; President, The Institution of Electrical Engineers, 1941–42, Honorary Member, 1957; President, Junior Institution of Engineers, 1949–50.

ASHBY, Robert M. (SM'51—F'55), Vice President, Research and Development, Autonetics, A Division of North American Aviation, Inc., Downey, Calif.
Born: May 9, 1912, American Fort, Utah. B.A., 1934, M.A., 1939,

* In listing membership on committees, years during which members served as chairmen or as other officers are indicated by italics.

Brigham Young University; Ph.D., 1942, University of Wisconsin. **Sections:** Pasadena, Subsection, *chairman, 1956.*

ASTIN, Allen V. (SM'50—F'54), Director, National Bureau of Standards, Washington 25, D.C.
Born: June 12, 1904, Salt Lake City, Utah. B.S., 1925, University of Utah; M.S. (Physics), 1926, Ph.D. (Physics), 1928, New York University; Sc.D. (Honorary), 1953, Lehigh University; Sc.D. (Honorary), 1958, George Washington University; Sc.D. (Honorary), 1960, New York University. **Awards:** President's Certificate of Merit, 1948; Exceptional Service Award, Department of Commerce, 1952; National Civil Service League Career Service Award, 1960.

ATTWOOD, Stephen S. (SM'44—F'61), Professor, Dean of Engineering, University of Michigan, Ann Arbor, Mich.
Born: May 29, 1897, Cleveland, Ohio. B.S.E., 1918 (Mech. Engrg.), M.S.(E.E.), 1923, University of Michigan. **IRE Representative:** USA National Committee for the International Scientific Union (URSI), Member of Commission V,1956–58. **Awards:** President's Certificate of Merit, 1948; Fellow, American Institute of Electrical Engineering.

AUERBACH, Isaac L. (S'46—M'49—SM'52—F'58), President and Technical Director, Auerbach Electronics Corporation, 1634 Arch St., Philadelphia 3, Pa.
Born: October, 1921, Philadelphia, Pa. B.S.(E.E.), 1943, Drexel Institute of Technology; M.Sc. (Physics), 1947, Harvard University. **Committees:** International Convention, 1960; National Convention Program,1954; Professional Group, 1959. **Professional Groups:** Electronic Computers, Philadelphia Chapter, *chairman, 1952–53;* National Membership, *chairman, 1953;* Administrative Committee, 1954–57. **Sections:** Philadelphia, Finance Committee, *chairman, 1954–55, treasurer, 1955–56; secretary, 1956–57, vice-chairman, 1957–58, chairman, 1958–59;* Nominations Committee, *chairman, 1959–61;* Awards Committee, 1959–65, *chairman, 1960–62.* **IRE Representative:** JCC Technical Program Committee, 1957; U. S. Committee for the First International Conference on Information Processing, *general chairman, 1957–59;* UNESCO Consultant for Information Processing 1957–59, 1961; UNESCO Consultant for Automation Travelling Exhibition, 1959–60; International Federation of Information Processing Societies, *chairman,* Provisional Bureau, 1959–60, U. S. Representative, 1960–, President, 1960–63. **Awards:** City of Paris Medal, 1959; IRE Philadelphia Section Award, 1961.

AUSTIN, Arthur O. (F'30), President, A. O. Austin, Inc., P.O. Box 109, Barberton, Ohio.
Born: December 28, 1879, Stockton, Calif. A.B., 1903, Stanford University.

AVINS, Jack (A'39—SM'49—F'57), Manager, Research Applications Laboratory, RCA Laboratories, Princeton, N.J.
Born: March, 1911, New York, N.Y. A.B., 1932, Columbia University; M.E.E., 1949, Brooklyn Polytechnic Institute. **Committees:** Fellow, 1958–59; Radio Receivers, 1948–54, 1957–60, *chairman, 1951–1955;* Standards, 1951–55, Member-at-Large, 1957–60. **IRE Representative:** Chief Delegate (C12–1) International Electrotechnical Commission, 1956.

AXELBY, George S. (S'50—A'52—M'54—SM'57—F'61), Fellow Engineer, Air Arm Division, Westinghouse Electric Corporation, P.O. Box 746, Baltimore 3, Md.
Born: March 7, 1922, Thomaston, Conn. B.S.(E.E.), 1950, University of Connecticut; M.S.(E.E.), 1951, Yale University. **Committees:** Feedback Control Systems, 1954–61, *chairman, 1960–61;* Standards, 1960–61; Terminology for Feedback Control, *chairman, 1959–60.* **Professional Groups:** Dallas Control Conference, *program chairman, 1959;* Administrative Committee, Automatic Control, 1954–61; Transactions on Automatic Control, *editor, 1954–61.* **Sections:** Baltimore Chapter, Automatic Control, *first chairman.* **Awards:** U. S. Delegate to First IFAC Congress on Automatic Control in Moscow, 1960.

BABITS, Victor A. (A'33—M'35—SM'49—F'59), Chief of Applied Research Laboratories, Convair-Astronautics, San Diego, Calif.
Born: March 14, 1900, Budapest, Hungary, B.E.E., 1922, D.Sc. (Eng.), 1931, Decretum Habilitationis, 1938, University of Technical Sciences, Budapest. **Committees:** Education, 1953–57; Papers Review, 1952–53. **Awards:** Fellow, American Association for the Advancement of Science; Fellow, Television Society, London, 1959.

BACHMAN, Charles H. (S'32—A'35—VA'39—SM'54—F'55), Professor of Physics, Physics Department, Steele Hall, Syracuse University, Syracuse, N.Y.
Born: December 8, 1908, Cedar Falls, Iowa. B.S.(E.E.), 1932, M.S., 1933, Ph.D., 1935, Iowa State College.

BACHMAN, William S. (S'32—A'36—M'45—SM'54—F'56), Vice President, Research & Development, Columbia Records, Division of CBS, 799 Seventh Ave., New York 19, N.Y.
Born: October 29, 1908, Williamsport, Pa. E.E., 1932, Cornell University. **Committees:** Board of Editors, 1950–53; Editorial Reviewer, 1954–60. **Awards:** Emil Berliner Award, Audio Engineering Society, 1955.

BACK, George I. (SM'53—F'55), Major General, United States Army, Retired. 6211 3rd St., S., St. Petersburg 5, Fla.; Director, International Resistance Company, 401 N. Broad St., Philadelphia, Pa.
Born: February 25, 1894, Sioux City, Iowa. B.A., 1921, Morningside College; Post Graduate Communications Engineering Course, 1920–21, Yale University; Signal School, 1934, U. S. Army; Command and General Staff College, 1939, U. S. Army. **Awards:** Honorary Life Member, Armed Forces Communications Electronics Association, 1951; Silver Medal Award, Poor Richards Club, 1953. **U. S. Army Decorations:** Legion of Merit, 1944; Distinguished Service Medal with Oak Leaf Cluster, 1945, 1951; Commendation Ribbon, 1947; Air Medal, 1951; Silver Star, 1951. **Foreign Decorations:** Brazilian War Medal, 1945; Commander of the Order of the Crown of Italy, 1945; Commander of the Order of the British Empire, 1946; Cross of the Senior Knight Commanders of the Order of Phoenix (Greece), 1952.

BAGNO, Samuel M. (A'37—SM'54—F'61), Chief Engineer, Kuda Division, Walter Kidde & Co., Inc., Brighton Rd., Clifton, N.J.
Born: July 10, 1906, New York, N.Y. B.E.E., Brooklyn Polytechnic Institute. **Awards:** Plaque, National Burglar and Fire Alarm Association, 1959.

BAILEY, Austin, (A'25—M'25—F'36)(L), Consulting Engineer, 193 Sagamore Rd., Millburn, N.J.
Born: June 9, 1893, Lawrence, Kan. A.B., 1915, University of Kansas; Ph.D., 1920, Cornell University. **IRE Offices:** Director, 1940–42. **Committees:** Admissions, 1934, *chairman, 1935;* Awards, 1945, 1949; Constitution and Laws, 1932–34, 1936–42, *chairman, 1942, 1944–45;* Convention Policy, 1947–50; Membership, 1941; National Convention, 1947–49; New York Program, 1930–34, 1937–40, *chairman, 1931, 1938;* Professional Groups, 1952–53, *vice-chairman, 1952;* Sections, 1929–33, *chairman, 1930;* Tellers, *chairman, 1939, 1940;* Winter Technical Meeting, 1946, *chairman, 1945.* **Professional Groups:** Vehicular Communications Administrative Committee, 1949–57, *chairman, 1950–51.* **IRE Representative:** ASA Sectional Committee on Graphic Symbols and Designations, 1940–58; ASA Sectional Committee (Y14) on Standards for Drawings and Drafting Room Practices, 1940–50, 1951–58; U. S. National Committee, IEC, Advisers on Symbols, 1952–57.

BAILEY, George W. (A'38—SM'46—F'56), Executive Secretary, IRE, 1 E. 79 St., New York 21, N.Y.
Born: May, 1887, Quincy, Mass. A.B., 1907, Harvard University; Sc.D. (Honorary), 1958, Lawrence College. **IRE Offices:** Executive Secretary, 1945–. **Committees:** Constitution and Laws, 1946–47; IRE International Convention, *chairman, 1948–61;* Military Liaison, *chairman, 1949–;* Office Quarters, 1947; Professional Groups, 1960–61; Public Relations, 1945–48; Winter Technical Meeting, 1946. **IRE Representative:** ASA Conference of Staff Executives, 1949–51; ASA Conference of Executives of Organization Members, 1954–59. **Awards:** Marconi Medal for Service, Veteran Wireless Operators Association, 1944; President's Certificate of Merit, 1946; Edison Award Citation, 1957.

BAILEY, Stuart L. (A'28—M'36—SM'43—F'43), President Jansky and Bailey, A Division of Atlantic Research Corporation; Vice President, Atlantic Research Corporation, Shirley Highway and Edsall Rd., Alexandria, Va.
Born: October 7, 1905, Minneapolis, Minn. B.S.(E.E.), 1927, M.S., 1928, University of Minnesota. **IRE Offices:** President, 1949; Director, 1943–55; Treasurer, 1948, 1961. **Committees:** Admissions, 1943–44; Appointments, 1948; Awards, 1950–52; Broadcasting, 1931–32, 1934–35, *alternate, 1931–32;* Constitution and Laws, 1944, 1948, 1954–60; Executive, 1945–54, *vice-chairman, 1948, chairman, 1949;* Finance, 1948, 1950–51, 1953–54, *chairman, 1961;* National Convention, 1947–48, 1953–55, *vice-chairman, 1953–60;* Nominations, 1946–52, 1956–58, *chairman, 1946;* Office Practices, 1947; Planning, 1947; Policy Development, 1948, 1951; Professional Groups, 1950; Public Relations, 1950, *alternate, 1945–46;* Radio Wave Propagation, 1942–46; Radio Wave Propagation and Utilization, 1945–48; Sections, 1946–47; Special Publication Fund, 1947; Wave Propagation, 1937–42, 1948–56; Winter Technical Meeting, 1946. **IRE Representative:** ASA Sectional Committee (C16) on Radio, *chairman, 1953–54;* Executive Council Central Radio Propagation Laboratory; International Scientific Radio Union (URSI) Executive Committee, 1951–56; IRE-RMA Coordination Committee, 1949–50; Joint IRE-AIEE Coordination Committee, 1950–54; IRE Advisory Committee to National Bureau of Standards for Central Radio Propagation Laboratory, 1954–56; Joint Technical Advisory Committee, 1940, 1950; National Bureau of Standards Technical Advisory Committee, 1958–61; RMA-IRE Problem No. 2, 1949–50; U.S.A. National Committee, URSI, 1949–61; U. S. National Committee of the URSI Executive Committee, 1957, *alternate,* 1959.

BAILEY, William F. (S'33—A'36—VA'39—SM'51—F'54), Associate Director of Research, Hazeltine Research Corporation, 59–25 Little Neck Parkway, Little Neck 62, L.I., N.Y.
Born: May 4, 1911, Buffalo, N.Y. M.E., 1933, M.S., 1941, Stevens Institute of Technology. **Committees:** Television, 1946–49; Television Systems, 1949, *vice-chairman, 1955–58, chairman, 1958–59;* Standards; Tellers, 1953–55, *chairman, 1954.* **Sections:** Long Island, *chairman, 1954–55.*

BAILEY, William M. (M'23—SM'43—F'60)(L), Formerly Vice President and Chief Engineer, Cornell-Dubilier Electric Corporation. Consulting Engineer. Residence: 23 Fort St., Fairhaven, Mass.
Born: October 8, 1894, Providence, R.I., **Awards:** Certificate Awarded as a Member of the War Committee on American War Standards, American Standards Association, 1946.

***BAKER, W. R. G. (A'19—F'28)(L),** President, Syracuse University Research Corporation.
Born: November 30, 1892, Lockport, N.Y. B.E., 1916, M.E.E., 1918, D.S. (Honorary), 1935, Union College; Dr. Engineering (Honorary), 1951, Syracuse University; Dr. Engineering (Honorary), 1955, Polytechnic Institute of Brooklyn, **IRE Offices:** President, 1947; Board of Directors, 1940, 1946–48, 1950–55, 1959; Treasurer, 1957–59; Standards Coordinator, 1948–50. **Committees:** Admissions, 1941; Annual Review, 1948–49; Appointments, 1948; Awards, 1940; Broadcasting, 1935–36, 1948–51, *vice-chairman, 1951–52;* Executive, 1947–58, *chairman, 1947, vice-chairman, 1951–57, 1959–60; treasurer, 1958–59;* Finance, *chairman, 1948–57, 1959–60;* Meetings and Papers, 1926, 1928–29, *alternate, 1928;* Membership, 1928; Nominations, 1930, 1948; Nuclear Studies, 1947–49, *chairman, 1947–48;* policy Development, 1948; Preparedness, 1940–41; Professional Groups, *chairman, 1950–60;* Public Relations, 1950; Sections, 1931–32; Standardization, 1925–26; Standards, 1938–41, 1948–50. **Sections:** Connecticut Valley, *secretary, 1938–40;* Philadelphia, *chairman, 1930–31.* **IRE Representative:** ASME. Glossary Review Board, 1948–52. **Awards:** IRE Medal of Honor, 1952; IRE Founders' Award, 1958.

BALDWIN, Millard W., Jr. (A'40—SM'45—F'48), Member, Technical Staff, Bell Telephone Laboratories, Inc., Murray Hill, N.J.

* Deceased.

Born: December, 1902, Port Ewen, N.Y. E.E., 1925, Cornell University; M.A., 1928, Columbia University. **Committees:** Facsimile, 1941–42; Standards, 1949–60, *vice-chairman, 1951–56, chairman, 1956–59;* Television Systems, 1949–60; Video Techniques, 1949–52. **IRE Representative:** ASA Electrical Standards Board, 1957–60; ASA Sectional Committee (C16) on Radio, 1956–60; ASA Sectional Committee (C42) on Definitions of Electrical Terms, 1951–60; International Radio Consultative Committee: Executive Committee of U. S. Delegation, Study Group XIV (Vocabulary), *alternate, 1952;* Joint IRE-EIA-SMPTE-NAB Committee for Inter-Society coordination, *alternate, 1952–55, 1959–60;* U. S. National Committee of the International Electrotechnical Commission, 1957–60.

BALLARD, B. Guy (SM'47—F'55), Vice President (Scientific) and Director, Radio & Electrical Engineering Division, National Research Council, Ottawa 2, Ont., Canada.
Born: June 19, 1902, Fort Stewart, Ont., Canada. B.Sc., 1924, D.Sc., 1956, Queen's University. **Awards:** Order of the British Empire, 1946; Ross Medal, Engineering Institute of Canada, 1949.

BARCO, Allen A. (A'40—SM'45—F'57), Director, Systems Research Laboratory, RCA Laboratories, Princeton, N.J.
Born: March, 1916, St. Louis, Mo. B.S.(E.E.), 1937, Washington University.

BARLOW, Harold M. (SM'54—F'56), Pender Professor of Electrical Engineering, University of College, University of London, Gower St., London, England.
Born: November 15, 1899, London, England, B.Sc. (Engineering), 1922, Ph.D. (Science), 1924, University of London; F.R.S., 1961. **Awards:** Kelvin Premium, Fleming Premium and Extra Premiums of Institution of Electrical Engineers, 1930, 1952, 1954, 1957.

BARNES, John L. (A'27—SM'44—M'52), President, Systems Corporation of America, Los Angeles 24, Calif.; Professor of Engineering, University of California, Los Angeles 24, Calif.
Born: October 16, 1906, Haddonfield, N.J. S.B.(E.E.), 1928, S.M. (E.E.), 1929, Massachusetts Institute of Technology; A.M. (Mathematics), 1930, Ph.D. (Mathematics), 1934, Princeton University. **Committees:** Papers Review, 1948–50; Radio Wave Propagation, 1942–46. **Professional Groups:** Circuit Theory Administrative Committee, 1952–55. **Sections:** Los Angeles Section Awards, 1960–61. **IRE Representative:** Tufts University, 1941–42.

BARROW, Wilmer L. (A'28—VA'39—M'40—F'41), Vice President for Research & Development, Sperry Gyroscope Company, Great Neck, L.I., N.Y.
Born: October, 1903, Baton Rouge, La. M.S., 1929, Massachusetts Institute of Technology; Sc.D., 1931, Technische Hochschule, Munich, Germany. **IRE Offices:** Director, 1943–45. **Committees:** Antennas, 1945–48; Awards, 1944–45, 1948–49; Board of Editors, 1946–53; Constitution and Laws, 1943–44; Editorial Reviewer, 1954–62; Executive, 1945; Nominations, 1943, 1949–50; Papers, 1941–45; Papers Procurement, 1942–43; Professional Groups, 1948; Regular Papers, 1941; Research, 1946–47, 1949–50; Standards, 1938–42; Wave Guides, 1943–44; Wave Propagation, 1941–42. **Sections:** Boston, *chairman, 1939–41.* **IRE Representative:** Radio Technical Planning Board, 1946, *alternate, 1944–45;* RMA-IRE Coordinating Committee, 1948. **Awards:** IRE Morris Liebmann Memorial Prize, 1943.

BARSTOW, John M. (SM'47—F'59), Television Systems Engineer, Bell Telephone Laboratories, Murray Hill, N.J.
Born: July, 1901, Topeka, Kan. B.S., 1923, Washburn University; M.S., 1924, University of Kansas. **Committees:** Editorial Reviewer, 1954–60; National Stereo Radio Committee, *vice-chairman,* Panel 2, 1959–; National Television Systems Committee, *vice-chairman,* Panel 17, 1952–, *acting chairman,* Panel 17, 1956–; Video Signal Transmission Methods of Measurement, *chairman, 1956–60;* Video Techniques, 1955–59, *vice-chairman, 1959–60.*

BARTON, F. Sherbrooke (F'35), Retired British Government Official. Consultant and Director of Companies, The White House, Broomfield Park, Sunningdale, Berks., England.

Born: May 13, 1895, Nottingham, England, M.A., 1920, University of Cambridge; B.Sc., 1920, University of London. **IRE Offices:** Vice President, 1943; Director, 1943. **Special Committees:** IRE-IEE International Liaison, 1947, 1955–60. **Awards:** Fellow, Institute of Physics; Commander of the Order of the British Empire.

BARTON, Loy E. (M'29—SM'43—F'56), Radio Research Engineer, RCA Laboratories, Princeton, N.J.
Born: November 7, 1897, Fayetteville, Ark. B.E.E., 1921, E.E., 1925, University of Arkansas. **Awards:** Distinguished Alumnus Citation, University of Arkansas, 1947.

BATCHELDER, Laurence (A'29—SM'47—F'57), Staff Engineer, Raytheon Company, Second and South Aves., Burlington, Mass.
Born: October, 1906, Cambridge, Mass. A.B., 1928, M.S., 1929, Harvard University. **Committees:** Ultrasonics, *chairman, 1960–61.* **Professional Groups:** Ultrasonics Engineering Administrative Committee, 1956–59, *vice-chairman, 1957–59.* **Awards:** Fellow, Acoustical Society of America.

BATCHER, Ralph R. (J'16—A'18—M'22—SM'43—F'50), Electronics Consultant, Automatic Processes, 240-02 42 Ave., Douglaston, L.I., N.Y.
Born: June, 1897, Dysart, Iowa. B.S.(E.E.), 1920, Iowa State College. **Committees:** Annual Review, *chairman, 1949–54;* Board of Editors, 1928–53; Meetings and Papers, 1927–29; Public Relations, *chairman, 1950–51;* Standards, 1949–54; Symbols, 1940–48; Television, 1939–42; Television and Facsimile, 1937–39. **Professional Groups:** Production Techniques, *chairman, 1954–57.* **IRE Representative:** ASA Sectional Committee (C16) on Radio, 1951–52, *secretary, 1952.*

BATEMAN, Ross (A'42—M'55—F'59), Vice President, Page Communications Engineers, Inc., 2001 Wisconsin Ave., N.W., Washington 7, D.C.
Born: July 22, 1912, Toledo, Ore. B.S.(E.E.), 1934, Oregon State College. **Committees:** Papers Review, 1953.

BATSEL, Max C. (A'21—F'27)(L), Consultant, Defense Electronic Products, Radio Corporation of America, Front and Cooper Sts., Camden, N.J. Residence: 525 Kings Highway, Moorestown, N.J.
Born: June 16, 1894, Fulton, Ky. B.M.E., 1915, University of Kentucky. **IRE Offices:** Director, 1933. **Committees:** Bibliography, 1930–32; Meetings and Papers, 1928–29; Membership, 1926–27; New York Program, 1931–33; Professional Groups, 1956; Radio Receivers, 1927–28; Standardization, 1925–31; Use of Transmission Unit, 1928–29. **Professional Groups:** Engineering Management, 1952–55, *vice-chairman, 1954–55, chairman, 1955–56;* Administrative Committee, 1955–58. **Awards:** Modern Pioneer Award N.M.A., 1940; Certificate of Commendation, U. S. Navy; Fellow, Society of Motion Picture and Television Engineers.

BAUER, Benjamin B. (S'37—A'39—SM'44—F'53), Vice President, Acoustics and Magnetics, CBS Laboratories, 227 High Ridge Rd., Stamford, Conn.
Born: June 26, 1913, Odessa, Russia. I.E.E., 1932, Pratt Institute; E.E., 1937, University of Cincinnati. **Committees:** Audio Techniques, 1958–59. Awards, 1955; Board of Editors, 1950–53; Editorial Reviewer, 1954–60; Electroacoustics, 1945–59, *vice-chairman, 1949–55, chairman, 1953–56;* Papers Procurement, 1947–50; Professional Groups, 1952–53; Recording and Reproducing, 1958–61; Standards, 1954–56. **Professional Groups:** Audio, *vice-chairman, 1950, chairman, 1951–52, secretary, 1958;* Editor of *Transactions, 1952;* Associate Editor, 1953–58; *secretary, 1953–61.* **Awards:** Fellow, Acoustical Society of America; Fellow, Audio Engineering Society; Eta Kappa Nu Honorable Mention Award, 1946; IRE Professional Group on Audio Achievement Award, 1955; Eta Kappa Nu Award of Merit, 1961.

BAYLY, Benjamin deF. (M'43—SM'43—F'47), President, Bayly Engineering, Ltd., Ajax, Ont., Canada.
Born: June, 1903, London, Ont., Canada. B.A.Sc., 1930, University of Toronto; Professor, University of Toronto, 1930–51. **Committees:** Awards, 1940; Papers Review, 1947–49. **Sections:** Toronto, *chairman, 1936–37.* **IRE Representative:** University of Toronto, 1941–42. **Awards:** Member of the Order of the British Empire, 1946.

BEAM, Robert E. (S'37—A'41—SM'44—F'56), Professor of Electrical Engineering, Northwestern University, Evanston, Ill.
Born: July 11, 1914, Cambridge, Ohio. B.E.E., 1937, Ohio State University; Ph.D., 1940, Iowa State College. **Committees:** Education, 1945–51; Membership, 1947–48; Policy Development, 1949–50. **Professional Groups:** Microwave Theory and Techniques Administrative Committee, 1954–59. **IRE Representative:** Southern Methodist University, 1941–45. Northwestern University, 1945–47.

BECHMANN, Rudolf H. (SM'54—F'60), Consultant, Piezoelectric Crystal Branch, Solid State Frequency Control Division, U. S. Army Signal Research and Development Laboratory, Fort Monmouth, N.J.
Born: July, 1902, Nuremberg, Germany, Ph.D., 1927, University of Munich, Germany. **Committees:** Piezoelectric and Ferroelectric Crystals, 1953–61; Piezoelectric Crystals, *chairman, 1954–61.*

BECK, Alfred C. (A'30—SM'46—F'58), Member, Technical Staff, Bell Telephone Laboratories, Inc., P.O. Box 107, Red Bank, N.J.
Born: July 26, 1905, Granville, N.Y. E.E., 1927, Rensselaer Polytechnic Institute. **Professional Groups:** Microwave Theory and Techniques Administrative Committee, *chairman, 1955–56;* Administrative Committee, 1954–60. **Sections:** New York, *secretary, 1953–54, vice-chairman, 1954–55, chairman, 1955–56;* Monmouth Subsection, *vice-chairman, 1949–50, chairman, 1950–51.*

BECK, Arnold H. W. (S'36—A'39—M'55—F'59), Cambridge University, Engineering Laboratory, Trumpington St., Cambridge, England.
Born: August, 1916, Norfolk, England, B.Sc.(Eng.), 1937, University College, London University; M.A., 1959, Queens' College, University of Cambridge.

BEDFORD, Alda V. (A'31—SM'46—F'50), Fellow, Technical Staff, RCA Laboratories Division, Radio Corporation of America, Princeton, N.J.
Born: January, 1904, Winters, Tex. B.S.(E.E.), 1925, University of Texas; M.S.(E.E.), 1929, Union College. **Sections:** Princeton Subsection, *secretary-treasurer, 1946, vice-chairman, 1947, chairman, 1948;* Princeton Section, *chairman, 1949.* **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940; Incentive Awards, RCA Laboratories, 1949, 1951; IRE Vladimir K. Zworykin Television Prize, 1954.

BEDFORD, Leslie H. (M'34—SM'43—F'48), Director of Engineering, Guided Weapons Division, English Electric Aviation, Ltd., Luton, Beds., England.
Born: June 23, 1900, London, England, B.Sc., 1919, B.Sc. (Engineering), 1921, University of London; M.A., 1924, Cambridge University. **Awards:** IEE Premium, Institute of Electrical Engineers, London, 1934; Officer of the Order of the British Empire, 1943; Commander of the Order of the British Empire.

BEERS, George L. (A'27—M'29—SM'43—F'47), Radio Corporation of America, RCA Laboratories, Princeton, N.J.
Born: May 13, 1899, Indiana, Pa. B.S.(E.E.), 1921, Sc.D. (Honorary), 1947, Gettysburg College. **Committees:** Papers Procurement, 1946; Radio Receivers, 1942–49; Receivers, 1949–51. **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940; Fellow, Society of Motion Picture and Television Engineers.

BEGGS, James E. (SM'52—F'56), Electronic Engineer, General Electric Research Laboratory, P.O. Box 1088, Schenectady, N.Y.
Born: May 9, 1908, Omaha, Neb. B.S.(E.E.), 1931, Purdue University. **Committees:** Awards, 1957. **Awards:** Charles A. Coffin Award, 1936, 1940; Certificate of Commendation, U. S. Navy, Bureau of Ships, 1947.

BEGUN, S. J. (SM'46—F'52), Director of Marketing Clevite Corporation, 17000 St. Clair Ave., Cleveland 10, Ohio.
Born: December 2, 1905, Danzig, Germany, M.S., 1929, Ph.D. (Engineering), 1933, Institute of Technology, Berlin, Germany. **Committees:** Audio and Video Techniques, 1948–49; Electroacoustics, 1941–50; Sound Recording and Reproducing Technique, 1950–57, *chairman, 1950–51;* Standards, 1949–50. **Professional Groups:** Audio Administrative Committee, 1956–59. **Sections:** Cleveland, *vice-chairman, 1952–53, chairman, 1953–54.* **IRE Representative:** ASA Sectional Committee (Z57) on Standards for Sound Recording, 1948–50.

BELEVITCH, Vitold (SM'54—F'61), Director, Comite d'Etude et d'Exploitation des Calculateurs Electroniques, 67 rue de la Croix De Fer, Brussels, Belgium; Professor, University of Louvain, Belgium.
Born: March, 1921, Helsinki, Finland. E.E., M.E., 1942, D.Sc., 1945, University of Louvain. **Sections:** Benelux, *vice-chairman, 1959–60.*

BELL, John W. (M'46—F'53), Vice President, Engineering, Canadian Aviation Electronics, Ltd., Montreal, P.Q., Canada.
Born: September 2, 1911, Toronto, Ont., Canada. B.A.Sc., 1933, University of Toronto. **Awards:** Member of the Order of the British Empire, 1943.

BENNETT, Ralph D. (SM'44—F'52), Director of Research, The Martin Company, Baltimore 3, Md.
Born: June 30, 1900, Williamson, N.Y. B.S., 1921, M.S., 1923, Union College; Ph.D. (Physics), 1925, University of Chicago; Sc.D. (Honorary), 1945, Union College. **IRE Offices:** Director, 1953. **Committees:** Awards, 1954–55.

BENNETT, Rawson (A'36—M'43—SM'43—F'50), Rear Admiral, United States Navy, Chief of Naval Research, Navy Department, Washington 25, D.C.
Born: June, 1905, Chicago, Ill. B.S., 1927, United States Naval Academy; M.S., 1937, University of California. **Sections:** San Diego, *chairman, 1947.* **Awards:** Fellow, Acoustical Society of America, 1947; Fellow, American Association for Advancement of Science, 1954; Fellow, American Institute of Electrical Engineers, 1959.

BENNETT, William R. (SM'45—F'56), Data Communications Consultant, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: June 5, 1904, Des Moines, Iowa. B.S., 1925, Oregon State College; M.A., 1928, Ph.D., 1949, Columbia University. **Committees:** Circuits, 1949–61, *vice-chairman, 1951–53, chairman, 1953–56;* Information Theory and Modulation Systems, 1952–58; Papers Review, 1951–52; Standards, 1953–61, Member-at-Large, 1957–61. **Professional Groups:** Circuit Theory Administrative Committee, 1956–61; Editor of *Transactions, 1957–60.*

BERANEK, Leo L. (S'36—A'41—SM'45—F'52), President, Bolt, Beranek & Newman, Inc., Consultants in Acoustics, 50 Moulton St., Cambridge 38, Mass.; Lecturer on Communication Engineering, Massachusetts Institute of Technology, Cambridge 39, Mass.
Born: September 15, 1914, Solon, Iowa, B.A., 1936, D.Sc. (Honorary), 1946, Cornell College; M.S., 1937, D.Sc., 1940, Harvard University. **Committees:** Audio Techniques, 1949–51; Editorial Reviewer, 1954–61; National Convention, 1947; Professional Groups, 1948, 1951. **Professional Groups:** Audio, 1949–52, *chairman, 1949–51.*

BERESKIN, Alexander B. (A'41—M'44—SM'46—F'58), Professor of Electrical Engineering, University of Cincinnati, Cincinnati 21, Ohio.
Born: November 15, 1912, San Francisco, Calif. M.Sc.(Eng.), 1941, E.E., 1935, University of Cincinnati. **Committees:** Education, 1955–60; IRE International Convention Technical Program Committee, 1960; Professional Groups, 1959–60; Sections, 1952. **Professional Groups:** Audio, *national chairman, 1959–60;* Audio Administrative Committee, 1956–62; Editor of *Transactions, 1957–58.* **Sections:** Cincinnati, *vice-chairman, 1949–50, chairman, 1950–51;* Director, IRE Region 4. **IRE Representative:** University of *Cincinnati, 1947–59.*

BERGER, France B. (SM'52—F'61), Director of Research, CPL Division, General Precision, Inc., 63 Bedford Rd., Pleasantville, N.Y.
Born: May, 1916, Chicago, Ill. A.B. (Physics & Math.), 1938, Miami University, Ohio; M.(Physics), 1939, Ph.D. (Physics), 1942, University of Illinois.

BERKNER, Lloyd V. (A'26—M'34—SM'43—F'47), President, Graduate Research Center of the Southwest, P.O. Box 8478, Dallas 5, Tex.; President, Associated Universities, Inc., 10 Columbus Circle, New York 19, N.Y.; Board of Directors, Texas Instruments Inc.; Member, President's Science Advisory Committee, 1956–59, Consultant, 1959–; Rear Admiral USNR, 1955–.
Born: February 1, 1905, Milwaukee, Wis. B.S.(E.E.), 1927, University of Minnesota; D.Sc. (Honorary), 1955, Brooklyn Polytechnic Institute; Ph.D. (Honorary), 1956, Uppsala University, Uppsala, Sweden; D.Sc. (Honorary), 1957, University of Calcutta, India; D.Sc. (Honorary), 1958, University of Notre Dame; D.Sc. (Honorary), 1959, Columbia University; LL.D. (Honorary), 1959, University of Edinburgh, Scotland. **IRE Offices:** President, 1961; Director, 1959–60. **Committees:** Board of Editors, 1941–42; Editorial Reviewer, 1954–55; Executive, 1960; Joint Technical Advisory, 1952, *vice-chairman, 1953, chairman, 1954;* Papers, 1941; Professional Groups, 1954; Wave Propagation, 1937–42. **Professional Groups:** Nuclear Science Administrative Committee, *chairman, 1953.* **IRE Representative:** American Geophysical Union, *vice president, president, 1959–62;* International Council of Scientific Unions, Head of U. S. Delegation to VIIth General Assembly at Oslo, *president, 1955–58, past-president, 1958–61;* Special Committee on the International Geophysical Year, *vice-president, 1953–59;* International Scientific Radio Union, *vice-president, 1954–57, president, 1957–60.* **Awards:** Special Gold Medal of Congress; Silver Medal of the Aeronautical Institute; Gold Medal of the City of New York for Work on the Byrd Antarctic Expedition, 1930; Science Award, Washington Academy of Science, 1941; Legion of Merit, 1946; Honorary Officer, Order of the British Empire; Member and Treasurer, National Academy of Sciences; Space Science Board, *chairman, 1958–;* Fellow, American Institute of Electrical Engineers; Fellow, American Physical Society; Fellow, American Academy of Arts and Sciences; Fellow, Arctic Institute of North America; Fellow, Royal Swedish Academy.

BEVERAGE, Harold H. (A'15—M'26—F'28)(L), Consultant, Communications, RCA Laboratories, Rocky Point, L.I., N.Y.
Born: October 14, 1893, North Haven, Me. B.S., 1915, D.E., 1938, University of Maine. **IRE Offices:** President, 1937; Director, 1936–39. **Committees:** Admissions, 1936, 1939, 1941–47; Awards, 1938–39, *chairman, 1938;* Board of Editors, 1932–37; New York Program, 1932–35; Nominations, 1942–43, *chairman, 1942;* Standardization, 1930–31; Standards, 1934–35; Wave Propagation, 1957–61. **Awards:** IRE Morris Liebmann Memorial Prize, 1923; Armstrong Medal, Radio Club of America, 1938; Signal Corps Certificate of Appreciation, 1944; IRE Medal of Honor, 1945; Presidential Certificate of Merit, 1948; AIEE Lamme Medal, 1957; IRE PGCS Achievement Award, 1958.

BINGLEY, Frank James (A'34—M'36—SM'43—F'50), Television Research Engineer, Philco Corporation, C & Tioga Sts., Philadelphia 34, Pa.
Born: November 13, 1906, Bedford, Bedfordshire, England. B.Sc. (mathematics), 1926, B.Sc. (physics), 1927, University of London. **Committees:** Admissions, 1940, 1943; Awards, 1957, 1959–60; Editorial Reviewer, 1954–60; Fellow, 1958; Papers Review, 1946–53. **Awards:** Gold Medal, Television Broadcasters' Association; IRE Vladimir K. Zworykin Television Award, 1957.

BISHOP, Sir Harold (F'38), Director of Engineering, British Broadcasting Corporation, Broadcasting House, London, W.1, England.
Born: October 29, 1900, London, England. City and Guilds College (Imperial College of Science and Technology), 1917–20; B.Sc. (Engineering), 1920, University of London. **Awards:** Institution Premium, Institution of Electrical Engineers, 1935; Commander of the Order of the British Empire, 1938; Fellow, The City and Guilds Institute, 1947; Institution of Electrical Engineers, Vice President, 1948–53; President, 1953–54; Fellow, Imperial College of Science & Technology, 1954; Knight Bachelor, 1955; President, Association of Supervising Electrical Engineers, 1956–58; Vice President, Television Society, 1957–60, President, 1961; Member, Institution of Mechanical Engineers.

BLACK, Harold S. (M'42—SM'43—F'48), Research Engineer, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: April 14, 1898, Leominster, Mass. B.S., 1921, Eng.D. (Honorary), 1955, Worcester Polytechnic Institute. **Committees:** Administrative Board of Editors, 1951–53; Annual Review, 1948–49; Awards, 1948; Board of Editors, 1949–53; Editorial Administrative, 1948–50; Editorial Reviewer, 1956–60; Education, 1948; Frequency Modulation, 1946–47; Modulation Systems, 1947–50, *chairman, 1948–50;* Papers Review, 1947–48; Standards, 1948–50. **Awards:** Best Paper Prize, AIEE, 1934; Modern Pioneer Award, National Association of Manufacturers, 1940; John Price Wetherill Medal, The Franklin Institute, 1941; Certificate of Appreciation, U. S. War Department, 1946; Research Corporation Annual Award for Contribution to Science, 1952; Honorary Member, Audio Engineering Society, 1954; AIEE Lamme Medal, 1957; John H. Potts Memorial Award, Audio Engineering Society, 1959; Fellow, American Institute of Electrical Engineers: Fellow, American Association for the Advancement of Science.

BLACK, Knox Charlton (M'29—SM'43—F'49), Dep. Technical Director, Institute of Naval Studies, 94 Massachusetts Ave., Cambridge, Mass.
Born: April 23, 1905, Cambridge, Mass. A.B., 1924, A.M., 1926, Ph.D., 1927, Harvard University. **IRE Offices:** Director, 1952. **Committees:** Awards, 1951–52, *chairman, 1952;* Electroacoustic Devices, 1930–31; Policy Advisory, 1953–54; Policy Development, 1949–50, Standardization, 1930–31. **Professional Groups:** Aeronautical and Navigational Electronics, *chairman, 1953–54.* **Awards:** President's Certificate of Merit, 1948.

BLACK, Leonard J. (A'31—SM'46—F'53), Professor of Electrical Engineering and Assistant Dean, College of Engineering, University of California, Berkeley 4, Calif.
Born: July 29, 1904, Santa Clara, Calif. B.S., 1928, M.S., 1930, Ph.D., 1935, University of California. **Committees:** Education, 1949–51; Executive, 1937–42, 1949–52; Speakers and Papers, *chairman, 1937;* West Coast Convention, *general chairman, 1951.* **Sections:** San Francisco, *secretary-treasurer, 1938–39, vice chairman, 1940, chairman, 1941.* **IRE Representative:** University of California, 1941–52.

BLACKWELL, Otto B. (M'20—F'28)(L), Retired. 15 North Drive, Plandome, N.Y.
Born: August 21, 1884, Bourne, Mass. S.B., 1906, Massachusetts Institute of Technology. **Committees:** Standardization, 1920–24. **Awards:** Edison Medal, 1950.

BLAKE, Gordon A. (SM'55—F'61), Vice Commander and Chief of Staff, Headquarters Pacific Air Forces, APO 953, San Francisco, Calif.
Born: July 22, 1910, Charles City, Iowa. B.Sc., 1931, U. S. Military Academy.

BLOMBERG, Hugo (M'45—F'50), President, Svenska, Radioaktiebolaget, 12 Alstromergatan, Stockholm, Sweden.
Born: October 25, 1897, Stockholm, Sweden. E.E., 1920, Royal Technical University of Stockholm.

BODE, H. W. (M'41—SM'43—F'52), Vice President, Bell Telephone Laboratories, Inc., Whippany, N.J.
Born: December 24, 1905, Madison, Wis. A.B., 1924, M.A., 1926, Ohio State University; Ph.D., 1935, Columbia University. **Committees:** Annual Review, 1947–48; Circuits, 1944–48, *chairman, 1947–48;* Standards, 1947–48.

BOHNERT, John I. (M'46—SM'57—F'60), Superintendent of Electronics Division, U. S. Naval Research Laboratory, Washington 25, D.C.
Born: August, 1910, Pittsburgh, Pa. B.S. (Math.), 1932, Carnegie Institute of Technology; M.A. (Math.), 1935, Ph.D. (Math.), 1940, University of Pittsburgh. **Committees:** Fellow, 1960. **Professional Groups:** Antennas & Propagation, *national vice-chairman, 1956–57, national chairman, 1957–58.*

***BOLLJAHN, John T. (A'43—SM'53—F'59),** Executive Vice President, Granger Associates, 974 Commercial St., Palo Alto, Calif.
Born: June 10, 1918, Oakland, Calif. B.S.(E.E.), 1941, Ph.D., 1950, University of California. **Committees:** Editorial Reviewer, 1954–60. **Professional Groups:** Antennas & Propagation Administrative Committee, 1953–56.

BOND, Donald S. (SM'46—F'54), Staff Scientist, Advanced Military Systems, Radio Corporation of America, Princeton, N.J.
Born: June, 1909, Libertyville, Ill. B.S., 1929, S.M., 1931, University of Chicago. **Committees:** Papers Review, 1949–53.

BOOKER, Henry G. (SM'45—F'53), Director, School of Electrical Engineering; Professor, Department of Physics and Engineering Physics, Cornell University, Ithaca, N.Y.
Born: December, 1910, Barking, Essex, England. B.A., 1933, Ph.D., 1936, Cambridge University. **Committees:** Editorial Reviewer, 1954–60; Standards, 1949–52; Wave Propagation, 1949–59, *vice-chairman, 1949–50, chairman, 1950–52.* **Professional Groups:** Antennas and Propagation, *vice-chairman, 1955–58.* **IRE Representative:** National Bureau of Standards Technical Advisory Committee, *chairman, 1960.* **Awards:** Duddell, 1946; Institution, 1947; Kelvin, 1948; Premiums, I.E.E. (London).

BOONE, E. Milton (A'43—SM'46—F'56), Professor of Electrical Engineering and Director, Electron Device Laboratory, Ohio State University, Columbus 10, Ohio.
Born: February 17, 1903, Millersburgh, Ky. B.A.(Physics), 1926, M.S.(Physics), 1932, University of Colorado; M.S.(E.E.), 1937, University of Michigan. **IRE Offices:** Director, 1955–56. **Committees:** Awards, 1960; Education, 1956–60; Electron Devices, 1952–55; Electron Tubes, 1955–61; Electron Tubes and Solid State Devices, 1951–52; Fellow, 1958–60; Nominations, 1956; Papers Review, 1946. **Sections:** Columbus, *chairman, 1946–47.* **IRE Representative:** Ohio State University, 1946–50.

BOOTHROYD, Wilson P. (SM'47—F'56), Manager, Engineering, Philco Corporation, Tioga & C Sts., Philadelphia, Pa.
Born: February, 1916, Lawrence, Mass. B.S., 1937, Rhode Island State College. **Committees:** Radio Receiver, *vice-chairman, 1958–61.* **Professional Groups:** Broadcast and Television Receivers, *chairman, 1955.*

BORN, William T. (A'27—VA'39—SM'51—F'57), Vice President, Geophysical Research Corporation, 136 Mohawk Blvd., Tulsa 6, Okla.
Born: August 3, 1903, Chicago, Ill. B.S., 1925, University of Chicago. **Sections:** Sixth Southwestern IRE Conference, *chairman, 1954;* Southwestern IRE Conference Organization, *secretary, 1955.*

BOSOMWORTH, George P. (A'36—VA'39—F'57), Retired. 81 Sand Run Rd., Akron 13, Ohio.
Born: August 26, 1896, Gateshead, Durham, England. Whitworth Exhibition, 1916; Honors Diploma, E.E., 1917, Sunderland Technical College, England. **Committees:** Annual Review, 1947–50; Industrial Electronics, 1946–59, *chairman, 1947–58;* Standards, 1947–49. **Professional Groups:** Industrial Electronics Administrative Committee, 1951–58, *chairman, 1954–56.* **IRE Representative:** AIEE-IRE-NEMA Coordination Committee on Commercial Induction and Dielectric Heating Apparatus, 1948–49, *alternate, 1952–54.* **Awards:** Whitworth Bronze Medal, Board of Education, England, 1916.

* Deceased.

BOSSART, Paul N. (A'29—SM'46—F'56), Senior Consulting Physicist, Union Switch and Signal, Division Westinghouse Air Brake Company, Pittsburgh 18, Pa.
Born: May 10, 1896, Buffalo, N.Y. B.S.(E.E.), 1916, Carnegie Institute of Technology; E.E., 1920, Columbia University; Ph.D., 1933, University of Pittsburgh. **Sections:** Pittsburgh, *vice-chairman, 1940–41, chairman, 1941–42.*

BOWIE, Robert M. (A'34—M'37—SM'43—F'48), Vice President, General Telephone and Electronics Laboratories, Inc., 730 Third Ave., New York 17, N.Y.
Born: August 24, 1906, Table Rock, Neb. B.S., 1929, M.S. (Physics), 1931, Ph.D. (Physics), 1933, Iowa State College. **Committees:** Administrative Board of Editors, 1952–53; Admissions, 1945–48; Awards, 1953–55; Board of Editors, 1947–52; National Convention, 1950; Nuclear Studies, 1948–52; Papers Procurement, 1945–50; Research, 1946–47; Television, 1948–49; Television Systems, 1949–56, *vice-chairman, 1951–53.*

BOWLES, Edward L. (A'22—M'28—SM'43—F'47), Consulting Professor, School of Industrial Management, Massachusetts Institute of Technology, Cambridge 39, Mass.; Consulting Engineer; Consultant to the President, Raytheon Company.
Born: December 9, 1897, Westphalia, Mo. B.S., 1920, Washington University; M.S., 1922, Massachusetts Institute of Technology; D.Sc. (Honorary), 1945, Norwich University. **Committees:** Membership, 1937–40; Papers Procurement, 1942–43; Regular Papers, 1941; Standardization, 1929–32; Standards, 1932–33. **Sections:** Boston, *chairman, 1935–37.* **Awards:** Distinguished Service Medal, 1945; Honorary Commander, Civil Division of the Most Excellent Order of the British Empire, 1948; Presidential Medal for Merit, 1948.

BOWN, Ralph (M'22—F'25)(L), 85 Pine St., Millburn, N.J.
Born: February 22, 1891, Fairport, N.Y. M.E., 1913, M.M.E., 1915, Ph.D., 1917, Cornell University. **IRE Offices:** President, 1927; Vice President, 1926; Director, 1926–29, 1937–39. **Committees:** Admissions, 1926, 1939–40, *chairman, 1926;* Awards, 1928–31, 1938–42, 1946, *chairman, 1942;* Board of Editors, 1946–53; Constitution and Laws, 1929, 1937–40; Convention Policies, 1940; Finance, *chairman, 1926;* Meetings and Papers, 1929; Nominations, 1937, 1940–44, 1949–51, *chairman, 1944;* Receiving Sets, 1927–28; Research, 1949–50; Standardization, 1925–27, *chairman, 1925–26;* Standards, 1941–42. **Special Committees:** IRE-IEE International Liaison Committee, 1955–60. **IRE Representative:** IRE-RMA Joint Technical Advisory Committee, 1948–58, *chairman, 1952–53.* **Awards:** IRE Morris Liebmann Memorial Prize, 1926; IRE Medal of Honor, 1949; IRE Founders Award, 1961.

BRACEWELL, Ronald N. (SM'56—F'61), Professor of Electrical Engineering and Director of Radio Astronomy Institute, Stanford University, Stanford, Calif.
Born: July 22, 1921, Sydney, Australia. B.Sc. (Physics & Math.), 1941, B.S.(E.E.), 1943, M.E.(Comm.), 1948, University of Sydney; Ph.D., 1950, University of Cambridge. **Professional Groups:** Antennas and Propagation Administrative Committee. **Awards:** Fellow, Royal Astronomical Society; Duddell Premium, Institution of Electrical Engineers, London, 1949.

BRADLEY, William Earle (SM'45—F'53), Associate Director of Research, Also Acting Director of Research and Engineering Support Group, Institute for Defense Analyses, 1710 "H" St., Washington 6, D.C.
Born: January 7, 1913, Lansdowne, Pa. B.S.(E.E.), 1936, Moore School of Electrical Engineering, University of Pennsylvania. **Committees:** Editorial Reviewer, 1954–59. **Awards:** Certificate of Commendation, U. S. Navy, 1947; Citation, University of Pennsylvania, Schools of Engineering, 1955.

BRAINERD, John G. (A'33—M'39—SM'43—F'51), Professor and Director, Moore School of Electrical Engineering, University of Pennsylvania, 200 S. 33 St., Philadelphia 4, Pa.
Born: August 7, 1904, Philadelphia, Pa. B.S.(E.E.), 1925, D.Sc., 1934, University of Pennsylvania. **IRE Offices:** Director, 1956–57. **Committees:** Annual Review, *1948–49;* Circuits, 1947–59, *chairman, 1948–49;* Editorial Reviewer, 1955–60; Standards, 1948–56, *chairman, 1949–51,* Member-at-Large, 1957–61. **Professional Groups:** Circuit Theory, *chairman,* 1950–51; Educational Administrative Committee, 1959–. **Sections:** Philadelphia, *secretary, 1951–52, chairman, 1953–54.* **IRE Representative:** ASA Sectional Committee (C42) on Definitions of Electrical Terms, 1949–61; ASA Sectional Committee (C16) on Radio, 1950–51; ASA Standards Council, 1949–51; ASA Subcommittee (C42.1) on General Terms, 1948, 1952–59; AAAS Council, 1956–58; National Bureau of Standards Technical Advisory Committee, 1959–61; U. S. National Committee of International Electrotechnical Commission, 1960–.

BRAMHALL, F. Beaumont (M'42—SM'43—F'61), Engineering Consultant, Lenkurt Electric Co., Inc., 1105 County Rd., San Carlos, Calif.
Born: January, 1897, Camptown, Pa. B.S., 1919, Pennsylvania State University; M.S., 1937, Columbia University. **Awards:** F. E. d'Humy Award, Western Union Telegraph Co.; Fellow, American Institute of Electrical Engineers, 1944.

BREIT, Gregory (SM'45—F'45), Donner Professor of Physics, Sloane Physics Laboratory, Yale University, New Haven 11, Conn.
Born: July 14, 1899, Russia. A.B., 1918, A.M., 1920, Ph.D., 1921, The Johns Hopkins University; D.Sc., 1954, University of Wisconsin. **Committees:** Research, 1949–50.

BREITWIESER, Charles J. (A'35—VA'39—SM'56—F'58), President, Dominion Development Corporation, Arcadia, Calif.; Director, Cubic Corporation, San Diego, Calif.
Born: September 23, 1910, Colorado Springs, Colo. B.S.(E.E.), 1930, University of North Dakota; M.Sc., 1931, California Institute of Technology; D.Sc. (Honorary), 1949, University of North Dakota. **Professional Groups:** Engineering Management Administrative Commmittee, 1951–58, *chairman, 1954.* **Awards:** First Papers Award, American Institute of Electrical Engineers, 1945.

BRIDGES, James M. (SM'47—F'59), Director, Office of Electronics, Office Director, Defense Research & Engineering, The Pentagon, Washington 25, D.C.
Born: August 29, 1906, Hancock, Me. B.S.(E.E.), 1928, University of Maine. **Awards:** Commendation for Contribution to Advancement of Naval Fire Control, U. S. Navy, 1945.

BRIGGS, Maynard R. (A'37—SM'46—F'54), Manager, Communications and Control Engineering, Westinghouse Electric Corporation, P.O. Box 1897, Baltimore 3, Md.
Born: July 19, 1904, St. Paul, Minn. B.S.(E.E.), 1929, University of Minnesota. **Committees:** Antennas, 1944–45; Professional Groups, 1948; Radio Transmitters, 1948–58, *chairman, 1951–53;* Standards, 1951–53; Symbols, 1940–48; Transmitters and Antennas, 1939–48. **Sections:** Baltimore, *vice-chairman, 1957, chairman, 1957–58.* **IRE Representative:** IRE-RTMA Problems #2 Committee, 1948–49; IRE-RTMA-SMPTE Coordinating Committee, 1949–52; ASA Sectional Committee (C16) on Radio, 1952.

BRONWELL, Arthur B. (A'39—SM'43—F'56), President, Worcester Polytechnic Institute, Worcester, Mass.
Born: August 18, 1909, Chicago, Ill. B.S., 1933, M.S., 1936, Illinois Institute of Technology; M.B.A., 1947, Northwestern University; LL.D. (Honorary), 1955, Northeastern University; D.Eng. (Honorary), Wayne State University. **Committees:** Education, 1944–47, *chairman, 1945–46;* Papers Procurement, 1945–47. **Sections:** Chicago, *chairman, 1943–44.* **IRE Representative:** Northwestern University, 1941–45.

BROOKS, Frederick E., Jr. (S'42—A'44—M'48—SM'54—F'58), Senior Scientist, Temco Electronics and Missiles Company, P.O. Box 6191, Dallas 22, Tex.

Born: October 14, 1916, Mineola, L.I., N.Y. B.S.(E.E.), 1940, University of Kansas; D.Eng., 1944, Yale University. **Sections:** San Antonio, *vice-chairman, 1948–49, chairman, 1950.*

BROTHERS, James T. (A'29—SM'45—F'59), Chief, Technical Information, Philco Corporation, Tioga & C Sts., Philadelphia 34, Pa.
Born: April 30, 1908, New York, N.Y. Physics, New York University. **Committees:** Admissions, 1947–49; Papers Procurement, 1956; Sections, 1949–51; Standards, 1932–33; Symbols, 1948–50. **Professional Groups:** Component Parts Administrative Committee, 1953–59, *vice-chairman, 1958.* **Sections:** Philadelphia, *secretary-treasurer, 1947, vice-chairman, 1948, chairman, 1949–50.*

BROWN, Archibald S. (A'14—SM'47—F'56)(L), Special Assistant to General Manager, Engineering, Stanford Research Institute, Menlo Park, Calif.
Born: July 1, 1889, Minneapolis, Minn. B.S., 1910, Montana State College; E.E., 1915, University of Montana; Dr.Eng. (Honorary), 1958, Montana State College. **Professional Groups:** Administrative Committee, Aeronautical & Navigational Electronics, 1950–51; Engineering Management, San Francisco, *chairman, 1954;* Administrative Committee, Engineering Management, 1957–60; Administrative Committee, Military Electronics, 1958–61; Military Electronics, San Francisco, *vice-chairman, 1957;* Technical Program Committee WESCON, 1959; Technical Program Committee, Winter Convention, Los Angeles, 1960. **Sections:** San Francisco, *vice chairman, 1933.* **Awards:** Commendation, Chief Signal Officer, U. S. Army, 1940; U. S. Navy Commendation, 1946; Order of the British Empire, 1946.

BROWN, George H. (A'30—VA'39—F'41), Vice President, Engineering, Radio Corporation of America, Princeton, N.J.
Born: October 14, 1908, North Milwaukee, Wis. B.S., 1930, M.S., 1931, Ph.D., 1933, E.E. (Professional), 1942, University of Wisconsin. **Committees:** Annual Review, 1947–48; Antennas, 1944–49; Papers Procurement, 1948–50. **Awards:** Fellow, American Institute of Electrical Engineers; Fellow, American Association for the Advancement of Science.

BROWN, Gordon S. (SM'53—F'55), Dean of Engineering, Massachusetts Institute of Technology, 77 Massachusetts Ave., Cambridge 39, Mass.
Born: August 30, 1907, Drummoyne, New South Wales, Australia. M.E.(E.E.), 1925, Melbourne Technical School; B.S., 1931, M.S., 1934, Sc.D., 1938, Massachusetts Institute of Technology. **IRE Offices:** Director, 1958–60. **Committees:** Nominations, 1959–60; Policy Advisory, 1959–60. **Awards:** Certificate for Distinguished Service to Naval Ordnance Development, 1945; President's Certificate of Merit, 1948; Fellow, American Academy of Arts and Sciences, 1950; Fellow, American Institute of Electrical Engineers, 1950; 7th George Westinghouse Award, American Society for Engineering Education, 1952; Lamme Medal Engineering Education, American Society Engineering Education, 1959; Electrical Engineering Education Medal, American Institute of Electrical Engineers, 1959.

BROWN, Jesse E. (A'24—M'28—SM'43—F'49), Vice President, Engineering, Zenith Radio Corporation, 6001 W. Dickens Ave., Chicago 29, Ill.
Born: September, 1902, Greenport, N.Y. Attended Cornell University, 1920–24. **IRE Offices:** Director, 1938, 1947. **Committees:** Admissions, 1940; Awards, 1940; Frequency Modulation, 1940–47; Industrial Electronics, 1947–49; Membership, 1949–50; Modulation Systems, 1947–48; Nominations, 1947; Papers Procurement, 1942–45; Public Relations, 1940; Radio Receivers, 1941–42, 1945–49; Receivers, 1949–51; Regular Papers, 1941; Sections, 1937; Special Publications Funds, 1947; Television, 1940–49; Television Systems, 1949–61. **Sections:** Chicago, *secretary, 1936–37, chairman, 1938–39.* **IRE Representative:** Army Signal Association, 1947.

BROWN, William C. (A'39—M'55—SM'58—F'59), Associate Director of Engineering, Spencer Laboratory, Raytheon Company, Burlington, Mass.
Born: May, 1916, Lewis, Iowa B.S.(E.E.), 1937, Iowa State College; M.S., 1941, Massachusetts Institute of Technology. **Committees:** Tube Research Conference Committee, 1958–59. **Awards:** Naval Ordnance Development Award, U. S. Navy, 1945; Certificate of Commendation, 1947.

BROWNING, Glenn H. (A'24—M'28—SM'43—F'55), Retired.
RFD 1, Sebago Lake, Me.
Born: March 9, 1897, Solon, Iowa. B.A., 1921, Sc.D. (Honorary), 1950, Cornell College. **IRE Offices:** Director, 1952–55. **Committees:** Nominations, 1955. **Sections:** Boston, *chairman, 1946–47.*

BRUECKMANN, Helmut L. (SM'49—F'58), Principal Research Scientist, U. S. Army Signal Research & Development Laboratory, Fort Monmouth, N.J.
Born: May 20, 1906. Frankfurt am Main, Germany. Dipl.E., 1930, D.Eng., 1935, Technical University, Berlin, Germany. **Awards:** IRE Memorial Prize Award in Memory of Harry Diamond, 1961.

BRUENE, Warren B. (A'45—M'45—SM'49—F'61), Senior Technical Consultant, Collins Radio Company, 5225 C Ave., N.E., Cedar Rapids, Iowa.
Born: November 1, 1916, Beaman, Iowa. B.S.(E.E.), 1938, Iowa State University. **Committees:** Single Sideband Radio Communication Transmitters, 1955–61. **Sections:** Cedar Rapids, Charter Member, *secretary, 1956, vice-chairman, 1958, chairman, 1958.* **Awards:** Outstanding Article of the Year in QST, American Radio Relay League, 1954.

BRUNETTI, Cledo (A'37—SM'46—F'49), President and General Manager, Grand Central Rocket Co., Redlands, Calif.
Born: April, 1910, Virginia, Minn. B.E.E. (with High Distinction), 1932, Ph.D., 1937, University of Minnesota. **Committees:** Awards, 1957; Circuits, 1944–51, *vice-chairman, 1949–50;* Fellow, 1958; Industrial Electronics, 1955–58; Papers Procurement, 1948–50; Radio Transmitters, 1946–49. **Professional Groups:** Automatic Controls Administrative Committee, 1954. **IRE Representative:** Member, Visiting Committee for Department of Aero-Space Engineering, The University of Texas. **Awards:** National Scholarship Key, National I.A. Civic League, 1937; Outstanding Young Electrical Engineer, Eta Kappa Nu, 1941; Certificate of Appreciation of Services, Office of Scientific Research and Development, 1945; Certificate for Outstanding Service, War Department, 1945; Naval Ordnance Development Award for Exceptional Service, United States Navy, 1945; Army-Navy Certificate of Appreciation for Outstanding Services during World War II, War and Navy Department, 1947; The Material and Methods Achievement Grand Award, Materials and Methods Magazine, 1947; Outstanding Achievement Award, University of Minnesota, 1958; Fellow, American Institute of Electrical Engineers.

BRUSTMAN, Joseph A. (A'39—SM'48—F'59), Manager, Electronic Systems Engineering, Advanced Systems Development Engineering, Electronic Data Processing Division, Radio Corporation of America, Camden 2, N.J.
Born: March, 1913, Vienna, Austria. Dipl.Ing., 1938, Technical University, Vienna, Austria. **Awards:** Award from the Office of Scientific Research and Development, Washington, D.C., 1945.

BUDENBOM, Horace T. (A'40—SM'46—F'56), Retired from Bell Telephone Laboratories, Inc., Whippany, N.J.; Consultant to Lockheed Electronics Company; Bulova Research & Development Corporation; Curtiss-Wright Electronics, East Paterson, N.J.; Residence: 82 Wellington Ave., Short Hills, N.J.
Born: August 4, 1902, Brooklyn, N.Y. B.S.(E.E.), 1922, E.E., 1929, Purdue University. **Sections:** New York, *secretary, 1950–51, vice-chairman, 1951–52, chairman, 1952–53.*

BULLINGTON, Kenneth (A'45—SM'53—F'55), Transmission System Engineer, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: January 11, 1913, Guthrie, Okla. B.S.(E.E.), 1936, University of New Mexico; M.S.(E.E.), 1937, Massachusetts Institute of Technology. **Committees:** Editorial Reviewer, 1954–60; Papers Review, 1949–53; Wave Propagation, 1954–56, 1959–61. **Awards:** IRE Morris Liebmann Memorial Prize, 1956; Stuart Ballantine Medal, Franklin Institute, 1956; IRE-PGCS Achievement Award, 1959.

BURKE, Charles T. (A'25—M'27—F'37), Director of Planning, General Radio Company, 22 Baker Ave., West Concord, Mass.
Born: August 4, 1902, Watertown, Mass. S.B., 1924, S.M., 1924, Massachusetts Institute of Technology. **Committees:** Handbook, 1945–48; Papers Procurement, 1946; Power Supply, 1928–29; Radio Receivers, 1927–28; Standards, 1941–44.

BURNAP, Robert S. (A'30—F'47), Consultant, 58 University Ct., South Orange, N.J.
Born: July 12, 1894, Monterey, Mass. S.B., 1916, Massachusetts Institute of Technology. **Committees:** Ad Hoc Committee to Make Critical Review of Organization of Committee, 1952–53; Administrative Committee of the Board of Editors, 1951–53; Annual Review, 1943–49; Awards, 1948; Board of Editors, 1944–53; Editorial Administrative, 1946–53; Editorial Reviewer, 1954; Electron Devices, 1952–56; Electron Tubes, *chairman, 1946–49;* Electron Tubes and Solid State Devices, 1949–52; Electronics, 1936–46, *chairman, 1942–46;* Handbook, 1945–48; Papers Procurement, 1942–44; Regular Papers, 1941; Standards, 1943–49; Symbols, 1940–41, 1943–48; Tellers, *chairman, 1942;* Vacuum Tubes, 1945–46. **IRE Representative:** ASA Subcommittee (C42.14) on Electronics, 1947–51.

BURROWS, Charles R. (A'24—M'38—SM'43—F'43), Vice President, Engineering and Research, Datronics Engineers, Inc., 4925 St. Elmo Ave., Bethesda 14, Md.
Born: June 21, 1902, Detroit, Mich. B.S.E.(E.E.), 1924, University of Michigan; A.M., 1927, Columbia University; E.E., 1935, University of Michigan; Ph.D., 1938, Columbia University. **IRE Offices:** Director, 1956. **Committees:** Annual Review, 1943–46; Appointments, 1956; Circuits, 1945–50; Editorial Reviewer, 1955–60; National Convention, 1948; Radio Wave Propagation, 1942–45, *chairman, 1943–45;* Radio Wave Propagation and Utilization, 1945–47; Standards, 1943–45, 1949–50; Symbols, 1940–52; Wave Propagation, 1937–61, *vice-chairman, 1948–49, chairman, 1949–50.* **Professional Groups:** Engineering Management, 1953–61, *vice-chairman, 1956–57, chairman, 1957–58;* Communications Systems, 1961. **Sections:** Ithaca, *chairman, 1953–54.* **Awards:** Presidential Certificate of Merit; Distinguished Alumnus, University of Michigan; Fellow, American Institute of Electrical Engineers; Fellow, American Physical Society.

BUSIGNIES, Henri (M'42—SM'43—F'45), Vice President and General Technical Director, International Telephone and Telegraph Corporation, 67 Broad St., New York, N.Y.
Born: December 29, 1905, Sceaux, Paris, France, E.E., 1926, Institute Normal Electro-technique, Paris, France; D.Sc. (Honorary), 1958, Newark College of Engineering. **Committees:** Annual Review, 1948–49; Awards, 1955–57; Navigation Aids, 1946–51, *vice-chairman, 1947–48, chairman, 1948–50;* Standards, 1948–50. **Awards:** Certificate of Commendation, U. S. Navy, 1947; Presidential Certificate of Merit, 1948.

BUTTNER, Harold H. (M'27—SM'43—F'44), Retired as Vice President, International Telephone and Telegraph Corporation, 67 Broad St., New York 4, N.Y. Director, Hewlett-Packard Co., Palo Alto, Calif.; Director, F. L. Moseley Co., Pasadena, Calif.; Director, Boonton Radio Corporation, Boonton, N.J.; Director, Lunn Laminates, Huntington Station, L.I., N.Y.
Born: November 3, 1892, Port Costa, Calif. B.S.(E.E.), 1915, University of California. **Committees:** Electronics, 1940–41; Meetings and Papers, 1929; Standards, 1938–39.

BYRNE, John F. (SM'45—F'50), General Manager, Riverside Research Laboratory, Motorola Inc., Adams & Indiana Aves., Riverside, Calif.
Born: October 26, 1905, Cincinnati, Ohio. B.S., 1927, M.S.(E.E.), 1928, Ohio State University. **IRE Offices:** Vice President, 1961; Director, 1955–57. **Committees:** Appointments, 1955; Awards, 1953–55; Policy Advisory, 1956–57; Tellers, 1949. **Awards:** United States Navy Certificate of Commendation, 1947; Presidential Certificate of Merit, 1948.

BYRNES, Irving F. (A'23—M'39—SM'43—F'54), Radiomarine Engineering, Radio Corporation of America, 75 Varick St., New York 13, N.Y.
Born: October, 1898, Beacon, N.Y. Union College Extension Courses in Electrical Engineering completed in 1926. **Committees:** Paper Procurement, 1947–50; Standardization, 1930–31. **IRE Representative:** ASA Sectional Committee on Electrical Installations on Shipboard, 1939–48. **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940; U. S. Navy, Bureau of Ships, Certificate of Commendation, 1947.

CADY, Walter G. (A'14—F'27)(L), Consultant, 3350 Calvert Rd., Pasadena 8, Calif.
Born: December 10, 1874, Providence, R.I. Ph.B., 1895, M.A., 1896, Brown University; Ph.D., 1900, University of Berlin; D.Sc., 1938, Brown University; 1958, Wesleyan University. **IRE Offices:** President, 1932; Editor, 1929; Director, 1929, 1932–34. **Committees:** Annual Review, 1942–50; Awards, 1928–30, 1933, *chairman, 1930;* Bibliography, 1930–31; Board of Editors, 1928–29, 1945, *chairman, 1929;* Institute Sections, 1928; Meetings and Papers, 1928–29; Nominations, 1930, 1933–34, 1939, *chairman, 1933;* Papers, 1931; Piezoelectric Crystals, 1941–61, *chairman, 1942–49;* Standards, 1943–51. **Sections:** Connecticut Valley, *chairman, 1927–28.* **Awards:** IRE Morris Liebmann Memorial Prize, 1928; Duddell Medal, Physical Society of London, 1936.

CAHOON, Roy D. (A'35—SM'47—F'56), Prairie Regional Engineer, Canadian Broadcasting Corporation, 541 Portage Ave., Winnipeg, Man., Canada.
Born: March 1, 1911, Cardston, Alta., Canada. B.A.Sc.(E.E.), 1934, University of Toronto; 1943, McGill University. **Sections:** Winnipeg Subsection, *chairman, 1949–50.*

CALLAHAN, John L. (A'21—M'31—SM'43—F'53), Administrator, Radio Research Laboratory, RCA Laboratories, Rocky Point, L.I., N.Y.
Born: December 9, 1898, Minneapolis, Minn., 1919, Sorbonne, Paris; 1941, New York University. **Committees:** Admissions, 1944–48; Annual Review, 1940–45; Awards 1951; Facsimile, 1939–46, *chairman, 1940–45;* Papers, 1942; Professional Groups, 1955; Standards, 1940–45; Symbols, 1940–41; Television and Facsimile, 1937–38; Tellers, 1949–51, *chairman, 1950.* **Professional Groups:** Communications Systems Administrative Committee, *secretary, 1952–54.* **Awards:** Army-Navy Certificate of Appreciation, 1948; Fellow, American Institute of Electrical Engineers; Fellow, Radio Club of America.

CALVERT, John F. (SM'49—F'60), Professor, University of Pittsburgh, Pittsburgh 13, Pa.
Born: October 14, 1898, Columbia, Mo. B.S.(E.E.), 1922, E.E., 1924, University of Missouri; M.S.(E.E.), 1930, Ph.D.(Math.), 1936, University of Pittsburgh. **Awards:** Fellow, American Institute of Electrical Engineers, 1945; Electrical Engineering Education Medal, American Institute of Electrical Engineers, 1958; Award in Engineering, University of Missouri, 1959.

CAMPBELL, Richard D. (A'34—SM'46—F'51), Point-to-Point Radio Engineer, American Telephone and Telegraph Company, 195 Broadway, New York, N.Y.
Born: May 26, 1899, St. Louis, Mo. B.S.(E.E.), 1922, George Washington University. **Committees:** Industrial Electronics, 1947–48; National Convention, 1947.

CAMRAS, Marvin (S'41—A'42—SM'48—F'52), Senior Engineer, Armour Research Foundation, 10 W. 35 St., Chicago 16, Ill.
Born: January 1, 1916, Chicago, Ill. B.S.(E.E.), 1940, Armour Institute of Technology; M.S.(E.E.), 1942, Illinois Institute of Technology. **Committees:** Chapters, *chairman, 1956;* Nominations, *chairman, 1954–56;* Recording and Reproducing, 1954–60. **Professional Groups:** Audio, 1951–60, *secretary, 1951–52, chairman, 1953–54;* Editor, *Transactions on Audio,* 1958–61. **Awards:** Il-

linois Institute of Technology Alumni Association Distinguished Service Award, 1948; Eta Kappa Nu Award (Honorable Mention), 1948; U. S. Camera Award for Contribution to Motion Picture Photography, 1949; Fellow, Acoustical Society of America, 1951; John Scott Medal, 1955; Indiana Technical College Citation, 1958; IRE-PGA Achievement Award, 1958; Fellow, American Institute of Electrical Engineers, 1959.

CARLIN, Herbert J. (M'47—SM'50—F'56), Research Professor and Acting Chairman, Electrophysics Department, Polytechnic Institute of Brooklyn, 55 Johnson St., Brooklyn 1, N.Y.; Director, Columbia Technical Corporation, Woodside 77, N.Y.
Born: May 1, 1917. B.S., 1938, Columbia College; M.S., 1940, Columbia University School of Engineering; D.E.E., 1947, Polytechnic Institute of Brooklyn. **Committees:** Awards, *chairman, 1958–60;* Editorial Reviewer, 1954–60. **Professional Groups:** Circuit Theory, *secretary, 1950–52, vice-chairman, 1953–55, chairman, 1955–56;* Instrumentation, *secretary, 1950–53.*

CARLSON, Wendell L. (A'36—SM'47—F'49), Technical Advisor, Patents and Licensing, Radio Corporation of America, Princeton, N.J.
Born: January, 1897, Jamestown, N.Y. **Committees:** Radio Receivers, 1946–47.

CARNAHAN, C. Wesley (A'34—SM'45—F'52), Director, Central Research Planning, Varian Associates, Palo Alto, Calif.
Born: July 4, 1907, Berkeley, Calif. B.A., 1927, M.A., 1931, Stanford University. **Committees:** Board of Editors, 1947–53; Papers Review, 1946. **Sections:** New Mexico, *chairman, 1949, 1953;* San Francisco, *director, 1957–59;* Director, Seventh Region, 1960.

CARSON, Victor S. (S'39—A'42—SM'51—F'55), Associate Manager, Communication Department, Space Technology Laboratories, Inc., Canoga Park, Calif.
Born: June 29, 1908, Pocatello, Idaho. B.S.(E.E.), 1938, Oregon State College; Eng., 1940, Ph.D., 1946, Stanford University. **Sections:** North Carolina-Virginia, *secretary-treasurer, 1950–51, vice-chairman, 1951, chairman, 1952.* **IRE Representative:** University of Connecticut, 1941-42; Stanford University, 1945.

CARTER, E. Finley (A'23—F'36), President and Member of Board of Directors, Stanford Research Institute, Menlo Park, Calif.
Born: July 1, 1901, Elgin, Tex. B.S., 1922, Rice Institute. **IRE Offices:** Director, 1943–45, 1961–63. **Committees:** Admissions, 1944; Constitution and Laws, 1945, 1948; Editorial Administrative, 1949–50; Executive, 1944–45; International, 1961; National Convention, 1947–48. **Awards:** Professional Recognition, 1947.

***CARTER, Philip S. (A'29—M'38—SM'43—F'49),** Research Engineer, RCA Laboratories Division, Rocky Point, L.I., N.Y.
Born: July, 1896, Glastonbury, Conn. A.B. (Mechanical Engineering), 1918, Stanford University. **Committees:** Annual Review 1945–48; Antennas, *chairman, 1945–48;* Antennas and Wave Guides, 1949–60; Board of Editors, 1937–46; Standards, 1945–60. **Professional Groups:** Antennas and Propagation, 1949–58, *chairman, 1953.* **IRE Representative:** U.S.A. National Committee, URSI, 1953–56. **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940; Citation for Overseas Work on Countermeasures "V2" Rocket, Secretary of War, 1947; Army-Navy Certificate of Appreciation, 1948.

CAWEIN, Madison (M'36—SM'43—F'54), Research & Advanced Development, TV & Physical Optics, DuMont Military Electronics Division, F. C. & I., Clifton, N.J.
Born: March, 1904, Louisville, Ky. B.S. (Physics), 1924, University of Kentucky; 1925, Cornell University; 1927–30, University of Kentucky. **Committees:** Papers Procurement, 1945–47.

CHAFFEE, E. Leon (M'17—F'21)(L), Professor, Emeritus, Applied Physics, Harvard University, Cambridge 38, Mass.
Born: April, 1885, Somerville, Mass. S.B., 1907, Massachusetts Institute of Technology; A.M., 1908, Ph.D., 1911, S.D. (Honorary), 1944, Harvard University; D.Engr. (Honorary), 1954, Case Institute of Technology. **IRE Offices:** Vice President, 1922; Director, 1922. **Committees:** Electron Tubes, 1946–47; Electronics, 1936–45; Membership, 1925; Papers, 1918–19; Papers Procurement, 1942–43; Regular Papers, 1941; Research, 1949–50; Standardization, 1927–31; Symbols, 1940–43; Vacuum Tubes, 1930–31, 1945–46. **Sections:** Boston, *chairman, 1932–35.* **IRE Representative:** Harvard University, 1941–53. **Awards:** Longstreth Medal of Merit, Franklin Institute, 1912; IRE Medal of Honor, 1959.

CHAFFEE, Joseph G. (A'26—M'40—SM'43—F'54), Member, Technical Staff, Bell Telephone Laboratories, Inc., 463 West St., New York 14, N.Y.
Born: March, 1901, Hackensack, N.J. S.B., 1923, Massachusetts Institute of Technology.

CHAMBERLAIN, Adolph B. (A'27—M'30—F'41), Director of Engineering, CBS Television Network, 485 Madison Ave., New York 22, N.Y.
Born: February 3, 1901, Franklin, Mass. **IRE Offices:** Director, 1941–44. **Committees:** Admission, 1940–41; Annual Review, 1947–48; Awards, 1942; Broadcast, *alternate, 1932–33;* Constitution and Laws, 1947; Frequency Modulation, 1940–41; Membership, 1949–50; National Convention, 1947; New York Program, 1938–42, *chairman, 1940;* Papers, 1942; Professional Groups, 1948–49; Public Relations, 1946; Radio Transmitters and Antennas, 1929–30; Regular Papers, 1941; Standardization, 1929–31; Standards, 1946–50, *chairman, 1947–48;* Tellers, *chairman, 1942;* Transmitters and Antennas, 1936–37. **Sections:** Buffalo-Niagara, *chairman, 1930–31;* Rochester, *chairman, 1928–29.* **IRE Representative:** ASA Standards Council, 1948–49; ASA Sectional Committee on Definitions of Electrical Terms, 1948–49. **Awards:** Legion of Merit, 1946.

CHAMBERS, Carl C. (A'30—M'42—SM'43—F'59), Vice-President for Engineering Affairs, University of Pennsylvania, 107 Towne Building, 220 S. 33 St., Philadelphia 4, Pa.
Born: May 8, 1907, Philadelphia, Pa. B.S.(Math.), 1929, Dickinson College, Carlisle, Pa., Sc.D.(Major E.E.), 1934, University of Pennsylvania. **IRE Offices:** Board of Directors, 1942. **Committees:** Annual Review, 1943–45; Awards, 1949; Board of Editors, 1948–53; Education, 1944–46, 1950–54; Frequency Modulation, 1941–47, *chairman, 1943–46;* Measurements and Instrumentation, 1949–52; Modulation Systems, 1947–50; Radio Frequency Interference, 1955–58; Standards, 1941–45. **Special Committees:** Professional Recognition, 1955–60. **Sections:** Philadelphia, *chairman, 1941–42.* **IRE Representative:** ASA Sectional Committee (C63) on Radio Electrical Coordination, 1948–51, 1954; Member-at-Large, 1955–61, *vice-chairman, 1955–61;* University of Pennsylvania, 1948–51; U. S. National Committee of the International Electro-technical Commission—Member-at-Large; Member, U. S. Commission IV of URSI, 1949–59. **Awards:** Fellow, American Institute of Electrical Engineers; Fellow, American Society of Electrical Engineers; Fellow, American Society for Advancement of Science.

CHAMBERS, Dudley E. (M'41—SM'43—F'48), Manager, Engineering Services Research, General Electric Company, 1 River Road, Schenectady 5, N.Y.
Born: November 27, 1905, Kansas City, Mo. B.A., 1927, E.E., 1928, Stanford University. **Committees:** Awards, 1948–51: Board of Editors, 1953; Education, 1953; Research, *chairman, 1949–50;* Standards, 1949–50. **Awards:** Fellow, American Institute of Electrical Engineers, 1948.

CHAMBERS, Joseph A. (A'28—M'30—SM'43—F'55), Vice President, Motorola Inc.; General Manager, Motorola Western Military Electronic Center, 8201 E. McDowell Rd., Scottsdale, Ariz.
Born: August 1, 1903, Union, S.C. B.S., 1924, Clemson. **Committees:** Editorial Reviewer, 1954–60.

CHANCE, Britton (M'46—SM'46—F'54), Professor of Biophysics, Director of the Johnson Foundation for Medical Physics, University of Pennsylvania, Philadelphia 4, Pa.

* Deceased.

Born: July 24, 1913, Wilkes-Barre, Pa. B.S., 1935, M.S., 1936, Ph.D., (Physical Chemistry), 1940, University of Pennsylvania; Ph.D. (Biology), 1942, D.Sc., 1952, University of Cambridge. **Awards:** Fellow, American Physical Society; Fellow, American Association for the Advancement of Science; Fellow, National Academy of Sciences; Fellow, American Philosophical Society; IRE Professional Group on Bio-Medical Electronics Prize Award in Memory of William J. Morlock, 1961.

CHENG, David K. (S'44—A'48—M'48—SM'50—F'60), Professor of Electrical Engineering, Syracuse University, Syracuse 10, N.Y.
Born: January 10, 1918, I-Shing, Kiangsu, China. B.S.(E.E.), 1938, Chiao-Tung University, Shanghai, China; S.M., 1944, Sc.D., 1946, Harvard University. **Awards:** Charles Storrow Scholar, 1944–45; Gordon McKay Scholar, 1945–46, Harvard University; Fellow, John Simon Guggenheim Memorial Foundation, 1960–61.

CHINN, Howard A. (A'42—SM'45—F'45), Chief Engineer, CBS Television Network, 485 Madison Ave., New York 22, N.Y.
Born: January 5, 1906, New York, N.Y. S.B., 1927, S.M., 1929, Massachusetts Institute of Technology. **Committees:** Admissions, 1945–48; Audio and Video Techniques, *chairman, 1948;* Constitution and Laws, 1952; Editorial Reviewer, 1954–60; Education, 1945; Membership, 1934, 1936–38; Papers, 1935–40, 1944–45; Papers Review, 1946–52; Professional Groups, 1948; Standards, 1948–49; Tellers, 1946–47, *chairman, 1947.* **Awards:** Presidential Certificate of Merit, 1949; John H. Potts Memorial Award, 1950; Fellow, Audio Engineering Society; Fellow, Acoustical Society of America; Fellow, Society Motion Picture and Television Engineers; Fellow, American Institute of Electrical Engineers.

CHIPP, Rodney D. (A'34—SM'43—F'55), Director, Engineering Planning, ITT Federal Laboratories, Nutley, N.J.
Born: May 16, 1910, New Rochelle, N.Y. **Committees:** Constitution and Laws, 1950; Industrial Electronics Committee, 1956–58; National Convention, 1947–52; Video Signal Transmission Methods of Measurement, 1952–55. **Professional Groups:** Engineering Management Administrative Committee, 1958–61. **Sections:** New York, *secretary, 1948–49, vice-chairman, 1949–50, chairman, 1950–51.* **Awards:** U. S. Navy Commendation, 1946; President, Technical Societies Council of New York, 1953–54; N.S.P.E. Project Ambassador, 1959.

CHITTICK, Kenneth A. (A'26—SM'49—F'53), Manager, Engineering Administration, Consumer Products Department, Radio Corporation of America, 8020 College Ave., Indianapolis, Ind.
Born: November 6, 1903, Old Bridge, N.J. B.S., 1925, Rutgers University. **Committees:** Measurements and Instrumentation, 1949–50; Papers Procurement, 1947–50; Radio Frequency Interference, 1955–61; Radio Receivers, 1951–61; Television, 1945–48; Television Systems, 1949–60. **Awards:** Award of Merit, RCA, 1947; Certificate of Commendation, U. S. Navy, 1947.

CHODOROW, Marvin (A'43—SM'47—F'54), Professor, Applied Physics and Electrical Engineering, Stanford University; Director of Microwave Laboratory, Stanford, Calif.
Born: July 16, 1913, Buffalo, N.Y. B.A., 1934, University of Buffalo; Ph.D., 1939, Massachusetts Institute of Technology. **Committees:** Awards, 1956–59; Editorial Reviewer, 1954–60. **Professional Groups:** Electron Devices Administrative Committee, 1960–.

CHRISTALDI, P. Samuel (S'35—A'40—SM'44—F'52), 132 Squire Hill Rd., Upper Montclair, N.J.
Born: November 26, 1914, Philadelphia, Pa. E.E., 1935, Ph.D. (Physics), 1938, Rensselaer Polytechnic Institute. **Committees:** Admissions, 1949–53, *chairman, 1950–51;* Measurements and Instrumentation, 1949–61, *vice-chairman, 1952–54, chairman, 1954–58;* Standards, 1954–58; Tellers, 1956. **Sections:** Northern New Jersey Subsection, *secretary, 1951–53, chairman, 1955–56.* **IRE Representative:** U. S. National Committee, International Electro-technical Commission, Advisers on Electric Measuring Instruments, 1955; ASA Sectional Committee (C39) on Electrical Measuring Instruments, 1955–56; Joint IRE-AIEE Committee on High Frequency Measuring Instruments, 1956. **Awards:** Fellow, Radio Club of America.

CHRISTENSEN, John W. (SM'46—F'61), Vice President and Associate Director of Research, CBS Laboratories, A Division of Columbia Broadcasting System, Inc., 227 High Ridge Rd., Stamford, Conn.
Born: October 17, 1915, Circleville, Utah. B.S., 1937, University of Utah. **Committees:** Editorial Reviewer, 1955–57; Television Systems, 1950–53. **Professional Groups:** Microwave Theory & Techniques, 1957; Medical Electronics, 1958–61. **Awards:** Certificate of Commendation, U. S. Navy, 1947; Citation for Outstanding Service, U. S. Army-Navy, 1947.

CHU, Lan J. (A'39—VA'39—SM'48—F'52), Professor of Electrical Engineering, Massachusetts Institute of Technology, Cambridge 39, Mass.
Born: August 24, 1913, Hweiying, Kiangsu, China. B.S., 1934, Chiao Tung University; M.S., 1935, Sc.D., 1938, Massachusetts Institute of Technology. **Committees:** Antennas, 1948–49; Antennas and Waveguides, 1949–51, *vice-chairman, 1949–50;* Editorial Reviewer, 1954–60; Technical Program, 1949–50.

CLAPP, James K. (A'24—M'28—F'33), Retired from General Radio Company, 22 Baker Ave., West Concord, Mass.; Residence: "Happy Landing," Manasota Key, Englewood, Fla.
Born: December 30, 1897, Denver, Colo. B.S., 1923, S.M., 1926, Massachusetts Institute of Technology. **Committees:** Editorial Reviewer, 1954–58; Papers, 1931–45; Papers Review, 1946–55; Piezoelectric Crystals, 1940–56; Standards, 1934–35.

CLARK, JOHN W. (A'41—M'45—SM'58—F'61), Manager, Nuclear Electronics Laboratory, Hughes Aircraft Company, Florence & Teale, Culver City, Calif.
Born: April, 1915, Williamsburg, Va. B.S., 1935, State University of Montana; M.S., 1937, Ph.D.(Physics), University of Illinois. **Sections:** Cedar Rapids, 1946–50; San Francisco, 1950–54; Los Angeles, 1954–61.

CLARK, Ralph L. (A'29—SM'48—F'58), Assistant Director, Defense Research and Engineering (Communications), The Pentagon, Washington 25, D.C.
Born: June 2, 1908, East Jordan, Mich. B.S.(E.E.), 1930, Michigan State University. **Professional Groups:** Communication Systems Engineering Management Education; Joint Technical Advistory Committee, 1959, *chairman, 1960–61;* National Administrative Committee, Military Electronics, 1955–57.

CLARK, Trevor (A'32—SM'45—F'60), Assistant to the Engineering Manager, Westinghouse Electric Corporation, Air Arm Division, P.O. Box 746, Baltimore 3, Md.
Born: July 16, 1909, Haviland, Kan. A.B. (Physics & Math.), 1930, Friends University; M.S. (Physics), 1933, University of Michigan; 1936–37, Polytechnic Institute of Brooklyn. **IRE Offices:** Director, 1950. **Committees:** Admissions, *chairman, 1949;* Annual Review, 1948–53, *vice-chairman, 1948–49;* Membership, 1937–38, 1950–51, 1953–56, *chairman, 1950–51;* National Convention, 1948, *vice-chairman,* 1949–50, Banquet Committee, 1946–47, *chairman, 1948;* Tellers, 1945, *chairman, 1946;* Transmitters, 1958. **Awards:** U. S. Navy Certificate of Commendation, 1947; O.S.R.D. Certificate of Merit, 1948.

CLAVIER, André G. (M'30—F'39), Retired as Vice President and Technical Director and Scientific Adviser to the President, ITT Federal Laboratories, 500 Washington Ave., Nutley 10, N.J.
Born: February 15, 1894, Cambrai, France, Licéncie-ès-sciénces physiques et mathématiques, 1918, Sorbonne, Paris; Ingénieur diplôme de l'Ecole Supérieure d'Eléctricité, 1920, Paris, France; Professeur à l'Ecole Suprérieure d'Eléctricité, 1942–47. **Committees:** Admissions, 1950–52; Professional Groups, 1955; Standards, 1951–61; Symbols, 1949–54, *vice-chairman, 1949–50, chairman, 1951–53;* Wave Propagation, 1957–60. **Professional Groups:** Communication Systems, Administrative Committee, 1953–56, 1959; Microwave Theory and Techniques, *chairman, 1953.* **IRE Repre-**

sentative: ASA Drawings and Symbols Correlating Committee, *alternate, 1951–52;* ASA Graphic Standards Board, 1953; ASA Sectional Committee (Y10) on Letter Symbols, 1951–53; ASA Sectional Committee (Y14) on Standards for Drawings and Drafting Room Practice, *alternate, 1951–52;* ASA Sectional Committee (Y15) on Standards for Graphic Presentation, 1951; ASA Sectional Committee (Y15) on Preferred Practice for the Preparation of Graphs, Charts and Other Technical Illustrations, *alternate, 1952;* U. S. National Committee, International Electrotechnical Commission, Advisors on Symbols, 1955; ASA Sectional Committee (Y32) on Graphical Symbols and Designations, 1955–59. **Awards:** Fellow, American Institute of Electrical Engineers; Membre, Lauréat de la Société Francaise des Eléctriciens; President, Fifth Section, Société des Radioélectriciens, Paris, 1945–47; Vice President, American Section of Société des Ingénieurs Civils de France, 1952–56, President, 1958.

CLEETON, Claud E. (A'41—SM'46—F'55), Superintendent, Applications Research Division, Naval Research Laboratories, Washington 25, D.C.
Born: December 11, 1907, Downing, Mo. B.S., 1928, Northeast Missouri State Teachers College; M.A., 1930, University of Missouri; Ph.D., 1935, University of Michigan. **Awards:** President's Certicate of Merit, 1946; Meritorious Civilian Service Award, 1947.

CLEMENT, Lewis M. (A'14—M'17—F'26)(L), Consultant, Baldwin Piano Company, Cincinnati, Ohio; Electronic Consultants, Inc., New York, N.Y.; Electronic Engineering Company of California, Santa Ana, Calif.
Born: January 25, 1892, Oakland, Calif. B.S.(E.E.), 1914, University of California. **IRE Offices:** Director, 1945. **Committees:** Board of Editors, 1941–53; Electroacoustic Devices, 1930–31; Meetings and Papers, 1929; Papers Procurement, 1948–50; Professional Groups, 1953–54; Radio Receivers, 1927–28; Regular Papers, 1941; Standardization, 1927–31; Vacuum Tubes, 1929–30. **Professional Groups:** Broadcast and Television Receivers, *secretary, 1953–55.* **Sections:** Cincinnati, *chairman, 1945.* **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940; Naval Ordnance Development Award, Bureau of Ordnance, USN, 1945; A Pioneer in the Field of Aircraft Electronic Development, Dayton Section IRE, 1950; Pioneer Award, PG on Aeronautical & Navigational Electronics, 1951; Pioneer Award, in the Field of Aeronautical Electronics Design; Contribution to Creation of Color TV Standards, Radio-Electronics-Television Manufacturers Association, 1954; Radio-Electronics-Television Manufacturers Association, IRE Annual Award, Radio Fall Meeting Plaque, Syracuse, 1955.

CLEWELL, Dayton (M'49—SM'49—F'54), General Manager, Research Department, Socony Mobil Oil Co., Inc., 150 E. 42 St., New York, N.Y.
Born: December 15, 1912, Berwick, Pa. B.S., 1933, Ph.D., 1936, Massachusetts Institute of Technology.

COBINE, James D. (A'34—SM'44—F'57), Physicist, Research Laboratory, General Electric Company, The Knolls, Schenectady, N.Y.
Born: May, 1905, Oklahoma City, Okla. B.S.(E.E.), 1931, University of Wisconsin; M.S.(E.E.), 1932, Ph.D.(E.E.), 1934, California Institute of Technology. **Committees:** Admissions, 1946–49; Board of Editors, 1945–54; Editorial Reviewer, 1954–57, 1959–60; Education, 1945–46. **Sections:** Schenectady, *secretary-treasurer, 1949–51.* **Awards:** Army-Navy Certicate of Appreciation, World War II, 1947; Fellow, American Physical Society.

COGGESHALL, Ivan S. (A'26—M'29—F'42), Manager, Technical Operations Services, American Institute of Electrical Engineers, 33 West 39 St., New York 18, N.Y.
Born: September 30, 1896, Newport, R.I. D.Eng. (Honorary), 1951, Worcester Polytechnic Institute. **IRE Offices:** President, 1951; Director, 1941–44, 1951–53. **Committees:** Admissions, 1934–35, 1941–42; Annual Review, 1944–47; Building Fund, *vice-chairman, 1945;* Constitution and Laws, 1942, 1945–50, 1953–60, *chairman, 1948, 1950;* Executive, 1942, 1951–52, *chairman, 1951;* Finance, 1948–52, *ex officio, 1951;* History, 1960–61; Membership, 1928–31, 1934–41, *chairman, 1929–30, 1934–35, 1941;* National Convention, *vice-chairman, 1948;* New York Program, 1938–40, *chairman, 1939;* Nominations, 1944, 1953; Papers, 1942–45; Papers Procurement, 1945–46, *chairman, 1945;* Papers Review, 1946–47; Professional Groups, 1950; Public Relations, 1943–46, *chairman, 1943–45;* Sections, 1933–35, 1938–42; Standards, 1945–46. **IRE Representative:** Joint IRE-RTMA Coordination Committee, 1951; Joint Technical Advisory Committee, 1951. **Awards:** Fellow, American Institute of Electrical Engineers.

COHN, Seymour B. (S'41—A'44—M'46—SM'51—F'59), Vice-President and Technical Director of Rantec Corporation, Calabasas, Calif.
Born: October 21, 1920, Stamford, Conn. B.E., 1942, Yale University; M.S., 1946, Ph.D., 1948, Harvard University. **Committees:** Antennas and Waveguides. 1951–53; Papers, 1945; Papers Review, 1945–53. **Professional Groups:** Microwave Theory and Technique Administrative Committee, 1955. **Awards:** Annual Award for Advancement of Basic and Applied Science, Yale Engineering Association, 1954.

COLE, Ralph I. (A'29—SM'46—F'58), Manager, Military Project Planning, Melpar, Inc., 3000 Arlington Blvd., Falls Church, Va.
Born: August, 1905, St. Louis, Mo. B.S.(E.E.), 1927, Washington University; M.Sc. (Physics), 1936, Rutgers University. **IRE Offices:** Director, 1958–59. **Committees:** Ad Hoc Committee on Manpower, 1958; National Convention, Technical Program, 1950–51; Policy Advisory Committee, 1959–60; Radio Receivers, 1936–41. **Professional Groups:** Engineering Management, *chairman, 1951–52.* **Sections:** Monmouth Subsection, *secretary, 1947, vice-chairman, 1950;* Washington Section, *secretary-treasurer, 1954–55, vice-chairman, 1955–57;* Region 3, *director, 1958.* **Awards:** Legion of Merit, 1947.

COLEMAN, John B. (A'25—M'29—SM'43—F'48), Administrator, High Power Transmitters, Defense Electronic Products, Radio Corporation of America, Front & Cooper Sts., Camden, N.J.
Born: August, 1899, Indiana County, Pa. B.S.(E.E.), 1923, Carnegie Institute of Technology. **IRE Offices:** Director, 1948–49. **Committees:** Broadcast, 1933–34; Constitution and Laws, 1952–55; Membership, 1949–51. **Sections:** Philadelphia, *chairman, 1942–43.*

COLLINS, Arthur A. (J'26—A'32—VA'39—SM'49—F'53), President, Collins Radio Company, 5225 'C' Ave., N.E., Cedar Rapids, Iowa.
Born: September 9, 1909, Kingfisher, Okla.

COLTMAN, John W. (SM'49—F'55), Associate Director, Westinghouse Research Laboratories, Pittsburgh 35, Pa.
Born: July 19, 1915, Cleveland, Ohio. B.S., 1937, Case Institute of Technology; M.S., 1939, Ph.D., 1941, University of Illinois. **Committees:** Board of Editors, 1951–53; Editorial Reviewer, 1954–60; Research, 1949–50. **Sections:** Pittsburgh, Nuclear Science, *chairman, 1956.* **Awards:** Fellow, American Physical Society, 1954; Edward Longstreth Medal, The Franklin Institute, 1960.

COLTON, Roger B. (SM'46—F'54), Major General, United States Army, Retired. 624 E. Hunting Towers, Alexandria, Va.
Born: December 15, 1887, Jonesborough, N.C. Ph.B., 1908, Sheffield Scientific School, Yale University; M.S., 1920, Massachusetts Institute of Technology; Graduate of following Army Schools: C. Artillery School, 1922; C. Artillery School, Advanced Course, 1927; C. & G. S. School, 1928; Army War College, 1938. **Awards:** Distinguished Service Medal, War Department, 1946; Legion of Merit, War Department, 1946; Fellow, American Institute of Electrical Engineers.

COMSTOCK, George C. (A'47—M'47—SM'51—F'57), Vice President, Electronic Systems and Techniques Division, Airborne Instrument Laboratory, Walt Whitman Rd., Melville, L.I., N.Y.

Born: May, 1911, Peoria, Ill. B.S., 1932, Bradley University; Ph.D. (Physics), 1938, University of Chicago. **Committees:** Navigation Aids, 1949–51. **Professional Groups:** Engineering Management Administrative Committee, *secretary-treasurer, 1959–61.* **Awards:** War-Navy Department Award of Appreciation, 1947.

CONDON, Edward U. (M'42—SM'43—F'53), Wayman Crow Professor of Physics, Washington University, St. Louis 30, Mo.; Former Director, U. S. National Bureau of Standards; Editor, Reviews of Modern Physics.
Born: March 2, 1902, Alamogordo, N.M. A.B., 1924, Ph.D., 1926, University of California; D.Sc. (Honorary), 1950, University of Delhi, India and New Mexico School of Mines; 1952, Alfred University and American University. **Awards:** President, American Physical Society, 1946; Philosophical Society of Washington, 1951; American Association for Advancement of Science, 1953.

COOK, Ellsworth D. (A'21—VA'39—F'41), Consulting Engineer, Electronic Systems Engineering, formerly Manager, Electronic Engineering, Electrical Engineering Laboratory, General Engineering Laboratory, General Electric Company, 1 River Road, Schenectady, N.Y.
Born: June 17, 1898, Schenectady, N.Y. B.S.(E.E.), 1920, M.S.(E.E.), 1921, Ph.D.(E.E.), 1923, Union College. **Committees:** Admissions, 1944–48; Membership, 1936–40, 1942–48, *chairman, 1940, 1944–45;* Sections, 1935, 1937–47, *chairman, 1938–39, 1940–48;* Standards, 1932–33. **Sections:** Philadelphia, *chairman, 1934–35.* **IRE Representative:** ASA Sectional Committee on Acoustical Measurements and Terminology, 1936, 1939–46.

COOLEY, Austin G. (M'44—SM'54—F'55), Vice President and Technical Director, Westrex Corporation, 540 W. 58 St., New York 19, N.Y.
Born: February 9, 1900, Seattle, Wash. **Committees:** Facsimile, 1945–57, *vice-chairman, 1953–55.* **Awards:** Certificate of Appreciation, War Department, 1946; Marconi Memorial Medal of Achievement, 1956.

CORCORAN, George F. (A'43—SM'53—F'56), Professor and Chairman, Department of Electrical Engineering, University of Maryland, College Park, Md.
Born: September, 1900, Redfield, S.D. B.S., 1923, South Dakota State College; M.S., 1926, University of Minnesota. **Sections:** Washington Sections Awards Committee, *chairman, 1959.* **IRE Representative:** University of Maryland, 1950–53. **Awards:** Fellow, American Institute of Electrical Engineers, 1950.

CORRINGTON, Murlan S. (SM'49—F'54), Leader, RCA Defense Electronics Products, Camden 2, N.J.
Born: May 26, 1913, Bristol, S.D. B.S.(E.E.), 1934, South Dakota School of Mines and Technology; M.Sc., 1936, Ohio State University. **Committees:** Ad Hoc Committee on Spurious Radiation, 1954–55; International Solid-State Circuits Conference, Chairman Sponsors' Advisory Committee, 1957–. Professional Groups, 1956–58; Radio Frequency Interference, 1955–59; Sound Recording and Reproducing, 1950–56, *vice-chairman, 1953–56.* **Professional Groups:** Audio Administrative Committee, 1952–61, *vice-chairman, 1954–56, 1958–59;* Philadelphia Chapter, *chairman, 1953–54;* Circuit Theory Administrative Committee, 1954–57. **Sections:** Philadelphia, *treasurer, 1953–54, secretary, 1954–55, vice-chairman, 1955–56, chairman, 1956–57.* **Awards:** Fellow, Acoustical Society of America, 1957; PGA Senior Award, 1958.

CORWITH, Howard P. (M'26—SM'43—F'52)(L), Retired as Vice President, Research and Engineering, The Western Union Telegraph Company, 60 Hudson St., New York 13, N.Y. Residence: 37 Dale Dr., Chatham, N.J.
Born: December 3, 1892, Water Mill, L.I., N.Y. M.E., 1916, Cornell University. **Committees:** *Admissions,* 1949–54, *chairman, 1952–53;* Electronics, 1938–45; Tellers, 1941. **Awards:** Fellow, American Institute of Electrical Engineers, 1951.

COSENTINO, Adolfo, T. (A'37—VA'39—F'40), Technical Adviser of Pan American Grace Airways, Inc., Rodriguez Pena 1827, Buenos Aires, Argentina.
Born: November 18, 1898, Buenos Aires, Argentina. National School, Buenos Aires. **IRE Offices:** Vice President, 1941; Director, 1941. **Committees:** Sections, *ex-officio, 1940–41, 1947–48.* **Sections:** Buenos Aires, *chairman, 1940–41, 1947–48.*

COSTA, Helio (A'50—M'55—F'58), Major Brigadeiro Do Ar, Retired. Caixa Postal 5025, Rio de Janerio, Brazil.
Born: September 19, 1910, Rio de Janeiro, Brazil, E.E., Stanford University, 1945.

CRAIG, Palmer M. (A'34—SM'45—F'54), Director of Operations, Western Development Laboratories, Philco Corporation, 3875 Fabian Way, Palo Alto, Calif.
Born: January 29, 1904, Cherry Hill, Md. B.S.(E.E.), 1927, University of Delaware. **Sections:** Philadelphia, *secretary, 1945, vice-chairman, 1946, chairman, 1947.* **Awards:** Navy Ordnance Award, U. S. Navy, 1945; U. S. Certificate of Commendation, U. S. Navy, 1947.

CRAIN, Cullen M. (S'42—M'49—SM'54—F'58), Group Leader, Electronics Department, The RAND Corporation, 1700 Main St., Santa Monica, Calif.
Born: September 10, 1920, Goodnight, Tex. B.S.(E.E.), 1942, M.Sc.(E.E.), 1947, Ph.D., 1952, University of Texas. **Sections:** San Antonio, *chairman, 1954–55.* **IRE Representative:** University of Texas, 1950–52.

CRAPUCHETTES, Paul W. (M'44—F'60), Technical Director, Electron Tube Division, Litton Industries, Inc., 960 Industrial Way, San Carlos, Calif.
Born: February 12, 1917, San Francisco, Calif. B.S.(Chemistry), 1940, University of California; Three years graduate of General Electric's Advanced Course in Engineering, 1944. **Committees:** Editorial Reviewer, 1955–60.

CRAVEN, Tunis A. M. (F'29), Commissioner, Federal Communications Commission, New Post Office Building, Washington 25, D.C. Mail: 203 Old Georgetown Pike, McLean, Va.
Born: January 31, 1893, Philadelphia, Pa. Graduate. 1913, United States Naval Academy. **IRE Offices:** Director, 1937. **Committees:** Broadcast, 1934–35; Meetings and Papers, 1930–31; Papers, 1932–41; Radio Transmitters and Antennas, 1930–31; Standardization, 1929–31. **Professional Groups:** Communication Systems, 1957.

CRAWFORD, Arthur B. (A'29—SM'46—F'52), Radio Research Engineer, Bell Telephone Laboratories, Inc., Box 107, Red Bank, N.J.
Born: February 26, 1907, Graysville, Ohio. B.S.(E.E.), 1928, Ohio State University. **Committees:** Editorial Reviewer, 1954–55; Wave Propagation, 1949–61, *vice-chairman, 1959–61.*

CROSBY, Murray G. (A'25—M'38—SM'43—F'43), President and Director of Research and Engineering, Crosby-Teletronics Corporation, 299 Robbins Lane, Syosset, L.I., N.Y.
Born: September, 1903, Elroy, Wis. B.S., 1927, E.E., 1943, University of Wisconsin. **IRE Offices:** Director, 1947–49. **Committees:** Admissions, 1945–46; Annual Review, 1946–47; Appointments, 1947–48, *chairman, 1948;* Awards, 1950–52, *chairman, 1950;* Board of Editors, 1946–53; Editorial Administrative, 1946–50; Editorial Reviewer, 1954–60; Executive, 1949; Frequency Modulation, 1940–47, *chairman, 1946–47;* Modulation Systems, 1947–50, *chairman, 1947–48;* National Convention, 1948; Papers, 1944–45; Papers Procurement, 1945; Papers Review, 1946–51, *chairman, 1946–48;* Policy Development, 1948–50; Professional Groups, 1948; Standards, 1946–48. **IRE Representative:** IRE-RTMA, Problem No. 2, *chairman, 1951.* **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940.

CULLUM, A. Earl, Jr. (J'28—A'31—SM'45—F'48), Head, A. Earl Cullum, Jr., Consulting Engineers, Inwood P.O., Dallas 9, Tex.
Born: September, 1909, Abilene, Tex. B.S. (Communications Engineering), 1931, Massachusetts Institute of Technology. **IRE Offices:** Director, 1948. **Committees:** Annual Review, 1948–49;

Nominations, 1949–50; Policy Development, 1949–50; Radio Wave Propagation and Utilization, 1946–47; Standards, 1948–49; Wave Propagations, 1948–56, *chairman, 1948–49.* **Professional Groups:** Broadcast Transmission Systems Administrative Committee, 1956–59. **Awards:** Presidential Certificate of Merit, 1948.

CULVER, Charles A. (M'20—SM'43—F'54)(L), Consulting Engineer, 740 W. Harrison Ave., Claremont, Calif.
Born: September 22, 1875, Preston, Minn. B.S., 1902, Carleton College; Ph.D., 1907, University of Pennsylvania; Research Fellow, 1917, Harvard University; 1930, University of Cambridge, England. **Sections:** Twin Cities, *chairman, 1941–42.* **IRE Representative:** Carleton College, 1941–45. **Awards:** Fellow, American Institute of Electrical Engineers.

CURTISS, Arthur N. (A'36—SM'44—F'60), General Manager, West Coast Missile and Surface Radar Division, Radio Corporation of America, 8500 Balboa Blvd., Van Nuys, Calif.
Born; March, 1906, Buffalo, N.Y. B.S.(E.E.), 1927, University of Pittsburgh; Dipl. Business Management, 1955, University of California at Los Angeles. **Committees:** Audio Techniques, 1950–51. **Professional Groups:** Audio, 1946–51, *secretary, 1950–51;* Engineering Management Administrative Committee, 1957–60; Engineering Management Committee for Improved Utilization of Engineers, 1956–59; Military Electronics Administrative Committee, 1959; IRE Ad Hoc Committee on Man power, 1959. **Sections:** Indianapolis, *chairman, 1940–44;* Philadelphia, *secretary-treasurer,* 1 year, *vice-chairman, chairman, 1948–49;* WESCON Field Trip Committee, *chairman, 1960;* WEMA, *vice president* and *director, 1961;* Winter Convention at Los Angeles, *general chairman, 1961.* **Awards:** Award of Merit, Radio Corporation of America.

CUTLER, C. Chapin (A'40—SM'53—F'55), Assistant Director of Electronics & Radio Research, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: December 16, 1914, Springfield, Mass. B.S., 1937, Worcester Polytechnic Institute. **Committees:** Editorial Reviewer, 1954–60. **Professional Groups:** Electron Devices; Electron Tube Conference, 1950–54, *chairman, 1954.*

CUTTING, Fulton (M'15—F'21)(L), Trustee, Professor of Physics and Assistant to the President, Stevens Institute of Technology, Hoboken, N.J.
Born: December 27, 1886, New York, N.Y. **IRE Offices:** President, 1922; Vice President, 1921; Director, 1921–24; Manager, 1920. **Committee:** Education, 1944; Investments, 1944–46.

DARLINGTON, Sidney (SM'53—F'57), Member, Technical Staff, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: July, 1906, Pittsburgh, Pa. B.S., 1928, Harvard University; B.S.(E.E.), 1929, Massachusetts Institute of Technology; Ph.D., 1940, Columbia University. **Committees:** Editorial Reviewer, 1954–60; Professional Groups, 1960. **Professional Groups:** Circuit Theory, *vice-chairman, 1957–58, chairman, 1959–61.*

DARNELL, Paul S. (SM'52—F'61), Director, Military Reliability Engineering, Bell Telephone Laboratories, Inc., Whippany, N.J.
Born: November, 1901, Philadelphia, Pa. B.S.(E.E.), 1922, University of Pennsylvania; M.A., 1925, Columbia University. **Professional Groups:** Component Parts Administrative Committee, 1956–59, *chairman, 1958–59.*

DART, Harry F. (A'20—M'26—SM'43—F'59)(L), Retired as Patent Engineer, Electronic Tube Division, Westinghouse Electric Corporation. Patent Consultant, 923 Farnham St., Elmira, N.Y.
Born: October 20, 1895, Forrest, Ill. E.E., 1917, Professional Degree of E.E., 1923, Purdue University. **IRE Offices:** Director, 1951–52. **Committees:** Admissions, 1927–29; Broadcast, 1932–33; Editorial Administrative, 1949–50; First Annual Convention, 1926; Meetings and Papers, 1926–28, 1938–40; Membership, 1938–40, *chairman, 1926–28;* Nominations, 1933; Standardization, 1929–30; Symbols, 1945–51; Tellers, 1939, 1943–44, *chairman, 1944.* **Special Committees:** Professional Recognition, 1949–60. **Professional Groups:** Director, Electron Devices, 1951–55. **Sections:** New York, *secretary-treasurer, 1942–43, chairman, 1949–50;* Elmira-Corning, *chairman, 1953–54.* **Awards:** Fellow, American Institute of Electrical Engineers, 1958.

DASHER, Benjamin J. (A'41—M'55—SM'57—F'59), Director, School of Electrical Engineering, Georgia Institute of Technology, 225 North Ave., Atlanta, Ga.
Born: December 1912, Macon, Ga. B.S.(E.E.), 1935, M.S.(E.E.), 1945, Georgia Institute of Technology; Sc.D.,(E.E.), 1952, Massachusetts Institute of Technology. **IRE Offices:** *Director,* 1960–61. **Committees:** Editorial Reviewer, 1954–60; Education, 1961; Nominations and Appointments, 1960; Policy Study, 1961. **Professional Groups:** Instrumentation Administrative Committee, 1958–. **IRE Representative:** Georgia Institute of Technology, 1953–57.

DAVENPORT, Wilbur B., Jr. (S'40—A'42—M'48—SM'54—F'58), Professor of Electrical Engineering, Massachusetts Institute of Technology, Cambridge 39, Mass.
Born: July 27, 1920, Philadelphia, Pa. B.S.(E.E.), 1941, Alabama Polytechnic Institute; M.Sc.(E.E.), 1943, D.Sc., 1950, Massachusetts Institute of Technology. **Committees:** Editorial Reviewer, 1954–59; Information Theory and Modulation Systems, 1953–55. **Professional Groups:** Information Theory Administrative Committee, 1954–60, *vice-chairman, 1956–57, chairman, 1957–58.*

DAVIS, Harry I. (A'44—SM'49—F'55), Deputy Assistant Secretary, U. S. Air Force, Washington 25, D.C. Residence: 2623 N. Van Dorn St., Alexandria, Va.
Born: December, 1909, New York, N.Y. B.S., 1931, E.E., 1933, College of the City of New York; M.E.E., 1948, Polytechnic Institute of Brooklyn. **Committees:** Navigation Aids, 1950–55. **Sections:** Rome-Utica, *chairman, 1954.*

DAVIS, Thomas McL. (M'28—SM'43—F'56), Retired. 4302 Brandywine St., N.W., Washington 16, D.C.
Born: August 17, 1890, Farmington, Me. **Committees:** Registration and Arrangements, IRE National Convention, *chairman, 1929;* Standardization, 1929–31. **Sections:** Washington, *acting-secretary, 1928–29, vice-chairman, 1929–30, chairman, 1934–35.* **Awards:** Distinguished Service Award of Washington Section, 1957; Navy Distinguished Civilian Service Award, 1957; RESA.

DAWSON, John W. (A'39—SM'52—F'55), Manager, Advanced Engineering, D. S. Kennedy & Company, Cohasset, Mass.
Born: February 22, 1901, Sumner, Iowa. B.S.(E.E.), 1926, Iowa State College; M.S.(E.E.), 1938, University of Pittsburgh. **Awards:** National Prize for Best Paper in the Field of Engineering Practice for 1937, American Institute of Electrical Engineers.

DEAN, Charles E. (A'29—M'36—SM'43—F'60), Consulting Engineer, Hazeltine Research Corporation, 59–25 Little Neck Parkway, Little Neck 62, L.I., N.Y.
Born: May, 1898, Pickens County, S.C. B.A., 1921 Harvard College; M.A. (Physics), 1923, Columbia University; Ph.D. (Physics), 1927, The Johns Hopkins University. **Committees:** Admissions, 1948; Bibliography, 1931; TV Receivers Subcommittee, 1956–59. **Professional Groups:** Broadcast & Television Receivers, *secretary, 1952–53, 1956–58.* **IRE Representative:** Panel 6 of Television Allocations Study Organization, *chairman, 1958–59.* **Awards:** Certificate of Commendation for Outstanding Civilian Service, U. S. Navy, 1947; Plaque for Outstanding Service to Professional Group on Broadcast and Television Receivers, 1959.

DEARDORFF, Ralph W. (A'14—SM'44—F'51), Retired. 1831 N.W. Ramsey Dr., Portland 10, Ore.
Born: August 9, 1894, Portland, Ore. **Sections:** Portland, *chairman, 1942–43, vice-chairman, 1946–47.*

deBETTENCOURT, Joseph T. (A'50—M'55—F'59), Consultant, 18 Sterling St., West Newton 65, Mass.

Born: June 9, 1912, Washington, D.C. B.E.E., 1932, M.S. (Physics), 1934, Catholic University of America; Sc.M.(Communications), 1937, Sc.D.(Communications), 1949, Harvard University. **Committees:** Wave Propagation, 1956–61. **Professional Groups:** Antennas & Propagation, 1954–61; Communication Systems, 1958–61; Aeronautical Navigation and Electronics, 1958–61. **Sections:** Boston, Antenna and Propagation, *chairman, 1956–57;* Boston Section Awards Committee, 1961–. **IRE Representative:** U.S.A. Delegate, National Academy of Sciences, National Research Council, to XI General Assembly of URSI, 1954. The Hague; XII General Assembly at Boulder, 1957; U.S.A. URSI Commissions II and III, 1949–61. **Awards:** Commendation Ribbon for Meritorious Service, Secretary of the Navy, 1946; Fellow, American Association for the Advancement of Science, 1959.

deCOLA, Rinaldo E. (A'37—SM'43—F'57), Manager, Radio-Phono Division, Warwick Manufacturing Co., Chicago, Ill.
Born: September 7, 1907, Niles, Ohio. **Committees:** Radio Receivers, 1951–54. **Professional Groups:** Broadcast and Television Receivers Administrative Committee, 1956–60, *secretary, 1959–61.*

***De FOREST, Lee (Charter Member) (A'12—M'14—F'18)(L),** 8190 Hollywood Blvd., Los Angeles 46, Calif.
Born: August 26, 1873, Council Bluffs, Iowa. Ph.B., 1896, Ph.D., 1899, Yale University; Sc.D., 1919, Syracuse University; D.Sc., 1926, Yale University; D.Eng., 1937, Lewis Institute; LL.D., Talladega College, Beloit College; D.Sc., College of Osteopathic Surgery, 1951. **IRE Offices:** President, 1930; Director, 1930–32. **Committees:** Specifications for Steamship Radio Equipment, 1914–15; Wave Length Regulations, 1916–17. **Awards:** President, Society of Wireless Telegraph Engineers, 1909–10; Legion of Honor, 1921; IRE Medal of Honor, 1922; Edison Medal, 1947; Legion of Honor, Officer, 1956.

DEL CAMP, Scipione M. (A'48—M'55—F'59), Consultant.
Born: Italy. M.E., 1912, Polytechnic Institute, Foggia, Italy. **Professional Groups:** Engineering Management, *chairman, 1959.* **IRE Representative:** EIA-08C Committee, *chairman, 1937–59;* P-5 Committee, *chairman, 1959–61;* IEC 40-4 Committee, *chairman, 1954–55;* ASA-C83-EIA Representative, 1955–61.

DELLINGER, John Howard (F'23)(L), Radio Consultant and Adviser, 3900 Connecticut Ave., Washington 8, D.C.
Born: July 3, 1886, Cleveland, Ohio. A.B., 1908, George Washington University; Ph.D., 1913, Princeton University; D.Sc., 1932, George Washington University. **IRE Offices:** President, 1925; Vice President, 1924; Director, 1924–27; Manager, 1928–31. **Committees:** Annual Review, 1938–43; Awards, 1934, 1936; Bibliography, 1930–32, 1934, *chairman, 1931;* Meetings and Papers, *chairman, 1928;* Nominations, 1928, 1931, 1935, *chairman, 1931;* Radio Receivers, 1927–28; Radio Wave Propagation, 1942–45, *chairman, 1942–44;* Revision of the Constitution, *chairman, 1927;* Standardization, 1920–25, 1927–32, *chairman, 1929–31;* Standards, 1932–41, 1943–44; Symbols, 1940–41, 1943–48; Use of the Transmission Unit, 1928–29; Wave Propagation, 1937–59, *chairman, 1937–41, 1956–59.* **Sections:** Washington, D.C., *chairman, 1932–33.* **IRE Representative:** American Documentation Institute, 1944–52; ASA Sectional Committee (C60) on Electric and Magnetic Magnitudes and Units, 1936, 1939–48, 1950; International Electrotechnical Commission, Scandinavia, 1930. **Awards:** IRE Medal of Honor, 1938; Distinguished Service Award of Washington Section, 1956.

DELORAINE, Edmond M. (M'25—F'41), Vice President, International Standard Electric Corporation, 67 Broad St., New York 4, N.Y.; Technical Director, ITT Europe, Inc., President, Compagnie Générale de Constructions Téléphoniques; President, Laboratoire Central de Télécommunications, Paris, France.
Born: May 16, 1898, Clichy, Seine, France. B.S., 1920, Ecole de Physique et Chimie, Ingénieur-Docteur, University of Paris. **IRE Offices:** Vice President, 1946; Director, 1946. **Committees:** Board of Editors, 1944–45; Membership, 1927. **IRE Representative:** International Liaison Committee, 1947.

* Deceased.

DEMPSTER, Burgess (A'31—M'44—SM'48—F'57), President, Electronic Engineering Company of California, 1601 E. Chestnut Ave., Santa Ana, Calif.
Born: November, 1907, Berkeley, Calif. B.S.(E.E.), 1929, University of California, **Professional Groups:** Engineering Management National Administrative Committee, 1957–60; Military Electronics National Administrative Committee, 1960–. **Sections:** Cincinnati, Membership Committee, *chairman, 1948;* Los Angeles Chapter, Engineering Management, *chairman, 1955–56;* 7th Region, *secretary-treasurer, 1956–57;* Los Angeles Research Committee, *chairman, 1957–58;* Los Angeles, *vice-chairman, 1958–59;* Los Angeles Awards Committee, 1958–59; Los Angeles, *chairman, 1959–60.* **IRE Representative:** Publicity Committee, IRE-WESCON, 1948; Visitors' Hospitality Committee, IRE-WESCON, *chairman, 1950, 1960;* Convention Registration Committee, IRE-WESCON, *chairman, 1952, 1954;* IRE-WESCON, *chairman, 1958,* Field Trips Committee.

DENNIS, James L. (SM'46—F'59), Technical Director for Military Equipment Development, National Cash Register Co., Main and K Sts., Dayton 6, Ohio.
Born: July, 1915; Quincy, Ill. B.S.(E.E.), 1937, University of Illinois. **Professional Groups:** Aeronautical and Navigational Electronics Administrative Committee, *secretary-treasurer, 1954–55, chairman, 1956;* National Conference on Aeronautical Electronics, Board of Directors, 1955–57, *chairman, 1955.* **Sections:** Dayton, *chairman, 1952.* **Awards:** Department of the Air Force Exceptional Civilian Service Award, 1950.

deROSA, Louis A. (A'45—SM'51—F'52), Vice President, Director of Engineering, ITT Communications Systems, Paramus, N.J.
Born: September 10, 1910, Tenafly, N.J. B.S.(E.E.), 1932, Polytechnic Institute. **Committees:** Information Theory and Modulation Systems, 1951–61. **Professional Groups:** Information Theory, *vice-chairman, 1954–55, chairman, 1955–56;* Communications Systems Awards Committee, *chairman, 1960–61.*

DESCHAMPS, Georges A. (SM'51—F'60), Professor, University of Illinois, Urbana, Ill.
Born: October, 1911, Vendome, Loir-et-Cher, France. Licence (Math & Physics), 1933; Ecole Normale Superieure, Paris; Agregation (Math.), 1934. **Committees:** Antennas and Waveguides, 1951–60, *vice-chairman, 1955–56, chairman, 1957–59;* Standards, 1957–59. **Professional Groups:** Information Theory Administrative Committee, 1958–60; Editor of *Transactions on Information Theory,* 1958–60.

DEVORE, Lloyd T. (A'42—SM'44—F'52), Vice President and Director, Hoffman Science Center, Drawer H, Santa Barbara, Calif.
Born: November 14, 1909, Monongahela, Pa. B.S., 1930, M.S., 1931, Ph.D., 1933, Pennsylvania State College. **Committees:** Awards, 1952–53; Papers Review, 1951–53; Program, 1952–53, *chairman, 1948–49.* **Professional Groups:** Engineering Management, *secretary, 1951–54.* **Awards:** Exceptional Civilian Service Award, War Department, 1947.

De WITT, John H., Jr. (A'31—M'38—SM'43—F'51), President, WSM Incorporated, 301 Seventh Ave., N., Nashville 3, Tenn.
Born: February 20, 1906, Nashville, Tenn. **Committees:** Professional Groups, 1948.

DICKIESON, Alton C. (SM'44—F'60), Director of Transmission Development I, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: August 16, 1905, New York, N.Y. **Committees:** Editorial Reviewer, 1954–60. **Awards:** U. S. Naval Ordnance Development Award, 1945.

DIEHL, William F. (A'19—M'29—F'36), Factory Manager, Dumont Airplane and Marine Instruments, Inc., Clearfield, Pa.
Born: December 18, 1896, New York, N.Y. **Committees:** Building Fund, 1945; Radio Receivers, 1928–29; Radio Transmitters and Antennas, 1929–30. **Sections:** Philadelphia, *chairman, 1933–*

34, convention chairman, 1934. **Awards:** United States Navy Certificate Commendation P.E., Pa.

DIETZOLD, Robert L. (M'40—SM'43—F'55), Director, Military Systems Studies, Bell Telephone Laboratories, Inc., Whippany, N.J.
Born: August 3, 1904, Akron, Ohio. B.S., 1925, Massachusetts Institute of Technology; Ph.B., 1927, Yale University. **Committees:** Administrative Committee of the Board of Editors, 1951–53; Board of Editors, 1951–53; Circuits, 1949–53; Circuit Theory, *chairman, 1952–53;* Editorial Administrative, *alternate, 1949–50;* Handbook, 1945–47; Papers Review, 1948–49.

DIKE, Sheldon H. (S'40—A'41—SM'48—F'61), President, The Dikewood Corporation, 4805 Menaul Blvd., N.E., Albuquerque, N.M.
Born: October 23, 1916, Atlantic City, N.J. 1934–46, Colgate University; B.S.(E.E.), 1941, University of New Mexico; Ph.D., 1951, The Johns Hopkins University. **Professional Groups:** Antennas and Propagation, *chairman, 1952;* Microwave Theory and Techniques, *chairman, 1953.* **Sections:** Albuquerque-Los Alamos, *treasurer, 1955–56, vice-chairman, 1956–57, secretary, 1957–58, chairman, 1958–59.* **Awards:** Fellow, American Physical Society; Naval Ordnance Development Award, 1945.

DINGER, Harold E. (A'27—M'43—SM'43—F'58), Electronics Scientist, Naval Research Laboratory, Washington 25, D.C.
Born: May 7, 1905, Barberton, Ohio. **Committees:** Interference Measurements, 1959; Measurements and Instrumentation, 1952–53; Radio Frequency Interference, 1955–61; Wave Propagation, 1953–56. **Professional Groups:** URSI, Member U. S. National Committee; U. S. Commission IV, *chairman, 1951–54;* International Commission IV, *secretary, 1960–;* CCIR, Executive Committee, 1954–; U. S. Delegate to Eleven International Conferences; Radio Frequency Interference, Administrative Committee, 1960–; Awards Committee, *chairman, 1960–61;* Nominations Committee, 1960–61. **Awards:** Meritorious Civilian Service Award, U. S. Navy, 1945; Service Appreciation Award, American Standards Association, 1946; Fellow, American Association for the Advancement of Science.

DINGLEY, Edward N., Jr. (A'28—M'43—SM'43—F'56), Principal Engineering Scientist, Electronic Communications, Inc., 1501 72 St. N., St. Petersburg 33, Fla.
Born: July 18, 1902, Kalamazoo, Mich. 1922–25, Massachusetts Institute of Technology; B.Sc.(E.E.), 1936, George Washington University. **Professional Groups:** Technical Papers Committee, PGCS National Symposium on Global Communications, Washington, *vice-chairman, 1954;* Washington Chapter PGCS, *secretary, 1954–55, vice-chairman, 1955–56, chairman, 1956–57;* Chapter Activities Sub-Committee, *chairman, 1956–57;* Communications Systems Administrative Committee, *vice-chairman, 1957–58, chairman, 1958–59;* Nominations Sub-Committee, *chairman, 1959–60;* PGCS 2nd National Symposium on Communications Systems, St. Petersburg, Fla. *general-chairman, 1959;* PGMIL Administrative Committee, 1960–63. **Sections:** Florida West Coast, *secretary-treasurer, 1959;* Professional Groups Committee, *chairman, 1957–58.* **Awards:** Department of Defense Distinguished Civilian Service Medal, 1955; Fellow, American Institute of Electrical Engineers, 1957; Patron Award of Florida West Coast Section, 1959.

DISHAL, Milton (A'41—SM'46—F'57), Senior Scientist, International Telephone and Telegraph Laboratories, 500 Washington Ave., Nutley 10, N.J.
Born: March, 1918, Philadelphia, Pa. B.S., 1939, M.A. (Physics), 1941, Temple University. **Committees:** Convention record, 1955–56; Editorial Reviewer, 1953–60. **Professional Groups:** Circuit Theory, *secretary-treasurer, 1953–56;* Administrative, 1954–57.

DiTORO, Michael J. (A'37—SM'45—F'58), Vice President for Research, Cardion Electronics, Inc., Westbury, N.Y.; Adjunct Professor, Graduate School, Polytechnic Institute of Brooklyn.
Born: June 24, 1910, Campobasso, Italy. E.E., 1931, M.E.E., 1933, D.E.E., 1946, Polytechnic Institute of Brooklyn. **Committees:** Electroacoustics, 1946, 1951–52; Papers Review, 1945–53. **Professional Groups:** Administrative Committee, Information Theory, *chairman, 1956.* **Awards:** Fellow, Acoustical Society of America.

DOBA, Stephen (A'45—SM'54—F'60), Transmission Measurement Engineer, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: May 27, 1907, New York, N.Y. **Committees:** Standards, 1959–61; Video Techniques, 1951, 1959–60, *vice-chairman, 1955–56, chairman, 1957–58.*

DODDS, Wellesley J. (SM'45—F'61), Vice President, Engineering, BOMAC Laboratories, Salem Rd, Beverly, Mass.
Born: October 18, 1915, Faulkton, S.D. B.S.(Physics), 1938, South Dakota State College; M.S.(Physics), 1941, University of Kansas. **Committees:** Editorial Reviewer, 1955–60; Electron Tubes, 1950–55, *chairman, 1954–55;* Standards, 1954–55. **Professional Groups:** Electron Devices Administrative Committee, 1954–56. **IRE Representative:** IRE-AIEE Conference on Electron Tube Research, *chairman, 1952.* **Awards:** RCA Laboratories Research Award, 1950.

DOELZ, Melvin L. (M'45—SM'54—F'61), Vice President and General Manager, Western Division, Collins Radio Company, 2700 W. Olive Ave., Burbank, Calif.
Born: December 30, 1918, Minneapolis, Minn. B.S., 1941, M.S., 1946, University of Minnesota. **Committees:** Editorial Reviewer, 1954–60.

DOHERTY, William H. (A'29—M'36—SM'43—F'44), Patent License Manager, Western Electric Company, 195 Broadway, New York 7, N.Y.
Born: August 21, 1907, Cambridge, Mass. S.B., 1927, S.M., 1928, Harvard University; Sc.D., 1950, Catholic University of America. **IRE Offices:** Director, 1951–53, 1958–60. **Committees:** Appointments, 1957; Editorial Reviewer, 1954–55; Education, 1961; Membership, 1943–46; Nominations, 1952–53, *chairman, 1953;* Policy Advisory, 1952–53, 1959–60; Policy Development, 1951; Professional Groups, 1948–51. **IRE Representative:** Joint AIEE-IRE Student Activities Coordination Committee, 1958–59. **Awards:** IRE Morris Liebmann Memorial Prize, 1937.

DOME, Robert B. (A'27—M'38—SM'43—F'48), Consulting Engineer, Television Receiver Department, Radio and Television Division, Consumer Products Group, General Electric Company, Syracuse, N.Y.
Born: October 12, 1905, Tell City, Ind. B.S.(E.E.), 1926, Purdue University; M.S.(E.E.), 1929, Union University. **Committees:** Board of Editors, 1946–53; Editorial Reviewer, 1954–60; Papers, 1940–45. **Awards:** Charles A. Coffin Award, 1936, 1948; IRE Morris Liebmann Memorial Prize, 1951; RESA, 1951.

DOOLITTLE, Franklin M. (A'13—M'30—F'54)(L), Retired. 52 Churchill Rd., Hamden 17, Conn.
Born: June, 1893, New Haven, Conn. Ph.B., 1915, Yale University. **Committees:** Modulation Systems, 1947–48; Standardization, 1927–28.

DORSEY, Herbert Grove (M'19—F'34)(L), Retired. 3708 33rd Place, N.W., Washington 8, D.C.
Born: April 24, 1876. Kirkersville, Ohio. B.S., 1897, M.S., 1898, Denison University; Ph.D., 1908, Cornell University; Sc.D.(Honorary), 1937, Denison University. **Sections:** Washington, D.C., *secretary, 1930–32, chairman, 1933.* **Awards:** First Annual Award, Washington Society of Engineers, 1941; Fellow, Acoustical Society of America; Fellow, American Institute of Electrical Engineers; Fellow, American Association for the Advancement of Science.

DOW, Jennings, B. (M'26—F'42), Vice President and Director, Hazeltine Corporation; President, Hazeltine Research Corporation; Little Neck 62, L.I., N.Y.
Born: January 2, 1897, Bowling Green, Ohio. B.S., 1919, United States Naval Academy; M.S. 1926, Graduate School of Engineering, Harvard University.

DOW, William G. (M'39—SM'43—F'50), Professor and Chairman of the Department of Electrical Engineering, University of Michigan, Ann Arbor, Mich.
Born: September 30, 1895, Faribault, Minn. B.S.(E.E.), 1916, E.E., 1917, University of Minnesota; M.S.E.(E.E.), 1929, University of Michigan. **Committees:** Board of Editors, 1944–53; Electron Tubes, 1946–47; Electron Tubes and Solid State Devices, 1949–52; Electronics, 1939–45; Papers, 1941–44; Research, 1949–50; Vacuum Tubes, 1945–46. **Awards:** Fellow, American Institute of Electrical Engineers.

DRAKE, Frederick H. (A'25—M'28—SM'43—F'57), Inventor, Squire Rd., Roxbury, Conn.
Born: June, 1901, Watertown, Mass. A.B., 1923, A.M., 1925, Ph.D., 1926, Harvard University. **Committees:** Papers, 1933.

DRAPER, Charles S. (A'53—F'55), Professor and Head, Department of Aeronautics and Astronautics; Director of Instrumentation Laboratory, Massachusetts Institute of Technology, 68 Albany St., Cambridge 39, Mass.
Born: October 2, 1901, Windsor, Mo. B.A., 1922, Stanford University; B.S., 1926, M.S., 1928, Sc.D., 1938, Massachusetts Institute of Technology. **Committees:** Electronic Computers, 1948–49. **Awards:** IAS Sylvanus Albert Reed Award, 1946; Presidential Medal for Merit, 1946; Naval Ordnance Development, 1946; New England Award, Engineering Societies of New England, 1947; Exceptional Civilian Service Award, Department of the Air Force, 1951; Testimonial of Appreciation, Society of Mechanical Engineers, 1951; 43rd Wilbur Wright Memorial Lecturer, Royal Aeronautical Society, London, 1955; Navy Distinguished Public Service Award, 1956; Airpower Award of Massachusetts Wing of Air Force Association, 1957; Thurlow Award of Institute of Naviagation, 1957; Airpower Trophy of Air Force Association, 1957; Holley Medal of American Society of Mechanical Engineers, 1957; Blandy Medal of the American Ordnance Association, 1958; American Honorary Fellowship, Institute of the Aeronautical Sciences, 1958; Godfrey L. Cabot Award, Aero Club of New England, 1959; Magellanic Medal, American Philosophical Society, 1959; William Proctor Prize of Scientific Research Society of America, 1959; Exceptional Service Award, Department of the Air Force, 1960; John H. Potts Medal, Franklin Institute, 1960; Navy Distinguished Public Service Award, Department of the Navy, 1960; Annual Achievement Award, Newton Chamber of Commerce, 1961.

DREHER, Carl (F'57), Writer, RD 3, Brewster, N.Y.
Born: February 16, 1896, Vienna, Austria, B.S., 1917, College of the City of New York. **Committees:** Board of Editors, 1928–29; Broadcasting, 1928–29; Meetings and Papers, 1926–29; Standardization, 1929–30; Mid-Hudson Sub-Section Fellow Awards, *chairman.*

DUBILIER, William (A'14—M'18—F'29)(L), Retired. Consultant only to Cornell-Dubilier Electric Corporation; President, Radio Patents Corporation, P.O. Box 942, New Rochelle, N.Y.; Consultant to Dubilier Condenser Co., Ltd., London, England.
Born: July 25, 1888, New York, N.Y. Attended Cooper Institute. **Awards.** Fellow, American Institute of Electrical Engineers, 1925; French Legion of Honor and Officer of the French Academy, 1949; Gano Dunn Medal, Cooper Union, 1955.

DUFFENDACK, Ora S. (SM'44—F'56), Retired. Consultant Physicist, 4110 Council Crest, Madison, Wis.
Born: May, 1890, Napoleon, Mo. B.S., 1917, University of Chicago; A.M., 1921, Ph.D., 1922, Princeton University. **Committees:** Papers Review, 1946–53. **Awards:** King's Medal for Service in the Cause of Freedom, 1948; President's Certificate of Merit, 1948.

DuMONT, Allen B. (M'30—F'31), Group General Manager, Allen B. DuMont Laboratories, Division of Fairchild and Instrument Corporation, 750 Bloomfield Ave., Clifton, N.J.
Born: January 29, 1901, Brooklyn, N.Y. E.E., 1924, D.Eng., 1944, Rensselaer Polytechnic Institute; D.Eng., 1949, Brooklyn Polytechnic Institute; D.Laws, 1955, Fairleigh Dickinson University; D. Science, 1955, New York University; Litt. D., Montclair State College. **Committees:** Standardization, 1929–31; Standards, 1932; Television, 1939–45. **Awards:** Westinghouse Award, 1927; American Television Society Award, 1943; Television Broadcasters Award, 1944; Marconi Memorial Medal of Achievement, 1945; AAAA Gold Medal Award, 1947; American Schools and Colleges Awards; Chevalier in National Order of French Legion of Honor, 1952.

DUNLAP, W. Crawford (SM'55—F'61), Director, Semi-conductor Research, Research Division, Raytheon Company, Waltham 54, Mass.
Born: July, 1918, Denver, Colo. B.S., 1938, University of New Mexico; Ph.D., 1943, University of California. **Committees:** Electron Devices, 1950–55; Solid State Devices, 1959–61; Solid State Device Research Conference, Program Committee, *chairman, 1955.* **Awards:** Fellow, American Physical Society, 1957.

DUNN, William L. (M'41—SM'43—F'54), Vice President and Director of Engineering and Research, Admiral Corporation, 3800 W. Cortland St., Chicago 47, Ill.
Born: December 19, 1903, Asheville, N.C. A.B., 1926, The Johns Hopkins University. **Committees:** Radio Receivers, 1940–48.

DUNNING, Orville M. (A'34—SM'44—F'55), President, Cardion Electronics, Inc., 65 Rushmore St., Westbury, L.I., N.Y.
Born: February 21, 1904, St. Louis, Mo. B.S.(E.E.), 1925, Rose Polytechnic Institute. **Committees:** Admissions, 1946–47. **Sections:** Long Island Subsection, *chairman, 1949–50.*

DYER, John N. (J'30—A'32—SM'45—F'49), Vice President and Technical Director, Airborne Instrument Laboratory, a Division of Cutler-Hammer, Inc., Comac Rd., Deer Park, L.I., N.Y.
Born: July, 1910, Haverhill, Mass. B.S., 1931, Massachusetts Institute of Technology, **IRE Offices:** Director, 1955–56; 1960; Vice President, 1960. **Committees:** Appointments, 1955–56; Awards, 1960; Education, 1955–60; Executive, 1960; Fellow, 1958, *chairman, 1959;* Navigation Aids, 1949–50; Nominations, 1956; Policy Advisory, 1955–57, *chairman, 1956;* Professional Groups, 1960. **Sections:** Long Island Subsection, *vice-chairman, 1949–50, chairman, 1950–51.* **IRE Representative:** AIEE-IRE Coordination Committee on Student Activities, 1955–56.

EARLY, James M. (A'48—SM'54—F'59), Transistor Development Engineer, Sub-Department Head, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: July, 1922, Syracuse, N.Y. B.Sc. (Pulp & Paper Manufacturing), New York State College of Forestry; M.Sc (EE.), Ph.D. (E.E.), 1951, Ohio State University. **Committees:** Semiconductor Devices, *chairman, 1957–61;* Solid State Devices, 1956–61.

EASTHAM, Melville (A'13—M'13—F'25)(L), 8 Graygardens, E., Cambridge, Mass.
Born: June 26, 1885, Oregon City, Ore. Dr. Eng., 1946 (Honorary), Oregon State College. **IRE Offices:** Manager, 1922–27; Treasurer, 1928–40; Director, 1927–41. **Committees:** Admissions, 1937–39, 1941–42; Awards, 1929, 1931, 1935, 1939, 1941–42, *chairman, 1929, 1941;* Bibliography, 1930–32, 1934, *chairman, 1932, 1934;* Building Fund, *Administrator, 1947–48;* Constitution and Laws, 1930–31, 1933; Education, 1944–48; Electroacoustic Devices, 1929–30; History, 1954–60; Nominations 1929–30, 1932, 1935–36, 1938–39, 1941, 1949–50, *chairman, 1929, 1935;* Papers, 1916–19; Revision of the Constitution, 1925; Sections, 1925; Standardization, 1925–31; Standards, 1936–38; Wave Length Regulation, 1916–17. **Sections:** Boston, *secretary, 1914–15, secretary-treasurer, 1916–29, secretary, 1930–32.* **IRE Representative:** Engineering Index National Committee, 1936, 1939–43; Radio Broadcasting Committee, American Engineering Council, 1930, 1936, 1939, 1940; United States National Committee, Advisers on Electrical Measuring Instruments, 1936, 1939–40, 1949–51. **Awards:** IRE Medal of Honor, 1937; Medal of Merit, 1948; New England Engineering Award, 1948; Armstrong Medal.

EASTMAN, AUSTIN V. (A'23—M'32—F'41), Professor and Head of Department of Electrical Engineering, University of Washington, Seattle 5, Wash.

Born: May 16, 1902, Seattle, Wash. B.S.(E.E.), 1922, M.S. (E.E.), 1929, University of Washington. **IRE Offices:** Director, 1950–51. **Committees:** Awards, 1951; Membership, 1941–48; Nominations, 1954; Papers Procurement, 1942–43; Policy Development, 1949–51; Regular Papers, 1941. **Sections:** Seattle, *chairman, 1929–30.* **IRE Representative:** University of Washington, 1941–47. **Awards:** Fellow, American Institute of Electrical Engineers, 1946.

EASTON, Ivan G. (S'39—A'41—SM'45—F'60), Vice President for Engineering, General Radio Company, 22 Baker Ave., West Concord, Mass.
Born: November, 1916, Sweden. B.S.(E.E.), 1938, Northeastern University; M.S., 1939, Harvard University. **Committees:** Audio Techniques, 1949–50. **Professional Groups:** Industrial Electronics, 1949–52; Instrumentation, *chairman, 1952–54.* **Sections:** New York, *secretary, 1947–48;* Boston Section Awards Committee, *chairman, 1961.* **IRE Representative:** Joint IRE-AIEE Committee on High Frequency Measurements, 1952–56.

ECKERSLEY, Peter Pendleton (F'25), Telephone Manufacturing Co., Ltd., West Dulwich, London S.E. 21, England.
Born: January, 1892, La Puebla, Mexico. Certificate of Technology, 1915, Manchester School of Technology; Higher Certificate, 1910, Bedales School. **IRE Offices:** Vice President, 1937; Director, 1937. **Awards:** Premium Prize Award, Institution of Electrical Engineers, 1928, 1930.

ECKERT, John Presper (S'41—A'47—SM'53—F'56), Vice President, Univac Engineering, Remington Rand, Inc., Remington Rand Univac, Division of Sperry Rand Corporation, 2300 W. Allegheny Ave., Philadelphia 29, Pa.
Born: April 9, 1919, Philadelphia, Pa. B.S.(E.E.), 1941, M.S. (E.E.), 1943, University of Pennsylvania. **Committees:** Electronic Computers, 1948–50. **Awards:** Howard W. Potts Medal, Franklin Institute, 1949.

EDGERTON, Harold E. (SM'55—F'56), Professor of Electrical Measurements, Massachusetts Institute of Technology, Cambridge 39, Mass.
Born: April 6, 1903, Fremont, Neb. B.S., 1925, University of Nebraska; M.S., 1927, D.Sc., 1931, Massachusetts Institute of Technology; Dr. Eng. (Honorary), 1948, University of Nebraska. **Awards:** Modern Pioneers Award, National Association of Manufacturers, 1940; Howard W. Potts Medal, The Franklin Institute, 1941; Medal of Freedom, 1946; Joseph A. Sprague Memorial Award, National Press Photographic Association, 1949; Franklin L. Burr Prize, National Geographic Society, 1953; Progress Award, Society of Motion Picture & Television Engineers, 1959; New England Award, Engineering Societies of New England, Inc., 1959; Certificate of Appreciation, War Department; Fellow, American Institute of Electrical Engineers; Fellow, Eta Kappa Nu.

EDLEFSEN, Niels E. (SM'52—F'54), Vice President and Director of Engineering, Vickers, Inc., Division of Sperry Rand Corporation, Administrative and Engineering Center, Detroit 32, Mich.
Born: January 29, 1893. B.S. (Physics), 1916, Utah State University; M.A. (Physics), 1923, Ph.D. (Physics), 1930, University of California. **Awards:** Fellow, American Physical Society; Fellowship, Charles A. Coffin, 1928–30; Honorable Mention, Nobel Prize, Physics, 1939.

EDSON, William A. (M'41—SM'43—F'57), Director of Research, Electromagnetic Technology Corporation, 1375 California Ave., Palo Alto, Calif.
Born: October, 1912, Burchard, Neb. B.S., M.S., 1934–35, University of Kansas; Sc.D., 1937, Harvard University. **Committees:** Editorial Reviewer, 1953–60; Education, 1955–60; Papers, 1951–53; Piezoelectric and Ferroelectric Crystals, 1959–61; Piezoelectricity, 1949–58. **Sections:** Atlanta, *vice-chairman, 1947, chairman, 1948;* San Francisco, *director, 1955–59.* **IRE Representative:** WESCON, Technical Program Committee, 1955; Microwave Theory and Techniques National Symposium, Steering Committee; WESCON, Technical Program Committee, *vice chairman, 1959.*

EDWARDS, Martin (SM'48—F'54), Manager, Advanced product Planning Operation, Electronic Components Division, General Electric Company, 1 River Rd., Schenectady, N.Y.
Born: March 22, 1905, Chautauqua, Kan. B.S.(E.E.), 1928, B.S. (M.E.), 1929, M.E., 1934, D.Sc., 1946, Kansas State College. **Awards:** Fellow, American Institute of Electrical Engineers, 1946.

EDWARDS, Paul G. (SM'47—F'60), Head, Communications Department, MITRE Corp., Bedford, Mass.
Born: February, 1901, Careytown, Ohio, B.E.E., 1924, E.E., 1929, Ohio State University. **Awards:** Fellow, American Institute of Electrical Engineers, 1959.

EITEL, William W. (A'39—SM'52—F'53), President, Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif.
Born: January 16, 1908, San Jose, Calif. **Awards:** Distinguished Service Award, U. S. Navy, 1950.

ELIAS, Peter (S'48—A'51—M'56—F'59), Professor and Head of the Department of Electrical Engineering, Massachusetts Institute of Technology, Cambridge 39, Mass.
Born: November 26, 1923, New Brunswick, N.J. S.B., 1944, Massachusetts Institute of Technology; M.A., 1948, M.(Eng. Sci.), 1949, Ph.D., 1950, Harvard University. **Committees:** Information Theory and Modulation Systems, 1953–59, *vice-chairman, 1957–59, chairman, 1958–60;* Standards, 1958–60. **Professional Groups:** Information Theory Symposium, 1954, *chairman, 1956;* Information Theory Administrative Committee, 1958–59, *chairman, 1959–60.*

ELLEFSON, Bennett S. (A'38—M'44—F'48), Vice President, General Telephone & Electronics Laboratories Incorporated, 730 Third Ave., New York 17, N.Y.
Born: January 10, 1911, Canby, Minn. B.A., 1932, St. Olaf College; M.S., 1933, University of Minnesota; Ph.D., 1937, Pennsylvania State University. **Committees:** Annual Review, 1946–47.

ELLIOTT, Harold F. (M'25—SM'43—F'51)(L), Consulting Engineer, 800 Westridge Dr., Menlo Park, Calif.
Born: June 17, 1892, Durango, Colo. A.B., 1916; Engineer, 1925, Stanford University.

ELLIOTT, Robert S. (S'51—A'52—SM'54—F'61), Professor, University of California, Los Angeles, Calif.
Born: March 9, 1921, New York, N.Y. A.B., 1942, B.S., 1943, Columbia University; M.S., 1947, Ph.D., 1952, University of Illinois. **Committees:** Antennas, 1954–55; Papers Review, 1954–58. **Sections:** Los Angeles Antennas and Propagation Chapter, *vice-president, 1956, president, 1957;* Los Angeles Technical Program Committee, 1957; WESCON Papers Review, 1957–60. **IRE Representative:** UCLA, 1958–60.

ELWELL, Cyril F. (M'14—F'18)(L), Consulting Engineer, Hewlett-Packard Company, 1501 Page Mill Rd., Palo Alto, Calif.
Born: August 20, 1884, of American Parents, Melbourne, Victoria, Australia. A.B., 1907, E.E., 1908, Stanford University. **Committees:** Increase of Membership, 1913–14. **Awards:** Honorary Life Member of the Institution of Radio Engineers, Australia, 1954.

ENGLEMAN, Christian L. (SM'46—F'54), Vice President, C-E-I-R Inc., 1200 Jefferson Davis Highway, Arlington, Va.
Born: April 3, 1906, Vancouver, Clark County, Wash. B.S. 1930, United States Naval Academy College; M.S., 1938, Harvard University. **Committees:** Professional Groups, 1958–60. **Professional Groups:** Communications Systems National Committee, 1954–57, 1959–61, *vice-chairman, 1956, 1959, chairman, 1960;* GLOBECOM I, *chairman, 1954;* Military Electronics National Committee, 1956–59, *national Chairman, 1956, treasurer, 1958–61;* Washington Chapter, Communications Systems, *chairman, 1954.*

ENGSTROM, Elmer W. (A'25—M'38—F'40), Senior Executive Vice President and Director, Radio Corporation of America, 30 Rockefeller Plaza, New York 20, N.Y.; Director, National Broadcasting Company; Director, RCA Communications, Inc.
Born: August 25, 1901, Minneapolis, Minn. B.S.(E.E.), 1923, University of Minnesota; Sc.D. (Honorary), 1949, New York University; LL.D., 1960, Findley College. **IRE Offices:** Director, 1949. **Committees:** Awards, 1945–49, *chairman, 1946;* Board of Editors, 1940–51; Nominations, 1947; Public Relations, 1940; Regular Papers, 1941; Research, 1946–47, 1949–50; Television, 1939–40; Television and Facsimile, 1936–38.

ENGSTROM, Howard T. (SM'53—F'59), Vice President, Remington Rand, Division of Sperry Rand Corporation, 315 Fourth Ave., New York 10, N.Y.
Born: April 23, 1902, Boston, Mass. B.Ch.E., 1922, Northeastern University; M., 1925, University of Maine; Ph.D., 1929, Yale University. **Awards:** Distinguished Service Medal, U.S. Navy; Officer of the British Empire; Naval Security Medal; Distinguished Civilian Service Award.

EPPERSON, Joseph B. (A'34—M'38—SM'43—F'58), Engineering Vice President, Scripps-Howard Radio, Inc., Euclid Ave. and E. 30 St., Cleveland 15, Ohio.
Born: May, 1910, Charleston, Tenn. **Committees:** Constitution and Laws, 1951; Sections, 1951-52. **Professional Groups:** Administrative Committee, Broadcast Transmission Systems, 1951–55; Annual Symposium, *chairman, 1954.* **Sections:** Cleveland, *secretary-treasurer, 1948–49, vice-chairman, 1949–50, chairman, 1950–51.* **Awards:** Award Certificate for Service as Chairman of National AIEE Committee on TV and Aural Broadcasting Systems, 1955–56; Fellow, American Institute of Electrical Engineers, 1958.

EPSTEIN, David W. (A'34—SM'43—F'52), Manager, Conversion Tube Operations, RCA Electron Tube Division, Radio Corporation of America, Lancaster, Pa.
Born: January 11, 1908, Russia. B.S. (Physics), 1930, Lehigh University; M.S.(E.E.), 1934, D.Sc.(E.E.), 1937, University of Pennsylvania. **Committees:** Editorial Reviewer, 1954–60.

ESPENSCHIED, Lloyd (IRE Charter Member) (A'12—M'13—F'24)(L), Retired from Bell Telephone Laboratories, Inc.; Consultant, 99 82nd Road, Kew Gardens 15, N.Y.
Born: April 27, 1889, St. Louis, Mo. Pratt Institute, 1909, D.Sc. (Honorary), 1957. **IRE Offices:** Manager, 1912–13, 1915–26, 1931. **Committees:** Admissions, 1942–47; Awards, 1919; Editing, 1914; History, 1954–60; Increase of Membership, 1917–18; Radio Telephone and Receiver Terminology, *chairman, 1924–25;* Revision of the Constitution, 1925; Standardization, 1924–25; Wave Length Regulation, 1916–17, 1919–20. **Sections:** New York, *chairman 1944–45.* **IRE Representative:** National Advisory Council on Radio in Education, 1936–37, 1939–40; Committee on Engineering Developments, 1941–43. **Awards:** AIEE Award (co-receiver), 1935; IRE Medal of Honor, 1940; Medal Award, Television Broadcasters Association, 1944; Radio Pioneers Citation, 1954.

ESPERSEN, George A. ('34—VA'39—SM'51—F'56), Research Physicist, Philips Laboratories, Irvington-on-Hudson, N.Y.
Born: May 17, 1906, Jersey City, N.J. B.S. (Physics), 1931, New York University. **Committees:** Electron Devices, 1952–56; Electron Tubes, 1955–56, *vice-chairman, 1956–57, chairman, 1957–61;* Electron Tubes & Solid State Devices, 1951–52; Standards, 1957–61. **Professional Groups:** Electron Devices, 1953–56, *vice-chairman, 1954, chairman, 1954–55.* **IRE Representative:** ASA Sectional Committee (C60) on Standardization on Electron Tubes, 1959–61; ASA Subcommittee (C42.14) on Electron Tubes, 1959–61. **Awards:** Samuel F. B. Morse Medal for Excellence in Physics, New York University, 1929; Mrs. Andrew Carnegie Scholarship, 1930.

ESPLEY, Dennis C. (SM'52—F'54), Chief Executive, Computer Developments, Ltd., Computer House, Kenton Rd., Kenton, Middlesex, England.
Born: September 19, 1906, Wellington, Shropshire, England. B.Eng. (1st Class Honors), 1928; D.Eng., 1940, Liverpool University. **Awards:** Ambrose Fleming; Duddell; John Hopkinson; Officer of the Order of the British Empire, 1950.

EVANS, Porter H. (M'23—F'31)(L), Retired from Technical Staff, Bell Telephone Laboratories, Inc., Whippany, N.J. Residence: 63 Hill St., Morristown, N.J.
Born: January 11, 1891, Erie, Pa. B.S.(E.E.), 1914, M.S., 1920, University of Michigan. **Committees:** Standardization, 1930–31.

EVERITT, William L. (A'25—M'29—F'38), Dean of the College of Engineering, University of Illinois, Urbana, Ill.
Born: April 14, 1900, Baltimore, Md. E.E., 1922, Cornell University; M.S., 1926, University of Michigan; Ph.D., 1933, Ohio State University. **IRE Offices:** President, 1945; Director, 1942–47, 1949–51. **Committees:** Awards, 1943–44, 1948–49, *chairman, 1944;* Awards Coordination, *chairman, 1955;* Board of Editors, 1941–53; Circuits, 1944–51; Editorial Reviewer, 1954–60; Education, 1944, 1950, *chairman, 1944;* Executive, *chairman, 1945;* Frequency Modulation, 1941–45; Investments, 1945; Membership, 1942–43; Nominations, 1942, 1946, 1948–50, 1952, *chairman, 1948, 1952;* Papers, 1941; Papers Procurement, *vice-chairman, 1943–45;* Policy Development, 1948, 1950–51; Professional Groups, 1948–53, *chairman, 1949;* Public Relations, 1950–51; Regular Papers, *vice-chairman, 1941;* Research, 1946–47. **IRE Representative:** Ohio State University, 1941–42; Joint IRE-AIEE Coordination Committee, 1951; Committee on Evaluation of Bureau of Standards, 1953; Ad Hoc Committee on Coordination of Student Branches, 1954; Advisory Committee to National Bureau of Standards, 1954–58. **Awards:** IRE Medal of Honor, 1954.

EWING, Douglas H. (SM'46—F'54), Vice President, Research and Engineering, Radio Corporation of America, Princeton, N.J.
Born: June 24, 1915, Mitchell, Ind. A.B., 1935, Butler University; M.S., 1937, Ph.D., 1939, University of Rochester; D.Sc. (Honorary), 1955, Butler University. **Committees:** Education, 1953–55; Navigation Aids, 1948–49.

FANO, Robert M. (S'41—A'45—SM'48—F'54), Professor of Electrical Communications, Department of Electrical Engineering and Research Laboratory of Electronics, Massachusetts Institute of Technology, 77 Massachusetts Ave., Cambridge 39, Mass.
Born: November 11, 1917, Torino, Italy. S.B., 1941, Sc.D., 1947, Massachusetts Institute of Technology. **Committees:** Antennas, 1949–50; Awards, 1956–57; Editorial Reviewer, 1954–60; Education, 1949–56; Papers Review, 1953. **Professional Groups:** Administrative Committee, Information Theory, 1951–58; Editorial Advisory Board of Transactions of the PGIT, *chairman, 1958–60.* **Awards:** Fellow, American Academy of Arts & Sciences.

FARNSWORTH, Philo T. (A'28—M'34—F'39), Technical Consultant, International Telephone & Telegraph Laboratories, 3700 E. Pontiac St., Fort Wayne, Ind.
Born: August 19, 1906, Beaver, Utah. D.Sc. (Honorary), 1951, Indiana Technical College. **Committees:** Television, 1940–41; Television and Facsimile, 1936–40. **Awards:** Honorable Mention Citation for Outstanding Young Electrical Engineers, Eta Kappa Nu, 1937; Distinguished Alumni Award, Brigham Young University, 1937; Durward Howes' list of ten most distinguished young men for "America's Young Men," 1940; Fellow, Society of Motion Picture and Television Engineers; Fellow, American Association for the Advancement of Science; IRE Morris Liebmann Memorial Prize, 1941; First Award by Television Broadcasters Association, 1944.

FARRAND, Clair L. (A'14—M'23—F'31)(L), President, Farrand Optical Company; President, Farrand Controls, Inc.; President, Inductosyn Corporation, Bronx Blvd. & E. 238 St., New York 70, N.Y.
Born: October 22, 1895, Newark, N.J.

FARRELL, John J. (A'43—SM'47—F'48), General Manager, Heavy Military Electronics Department, Defense Electronics Division, General Electric Company, Syracuse, N.Y.

Born: March, 1897, Watervliet, N.Y. **Committees:** Nominations, 1947. **IRE Representative:** ASA Sectional Committee (C16) on Radio, 1949–51; RMA-IRE Coordinating Committee, 1945–47.

FAULKNER, Harry (M'24—SM'43—F'53)(L), Director, Telecommunications Engineering & Manufacturing Association, 40 Norfolk St., London, W.C. 2, England.
Born: April 17, 1892. Nottingham, England. B.Sc. (Eng.), 1911, London. **Awards:** Special Premium, IEE, 1927; Companion of the Order of St. Michael and St. George.

FAY, Clifford E. (A'26—SM'45—F'56), Member, Technical Staff, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: December 2, 1903, St. Louis, Mo. B.S.(E.E.), 1925, M.S. (E.E.), (Physics), 1927, Washington University. **Committees:** Electron Devices, 1952–53; Electron Tubes and Solid State Devices, 1949–52. **Professional Groups:** Electron Devices, *treasurer, 1954–55.* **IRE Representative:** ASA Sectional Committee (C60) on Standardization of Electron Tubes, 1949–55.

FELCH, Edwin P. (A'32—M'42—SM'43—F'54), Director of Military Systems Development, Bell Telephone Laboratories, Inc., Whippany, N.J.
Born: January, 1909, Madison, N.J., A.B. (Physics), 1929, Dartmouth College. **Committees:** Awards, 1959–60. **Professional Groups:** Instrumentation, Charter Member of Administrative Committee through 1953. **IRE Representative:** Joint Committee-Joint AIEE-IRE Committee on High Frequency Measurements, 1948–53, *chairman, 1952.*

FELKER, Jean H. (A'46—SM'53—F'60), Assistant Chief Engineer, American Telephone and Telegraph Company, 195 Broadway, New York 7, N.Y.
Born: March 14, 1919, Centralia, Ill. B.S.(E.E.), 1941, Washington University. **Committees:** Editorial Reviewer, 1954; Professional Groups, 1956. **Professional Groups:** Electronic Computers Administrative Committee, 1953–56; Electronic Computers, *chairman, 1955–56.*

FERENCE, Michael, Jr. (SM'49—F'61), Executive Director, Scientific Laboratory, Ford Motor Company, 20000 Rotunda Dr., Dearborn, Mich.
Born: November, 1911, Whiting, Ind. B.S., 1933, M.S., 1934, Ph.D., 1936, University of Chicago. **Awards:** Quantrell Prize, University of Chicago, 1943; Exceptional Civilian Service Award, Department of the Army, 1953.

FERRELL, Enoch B. (A'25—M'29—SM'43—F'53), Director, Communications Techniques Research, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: June 1, 1898, Sedan, Kan. B.A., 1920, B.S.(E.E.), 1921, M.A., 1924, University of Oklahoma. **Committees:** Awards, 1955–57, *chairman,* 1956; Awards Coordination, *chairman, 1958;* Papers, 1933–45. **Awards:** Fellow, American Society for Quality Control, 1948.

FERRIS, Warren R. (SM'46—F'53), Professor of Electrical Engineering, University of South Carolina, Columbia, S.C.
Born: May 14, 1904, Terre Haute, Ind. B.S.(E.E.), 1927, Rose Polytechnic Institute; M.S.(E.E.), 1932, Union College; Dr. E.E., 1946, Polytechnic Institute of Brooklyn. **Committees:** Electron Devices, 1952–56; Standardization, 1929–32; Standards, 1932–33.

FETT, Gilbert H. (SM'45—F'58), Professor of Electrical Engineering, University of Illinois, Urbana, Ill.
Born: June 19, 1909, Chicago, Ill. B.Sc.(E.E.), 1931, University of Illinois; M.Sc., 1932, Iowa State College; Ph.D., 1940, University of Illinois. **Committees:** Awards, 1961; Education, 1945–51; Fellow, 1959–60. **Awards:** Fellow, American Physical Society, 1950.

FICK, Clifford G. (A'25—SM'46—F'51), Manager, Research Liaison Section, Research Application Department, Research Laboratory, General Electric Company, Schenectady, N.Y.
Born: December 13, 1904, Ida Grove, Iowa. B.Sc.(E.E.), 1925, Iowa State College. **Committees:** Annual Review, 1949–50; Television Systems, 1948–61.

FIEDLER, George J. (A'40—SM'46—F'60), Principal Engineer, Systems Engineering Section, Sverdrup & Parcel & Associates, Inc., 915 Olive St., St. Louis 1, Mo.
Born: March 18, 1904, Bushton, Kan. B.S.(E.E.), 1926, Kansas State University; M.S.(E.E.), 1932, University of Kansas; Professional (E.E.), 1934, Kansas State University. **IRE Representative:** Montana State College, 1940–43. **Awards:** Fellow, American Institute of Electrical Engineers, 1956; Fellow, American Association for the Advancement of Science, 1960.

FIELD, George S. (A'30—VA'39—SM'48—F'57), Chief Scientist, Defense Research Board, Department of National Defense, "A" Building, Elgin St., Ottawa, Ont., Canada.
Born: October 23, 1905, Wimbledon, Middlesex, England. B.Sc., 1929, M.Sc., 1930, D.Sc., 1937, University of Alberta. **Awards:** Fellow, Acoustical Society of America, 1943; Fellow, Royal Society of Canada, 1944; Member of the British Empire, 1946.

FIELD, Lester M. (M'48—F'52), Director, Microwave Tube Division; Scientific Staff Advisor, Research Laboratories, Hughes Aircraft Company, Culver City, Calif.
Born: February 9, 1918, Chicago, Ill. B.S., 1939, Purdue University; Ph.D., 1943, Stanford University. **Committees:** Editorial Reviewer, 1954–58; Papers Review, 1950–53. **Professional Groups:** Electron Devices Administrative Committee, 1959. **IRE Representative:** California Institute of Technology, 1954–55. **Awards:** Honorable Mention, Outstanding Young Electrical Engineer, Eta Kappa Nu, 1949.

FIELD, Robert F. (A'18—M'30—SM'43—F'47)(L), Retired. 104 Church St., Watertown 72, Mass.
Born: July 10, 1885, Tuftonboro, N.H. A.B., 1906, A.M., 1907, Brown University; A.M., 1916, Harvard University. **Committees:** Meetings and Papers, 1930. **Sections:** Boston, *chairman, 1942–44.* **Awards:** Award of Merit, American Society for Testing Materials, 1954.

FILIPOWSKY, Richard F. T. (A'50—SM'59—F'61), Manager, Advanced Development, International Business Machines Corporation, 10301 Westlake Dr., Rockville, Md.
Born: July 7, 1915, Vienna, Austria. B.E.(Ing.), M.D.(Dipl. Ing.), 1939, Dr. Eng. (Dr. Techn. Wissensch), 1955, Technical University, Vienna. **Professional Groups:** Communications Systems Paper Committee, 1959–60. **Awards:** Heinrich Herz Premium, British Institution of Radio Engineers, London, 1956.

FINCH, William G. H. (J'16—A'18—M'25—SM'43—F'56)(L), Capt., USNR, Retired. Electronics Consultant, P.O. Box 44, Newtown, Conn.
Born: June 28, 1895, Birmingham, England. **Committees:** Annual Review, 1939–40; Board of Editors, 1945–53; Constitution and Laws, 1928–31; Facsimile, 1939–43, 1949–50, *chairman, 1939–40;* Meetings and Papers, 1927–28; Membership, 1926–27; Publicity, 1926–34, *chairman, 1926–30;* Standards, 1939–40. **Awards:** Legion of Merit, U. S. Navy, 1946.

FINK, Donald G. (A'35—SM'45—F'47), Vice President of Research, Philco Corporation, Tioga & C Sts., Philadelphia 34, Pa.
Born: November 8, 1911, Englewood, N.J. B.Sc., 1933, Massachusetts Institute of Technology; M.S., 1942, Columbia University. **IRE Offices:** President, 1958, Director, 1949–51, 1956–60; Editor, 1956–57. **Committees:** Annual Review, 1946–49; Appointments, 1948–49, 1957; Awards, 1947; Board of Editors, 1946–53; Editorial Board, *vice-chairman, 1954–55, chairman, 1956–57;* Executive, 1956–60, *chairman, 1958;* Finance, 1959–60; Handbook, 1945–47; Membership, 1942–48, *chairman, 1946;* Navigation Aids, 1946–51, *chairman, 1946–48;* Nominations, 1959–60, *chairman, 1960;* Papers, 1943–45; Policy Advisory, 1959–60; Preparedness, 1940–41; Professional Groups, 1956–57; Public Relations, 1940–42; Research, 1946–47; Standards, 1946–49, 1959–61; Television, 1946–49, *chairman, 1948–49;* Television Systems, 1949–61; Tellers, 1949. **Professional Groups:** Broadcast and Television Receivers, *vice-chairman, 1955.* **IRE Representative:** ASA Sectional Committee (C16) on Radio, *chairman, 1959–60;* Joint Technical Advisory, 1948–53, 1956–57, *vice-chairman, 1948, chairman, 1949;* NBS Advisory Panel (Section 14), National Research Council, 1960–61. **Awards:** Medal of Freedom, War Department, 1946; Presidential Certificate of Merit, 1948; Fall Meeting Plaque, 1951; Journal Award, Society of Motion Picture and Television Engineers, 1955.

FINK, Lyman R. (SM'48—F'53), General Manager, Atomic Products Division, General Electric Company, 701 University Ave., Palo Alto, Calif.
Born: November, 1912, Elk Point, S.D. B.S.(E.E.), 1933, M.S. (E.E.), 1934–35, Ph.D.(E.E.), 1937, University of California. **Committees:** Awards, 1955–57, *chairman, 1957;* Sections, 1950–51. **Professional Groups:** Administrative Committee, Broadcasts and Television Receivers, 1954–59, *vice-chairman, 1955, chairman, 1956–58.* **Sections:** Syracuse, *vice-chairman, 1949–50, chairman, 1950–51.*

FISHER, Joseph F. (SM'48—F'61), Manager, Engineering Section, Video Products Division, G. & I., Philco Corporation, 4700 Wissahickon Ave., Philadelphia, Pa.
Born: February 28, 1911, Philadelphia, Pa. Drexel Institute of Technology, 1929–36. **Committees:** Video Measurements, 1953–58; Video Techniques, 1960–61. **Professional Groups:** Program Committee, 12th Annual Conference on Electrical Techniques in Medicine and Biology, 1959; Bio-Medical Electronics, *secretary, 1959, vice-chairman, 1960–61.* **Sections:** Philadelphia Membership Committee, 1955; Color Symposium Committee, 1954.

FISK, Sir Ernest T. (M'15—F'26)(L), Consultant, Electronics Telecommunications also Finance and Production, P.O. Box 9, Roseville, New South Wales, Australia.
Born: August 8, 1886, Sunbury-on-Thames, Middlesex, England. **IRE Offices:** Vice President, 1938; Director, 1938. **Awards:** Fellow, IRE, Australia; President, 1932–37, 1939–43; Honorary Member, Institution of Electrical Engineers, London; Honorary Member, British Institution of Radio Engineers; Silver Medalist, Royal Society of Arts (London); Honorary Member, Institution of Radio Engineers, Australia; Chartered Engineer, Australia.

FISK, James B. (SM'52—F'55), President, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: August 30, 1910, West Warwick, R.I. B.S., 1931, Ph.D., 1935, Massachusetts Institute of Technology; M.A. (Honorary), 1947, Harvard University; Sc.D. (Honorary), 1956, Carnegie Institute of Technology; Sc.D. (Honorary), 1958, Williams College; Sc.D. (Honorary), 1959, Newark College of Engineering; Sc.D. (Honorary), 1960, Columbia University. **Awards:** Presidential Certificate of Merit.

FLORY, Leslie E. (A'35—SM'46—F'57), Research Engineer, RCA Laboratories, Princeton, N.J.
Born: March 17, 1907, Sawyer, Kan. B.S.(E.E.), 1930, University of Kansas. **Professional Groups:** Administrative Committee, Medical Electronics, 1955–59, *vice-chairman, 1959–60;* Metropolitan New York Chapter PGME, *chairman, 1959–60;* Joint Executive Committee, Medicine and Biology (IRE, AIEE, ISA), 1957–61; International Conference, Medical Electronics, *chairman, 1961.* **Awards:** Overseas Award, British Institute of Electrical Engineers, 1938; RCA Laboratories Award, 1949, 1950, 1958.

FLOWERS, Harold L. (A'43—SM'50—F'61), Director, Weapon Systems, Goodyear Aircraft Corporation, 1210 Massillon Rd., Akron 15, Ohio.
Born: June 25, 1917, Hickory, N.C. B.S.(E.E.), 1938, Lenoir Rhyne College; M.S.(Eng.), 1941, University of Cincinnati. **Professional Groups:** Aeronautical and Navigational Electronics; Engineering Management; Military Electronics; Member, Organizing Committee for National Human Factors in Electronics, 1958–59; Administrative Committee, 1958–60; Publication, *chairman, 1959–60.* **Sections:** Washington, D.C., 1941–50; Akron, *secretary-treasurer, 1953–54, vice-chairman, 1954–55, chairman, 1955–56.* **Awards:** Meritorious Civil Service Award, U. S. Navy; Milmow Award, Duke University.

FORRESTER, Jay W. (SM'49—F'55), Professor of Industrial Management, Massachusetts Institute of Technology, Cambridge, Mass.
Born: July 14, 1918, Anselmo, Neb. B.S.(E.E.), 1939, University of Nebraska; M.S.(E.E.), 1945, Massachusetts Institute of Technology; Dr. Eng. (Honorary), 1954, University of Nebraska. **Committees:** Editorial Reviewer, 1954–58; Electronic Computers, 1948–52, *chairman, 1949–51;* Measurements and Instrumentation, 1949–50; Papers Review, 1951–53; Standards, 1949–51. **Awards:** Honorable Mention Award for Young Engineers, Eta Kappa Nu, 1948.

FOSTER, Dudley E. (A'26—M'37—SM'43—F'50), President, Hazeltine Research, Inc. of California, 3320 Burbank Blvd., Burbank, Calif.
Born: December 12, 1900, Newark, N.J. E.E., 1922, Cornell University. **Committees:** Annual Review, 1938–41, 1945–46; Awards, 1953–57; Building Fund, 1944–55; New York Program, 1937; Papers Procurement, 1942–43; Radio Receivers, 1936–48, *chairman, 1938–41, 1945–47;* Regular Papers, 1941; Standards, 1938–42, 1945–46; Television, 1939–47; Television and Facsimile, 1938–39. **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940.

FOSTER, Ronald Martin (SM'53—F'54), Professor of Mathematics, Polytechnic Institute of Brooklyn, 333 Jay St., Brooklyn 1, N.Y.
Born: October 3, 1896, Brooklyn, N.Y. S.B., 1917, Harvard University; Sc.D., 1960, Fairleigh Dickinson University. **Committees:** Circuits, 1947–61.

FOWLER, Glenn A. (A'46—SM'48—F'60), Vice President, Development, Sandia Corporation, P.O. Box 5800, Albuquerque, N.M.
Born: June 18, 1918, Riverdale, Calif. B.S.(E.E.), 1941, University of California, Berkeley. **IRE Offices:** Director, 1958–59. **Committees:** Appointments, 1957; Editorial Reviewer, 1954–60; Nominations, 1959–60; Policy Advisory, 1959–60. **Sections:** Albuquerque-Los Alamos, *treasurer, 1954–55, secretary, 1955–56, chairman, 1956;* Region 7, *director, 1958–59.*

FOX, A. Gardner (A'40—SM'45—F'56), Radio Research Engineer, Bell Telephone Laboratories, Inc., P.O. Box 107, Red Bank, N.J.
Born: November 22, 1912, Syracuse, N.Y. B.S.(E.E.), 1934, M.S.(E.E.), 1935, Massachusetts Institute of Technology. **Committees:** Annual Review, 1949–50; Antennas, 1948–49; Antennas and Waveguides, 1949–54, *chairman, 1949–52;* Editorial Reviewer, 1954–55; Radio Wave Propagation and Utilization, 1947–48; Standards, 1949–52; Wave Propagation, 1949–50. **Awards:** Naval Ordnance Development Award, U. S. Navy, 1945.

FRANKEL, Sidney (A'37—SM'44—F'57), Consultant, 1165 Saxon Way, Menlo Park, Calif.
Born: October 6, 1910, New York, N.Y. B.S.(E.E.), 1931, M.S., (Math.), 1934, Ph.D. (Math.), 1936, Rensselaer Polytechnic Institute. **Committees:** Antennas, 1944–49; Antennas and Waveguides, 1949–50, *vice-chairman, 1950–51, 1953–54;* Handbook, 1945–47; Transmitters, 1944–45; Transmitters and Antennas, 1943–44. **Sections:** West Coast Subcommittee on Antennas and Waveguides, *chairman, 1952–54.*

FREDENDALL, Gordon L. (A'41—SM'46—F'55), Senior Member, Technical Staff, RCA Laboratories Division, Princeton, N.J.
Born: December 20, 1909, Kettle Falls, Wash. B.S., 1931, M.S., 1932, Ph.D., 1936, University of Wisconsin. **Committees:** Editorial Reviewer, 1954–60; Frequency Modulation, 1946–47; Measurements and Instrumentation, 1950–58; Standards, 1959–61; Video Techniques, 1949, *vice-chairman, 1957–59, chairman, 1959–61.*

FRIEND, Albert W. (A'34—M'39—SM'43—F'54), Consulting Engineer and Physicist; President, Amicon Corporation, 5903 City Ave., Philadelphia 31, Pa.
Born: January 24, 1910, Morgantown, W.Va. B.S.(E.E.), 1932, M.S. (Physics), 1936, West Virginia University; S.D. (Communication Engr.), 1948, Harvard University. **Committees:** Recordings and Reproducing, 1948–61, *vice-chairman, 1950–51, chairman, 1952–56;* Standards, 1952–56. **IRE Representative:** ASA Sectional Committee (Z57) on Sound Recording, *alternate, 1952–61;* IRE-AIEE Committee on Noise Definitions, 1951–53. **Awards:** RCA Laboratories Award, 1951; National Electronics Conference Award, 1955; Fellow, American Physical Society; Fellow, American Association for the Advancement of Science; Life Member, American Ordnance Association.

FRIIS, Harald T. (A'18—M'26—F'29)(L), Consulting Engineer, 30 E. River Rd., Rumson, N.J.
Born: February 22, 1893, Neastved, Denmark. E.E., 1916, Dr. Eng., 1938, Royal Technical College, Copenhagen. **IRE Offices:** Director, 1941–43. **Committees:** Admissions, 1941; Papers, 1941; Research, 1946–47. **Awards:** IRE Morris Liebmann Memorial Prize, 1939; Knight of the Danish Order of Dannebrog, 1954; Valdemar Poulsen Gold Medal, Danish Academy of Technical Sciences, 1954; IRE Medal of Honor, 1955; Stuart Ballantine Medal, Franklin Institute, 1958.

FRISCHE, Carl A. (SM'54—F'57), President, Sperry Gyroscope Company, Division of Sperry Rand Corporation, Great Neck, L.I., N.Y.
Born: August, 1906, Freeport, Kan. A.B., 1928, Miami University, Ohio; M.S., Ph.D., 1932, Iowa State University; Research Fellowship, 1933, Columbia University; D.Sc. (Honorary), 1955, Miami University, Ohio.

FRY, Donald W. (A'37—M'58—F'60), Director, United Kingdom Atomic Energy Establishment, Winfrith, Dorchester, Dorset, England.
Born: November 30, 1910, Weymouth, Dorset, England. B.Sc. (Special Physics, 1st Class Honors), 1931, M.Sc., 1932, King's College, London University, England. **Awards:** Duddell Medal of the Physical Society, 1950; Fellow, King's College, London, 1959.

FUBINI, Eugene G. (A'36—SM'46—F'54), Director of Research, Office of Director of Defense & Engineering, OSD, The Pentagon, Washington 25, D.C.
Born: April, 1913, Turin, Italy. Doctor of Physics, 1933, University of Rome, Italy. **Committees:** Editorial Reviewer, 1954–60; Papers Review, 1949–53; Tellers, 1948; Wave Propagation, 1949–53. **Sections:** Long Island, *vice-chairman, 1956–57, chairman, 1957–58.* **Awards:** Presidential Certificate of Merit.

FULLER, Leonard F. (A'14—M'14—F'25)(L), Retired. 2345 Waverley St., Palo Alto, Calif.
Born: August 21, 1890, Portland, Ore. M.E., 1912, Cornell University; Ph.D., 1919, Stanford University. **IRE Offices:** Manager, 1928. **Committees:** Admissions, 1928–29; Radio Transmitters and Antennas, 1930–31; Sections, 1926–28; Specifications for Steamship Radio Equipment, 1914–15; Standardization, 1916–20, 1930–31; Transmitters and Antennas, 1929–30; Wave Length Regulation, 1916–17, 1919–20. **Sections:** San Francisco, *chairman, 1928–29.* **Awards:** IRE Morris Liebmann Memorial Prize, 1919; Fellow, American Institute of Electrical Engineers, 1923.

GAFFNEY, Francis J. (A'38—M'45—SM'46—F'55), Technical Advisor, North American Philips Company, 100 E. 42 St., New York 17, N.Y.
Born: June 27, 1912, Middleton, Lancashire, England. B.S. (E.E.), 1935, Northeastern University. **Committees:** Measurements and Instrumentation, 1949–50, *vice-chairman, 1950–51, chairman, 1951–54;* Standards, 1951–54. **IRE Representative:** ASA Sectional Committee (C39) on Electrical Measuring Instruments, 1953–55; ASA Subcommittee (C42.6) on Electrical Instruments, *alternate, 1953;* Joint IRE-AIEE Committee on High Frequency Measurements, 1952–56; U. S. National Committee, International Electrotechnical Commission, Advisers on Electrical Measuring Instruments, *alternate, 1953–55.* **Awards:** Certificate of Merit, 1947.

GANNETT, Danforth K. (M'31—SM'43—F'59), Lecturer, Virginia Polytechnic Institute, Blacksburg, Va., In Communications Training Program for C. & P. Telephone Company Personnel.
Born: November, 1894, Minneapolis, Minn. B.S., 1916, E.E., 1917, University of Minnesota. **IRE Representative:** ASA Technical Committee (C16), 1939; Subcommittee (23.4), Video Signal Transmission Methods of Measurement, 1948–49. **Awards:** Letter of Appreciation for Wartime Service as Consultant to Office of Scientific Research and Development, 1944.

GARMAN, Raymond L. (A'39—SM'51—F'58), Vice President, Engineering and Research, General Precision Equipment Corporation, 50 Prospect Ave., Tarrytown, N.Y.
Born: July 21, 1907, Schoeneck, Pa. B.S., 1929, Franklin and Marshall; M.Sc., 1931, Ph.D., 1932, New York University. **Committees:** Video Techniques, *chairman, 1949–53.* **Awards:** Presidential Certificate of Merit, 1947; Fellow, SMPTE.

GEBHARD, Louis August (A'20—M'42—SM'43—F'49)(L), Superintendent, Radio Division, United States Naval Research Laboratory, Washington 25, D.C.
Born: June, 1896, Buffalo, N.Y. B.S.(E.E.), George Washington University; LL.B., Georgetown University. **Awards:** Presidential Certificate of Merit, 1946; Fellow, American Physics Society; Fellow, Scientific Research Society of America; Fellow, American Association for the Advancement of Science; Armed Forces Communication Association; Naval Institute.

GERBER, Eduard A. (A'50—SM'56—F'58), Director, Solid State and Frequency Control Division, U. S. Army Signal Research & Development Laboratory, Fort Monmouth, N.J.
Born: April 3, 1907, Fuerth, Bavaria, Germany. M.S., 1931; Ph.D., 1934, Institute of Technology, Munich, Germany. **Committees:** Piezoelectric and Ferroelectric Crystals, 1957–61, *chairman, 1957–60;* Standards, 1957–61.

GERKS, Irvin H. (A'32—M'41—SM'43—F'58), Engineer, Collins Radio Company, 5225 C Ave., N.E., Cedar Rapids, Iowa.
Born: October 30, 1905, New London, Wis. B.Sc.(E.E.), 1927, University of Wisconsin; M.Sc.(E.E.), 1932, Georgia Institute of Technology. **Committees:** Wave Propagation, 1948–61. **Sections:** Atlanta, *chairman, 1935–37;* Dayton, *chairman, 1944.*

GIACOLETTO, Lawrence J. (S'37—A'42—M'44—SM'48—F'58), Professor, Department of Electrical Engineering and Division of Engineering Research, Michigan State University, East Lansing, Mich.
Born: November 14, 1916, Clinton, Ind. B.Sc.(E.E.), 1938, Rose Polytechnic Institute; M.Sc. (Physics), 1939, State University of Iowa; Ph.D.(E.E.), 1952, University of Michigan. **Committees:** Administrative Committee, Board of Editors, 1952–53; Editorial Reviewer, 1954–61; Fellow, 1961–63; Papers Review, 1953. **Professional Groups:** Industrial Electronics Administrative Committee. **Sections:** Monmouth Subsection, *secretary, 1945, chairman, 1945–46;* Princeton, *secretary, 1948–49, vice-chairman, 1949, man, 1945–46;* Detroit, *chairman, 1959–60.* **Awards:** Fellow, American Association for the Advancement of Science.

GILBERT, Roswell W. (M'46—F'60), Corporate Director of Research, Daystrom, Incorporated, Central Research Laboratory, 620 Passaic Ave., West Caldwell, N.J.
Born: July 21, 1909, Brooklyn, N.Y. **Committees:** Electrical Techniques in Medicine and Biology, 1952–55.

GILL, Sir Archibald J. (M'20—F'40)(L), Chairman and Director, British Telecommunications Research, Ltd., Taplow, Buckinghamshire, England.
Born: May 13, 1889, Stoke-Sub-Hamdon, Somerset, England. B.Sc. (Eng.), 1909, University of London.

GILLETT, Glenn D. (A'22—M'27—F'34), Staff Engineer, Lockheed Missiles and Space Division, Lockheed Aircraft Corporation, 1122 Jagels Rd., Sunnyvale, Calif.
Born: April 14, 1898, Sterling, Colo. A.B., 1919, Harvard University; S.B.(E.E.), 1921, Harvard Engineering School. **Committees:** Broadcast, 1935–38; Radio Wave Propagation, 1942–46; Wave Propagation, 1937–42.

GILMAN, George W. (A'29—SM'47—F'50), Director of Telegraph, Signaling and Special Systems Development, Bell Telephone Laboratories, Inc., 463 West St., New York 14, N.Y.
Born: August, 1901, Salmon River, N.S., Canada. M.S., 1923, Massachusetts Institute of Technology. **Committees:** Board of Editors, 1944–48; Frequency Modulation, 1940–41; Public Relations, 1940–42; Publicity, 1941.

GINZTON, Edward L. (S'39—A'40—SM'46—F'51), Professor of Applied Physics and Electrical Engineering, Stanford University, Stanford, Calif.; Chairman, Board of Directors, Varian Associates, Inc., Palo Alto, Calif.
Born: December 27, 1915, Ekaterinoslavsk, Russia. B.S., 1936, M.S., 1937, University of California; E.E., 1938, Ph.D., 1940, Stanford University. **Committees:** Awards, 1957. **Awards:** IRE Morris Liebmann Memorial Prize, 1958.

GIORDANO, Anthony B. (SM'46—F'58), Dean of the Graduate School; Professor, Electrical Engineering, Polytechnic Institute of Brooklyn, 333 Jay St., Brooklyn 1, N.Y.
Born: February 1, 1915, New York, N.Y. B.E.E., 1937, M.E.E., 1939, D.E.E., 1946, Polytechnic Institute of Brooklyn. **IRE Offices:** Director, 1961–62. **Committees:** Antennas and Waveguides, 1951–53; National Convention Papers, *secretary, 1946–47, vice-chairman, 1950–51.* **Professional Groups:** Circuit Theory Symposium, *chairman, 1957–58;* Circuit Theory Program, *chairman, 1958–60;* Circuit Theory Administrative Committee, 1960–61; Microwave Theory and Techniques, Microwave Prize Committee, 1957–58. **Sections:** Awards Committee, *chairman, 1957–60;* New York, *secretary, 1952–53, vice-chairman, 1953–54, chairman, 1954–55;* Executive Committee, 1955–59; Long Island Program Committee, 1958–59. **IRE Representative:** Polytechnic Institute of Brooklyn, 1947–53; Engineering Advisory Committee of the New York City Board of Education, *chairman, 1958–60.* **Awards:** New York Section Certificate of Appreciation, 1956; UNICO National, Gold Oscar for Science, 1957; Polytechnic Institute of Brooklyn, Certificate of Distinction, 1957; Certificate of Appreciation, American Institute of Electrical Engineers, 1957.

GLASGOW, Roy S. (M'26—SM'43—F'55)(L), Dean, Emeritus, U. S. Naval Postgraduate School, Monterey, Calif.
Born: May 20, 1895, St. Louis, Mo. B.S., 1918, Washington University; M.S., 1922, Harvard University. **Sections:** St. Louis, *chairman, 1941–42.* **IRE Representative:** Washington University, 1941–42. **Awards:** Fellow, American Institute of Electrical Engineers; Distinguished Service Award, U. S. Army, 1951; Honorary Life Member, St. Louis Engineers Club, 1954; Alumni Citation, Washington University, 1955.

GLINSKI, George S. (A'42—M'45—SM'53—F'60), Chairman, Electrical Engineering Department; Professor of Electrical Engineering, University of Ottawa, Ottawa 2, Ont., Canada.
Born: March 11, 1912, St. Petersberg, Russia. Dipl.Eng., 1937, Warsaw Technical University. **Sections:** Ottawa, *vice-chairman, 1954–55, chairman, 1955–56.*

GLOVER, Alan M. (A'39—SM'46—F'56), Vice President and General Manager, Semiconductor and Materials Division, Radio Corporation of America, Somerville, N.J.
Born: September, 1909, Rochester, N.Y. B.A., 1930, M.A., 1932, Ph.D., 1935, University of Rochester. **Committees:** Electron Tubes, 1946–49; Electron Tubes and Solid State Devices, 1949–52; Electronics, 1943–46; Papers Procurement, 1946; Vacuum Tubes, 1945–46. **Sections:** Lancaster Subsection, *chairman, 1948–49.*

GODLEY, Paul F. (A'14—VA'39—M'59—F'61)(L), Senior Partner, Paul Godley Company, Consulting Radio Engineers, Great Notch, Little Falls, N.J.
Born: September 25, 1889, Garden City, Kan. Defiance College, Ohio; University of Illinois. **Committees:** Membership, 1925–27, 1936–37. **Awards:** Marconi Memorial Award, Veteran Wireless Operator's Association, 1947; Armstrong Medal, Radio Club of America, 1950; Merit Award, American Radio Relay League, 1959.

GOLAY, Marcel J. E. (SM'51—F'60), Scientific Consultant, 116 Ridge Rd., Rumson, N.J.
Born: May, 1902, Neuchatel, Switzerland. B.Sc., 1920, Gymnase of Neuchatel; Licentiate E.E., 1924, Federal Institute of Technology, Zurich; Ph.D., 1931, University of Chicago. **Committees:** Editorial Reviewer, 1954–55; Information Theory and Modulation Systems, 1954–60, *vice-chairman, 1955–56.* **Professional Groups:** Information Theory Administrative Committee. **Awards:** IRE Harry Diamond Award, 1951; ACS Sargent Award, 1961.

GOLDBERG, Harold (A'38—M'44—SM'44—F'55), Executive Vice President, Emertron, Inc., 1140 East-West Highway, Silver Spring, Md.
Born: January 31, 1914, Milwaukee, Wis. B.S.(E.E.), 1935, M.S.(E.E.), 1936, Ph.D.(E.E.), 1937, Ph.D. (physiology), 1941, University of Wisconsin. **Committees:** Radio Transmitters, 1949–61, *vice-chairman, 1955, chairman, 1956–58;* Solid State Devices, 1955–58; Standards, 1956–58. **Professional Groups:** Washington Chapter, Information Theory, *chairman, 1956.* **Sections:** Rochester, *secretary, 1944–45.* **Awards:** Exceptional Service Award, U. S. Department of Commerce, 1953.

GOLDMAN, Stanford (A'36—M'43—SM'43—F'56), Professor of Electrical Engineering, Syracuse University, Syracuse 10, N.Y.
Born: November 14, 1907, Cincinnati, Ohio. B.A., 1926, M.A., 1928, University of Cincinnati; Ph.D. (Physics), 1933, Harvard University. **Committees:** Circuits, 1947–51; Information Theory and Modulation Systems, 1956–58; Papers, 1944–45; Papers Review, 1946–50. **IRE Representative:** IRE-AIEE Committee on Noise Definitions, 1949–53.

GOLDMARK, Peter C. (A'36—M'38—F'42), President and Director of Research, CBS Laboratories, a Division of Columbia Broadcasting System, Inc., High Ridge Rd., Stamford, Conn.
Born: December 2, 1906, Budapest, Hungary. B.Sc., 1930, Ph.D., 1931, Vienna Technical University. **Committees:** Board of Editors, 1941–50; Television, 1939–49; Television and Facsimile, 1938–39; Television Systems, 1949–61. **Awards:** Technical Progress Medal, Television Broadcasters Association, 1944; IRE Morris Liebmann Memorial Prize, 1945; IRE PGA Achievement Award, 1960; IRE Prize Award by Vladimir K. Zworykin, 1961.

GOLDSMITH, Alfred N. (IRE Founder and Charter Member), (A'12—F'15)(L), Consulting Engineer, 597 Fifth Ave., New York 17, N.Y.
Born: September, 1889, New York, N.Y. B.S., 1907, College of the City of New York; Ph.D., 1911, Columbia University; Sc.D., 1935, Lawrence College. **IRE Offices:** President, 1928; Secretary, 1918–27; Editor, 1912–28, 1930–53; Editor, Emeritus, 1954–; Director, 1912–61. **Committees:** Administrative Committee of the Board of Editors, *chairman, 1951–53;* Admissions, 1925; Awards, 1919, 1930–33, 1935–38, *chairman, 1919, 1931;* Bibliography, 1934; Board of Editors, *chairman, 1928, 1930–53;* Circuit Elements, 1928–29; Constitution and Laws, 1935–40, *chairman, 1935;* Convention Policies, 1940; Editorial Administrative, *chairman, 1946–53;* Executive, 1942–53; Finance, 1914–15, *chairman, 1915;* Fiscal, 1947–48; Meetings and Papers, 1925–26; Membership Solicitation Policy, 1945; Nominations, 1929–31, 1936, 1940, *chairman, 1930, 1940;* Office Quarters, 1947; Papers, *chairman, 1913–19;* Planning, 1947; Special Papers, 1940–41; Standardization, 1913–32, *secretary, 1913, chairman, 1915–16;* Standards, 1932–37; Television and Facsimile, 1936–39; Tellers, *chairman, 1932;* Wave

Length Regulation, 1916–17, 1919–20. **IRE Representative:** ASA Sectional Committee on Radio, 1936, 1939–48, *chairman, 1942–48;* ASA Standards Council, 1936, 1939–46; ASA Subcommittee on Insulating Material Specifications for the Military Services, *chairman, 1943–18;* ASA War Committee on Radio, 1943–48; National Advisory Council on Radio in Education, 1936, 1939–40; National Advisory Council on Radio in Education, Committee on Engineering Developments, 1941–43; Joint IRE-AIEE, Coordination Committee, 1952; National Television Film Council, *president, 1957;* National Television Systems, 1940–43; Panel 2, *chairman, 1942–13.* **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940; IRE Medal of Honor, 1941; Townsend Harris Medal, College of the City of New York, 1942; Medal Award, Television Broadcasters Association, 1945; IRE Founders' Award, 1954; Eminent Member, Eta Kappa Nu; Life Member New York Medico-Surgical Society; Pioneer Award, Society of Motion Picture and Television Engineers; Fellow, International College of Surgeons; Fellow, International Committee on Television.

GOLDSMITH, Thomas T., Jr. (A'38—SM'46—F'49), Vice President, Engineering and Research, Allen B. DuMont Laboratories, Inc., 760 Bloomfield Ave., Clifton, N.J.
Born: January, 1910, Greenville, S.C. B.S., 1931, Furman University; Ph.D., 1936, Cornell University; LL.D., 1959, Furman University. **Committees:** Admissions, 1944–47; Electron Tubes, 1946–47; Electronics, 1942–46; Professional Groups, 1948; Regular Papers, 1941; Television, 1939–46; Tellers, 1944; Vacuum Tubes, 1945–46. **Sections:** Northern New Jersey, *chairman, 1958–59.* **Awards:** Fellow, Society of Motion Picture and Television Engineers.

GOLDSTEIN, Ladislas (SM'54—F'56), Professor of Electrical Engineering, University of Illinois, Urbana, Ill.
Born: February 6, 1906, Dombard, Hungary, B.A., 1925, Nagyvarad College, Hungary M.S., 1928, D.Sc., 1937, University of Paris.

GOOD, William E. (M'45—SM'50—F'59), Consulting Engineer, Television Receiver Department, General Electric Company, Syracuse, N.Y.
Born: April 25, 1916, Hillsdale, Mich. A.B., 1937, Kalamazoo College; M.S. (Physics), 1939, University of Illinois; Ph.D. (Physics), 1946, University of Pittsburgh. **Sections:** Syracuse, *chairman, 1955–56.*

GOODALL, William McH. (A'29—M'37—SM'43—F'51), Technical Staff, Bell Telephone Laboratories, Inc., P.O. Box 107, Red Bank, N.J.
Born: September 7, 1907, Washington, D.C. B.Sc., 1928, California Institute of Technology. **Committees:** Editorial Reviewer, 1954–60; New York Program, 1939–41, 1949–53; Papers Review, 1946–53; Tellers, 1939, 1941, *chairman, 1939.* **Sections:** Monmouth, N.J. Subsection, *secretary-treasurer, 1950, vice-chairman, 1954, chairman, 1955.*

GOODWIN, W. Nelson, Jr. (A'15—M'29—SM'43—F'57)(L), Consulting Engineer, Weston Electrical Instrument Corporation, Newark 12, N.J. Residence, R.D. 2, Box 126, New Hope, Pa.
Born: October, 1876, Philadelphia, Pa. B.S., 1897, E.E., 1908, University of Pennsylvania. **Awards:** Modern Pioneer Award, American Manufacturers Association, 1940; Golden Award, National Electrical Manufacturers Association, 1948; John H. Potts Medal for Science, The Franklin Institute, 1958; Fellow, American Institute of Electrical Engineers; Fellow, American Association for the Advancement of Science.

GORDON, William E. (A'46—M'49—SM'58—F'61), Professor, Cornell University, Phillips Hall, Ithaca, N.Y.
Born: January 8, 1918, Paterson, N.J. B.A., 1939, M.A., 1941, Montclair State Teachers College; M.S., 1946, New York University; Ph.D., 1953, Cornell University. **Sections:** Ithaca. **IRE Representative:** U. S. National Committee for URSI, *chairman.*

GOUBAU, Georg J. E. (A'49—SM'56—F'57), Consultant, U. S. Army Signal Research & Development Laboratory, Fort Monmouth, N.J.
Born: November 29, 1906, Munich, Germany. M.S., 1931, Ph.D. (Physics), 1932, Dr.habil., 1935, Institute of Technology, Munich, Germany. **Awards:** IRE Harry Diamond Memorial Award, 1957.

GOUDET, Georges (SM'50—F'60), General Manager, Laboratoire Central de Telecommunications, 46 Avenue de Breteuil, Paris 7, France.
Born: June, 1912, Dijon. Cote d'Or, France. M. (Licencié en Physique), 1934, Ph.D. (Docteur es-Sciences), 1943, University of Paris.

GRAHAM, Robert E. (M'45—SM'57—F'59), Vice President and Director of Research, Harrison Laboratories, Inc., Berkeley Heights, N.J.
Born: October 4, 1916, Kansas City, Mo. Associate in Sc., 1935, Kansas City Junior College; B.S.(E.E.), 1937, Purdue University. **Committees:** Servo Systems, 1951–52; Video Techniques, 1951–53. **Awards:** Naval Ordnance Development Award, U. S. Navy, Bureau of Ordnance, 1945; Fellow, American Association for the Advancement of Science.

GRAHAM, Virgil M. (A'24—M'27—F'35), Associate Director, Engineering Department, Electronic Industries Association, Room 2260, 11 W. 42 St., New York 36, N.Y.
Born: January 22, 1902, Rochester, N.Y. Attended University of Rochester. **IRE Offices:** Director, 1935–41, 1946–48. **Committees:** Appointments, 1948; Awards, 1940, 1947–49; Broadcast and Television Receivers, 1949–52, *chairman, 1949–51;* Constitution and Laws, 1940, 1944; Executive, 1948; Meetings and Papers, 1928–29; Membership, 1949–50; National Convention, 1947–50; Nominations, 1940; Papers Procurement, 1942–43, 1946; Professional Groups, 1948–49; Public Relations, *chairman, 1940, 1947–48, 1951;* Publicity, 1935–36; Radio Receivers, 1927–28, 1936–40; Radio Receivers and Parts, 1929–30; Regular Papers, 1941; Sections, 1930–34, 1938–45, 1948, *chairman, 1936–37;* Standardization, 1925–26, 1929–30; Standards, 1932, 1935–43, 1945–48, 1954–57, 1959–61. **Professional Groups:** Broadcast and Television Receivers, *chairman, 1950.* **Sections:** Rochester, *chairman, 1926–27.* **IRE Representative:** ASA Sectional Committee on National Electrical Safety Code, Radio Broadcast Reception Equipment, *alternate, 1939–48, chairman, 1948–50;* ASA Sectional Committee on Radio (C16), *chairman, 1950;* RMA-IRE Coordinating Committee, *chairman, 1947–49.*

GRAMMER, George (A'49—F'59), Technical Director, Technical Editor, QST., American Radio Relay League, 38 LaSalle Rd., West Hartford 7, Conn.
Born: January 25, 1905, Philadelphia, Pa. 1923–26, Drexel Institute. **Committees:** Antennas, 1946–48; Electron Tubes, 1947–48; Membership, 1930, 1947–49; Modulation Systems, 1947–48; Public Relations, 1940–44; Radio Transmitters, 1947–48. **Sections:** Connecticut Valley, *secretary, 1931–32.*

GRANGER, John V. N. (S'42—A'45—M'46—SM'51—F'56), President, Granger Associates, 974 Commercial St., Palo Alto, Calif.
Born: September 14, 1918, Cedar Rapids, Iowa. A.B., 1941, Cornell College; M.S., 1942, Ph.D., 1948, Harvard University. **Committees:** Editorial Reviewer, 1954–60. **Professional Groups:** Aeronautical and Navigational Electronics; Editor of *Transactions, 1955–56.* **Sections:** Palo Alto Subsection, *secretary, 1952, chairman, 1954–55.* **IRE Representative** WESCON Board of Directors, 1959–. **Awards:** Eta Kappa Nu Recognition, Outstanding Young Electrical Engineer, 1952; Seventh Region Electronic Achievement Award, 1955.

GRANQVIST, Carl E. (A'46—F'55), Director, Svenska AB Gasaccumulator, Stockholm-Lidingö, Sweden.
Born: March 2, 1910, Ljungby, Småland, Sweden. M.A., 1933, Tekniska Högskolan, Stockholm. **IRE Offices:** Vice President, 1958.

GRAY, Alfred R. (A'27—VA'39—SM'56—F'61), President and Chief Engineer, Astronics Reliability, Inc., 1 N. Orange Ave., Orlando, Fla.; Executive Vice President and General Manager, Astronics of Florida, Inc., 1110 South Woods St., Orlando, Fla.
Born: March 12, 1906, Farmington, N.H. University Extension Courses, 1924–48; Advanced Study, 1950–60, Massachusetts Institute of Technology; Capital Radio Engineering Institute; University of California. **Committees:** Ad hoc Standards Committee on Reliability Definitions, 1959–60; Editorial Reviewer, 1959–60; Industrial Electronics, 1956–61; Symbols, 1960–61. **Professional Groups:** Production Techniques Administrative Committee, *ex officio, 1954–58;* Publications, *chairman, 1954–59;* PGPT *Transactions, editor, 1954–59;* Meetings, 1955–58; PGPT Symposium Working Group, 1956–57; Awards, 1956; PGPT 1st National Symposium Advisory Board, 1957; Product Engineering and Production Administrative Committees, 1959–61, *vice-chairman, 1960–61;* Publications, *chairman, 1959–60;* PGPEP *Transactions, editor, 1959–60;* PGPT-PGPEP 50th Anniversary Committee, 1959–62. **Sections:** Boston Liaison Committee, *chairman, 1938–39;* Baltimore Chapter, Aeronautical and Navigational Electronics, *secretary, 1955–56;* Orlando Section, Organizing and Steering Committees, 1958–59, Publicity Committee, *chairman, 1959–60;* Orlando Chapter, Professional Group on Product Engineering and Production, Organizing Committee, *chairman, 1960;* Orlando Section, *chairman, 1960–61.* **Awards:** Fellow, Radio Club of America, 1932.

GREEN, Estill I. (A'27—M'36—SM'43—F'55), Retired as Executive Vice President, Bell Telephone Laboratories, Inc.; Consultant. Residence: 95 Farley Rd., Short Hills, N.J.
Born: November 24, 1895, St. Louis, Mo. B.A., 1915, Westminster College; B.S.(E.E.), 1921, Harvard University; D.Sc. (Honorary), 1956, Westminster College. **Committees:** Institute Sections, 1928; Measurements and Instrumentation, 1950–53. **IRE Representative:** Joint IRE-AIEE Committee on High Frequency Measurements, 1950–52; Joint AIEE-IRE Committee on Intersociety Relations, 1960–61.

GREIBACH, Emil H. (A'31—SM'48—F'61), President, Greibach Instruments Corporation, 315 North Ave., New Rochelle, N.Y.
Born: June 22, 1899, Austria. Mech.Eng., 1922, E.E., 1922. German University, Prague; Ph.D., 1929, University of Pittsburgh.

GRIEG, Donald D. (A'41—SM'44—F'61), President, Electronic Research Associates, Inc., 67 Factory Place, Cedar Grove, N.J.
Born: London, England. School of Technology, College of The City of New York.

GRIEMSMANN, John W. E. (A'45—M'55—SM'57—F'59), Professor, Administrative Officer, Electrophysics Department, Polytechnic Institute of Brooklyn, 333 Jay St., Brooklyn 1, N.Y.; Business Address: Long Island Graduate Center, Polytechnic Institute of Brooklyn, Farmingdale, N.Y.
Born: May, 1916, Brooklyn, N.Y. B.(E.E.), 1936, M.(E.E.), 1938, D.(E.E.), 1946, Polytechnic Institute of Brooklyn.

GROSS, Gerald C. (A'27—M'30—SM'43—F'57), Secretary-General, International Telecommunication Union, Palais Wilson, Geneva, Switzerland.
Born: December 27, 1903, New York, N.Y. B.S.(E.E.), 1926, Haverford College. **Sections:** Washington, *secretary-treasurer, 1936–37, vice-chairman, chairman, 1939–40;* Switzerland, *chairman, 1961.*

GROVER, Frederick W. (M'17—SM'43—F'49(L), Professor Emeritus of Electrical Engineering, Union College, Schenectady 8, N.Y.
Born: September 3, 1876, Lynn, Mass. S.B., 1899, Massachusetts Institute of Technology; M.S., 1901, Wesleyan University; Ph.D., 1907, George Washington University; Ph.D., 1908, Ludwig Maximilian University, Munich, Germany. **Committees:** Board of Editors, 1932–53; Papers, 1941–45. **IRE Representative:** Union College, N.Y., 1941–48.

GRUEN, Wolf J. (M'47—SM'53—F'57), Director, Signal Equipment Laboratory, Space Technology Laboratories, Inc., 8433 Fallbrook Ave., Canoga Park, Calif.
Born: September, 1914, Berlin, Germany. Dipl.Eng. (E.E.), 1940, Swiss Federal Institute of Technology, Zurich; M.E.E., 1952, Syracuse University.

GUÉNARD, Pierre R. (SM'50—F'55), Directeur Technique du Centre de Physique Electronique et Corpusculaire de la Compagnie Générale de T.S.F., Boite Postale n° 10, Orsay (Seine et Oise), France; Professur à l'Ecole Supérieure d'Electricité.
Born: January 22, 1914, Amiens, France. Licencié ès Sciences, 1935, Agrégé des Sciences Physiques, 1937, Ecole Normale Supérieure. **Awards:** Prix d'Aumale de l'Académie des Sciences de Paris, 1952; Médaille Ampère de la Société Française des Electriciens; Médaille Blondel, 1956.

GUILLEMIN, Ernst A. (A'41—SM'48—F'49), Webster Professor of Electrical Engineering, Massachusetts Institute of Technology, Cambridge 39, Mass.
Born: May, 1898, Milwaukee, Wis. B.S., 1922, University of Wisconsin; S.M.(E.E.), 1924, Massachusetts Institute of Technology; Ph.D., 1926, University of Munich, Germany (Saltonstall Fellow). **Committees:** Annual Review, 1944–47; Board of Editors, 1952–53; Circuits, 1944–51, *chairman, 1944–47;* Editorial Reviewer, 1954–60; Education, 1947–48; Standards, 1944–47. **IRE Representative:** Massachusetts Institute of Technology, 1945–54. **Awards:** Presidential Certificate of Merit, 1948; IRE Medal of Honor, 1961.

GUNN, Ross (A'35—SM'47—F'49), Research Professor of Physics, American University, Washington 16, D.C.
Born: May, 1897, Cleveland, Ohio. B.S.(E.E.), 1920, M.S., 1921, University of Michigan; Ph.D., 1926, Yale University. **Awards:** Exceptionally Distinguished Service Citation, United States Navy, 1945; Air Safety Distinguished Service Award, 1951; Distinguished Alumnus Citation, University of Michigan, 1953; Robert M. Losey Award, Institute of Aeronautical Sciences, 1956; U. S. Department of Commerce Gold Medal for Exceptional Service, 1957; Fellow, American Physical Society; Fellow, National Academy of Sciences.

GUNTHER, Clarence (A'27—SM'48—F'54), Chief Defense Engineer, Defense Engineering Department, Defense Electronic Products, Radio Corporation of America, Camden 2, N.J.
Born: June 29, 1903, Los Angeles, Calif. B.S.E., 1926, Princeton University. **Sections:** Philadelphia, *secretary-treasurer, 1948–49, vice-chairman, 1950, chairman, 1950.* **Awards:** Award of Merit, Radio Corporation of America, 1952.

GUY, Raymond F. (A'25—M'31—F'39), Engineering Consultant and Representative in AM, FM, TV and International Broadcasting, 264 Franklin St., Haworth, N.J.
Born: July 4, 1899, Hartford, Conn. I.E.E., 1921, Pratt Institute. **IRE Offices:** President, 1950; Treasurer, 1947; Director, 1944–52. **Committees:** Admissions, 1958–61; Annual Review, 1943–47; Antennas, 1944–48; Broadcasting, 1929–33; Building Fund, *vice-chairman, 1948;* Constitution and Laws, 1945–53, *chairman, 1946;* Education, 1945–48; Executive, 1946–47, 1950–52, *vice-chairman, 1947, chairman, 1950;* Finance, 1951–52; Fiscal, 1947–48; Founders, *chairman, 1947, 1949–50;* Frequency Modulation, 1942–47; Investments, 1947, 1949, *chairman, 1949;* Membership, 1947–49, *chairman, 1949;* Modulation Systems, 1947–50; Nominations, 1951; Office Practices, *chairman, 1947;* Professional Groups, 1951–52; Public Relations, 1949, 1951–54, *chairman, 1949;* Radio Transmitters, *chairman, 1944–45;* Standards, 1943–46, *chairman, 1945–46;* Transmitters and Antennas, 1936–44, *chairman, 1943–44;* Winter Technical Meeting, 1946. **Professional Groups:** Broadcasting, *vice-chairman, 1961.* **IRE Representative:** ASA Standards Council, *alternate, 1946–48;* Joint RMA-IRE Coordination Committee, 1950; Joint Technical Advisory Committee, 1950. **Awards:** President, Radio Pioneers, 1956; Marconi Memorial Gold Medal of Achievement, 1956; Fellowship Award, 1959, American Institute of Electrical Engineers; President, De

Forest Pioneers, 1960; Special Award from Broadcast Pioneers; Annual Engineering Award, National Association of Broadcasters, 1961; President, 1960, Director, 1961, Veterans Wireless Operators Association.

HACKBUSCH, Ralph A. (A'26—M'30—F'37), President, Hackbusch Electronics, Ltd., 23 Primose Ave., Toronto 4, Ont., Canada.
Born: September 18, 1900, Hamilton, Ont., Canada. **IRE Offices:** Vice-President, 1944; Director, 1938, 1944–46. **Committees:** Admissions, 1940; Awards, 1947–49; Building Fund, Canada, *chairman, 1945;* Public Relations, 1940, 1947–51; Sections, 1936–37; Standards, 1949–61. **Sections:** Toronto, *secretary, 1930–31, chairman, 1932–33.* **Awards:** Fall Meeting Plaque, 1943.

HAEFF, Andrew V. (A'34—M'40—SM'43—F'49), Vice President and Director of Research Laboratories, Hughes Aircraft Company, Malibu, Calif.
Born: December, 1904, Moscow, Russia. E.E. and M.E., 1928, Russian Polytechnic Institute, Harbin, China; M.S.(E.E.), 1929, Ph.D., 1932, California Institute of Technology. **Committees:** Awards, 1956–60; Board of Editors, 1951–53; Editorial Administrative, 1949–51; Editorial Reviewer, 1954–60; Nuclear Studies, 1948–49. **Awards:** Special Research Fellowship, California Institute of Technology, 1932–33; IRE Harry Diamond Memorial Award, 1950; Fellow, American Physical Society.

HAFSTAD, Lawrence R. (SM'52—F'53), Vice President, General Motors Corporation, Research Laboratories, Warren, Mich.
Born: June 18, 1904, Minneapolis, Minn. B.S.(E.E.), 1926, University of Minnesota; Ph.D. (Physics), 1933, The Johns Hopkins University. **Committees:** Annual Review, 1949–50; Nominations, 1951; Nuclear Studies, *chairman, 1948–50.* **Professional Groups:** Nuclear Science, *chairman, 1952.* **IRE Representative:** U. S. Delegate to International Radio Union Conference in London, 1934. **Awards:** American Association for the Advancement of Science Award, 1931; British "King's Medal in Defense of Freedom," 1946; Medal of Merit from Secretary of the Navy, 1946; Distinguished Service Award, U. S. Atomic Energy Commission, 1954; Proctor Prize, Scientific Research Society of America, 1956.

HAGEN, John P. (A'37—SM'47—F'54), Director, Office for the United Nations Conference, National Aeronautics and Space Administration, Washington 25, D.C.
Born: July, 1908, Amherst, N.S., Canada, A.B., 1929, Boston University; M.A., 1931, Wesleyan University; Ph.D., 1949, Georgetown University; Sc.D. (Honorary), 1958, Boston University; Sc.D. (Honorary), 1959, Fairfield University; Sc.D. (Honorary), 1959, Loyola, Baltimore; Sc.D. (Honorary), 1959 Adelphi College; Sc.D. (Honorary), 1960, Mt. Allison University.

HAGGERTY, Patrick E. (A'45—SM'53—F'58), President and Director, Texas Instruments Inc., 13500 N. Central Expressway, Box 5474, Dallas 22, Tex.
Born: March 17, 1914. Harvey, N.D. B.S.(E.E.), 1936, Marquette University; LL.D. (Honorary), 1959, St. Mary's University; LL.D. (Honorary), 1960, Marquette University. **IRE Offices:** Delegate-Director, 1960; Director, 1961. **Committees:** Awards, 1954–55; Executive, 1961. **Sections:** Dallas, *advisor, 1955–60.*

HALL, Albert C. (A'39—SM'46—F'58), Vice President, Engineering, The Martin Company, Baltimore 3, Md.
Born: June 27, 1914, Port Arthur, Tex. B.S.(E.E.), 1936, Texas A. & M.; M.Sc.(E.E.), 1938, S.D.(E.E.), 1943, Massachusetts Institute of Technology. **Awards:** Naval Ordnance Development Award; Outstanding Young Electrical Engineer Award, Eta Kappa Nu.

HALL, Nathan I. (SM'47—F'56), Vice President, Engineering, Hughes Aircraft Company, Culver City, Calif.
Born: October, 1910, Elkins, W.Va. B.S.(E.E.), 1934, M.S.(E.E.), 1934, D.Sc. (Honorary), 1956, West Virginia University; E.E., 1937, Stanford University; D.Sc. (Honorary), 1959, Davis and Elkins College. **Committees:** Editorial Reviewer, 1955–60. **Awards:** Outstanding Electrical Engineer, Eta Kappa Nu, 1934.

HALL, Robert N. (SM'53—F'57), Physicist, General Electric Research Laboratory, The Knolls, Schenectady, N.Y.
Born: December 25, 1919, New Haven, Conn. B.S., 1942, Ph.D., 1948, California Institute of Technology. **Awards:** Predoctoral Fellowship, National Research Council, 1946.

HALLER, George L. (A'28—M'36—SM'43—F'50), Vice President and General Manager, Defense Electronics Division, General Electric Company, Syracuse, N.Y.
Born: May 8, 1907, Pittsburgh, Pa. B.S.(E.E.), 1927, E.E., 1934, M.S. (Physics), 1935, Ph.D. (Physics), 1942, Pennsylvania State University. **Committees:** Papers Review, 1946–50; Technical Program Committee, National Convention, *chairman, 1958–59.* **Professional Groups:** Aeronautical and Navigational Electronics, *chairman, 1958–59;* Airborne Electronics Administrative Committee, 1951–53; Military Electronic Administrative Committee, 1956–57. **Sections:** Dayton, *chairman, 1944–45;* Centre County Subsection, *chairman, 1949–50.* **Awards:** Legion of Merit, United States Air Force, 1946.

HALLMAN, Ludlow B., Jr. (J'27—A'29—SM'44—F'52), Technical Advisor, Directorate of Systems Engineering, Wright Air Development Division, Wright-Patterson Air Force Base, Ohio.
Born: July 21, 1907, Sneads, Fla. B.S., 1929, E.E., 1934, Alabama Polytechnic Institute. **Committees:** Modulation Systems, 1948–50. **Professional Groups:** Administrative Committee, Aerospace and Navigational Electronics, 1951–53, 1956–63; National Conference on Aeronautical Electronics, Board of Directors, *chairman, 1954;* Papers Committee, Aeronautical and Navigational Electronics, *chairman, 1951–53.* **Sections:** Dayton, *chairman, 1945–46.* **Awards:** War Department Commendation, 1946.

HAMBURGER, Ferdinand, Jr. (A'32—M'39—SM'43—F'53), Professor and Chairman, Electrical Engineering Department; Director, Radiation Laboratory, The Johns Hopkins University.
Born: July 5, 1904, Baltimore, Md. B.E., 1924, Dr. Eng., 1931, The Johns Hopkins University. **IRE Offices:** Director, 1950–51, 1959–61; Editor, 1960–61. **Committees:** Appointments, 1951, 1959–60; Editorial Board, 1956–59, *vice-chairman, 1958–59, chairman, 1960–61.* Education, 1955–60; Executive, 1960–61. Nominations, 1951; Policy Advisory, 1952–55, 1960. **Sections:** Baltimore, *chairman, 1940–41.* **IRE Representative:** The Johns Hopkins University, 1941–54. **Awards:** Fellow, American Institute of Electrical Engineers, 1949.

HAMM, William J. (A'47—M'51—SM'52—F'60), Professor, St. Mary's University, Cincinnati & St. Louis Aves., San Antonio 1, Texas.
Born: July 26, 1910, Belleville, Ill. B.S., 1930, University of Dayton; M.S., 1935, Catholic University; Ph.D., 1942, Washington University. **Sections:** *San Antonio, chairman, 1951.* **IRE Representative:** Chairman of Board of Advisors of SWIRECO, Southwestern IRE Conference Organization, 1954–56, 1959–60. **Awards:** Francis P. Garvan, American Chemical Society Prize Paper Award, 1929; Minnie Stevens Piper Foundation Science Teaching Award, 1959.

HAMMOND, John H., Jr. (M'36—SM'43—F'59)(L), President, Hammond Research Corporation, Gloucester, Mass.
Born: April 13, 1888, San Francisco, Calif. B.S., 1910, Sheffield Scientific School of Yale University; Sc.D., 1919, George Washington University. **IRE Offices:** Director, 1913–14; Treasurer, 1913–14; Member of First Board of Managers, 1915–17. **Committees:** Special Committee on Membership, *chairman, 1913–14;* Finance, *chairman, 1914.* **Awards:** Elliott Cresson Medal, Franklin Institute, 1959.

HANSEL, Paul G. (S'39—A'42—SM'50—F'57), Chief Radio Engineer, Servo Corporation of America, 111 New South Road, Hicksville, L.I., N.Y.
Born: June, 1917, Grand Island, Neb. B.S., 1946, University of Kansas. **Committees:** Tellers, 1955–58. **Sections:** Long Island, *secretary, 1954, chairman, 1955–56.* **Awards:** War Department Commendation for Meritorious Civilian Service, 1946.

HANSELL, Clarence W. (A'26—M'29—SM'43—F'45), Fellow, RCA Laboratories, Radio Corporation of America, Princeton, N.J.
Born: January 20, 1898, Medaryville, Ind. B.S.(E.E.), 1919, D.E.E. (Honorary), 1952, Purdue University. **Awards:** Joint Modern Pioneer Award, National Association of Manufacturers, 1940.

HANSEN, Edmund H. (A'25—M'26—SM'43—F'59)(L), Lt. Commander, U. S. Navy, Retired. Physicist, E. H. Hansen Laboratories, P.O. Box 6, Balboa Island, Calif.
Born: November 13, 1894, Springfield, Ill. **Committees:** Picture Transmission, 1922; Publicity, 1915–17, 1927–28. Awards: Motion Picture Academy of Arts & Sciences Sound Award, 1928, 1945; Fellow, SMPTE, 1928; Fellow, American Association for the Advancement of Science, 1959.

HANSON, O. B. (A'18—M'27—F'41)(L), Retired, Consultant, Radio Corporation of America. Residence: P.O. Box 244, Westport, Conn.
Born: February 11, 1894, Huddersfield, Yorkshire, England. **IRE Offices:** Director, 1938–43. **Committees:** Meetings and Papers, 1929; Members, 1950; Nominations, 1944–45, 1948; Papers, 1942–45; Papers Procurement, 1942–43; Papers Review, 1946–53; Public Relations, 1940–46; Regular Papers, 1941; Standardization, 1929; Tellers, *chairman, 1941.*

HARDY, Howard C. (M'46—SM'51—F'60), Consultant in Acoustics, Howard C. Hardy and Associates, 53 West Jackson Blvd., Chicago 4, Ill.
Born: October 3, 1911, Martinsburg, W.Va. A.B., 1936, M.S., 1938, West Virginia University; Ph.D., 1941, The Pennsylvania State University. **Committees:** Audio and Electroacoustics, *vice-chairman, 1958–60,* Consultant, 1960–61; Electroacoustics, 1947–58, *vice-chairman, 1952–54, chairman, 1954–59;* Standards, 1955–58.

HARMON, Ralph N. (A'30—SM'45—F'52), Vice President, Engineering, Westinghouse Broadcasting Company, Inc., 122 East 42 St., New York 17, N.Y.
Born: August 29, 1905, California, Pa. B.S.(E.E.), 1928, Carnegie Institute of Technology. **Committees:** Broadcast, 1935–38; Membership, 1950–51; Radio Transmitters, 1956–61; Television, 1945–49; Television Systems, 1949–58, *vice-chairman, 1959–61.* **Sections:** Baltimore, *chairman, 1945–46.* **Awards:** Award of Merit, U. S. Navy, Bureau of Ships, U. S. Navy Ordnance, National Defense Research Council; Patent Awards, Westinghouse Electric Corporation.

HARNETT, Daniel E. (A'25—M'35—F'42), Engineer, General Electric Company, Syracuse, N.Y.
Born: July 20, 1899, Elmira, N.Y. A.B., 1922, E.E., 1925, Columbia University. **Committees:** Admissions, 1941–43; Awards, 1945–46; New York Program, 1940; Papers Procurement, 1947–48; Radio Receivers, 1936–41, 1953–61, *vice-chairman, 1955–56, chairman, 1956–58;* Standards, 1956–58; Vacuum Tubes, 1929–30. **Professional Groups:** Broadcast & Television Receivers, *vice-chairman, 1960.* **IRE Representative:** ASA Sectional Committee (C16) on Radio, 1957–60. **Awards:** U. S. Navy Certificate of Commendation, 1947; Fellow, American Institute of Electrical Engineers.

HARRIS, Cyril M. (SM'50—F'61), Associate Professor, Electrical Engineering, Columbia University, 632 W. 125 St., New York 27, N.Y.
Born: June 20, 1917, Detroit, Mich. B.S., 1938, M.A., 1940, University of California at Los Angeles; Ph.D., 1945, Massachusetts Institute of Technology. **Professional Groups:** Awards, 1955–56, *chairman, 1956–57;* Ultrasonic Engineering Administrative Committee, 1955–59; Ultrasonic Engineering, *chairman, 1957–58;* Nominations Committee, *chairman, 1957–58;* Audio Engineering Administrative Committee, 1959–. **IRE Representative:** ASA Sectional Committee (S3) on Bioacoustics, 1958–. **Awards:** Fellow, Acoustical Society of America; Fellow, Audio Engineering Society; Visiting Fulbright Lecturer, Technical University of Delft, Netherlands, 1951; Visiting Fulbright Professor, University of Tokyo, 1960.

HARRIS, Donald B. (SM'45—F'56), Senior Executive Engineer, Stanford Research Institute, Menlo Park, Calif.
Born: February 10, 1901, Minneapolis, Minn. B.A., 1922, Yale University. **Committees:** Awards, 1959–61; Board of Editors, 1950–53; Constitution and Laws, 1951; Editorial Reviewer, 1954–61; Mobile Communications, 1950–57, 1959–61; Railroad and Vehicular Communications, 1948–50. **Professional Groups:** Electron Devices Administrative Committee; Awards Committee, *chairman.* **Sections:** Cedar Rapids, *chairman, 1950;* San Francisco, *director, 1953–56.* **IRE Representative:** Western Electronics Show and Convention, *vice-chairman, 1955, chairman, 1957.* **Awards:** Certificate of Appreciation, Navy Department, 1948.

HARRIS, William A. (SM'50—F'55), Engineer, Application Engineering Group, RCA Victor Division, 415 S. Fifth St., Harrison, N.J.
Born: January 9, 1907, Terre Haute, Ind. B.S., 1927, Rose Polytechnic Institute.

HARRISON, Arthur E. (A'41—SM'45—F'55), Professor, Electrical Engineering, University of Washington, Seattle 5, Wash.
Born: January 20, 1908, San Luis Obispo, Calif. B.S., 1936, University of California; M.S., 1937, Ph.D., 1940, California Institute of Technology. **Committees:** Awards, 1956; Editorial Reviewer, 1954–61; Education, 1949–58; Electron Tube Conference, 1960; Membership, 1951; Papers Procurement, 1945–46; Papers Review, 1946–53; **Sections:** Princeton Subsection, *secretary, 1947;* Princeton Section, *secretary, 1947, vice-chairman, 1948;* Seattle, *chairman, 1954–55.*

HARTIG, Henry E. (A'36—M'41—SM'43—F'52), Professor Emeritus, Electrical Engineering Department, University of Minnesota, Minneapolis 14, Minn.
Born: January 28, 1892, Minneapolis, Minn. B.E.E., 1918, Ph.D., 1924, University of Minnesota. **Committees:** Awards, 1954–56; Education, 1952–57. **Sections:** Twin Cities, *chairman, 1945–46.* **IRE Representative:** University of Minnesota, 1941–42. **Awards:** Fellow, American Institute of Radio Engineers.

HARTLEY, Ralph V. L. (M'19—F'28)(L), Retired. 174 Summit Ave., Summit, N.J.
Born: November 30, 1888, Spruce, Nev. A.B., 1909, University of Utah; B.A., 1912, B.Sc., 1913, Oxford University. **Committees:** Sections, 1945. **Awards:** IRE Medal of Honor, 1946.

HARVEY, Norman L. (A'41—M'46—SM'48—F'54), Vice President, Engineering, CBS Electronics, a Division of the Columbia Broadcasting System, 100 Endicott St., Danvers, Mass.
Born: October 9, 1911, Ossian, Iowa. B.S.(E.E.), 1934, Iowa State College. **Committees:** Navigation Aids, 1947–48.

HASTINGS, Charles E. (SM'46—F'61), President and Chief Engineer, Hastings-Raydist, Inc., Newcomb Ave., Hampton, Va.
Born: February, 1914, Baltimore, Md. B.S.(E.E.), 1935, The Johns Hopkins University. **Sections:** North Carolina-Virginia, *secretary-treasurer, 1949, vice-chairman, 1950, chairman, 1951;* Programs Committee, *chairman, 1950.* **Awards:** National Distinguished Service Award as "One of the Nation's 10 Outstanding Young Men," U. S. Junior Chamber of Commerce, 1950.

HAUSZ, Walter (A'44—SM'46—F'54), Technical Military Planning Operation, General Electric Company, Santa Barbara, Calif.
Born: May, 1917, Queens County, N.Y. B.S.(E.E.), 1937, M.S.(E.E.), 1938, Columbia University. **Committees:** Admissions, 1951–52; National Convention, Convention Record, *chairman, 1953–54;* Papers Review, 1951–53. **Sections:** Santa Barbara Subsection, *chairman, 1957–58;* Los Angeles Section, Reorganization Committee, 1958–59; Awards Committee, 1959–60; Section, *chair-*

man, 1960–61. **Awards:** Charles A. Coffin Award, General Electric, 1952.

HAYES, John Edmund (A'39—VA'39—SM'53—F'54), Chief Engineer, Canadian Broadcasting Corporation, 5253 Decarie Blvd., Montreal, P.Q., Canada.
Born: February, 1910, Arcola, Sask., Canada, B.Sc., 1935, Queens' University; M.Eng., 1947, McGill University. **Committees:** Education, 1946–50; Television Systems, 1952–61.

HAYES, Leslie W. (F'38), Vice Director, International Radio Consultative Committee (C.C.I.R.), International Telecommuncation Union, Palais Wilson, Geneva, Switzerland.
Born: May 31, 1896, London, England.

HAZELTINE, Alan (A'16—M'18—F'21)(L), Consulting Engineer, 15 Tower Drive, Maplewood, N.J.
Born: August 7, 1886, Morristown, N.J. M.E., 1906, Sc.D.(Honorary), 1933, Stevens Institute of Technology; A.M., 1938, Columbia University. **IRE Offices:** President, 1936; Manager, 1923–28, 1937–38; Director, 1936–39. **Committees:** Admissions, 1925–28; Awards, 1937–38, *chairman, 1937;* Education, 1945–47; Meetings and Papers, 1925, 1927; New York Program, 1935; Radio Receivers, 1927–28; Standardization, 1924–29; Vacuum Tube Terminology, *chairman, 1924–25;* Vacuum Tubes, *chairman, 1927–28.* **Awards:** Armstrong Medal, Radio Club of America, 1937.

HEADRICK, Lewis B. (A'36—M'38—SM'43—F'53), Staff Engineer, Microwave Tubes, RCA Laboratories, Princeton, N.J.
Born: June 6, 1904, Chattanooga, Tenn. B.S. (Physics), 1926, University of Chattanooga; Ph.D. (Physics), 1930, University of Michigan. **Committees:** Board of Editors, 1944–53; Editorial Reviewer, 1954–61; Electron Tubes, 1946–49; Electron Tubes and Solid State Devices, 1949–50; Electronics, 1942–46; Membership, 1943–46; Vacuum Tubes, 1945–46. **Sections:** Lancaster Subsection, *chairman, 1952;* Princeton Section, Awards Committee, 1959.

HECTOR, L. Grant (S'26—SM'43—F'61)(L), Vice-President, Sonotone Corporation, Elmsford, N.Y.
Born: December 15, 1894, Clarendon, Pa. A.B., 1920, Oberlin College; A.M., 1922, Ph.D., 1924, Columbia University. **Sections:** Buffalo-Niagara. **Awards:** Naval Ordnance Development Award, U. S. Navy, Bureau of Ordnance, 1945; U. S. Certificate of Merit, 1948.

HEGBAR, Howard R. (S'41—A'42—SM'46—F'57), Assistant Chief Engineer, Goodyear Aircraft Corporation, Akron 15, Ohio.
Born: February 22, 1915, Valley City, N.D. B.S.(E.E.), 1937, North Dakota State College; M.S.(E.E.), 1938, Ph.D.(E.E.), 1941, University of Wisconsin. **IRE Offices:** Director, 1957–58. **Committees:** Awards, 1959–60; Nominations, 1958; Policy Advisory, 1958. **Sections:** Akron Subsection, *chairman, 1948–49;* Akron, *chairman, 1949–50.*

HEINTZ, Ralph M. (A'21—M'27—F'30(L), Consulting Engineer; Owner, The Ramohs, P.O. Box 546, Los Gatos, Calif.
Born: April 20, 1892, St. Louis, Mo. A.B., 1920, Stanford University. **Committees:** Membership, 1938–40; New York Program, 1938; Papers Review, 1946; Sections, 1938–40. **Sections:** San Francisco, *chairman, 1931–32.* **Awards:** Fellow, American Institute of Electrical Engineers, 1945.

HEISING, Raymond A. (A'20—F'23)(L), Retired from Bell Telephone Laboratories; Consulting Engineer and Patent Agent, 232 Oak Ridge Ave., Summit, N.J.
Born: August 10, 1888, Albert Lea, Minn. E.E., 1912, University of North Dakota; M.S., 1914, University of Wisconsin; D.Sc., 1947, University of North Dakota. **IRE Offices:** President, 1939; Treasurer, 1943–45; Manager, 1927–31; Director, 1933–35, 1939–41, 1943–45, 1947–49. **Committees:** Admissions, 1927–31, 1933, 1935–38, *chairman, 1928–30, vice-chairman, 1931;* Appointments, 1948; Constitution and Laws, 1930–34, 1941–60, *chairman, 1943–44, 1951–53;* Executive, *vice-chairman, 1943–45;* Investments, 1944–46, *chairman, 1944–45;* Meetings and Papers, 1926; Membership Solicitation Policy, 1945; New York Program, 1933, 1935–37; Nominations, 1933, *chairman, 1941, 1950;* Office Quarters, *chairman, 1945–47;* Planning, *chairman, 1947;* Policy Development, 1948–50; Preparedness, 1940–41; Professional Groups, 1948–60; Sections, 1941–52, *chairman, 1941–45;* Standardization, 1925–26. **Awards:** IRE Morris Liebmann Memorial Prize, 1921; Modern Pioneer Award, National Association of Manufacturers, 1940; Armstrong Medal, 1953; IRE Founders Award, 1957; Fellow, American Institute of Electrical Engineers; Fellow, American Physical Society.

HELLIWELL, Robert A. (S'41—A'45—SM'50—F'60), Professor, Radioscience Laboratory, Stanford University, Stanford, Calif.; Consultant to sub-committee on Ionospheric Physics of the NASA.
Born: September 2, 1920, Red Wing, Minn. A.B., 1942, M.S., 1943, E.E., 1944, Ph.D., 1948, Stanford University. **Committees:** Member, Panel on Ionospheric Physics of the U. S. National Committee for the International Geophysical Year. **Professional Groups:** Antennas and Propagation Administrative Committee. **IRE Representative:** International President of Commission IV of URSI; Delegate-at-Large to URSI General Assemblies in Zurich, 1950, Sydney, 1952, The Hague, 1954, Boulder, 1957, London, 1960.

HELLMANN, Reinhard K. (A'38—M'55—SM'59—F'60), Vice President, Hazeltine Research Corporation, 59-25 Little Neck Parkway, Little Neck 62, L.I., N.Y.
Born: August 25, 1909, Aachen, Germany. Dipl.Ing., 1932, Dr. Ing., 1937, Technische Hochschule, Aachen. **Professional Groups:** Broadcast Transmission Systems Administrative Committee, 1955–56. **Sections:** Long Island, *chairman, 1958.*

HENDERSON, John T. (A'28—SM'47—F'51), Principal Research Officer, National Research Council, Sussex St., Ottawa, Ont., Canada.
Born: December 9, 1905, Montreal, P.Q., Canada, B.S., 1927, M.S., 1928, McGill University; Ph.D., 1932, University of London. **IRE Offices:** President, 1957; Director, 1953–59. **Committees:** Appointments, 1954–59, *chairman, 1959;* Executive, 1956–59, *chairman, 1957;* Nominations, 1954–59, *chairman, 1959;* Policy Advisory, 1955–56, 1958, *chairman, 1955, 1959;* Professional Groups, 1954–60. **Sections:** Ottawa, *vice-chairman, 1949, chairman, 1950.* **Awards:** Member of the Order of the British Empire, 1943; Fellow, Royal Society of Canada, 1944.

HENNEY, Keith (A'18—M'26—SM'43—F'43), Retired as Editorial Advisor, McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York, N.Y.; Residence: 111 Fifth St., Garden City, L.I., N.Y.
Born: October 28, 1896, McComb, Ohio. B.A., 1921, Western Reserve University; M.A., 1925, Harvard University. **IRE Offices:** Director, 1945–48. **Committees:** Annual Review, 1937–49; Awards, 1945–46, 1948–50, *chairman, 1949;* Editorial Board, 1958–60; Executive, 1946–47; History, 1954–60; Membership Solicitation Policy, 1945; New York Program, 1934, 1936–38, 1940–42, *chairman, 1942;* Nominations, 1950; Nuclear Studies, 1948–49; Planning, 1947; Policy Development, 1951; Publicity, 1937–39; Public Relations, 1943–50; Standards, 1945–49. **IRE Representative:** Advisory Committee on Industrial Information, Atomic Energy Commission, 1952–60; Joint IRE-RMA Coordination Committee, 1947–49, 1951.

HERBSTREIT, Jack W. (A'40—SM'45—F'58), National Bureau of Standards, Boulder Laboratories, Boulder, Colo.
Born: September 7, 1917, Cincinnati, Ohio. E.E., 1939, University of Cincinnati. **Professional Groups:** Administrative Committee, Antennas and Propagation, 1956–58, *chairman, 1958.* **Sections:** Denver, *vice-chairman, 1954–55, chairman, 1955–56.* **IRE Representative:** Colorado Engineering Council, 1956. **Awards:** IRE Harry Diamond Memorial Award, 1959.

HERGENROTHER, Rudolf C. (A'37—VA'39—SM'52—F'56), Manager of Beam Tube Research and Development Laboratory, Spencer Laboratory, Raytheon Company, Burlington, Mass.

Born: September, 1903, Chemnitz, Germany, A.B., 1925, Cornell University; M.S., 1928, Pennsylvania State College; Ph.D., 1931, California Institute of Technology.

HEROLD, Edward W. (A'30—M'38—SM'43—F'48), Vice President, Research, Varian Associates, Palo Alto, Calif.
Born: October 15, 1907, New York, N.Y. B.Sc., 1930, University of Virginia; M.Sc., 1942, Brooklyn Polytechnic Institute. **IRE Offices:** Director, 1956–58. **Committees:** Administrative Committee of the Board of Editors, 1951–53; Appointments, 1957–58; Board of Editors, 1946–53; Editorial Administrative, 1946–51; Editorial Board, 1956–60, *vice-chairman, 1957–58;* Education, 1957–60; Membership, 1942; Nominations, 1957; Papers, 1944–45; Policy Advisory, 1956–58; Winter Technical Meeting, 1945 **Sections:** Princeton, *vice-chairman, 1948, chairman, 1949.* **IRE Representative:** Joint AIEE-IRE Student Activities Coordination Committee, 1957.

HERSHBERGER, W. D. (A'37—SM'45—F'54), Professor of Engineering, University of California, Los Angeles 24, Calif.
Born: May 10, 1903, Wellman, Iowa. A.B. (Math.), 1927, Goshen College; M.A. (Physics), 1930, George Washington University; Ph.D.(E.E.), 1937, University of Pennsylvania. **Committees:** Education, 1946; Subcommittee on Basic Waveguide Symbols, 1947; Wave Propagation, 1957–61.

HERWALD, Seymour W. (SM'52—F'60), Vice President, Westinghouse Electric Corporation, Westinghouse Research Laboratories, Churchill Borough, Pittsburgh 35, Pa.
Born: January 17, 1917, Cleveland, Ohio. B.S.(M.E.), 1938, Case School of Applied Science; M.S.(M.E.), 1940, Ph.D., 1944, University of Pittsburgh. **Committees:** Fellow, 1960. **Professional Groups:** Military Electronics Administrative Committee, 1959–62.

HERZOG, Edward F. (A'41—SM'48—F'59), Manager, Engineering, Heavy Military Electronics Department, General Electric Company, Syracuse, N.Y.
Born: March 26, 1907, Birmingham, Ala. B.S.(E.E.), 1929, Alabama Polytechnic Institute. **Awards:** Citation from Radio Technical Commission for Aeronautics, 1950; Charles A. Coffin Award, General Electric Co., 1956; Certificate of Commendation by U. S. Navy, Bureau of Ships, 1957.

HERZOG, Gerhard (SM'46—F'55), Manager, Bellaire Research Laboratories, Research and Technical Department, Texaco Inc., P.O. Box 425, Bellaire, Tex.; Consular Agent of Switzerland.
Born: April 30, 1904, Zurich, Switzerland. M.M. (Mech.Eng.), 1926, Ph.D. (Physics), 1929, Swiss Institute of Technology. **Awards:** Fellow, American Physical Society.

HESSEL, John (A'31—VA'39—SM'48—F'53), Chief, Electronics Section, NATO International Staff, U. S. Embassy, Paris, France.
Born: March 15, 1908, Grand Rapids, Mich. B.S.(E.E.), 1929, M.S.(E.E.), 1930, University of Michigan. **Committees:** Papers Procurement, 1948–50; Tellers, 1956–57. **Professional Groups:** Communication Systems Administrative Committee, *chairman, 1953.* **Awards:** Legion of Merit with Oak Leaf Cluster; Distinguished Alumnus Citation, University of Michigan, 1953.

HEWLETT, William R. (S'35—A'38—SM'47—F'48), Executive Vice President, Hewlett-Packard Company, 1501 Page Mill Rd., Palo Alto, Calif.
Born: May 20, 1913, Ann Arbor, Mich. A.B., 1934, Stanford University; M.S., 1936, Massachusetts Institute of Technology; E.E., 1939, Stanford University. **IRE Offices:** President, 1954; Director, 1950–57. **Committees:** Appointments, 1954–55, *chairman, 1956;* Constitution and Laws, 1956–60; Editorial Board, 1955; Editorial Reviewer, 1955; Education, 1961; Executive, 1953–55, *chairman, 1954;* Finance, 1953–55; Nominations, 1950–56, 1958, *chairman, 1956;* Papers Review, 1952–53; Policy Advisory, *chairman, 1952;* Policy Development, 1950–51. **Sections:** San Francisco, *vice-chairman, 1948–49, chairman, 1949–50.*

HEYD, Josef W. (A'44—SM'51—F'61), Senior Group Leader, Research, Mound Laboratory, Monsanto Research Corporation, Mound Rd., Miamisburg, Ohio.
Born: November, 1909, Kirksville, Mo. B.S.(Ch.E.), 1931, M.S., 1932, Washington University; Ph.D., 1937, Pennsylvania State University. **Committees:** Nucleonics, 1949–50. **Awards:** Certificate of Merit; Silver "A" Bomb Pin, Secretary of War, 1945.

HICKMAN, Roger W. (A'28—SM'45—F'61), Lecturer on Applied Physics; Director, Jefferson Physical Laboratory; Director, Lyman Laboratory of Physics; Assistant to the Dean of the Faculty of Arts and Sciences, Harvard University, Lyman Laboratory 237, Cambridge 38, Mass.
Born: July 5, 1900, Wooster, Ohio. A.B., 1922, Whittier College; A.M., 1925, University of California; A.M., 1926, Ph.D., 1932, Harvard University. **Committees:** Awards, 1949; Education, 1949–53. **Sections:** Boston, *vice-chairman, 1947–48, chairman, 1948–49;* Member, Executive Committee. **Awards:** Fellow, American Academy of Arts and Sciences; Fellow, American Physical Society.

HIGGINS, William H. C. (M'46—SM'51—F'60), Director of Military Electronics Development, Bell Telephone Laboratories, Inc., Whippany, N.J.
Born: April, 1908, Montclair, N.J. B.S.(E.E.), 1929, E.E., 1934, Purdue University. **Awards:** Naval Ordnance Development Award, U. S. Navy, Bureau of Ordnance, 1945.

HIGHT, Stuart C. (A'31—M'39—SM'43—F'55), Director of Special Communications Projects, Bell Telephone Laboratories, Whippany, N.J.
Born: July 28, 1906, Berkeley, Calif. B.S.(E.E.), 1930, University of California; M.A., 1934, Columbia University. **Awards:** Naval Ordnance Award, 1945.

HILL, Albert G. (SM'46—F'50), Professor of Physics, Massachusetts Institute of Technology, Cambridge, Mass.; Trustee, Institute for Defense Analyses, Washington, D.C.
Born: January 11, 1910, St. Louis, Mo. B.S., 1930, M.S., 1934, Washington University; Ph.D., 1937, University of Rochester. **Awards:** Presidential Certificate of Merit, 1948; U.S.A.F. Distinguished Cilivian Service Award, 1955; Yankee Post, American Ordnance Association, First Annual Distinguished Service Award, 1956; Meritorious Civilian Award of the Office of Secretary of Defense, 1959.

HILLIARD, John K. (A'25—M'29—SM'43—F'52), Vice President and Director, Ling Altec Research Division, Ling-Temco Electronics, Inc., 1515 S. Manchester Ave., Anaheim, Calif.
Born: October 22, 1901, Wyndmere, N.D. B.S., 1924, Hamline University; D.Sc.(Honorary) in E., University of Hollywood. **Committees:** Audio Techniques, 1950–54; Board of Editors, 1950–53; Editorial Reviewer, 1954–60; Professional Groups, 1952. **Professional Groups:** Audio, *vice-chairman, 1951–60;* Medical Electronics, Los Angeles Chapter, *chairman, 1955–56.* **Sections:** Los Angeles, *chairman, 1933–34;* Director-at-Large, Los Angeles Section, 1960. **Awards:** Fellow, Acoustical Society of America; Fellow, Audio Engineering Society; Fellow, Society of Motion Picture and Television Engineers.

HILLIER, James (SM'55—F'57), Vice President, RCA Laboratories, Radio Corporation of America, Princeton, N.J.
Born: August 22, 1915, Brantford, Ont., Canada. B.A. (Math. and Physics), 1937, M.A. (Physics), 1938, Ph.D. (Physics), 1941, University of Toronto.

HINMAN, Wilbur S., Jr. (SM'54—F'57), Technical Director, Diamond Ordnance Fuze Laboratories, Ordnance Corps, U. S. Army, Washington 25, D.C.
Born: March 14, 1906, Washington, D.C. Attended, 1922–23, George Washington University; B.S.(E.E.), 1926, Virginia Military Institute. **Awards:** IRE Harry Diamond Memorial Award, 1956; Department of the Army Decoration for Exceptional Civilian Service, 1958; Department of Defense Distinguished Civilian Service Award, 1960; The President's Award for Distinguished Federal Civilian Service, 1961.

* **HINNERS, Frank A. (IRE Charter Member) (A'12—M'15—F'26)(L),** President, Hinners-Galanek Radio Corporation, (Manufacture Cavalier & Private Label Radios, Stereo Phonos), 56-02 Austin St., Forest Hills 74, L.I., N.Y.
Born: February 19, 1894, New York, N.Y. I.E.E., 1915, Pratt Institute. **Committees:** New York Program, 1941–42. **Awards:** Charter Member, Wireless Institute.

HIRSCH, Charles J. (M'39—SM'43—F'51), Administrative Engineer, Radio Corporation of America, Princeton, N.J. Residence: 1065 Princeton-Kingston Rd., Princeton, N.J.
Born: October, 1902, Pittsburgh, Pa. A.B., 1923, Columbia College; E.E., 1925, Columbia University. **Committees:** Awards, 1956–58; Board of Editors, 1952–53; Editorial Reviewer, 1954–60; Navigation Aids, 1947–53, *vice-chairman, 1950–52.* **Sections:** Long Island Subsection, *chairman, 1952;* Long Island Section, 1953. **Awards:** Certificate of Commendation, U. S. Navy, 1947; Certificate of Appreciation, British Radio Equipment Manufacturers Association, 1955; Fall Meeting Plaque, 1959.

HOBSON, Jesse E. (M'45—F'56), Vice President and Director of Research, United Fruit Company, 30 St. James Ave., Boston, Mass.
Born: May 2, 1911, Marshall, Ind. B.S.(E.E.), 1932, M.S.(E.E.), 1933, Purdue University; Ph.D., 1935, California Institute of Technology; D.Eng. (Honorary), 1957, Purdue University. **Awards:** Fellow, Tau Beta Pi Research, 1932–33; Fellow, Charles A. Coffin Foundation, 1933–34; Outstanding Young Electrical Engineer, Eta Kappa Nu, 1940.

HOEPPNER, Conrad H. (SM'47—F'58), Chief Scientist, Radiation Incorporated, Melbourne, Fla.; President, Electronetics Corporation, Melbourne, Fla.; General Manager, Florida Division, Space Electronics Corporation.
Born: March, 1918, Spooner, Wis. B.Sc.(E.E.), 1939, M.Sc. (E.E.), 1940, E.E.(Professional), 1947, University of Wisconsin, Massachusetts Institute of Technology. **Committees:** Activities, 1958–60; IRE International Convention Program, 1959–60; Professional Groups, 1958–60. **Professional Groups:** Telemetry and Remote Control, *secretary, 1953–55, chairman, 1955–57, editor, 1958–59;* Space Electronics and Telemetry, *chairman, 1959–60, editor, 1959–60.* **Awards:** Fellow, Wisconsin Alumni Research Foundation, 1939–40; Fellow, Tau Beta Pi, 1940–41; Fellow, Massachusetts Institute of Technology, 1940–41.

HOGAN, C. Lester (SM'54—F'60), Vice President, Motorola Inc.; General Manager, Semi-Conductor Products Division, 5005 E. McDowell Rd., Phoenix, Ariz.
Born: February 8, 1920, Great Falls, Mont. B.S.(C.E.), 1942, Montana State College; M.S. (Physics), 1947, Ph.D. (Physics), 1950, Lehigh University. **Committees:** Education, 1958–60. **IRE Representative:** Harvard University, 1955–58.

* **HOGAN, John V. L. (IRE Founder and Charter Member) (A'12—M'12—F'15)(L),** Chairman of the Board, Hogan Faximile Corporation, 155 Perry St., New York 14, N.Y.
Born: February 14, 1890, Philadelphia, Pa. D.Eng. (Honorary), 1957, Polytechnic Institute of Brooklyn. **IRE Offices:** President, 1920; Vice President, 1916–19; Manager, 1912–15, 1921–32; Director, 1916–20, 1932–36, 1948–50. **Committees:** Annual Review, 1927–28, 1947–51; Appointments, 1948; Awards, 1919, 1928, 1932–33, 1945, 1948, *chairman, 1928;* Broadcasting, 1929–38; Constitution and Laws, 1928–29, 1935–36, 1954–55, *chairman, 1932–34;* Constitutional Amendments, *chairman, 1915;* Editing, *chairman, 1914;* Facsimile, 1939–53, *chairman, 1947–51;* Finance, 1915; Financial Matters, 1915; Increase of Membership, 1916–19, *chairman, 1916;* Nominations, 1931, 1937–38, 1943–44, *chairman, 1945;* Papers, 1915–19, 1942–45; Papers Procurement, 1947; Papers Review, 1946; Policy Advisory, 1952; Policy Development, 1950–51; Professional Groups, 1950; Professional Recognition, 1947; Publicity, 1913–19, *chairman, 1913, 1915;* Radio Receivers, 1927–28; Revision of the Constitution, 1925–27, *chairman, 1925;* Sections, 1925; Specifications for Steamship Radio Equipment, 1914–15; Standardization, 1913, 1915–30, *chairman, 1916–20;* Standards, 1932–33, 1936–38, 1947–51; Use of the Transmission Unit, *chairman, 1928–29;* Vacuum Tubes, *chairman, 1927–28.* **IRE Representative:** ASA Sectional Committee on Electrical Installation on Shipboard, 1930, 1936; ASA Sectional Committee on Radio, 1930; ASA Sectional Committee on Radio Electrical Coordination, 1936, 1939–46; Joint Technical Advisory Committee, 1948–60. **Awards:** IRE Medal of Honor, 1956.

HOK, Gunnar (A'31—SM'46—F'57), Professor, Electrical Engineering, University of Michigan, Ann Arbor, Mich.
Born: March 29, 1903, Eskilstuna, Sweden. E.E., 1926, Royal Institute of Technology, Stockholm. **Committees:** Editorial Reviewer, 1955–60; Papers Review, 1952–59. **Professional Groups:** Electron Devices Administrative Committee, 1956–59.

HOLLAND, Lewis N. (A'27—M'32—SM'43—F'59), Professor of Electrical Engineering, University of Michigan, College of Engineering, Ann Arbor, Mich.
Born: December, 1900, Jackson, Mich. B.S.E.(E.E.), 1923, M.S. (E.E.), 1926, University of Michigan. **Committees:** Education, 1945–49; Standards, 1930–31. **Sections:** Detroit, *chairman, 1930–32.* **IRE Representative:** University of Michigan, 1941–54.

* **HOLLMANN, Hans E. (A'48—F'53),** Vice President, Dresser Dynamics, Inc., Northridge, Calif.; Consultant Scientist for Southwestern Industrial Electronic Company and Hermetic Seal Transformer Company, Subsidiaries of Dresser Industries in Dallas, Tex.; Orbitec Corporation, Newport Beach and others.
Born: November 4, 1899, Solingen, Germany, Ph.D., 1928, Dr. Habil., 1933, Technical University, Berlin; Dr.h.c. 1957, Technical University, Dresden, Germany.

HOLLYWOOD, John M. (SM'50—F'60), Scientific Aide to the President, CBS Laboratories, 227 High Ridge Rd., Stamford, Conn.
Born: February, 1910, Red Bank, N.J. B.S., 1931, M.S., 1932, Massachusetts Institute of Technology. **Committees:** Television Subcommittee, Definitions, 1953–54. **Sections:** Fairfield County, Conn. Subsection, *chairman, 1958–60.* **Awards.** Army-Navy Certificate of Appreciation, 1946.

HOLMES, Lynn C. (M'44—SM'49—F'49), Director of Engineering Operations, General Dynamics/Electronics, a Division of General Dynamics, 100 Carlson Rd., Rochester 3, N.Y.
Born: April, 1904, Brookfield, N.Y. E.E., 1925, M.E.E., 1932, Rensselaer Polytechnic Institute. **Awards:** Fellow, American Institute of Electrical Engineers.

HOLMES, Ralph S. (A'25—SM'45—F'52), Director, Project Pangloss, Radio Corporation of America, David Sarnoff Research Center, RCA Laboratories, Princeton, N.J.
Born: May 26, 1902, Murray, Neb. B.S., 1923, University of Nebraska. **Committees:** Radio Receivers, 1938–41. **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1937.

HONNELL, Pierre M. (J'27—A'29—M'41—SM'43—F'58), Professor of Electrical Engineering, Washington University, St. Louis 30, Mo.
Born: January 28, 1908, Paris, France, B.S.(E.E.), 1930, E.E., 1938, The A. & M. College of Texas; M.Sc.(E.E.), 1939, Massachusetts Institute of Technology; M.Sc., 1940, California Institute of Technology; Ph.D.(Geophysics), 1950, St. Louis University. **Awards:** Legion of Merit, War Department, 1946; Marconi Premium, British Institution of Radio Engineers, 1957; Fellow, American Association for the Advancement of Science, 1957; Fellow, American Institute of Electrical Engineers, 1958.

HOPPER, Francis L. (A'26—SM'44—F'60), Military Development Engineer, Bell Telephone Laboratories, Lexington Rd., Winston-Salem, N.C.
Born: February 24, 1901, Chicago, Ill. B.S.(Physics, Eng.), 1922, California Institute of Technology. **Committees:** Audio and

* Deceased.

Electroacoustics, 1958–61; Audio Techniques, 1950–59; Electroacoustics, 1946–51; Sound Recording and Reproducing, 1949–51. **Sections:** North Carolina, Membership Committee, 1953–55; Symposium, *chairman, 1956;* Awards Committee, 1959–. **IRE Representative:** National Stereophonic Radio Committee, 1959. **Awards:** Sound Recording Advances, Academy of Modern Picture Arts and Sciences, 1933; War Effort, Office of Scientific Research and Development, 1945; War Effort Standardization, American Standards Association, 1945; Editor's Award for Paper Transients in Color TV, 1953.

HORN, Charles W. (A'14—M'28—F'30)(L), Partner and Manager, Radio Impulsora Mexicana, S.A.; Cia. Distribuidora Mercantil, S.A., Calle Rhin 33, Colonia Cuauhtemoc, Mexico City, D.F., Mexico.
Born: July 9, 1894, New York, N.Y. **IRE Offices:** Director, 1933–34. **Committees:** Admissions, 1933–37, 1940–42; Broadcast, 1933–38; Broadcasting, 1928–33; Institute Sections, 1929–33, *chairman, 1931–32;* New York Program, 1932–34, *chairman, 1933;* Public Relations, 1945–46; Television and Facsimile, 1936–39. **IRE Representative:** Normal Advisory Council on Radio in Education, 1936, 1939–40; Committee on Engineering Developments, 1941–43.

HORN, Heinz (SM'57—F'59), Dr.-Ing. E.h., Felten & Guilleaume Carlswerk AG, Koln-Mulheim, Germany.
Born: September 29, 1905, Koln, Germany. E.E., 1926, Staatliche Ingenieurschule, Koln, Germany.

HORNE, Charles F. (A'35—SM'53—F'58), Rear Admiral, U. S. Navy, Retired. Vice President of Convair, Division of General Dynamics Corporation; Manager, Convair/Pomona, P.O. Box 1011, Pomona, Calif.
Born: January 3, 1906, New York, N.Y. B.S., 1926, U. S. Naval Academy, Annapolis; M.Sc., 1935, Harvard University. **IRE Offices:** Director, 1960–61. **Professional Groups:** Military Electronics; Education; Engineering Management, Administrative Committee, 1956–58, *chairman, 1956–57.* **Awards:** International Region Medal, CAA.

HORNER, S. George L. (M'46—SM'50—F'57), Superintendent, Radio Division, Hudson Bay Company, Northern Stores Department, Hudson Bay Company Radio Laboratory, 487 Hay St., Winnipeg 13, Man., Canada.
Born: May 17, 1907, Limavady, County Derry, North Ireland. B.Sc.E., 1934, University of New Brunswick. **Sections:** Winnipeg Subsection, *secretary-treasurer, 1948–49, vice-chairman, 1949–50, chairman, 1950–51.*

HORTON, Arthur W., Jr. (SM'49—F'59), Technical Relations Manager, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: August 25, 1898, Philadelphia, Pa. A.B., 1920, E.E., 1922, Princeton University. **Awards:** Naval Ordnance Development Award, 1945.

HORTON, J. Warren (A'20—F'29)(L), Technical Director, United States Navy Underwater Sound Laboratory, New London, Conn.
Born: December 18, 1889, Ipswich, Mass. S.B., 1914, Sc.D., 1935, Massachusetts Institute of Technology. **Committees:** Awards, 1932; Board of Editors, 1930–31, 1935–40; Meetings and Papers, 1929–30, *chairman, 1930;* Membership, 1947–48; Standardization, 1929–31, *chairman, 1931;* Standards, *chairman, 1932–33;* Vacuum Tubes, 1929–30. **IRE Representative:** ASA Sectional Committee (C61) on Electric and Magnetic Magnitudes and Units, 1952–60; United States National Committee, Advisers on Symbols (International Electrotechnical Committee), 1936, 1939–51.

HOUCK, Harry W. (A'19—M'28—SM'43—F'57)(L), Vice President, Thomas A. Edison Industries, McGraw-Edison Co., General Manager, Measurements Division; President and General Manager, Measurements Corporation of Canada, Ltd.; Vice President, Armstrong Memorial Research Foundation; Director, Sag Harbor Industries, Inc., Intervale Rd., Boonton, N.J.
Born: April 11, 1896, New Cumberland, Pa. Extension Course, 1931, Columbia University. **IRE Offices:** Director, 1932; Manager, 1931–32. **Committees:** Admissions, 1932; Constitution and Laws, 1932; History, 1954–60; Radio Receivers, 1928–29; Tellers, 1940. **Professional Groups:** Radio Club of New York, *director, 1928, recording secretary, 1930–32, vice president, 1933, president, 1934.* **Awards:** Armstrong Medal, Radio Club of America, 1941; Marconi Memorial Medal of Achievement, Veteran Wireless Operators Association, 1955.

* **HOWE, George W. O. (F'55),** Professor, Lismore House, Kelvin Drive, Glasgow, Scotland.
Born: December 4, 1875, London, England. D.Sc., 1914, Durham University; D.Sc.(Honorary), 1914, Adelaide University (Australia); LL.D. (Honorary), 1948, Glasgow University.

HOWELLS, Paul W. (M'52—SM'57—F'60), Consultant Heavy Military Electronics Department, General Electric Company, Erie Blvd., DeWitt, N.Y.
Born: April 24, 1921, Dunkirk, N.Y. B.(E.E.), 1942, Syracuse University; M.(E.E.), 1949, University of Maine. **Sections:** Syracuse, *chairman, 1956–57.* **Awards:** Editor's Award for Paper Transients in Color TV, 1953.

HOWES, Frederick S. (A'37—M'43—SM'43—F'50), Professor of Electrical Engineering, McGill University, Montreal, P.Q., Canada.
Born: July 25, 1896, Paris, Ont., Canada. B.S.(E.E.), 1924, M.Sc.(E.E.), 1926, McGill University; Ph.D.(E.E.), 1929, Imperial College, University of London. **IRE Offices:** Director, 1948. **Committees:** Awards, 1950–51; Education, 1945–46, 1951–56. **Sections:** Montreal, *chairman, 1944–45;* Canadian Council, *chairman, 1947–48.* **IRE Representative:** McGill University, 1941–58.

HUGGINS, William H. (S'39—A'44—SM'55—F'57), Professor of Electrical Engineering, The Johns Hopkins University, Baltimore, Md.
Born: January 11, 1919, Rupert, Idaho. B.S., 1941, M.S., 1942, Oregon State College; Sc.D., 1953, Massachusetts Institute of Technology. **Committees:** Circuits, 1949–61; Editorial Reviewer, 1951–57, 1959–60; Papers, 1951–53. **Professional Groups:** Circuit Theory, *secretary, 1952–53, editor, 1954–57, vice-chairman, 1956–57, chairman, 1957–58.* **IRE Representative:** The Johns Hopkins University, 1955–60. **Awards:** IRE Browder J. Thompson Memorial Prize, 1948; Air Force Decoration for Exceptional Civilian Service, 1954; National Electronics Conference Award, 1956.

HULL, David R. (A'36—F'47), Captain, United States Navy, Retired. Consultant, 2930 N.E. 24 Court, Pompano Beach, Fla.
Born: October, 1903, Newton, N.J. B.S., 1925, United States Naval Academy; M.S., 1933, Harvard University. **Committees:** Awards, 1956–59; Electron Tubes, 1946–47; Electronics, 1943–46; Vacuum Tubes, 1945–46. **Awards:** Fellow, Acoustical Society of America; Legion of Merit; Navy Commendation Ribbon.

HULL, Lewis M. (J'17—A'19—M'27—F'28), Consultant, Boonton, N.J.
Born: February 27, 1898, Great Bend, Kan., A.B., 1917, A.M., 1918, University of Kansas; Ph.D., 1922, Harvard University. **IRE Offices:** President, 1933; Manager, 1929–32; Director, 1932–35. **Committees:** Admissions, 1927–28; Awards, 1935–37, *chairman, 1935;* Broadcasting, 1928–32, *chairman, 1928–31;* Meetings and Papers, 1928–30; New York Program, 1931; Nominations, 1928, 1931, 1934–35, *chairman, 1934;* Papers, 1931; Radio Receivers, 1927–28; Registration of Engineers, 1940; Use of the Transmission Unit, 1928–29. **IRE Representative:** ASA Sectional Committee on Radio, 1930; National Advisory Council on Radio in Education, 1936, 1939–40; National Advisory Council on Radio in Education, Committee on Engineering Developments, 1941–43; Radio Advisory Committee, Bureau of Standards, Department of Commerce, 1930, 1936.

* Deceased.

HUNT, Frederick V. (A'28—M'41—SM'43—F'47), Rumford Professor of Physics and Gordon McKay Professor of Applied Physics, 222 Lyman Laboratory, Harvard University, Cambridge 38, Mass.
Born: February 15, 1905, Barnesville, Ohio. B.A., 1924, B.E.E., 1925, Ohio State University; A.M., 1928, Ph.D., 1934, S.D. (Honorary), 1945, Harvard University. **Committees:** Audio Techniques, 1949–50; Electroacoustics, 1941–51; Papers, 1942–45; Papers Procurement, 1942–43, 1947–48; Papers Review, 1946–48; Regular Papers, 1941.

HUNTER, Theodore A. (A'29—M'45—SM'46—F'53), President, Hunter Manufacturing Company, Box 153 Coralville, Iowa City, Iowa; Research Professor at State University of Iowa.
Born: December 5, 1900, Dike, Iowa. B.S.(E.E.), 1922, M.S. (Physics), 1923, M.S.(E.E.), 1931, State University of Iowa. **IRE Offices:** Director, 1948–50, 1956; Editor, *Student Quarterly*, 1954–61. **Committees:** Editorial Board, 1954–61; Education, 1954–60; Nominations, 1949–50, *chairman, 1949;* Papers Procurement, 1945–50; Policy Advisory, 1948–53; Policy Development, 1948–51; Professional Groups, 1957; Sections, 1950. **Professional Groups:** Education; Editor, *Transactions, 1958–59.* **Sections:** Cedar Rapids, *temporary chairman, 1945, chairman, 1946–47.*

HUNTLEY, Harold R. (SM'51—F'60), Retired from American Telephone and Telegraph Company. Residence: 546 Upper Mountain Ave., Upper Montclair, N.J.
Born: December 29, 1894, Neillsville, Wis. B.S., 1921, University of Wisconsin.

HUNTOON, Robert D. (A'40—SM'47—F'54), Deputy Director, National Bureau of Standards, Washington 25, D.C.
Born: July, 1909, Waterloo, Iowa, B.A. (Education), 1932, Iowa State Teachers College; M.S. (Experimental Physics), 1935, Ph.D. (Nuclear Physics), 1938, State University of Iowa. **Awards:** Naval Ordnance Development Award, U. S. Navy, Bureau of Ordnance, 1945; Washington Academy of Sciences Award, 1948, in Physical Sciences; Presidental Certificate of Merit, 1948; Exceptional Service Award, Department of Commerce, 1949; Fellow, American Physical Society, 1955.

HUTCHESON, John A. (A'28—M'30—SM'43—F'48), Vice President, Engineering, Westinghouse Electric Corporation, Pittsburgh, Pa.
Born: January, 1905, Park River, N.D. B.S., 1926, D.Sc. (Honorary), 1943, University of North Dakota. **IRE Offices:** Director, 1948. **Committees:** Board of Editors, 1946–50; Nominations, 1948; Nuclear Studies, 1948–49; Policy Development, 1948. **Sections:** Connecticut Valley, *chairman, 1935–36;* Pittsburgh, *chairman, 1945–46.*

HUTTER, Rudolf G. (SM'46—F'54), Chief Engineer, Microwave Device Operations, Sylvania Electric Products, Inc., Mountain View, Calif.
Born: February 12, 1910, Berlin, Germany. State Examination, 1936, University of Berlin; Ph.D., 1944, Stanford University. **Committees:** Board of Editors, 1953; Editorial Reviewer, 1954–60.

HYLAND, Lawrence A. (A'29—VA'39—SM'53—F'55), Vice President and General Manager, Hughes Aircraft Company, Florence Ave. at Teale St., Culver City, Calif.
Born: August 26, 1897, Nova Scotia, Canada. D.E. (Honorary), 1954, Lawrence Institute of Technology. **Awards:** Medal for Distinguished Public Service, U. S. Navy, 1950; Pioneer Award, PGANE, 1957.

IAMS, Harley A. (A'31—M'38—SM'43—F'50), Associate Director, Hughes Research Laboratories, 3011 Malibu Canyon Rd., Malibu, Calif.
Born: March 13, 1905, Lorentz, W.Va. B.A.(M.E.), 1927, Stanford University. **Committees:** Papers, 1941–45; Papers Review, 1946–47. **Awards:** Joint Award, Modern Pioneers, National Association of Manufacturers, 1940.

ISBISTER, Eric J. (A'39—SM'45—F'53), Chief Engineer, Surface Armament Division, Sperry Gyroscope Company, Division of the Sperry Rand Corporation, Great Neck, L.I., N.Y.
Born: June 11, 1912, Brooklyn, N.Y. B.S.(E.E.), 1934, Massachusetts Institute of Technology; M.S.(E.E.), 1940, Polytechnic Institute of Brooklyn. **Committees:** Registration, 1952; Tellers, 1950–51, *chairman, 1951.* **Professional Groups:** Military Electronics, Nominating Committee, 1956. **Sections:** Long Island Subsection, *chairman, 1947–49;* New York, *treasurer, 1951–52;* Long Island Section Awards, *chairman, 1954–55.* **Awards:** U. S. Navy Certificate of Commendation, 1947; Polytechnic Institute of Brooklyn, Certificate of Distinction, 1956; New York Section Certificate of Appreciation, 1958.

ISRAEL, Dorman D. (A'23—M'30—F'42), Executive Vice President, Emerson Radio & Phonograph Corporation, 14 & Coles Sts., Jersey City, N.J.
Born: July 21, 1900, Newport, Ky. E.E., 1923, University of Cincinnati. **Committees:** Administrative, 1949–51; Awards, 1943–44, 1947; Editorial Reviewer, 1954–60; Membership, 1941; National Convention, 1947; New York Program, 1940–41; Nominations, 1946; Papers, 1940–41; Papers Procurement, *chairman, 1942–43, general chairman, 1944–47;* Professional Groups, 1953–54; Public Relations, 1940–44; Radio Receivers, 1938–42; Regular Papers, *chairman, 1941;* Television and Facsimile, 1936–37; Winter Technical Meeting, 1946. **Professional Groups:** Broadcast and Television Receivers, *chairman, 1951–53;* Member, Administrative Committee, 1953–61. **Sections:** Cincinnati, *chairman, 1931–32.* **IRE Representative:** Joint Technical Advisory Committee, 1952–56, *chairman, 1956;* IRE-RMA Coordination Committee, 1947–48; Member, National Stereo Radio Committee, Panel 1, *chairman* NSRC Committee 1.1, System Classification, 1959; Member, FCC, General Industry Advisory Committee, New York UHF-TV Project.

JACKSON, William E. (A'29—M'34—SM'43—F'51), Chief, Development Division, Bureau of Research and Development, Federal Aviation Agency, Building T-5, Washington 25, D.C.
Born: May 8, 1904, Bridgewater, Mass. B.S.(E.E.), 1925, Brown University. **Committees:** Antennas, 1944–47; Navigation Aids, 1947–48; Radio Transmitters, 1946–47; Transmitters, 1944–45; Transmitters and Antennas, 1938–44. **Awards:** Citation for Service on Radio Technical Commission for Aeronautics Special Committee, SC 31; Cull Prize in Engineering, Brown University, 1925.

JACKSON, Sir Willis (SM'48—F'50), Director, Research and Education. Associated Electrical Industries (Manchester), Ltd., Trafford Park, Manchester 17, England.
Born: October 20, 1904, Burnley, Lancashire, England. D.Sc., 1936, Manchester University; D.Phil., 1936, Oxford University; D.Sc., Tech., Zurich, 1955; D.Sc.(Eng.), 1956, Bristol; D.Eng., 1959, Sheffield. **IRE Representative:** IRE-IEE International Liaison Committee, 1955–59. **Awards:** Fellow, Royal Society, 1953.

JANES, Robert B. (A'37—M'50—SM'51—F'55), Manager, Computer Transistor Engineering, Semi-conductor Division, Radio Corporation of America, Somerville, N.J.
Born: February 2, 1909, Burlington, Mass. B.S., 1928, Kenyon College; Ph.D., 1935, University of Wisconsin. **Committees:** Electron Devices, 1952–56; Electron Tubes and Solid Devices, 1950–52. **Sections:** Lancaster Subsection, *chairman, 1955–56;* Princeton Section, Awards and Nominations, *chairman, 1959–60.*

JANSKY, C. M., Jr. (A'18—M'25—F'28)(L), Chairman of the Board, Jansky and Bailey, 1339 Wisconsin Ave., N.W., Washington 7, D.C.
Born: June 28, 1895, Delton, Mich. B.A., 1917, M.A., 1919, University of Wisconsin. **IRE Offices:** President, 1934; Director, 1932–42; Manager, 1929–32. **Committees:** Admissions, 1929–33, 1936–40, *chairman, 1931, 1936–37;* Awards, 1942; Board of Editors, 1942–50; Broadcast, 1935–38, *chairman, 1937–38;* Broadcasting, 1931–34; Constitution and Laws, 1932–35, 1941; Convention Policies, 1940; Education, 1944; Frequency Modulation, 1940–46; Membership, 1925–28, 1941–43; Nominations, 1936–42, 1945, *chairman, 1937, 1939;* Preparedness, 1940–41; Profession Groups, 1960; Public Relations, 1945–46; Publicity, 1936; Radio Receivers, 1928–29; Sections, 1925; Standardization, 1928–32; Standards, 1932–33; Use of the Transmission Unit, 1928–29. **IRE Representative:** American Council on Education, Planning Committee, National Conference on Educational Broadcasting, 1936–37, 1939–43; American Documentation Institute, 1939–43; ASA Sectional Committee on Radio Electrical Coordination, 1926, 1939–46; First National Conference on Educational Broadcasting, 1937; URSI Executive Committee, 1936, 1939–50.

JARVIS, Kenneth W. (A'24—M'27—F'34), President, Jarvis Electronics Corporation. Residence: 1140 Cherry St., Winnetka, Ill.
Born: October 18, 1901, Mansfield, Ohio. B.E.E., 1923, Ohio State University. **Committees:** Radio Receivers and Parts, 1930–32; Receivers, 1947–59; Receiver Sets, 1927–28. **Sections:** Chicago, *chairman, 1948–49.*

JASIK, Henry (A'40—SM'47—F'58), Consulting Engineer, President, Jasik Laboratories, Inc., 100 Shames Dr., Westbury, L.I., N.Y.
Born: March, 1919, New York, N.Y. B.S.(E.E) 1938, Newark College of Engineering; M.E.E., 1951 D.E.E., 1953, Polytechnic Institute of Brooklyn. **Committees:** Antennas and Waveguides 1950–61, *vice-chairman, 1954, chairman, 1955–56;* Papers Review, 1950–53; Standards, 1955–56. **Professional Groups:** Microwave Theory and Techniques Administrative Committee, 1954–55. **Sections:** Long Island, *vice-chairman, 1959–60, chairman, 1960–61.*

JEFFERS, Charles L. (A'38—SM'47—F'61), Vice President, Engineering, Southland Industries, Inc., 1031 Navarro St., P.O. Box 2641, San Antonio 6, Texas.
Born: February 9, 1908, San Antonio, Texas. B.S.(E.E.), 1929, University of Texas. **Sections:** San Antonio, *chairman, 1949.*

JENSEN, Arthur S. (M'46—SM'51—F'61), Manager, Special Electron Devices, Westinghouse Electric Corporation, P.O. Box 746, Baltimore 3, Md.
Born: December 24, 1917, Trenton, N.J. B.S., 1938, M.S., 1939, Ph.D.(Physics), 1941, University of Pennsylvania. **Professional Groups:** Electron Devices, Technical Program Subcommittee, *chairman, 1958.* **Sections:** *Princeton,* Bulletin Editor, 1955–56.

JENSEN, Axel G. (A'23—M'26—F'42)(L), Retired from Bell Telephone Laboratories. Consulting Engineer in TV Communications, 21 Mea Dr., Berkeley Heights, N.J.
Born: February 7, 1896, Copenhagen, Denmark, E.E., 1920, Royal Technical College; Post Graduate, 1921–22, Columbia University. **IRE Offices:** Director, 1954–56. **Committees:** Appointments, 1954–55; Audio and Video Techniques, 1948–49; Editorial Reviewer, 1954–60; Executive, 1955–56; Measurements and Instrumentation, 1949–50; Policy Advisory, 1954–56; Standards, 1948–61, *vice-chairman, 1949–51, chairman, 1951–54;* Television, 1939–49, *chairman, 1948–49;* Television and Facsimile, 1938–39; Television Systems, 1949–61, *vice-chairman, 1949, chairman, 1949–51.* **IRE Representative:** ASA Electrical Standards Board, 1953–58, *alternate, 1957;* ASA Sectional Committee (C42) on Definitions of Electrical Terms, 1949–58; ASA Sectional Committee (C16) on Radio (sponsored by IRE), 1951–57, *chairman, 1953–57;* ASA Standards Council, 1951–54, *alternate, 1955–59;* International Radio Consultative Committee, Executive Committee of U. S. Delegation, 1952–59; International Radio Consultative Committee, Executive Committee of U. S. Study Group XIV (Vocabulary), *chairman, 1952–58;* IRE-AIEE Committee on Noise Definitions, 1951–52; IRE Steering Committee, 1951; Joint IRE-ASA (C42) Definitions Co-ordinating Committee, 1949–51; Joint IRE-RTMA-SMPTE-NARTB Committee for Inter-Society Coordination, 1952–55; U. S. National Committee of the International Electrotechnical Commission, 1953–57, *alternate, 1958.*

JESTY, Leslie C. (M'54—F'56), Manager, Sylvania-Thorn Colour Television Laboratories, Ltd., Great Cambridge Rd., Enfield, Middlesex, England.
Born: August, 1907, Alresford, England, B.Sc.,(Physics), 1927, B.Sc.(General), 1928, University College, Southampton, England. **Awards:** Fellow, Television Society, 1946; Fellow, British Kinematograph Society, 1954.

JETT, Ewell K. (A'29—M'38—F'39), Vice President and Director of Television, Baltimore Sunpapers, Baltimore, Md.; formerly, Chief Engineer and Commissioner, Federal Communications Commission.
Born: March 20, 1893, Baltimore, Md. **IRE Offices:** Director, 1938. **Committees:** Public Relations, 1945–46. **Sections:** Washington, D.C., *chairman, 1935–36.*

JOHNSON, Edward O. (S'46—A'49—M'52—SM'58—F'60), Chief Engineer, RCA Semiconductor and Materials Division, Somerville, N.J.
Born: December 21, 1919, Hartford, Conn. B.S.(E.E.), 1948, Pratt Institute; Graduate Courses, 1950–53, Princeton University; Graduate Courses, 1954–55, Swiss Federal Institute of Technology. **Committees:** Electron Devices, 1954–56; Electron Tubes, 1955–59; Solid State Devices, 1956, 1958–61, *vice-chairman, 1959–60;* Subcommittee on Gas Tubes, *chairman, 1953–54.* **IRE Representative:** ASA Sectional Committee (C94) on Semiconductor Electron Devices, 1959. **Awards:** Honorable Mention for Outstanding Young Electrical Engineer, Eta Kappa Nu, 1952; Editor's Award, 1953.

JOHNSON, Harwick (SM'45—F'60), Associate Director, Electronic Research Laboratory, RCA Laboratories, Princeton, N.J.
Born: June, 1913, Republic, Mich. B.S.(E.E.), 1934, Michigan College of Mining and Technology; M.S., 1941, Ph.D., 1944, University of Wisconsin. **Committees:** Editorial Reviewer, 1954–60. **Sections:** Princeton, Papers Procurement Committee, 1956–57.

JOHNSON, J. Kelly (A'25—M'35—SM'43—F'49), Consulting Engineer, 184 South Ave., New Canaan, Conn.
Born: January, 1903, Oskaloosa, Iowa. A.B., 1924, B.S., 1926, E.E., 1927, Columbia University. **IRE Offices:** Director, 1942. **Committees:** Board of Editors, 1946–53; Nominations, 1942; Papers Procurement, 1944–45; Radio Receivers, 1936–37, 1941–61; Receivers, 1950–53; Registration of Engineers, 1940–43; Regular Papers, 1941; Sections, 1943–44. **Sections:** Chicago, *secretary, 1935–36, chairman, 1937–38;* New York, *treasurer, 1948–49.*

JOHNSON, John B. (M'40—SM'43—F'51), Retired from Bell Telephone Laboratories, Inc.; Thomas A. Edison, Inc., West Orange, N.J.
Born: October 2, 1887, Gothenberg, Sweden, B.S., 1913, M.S., 1914, University of North Dakota; Ph.D., 1917, Yale University. **Awards:** Longstreth Medal, 1957.

JOLLIFFE, Charles B. (M'25—F'30)(L), Vice President and Technical Consultant, Radio Corporation of America, Princeton, N.J.
Born: November 13, 1894, Mannington, W.Va. B.S., 1915, M.S., 1920, West Virginia University; Ph.D., 1922, Cornell University; LL.D., 1942, West Virginia University. **IRE Offices:** Director, 1936–37, 1944. **Committees:** Admissions, 1938; Awards, 1942; Bibliography, 1930–32; Broadcast, 1932–33, 1936–37; Frequency Modulation, 1940–41; Meetings and Papers, 1930; Nominations, 1937, 1941; Piezoelectric Crystals, 1940–41; Policy Development, 1948; Preparedness, 1940–41; Radio Receivers, 1927–28; Standardization, 1925–30, *chairman, 1928;* Television and Facsimile, 1936–39; Vacuum Tubes, 1927–29, *chairman, 1928–29.* **Sections:** Washington, D.C., *chairman, 1929–30.* **IRE Representative:** American Council on Education, Planning Committee, National Conference on Educational Broadcasting, 1936, 1939–43.

JORDAN, Edward C. (S'36—A'39—SM'45—F'53), Professor and Head of Department of Electrical Engineering, University of Illinois, Urbana, Ill.
Born: December 31, 1910, Edmonton, Alta., Canada. B.S.(E.E.), 1934, M.S.(E.E.), University of Alberta; Ph.D.(E.E.), 1940, Ohio State University. **Committees:** Annual Review, 1949–51; Antennas, 1945–49; Antennas and Waveguides, 1949–52; Editorial Reviewer, 1954–60; Membership, 1950–51; Papers Review, 1951–53. **Professional Groups:** Antennas and Propagation, *chairman, 1960;* Awards Committee, *chairman, 1958–60.* **Sections:** Columbus Subsection, *chairman, 1945.* **IRE Representative:** Ohio State University, 1942–45; University of Illinois, 1946–50; Na-

tional Bureau of Standards, Technical Advisory Committee, 1958–61.

JORDAN, John F. (A'40—M'45—SM'53—F'54), Vice President in-charge-of Manufacturing, The Baldwin Piano Company, 1801 Gilbert Ave., Cincinnati, Ohio.
Born: November 23, 1908, Pittston, Pa. E.E., 1932, University of Cincinati. **Committees:** Awards, 1955–57; Sections, 1949–52, *chairman, 1950–51.* **Sections:** Cincinnati, *secretary-treasurer, 1945–46, vice-chairman, 1946–47, chairman, 1947–48, 1951–52.*

KAAR, Ira J. (J'22—A'24—M'29—F'41), Senior Scientist, Hoffman Science Center, Santa Barbara, Calif.
Born: October 17, 1902, Dunsmuir, Calif. B.S.(E.E.), 1924, University of Utah. **IRE Offices:** Director, 1939, 1948. **Committees:** Admissions, 1940; Annual Review, 1940–46; Awards, 1947–48; Nominations, 1949–50; Public Relations, 1940, 1942; Standards, 1940–46; Television, 1939–48, *chairman, 1940–47;* Television Systems, 1949–58. **Professional Groups:** Administrative Committee, Broadcast Transmission Systems, 1950–60. *IRE* **Representative:** Joint Technical Advisory, 1950–60, *chairman, 1950–52.* **Awards:** Certificate of Commendation, U. S. Navy, 1947; Fellow, American Institute of Electrical Engineers, 1951; E.I.A. Engineering Award, 1957.

KALLMANN, Heinz E. (A'38—M'41—SM'43—F'59), Consulting Engineer, 417 Riverside Drive, New York 25, N.Y.
Born: March 10, 1904, Berlin, Germany. Ph.D.(Physics), 1929, Goettingen University, Germany. **Awards:** U. S. (O.S.R.D.) Certificate of Appreciation by N.D.R.C., 1945.

KALMUS, Henry P. (A'39—SM'45—F'56), Associate Director for Advanced Research, Diamond Ordnance Fuze Laboratories, Washington 25, D.C.
Born: January 9, 1906, Vienna, Austria. Dipl. Ing., 1930, Dr. Techn., 1960, Technical University, Vienna. **Awards:** Award for Exceptional Service, U. S. Department of Commerce, 1954; Certificate of Achievement, U. S. Army, 1954, 1957; Certificate of Achievement, Army Science Conference, 1959.

KANDOIAN, Armig G. (S'35—A'36—SM'44—F'51), Vice President, Engineering, ITT Federal Laboratories, 500 Washington Ave., Nutley, N.J.
Born: November 28, 1911, Van, Armenia. B.S., 1934, M.S., 1935, Harvard University. **Committees:** Papers Review, 1946–53. **Professional Groups:** Communications Systems Paper Study and Procurement, *chairman, 1957–58.* **Sections:** Northern New Jersey, *vice-chairman, 1958–59;* Awards Committee, *chairman, 1959–60.* **Awards:** Honorable Mention, Eta Kappa Nu, 1943.

KANTEBET, Shankar R. (A'25—M'31—SM'43—F'49), Director General, Retired. Overseas Communication Service, Eleventh Road, Santa Cruz East, Bombay 25, India.
Born: December, 1900, Kanara, Bombay, India. B.A. (Honours), M.N., Technical Scholar, 1922, Bombay University. **IRE Offices:** Vice President, 1953; Director, 1953. **Awards:** AMIEE, 1928; MIE (1), 1944; Marconi Veteran, 1951.

KARPLUS, Eduard (A'31—F'38), Engineer, General Radio Company, 22 Baker Ave., West Concord, Mass.
Born: September 7, 1899, Moedling, Austria, Ingenieur, 1923, Technische Hochschule, Vienna, Austria.

KATZIN, Martin (J'27—A'29—M'42—SM'43—F'55), President and Director of Research, Electromagnetic Research Corporation, 5001 College Ave., College Park, Md.
Born: February 17, 1908, New York, N.Y. B.S.E.(E.E.), 1928, B.S.E.(Math.), 1929, M.S.E.(E.E.), 1929, University of Michigan. **Committees:** Editorial Reviewer, 1954–61; Papers Procurement, 1946–50; Papers Review, 1948–61; Wave Propagation, 1954–61. **Awards:** Presidential Certificate of Merit, 1948; Distinguished Alumnus Citation for Contributions to Engineering, University of Michigan, 1953; Navy Meritorious Civilian Service Award, 1955.

KEAR, Frank G. (A'24—M'31—SM'43—F'53), Consulting Radio Engineer, 1302 18 St., N.W., Washington 6, D.C.
Born: October 18, 1903, Minersville, Schuykill County, Pa. E.E., 1926, Lehigh University; S.M.(E.E.), 1928, Sc.D.(E.E.), 1933, Massachusetts Institute of Technology. **Committees:** Radio Transmitters and Antennas, 1929–31; Standards, 1934–35.

KEISTER, James E. (A'41—SM'46—F'57), Manager, Advanced Engineering, Electronic Components Division, Advanced Product Planning Operation, General Electric Company, Schenectady, N.Y.
Born: July 11, 1914, Coburg, Iowa. B.S.(E.E.), 1935, Cornell University. **Committees:** Annual Review, 1949–50; Audio-Video Techniques, *vice-chairman, 1948–49;* Standards, 1949–51; Video Techniques, *chairman, 1949–53.* **Awards:** Navy "E," 1944; Navy Certificate of Commendation, 1947.

KELL, Ray D. (A'35-F'47), Fellow, Technical Staff, RCA Laboratories Division, Radio Corporation of America, Princeton, N.J.
Born: June 7, 1904, Kell, Ill. B.S.(E.E.), 1926, University of Illinois. **Committees:** Editorial Reviewer, 1954–60; Television, 1941–42, 1946–49; Television Systems, 1949–61. **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940; Stuart Ballantine Medal, Franklin Institute, 1948; David Sarnoff Gold Medal, SMPTE, 1954.

KELLER, Arthur C. (A'36—SM'51—F'61), Director, Switching Systems Development, Bell Telephone Laboratories, Inc., 463 West St., New York 14, N.Y.
Born: August 18, 1901, New York, N. Y. B.S.(E.E.), 1923, Cooper Union; M.S.(E.E.), 1925, Yale University; E.E., 1926, Cooper Union. **Committees:** Annual Review; Electroacoustic, *chairman, 1945-46;* Standards. **Awards:** Citations for Contributions in World War II, U. S. Navy, Bureau of Ships, 1947; U. S. Navy, Bureau of Ordnance, 1947; First Prize Paper, Communications Division, American Institute of Electrical Engineers, 1954.

KELLER, Ernest A. (A'49—SM'55—F'60), Associate Director of Engineering, Motorola Inc., Chicago Military Electronics Center, 1450 N. Cicero Ave., Chicago 51, Ill.
Born: March, 1913, Zurich, Switzerland. M.S., 1938, Dr. Tech. Sciences, 1942, Swiss Federal Institutes of Technology, Zurich. **Committees:** Industrial Electronics, 1956–58, *vice-chairman, 1959–61;* Industrial Electronics Instrumentation and Control, 1956–61. **Professional Groups:** Industrial Electronics Administrative Committee, 1957–60; Industrial Electronics Paper Procurement Committee, *chairman and liaison.* **Sections:** Mid-Hudson Subsection, *vice-chairman, 1954–55; chairman, 1953, 1955–56.*

KELLY, Mervin J. (M'25—F'38)(L), Retired as President, Bell Telephone Laboratories, Inc.; Retired as Chairman of the Board, Bell Telephone Laboratories, Inc.; Research Management Consultant, International Business Machines, Inc. and Bausch & Lomb Optical Company, 2 Windemere Terrace, Short Hills, N.J.
Born: February 14, 1894, Princeton, Mo. B.S., 1914, Missouri School of Mines and Metallurgy; M.S., 1915, University of Kentucky; Ph.D., 1918, University of Chicago; D.Eng., 1936, University of Misouri; D.Sc., 1946, University of Kentucky; LL.D., 1954, University of Pennsylvania; D.Eng., 1955, New York University; D.Eng., 1955, Polytechnic Institute of Brooklyn; D.Sc., 1957, University of Pittsburgh; D.Honoris Causa, 1957, University of Lyons; D.Eng., 1958, Wayne State University; 1959 Honor Award, Stevens Institute of Technology; D.Sc., 1959, Case Institute of Technology. **Committees:** Vacuum Tubes, 1927–31. **IRE Representative:** ASA Technical Committee, Vacuum Tubes, 1930. **Awards:** Air Force Association Trophy, 1953; Presidential Certificate of Merit; Industrial Research Institute Medal, 1954; Christopher Columbus International Communication Prize, 1955; Air Force Exceptional Service Award, 1957; James Forrestal Memorial Award, 1958: John Fritz Medal, 1959.

KENNEDY, Maurice E. (A'41—SM'47—F'56), Director and Chief Engineer, Department of Communications, Los Angeles County, 500 West Temple St., Los Angeles 12, Calif.
Born: Setpember 8, 1907, Galva, Ill. **Committees:** Professional Groups, 1955–58. **Professional Groups:** Administrative Committee, Vehicular Communications, 1954–60. **IRE Representative:** Technical Societies Council, 1947–48; WESCON, *vice-chairman, 1950.*

KETO, John E. (A'38—SM'46—F'48), Chief Scientist, Aeronautical Systems Division, Wright-Patterson Air Force Base, Ohio.
Born: June 9, 1909, Maynard, Mass. E.E., 1932, M.S., 1935, University of Cincinnati. **Committees:** Awards, 1956–58; Wave Propagation, 1948–52. **Professional Groups:** Aeronautical and Navigational Electronics, *chairman, 1951.* **Sections:** Dayton, *chairman, 1946–47.* **Awards:** Presidential Medal of Merit, 1946; Air Force (USAF) Exceptional Civilian Service Award, 1959.

KIEBERT, Martin V., Jr. (A'31—M'38—SM'43—F'59), Head, Electronics Unit, Advanced Development, The Martin Company, Denver, Colo.
Born: November, 1908, Wallace, Idaho. E.E., 1931, University of Idaho; Physics, 1934, Reed College. **Professional Groups:** Radio Telemetry and Remote Control Administrative Committee, *chairman, 1952–54.* **Sections:** Orange Belt Subsection, *chairman, 1955–56.* **Awards:** American Chemical Society, Idaho, 1928; Royal Aeronautical Society, 1947.

KILGORE, G. Ross (A'30—M'40—SM'43—F'57), Manager, Applied Research Department, Westinghouse Electric Corporation, P.O. Box 746, Baltimore 3, Md.
Born: January 31, 1907, Fremont, Neb. B.S.(E.E.), 1928, University of Nebraska; M.S.(E.E.), 1931, University of Pittsburgh. **Committees:** Electron Devices, 1952–54. **Professional Groups:** Electron Devices Administrative Committee, 1953, 1956–59, *chairman, 1958–59.*

KILLIAN, Thomas J. (A'47—SM'47—F'51), Deputy Chief and Chief Scientist, Office of Naval Research, Washington 25, D.C.
Born: August 4, 1904, Schenectady, N.Y. B.S., M.S., 1926, Massachusetts Institute of Technology; M.A., 1927, Ph.D., 1929, Princeton University. **Committees:** Nuclear Studies, 1947–51. **IRE Representative:** Washington Chapter, *program chairman, 1956–57.* **Awards:** Regional Prize, American Institute of Electrical Engineers, 1936.

KIMBALL, Charles N. (A'34—M'40—SM'43—F'52), President, Midwest Research Institute, Kansas City, Mo.
Born: April 21, 1911, Boston, Mass. B.E.E., 1931, Northeastern University; S.M., 1932, Sc.D., 1934, Harvard University; Eng.D. (Honorary), 1955, Northeastern University; Sc.D. (Honorary), 1958, Park College; LL.D. (Honorary), 1959, Parsons College. **Committees:** Awards, 1956–60; Mobile Communication Systems, 1950–56; Railroad and Vehicular Communication, 1945–50. **Sections:** Kansas City, *vice-chairman, 1941–43.*

KING, Donald D. (M'46—SM'57—F'59), Vice President, Research, Electronic Communications, Inc., 1830 York Road, Timonium, Md.
Born: August 7, 1919, Rochester, N.Y. A.B., 1942, A.M., 1944, Ph.D., 1946, Harvard University. **Professional Groups:** Antennas and Propagation Administrative Committee, 1954–57; Microwave Theory and Techniques Administrative Committee, 1952–57; Editor, *Transactions* on Microwave Theory and Techniques, 1959–.

KING, Ronold W. P. (A'30—SM'43—F'53), Gordon McKay Professor of Applied Physics, Gordon McKay Laboratory, Harvard University, Cambridge 38, Mass.
Born: September 19, 1905, Williamstown, Mass. B.A., 1927, M.S., 1929, University of Rochester; Ph.D., 1932, University of Wisconsin. **Committees:** Antennas, 1944–47; Papers Review, 1952–53; Transmitters, 1944–45; Transmitters and Antennas, 1942–44. **IRE Representative:** Harvard University, 1954. **Awards:** Fellow, American Physical Society; Fellow, American Academy of Arts and Sciences; Corresponding Member, Bavarian Academy of Science; Guggenheim Fellow, 1937–38, 1958.

KINN, Theodore P. (A'36—SM'45—F'59), President, Kinn Electronics Corporation, 4125 Hayward Ave., Baltimore 15, Md.
Born: January, 1907, El Paso, Tex. B.S.(E.E.), 1928, Colorado University. **Committees:** Industrial Electronics, 1954–59; Papers Procurement, 1946. **Professional Groups:** Industrial Electronics Administrative Committee, 1950–59. **IRE Representative:** Joint IRE-AIEE-NEMA Coordination Committee on Induction and Dielectric Heating, 1947–50.

KLEEN, Werner J. (SM'50—F'57), Dr. Phil. Nat. Habil., Director, Research Laboratory, Siemens and Halske, Balanstrasse 73, Munich 8, Germany.
Born: October 29, 1907, Hamburg, Germany. Dr.Phil.Nat., 1931, Dr.habil., 1940, University of Heidelberg. **Committees:** Electron Tubes, 1955–61. **Awards:** Medal of Svenska Teknologföreningen, Stockholm, 1950; Honorary Member, Instituto Nacional de Electrónica, Madrid, 1952; Gauss-Weber Medal, University of Göttingen, 1955; Honorary Professor, Technische Hochschule, Munich, 1956.

KLOEFFLER, Royce G. (SM'46—F'53), Professor, Electrical Engineering, Kansas State College, Manhattan, Kan.; Engineer, National Security Agency, Washington, D.C.
Born: June 18, 1890, Armada, Mich. B.S.(E.E.), 1913, University of Michigan; S.M., 1930, Massachusetts Institute of Technology.

KNOBLAUGH, Armand F. (A'33—M'44—SM'54—F'58), Professor of Physics, University of Cincinnati, Cincinnati 21, Ohio.
Born: June, 1903, Cincinnati, Ohio. B.S.(Eng.), 1925, M.A., 1927, Ph.D., 1929, University of Cincinnati. **Sections:** Cincinnati, *chairman, 1935–36.*

KNOWLES, Hugh S. (A'25—F'41), Consulting Engineer, President and Director of Research, Industrial Research Products; President, Knowles Electronics, 10545 Anderson Pl., Franklin Park, Ill.
Born: September 23, 1904, Hynes, Iowa. A.B., 1928, Columbia University. **Committees:** Annual Review, 1938–41; Board of Editors, 1945–53; Editorial Reviewer, 1954–55; Electroacoustics, 1936–41, 1946–47, 1953–55, *chairman, 1938–42, vice-chairman, 1957–59;* Papers, 1941; Papers Procurement, 1942–43; Regular Papers, 1941; Standards, 1938–42; Symbols, 1940–41, 1943–48. **Professional Groups:** Audio, *chairman, 1960.* **Sections:** Chicago, *chairman, 1934–35.* **IRE Representative:** ASA Sectional Committee (Z24) on Acoustical Measurement and Terminology, 1954–56.

KNOX, James B. (A'34—SM'46—F'51), RCA Victor Company, Ltd., 1001 Lenoir St., Montreal 30, P.Q., Canada.
Born: November, 1910, Winnipeg, Man., Canada. **Committees:** Radio Transmitters, 1947–53.

KOBER, Carl L. (A'55—SM'57—F'60), Vice President, Director of Engineering, AVCO Electronics & Ordnance Division, Wilmington Pike, Richmond, Ind.
Born: November 22, 1913, Vienna, Austria. Dr.Phil., 1935, University of Vienna; Dr.phil.habil., 1939, Technical University of Vienna.

KOCH, Winfield, R. (A'28—SM'48—F'54), Engineer, Radio Corporation of America, Building 101–222, Borton Landing Rd., Moorestown, N.J.
Born: December 23, 1903, Omaha, Neb. B.S.(E.E.), 1925, University of Minnesota. **Committees:** Radio Receivers, 1951–61. **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940.

KOCK, Winston E. (SM'45—F'52), Director & General Manager Research Laboratories Division, The Bendix Corporation, Southfield, Mich.
Born: December 5, 1909, Cincinnati, Ohio. E.E., 1932, M.S. (Physics), 1933, University of Cincinnati; Ph.D., 1934, University of Berlin; D.Sc. (Honorary), 1952, University of Cincinnati. **Committees:** Administrative, 1956, Antennas, 1946–48, *al-*

ternate, 1946–47; Antennas and Waveguides, 1950–51; Editorial Reviewer, 1953–60; Papers Review, 1951–53. **Professional Groups:** Audio Administrative Committee, *chairman, 1955.* **Awards:** Outstanding Young Electrical Engineer, Eta Kappa Nu, 1938; HKN Award of Merit, University of Cincinnati, 1959; Fellow, Acoustical Society of America; Fellow, American Physical Society.

KOEHLER, Glenn (A'27—M'43—SM'43—F'56), Professor of Electrical Engineering, University of Wisconsin, Madison 6, Wis.
Born: November 30, 1894, Van Wert, Ohio. B.S., 1918, University of Illinois; M.S., 1928, University of Wisconsin. **Committees:** Education, 1946, 1951–56. **IRE Representative:** University of Wisconsin, 1941–60.

KOGA, Issac (SM'54—F'57), Professor Emeritus, University of Tokyo, Bunkyo-Ku, Tokyo, Japan.
Born: December, 1899, Tosu City, Saga Province, Japan. B.E., 1923, Ph.D.(Eng.), 1930, University of Tokyo. **Committees:** Papers, *chairman, 1956–57.* **Sections:** Tokyo, *vice-chairman, 1957–59, chairman, 1959–60.* **IRE Representative:** URSI, *vice president;* Japanese National Committee, *chairman.* **Awards:** Asano Memorial Prize, 1934; Army Technical Prize, 1939; Japanese Academy of Science Prize, 1948; Memorial Prize, Institute of Electrical Communication Engineers of Japan, 1950; Medal of Honor, Japanese Government, 1956.

KOHL, Walter H. (A'35—M'39—SM'43—F'58), Senior Engineering Specialist, Sylvania Electric Products, Inc., Mountain View Devices Laboratories, Mountain View, Calif.; Lecturer, Electrical Engineering Department, Stanford University, Stanford, Calif.
Born: January 22, 1905, Kitzingen, Bavaria, Germany, Dipl.Ing., 1928, Dr.Ing., 1930, Technische Hochschule, Dresden, Germany. **Sections:** Toronto, *chairman, 1937–38.*

KOMPFNER, Rudolf (F'50), Director of Electronics and Radio Research, Bell Telephone Laboratories, Inc., Holmdel, N.J.
Born: May 16, 1909, Vienna, Austria. Engineering Diploma, 1933, Technical College, Vienna; D.Phil., 1951, Oxford University. **Committees:** Editorial Reviewer, 1954–60. **Professional Groups:** Electron Devices Administrative Committee, 1955. **Awards:** Duddell Medal, Physical Society, London, 1955; David Sarnoff Medal, American Institute of Electrical Engineers, 1960; Stuart Ballantine Medal, Franklin Institute, 1960.

KORMAN, Nathaniel I. (S'38—A'39—SM'45—F'56), Director, Advanced Military Systems, Radio Corporation of America, Princeton, N.J.
Born: February 23, 1916, Providence, R.I. B.S.(E.E.), 1937, Worcester Polytechnic Institute; M.S.(E.E.), 1938, Massachusetts Institute of Technology; Ph.D.(E.E.), 1958, University of Pennsylvania. **Awards:** Charles A. Coffin Fellowship, 1937; Award of Merit, RCA, 1951.

KRAUS, John D. (A'32—M'43—SM'43—F'54), Professor, Electrical Engineering, Physics and Astronomy; Director, Radio Observatory, Ohio State University, 2024 Neil Ave., Columbus 10, Ohio.
Born: June 28, 1910, Ann Arbor, Mich. B.S., 1930, M.S., 1931, Ph.D., 1933, University of Michigan. **Committees:** Board of Editors, 1940–52. **Sections:** Detroit, *chairman, 1940.*

KRUTTER, Harry (SM'47—F'60), Chief Scientist, Naval Air Development Center, Johnsville, Pa.
Born: March 17, 1911, Boston, Mass. S.B., 1932, SM., 1933, Ph.D., 1935, Massachusetts Institute of Technology. **Professional Groups:** Airborne Electronics Administrative Committee, 1950–51; Engineering Management Administrative Committee, 1956–59. **Awards:** Distinguished Civilian Service Award, Department of Navy, 1956; Distinguished Civilian Service Award, Department of Defense, 1957.

KU, Yu H. (SM'53—F'61), Professor, Moore School of Electrical Engineering, University of Pennsylvania, 200 S. 33 St., Philadelphia 4, Pa.
Born: December 24, 1902, Wusih, Kiangsu, China. S.B., 1925, S.M., 1926, Sc.D., 1928, Massachusetts Institute of Technology. **Sections:** Philadelphia. **Awards:** C.I.E. Annual Achievement Award, Chinese Institute of Engineers, New York, Inc., 1959; Gold Medal Award, Minister of Education, Republic of China, Taipei, Taiwan, 1960.

KUPER, J. B. Horner (A'37—SM'45—F'54), Department Chairman, Brookhaven National Laboratory Upton, L.I., N.Y.
Born: November 5, 1909, New York, N.Y. B.A., 1930, Williams College; Ph.D., 1938, Princeton University. **Committees:** Board of Editors, 1947–53; Editorial Reviewer, 1954–60; Measurements and Instrumentation, 1949–50; Nuclear Studies, 1948–49. **Professional Groups:** Nuclear Science Administrative Committee, 1949–54. **Awards:** Fellow, American Physical Society, 1950.

LACK, Frederick R. (A'20—F'37)(L), Consulting Engineer, 176 Main St., Southport, Conn.
Born: July 18, 1895, Easthourne, England. S.B., 1925, Harvard University. **IRE Offices:** Director, 1940, 1946–47. **Committees:** Appointments, 1948; Awards, 1941, 1948; Board of Editors, 1946; Electronics, 1936–41; Executive, 1947; Fiscal, 1947–48; National Convention, 1947; Nuclear Studies, 1948–49; Office Practices, 1947; Papers, 1942–45; Special Publication Fund, 1947; Tellers, 1940. **IRE Representative:** ASA Board of Directors, 1945–51; RMA-IRE Coordinating Committee, 1948.

LAFFERTY, James (M'46—SM'48—F'54), Manager, Physical Studies Section, General Electric Research Laboratory, The Knolls, Schenectady, N.Y.
Born: April 27, 1916, Battle Creek, Mich. B.S.(Engr. Physics), 1939, M.S.(Physics), 1940, Ph.D.(E.E.), 1946, University of Michigan.

LaGRONE, Alfred H. (M'38—SM'51—F'61), Professor, Electrical Engineering and Radio Engineer, The University of Texas, Taylor Hall, Austin 12, Tex.
Born: September 25, 1912, De Berry, Tex. B.S.(E.E.), 1938, M.S.(E.E.), 1948, Ph.D., 1954, The University of Texas. **Sections,** San Antonio, *secretary-treasurer, 1950, vice-chairman, 1951, chairman, 1952;* Southwest IRE Electronics Conference, *1st vice-chairman, 1953.* **Awards:** Scott Helt Memorial Award, PGB, 1959.

LAKATOS, Emory (A'28—VA'39—SM'48—F'61), Senior Staff Engineer, Aerospace Corporation, P.O. Box 95085, Los Angeles 45, Calif.
Born: August, 1905, Losonez, Hungary. M.E., 1926, Stevens Institute of Technology; LL.B., 1939, New York Law School. **Professional Groups:** Electronic Computers, 1948–53. **Awards:** Prize Essayist, Edison Lighting Institute, 1927; Certificate of Service, Office of Scientific Research and Development, 1945.

LAMB, James J. (A'28—SM'48—F'54), Member of Staff, Intellectronics Laboratories, Ramo Wooldridge, Division of Thompson Ramo Wooldridge Inc., P.O. Box 997, Sierra Vista, Ariz.
Born: November 30, 1900, Michigan, N.D. B.S.(E.E.), 1922, Catholic University of America. **Committees:** Fellow, 1960–61; Functional Symbols, 1958–59; High Frequency Receivers, 1929–30; Nomenclature, Symbols and Definitions, 1929–30; Papers Review 1948–53; Radio Transmitters and Antennas, 1929–30; Symbols, 1929–30. **Professional Groups:** Administrative Committee, Industrial Electronics, 1959–61. **Sections:** Connecticut, Awards Committee, *chairman, 1954–59;* Ft. Huachuca Awards Committee, *chairman, 1960–61.* **Awards:** O.S.R.D. Certificate, 1945; Fellow, Radio Club of America, 1958; Merit Award, A.R.R.L., 1959.

LAMSON, Horatio W. (A'15—M'27—F'33)(L), Retired as Engineer, General Radio Company, 22 Baker Ave., West Concord, Mass.; Faculty Member, Northeastern University, Boston, Mass. Residence: 72 Oakland Ave., Arlington, Mass.
Born: January 2, 1893, Somerville, Mass., S.B., 1915, Massachusetts Institute of Technology; A.M., 1917, Harvard University. **Sections:** Boston, *chairman, 1937–39.*

LANDON, Vernon D. (A'27—M'29—SM'43—F'51), Manager, Technical Advisory Staff, RCA Astro Electronic Products, Princeton, N.J.
Born: May, 1901, Denver, Colo. Attended Detroit Junior College, 1920. **Committees:** Frequency Modulation, 1941–47; Information Theory and Modulation Systems, 1952–56; Modulation Systems, 1947–52; Papers Review, 1947–52.

LANGLEY, Ralph H. (A'12—M'16—F'29)(L), Retired. 18 Prescott Ave., Bronxville, N.Y.
Born: January 5, 1889, New York, N.Y. E.E., 1913, Columbia University, Assistant Secretary, 1913. **Committees:** Admissions, 1945; Awards, 1934; Bibliography, 1930–32; New York Program, 1934; Radio Receivers and Parts, 1930–31; Radio Telegraph and Receiver Terminology, *chairman, 1924–25;* Registration of Engineers, 1940–41; Sections, 1930–33, 1935; Standardization, 1924–28; Standards, 1934–35; Wave Length Regulation, 1916–17. **Sections:** Cincinnati, *chairman, 1929–30.*

LAPORT, Edmund A. (A'25—M'27—SM'43—F'53), Director of Communications Engineering, Radio Corporation of America, Princeton, N.J.
Born: July 2, 1902, Nashua, N.H. **Committees:** Annual Review, 1946–47; Policy Development, 1948; Radio Transmitters, 1946–48, *chairman, 1947–48;* Standards, 1946–56. **Sections:** Montreal, *chairman, 1940–43;* Northern New Jersey, *vice-chairman, 1955–56.* **IRE Representative:** ASA Electrical Standards Committee, 1948–52; U. S. National Committee of the International Electrotechnical Commission, 1949–51.

LAW, Harold B. (SM'46—F'52), Fellow of the Technical Staff, RCA Laboratories Division, Princeton, N.J.
Born: September 7, 1911, Douds, Iowa. B.S., 1934, Kent State University; M.S., 1936, Ph.D., 1941, Ohio State University. **Committees:** Editorial Reviewer, 1954–60. **Awards:** Television Broadcasters Association Award, 1946; IRE Vladimir K. Zworykin Television Prize, 1955; David Sarnoff Outstanding Team Award in Science, Co-receiver, 1961.

LAW, Russell R. (A'34—M'40—SM'43—F'53), Associate Director, Hughes Research Laboratories; Manager, Electronics Laboratory, Hughes Aircraft Company, Malibu, Calif.
Born: January 11, 1907, Hampton, Iowa. B.S., 1929, M.S., 1931, Iowa State College; D.S., 1933, Harvard Engineering School. **Committees:** Editorial Reviewer, 1954–61; National Convention, 1956; Solid State Devices, *vice-chairman, 1956–57.* **Professional Groups:** Electron Devices, *vice-chairman, 1956, chairman, 1957; Transactions* on Electron Devices, *associate editor, 1959–61.*

LEARNED, Vincent R. (A'38—M'40—SM'47—F'55), Director of Research and Development, Electronic Tube Division, Sperry Gyroscope Company, Great Neck, L.I., N.Y.
Born: January 21, 1917, San José, Calif. B.S.(E.E.), 1938, University of California; Ph.D., 1943, Stanford University. **Committees:** Editorial Reviewer, 1955–61; Electron Tubes, 1959–61. National Convention, 1954; Tellers, 1952–53, *chairman, 1953.* **Sections:** Long Island, *chairman, 1953;* Awards Committee, 1955–56, 1960, *chairman, 1956–57.*

LEDERER, Ernest A. (M'28—SM'43—F'55), Consulting Engineer, Fells Rd., Essex Fells, N.J.
Born: January 25, 1895, Prague, Austria. Ph.D., 1920, University of Vienna. **Awards:** Modern Pioneer Award, N.M.A., 1940.

LEE, Low K. (S'39—A'41—M'48—SM'51—F'59), Assistant to the Director, Electronics Division, Space Technology Laboratories, Inc., P.O. Box 95001, Los Angeles 45, Calif.
Born: February 12, 1916, Oakland, Calif. B.S., 1937, M.S., 1939, University of California. **Professional Groups:** Automatic Control Administrative Committee, 1954–55; Component Parts Administrative Committee, 1953–60, *vice-chairman, 1956–57.* **Sections:** Los Angeles, Awards Committee, *vice-chairman, 1960–61.*

LEE, Reuben (A'32—SM'45—F'54), Consulting Engineer, Electronics Division, Westinghouse Electric Corporation, P.O. Box 1897, Baltimore 3, Md.
Born: November, 1902, Shirland, Derbyshire, England. B.S.(E.E.), 1924, West Virginia University. **Sections:** Baltimore, Awards Committee, 1959, *chairman, 1960–61.*

LEE, Y. W. (SM'55—F'61), Professor, Electrical Engineering, Massachusetts Institute of Technology, Cambridge 39, Mass.
Born: April, 1904, Macau, China. S.B., 1927, S.M., 1928, Sc.D., 1930, Massachusetts Institute of Technology. **Committees:** Editorial Reviewer, 1959–60.

LEEDS, Laurance M. (A'30—M'40—SM'43—F'57), Consulting Engineer, Advance Engineering, Heavy Military Electronics Department, General Electric Company, Syracuse, N.Y.
Born: October, 1906, Tulsa, Okla. B.S.(E.E.), 1934, Rutgers University. **Committees:** Television, 1940–47.

LEEDY, Haldon A. (SM'46—F'61), Executive Vice President and Director, Armour Research Foundation of Illinois Institute of Technology, 10 W. 35 St., Chicago 16, Ill.
Born: April 15, 1910, Fremont, Ohio. B.A., 1933, North Central College; M.A., 1935, Ph.D., 1938, University of Illinois. **Awards:** Fellow, Acoustical Society of America.

LEHDE, Pendleton E. (A'14—F'27)(L), President, Pendleton Terminal Corporation, 1050 Constance St., New Orleans, La.; President, Sunshine Building, Inc.
Born: October 2, 1892, New Orleans, La. B.E., 1914, M.E.E., 1926, Tulane University. **Committees:** Membership, 1927–29. **Sections:** New Orleans, *chairman, 1928–33.*

LEHOVEC, Kurt (SM'52—F'56), Research Associate in Solid State Science, Sprague Electric Company, Marshall St., North Adams, Mass.
Born: June 12, 1918, Ladowitz, Czechoslovakia. Ph.D., 1940, Prague University. **Awards:** Fellow, American Physical Society, 1954.

LEIFER, Meyer (A'46—M'48—SM'50—F'55), Chief Engineer, Ampex Instrumentation Products Company, Ampex Corporation, 860 Charter St., Redwood City, Calif.
Born: April 18, 1914, New York, N.Y. B.S., 1933, Brooklyn College; M.A., 1935, Columbia University. **Committees:** Papers Review, 1951–53. **Sections:** San Francisco, *treasurer, 1955–56, vice-chairman, 1956–57, chairman, 1957–58.*

LENZNER, Emil (SM'55—F'61), Major General, U. S. Army, Retired. Director, Engineering Services, College of Engineering, University of Arizona, Tucson, Ariz.
Born: June, 1899, Felytz, Germany. B.S., 1924, U. S. Military Academy; M.S., 1930, Yale University. **Sections:** Washington, D.C., 1929–54; Ft. Huachuca, 1955–.

LePAGE, Wilbur R. (SM'46—F'59), Chairman, Electrical Engineering Department, Syracuse University, Syracuse 10, N.Y.
Born: November, 1911, Kearny, N.J. E.E., 1933, Cornell University; M.S., 1939, University of Rochester; Ph.D., 1941, Cornell University. **Committees:** Editorial Reviewer, 1954–60. **Professional Groups:** Education *Transactions, editor, 1959–61.*

LEVERENZ, Humboldt W. (SM'54—F'56), Director of Research, RCA Laboratories, Princeton, N.J.
Born: July 9, 1909, Chicago, Ill. B.A.(Chemistry), 1930, Stanford University. **Awards:** Frank P. Brown Medal, Franklin Institute, 1954.

LEWIS, George (A'12—M'15—SM'43—F'51)(L), Retired as Assistant Vice President, International Telephone and Telegraph Corporation, 67 Broad St., New York, N.Y.
Born: September 15, 1887, Media, Pa. M.E.1, 1911, Bliss School of Applied Science. **IRE Offices:** Manager, 1918–19, 1923, 1926; Director, 1935. **Committees:** Admissions, 1929–30, 1942; Awards, 1935; Electronics, 1936–40; Facsimile, 1939–42; New York Program, 1935–36, *chairman, 1935;* Public Relations, 1947–48; Standardization, 1916–17, 1919–20, 1925–26, 1928–31; Symbols, 1940–41; Television, 1939–42; Vacuum Tubes, 1929–30.

LEWIS, Willard D. (A'44—SM'52—F'54), Director of Research, Communications Systems, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: January 6, 1915, Augusta, Ga. A.B.(Physics), 1935, Harvard University; B.A.(Math.), 1938, Oxford University; Ph.D. (Theoretical Physics), 1941, Harvard University. **Committees:** Editorial Reviewer, 1955–60. **Awards:** Rhodes Scholarship, 1935; Naval Ordnance Development Award, U. S. Navy, 1946.

LIBBY, Tyng M. (A'14—M'16—SM'43—F'55), Transmission Engineer, Alaska Communication System, 1322 Woodbine Way, Seattle 77, Wash.
Born: August 9, 1889, Kingman, Kan. **Sections:** Seattle, *secretary-treasurer, 1917, chairman, 1927.* **Awards:** Bailey Medal, U. S. Navy, 1907.

LIDDEL, Urner (SM'49—F'55), Assistant Director for General Research, Advanced Research Projects Agency, The Pentagon, Washington 25, D.C.
Born: September 3, 1905, Butler, Mo. B.A., 1926, Central College; Ph.D., 1941, George Washington University. **Committees:** Awards, 1956–59, *chairman, 1959;* Nuclear Studies, 1948–49. **Professional Groups:** Medical Electronics, *vice-chairman, 1957–58, chairman, 1958–59;* Nuclear Science, *vice-chairman, 1950–51, secretary, 1953–54.* **IRE Representative:** ASME Glossary Review Board (Nuclear Physics), *alternate, 1952;* International Conference on Medical Electronics, 1959.

LINDENBLAD, Nils E. (M'34—SM'43—F'48), Fellow, Technical Staff, RCA Laboratories, Princeton, N.J.
Born: October 30, 1895, Norrkoping, Sweden. M.E., 1915, Norrkoping Polytechnic Institute; E.E., 1919, Royal Institute of Technology, Stockholm. **Committees:** Antenna Subcommittee, 1940–41. **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940; RCA Laboratories Award for Pioneering in Slot Antennas, 1947; War Department Citation for Patriotic Service in Position of Trust and Responsibility, 1947; RCA Laboratories Awards for Development of Thermoelectric Refrigerator, 1955; Advances in Electronic Cooling, 1956; Fellow, Technical Staff RCA Laboratories, 1959; David Sarnoff Outstanding Achievement Award in Science, 1959.

LINDER, Ernest G. (A'40—SM'49—F'55), Administrator, Research, RCA Laboratories, Radio Corporation of America, Princeton, N.J.
Born: May 16, 1902, Waltham, Mass. B.A., 1925, M.S., 1927, University of Iowa; Ph.D., 1931, Cornell University. **Awards:** Fellow, American Physical Society.

LINDSAY, William W., Jr. (A'24—M'26—F'39), Operations Research Senior Scientist, Operations Research Division, Lockheed Aircraft Corporation, Burbank, Calif.; Consulting Engineer, 2108 La Canada Crest Dr., La Canada, Calif.
Born: November 16, 1899, Overbrook, Pa. Privately educated, equivalent "Doktor Ingenieur" degree. **Committees:** Nominations, 1942; Transmitters, 1946–47. **Sections:** Los Angeles, *secretary-treasurer, 1928–30, chairman, 1940–41.*

LINVILL, John G. (A'49—M'55—F'60), Professor, Electrical Engineering, Stanford University, Stanford Electronics Laboratories, Stanford, Calif.
Born: August 8, 1919, Kansas City, Mo., A.B., 1941, William Jewell College; S.B., 1943, S.M., 1945, Sc.D., 1949, Massachusetts Institute of Technology. **Committees:** Circuits, 1949–56; Editorial Reviewer, 1954–60; Fellow, 1960; Solid State Circuits, 1953–60. **Professional Groups:** Circuit Theory Administrative Committee, 1954–60. **IRE Representative:** Stanford University, 1955–57.

LITTLE, Donald G. (A'20—M'27—F'29)(L), Retired. 408 Old Orchard Rd., Baltimore 29, Md.
Born: May 17, 1893, Kalamazoo, Mich. B.S.(E.E.), 1917, University of Michigan. **Committees:** Board of Editors, 1944–53; Meetings and Papers, 1928–29; Radio Transmitters and Antennas, 1929–30; Standardization, 1931–32; Standards, 1932–33; Transmitters and Antennas, 1936–39. **Sections:** Baltimore, *chairman, 1951.* **Awards:** Fellow, American Institute of Electrical Engineers.

LITTON, Charles V. (A'25—SM'44—F'47), President, Litton Engineering Laboratories, P.O. Box 949, Grass Valley, Calif.
Born: March 13, 1904, San Francisco, Calif. A.B., 1924, E.E., 1925, Stanford University. **Committees:** Editorial Reviewer, 1954; Papers, 1945; Papers Review, 1946–53. **Sections:** San Francisco, *chairman, 1932–33.*

LLEWELLYN, Frederick B. (A'23—F'38), Assistant to President, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: September 16, 1897, New Orleans, La. M.E., 1922, Stevens Institute of Technology; Ph.D., 1928, Columbia University. **IRE Offices:** President, 1946; Director, 1939–48. **Committees:** Administrative Committee of the Board of Editors, 1951–53; Awards, 1942, 1947–48, *chairman, 1947;* Awards Coordination, 1956–58; Board of Editors, 1949–53; Constitution and Laws, 1947, 1950; Editorial Administrative, 1946–53; Editorial Reviewer, 1954–60; Electronics, 1939–44; Executive, 1942–44, 1946, *chairman, 1946;* Finance, 1948–51; Fiscal, 1947–48; Investment, 1946; Membership, 1941, 1949–50; Membership Solicitation Policy, 1945; Nominations, 1944, 1947–48; Office Quarters, 1947; Papers, 1932–46, *vice-chairman, 1940–42, chairman, 1943–46;* Policy Advisory, 1952–53; Policy Development, 1949–51, *chairman, 1951;* Professional Groups, 1948; Public Relations, 1950; Symbols, 1940–41. **Special Committees:** IRE-IEE International Liaison, 1947, 1949, 1955–60. **IRE Representative:** ASA Electrical Standards Committee, 1948–55; National Research Council, Division of Engineering and Industrial Research, 1948–57; United States National Committee of the International Electrotechnical Commissions, 1949–54. **Awards:** IRE Morris Liebmann Memorial Prize, 1935.

LODGE, William B. (A'34—M'37—SM'43—F'49), Vice President, Affiliate Relations and Engineering, CBS Television Network, 485 Madison Ave., New York 22, N.Y.
Born: August 17, 1907, Whitemarsh, Pa. B.S., 1930, M.S., 1931, Massachusetts Institute of Technology. **Committees:** Annual Review, 1946–49; Antennas, 1944–45; Awards, 1946; Transmitters, 1944–45; Transmitters and Antennas, 1940–41; Winter Technical Meeting, 1946.

LOOMIS, Alfred L. (M'28—SM'43—F'44), President, Loomis Institute for Scientific Research, 14 Wall St., New York, N.Y.
Born: November 4, 1887, New York, N.Y. A.B., 1909, Yale University; LL.B., 1912, Harvard University; D.Sc., 1932, Wesleyan University; M.Sc., 1933, Yale University; LL.D., 1941, University of California. **Awards:** John Price Wetherill Medal, Franklin Institute, 1934.

LOUGHLIN, Bernard D. (A'40—M'45—SM'53—F'55), Electronic Research Consultant, Little Neck Rd., R.D. 5, Huntington, L.I., N.Y.
Born: May 19, 1917, New York, N.Y. B.E.E., 1939, E.E., 1945, Cooper Union Institute of Technology; M.S.(E.E.), 1946, Stevens Institute of Technology. **Committees:** Modulation Systems, 1947–49; Papers Review, 1948–50; Radio Receivers, 1948–51. **Awards:** IRE Vladimir K. Zworykin Television Prize, 1952; SMPTE David Sarnoff Gold Medal Award, 1955; PGBTR, 1957.

LOUGHREN, Arthur V. (A'24—M'29—SM'43—F'44), Vice President, Advance Planning, Airborne Instrument Laboratory, Division of Cutler-Hammer, Inc., Comac Rd., Deer Park, L.I., N.Y.
Born: September 15, 1902, Rensselaer, N.Y. B.A., 1923, E.E., 1925, Columbia University. **IRE Offices:** President, 1956; Director, 1952–55, 1957–58. **Committees:** Admissions, 1931–33, Ex officio, 1957; Appointments, 1956–57, *chairman, 1957;* Awards, 1949–55; Awards Coordination, 1955–57, *chairman, 1957;* Constitution and Laws, 1960; Editorial Board, 1957; Editorial Reviewer, 1954; Executive, 1955–57, *chairman, 1956;* Finance, 1953, 1955–57; Membership, 1934; Nominations, 1957, *chairman, 1958;*

Papers Procurement, 1947–50; Policy Advisory, 1953–54, *chairman, 1954, 1958–59;* Professional Groups, 1957; Radio Receivers, 1927–28; Standards, 1947–48; Television, 1940–46; Vacuum Tubes, 1927–28. **IRE Representative:** Joint Technical Advisory Committee, 1951–52, *chairman, 1953–55.* **Awards:** Fellow, Society of Motion Picture and Television Engineers; Fellow, American Institute of Electrical Engineers; U. S. Navy Certificate of Commendation, 1947; SMPTE David Sarnoff Gold Medal Award, 1953; IRE Morris Liebmann Memorial Prize, 1955.

LUBCKE, Harry R. (A'26—M'32—SM'43—F'51), Registered Patent Agent and Consulting Engineer, 2443 Creston Way, Hollywood 28, Calif.
Born: August 25, 1905, Alameda, Calif. B.S., 1929, University of California. **Committees:** Building Fund, 1945; Papers Review, 1946–47. **Awards:** "Best Branch Paper" Award, Institute of Electrical Engineers, 1930; Academy of Television Arts and Sciences Award, 1951; Certificate of Commendation, U. S. Navy, World War II; Certificate, War Department (U. S. Army), World War II; Fellow, American Association for the Advancement of Science, 1958.

LUBKIN, Samuel (SM'46—F'61), Staff Consultant, Republic Aviation Corporation, 223 Jericho Turnpike, Mineola, L.I., N.Y.
Born: May, 1906, Gomel, Russia. B.S.(E.E.), 1927, Cooper Union; M.S., 1928, University of Chicago; Ph.D., 1939, New York University; E.E., 1944, Cooper Union. **Professional Groups:** Electronic Computers Administrative Committee, 1960–63. **Sections:** New York Chapter, Electronic Computers, *chairman, 1960.*

LUCK, David G. C. (M'46—SM'50—F'51), Technical Staff, Advanced Military Systems, Radio Corporation of America, Princeton, N.J.
Born: July, 1906, Whittier, Calif. B.S., 1927, Ph.D., 1932, Massachusetts Institute of Technology. **Awards:** Ballantine Medal, Franklin Institute, 1953; Pioneer Award, PGANE, 1953.

LUSTED, Lee B. (A'45—SM'53—F'59), Associate Professor of Radiology and Associate Professor of Biomedical Engineering, University of Rochester School of Medicine, 260 Crittenden Blvd., Rochester 20, N.Y.; Chairman, National Institutes of Health, Advisory Committee on Computers in Research, 1960–; Member, NAS-NRC Committee on Use of Computers in the Life Sciences, 1960–.
Born: May 22, 1922, Mason City, Iowa. B.A., 1943, Cornell College; M.D., 1950, Harvard Medical School. **Professional Groups:** Medical Electronics Administrative Committee, 1954–59, *vice-chairman, 1955–57, chairman, 1957–59; Editor,* IRE *Transactions* on Biomedical Electronics, 1959–. **Awards:** Fellow, American Cancer Society, 1952; Fellow, American Academy of Arts & Sciences, 1959; Fellow, New York Academy of Sciences, 1959.

LYNCH, William A. (A'44—SM'52—F'60), Professor, Electrical Engineering, Polytechnic Institute of Brooklyn, 333 Jay St., Brooklyn 1, N.Y.
Born: July, 1904, Brooklyn, N.Y. M.E., 1925, M.E.E., 1948, Polytechnic Institute of Brooklyn. **Committees:** Audio-Video Techniques, 1948; Circuits, 1952–60, *vice-chairman, 1955, chairman, 1956–58;* Linear Active Circuits Including Networks with Feedback Servomechanism, 1952–60; Standards, 1956–58. **IRE Representative:** ASA Subcommittee (Y10.4) on Nomenclature Feedback Control System, 1951, 1953–59.

LYONS, Harold (SM'50—F'58), Vice President, Electro-Optical Systems, Inc.; Manager, Quantum Physics Division, 125 N. Vinedo, Pasadena, Calif.
Born: February 16, 1913, Buffalo, N.Y. B.A.(Physics), 1933, University of Buffalo; M.A.(Physics), 1935, Ph.D.(Physics), 1939, University of Michigan. **IRE Representative:** Joint AIEE-IRE Committee on High Frequency Measurements, *vice-chairman, 1950.* **Awards:** O.S.R.D.-N.D.R.C. Certificate of Effective Service, 1945; Arthur S. Fleming Government Award, 1949; First Prize, American Institute of Electrical Engineers Prize Paper-Competition, Washington, D.C., 1949; National Bureau of Standards Superior Accomplishment Award, 1949; U. S. Department of Commerce Gold Medal, 1949; Washington Academy of Sciences Award, 1952; University of Buffalo Citation, 1957; Certificate of Merit, Franklin Institute, 1958.

MACDONALD, J. Ross (S'44—A'48—SM'54—F'59), Director of Solid State Physics Research Department, Central Research Laboratories, Texas Instruments Incorporated, P.O. Box 5474, Dallas 22, Tex.
Born: February, 1923, Savannah, Ga. B.A.(Physics), 1944, Williams College; S.B.(E.E.), 1944, S.M.(E.E.), 1947, Massachusetts Institute of Technology; Ph.D.(Physics), 1950, Oxford University, England. **Committees:** Editorial Reviewer, 1954–61; Solid State Devices, 1956–58. **Professional Groups:** Electron Devices Committee, 1955–57; Administrative Committee, Audio, 1959–61; Audio Chapter's Committee, *chairman, 1958–60.* **Awards:** Fellow, American Physical Society, 1955; IRE Senior Paper Award, 1957; Fellow, American Association for the Advancement of Science, 1959.

MacDONALD, William A. (A'19—M'26—SM'43—F'53)(L), Chairman and Director, Hazeltine Corporation, Little Neck, L.I., N.Y.
Born: December, 1895, New York, N.Y. Attended University of Paris, 1918–19. **Committees:** Radio Receivers and Parts, 1930–31; Standardization, 1930–31. **Awards:** Certificate of Merit, U. S. Government, 1947; Corporate Member, Institution of Engineers, Australia.

MacKINNON, Keith Abbott (SM'46—F'49), Consulting Engineer, P.O. Box 3310, Ottawa, Ont., Canada.
Born: September, 1905, Kingston, Ont., Canada. B.Sc.(E.E.), 1926, B.Sc.(Physics), 1928, M.Sc.(Physics), 1929, Queens' University. **Committees:** Antennas, 1946–49. **Sections:** Ottawa, *chairman, 1947.*

MALOFF, Ioury G. (M'27—F'36), Engineering Consultant, 100 Coolidge Ave., Collingswood, N.J.
Born: June 3, 1899, Vladivostok, Russia. **Committees:** Bibliography, 1928; Papers Procurement, 1947–50; Receiving Sets, 1928; Standardization, 1928; Tellers, 1940.

MALTER, Louis (A'37—SM'45—F'52), Manager, Vacuum Products Division, Varian Associates, Palo Alto, Calif.
Born: April 28, 1907, New York, N.Y. B.S., 1926, College of the City of New York; M.A., 1931, Ph.D., 1936, Cornell University. **Committees:** Electron Tubes, 1947–48; Electron Tubes and Solid State Devices, 1949–50; Papers Review, 1947–49. **IRE Representative:** Semiconductor Devices Research Conference, 1956–57, *chairman, 1957;* Semiconductor Devices, 1957. **Awards:** Fellow, American Physical Society.

MANLEY, Jack M. (A'43—SM'49—F'60), Member, Technical Staff, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: March, 1909, Farmington, Mo. B.S.(E.E.), 1930, University of Missouri. **Committees:** Circuits, Subcommittee 4.7, 1950–61.

MANSON, Ray H. (M'23—F'50)(L), Retired. Five Elmwood Hill Lane, Rochester 10, N.Y.
Born: August 25, 1877, Bath, Me. B.S.(E.E.), 1898, E.E., 1901, D.Eng., 1933, University of Maine. **IRE Offices:** President, 1931; Director, 1931–33; Manager, 1927–30. **Committees:** Awards, 1932, 1940; Bibliography, 1930; Electroacoustic Devices, 1930; Nominations, 1929–30, 1932, 1934, 1940, *chairman, 1932;* Public Relations, 1940, 1947–48; Regular Papers, 1941; Standardization, 1926–31; Television and Facsimile, 1936–39; Tellers, 1932–33. **IRE Representative:** ASA Electrical Standards Committee, 1936–39.

MARCUVITZ, Nathan (S'36—A'37—VA'39—M'55—SM'57—F'58), Professor, Polytechnic Institute of Brooklyn; Vice President for Research, Polytechnic Institute of Brooklyn, 333 Jay St., Brooklyn 1, N.Y.

Born: December 29, 1913, Brooklyn, N.Y. D.E.E., 1947, Polytechnic Institute of Brooklyn. **Committees:** Editorial Reviewer, 1954–60.

MARKS, William S., Jr. (A'44—SM'44—F'52), Consultant, Zenith Radio Corporation, 6001 Dickens Ave., Chicago 39, Ill.
Born: March 18, 1900, Nashville, Tenn. B.S.(E.E.), 1929, Louisiana State University. **Sections:** Fort Huachuca, Ariz., Awards Committee, *chairman, 1957–58;* Central Florida, Awards Committee, *chairman, 1959;* Orlando, Awards Committee, *chairman.* **Awards:** Legion of Merit; Army Commendation Medal with Oak Leaf Cluster; Commendation for Meritorious Civilian Service, U. S. Army; Certificate of Achievement, Chief Signal Officer, U. S. Army.

MARRISON, Warren A. (M'28—SM'43—F'58), Member, Technical Staff, Space Technology Laboratories, Inc., 5500 W. El Segundo Blvd., Los Angeles 45, Calif.
Born: May, 1896, Inverary, Ont., Canada. B.Sc., 1920, Queens' University; M.A., 1921, Harvard University; D.Sc., (Honorary), 1953, Queens' University; **Awards:** Gold Medal of the British Horological Institute, 1947; The Tompion Gold Medal, The Worshipful Company of Clockmakers of The City of London, 1955.

MARSHALL, Charles J. (J'31—A'33—SM'45—F'55), Staff Engineer, Directorate of Systems Engineering, Wright Air Development Division, Wright-Patterson Air Force Base, Ohio.
Born: March 27, 1912, San Antonio, Tex. B.S.(E.E.), 1939, E.E., 1946, University of Cincinnati. **IRE Offices:** Director, 1954–55. **Committees:** Nominations, 1955; Professional Groups, 1957. **Sections:** Dayton, *secretary, 1948–50, vice-chairman, 1949–50, chairman, 1950–51;* National Conference on Aeronautical Electronics, *secretary, 1948–50, president, 1950–51, director, 1955–57.*

MARSTEN, Jesse (J'17—A'18—M'25—SM'43—F'57), Director and Consultant, International Resistance Company, 401 N. Broad St., Philadelphia, Pa.
Born: January 1, 1897, Budapest, Hungary. B.S., 1917, College of the City of New York. **Committees:** Paper Procurement, 1945–46.

MARTIN, Daniel W. (M'50—SM'54—F'57), Research Director, The Baldwin Piano Company, 1801 Gilbert Ave., Cincinnati 2, Ohio.
Born: November, 1918, Georgetown, Ky. A.B., 1937, Georgetown College; M.S., 1939, Ph.D., 1941, University of Illinois. **Committees:** Editorial, 1951–61. **Professional Groups:** *Transactions on* Audio, *editor, 1953–55;* Audio Awards Committee, *chairman, 1955;* Audio Administrative Committee, 1954–57; Audio, *chairman, 1956–57.* **Sections:** Cincinnati, *secretary, 1952–53, vice-chairman, 1954–55, chairman, 1955–56.* **IRE Representative:** ASA Sectional Committee (S1) on Acoustics, 1958–61. **Awards:** Fellow, Acoustical Society of America; PGA Senior Award, 1958; PGA Achievement Award, 1959.

MASON, Samuel J. (A'42—SM'52—F'59), Professor of Electrical Engineering, Department of Electrical Engineering, Massachusetts Institute of Technology, Cambridge 39, Mass.
Born: June 16, 1921, New York, N.Y. B.Sc., 1942, Rutgers University; S.M., 1947, Sc.D., 1952, Massachusetts Institute of Technology. **Committees:** Circuits, *vice-chairman, 1953–60, chairman, 1960–61.* Editorial Reviewer, 1954.

MASON, Warren P. (A'36—VA'39—F'41), Head, Mechanics Research, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: September 28, 1900, Colorado Springs, Colo. B.S.(E.E.), 1921, University of Kansas; M.A., 1924, Ph.D., 1928, Columbia University. **Committees:** Editorial Reviewer, 1954–60; Papers Procurement, 1947–50; Papers Review, 1947–53; Piezoelectric and Ferroelectric Crystals, 1940–60, *vice-chairman, 1951–52, chairman, 1953–55;* Standards, 1953–55.

MASSA, Frank (A'30—M'55—F'59), President, Massa Division of Cohu Electronics, Inc., 280 Lincoln St., Hingham, Mass.
Born: April 10, 1906, Boston, Mass. B.S.(E.E.), 1927, Swope Fellow, 1927–28, M.Sc., 1928, Massachusetts Institute of Technology. **Committees:** Awards, 1958; Handbook, 1945–58; Nominating, *chairman, 1955–56, 1957–59.* **Professional Groups:** Ultrasonics Engineering Administrative Committee, 1954–55. **Awards:** Fellow, Acoustical Society of America.

MATHES, Richard E. (J'22—A'24—SM'46—F'57), The Martin Company, Orlando, Fla.
Born: April, 1902, Minneapolis, Minn. B.S.(E.E.), 1924, University of Minnesota. **Committees:** Admissions, 1950–51; Facsimile, 1940–43, 1947–49; Papers Review, 1947–53.

MATHIEU, Gaston A. (F'58), Consultant, Industrial and Communication, 71 Grindelhof, Hamburg, Germany.
Born: July 1, 1889, Namur, Belgium. **Awards:** Chevalier de l'Ordre Leopold, Belgium; Commandateur de l'Ordre de St. Sylvestre, Vatican; Ufficiale della Corona d'Italia, Italy.

MAUCHLY, John W. (A'42—M'56—F'57), President, Mauchly Associates, Inc., 50 E. Butler Ave., Ambler, Pa.
Born: August 30, 1907, Cincinnati, Ohio. Ph.D.(Physics), 1932, The Johns Hopkins University. **Awards:** John H. Potts Medal, Franklin Insttiute, 1949.

MAXWELL, Donald E. (SM'46—F'61), Engineer, Heavy Military Electronics Department, General Electric Company, 3711 Erie Blvd., East, Syracuse 14, N.Y.
Born: April 18, 1913, Lynn, Mass. B.S.(E.E.), Tufts University; M.S., 1939, Harvard University. **Committees:** Audio Techniques, 1948–57, *vice-chairman, 1952–54, chairman, 1954–55;* Recording and Reproducing, 1956–59, *chairman, 1956–58;* Standards, 1954–61; Video Techniques, 1949–50. **Sections:** Syracuse Chapter, Audio, *chairman, 1955–56;* Syracuse Section, *vice-chairman, 1956–57, chairman, 1959–60;* Meetings & Papers, *chairman, 1958–59;* Executive Committee, 1958–61.

MAYER, Harry F. (A'36—SM'47—F'56), Manager, Advanced Electronics Center, General Electric Company, Tompkins County Airport, Ithaca, N.Y.
Born: January 19, 1912, Indianapolis, Ind. B.S.(E.E.), 1932, M.S.(E.E.), 1933, Purdue University. **Committees:** Papers Review, 1946–51. **Sections:** Rome-Utica, *vice-chairman, 1954–55, chairman, 1955–56.* **Awards:** Certificate of Commendation, U. S. Navy, 1947.

McARTHUR, Elmer D. (M'42—SM'43—F'45), Manager, Superpower Microwave Tube Laboratory, General Electric Company, P.O. Box 1088, Schenectady, N.Y.
Born: May 3, 1903, Salamanca, N.Y. B.S.(E.E.), 1925, M.S. (Physics), 1948, Union College. **Committees:** Awards, 1960; Board of Editors, 1945–53; Editorial Reviewer, 1954–60; Fellow, 1958–60. **Awards:** U. S. Navy Certificate of Commendation, 1947; National Electronics Conference Annual Papers Award, 1954.

McCANN, Gilbert D. (SM'55—F'61), Professor, Electrical Engineering, California Institute of Technology, 1201 E. California, Pasadena, Calif.
Born: January 12, 1912, Glendale, Calif. B.S., 1934, M.S., 1935, Ph.D., 1939, California Institute of Technology. **Committees:** Electronic Computers, 1948–51. **Professional Groups:** Electronic Computers, 1949–50. **Sections:** Los Angeles, 1946–. **IRE Representative:** California Institute of Technology, 1946–. **Awards:** "Outstanding Young Electrical Engineer," Eta Kappa Nu, 1942; National Best Paper Award, American Institute of Electrical Engineers, 1943–46; Fellow, American Electrical Institute of Electrical Engineers.

McCOY, Rawley D. (A'40—M'55—SM'57—F'59), Vice President, Engineering, Reeves Instrument Corporation, Roosevelt Field, Garden City, L.I., N.Y.
Born: December 21, 1914, Nutley, N.J. B.M.E., 1937, Stevens Institute of Technology.

McCULLOUGH, Jack A. (A'39—SM'52—F'53), Chairman of the Board, Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif.
Born: November 25, 1907, San Francisco, Calif. **Awards:** Civilian Distinguished Service Medal, U. S. Navy, 1950.

McCUTCHEN, Brunson S. (A'21—M'26—F'32)(L), 89 Olden Lane, Princeton, N.J.; Owner of Princeton Machine and Development Company.
Born: November 20, 1892, North Plainfield, N.J. Lit.B., 1915, E.E., 1917, Princeton University.

McELRATH, George (M'29—SM'43—F'56), Manager, Engineering Planning and Product Control, TelePrompter Corporation, 311 W. 43 St., New York, N.Y.
Born: January 23, 1899, Marlboro, N.Y. **Committees:** National Convention, 1947–48.

McELROY, Paul K. (A'25—M'27—F'31, Engineering Consultant, General Radio Comany, Baker Ave., West Concord, Mass.
Born: August 7, 1899, Toledo, Ohio. A.B., 1920, A.M., 1921, Harvard University. **Committees:** Membership, 1940; Professional Groups, 1960. **Professional Groups:** Reliability and Quality Control Administrative Committee, 1951–61, *vice-chairman, 1955–58, chairman, 1958–61; Editor of Transactions, 1952–58;* Component Parts Administrative Committee, 1957–61. **Sections:** Boston, *secretary, 1939–41.* **IRE Representative:** ASA Sectional Committee (C83) on Components for Electric Equipment, 1954–61.

McFARLAN, Ronald L. (SM'51—F'61), Consultant, 20 Circuit Rd., Chestnut Hill 67, Norfolk, Mass.
Born: March, 1905, Cincinnati, Ohio. A.B., 1926, University of Cincinnati; Ph.D., 1930, University of Chicago. **IRE Offices:** President, 1960; Board of Directors, 1957–61, Chairman, 1960; Executive Committee, 1958–61, *chairman, 1960.* **Committees:** Awards, 1961; Finance, 1959–60; Membership Relations Coordinator, 1958–59; Nominations and Appointments, 1958, 1960; Policy Advisory, 1959, *chairman, 1961;* Professional Groups, 1958–61; Professional Groups Coordinator, 1961. **Professional Groups:** Education, *chairman, 1958–59.*

McFARLANE, Maynard D. (A'26—M'42—SM'43—F'56)(L), Research Scientist, Robertshaw-Fulton Controls Company, Santa Ana Freeway & Euclid Ave., Anaheim, Calif.
Born: August 12, 1895, London, England. **Professional Groups:** Military Electronics National Administrative Committee, 1956–58. **Sections:** Los Angeles, Executive Committee, 1960–61. **Awards:** Fellow, American Institute of Electrical Engineers; Fellow, American Association for the Advancement of Science; Certificate of Appreciation, U. S. Armed Forces.

***McILWAIN, Knox (A'31—M'40—SM'43—F'48),** Manager, Great Valley Laboratory, Burroughs Research Center, Paoli, Pa.
Born: September 4, 1897, Philadelphia, Pa. B.S., 1918, Princeton University; B.S.(E.E.), 1921, E.E. 1930, University of Pennsylvania. **Committees:** Administrative Committee of the Board of Editors, 1951–53; Admissions, 1944–45; Board of Editors, 1946–53; Circuits, 1944–45; Editorial Administrative, 1949–53; Editorial Reviewer, 1954–60; Education, 1945; Electroacoustics, 1936–46; Electronics, 1936–39; Fellow, 1959–60; Handbooks, 1945–48; Papers, 1942–45; Standards, 1945–46. **Sections:** Philadelphia, *chairman, 1935–36.* **IRE Representative:** National Television Systems Committee, Panel 8, 1940–43.

McKINLEY, Donald W. R. (A'39—SM'46—F'48), Associate Director, Radio and Electrical Engineering Division, National Research Council, Ottawa, Ont., Canada.
Born: September 22, 1912, Shanghai, China. B.A., 1934, M.A., 1935, Ph.D., 1938, University of Toronto. **Committees:** Fellow, 1959–60. **Sections:** Ottawa-Ontario, *chairman, 1946–47.* **IRE Representative:** Canadian National Committee for URSI, *chairman, 1951–58.* **Awards:** Fellow, American Physical Society; Fellow, Royal Society of Canada; Order of the British Empire.

McLENNAN, Miles A. (M'45—SM'54—F'60), Chief, Medical Electronics Section, Aerospace Medical Laboratory, Wright Air Development Division, USAF, Wright-Patterson Air Force Base, Ohio.
Born: November 11, 1902, Bay City, Mich. B.S.(E.E.), 1928, University of Michigan. **Sections:** Dayton, *secretary, 1953–54, vice-chairman, 1954–55, chairman, 1955–56.* **Awards:** U. S. Air Force Meritorious Civilian Service Award, 1956.

McNALLY, James O. (J'24—A'26—SM'44—F'57), Consultant, Microwave Tube Division, Hughes Aircraft Co., 11105 S. La Cienega Ave., Los Angeles 45, Calif.
Born: July 1, 1903, Fredericton, N.B. Canada. B.S.(E.E.), 1924, University of New Brunswick.

MEACHAM, Larned A. (A'38—SM'45—F'48), Station Development Engineer, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: September, 1908, Denver, Colo. B.S.(E.E.), 1929, University of Washington; Certificate of Research, 1930, Cambridge University. **Committees:** Board of Editors, 1946–52; Information Theory and Modulation Systems, 1952–59; Modulation Systems, 1949–52. **Awards:** Outstanding Young Electrical Engineer, Eta Kappa Nu, 1939.

MERTZ, Pierre (SM'44—F'50), Consultant, 66 Leamington St., Lido, Long Beach, L.I., N.Y.
Born: April, 1897, Paris, France, A.B., 1918, Ph.D., 1926, Cornell University. **Committees:** Editorial Reviewer, 1954–58; Facsimilie, 1939–61, *vice-chairman, 1957–58, chairman, 1958–61;* Papers Procurement, 1945–50; Standards 1959–61; Television Picture Element, 1954–61. **Awards:** Army-Navy Certificate of Appreciation, Department of Defense, 1948; Army Certificate of Appreciation, Technical Industrial Intelligence Committee, Joint Chiefs-of-Staff, 1951; Fellow, Society of Motion Picture and Television Engineers.

METCALF, George F. (A'34—M'38—F'42), Regional Vice President, Washington Defense Activities, General Electric Company, 777 14 St., N.W., Washington 5, D.C.
Born: December 7, 1906, Milwaukee, Wis. B.S.(E.E.), 1928, Ph.D. (Eng.), 1956, Purdue University. **IRE Offices:** Associate Editor, 1926–28. **Committees:** Board of Editors 1946–53; Editorial Administrative, 1949–50; Electronics, 1936–42; Papers Review, *Chairman, 1949–53;* Professional Groups, 1953; Tellers, 1948–49, *chairman, 1949.*

MIDDLETON, David (S'42—A'44—M'45—SM'53—F'59), Consultant, 23 Park Lane, Concord, Mass.
Born: April 19, 1920, New York, N.Y. A.B., 1942, Harvard College; M.A., 1945, Ph.D., (Physics), 1947, Harvard University. **Awards:** Fellow, American Physical Society, 1950; National Electronic Conference Award, 1956; Fellow, American Association for the Advancement of Science, 1959.

MIEHER, Walter W. (A'40—M'44—SM'51—F'54), Manager, Electronic Countermeasures Division, Sperry Gyroscope Company, Great Neck, L.I., N.Y.
Born: October 30, 1916, St. Louis, Mo. B.S., 1938, Washington University. **Committees:** Antennas, 1947–49, *alternate, 1947;* Antennas and Waveguides, 1947–50; Awards, 1957–58. **Sections:** Long Island, *vice-chairman, 1952–53.*

MIESSNER, Benjamin F. (A'37—F'37), President, Miessner Inventions, Inc., 680 N.E. 105 St., Miami Shores, Fla.
Born: July 27, 1890, Huntingburg, Ind. Attended United States Naval Electrical School, 1908–09; Attended Purdue University, 1913–16.

MILLAR, Julian Z. (A'30—SM'45—F'56), Assistant Vice President, Research and Engineering Department, Western Union Telegraph Company, 60 Hudson St., New York 13, N.Y.

* Deceased.

Born: July 3, 1901, Mattoon, Ill. B.S.(E.E.), 1924, University of Illinois. **Committees:** Annual Review, *chairman, 1953–54;* IRE Convention Technical Program, *chairman, 1955;* Standards, 1953–54; Tellers, 1951–52, *chairman, 1952.* **Professional Groups:** Communications Systems, *chairman, 1954–55.*

MILLER, Burton F. (J'24—A'26—SM'44—F'56), Vice President, Advanced Technical Planning, Thompson Ramo Wooldridge Inc., 8433 Fallbrook Ave., Canoga Park, Calif.
Born: July, 1905, Milwaukee, Wis. B.S.(E.E.), 1926, M.S. (Physics), 1928, Ph.D. (Physics), 1929, University of Wisconsin. **Sections:** Los Angeles, Awards Committee, 1957–60, *chairman, 1959.* **Awards:** Two Technical Achievement Awards, Academy of Motion Picture Arts and Sciences, 1947.

MILLER, John H. (A'19—M'25—SM'43—F'50)(L), Retired. 205 Palmetto Lane, Harbor Bluffs, Largo, Fla.
Born: June 6, 1893, Oak Park, Ill. B.S.(E.E.), 1915, University of Illinois. **Committees:** Institute Sections, 1928; Sections, 1933–34, 1938–44, *chairman, 1940.* **Sections:** Chicago, *chairman, 1927–29, secretary, 1929–30.* **IRE Representative:** ASA Subcommittee (C42.6) on Electrical Instruments, 1948–51.

MILLER, John M. (A'17—F'20)(L), Retired. 2301 N.E. Second St., Apt. 6, Pompano Beach, Fla.
Born: June, 1882, Hanover, Pa. B.A., 1904, M.A., 1907, Ph.D., 1915, Yale University. **Awards:** Distinguished Civilian Service Award, United States Navy, 1945; IRE Medal of Honor, 1953.

MILLER, Stewart E. (M'46—SM'53—F'58), Director of Guided Wave Research, Bell Telephone Laboratories, Inc., P.O. Box 107, Red Bank, N.J.
Born: September 1, 1918, Milwaukee, Wis. B.S., 1941, M.Sc., 1941, Massachusetts Institute of Technology. **Committees:** Editorial Reviewer, 1954–60. **Awards:** U. S. Naval Ordnance Development Award, 1945.

MILLMAN, Jacob (A'41—SM'49—F'58), Professor of Electrical Engineering, Columbia University, 116 St. and Broadway, New York 27, N.Y.
Born: May 17, 1911, Russia. B.S., 1932, Ph.D., 1935, Massachusetts Institute of Technology. **Awards:** Fellow, American Physical Society, 1946.

MILLMAN, Sidney (A'48—SM'48—F'59), Director of Physical Research, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: March 15, 1908, Minsk, Russia. B.S., 1931, City College of New York; A.M., 1932, Ph.D., 1935, Columbia University.

MIMNO, Harry R. (A'31—VA'39—M'55—F'58), Gordon McKay Professor of Applied Physics, Cruft Laboratory, Harvard University, Cambridge 38, Mass.
Born: May 8, 1900, Chicago, Ill., E.E., 1921, Rensselaer Polytechnic Institute; A.M., 1926, Ph.D., 1932, Harvard University. **Committees:** Annual Review, 1949–50; Editorial Reviewer, 1954–60; Fellow, 1959–60, *chairman, 1960;* Navigation Aids, 1946–49, *vice-chairman, 1949–54, chairman, 1954–59;* Papers, 1939–45; Papers Review, 1946–53; Radio Wave Propagation, 1942–46; Standards, 1954–60, *vice-chairman, 1960–61;* Member-at-large, 1957–58; Definitions Coordinator, 1960–61; Wave Propagation, 1927–42, 1956. **Professional Groups:** *Editor, Transactions* on Aerospace & Navigational Electronics, 1959–61. **Awards:** Fellow, American Physical Society; Fellow, American Academy.

MINNIUM, Byron B. (A'25—SM'50—F'59), Vice President, Research and Engineering, Erie Resistor Corporation, 644 W. 12 St., Erie 6, Pa.
Born: November 11, 1896, Cairo, W.Va. E.E., 1922, University of Cincinnati. **Committees:** Membership, 1935; Sections, 1935. **Sections:** Chicago, *chairman, 1930–31;* Chicago Convention, *chairman, 1931.* **Awards:** U. S. Navy Certificate of Commendation, 1947.

MITCHELL, Doren (SM'46—F'60), Special Systems Engineer, Bell Telephone Laboratories, Inc., 463 West St., New York, N.Y.
Born: March 4, 1905, Columbus, Ohio. B.S., 1925, Princeton University.

MITTELMANN, Eugene (A'38—SM'44—F'57), Consulting Engineer, 549 W. Washington Ave., Chicago 6, Ill.
Born: May 29, 1903, Pressburg, Hungary. E.E., 1927, Vienna Institute of Technology; Ph.D., 1931, University of Vienna. **Committees:** Industrial Electronics, 1946–61, *vice-chairman, 1951–58, chairman, 1958–61;* Instrumentation and Control, *chairman, 1955–58;* Methods of Measurements, *chairman, 1951–57;* Standards, 1959–61. **Professional Groups:** Industrial Electronics Administrative Committee, 1950–59, *chairman, 1950–54.* **Awards:** Special Award, American Congress of Physical Therapy, 1940.

MOE, Robert E. (S'33—A'35—SM'46—F'55), Manager of Engineering, Receiving Tubes Department, Electronic Components Division, General Electric Company, Owensboro, Ky.
Born: April 2, 1912, Appleton, Wis. B.S.(E.E.), 1933, University of Wisconsin; Registered Professional Engineer in the States of New York and Kentucky. **Committees:** Papers Review, 1946–49. **Sections:** Connecticut Valley, *secretary, 1943, chairman, 1944;* Syracuse, *secretary, 1947;* Evansville-Owensboro, *chairman, 1950;* 5th Region, *director, 1960–61.* **Awards:** U. S. Navy Certificate of Commendation, 1947; National Reliability Award for Best Paper, The National Symposium for Reliability and Quality Control.

MOLLER, Rolf (SM'54—F'56), c/o Fernseh GmbH, Darmstadt, Germany.
Born: July 25, 1906, Altona, Germany. Dr. rer. nat., 1930, Hamburg University. **Awards:** President, Fernseh-Technische Gesellschaft, 1953; Fellow, Television Society, England.

MOLNAR, Julius P. (SM'53—F'60), Executive Vice President, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: February 23, 1916, Detroit, Mich. A.B., 1937, Oberlin College; Ph.D., 1940, Massachusetts Institute of Technology. **Committees:** Tellers, 1954.

MONTGOMERY, Alexander W. (M'31—SM'43—F'54), Director and Joint General Manager, Standard Telephones and Cables, Ltd., Connaught House, 63 Aldwych, London, W.C.2, England; Vice Chairman, Standard Telecommunication Laboratories, Ltd., Harlow, England; Director, International Marine Radio Co., Ltd., Croydon, England.
Born: December 14, 1896, Manchester, Lancashire, England. B.Sc., Tech., 1921, Manchester College of Technology. **Awards:** Order of the British Empire, 1945.

MONTGOMERY, L. H., Jr. (A'45—SM'50—F'60), Medical Electronics Consultant and Research Associate in Anatomy, Technical Staff, WSM Radio Station, Vanderbilt University Medical School, and WSM Radio Station, Franklin, Tenn.
Born: January, 1907, Nashville, Tenn. **Committees:** Medical Electronics, 1956–58, *chairman, 1958–61;* Standards, 1952–53, 1958–61. **Professional Groups:** Sponsor, Professional Group on Medical Electronics, 1951; Medical Electronics Administrative Committee, 1952–58. **IRE Representative:** I.E.C. Sec. 12–1, 65, 70, 1954; Joint Executive Committee on Medicine and Biology, IRE, AIEE, ISA, 1952–60, *chairman, 1954;* Program Committee IRE National Convention, 1953–54.

MOORE, John B. (A'26—M'38—SM'43—F'60), Staff Engineer, RCA Communications, Inc., 66 Broad St., New York 4, N.Y.
Born: October 13, 1900, Alden, N.Y. B.S.(E.E.), 1922, Carnegie Institute of Technology; Professional Engineer, 1941. **Committees:** U. S. Preparatory Committee for the C.C.I.R., 1949–52.

MOORE, John R. (SM'52—F'58), Vice President and General Manager, Autonetics, a Division of North American Aviation, Inc., 9150 E. Imperial Highway, Downey, Calif.
Born: July 5, 1916, St. Louis, Mo. B.Sc.(M.E.), 1937, Washington University.

MOORE, Robert C. (S'32—A'34—SM'51—F'55), Engineering Section Manager, Philco Corporation, 4700 Wissahickon Ave., Philadelphia 44, Pa.

Born: January 3, 1912, Pontiac, Ill. B.S.(E.E.), 1933, University of North Dakota; M.S.(E.E.), 1934, Massachusetts Institute of Technology; B.A., 1936, Oxford University.

MORENO, Theodore (S'41—A'44—M'55—F'60), Vice President, Tube Division, Varian Associates, 611 Hansen Way, Palo Alto, Calif.
Born: September 2, 1920, Palo Alto, Calif. A.B., 1941, A.M., 1942, Stanford University; Sc.D., 1949, Massachusetts Institute of Technology.

MORGAN, Howard K. (A'27—M'41—SM'43—F'57), Director of Commercial Aviation Systems, The Bendix Corporation, Fisher Building, Detroit 2, Mich.
Born: February, 1906, New York, N.Y. B.S.(E.E.), 1929, University of California. **Committees:** Navigation Aids, 1947, 1950–51; Papers, 1941; Papers Procurement, 1942–43; Regular Papers, 1941. **Sections:** Kansas City, *chairman, 1941–43.* **Awards:** Radio Technical Commission for Aeronautics Citation.

MORRIN, Thomas H. (M'48—SM'54—F'60), General Manager, Engineering, Stanford Research Institute, 333 Ravenswood Ave., Menlo Park, Calif.
Born: November 24, 1914, Woodland, Calif. B.S.(E.E.), 1937, University of California. **Professional Groups:** Education Administrative Committee, 1959–62. **Sections:** San Francisco, Awards Committee.

MORRIS, Robert M. (A'26—M'42—SM'43—F'57), Radio Facilities Engineer, American Broadcasting Company, 7 W. 66 St., New York 23, N.Y.
Born: January 18, 1902, Washington, D.C. **Committees:** Frequency Modulation, 1941–42; Meetings and Papers, 1930; Membership, 1936; Papers Review, 1947–48; Standardization, 1929–30; Standards, 1938–41; Video Techniques, 1951–57. **Awards:** Exceptional Merit Medal, War Department, 1945.

MORRISON, John F. (A'29—M'36—SM'43—F'51), Technical Staff, Bell Telephone Laboratories, Inc., Morristown Rd., Whippany, N.J.
Born: March 14, 1906, Buffalo, N.Y. **Committees:** Annual Review, 1945–46; Antennas, 1944–45; Awards, 1951–54; Radio Transmitters, 1945–47, *chairman, 1945–46;* Standards, 1945–46; Transmitters, 1944–45; Transmitters and Antennas, 1938–44. **Professional Groups:** Aeronautical and Navigational Electronics, *vice-chairman, 1955.* **Sections:** Northern New Jersey Subsection, *chairman, 1951.*

MORTON, George A. (A'39—SM'46—F'51), Director, Conversion Devices Laboratory, RCA Laboratories, Radio Corporation of America, Princeton, N.J.
Born: March 24, 1903, New Hartford, N.Y. B.S., 1926, M.S., 1928, Ph.D., 1932, Massachusetts Institute of Technology. **Committees:** Measurements and Instrumentation, 1950–61; Nuclear Studies, 1948–49; Nuclear Techniques, 1955–61, *chairman, 1955–58;* Standards, 1955–61. **IRE Representative:** ASA Planning Committee on Nuclear Standards, 1955–58; ASA Nuclear Standards Board, 1958–61. **Awards:** Certificates of Commendation, Bureau of Ships, National Defense Research Council, United States Air Force; Overseas Premium Award, Institute of Electrical Engineers, 1937–38.

MORTON, Jack A. (A'36—SM'49—F'53), Vice President, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: September 4, 1913, St. Louis, Mo. B.S., 1935, Wayne University; M.S., 1936, University of Michigan; D.Sc.(Honorary), 1954, Ohio State University; D.Sc.(Honorary), 1956, Wayne University. **Committees:** Electron Tubes, 1946–49; Electron Tubes and Solid State Devices, 1949–53; Electronics, 1943–46; Membership, 1943–44; Papers Review, 1953; Vacuum Tubes, 1945–46. **Awards:** Honorable Mention, Eta Kappa Nu, 1945; Alumni Award, Wayne University, 1951; University of Michigan Centennial Award, 1953.

MORTON, Paul L. (A'43—SM'45—F'55), Professor, Electrical Engineering Division, University of California, Berkeley 4, Calif.
Born: May 14, 1906, Silao, Guadalajara, Mexico. B.S.(E.E.), 1931, University of Washington; M.S.(E.E.), 1938, Massachusetts Institute of Technology; Ph.D., 1943, University of California.

MOSELEY, Francis L. (A'33—SM'47—F'57), President, F. L. Moseley Company, 409 N. Fair Oaks, Pasadena, Calif.
Born: August 2, 1908, St. Paul, Minn. **Committees:** Navigation Aids, 1948–49; Papers Review, 1946–48, 1950–52. **Sections:** Dayton, *vice-chairman, 1943;* Pasadena Subsection, *vice-chairman, 1955.* **IRE Representative:** ANTC, 1948. **Awards:** Flight Safety Foundation Award, 1955; Pioneer Award, Professional Group on Aeronautical and Navigational Electronics, 1959.

MOUNTJOY, Garrard (A'37—M'40—SM'43—F'50), Assistant to the Executive Vice President, A.R. & T. Electronics, Inc. 1101 McAlmont, Little Rock, Ark.
Born: October 21, 1905, Boscobel, Wis. B.S., 1929, Washington University. **Committees:** Awards, 1956; Papers Review, 1953; Receivers, 1942–58; Television, 1945–48. **Sections:** Rochester, *secretary, 1948–49, vice-chairman, 1950–51, chairman, 1952–53.* **IRE Representative:** ASA War Standards Committee on Methods of Measuring Radio Noise, 1945–48. **Awards:** Modern Pioneer Award, National Association of Manufacturers.

MUELLER, Charles W. (S'35—A'36—SM'45—F'59), RCA Laboratories, Princeton, N.J.
Born: February 12, 1912, New Athens, Ill. B.S., 1934, University of Notre Dame; M.S., 1936, Sc.D., 1942, Massachusetts Institute of Technology. **Committees:** Semiconductor Devices, 1956–61; Solid State Devices, 1954–58. **Sections:** Princeton Subsection, *chairman, 1946–47.*

MULLIGAN, James H., Jr. (S'41—A'45—M'45—SM'54—F'59), Professor of Electrical Engineering, Chairman of Department, College of Engineering, New York University, University Heights, New York 53, N.Y.
Born: October, 1920, Jersey City, N.J. B.E.E., 1943, E.E., 1947, Cooper Union School of Engineering; M.S., 1945, Stevens Institute of Technology; Ph.D., 1948, Columbia University. **Committees:** Fellow, 1960–61, *chairman, 1961;* Measurements and Instrumentation, *vice-chairman, 1954–57, chairman, 1957–61;* Standards, 1957–61; Television Systems, 1948–54; Tellers, 1953. **Professional Groups:** Transistor and Solid State Circuits Conference, *general chairman, 1958.* Circuit Theory, *secretary-treasurer, 1956–59, vice-chairman, 1959–61;* Circuit Theory Administrative Committee, 1958–61; Northeast Electronics Research and Engineering Meeting, *program chairman, 1960;* Automatic Control Administrative Committee, 1960–63. **Sections:** New York, *vice-chairman, 1950–51, chairman, 1951–52.* **IRE Representative:** ASA Sectional Committee (C39) on Electrical Measuring Instruments, 1957–61.

MUMFORD, William W. (A'30—SM'46—F'52), Member, Technical Staff, Bell Telephone Laboratories, Inc., Whippany, N.J.
Born: June 17, 1905, Vancouver, Wash. B.A., 1930, Willamette University. **Committees:** National Convention Program, 1950–57; Professional Groups, 1956. **Professional Groups:** Microwave Theory and Technique Administrative Committee, *secretary, 1952, vice-chairman, 1953, chairman, 1954.* **Awards:** Burghart Prize, Willamette University, 1926.

MURRAY, Albert F. (A'20—M'26—F'38)(L), Consulting Electronic and Television Engineer, 4900 Hillbrook Lane, N.W., Washington 16, D.C.
Born: June 22, 1894, Decatur, Ala. B.A., 1915, Maryville College; B.S., 1918, Harvard University; S.B., 1918, Massachusetts Institute of Technology; D.Sc., 1939, Maryville College. **IRE Offices:** Director, 1936–39. **Committees:** Awards, 1936; Electronics, 1937–41; Institute Sections, 1929–30, 1936; Membership, 1929–39; Papers, 1934–45; Papers Procurement, 1947–50; Papers Review, 1946–53; Television, 1939–46; Television and Facsimile, 1936–39; Television Systems, 1949–61. **Sections:** Philadelphia, *chairman, 1937–38.*

NAMBA, Shogo (SM'58—F'60), Director, The Kokusai Denshin Denwa Co., Ltd. (Japan's Overseas Radio and Cable System), No. 1–5, Ohtemachi, Chiyoda-ku, Tokyo, Japan.
Born: July 14, 1904, Kyoto, Japan. M., 1927, Dr., 1935, Kyoto University. **Awards:** Asano Award, Institute of Electrical Engineers of Japan, 1936; Distinguished Service Award, Institute of Communication Engineers of Japan, 1943.

NERGAARD, Leon S. (A'29—M'38—SM'43—F'52), Associate Director, Electronic Research Laboratory, RCA Laboratories Division, Princeton 5, N.J.
Born: September 2, 1905, Battle Lake, Minn. B.S.(E.E.), 1927, University of Minnesota; M.S.(E.E.), 1930, Union College; Ph.D.(Physics), 1935, University of Minnesota. **Committees:** Annual Review, 1948–50; Electron Devices, 1952–55; Electron Tubes, 1946–58, *vice-chairman, 1948–49;* Electron Tubes and Solid State Devices, 1949–52, *chairman, 1949–51;* Electronics, 1940–45; Measurements and Instrumentation, 1952–53; Standards, 1949–51; Vacuum Tubes, 1945–46. **Professional Groups:** Electron Devices, 1953–55, *vice-chairman, 1953, chairman, 1953–54.* **IRE Representative:** ASA Sectional Committee (C60) on Standardization of Electron Tubes, 1949–56; ASA Subcommittee (C42.14) on Electron Tubes, 1952–53.

NEWHOUSE, Russell C. (A'30—M'39—SM'43—F'56), Director of Missile Systems Development, Bell Telephone Laboratories, Inc., Whippany, N.J.
Born: December 17, 1906, Clyde, Ohio. B.E.E., 1929, M.Sc.(E.E.), 1930, Ohio State University. **Professional Groups:** Aeronautical and Navigational Electronics, *secretary-treasurer, 1956, vice-president, 1957.* **Awards:** Guggenheim Fellowship, Ohio State University, 1929; Lawrence Sperry Award, Institute of the Aeronautical Sciences, 1938; Distinguished Alumnus Award, Ohio State University, 1959.

NICOLL, Frederick H. (A'39—SM'43—F'61), Doctor, RCA Laboratories, Inc., Princeton, N.J.
Born: June 6, 1908, Battleford, Saskatchewan, Canada. B.Sc., 1929, M.Sc., 1931, University of Saskatchewan; Ph.D., 1934, University of Cambridge, England. **Sections:** Princeton. **Awards:** RCA Laboratories Awards, 1950, 1951, 1954, 1956.

NICHOLS, Williams A. (A'29—M'42—SM'43—F'55), Assistant Chief Engineer, Canadian Broadcasting Corporation, 5253 Decarie Blvd., Montreal, P.Q., Canada.
Born: November 14, 1903, Toronto, Ont., Canada. B.A.Sc., 1928, University of Toronto. **Committees:** Membership, 1940. **Sections:** Montreal, *secretary, 1939–42.*

NIWA, Yasujiro (A'53—F'54), President, Tokyo Electrical Engineering College, 2, 2-chome, Kanda-Nishikicho, Chiyoda-Ku, Tokyo, Japan.
Born: April 1, 1893, Matsusaka, Miye Prefecture, Japan. Doctor of Engineering, 1926, Tokyo University. **IRE Offices:** Vice President, 1957; Director, 1957. **Sections:** Tokyo, *vice-chairman, 1955–56, chairman, 1957–59.* **Awards:** Asano Prize, Institute of Electrical Engineers of Japan, 1929; Imperial Prize, Japan Society of Invention, 1932; Imperial Prize, Japan Academy, 1937; Order of Rising Sun, Japanese Government, 1940; Medal of Merits, Institute of Communication Engineers of Japan, 1942; President, The Institute of Communication Engineers of Japan, 1942–43; President, Japan Radio Society, 1943–44; President, Institute of Electrical Engineers of Japan, 1950–51; President, Television Society of Japan, 1954–56; Medal of Cultural Merits, Japan Broadcasting Association, 1956; President, Acoustical Society of Japan, 1957–59; Order of Culture, The Emperor, 1959.

NOBLE, Daniel E. (A'25—SM'44—F'47), Director and Executive Vice President in Charge of Industrial, Semiconductor and Military Electronic Divisions of Motorola Inc., 5005 E. McDowell Road, Phoenix, Ariz. Residence: 3155 N. 52 St., Phoenix 18, Ariz.
Born: October 4, 1901, Naugatuck, Conn. B.S., 1929, University of Connecticut; D.Sc.(Honorary), 1957, Arizona State College. **IRE Offices:** Director, 1957–61. **Committees:** Annual Review, 1941–43, 1946–47; Appointments, 1958–59; Frequency Modulation, *chairman, 1940–13;* Mobile Communication Systems, 1950–56; Nominations, 1958–59; Papers Procurement, 1942–43, 1947, 1949–50; Policy Advisory, 1958–60; Railroad and Vehicular Communication, 1945–47, 1949–50, *chairman, 1945–48;* Regular Papers, 1941; Standards, 1940–43, 1946–47. **Sections:** Connecticut Valley, *chairman, 1938.*

NOBLE, Harrell V. (A'34—M'35—SM'43—F'58), Technical Director, Electronic Technology Laboratory, Wright Air Development Division, Air Research and Development Command, USAF, Wright-Patterson Air Force Base, Ohio.
Born: April, 1907, Noblesville, Ind. B.S.(E.E.), 1929, Purdue University.

NOIZEUX, Pedro J. (A'30—F'47), Assistant General Manager, Transradio Internacional, Compania Argentina de Telecommunicaciones, San Martin, 379, Buenos Aires 4, Argentina.
Born: 1900, France. **Sections:** Buenos Aires, *Founder, 1939, chairman, 1941–42.*

NORTH, Dwight O. (A'35—M'38—SM'43—F'43), Fellow, Technical Staff, RCA Laboratories Division, Radio Corporation of America, Princeton, N.J.
Born: September 28, 1909, Hartford, Conn. B.S., 1930, Wesleyan University; Ph.D., 1933, California Institute of Technology. **Committees:** Awards, 1948; Board of Editors, 1946–53; Editorial Reviewer, 1954–60; Papers, 1944–45.

NORTH, Harper Q. (A'51—SM'51—F'57), President, Pacific Semiconductors, Inc., 14520 S. Aviation Blvd., Lawndale, Calif.
Born: January 24, 1917, Los Angeles, Calif. B.S., 1938, California Institute of Technology; M.S., 1940, Ph.D., 1947, University of California at Los Angeles. **Committees:** Editorial Reviewer, 1954–61; Solid State Devices, 1955. **Professional Groups:** Electron Devices, *treasurer, 1952–53.* **IRE Representative:** Electron Devices, Pacific Coast IRE Convention, Long Beach, *program chairman, 1952;* Electron Devices, Los Angeles Chapter, *organizer* and *chairman, 1952;* Technical Papers Committee, Electron Devices, WESCON, Los Angeles, *chairman, 1954;* Session on Solid State Devices, WESCON, San Francisco, *chairman, 1955;* Papers Study and Procurement, Electron Devices, *co-chairman, 1955–56;* New York IRE National Convention, Transistor Session, *chairman, 1955;* IRE Winter Convention on Military Electronics, Advanced Components Session, *chairman;* Technical Program Committee WESCON, Los Angeles, *vice-chairman, 1960.* **Awards:** Fellow, American Physical Society.

NORTON, Frank R. (A'31—M'40—SM'43—F'60), Project Manager, Minuteman Electronic Ground Systems, Space Technology Laboratories, Los Angeles 45, Calif.
Born: August 30, 1904, near Gazelle, Calif. B.S.(Mech.), 1930, University of California; A.M.(Physics), 1935, Columbia University; E.E., 1937, University of California. **Committees:** Radio Receivers, 1955; Receivers, 1951–56. **Sections:** Denver, *secretary-treasurer, 1958–59, vice-chairman, 1959–60.* **Awards:** Color Television Standards Award, Radio Electronics Television Manufacturers Association, 1954.

NORTON, Kenneth A. (A'29—M'38—SM'43—F'43), Chief Radio Propagation Engineering Division, Central Radio Propagation Laboratory, National Bureau of Standards, Boulder, Colo.
Born: February 27, 1907, Rockwell City, Iowa. B.S., 1928, University of Chicago. **Committees:** Administrative Committee of the Board of Editors, 1951–53; Awards, 1957–60; Board of Editors, 1951–53; Editorial Administrative, *alternate, 1949–1951;* Editorial Reviewer, 1955–60; Fellow, 1958–59; Navigation Aids, 1950–54; Papers Procurement, 1949–50; Papers Review, 1946–51; Radio Wave Propagation, 1942–46; Radio Wave Propagation and Utilization, 1947–49; Wave Propagation, 1937–42, 1949–55. **Awards:** Stuart Ballantine Medal, Franklin Institute, 1954; IRE Harry Diamond Memorial Award, 1960; Fellow, American Physical Society; Fellow, American Association for the Advancement of Science; Fellow, American Institute of Electrical Engineers.

NOTTINGHAM, Wayne B. (A'37—SM'46—F'56), Professor of Physics, Massachusetts Institute of Technology, Cambridge 39, Mass.
Born: April, 1899, Tipton, Ind. B.S.(E.E.), 1920, M.A., 1926, Princeton University; E.E., 1929, Purdue University; Ph.D., 1929, Princeton University. **Committees:** Editorial Reviewer, 1954–59; Professional Groups, 1948. **Awards:** Louis E. Levy Medal, Franklin Institute, 1932.

NYQUIST, Harry (A'39—SM'47—F'52), Retired as Assistant Director of Systems Studies, Bell Telephone Laboratories, Inc., 463 West St., New York 14, N.Y. Residence: 29 Marion Ave., Milburn, N.J.
Born: February 7, 1889, Nilsby, Sweden. B.S.(E.E.), 1914, M.S., 1915, University of North Dakota; Ph.D., 1917, Yale University. **Awards:** IRE Medal of Honor, 1960; Ballantine Medal, Franklin Institute, 1960.

O'BRYAN, Henry M. (M'51—SM'54—F'61), Manager, Scientific Liaison, General Telephone & Electronics Laboratories, Inc., 730 Third Ave., New York 17, N.Y.
Born: August, 1905, Chetopa, Kan. A.B., 1926, Clark University; A.M., 1927, Northwestern University; Ph.D., 1930, The Johns Hopkins Unversity. **Committees:** Professional Groups. **Professional Groups:** Engineering Management Administrative Committee, 1956–57, *secretary, 1957–58, vice-chairman, 1958–59, chairman, 1959–61.* **IRE Representative:** Council for the American Association for the Advancement of Science, 1959–61. **Awards:** Fellow, American Physical Society.

O'CONNELL, James D. (SM'53—F'57), Lieutenant General, United States Army, Retired. Vice President, General Telephone & Electronics Laboratories Inc., 1177 University Dr., Menlo Park, Calif.
Born: September 25, 1899, Chicago, Ill. B.S., 1922, U. S. Military Academy; M.S., 1930, Yale University. **Professional Groups:** Ad Hoc Subcommittee 60.2 Space Communications, *chairman, 1960.* **IRE Representative:** Joint Technical Advisory Committee, 1960. **Awards:** Legion of Merit, 1944: Oak Leaf Cluster, 1945; Silver Medal, Poor Richard Club, 1956; Distinguished Service Medal, 1959.

ODARENKO, Todos M. (SM'45—F'59), Scientific Consultant, U. S. Government, 2430 E St., N.W., Washington 25, D.C.
Born: January 28, 1900, Poltave, Ukraine, Russia. 1919–21, University of Kamenetz, Podolsk, Ukraine; E.E.-Postgraduate, 1921–28, Polytechnical Institute, Prague, Czechoslovakia. **Committees:** Papers Procurement, 1947–50. **Awards:** Distinguished Civilian Service Award, U. S. Navy, 1945.

OHL, Russell S. (A'24—M'25—SM'43—F'55), Consulting Engineer, P.O. Box 306, Cambria, Calif.
Born: January 31, 1898, Macungie, Pa. B.S. in Ech.E., 1918, Penn State University; Post Graduate, 1918, Universty of Maryland; Post Graduate, 1921–22, University of Colorado.

OLINER, Arthur A. (M'47—SM'52—F'61), Professor, Polytechnic Institute of Brooklyn, 55 Johnson St., Brooklyn 1, N.Y.
Born: March, 1921, Shanghai, China. B.A., 1941, Brooklyn College; Ph.D., 1945, Cornell University. **Committees:** Antennas and Waveguides, 1954–61, *vice-chairman, 1957–59, chairman, 1959–61;* Professional Groups, 1959–60; Standards, 1959–61. **Professional Groups:** Microwave Theory and Techniques Administrative Committee, 1955–61, *vice-chairman, 1958–59, chairman, 1959–60.* **IRE Representative:** National Bureau of Standards IRE Technical Advisory Committee, 1958–61; Radio Standards Panel, *chairman, 1961.*

OLIVE, Gordon W. (A'29—VA'39—F'51), Retired as Director General of Engineering, Canadian Broadcasting Corporation, R.R. #2, Gananoque, Ont., Canada.
Born: March 18, 1898, Montreal, P.Q., Canada. Attended McGill University, 1919–22. **Committees:** Frequency Modulation, 1946–47; Modulation Systems, 1947–48.

OLIVER, Bernard M. (A'40—M'46—SM'53—F'54), Vice President, Research & Development, Hewlett-Packard Company, 1501 Page Mill Road, Palo Alto, Calif.
Born: May, 1916, Santa Cruz, Calif. B.S., 1935, Stanford University; M.S., 1936, Ph.D., 1940, California Institute of Technology. **IRE Offices:** Director, 1959–61. **Committees:** Appointments, 1959–60; Editorial Reviewer, 1954–60; Nominations, 1959–60. **Sections:** San Francisco, *treasurer, 1953–54, vice-chairman, 1954–55, chairman, 1955–56.* **IRE Representative:** Joint IRE-AIEE Committee on High Frequency Measurements, 1955–56; WESCON Board of Directors, 1956–59; Executive Committee, *chairman,* WESCON, 1959.

OLLENDORFF, Franz (SM'52—F'60), Research Professor, Technion-Israel Institute of Technology, Technion City, Haifa, Israel.
Born: March 15, 1900, Berlin, German. Dipl.Ing., 1921, Technische Hochshule, Berlin-Charlottenburg; Dr.Ing., 1922, Technische Hochschule, Danzig; Privat-Dozent, 1928, Berlin-Charlottenburg; Dr.Ing., Honors causa, Technische Universitat, Berlin, 1960. **IRE Offices:** Vice President, 1961.

OLSON, Harry F. (A'37—VA'39—SM'48—F'49), Director, Acoustical Laboratory, RCA Laboratories Division, Radio Corporation of America, Princeton, N.J.
Born: December, 1902, Mount Pleasant, Iowa. B.E., 1924, M.S., 1925, Ph.D., 1928, E.E., Professional, 1932, University of Iowa; D.Sc.(Honorary), 1959, Iowa Wesleyan. **IRE Offices:** Director, 1959–60. **Committees:** Annual Review, 1949–51; Audio and Electroacoustics, 1959–60, Consultant, 1960–61; Board of Editors, 1940–53; Editorial Reviewer, 1954–60; Electroacoustics, 1932–58, *chairman, 1934–39;* Papers Procurement, 1943–47; Standards, 1934–39. **Professional Groups:** Audio, *chairman, 1957–58.* **IRE Representative:** ASA Sectional Committee on Acoustical Measurements and Terminology, 1940–51, *alternate, 1952–56;* ASA Sectional Committee on Graphical Symbols and Abbreviations for Use on Drawings, 1949–50. **Awards:** Fellow, American Physical Society; Fellow, Acoustical Society of America; Fellow, Audio Engineering Society; Fellow, Society of Motion Picture and Television Engineers; Fellow, National Academy of Sciences of U.S.A.; President, Acoustical Society of America, 1952–53; John H. Potts Medal, Audio Engineering Society, 1952; Samuel L. Warner Medal, Society of Motion Picture and Television Engineers, 1955; John Scott Medal of the City of Philadelphia, 1956; Achievement Award of the Professional Group on Audio of the Institute of Radio Engineers, 1956; President, Audio Engineering Society, 1960–61.

OLSON, Robert W. (M'46—SM'53—F'59), Vice President, Research and Engineering, Texas Instruments Incorporated, 6000 Lemmon Ave., Dallas 9, Tex.
Born: February 17, 1915, Preston, Minn. B.S.(E.E.), 1938, University of Minnesota. **Committees:** Airborne Electronics, 1953. **Sections:** Houston, *secretary, 1955–56;* Dallas, SWIRECO, *general chairman, 1961.*

O'NEAL, Russell D. (SM'50—F'61), Vice President, Engineering and Research, The Bendix Corporation, 1104 Fisher Building, Detroit 2, Mich.
Born: February 15, 1914, Columbus, Ind. A.B., 1936, DePauw University; M.S., Ph.D., 1936–41, University of Illinois. **Sections:** Detroit; Meetings and Papers Committee, *chairman, 1959–60.* **Awards:** Fellow, American Physical Society, 1958.

O'NEILL, George D. (A'28—SM'46—F'49), Research Engineer, General Telephone and Electronics Laboratories, Inc., Bayside, L.I., N.Y.
Born: July, 1900, Montclair, N.J. B.S., 1924, University of Michigan. **Committees:** Admissions, 1959–60; Board of Editors, 1952–53; Editorial Reviewer, 1954–61; Electron Devices, 1945–57, *vice-chairman, 1951–52, chairman, 1952–54;* Electron Tubes, 1946–49, 1955–57, 1959–61; Electronics, 1936–46; Standards, 1952–54; Vacuum Tubes, 1945–46. **Professional Groups:** Electron Devices, 1951–54, *chairman, 1951–52;* Membership, 1959. **IRE Representative:** ASA Subcommittee (C42.14) on Electron Tubes, 1954–55.

ORDUNG, Philip F. (S'40—A'43—M'48—SM'49—F'59), Professor of Electrical Engineering, Department of Electrical Engineering, Yale University, Dunham Laboratory, New Haven, Conn.
Born: August 12, 1919, Luverne, Minn. B.S., 1940, South Dakota State College; M.Eng., 1942, D.Eng., 1948, Yale University. **Committees:** Circuits, 1950–56; Editorial Reviewer, 1954–61; Education, 1958–60; Fellow, 1961–62. **Sections:** Connecticut Valley, *secretary, 1953–54, vice-chairman, 1954–55, chairman, 1955–56;* Region 1, *treasurer, 1958–60.* **Awards:** Award for the Advancement of Basic and Applied Science, Yale Engineering Association, 1953.

OSBORNE, Harold S. (A'14—M'29—SM'43—F'45)(L), Consulting Engineer, 379 Highland Ave., Upper Montclair, N.J.
Born: August 1, 1887, Fayetteville, N.Y. B.S., 1908, Eng.D., 1910, Massachusetts Institute of Technology. **Committees:** Standardization, 1926–29.

OSWALD, Arthur A. (A'19—M'25—F'28)(L), Retired from Bell Telephone Laboratories, Inc. Residence: 2 West Lane, Maplewood, N.J.
Born: March 3, 1891, Lake Linden, Mich. B.S.(E.E.), 1916, E.E., 1927, Illinois Institute of Technology. **Committees:** Papers Procurement, 1942–43; Regular Papers, 1941; Standardization, 1925–26.

OUIMET, J. Alphonse (A'39—SM'44—F'52), President, Canadian Broadcasting Corporation, P.O. Box 806, Ottawa, Ont., Canada.
Born: June 12, 1908, Montreal, P.Q., Canada. B.A., 1928, St. Mary's College; B.E.E., 1932, McGill University; D.Sc.(Honorary), 1958, University of Montreal. **Committees:** Education, 1944; Television, 1946–49; Television Systems, 1949–53. **Sections:** Montreal, *chairman, 1942–43.* **Awards:** Ross Medal, Engineering Institute of Canada, 1948.

OXLEY, Allan B. (A'25—M'33—SM'46—F'53), Reliability Coordinator, Special Weapons Division, Canadair, Ltd., P.O. Box 6087, Montreal, P.Q., Canada.
Born: July 7, 1901, London, England. **IRE Offices:** Director, 1951–52, 1957–58. **Committees:** Awards, 1953–56; Membership, 1953–56; Nominations, 1952–53; Policy Advisory, 1957–58; Reliability Terminology (C31), 1960–61. **Professional Groups:** Coordinator, 1959–61. **Sections:** Toronto, *chairman, 1934–35;* Montreal, *chairman, 1939–40, 1949–50;* Region #8, *director, 1958.* **Awards:** Member, Corporation of Professional Engineers of Quebec, Canada, 1953; Associate Fellow, Canadian Aeronautical Institute, 1959.

PACKARD, David (S'34—A'41—SM'47—F'48), President, Hewlett-Packard Company, 1501 Page Mill Rd., Palo Alto, Calif.
Born: September 7, 1912, Pueblo, Colo. A.B., 1934, E.E., 1939, Stanford University. **Committees:** Awards, 1949; Measurements and Instrumentation, 1949–50. **Sections:** San Francisco, *secretary, 1943–44, chairman, 1945–46.*

PACKARD, Lucius E. (M'41—SM'43—F'57), Chairman of the Board, Technology Instrument Corporation, 531 Main St., Acton, Mass.
Born: January 21, 1914, Somerville, Mass. B.S.(E.E.), Massachusetts Institute of Technology. **Committees:** Appointments, 1955; Sections, 1946–47. **Professional Groups:** New England Radio Engineering Meeting, *first chairman, 1947.* **Sections:** Chicago, *secretary, 1945–46; Boston, vice-chairman, 1950, chairman, 1951–52;* North Atlantic Region, *regional director, 1954.*

PAGE, Chester H. (A'41—SM'48—F'56), Chief Electricity Division, National Bureau of Standards, Washington 25, D.C.
Born: November 13, 1912, Providence, R.I., A.B., 1934, ScM., 1934, Brown University; Ph.D., 1937, Yale University. **Committees:** Circuits, 1949–61, *vice-chairman, 1950–51, chairman, 1951–54;* Editorial Reviewer, 1954–61; Electronic Computers, 1948–51; Papers Review, 1951–53; Professional Groups, 1957; Standards, 1951–61, *vice-chairman, 1957–60; chairman, 1960–;* Definitions Coordinator, 1956–60. **Professional Groups:** Circuit Theory, *chairman, 1953–54.* **IRE Representative:** ASA Sectional Committee (C42) on Definitions of Electrical Terms; ASA Electrical Standards Board; ASA Subcommittee (C42.13) on Communications, 1959–61; U. S. Study Group XIV of C.C.I.R., *chairman.* **Awards:** Certificate for Exceptional Service, Bureau of Ordnance; Gold Medal Award, Department of Commerce; Certificate of Appreciation, War Department, O.S.R.D.; Fellow, American Physical Society.

PAGE, Robert M. (SM'45—F'47), Director of Research, United States Naval Research Laboratory, Washington 25, D.C.
Born: June 2, 1903, St. Paul, Minn. B.Sc., 1927, Hamline University; M.S. 1932, George Washington University; D.Sc. (Honorary), 1943, Hamline University. **Committees:** Board of Editors, 1946–53; Editorial Reviewer, 1954–60. **Sections:** Washington, *treasurer, 1955–56, secretary, 1956–57, vice-chairman, 1957–58, chairman, 1958–59.* **Awards:** Citation O.S.R.D., 1946; Presidential Certificate of Merit, 1947; IRE Harry Diamond Memorial Award, 1953; Distinguished Civilian Award, United States Navy, 1954; Stuart Ballantine Medal, Franklin Institute, 1957; Captain Robert Dexter Conrad Award, 1959; Wheaton College Centennial Award, 1960; President's Award for Distinguished Federal Civilian Service, 1960.

PALMER, Winslow (S'38—A'41—SM'50—F'56), Engineering Section Head, Sperry Gyroscope Company, Great Neck, L.I., N.Y.
Born: July, 1912, New Brunswick, N.J. B.S., 1937, University of Hawaii; E.E., 1939, Stanford University. **Committees:** Modulation Systems, 1951–54; Navigation Aids, 1951–58, *vice-chairman, 1954–56, chairman, 1957–59;* Standards, 1957–59. **Awards:** Certificate of Commendation, United States Navy, 1947.

PAN, Wen Y. (A'41—SM'46—F'58), Manager, H. I. Advanced Development, RCA Laboratories, Inc., Princeton, N.J.
Born: July 15, 1912, Soochow, China. B.Sc., 1935, Chao-Tung University; E.E., 1939, Ph.D., 1940, Stanford University. **Awards:** Award of Merit by Ministry of Communications of the Chinese Government, 1937; Honorary Member, Veteran Wireless Operators Association, 1947.

PARKER, Ralzemond D. (A'16—SM'45—F'59)(L), Retired from Bell Telephone Laboratories, Inc., Consulting Engineer, 3606 Chesapeake St., N.W., Washington 8, D.C.
Born: December, 1881, Detroit, Mich. B.S.(E.E.), 1905, M.S., 1906, University of Michigan. **Awards:** Fellow, American Institute of Electrical Engineers; Distinguished Alumnus, University of Michigan.

PATTERSON, George W. (J'31—A'49—SM'54—F'59), Associate Professor and Head of Systems Logic Section, Moore School of Electrical Engineering and Graduate School of Arts and Sciences, University of Pennsylvania, 200 S. 33 St., Philadelphia, Pa.
Born: May 6, 1912, Rochester, N.Y. B.Sc.(E.E.), 1934, University of Vermont; M.A.(Physics), 1936, Columbia University; Ph.D.(Math), 1958, University of Pennsylvania. **Committees:** Definitions, 1951–60, *chairman, 1960–;* Digital Computer Logic and Block Diagram Symbols, Subcommittee, *chairman, 1955–.* Electronic Computers, 1949–, *vice-chairman, 1960–,* Symbols, 1953–56. **Professional Groups:** Electronic Computers Administrative Committee, 1955–56. **Sections:** Philadelphia Chapter, Electronic Computers Group, *chairman, 1955–56,* Executive Committee, 1955–56. **IRE Representative:** International Electrotechnical Commission, 1954. **Awards:** Certificate of Appreciation of Services, Office of Scientific Research and Development, National Defense Research Committee, 1945; Naval Ordnance Development Award, United States Navy, 1945; Fellow, American Association for the Advancement of Science.

PAYNE, Leonard S. (M'16—SM'43—F'49)(L), Retired from Lynch, Appledore, North Devon, England. Residence: 104 Marine Parade, Worthing, West Sussex, England.
Born: February 28, 1886, London, England. Attended Faraday House Technical College, London. **Committees:** Canadian delegate to the CCIR meeting in London, 1953; Canadian Radio Technical Planning Board, Panel A, *chairman.*

PETER, Rolf W. (A'47—SM'52—F'58), Manager, Electron Devices Division, Watkins-Johnson Company, Hillview Ave., Palo Alto, Calif.
Born: August 20, 1920, Zurich, Switzerland. Dipl. E.E., 1944, Ph.D., 1948, Swiss Federal Institute of Technology. **Committees:** Editorial Reviewer, 1954–58: Standards Subcommittee on Operating Measurements of Microwave Amplifier Tubes, 1953–55.

PETERSON, Arnold P. G. (S'34—A'38—SM'46—F'58), Engineer, General Radio Company, 22 Baker Ave., West Concord, Mass.
Born: August 7, 1914, DeKalb, Ill. B.Eng., 1934, University of Toledo; M.Sc., 1937, Dr.Sc., 1941, Massachusetts Institute of Technology. **Committees:** Awards, 1948; Editorial Reviewer, 1955; Measurements and Instrumentation, 1949–54; Papers Review, 1946–52; Recording and Reproducing, 1954–56; Sound Recording and Reproduction, 1950–53. **Awards:** Fellow, Acoustical Society of America, 1951.

PETERSON, Eugene (M'30—SM'43—F'59), Consultant, 25 E. 9 St., New York 3, N.Y.
Born: August 26, 1894, New York, N.Y. E.E., 1917, Polytechnic Institute of Brooklyn; M.A., 1923, Ph.D., 1926, Columbia University.

PETERSON, Harold O. (A'22—M'31—F'41), Associate Laboratory Director, RCA Laboratories Division, Radio Corporation of America, 140 Moriches Rd., Riverhead, L.I., N.Y.
Born: November 3, 1899, Blair, Neb. B.Sc.(E.E.), 1921, D.Eng. (Honorary), 1951, University of Nebraska. **Committees:** Advisory Committee to the National Bureau of Standards, 1954–56; Aircraft Receivers, 1930–31; Board of Editors, 1944–53; Editorial Reviewer, 1954–60; Industrial Electronics, 1947–51; Measurements and Instrumentation, 1949–50; Papers, 1934–44; Papers Study and Procurement for the *Transactions of* PGCS, *chairman, 1958–59;* Radio Receivers, 1936–48; Radio Wave Propagation, 1942–45; Radio Wave Propagation and Utilization, 1945–49; Standards, 1934–35; Transmitters and Antennas, 1936–37; Wave Propagation, 1937–42, 1949–61. **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940.

PETRILLO, Salvatore E. (A'42—F'56), Director of Engineering, U. S. Army Signal Research and Development Laboratory, Fort Monmouth, N.J.
Born: July, 1909, Waterbury, Conn. B.S.(E.E.), 1930, Yale University. **Sections:** Monmouth Subsection, *vice-chairman, 1948.* **Awards:** Legion of Merit, Department of Army, 1945.

PETTIT, Joseph M. (S'39—A'40—M'45—SM'46—F'54), Dean of Engineering and Professor of Electrical Engineering, Stanford University, Stanford, Calif.
Born: July 15, 1916, Rochester, Minn. B.S., 1938, University of California; E.E., 1940, Ph.D., 1942, Stanford University, **IRE Offices:** Director, 1954–55. **Committees:** Editorial Reviewer, 1954–55; Education, 1949–60, *chairman, 1955–56;* Fellow, 1958–60; Policy Advisory, 1954–55; Radio Receivers, 1946–52. **Sections:** Palo Alto, *chairman, 1951–52.* **IRE Representative:** Stanford University, 1948–51. **Awards:** Presidential Certificate of Merit, U. S. Government, 1949; Electronics Achievement Award, Region 7, 1952.

PICKERING, William H. (A'41—SM'49—F'55), Director, Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive, Pasadena 3, Calif.
Born: December 24, 1910, Wellington, New Zealand. B.S., 1932, M.S., 1933, Ph.D., 1936, California Institute of Technology. **Committees:** Editorial Reviewer, 1954–60; Education, 1949–51; Papers Review, 1946–53. **IRE Representative:** California Institute of Technology, *alternate, 1941–42, 1950–52.* **Awards:** Commendation for Meritorious Civilian Service, U. S. Air Force; James Wyld Award, American Rocket Society; Decoration for Distinguished Civilian Service, Department of the Army; Fellow, American Rocket Society; Fellow, American Astronautical Society.

PIERCE, John A. (SM'45—F'47), Senior Research Fellow, Cruft Laboratory, Harvard University, Cambridge 38, Mass.
Born: December 11, 1907, Spokane, Wash. B.A., 1937, University of Maine. **Committees:** Annual Review, 1948–49; Editorial Reviewer, 1954–60; Navigation Aids, 1947–50 *chairman, 1948–50;* Radio Wave Propagation and Utilization, 1945–49; Standards, 1949; Wave Propagation, 1949–50, 1956–61. **Awards:** Thurlow Award, Institute of Navigation, 1947; President's Certificate of Merit, 1948; IRE Morris Liebmann Prize, 1953; Fellow, American Academy of Arts and Sciences; Fellow, American Association for the Advancement of Science.

PIERCE, John R. (S'35—A'38—SM'46—F'48), Director of Research, Communications Principles, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: March 27, 1910, Des Moines, Iowa, B.S., 1933, M.S., 1934, Ph.D., 1936, California Institute of Technology, **IRE Offices:** Director, 1954–55; Editor, 1954–55. **Committees:** Editorial Board *chairman, 1954–55;* Executive, 1954–55; Papers Procurement, *second vice-chairman, 1943.* **Awards:** Outstanding Young Electrical Engineer, Eta Kappa Nu, 1942; IRE Morris Liebmann Memorial Prize, 1947; Stuart Ballantine Medal, Franklin Institute, 1960.

PIORE, Emanuel R. (A'38—M'42—SM'43—F'50), Vice President for Research and Engineering, International Business Machines Corporation, 590 Madison Ave., New York 22, N.Y.
Born: June 19, 1908, Wilno, Russia. B.A., 1930, Ph.D., 1935, University of Wisconsin. **IRE Offices:** Director, 1951. **Committees:** Awards, 1949. **Professional Groups:** Nuclear Science Administrative Committee, 1953, *vice-chairman, 1955.*

PIPES, Louis A. (M'52—SM'54—F'58), Professor of Engineering, University of California, Los Angeles 24, Calif.
Born: October 22, 1910, Mexico City, Mexico. B.S., 1933, M.Sc., 1934, Ph.D., 1936, California Institute of Technology.

POCH, Waldemar J. (A'28—VA'39—SM'48—F'56), Director, Product Development, RCA Laboratories, Princeton, N.J.
Born: July, 1905, London, England. B.S. (E.E.), 1928, University of Michigan; M.S., 1934, University of Pennsylvania. **Committees:** Annual Review, 1950–51; Audio and Video Techniques, 1948–49: Editorial Reviewer, 1954–60; Standards, 1951–56; Video Techniques, 1949–61, *vice-chairman, 1949–51, chairman, 1951–55.* **IRE Representative:** IRE-EIA-SMPTE-NARTB Committee for Inter-Society Coordination (Television), 1954–59.

PODOLSKY, Leon (A'30—M'46—SM'53—F'57), Consultant and Technical Assistant to the President, Sprague Electric Company, Marshall St., North Adams, Mass.
Born: November, 1910, Philadelphia, Pa. E.E., 1934, Drexel Institute of Technology. **Committees:** Activities, 1955–61; Professional Groups, 1955–60. **Professional Groups:** Administrative Committee, Component Parts; Scholarship Committee. **IRE Representative:** National Bureau of Standards, Technical Advisory Committee, 1961. **Awards:** ASA War Standards Award, 1946; Certificate of Commendation, United States Navy, 1947; IRE-RETMA Fall Meeting Award, 1956; Fellow, American Institute of Electrical Engineers, 1956.

POLKINGHORN, Frank A. (A'25—F'38), Technical Staff, Bell Telephone Laboratories, Inc., Whippany, N.J.
Born: July 23, 1897, Holbrook, Mass. B.S., 1922, University of California. **IRE Offices:** Director, 1957–58. **Committees:** Admissions, 1943–48, *vice-chairman, 1945–48;* High-Frequency Receivers, 1930–31; National Convention, 1948; Nominations, 1958; Policy Advisory, 1957–58; Radio Receivers, 1932–34; Sections, 1941–45. **Sections:** Northern New Jersey Subsection, *treasurer, 1952–53, vice-chairman, 1953–54;* Northern New Jersey Section, *chairman, 1954–55.* **IRE Representative:** ASA Sectional Committee on Radio, 1935–38. **Awards:** Honorary Member, Denki Tsushin Gakkai, Institute of Electrical Communication Engineers of Japan; Annual Award, Northern New Jersey Section, 1961.

PONTE, Maurice, J. H. (SM'48—F'54), President, Compagnie Générale de Télégraphie sans Fil, 79 Boulevard Hausmann, Paris, France.
Born: April, 1902, Voiron, Isère, France, Sciences Doctorship, Ecole Normale Supérieure of Paris (Sciences Division). **IRE Offices:** Vice President, 1954; Director, 1954.

PORTS, Delmer C. (A'38—SM'45—F'61), Vice President, Jansky & Bailey, Shirley Highway & Edsall Rd., Alexandria, Va.
Born: July, 1914, Barbourville, Ky. B.S.(E.E.). 1937, George Washington University; M.S., 1939, Ohio State University. **Committees:** Antennas and Waveguides, *chairman, 1950–52;* National Convention Program Committee, 1954; Standards, 1950–52. **Professional Groups:** Antennas and Propagation, *national chairman, 1954–56;* Communications Systems, National Meetings Committee, *chairman, 1958–59;* National Administrative Committee, 1959–61. **Sections:** Washington, D.C. *chairman, 1960–61.* **Awards:** Certificate of Appreciation, PGAP, 1960.

POST, Edgar A. (A'37—SM'47—F'61), Manager, Radio and Weather Sciences Laboratory, Stanford Research Institute, Ravenswood Ave., Menlo Park, Calif.
Born: May 20, 1914, Spokane, Wash. B.S.(E.E.), 1936, University of Illinois. **Professional Groups:** PGANE Administrative Committee, 1953–55, 1959–61; *Group chairman, 1955, 1960–61; editor* PGANE *Transactions;* Papers and Transaction Committee, *chairman, 1956–59.* Professional Group Committee, 1955–56. **Sections:** Chicago; Denver, *secretary, 1951–52, chairman, 1952–53;* San Francisco, 1956–61. **Awards:** Honorable Mention, Eta Kappa Nu, 1945.

POTÉ, Alfred J. (A'41—SM'48—F'59), President Hermes Electronics Co. (formerly Hycon Eastern, Inc.), 75 Cambridge Parkway, Cambridge 42, Mass.
Born: February, 1904, Boston, Mass. B.S.(E.E.), 1926, Massachusetts Institute of Technology; D.A.O. (Honorary), 1937, Staley College. **Committees:** Editorial Reviewer, 1954–60. **Sections:** Boston, *secretary, 1952, chairman, 1954.*

POTTER, James L. (A'31—SM'44—F'57), Professor and Chairman, Electrical Engineering Department, Rutgers State University, College of Engineering, New Brunswick, N.J.
Born: December 4, 1905, Carthage, Mo. B.S., 1928, M.S., 1930, E.E., 1939, Kansas State University. **Committees:** Education, 1955–57. **Sections:** Princeton, *secretary-treasurer, 1945–55, vice-chairman, 1955–56, chairman, 1956–57;* Education Subcommittee of Education Committee, *chairman, 1955–56.* **IRE Representative:** Rutgers University, 1941–54. **Awards:** First Prize Paper, Science Division, National American Institute of Electrial Engineers Winter Convention, 1954.

POTTER, Ralph K. (A'25—M'26—F'41)(L), Retired. Dogwood Dr., Route No. 17, Morristown, N.J.
Born: October 1, 1894, Elgin, Ill. B.S., 1917, Whitman College; E.E., 1923, Columbia University. **Committees:** Awards, 1944; Papers, 1931–41.

POUNSETT, Frank H. R. (A'26—SM'44—F'47), Vice President, Engineering and Manufacturing, Radio & Television Division, Philips Electronics Industries, Ltd., 116 Vanderhoof Ave., Toronto 17, Ont., Canada.
Born: September 12, 1904, London, England, B.A.Sc., 1928, University of Toronto. **IRE Offices:** Director, 1949–50. **Committees:** Awards, 1952; Canadian Building Fund and Auditor, 1945; Membership, 1951–52; Nominations, 1948–50, 1955–56; Radio Receivers, 1946–52. **Sections:** Toronto, *chairman, 1945–46.*

PRATT, Haraden (A'14—M'17—F'29)(L), Consultant, 2612 N.E. Seventh St., Pompano Beach, Fla.
Born: July 18, 1891, San Francisco, Calif. B.S., 1914, University of California. **IRE Offices:** President, 1938; Treasurer, 1941–42; Secretary, 1943–61; Director, 1935–61. **Committees:** Admissions, 1937; Annual Review, 1937; Appointments, *chairman, 1947;* Awards, 1937–41, 1944–45, 1948, *vice-chairman, 1945, chairman, 1939, 1948;* Awards Management, *chairman, 1961;* Board of Editors, 1941–53; Building Fund Administrator, 1947–48; Constitution and Laws, 1941, 1950–51, 1959, *chairman, 1960;* Editorial Administrative, 1947–50; Executive, *vice-chairman, 1941–42, secretary, 1943–61,* Finance, 1959–60; Fiscal, 1947–57, *chairman, 1947, 1955–57;* History, 1954–61, *chairman, 1954–61;* Investments, 1944–46; New York Program, 1933, 1935–37, *chairman, 1936–37;* Nominations, 1936, 1941–43, 1947–48, 1952–56, *chairman, 1943, 1947;* Office Quarters, 1947; Policy Development, 1950–51, *chairman, 1950;* Preparedness, *chairman, 1940–41;* Radio Transmitters and Antennas, 1930; Standardization, 1928–31; Standards, 1932, 1934–37, *chairman, 1934–35;* Tellers, *chairman, 1936.* **IRE Representative:** ASA Sectional Committee (C42) on Definitions of Electrical Terms, 1936–46, 1949–55; ASA Sectional Committee on Definitions of Technical Terms, 1930; ASA Board of Directors, 1939–41; ASA Sectional Committee on Radio, 1936–48; Joint Technical Advisory Committee, 1948–51; Radio Technical Planning Board, 1944–48; *chairman, 1945–48.* **Awards:** IRE Medal of Honor, 1944; IRE Founders Award, 1960.

PREISMAN, Albert (M'38—SM'43—F'53), Associate Professor, Electrical Engineering Department, Catholic University of America, Washington, D.C.; Consulting Engineer.
Born: February 8, 1901, New York, N.Y. A.B., 1922, E.E., 1924, Columbia University. **Committees:** Education, 1950–55; Membership, 1943–46; Papers Review, 1948–53. **Professional Groups:** Audio, *chairman, 1957–58.*

PRESSLEY, Jackson H. (A'20—F'31), Retired. 1036 San Diego Rd., Santa Barbara, Calif.
Born: June 8, 1896, Rio Vista, Calif. B.S.(E.E.), 1920, University of California. **Committees:** Radio Receivers, 1933–34.

PRICE, Lloyd M. (A'31—SM'46—F'49), Sales Representative and Engineering Consultant, 185 Poplar Plains Rd., Toronto 7, Ont., Canada.
Born: August, 1897, St. Thomas, Ont., Canada. B.A.Sc., 1923, University of Toronto. **Committees:** Electron Tubes, 1946–47. **Sections:** Toronto, *secretary, 1934–35, chairman, 1935–36.*

PRIEST, Conan A. (A'24—M'38—SM'43—F'47), Retired. 314 Hurlburt Rd., Syracuse 3, N.Y.
Born: August 11, 1900, Solon, Me. B.S.(E.E.), 1922, E.E. Professional, 1925, University of Maine. **IRE Offices:** Director, 1953–54. **Committees:** Board of Editors, 1941–53. **Professional Groups:** Industrial Electronics, *secretary, 1954–58.* **Sections:** Syracuse, *chairman, 1947.*

PRITCHARD, Robert L. (S'45—A'51—SM'55—F'60), Manager, Device Electronics Branch, Research and Engineering Department, Semiconductor-Components Division, Texas Instruments Incorporated, P.O. Box 5012, Dallas, Tex.
Born: September, 1924, Irvington, N.J. B.S.(Eng.), 1946, Brown University; M.Sc.(Eng. Sci.), 1947, Ph.D.(Acoustics), 1950, Harvard University. **Committees:** Editorial Reviewer, 1954–60; Semiconductor Devices Subcommittee, 1953–61, *secretary, 1955–57;* Solid State Devices, 1955–61, *chairman, 1957–61;* Standards, 1957–61; Transistor Internal Parameters, *chairman, 1956–61.* **Professional Groups:** Technical Program Committee Second Annual Electron Devices Meeting, *chairman, 1956.* **IRE Representative:** ASA Sectional Committee (C94) on Semiconductor Electron Devices, 1959; ASA Sectional Committee (C60) on Standardization on Electron Tubes, 1958; ASA Subcommittee (C42) on Definitions of Electrical Terms; Member, Joint AIEE/IRE Standards Committee.

PUGSLEY, Donald W. (A'39—M'45—SM'46—F'52), Minuteman Program Director's Staff, Space Technology Laboratories, Box 95001, Los Angeles 45, Calif.
Born: December, 1912, Salt Lake City, Utah. B.S.(E.E.), 1935, University of Utah; M.S.(E.E.), 1954, Syracuse University. **Committees:** Radio Frequency Interference, 1956–58; Television, 1945–49; Television Systems, 1949–60. **Professional Groups:** Broadcast and Television Receivers, National Administrative Committee, 1958–60; Engineering Management, National Administrative Committee, 1958–60; Industrial Electronics; Medical Electronics. **Sections:** Syracuse Chapter, Professional Group on Engineering Managment, *vice-chairman, 1955–56, chairman, 1956–57.* **Awards:** Outstanding Young Electrical Engineer (Honorary Mention), Eta Kappa Nu, 1944.

PUNCHARD, John C. R. (A'37—SM'45—F'53), Director of Development, Research and Development Laboratories, Northern Electric Company, Ltd., P.O. Box 3511, Ottawa, Ont., Canada.
Born: April 13, 1911, Toronto, Ont., Canada. B.A.Sc., 1933, University of Toronto. **Committees:** Awards, 1957, 1960; Fellow, *chairman, 1958;* Radio Transmitters, 1947–51. **Sections:** Montreal, *secretary, 1941–44, chairman, 1946–47;* Canadian Council, IRE, *secretary, 1947–53;* Bay of Quinte, *chairman, 1955–56.*

QUARLES, Lawrence R. (M'42—SM'43—F'52), Dean of Engineering, Thornton Hall, University of Virginia, Charlottesville, Va.
Born: January 26, 1908, Charlottesville, Va. B.S.E., 1929, Ph.D. (Physics), 1935, University of Virginia. **Committees:** Awards, 1956; Education, 1949–56; Policy Development, 1948. **Sections:** North Carolina-Virginia, *chairman, 1946–47.* **IRE Representative:** University of Virginia, 1943–50.

RABINOW, Jacob (SM'54—F'56), President, Rabinow Engineering Company, 7212 New Hampshire Ave., Washington 12, D.C.
Born: January 8, 1910, Kharkov, Russia. B.E.(E.E.), 1933, E.E., 1934, College of the City of New York. **Awards:** Naval Ordnance Development Award, 1945; Certificate of Merit, 1948; Certificate of Appreciation, War Department, 1949; Exceptional Service Award, Department of Commerce, 1949; Certificate of Commendation, National Defense Research Council, 1954.

RADFORD, William H. (A'41—SM'45—F'54), Professor of Electrical Communications, Massachusetts Institute of Technology; Associate Director, Lincoln Laboratory, Massachusetts Institute of Technology, 77 Massachusetts Ave., Cambridge 39, Mass.
Born: May 20, 1909, Philadelphia, Pa. B.S., 1931, Drexel Institute of Technology; M.S., 1932, Massachusetts Institute of Technology; D.Eng. (Honorary), 1957, Drexel Institute of Technology. **Committees:** Editorial Reviewer, 1954–; Education, 1945–48, *chairman, 1947–48;* Membership, 1947–48. **Professional Groups:** Joint Technical Advisory Committee, *vice-chairman, 1956, chairman, 1957–58.* **Sections:** Boston, *chairman, 1947.* **IRE Representative:** Massachusetts Institute of Technology, 1941–54; National Bureau of Standards—IRE Technical Advisory Committee, 1959–62.

RAGAZZINI, John R. (A'41—M'46—SM'52—F'55), Dean of the College of Engineering, Professor of Electrical Engineering, South Hall, New York University, New York 53, N.Y.
Born: January 3, 1912, New York, N.Y. B.S., 1932, E.E., 1933, College of the City of New York; M.A., 1938, Ph.D., 1941, Columbia University. **IRE Offices:** Director, 1953–54. **Committees:** Appointments, 1954; Audio and Video Techniques, 1948–49; Board of Editors, 1946–53; Editorial Administrative, 1948–50; Editorial Reviewer, 1954–61; Education, 1949–55, 1961; Modulation Systems, 1951–53; Nominations, 1953–54; Policy Advisory, 1954–55; Sound Recording, 1949–50. **Sections:** New York, *secretary, 1946–47; vice-chairman, 1948–49;* Awards Subcommittee, *co-chairman, 1960–61.* **IRE Representative:** Columbia University, 1945–52; ASA Subcommittee (Y10.14) on Nomenclature Feedback Control Systems, 1951–53.

RAJCHMAN, Jan A. (SM'46—F'53), Associate Director, Systems Research Laboratory, RCA Laboratories, Princeton, N.J.
Born: August 10, 1911, London, England. Dipl.E.E., 1935, Dr. Sc., 1938, Swiss Federal Institute of Technology. **Committees:** Editorial Reviewer, 1954–60; Electronic Computers, 1948–58; Papers Review, 1950–52, 1954–61. **Awards:** Levy Medal, Franklin Institute, 1948; IRE Morris Liebmann Memorial Prize, 1960.

RAMBERG, Edward G. (M'53—SM'53—F'55), Fellow, Technical Staff, RCA Laboratories Division, Princeton, N.J.
Born: June 14, 1907, Florence, Italy. B.A., 1928, Cornell University; Ph.D., 1932, University of Munich, Germany.

RAMBO, William R. (S'39—A'40—SM'46—F'59), Director Stanford Electronics Laboratories; Professor of Electrical Engineering, Stanford University, Stanford, Calif.
Born: September 3, 1916, San Jose, Calif. A.B., 1938, E.E., 1941, Stanford University.

RAMEY, Robert A., Jr. (M'46—F'58), Director, New Products Laboratories, Westinghouse Electric Corporation, P.O. Box 10596, Pittsburgh 35, Pa.
Born: December 14, 1918, Wayne, W.Va. B.S.(E.E.), 1943, M.Sc., 1945, Dr.Sc., 1948, University of Cincinnati. **Awards:** Basic Science Committee Best Paper Award, American Institute of Electrical Engineers, 1951.

RAMO, Simon (A'38—SM'44—F'50), Executive Vice President, Thompson Ramo Wooldridge, Inc., 8433 Fallbrook Ave., Canoga Park, Calif.; Research Associate, California Institute of Technology, Pasadena, Calif.
Born: May, 1913, Salt Lake City, Utah. B.S., 1933, University of Utah; Ph.D., 1936, California Institute of Technology. **Committees:** Board of Editors, 1946–53; Editorial Reviewer, 1954–55; Papers, 1941–45. **Awards:** Honorable Mention, 1941, Eta Kappa Nu; Electronic Achievement Award, Pacific Region, IRE, 1953; Raymond E. Hackett Award, 1955; W. Rupert Turnbull Memorial Award, IAS 1956 International Meeting; Regents' Lecturer, Univ. of California, Los Angeles, 1961.

RANGER, Richard H. (F'37)(L), President, Rangertone, Inc., 73 Winthrop St., Newark 4, N.J.
Born: June 13, 1889, Indianapolis, Ind. B.S., 1911, Massachusetts Institute of Technology. **Committees:** Meetings and Papers, 1928–30; New York Program, *chairman, 1930–32;* Papers, 1931–33. **Sections:** Northern New Jersey, Membership Committee, *chairman, 1954–55;* Program Committee, *chairman, 1956–58;* Executive Committee, 1954–58; Member, 1959.

RAPPAPORT, George (A'41—M'44—SM'46—F'56), Vice President, Government Electronics Division, Emerson Radio and Phonograph Corporation, 1140 East West Highway, Silver Spring, Md.
Born: December 7, 1919, New York, N.Y. B.E.(E.E.), 1941, City College of New York; M.S.(E.E.), 1947, Ohio State University. **IRE Offices:** Director, 1954–56. **Committees:** Annual Review, 1948–52; Membership, 1954–56; Sections, 1950–51; Standards, 1949–52. **Professional Groups:** Aeronautical and Navigational Electronics, *chairman, 1952;* Airborne Electronics, *chairman, 1952.* **Sections:** Dayton, *secretary, 1947–48, chairman, 1948–49.*

RATCLIFFE, John A. (M'29—A'32—F'53), Director of the Radio Research Station, Department of Scientific and Industrial Research, Slough, England.
Born: December, 1902, Bacup, Lancashire, England. M.A., 1927, Cambridge. **IRE Offices:** Vice President, 1960, **Awards:** Fellow, The Royal Society.

RAU, David S. (A'22—SM'45—F'60), Vice President, Engineering, RCA Communications, Inc., 66 Broad St., New York 4, N.Y.
Born: April 23, 1899, Little Egg Harbor Township, N.J. B.S., 1922, U. S. Naval Academy. **Committees:** Admissions, 1947–48; Convention Registration, 1953–55; Transmitters and Antennas, 1936–42. **Professional Groups:** Communications Systems Administrative Committee, 1953–55; Membership, 1953–54; Papers, 1955–56; Nominations, 1959–60; Awards, 1959–60. **Awards:** Navy Commendation Ribbon, 1946.

RAUCH, Lawrence L. (SM'52—F'60), Professor, Instrumentation, University of Michigan, 1525 East Engineering, Ann Arbor, Mich.
Born: May, 1919, Los Angeles, Calif. A.B., 1941, University of Southern California; A.M., 1947, Ph.D., 1949, Princeton Univer-

sity. **Committees:** Awards, 1948. **Professional Groups:** Space Electronics and Telemetry Administrative Committee, 1957–63. **Awards:** Army and Navy Certificate of Appreciation for an Outstanding Contribution to the Work of the Office of Scientific Research and Development during World War II, 1947; Special Award for Valuable Contribution to the Field of Telemetry by IRE Professional Group on Telemetry and Remote Control, 1957; Annual Award of the National Telemetering Conference for Outstanding Contribution to the Telemetering Field, 1960.

RAYMOND, Richard C. (SM'52—F'58), Manager, Technical Military Planning Operation, General Electric Company, 735 State St., Santa Barbara, Calif.
Born: August, 1917, Spokane, Wash. B.S.(Physics), 1938, State College of Washington; Ph.D.(Physics), 1941, University of California.

REED, Henry R. (SM'53—F'60), Professor, Electrical Engineering, Engineering Consultant, University of Maryland, College Park, Md.
Born: February, 1904, Minneapolis, Minn. B.S.(E.E.), 1925, M.S.(E.E.), 1927, University of Minnesota; E.E., 1930, South Dakota State College; Ph.D., 1941, The State University of Iowa. **Professional Groups:** Antennas & Propagation, Radio Frequency Interference. **Sections:** Washington Section, Award Committee, *chairman, 1960–61.* **Awards:** National Prize Paper, American Institute of Electrical Engineers, 1937; Fellow, American Institute of Electrical Engineers, 1947.

REED, Myril B. (A'41—SM'48—F'61), Professor, Michigan State University, East Lansing, Mich.
Born: February, 1902, Woodruff, Utah. B.S.(E.E.), 1926, University of Colorado; M.S.(E.E.), 1931, Ph.D., 1935, University of Texas.

REICH, Herbert J. (A'26—M'41—SM'43—F'49), Professor of Electrical Engineering, Dunham Laboratory, Yale University, New Haven, Conn.
Born: October, 1900, Staten Island, N.Y. M.E., 1924, Ph.D.(Physics), 1929, Cornell University. **IRE Offices:** Director, 1944, 1948–51. **Committees:** Admissions, 1944–46; Appointments, 1950; Awards, 1948; Board of Editors, 1943–53; Constitution and Laws, 1949–50; Education, 1945–53, *chairman, 1949–51;* Electron Tubes, 1946–49, 1956–61, *vice-chairman, 1959–61;* Electron Tubes and Solid State Devices, 1949–53; Electronics, 1941–46; Vacuum Tubes, 1945–46. **Professional Groups:** Electron Devices Administrative Committee, 1952. **IRE Representative:** University of Illinois, 1941–43; Yale University, 1948–50. **Awards:** Fellow, American Physical Society; Fellow, American Institute of Electrical Engineers.

REID, John D. (A'41—M'44—SM'46—F'49), Executive Vice President, A.R.&T. Electronics, Inc., P.O. Box 627, Little Rock, Ark.
Born: March, 1907, Morristown, N.J. 1925–28. Attended University of Pennsylvania. **IRE Offices:** Director, 1950–51. **Committees:** Awards, 1951–54; Board of Editors, 1947–51; Editorial Administrative, 1949–50; Membership, 1949–50; Papers Procurement, 1945–49, *chairman, 1948–49;* Papers Review, 1946; Policy Development, 1950–51; Professional Groups, 1948, 1950; Receivers, 1946–59, *vice-chairman, 1950–56.* **Professional Groups:** Broadcast & Television Receivers Administrative Committee, 1951–60. **Sections:** Cincinnati, *chairman, 1946–47;* Little Rock, *chairman, 1957–58.* **IRE Representative:** National Electronics Conference, Board of Directors, 1950–51. **Awards:** Naval Ordnance Development Award, United States Navy, 1945; Presidential Certificate of Merit, 1948.

REINARTZ, John L. (M'32—SM'43—F'58), Captain, U.S.N.R., Retired. Residence: 220 Mar Vista Dr., Aptos, Calif.
Born: March 6, 1894, Crefeld, Germany. **Committees:** Membership, 1943–46. **Awards:** Silver Cup, Second District Radio Council, 1923; Outstanding Service Award, Central California Radio Council, 1960; Commendation, California Legislature, 1960.

RETTENMEYER, Francis X. (A'26—M'29—SM'43—F'44), Engineering Department, Philco Corporation, 4700 Wissahickon Ave., Philadelphia 44, Pa.
Born: July 27, 1904, Kendrick, Okla. B.S.(E.E.), 1925, University of Colorado. **Committees:** Administrative Committee of the Board of Editors, 1951–53; Board of Editors, 1946–53; Editorial Administrative, 1951–53; Membership, 1938–40; Papers, 1942–45; Papers Procurement, 1947–49; Public Relations, 1941–42; Publicity, 1939; Radio Receivers, 1936–37; Radio Receivers and Parts, 1929–30; Sections, 1936.

REUKEMA, Lester E. (A'30—SM'46—F'51), Professor Emeritus of Electrical Engineering, University of California, 123 Cory Hall, Berkeley, Calif.
Born: August 31, 1891, Chicago, Ill. B.S., 1922, M.S., 1924, Ph.D., 1926, University of California. **Sections:** San Francisco, *secretary, 1946–47, vice-chairman, 1947–48, chairman, 1948–49.* **Awards:** Fellow, American Institute of Electrical Engineers, 1946.

RIBLET, Henry J. (A'45—M'55—F'58), President, Microwave Development Laboratories, Fab-Braze Corporation; 92 Broad St., Wellesley 57, Mass.; Chairman of the Board, Ferrotec, Inc.; Strand Laboratories, Inc.; Visiting Lecturer for the 1960 Spring Term at Harvard University, Cambridge, Mass.; Professor, Engineering Practice, Harvard University.
Born: July 21, 1913, Calgary, Alberta, Canada. B.S., 1935, M.A., 1937, Ph.D., 1939, Yale University. **Committees:** Antennas and Waveguides, 1950–51; Editorial Reviewer, 1954–60. **Professional Groups:** Technical Program Committee, PGMTT National Symposium, *chairman, 1959.*

RICE, Stephen O. (SM'47—F'53), Member, Technical Staff, Bell Telephone Laboratories, Inc., 463 West St., New York, N.Y.
Born: November, 1907, Shedds, Ore. B.S., 1929, Oregon State College. **Committees:** Papers Review, 1947.

RICHMAN, Donald (S'42—A'45—SM'52—F'61), Associate Director, Research, Hazeltine Research Corporation, 59-25 Little Neck Pkwy., Little Neck 62, N.Y.
Born: September 15, 1922, Brooklyn, N.Y. B.E.E., 1943, City College; M.E.E., 1948, Brooklyn Polytechnic Institute. **Awards:** IRE Vladimir K. Zworykin Television Prize, 1957.

RICHARDSON, Avery G. (A'25—M'29—SM'43—F'56), Manager, Technical Services, ITT Laboratories, Inc., 500 Washington Ave., Nutley 10, N.J.
Born: March, 1901, Brooklyn, N.Y. E.E., 1924, Brooklyn Polytechnic Institute. **Committees:** Navigation Aids, 1954–61. **Sections:** Northern New Jersey Subsection, *secretary, 1950, chairman, 1952.* **Awards:** Certificate of Commendation, United States Navy; National Defense Research Council Award.

RICHARDSON, William G. (A'36—SM'45—F'55), Director of Engineering, Canadian Broadcasting Corporation, 140 Wellington St., Ottawa, Ont., Canada.
Born: December 5, 1903, Watford, Ont., Canada. B.Sc.(E.E.), 1926, Queens' University.

RICHMOND, Harold B. (A'14—M'23—F'29)(L), Retired as Chairman of the Board of General Radio Company. Residence: 100 Memorial Dr., Cambridge 42, Mass.
Born: March 22, 1892, Medford, Mass. S.B., 1914, Massachusetts Institute of Technology; D.Eng. (Honorary), 1947, Norwich University. **Committees:** Admissions, 1940; Nominations, 1940; Preparedness, 1940–41; Public Relations, 1947–48; Registration of Engineers, *chairman, 1940–43;* Standardization, 1928–31. **Awards:** Presidential Medal for Merit, Guided Missiles Development, 1947; Highest Honor Award, Scientific Apparatus Makers Association.

RICHTER, Walther (SM'44—F'53), Consulting Electrical Engineer, 8575 N. Hawthorne Rd., Milwaukee 17, Wis.
Born: May 17, 1900, Heidelberg, Germany. B.S., 1923, Institute of Technology, Karlsruhe, Germany. **Committees:** Industrial Electronics, 1947–58; Papers Procurement, 1946. **Professional Groups:** Instrumentation Administrative Committee, 1954–55; Industrial Electronics Administrative Committee, 1952–55. **Awards:** Fellow, American Institute of Electrical Engineers, 1942.

RIDEOUT, Vincent C. (M'44—SM'53—F'60), Professor and Associate Chairman, Electrical Engineering Department, University of Wisconsin, Madison 6, Wis.
Born: May, 1914, Chinook, Alberta, Canada. B.Sc., 1938, University of Alberta; M.S., 1940, California Institute of Technology. **Committees:** Education, 1952–53, 1955, 1958–60.

RINIA, Herre (SM'51—F'54), Director of Research, Philips Research Laboratories, Kastanjelaan, Eindhoven, Netherlands.
Born: March 30, 1905, Cornwerd, Friesland, Netherlands. M.A.(E.E.), 1928, Delft Institute of Technology. **IRE Offices:** Vice President, 1956; Director, 1956. **Awards:** Member, Koninklijke Nederlandse Akademie van Wetenschappen, 1947; Officer of the Order of Orange, Nassau, 1955.

RIVES, Tom C. (SM'48—F'54), Consultant, 2905 Sunset Way, Pass-A-Grille Beach, Fla.
Born: December 3, 1892, Montgomery, Ala. B.S.(E.E.), 1916, E.E., 1917, Alabama Polytechnic Institute; M.S. 1927, Sheffield Scientific School, Yale University. **Committees:** Professional Groups, 1958–60. **Professional Groups:** Engineering Management, 1951–54, *chairman, 1953–54;* Aeronautical and Navigational Electronics, *vice-chairman, 1956;* Administrative Committee, Military Electronics, 1947–58; Nominating Committee, Engineering Management, *chairman, 1957–58;* Awards Committee, PGANE, *chairman, 1959–60.*

ROBERTS, Walter van B. (A'22—F'29)(L), Retired. 155 Hodge Rd., Princeton, N.J.
Born: November 13, 1893, Titusville, Pa. B.S., 1915, E.E., 1917, Ph.D., 1924, Princeton University. **Committees:** Use of the Transmission Unit, 1928–29.

ROBERTSON, Sloan D. (S'37—A'41—SM'45—F'61), Head, Research and Development, Arizona Division, Goodyear Aircraft Corporation, Litchfield Park, Ariz.
Born: August 8, 1915, Aurora, Mo. B.E.E., 1936, University of Dayton; M.Sc., 1938, Ph.D., 1941, Ohio State University. **Professional Groups:** Microwave Theory and Techniques Administrative Committee 1955–59, *secretary-treasurer, 1955–56.* **Sections:** New York, Executive Committee, 1952–53.

ROCHESTER, Nathaniel (S'41—A'43—M'46—SM'49—F'58), Manager, Experimental Machines Research, International Business Machines Corporation, Research Laboratory, Yorktown, N.Y.
Born: January 14, 1919, Buffalo, N.Y. B.Sc.(E.E.), 1941, Massachusetts Institute of Technology. **Committees:** Annual Review, 1949–52; Standards, 1951–52; Subcommittee on Definitions, 1951–54, *chairman, 1952–54;* Task Group on Pulse Definitions, 1952; Technical Committee on Electronic Computers, 1948–55, *vice-chairman, 1950–51, chairman, 1951–52.* **Professional Groups:** Information Theory Editorial Advisory Committee, 1959. **IRE Representative:** Eastern Joint Computer Conference, *general chairman, 1960.*

ROCKWELL, Ronald J. (A'25—M'31—SM'43—F'45), Vice President in Charge-of-Engineering, Crosley Broadcasting Corporation, 140 W. 9 St., Cincinnati, Ohio.
Born: February 5, 1904, Omaha, Neb. B.S.(E.E.), 1927, Iowa State College; E.E. Professional, 1946. **Committees:** Electroacoustics, 1951–55; Sections, ex officio, 1938–39. **Sections:** Cincinnati, *chairman, 1938–39.*

ROCKWOOD, Alan C. (A'25—M'30—SM'43—F'59), Manager of Design, Development & Specifications, Receiving Tube Division, Raytheon Company, Center St., Quincy, Mass.
Born: May 15, 1901, Iowa City, Iowa. B.A., 1921, B.E.(E.E.), 1922, M.S., 1923, State University of Iowa. **Committees:** Electron Devices, 1952–56; Electron Tubes, 1946–49, 1955–58; Electron Tubes and Solid State Devices, 1949–52; Electronics, 1943–46; Vacuum Tubes, 1945–46. **Awards:** Naval Ordnance Development Award, 1945.

ROETKEN, Alfred A. (A'29—M'40—SM'43—F'53), Research Engineer, Bell Telephone Laboratories, Inc., Mountain Ave., Murray Hill, N.J.
Born: October, 1902, Covington, Ky. B.S.(E.E.), 1927, M.S., 1929, Ohio State University.

ROGERS, Aldred W. (M'50—SM'56—F'60), Assistant Chief and Technical Director of Research and Development, Office of the Chief Signal Officer, DA, The Pentagon, Washington 25, D.C.
Born: December 24, 1909, Laurel, Del. B.S.(E.E.), 1930, University of Delaware. **Professional Groups:** Component Parts Administrative Committee, *Founding Member, 1953, chairman, 1955–56, ex officio member, 1956–59.* **Awards:** Meritorious Service Award for Outstanding Service in Preparing Signal Corps Equipment for Use in the Tropics, U. S. Army, 1946.

ROHDE, Lothar (M'55—SM'55—F'56), Owner and Technical Director, Rohde and Schwarz, 7 Tassiloplatz, Munich 9, Germany.
Born: October 4, 1906, Leverkusen, Germany. Ph.D., 1931, University of Jena; Dr.Ing. (Honorary), 1953, Technische Hochschule, Munich, Germany.

ROMNES, H. I. (SM'46—F'61), President, Western Electric Company, Inc., 195 Broadway, New York 7, N.Y.
Born: March 2, 1907, Stoughton, Wis. B.S.(E.E.), 1928, LL.D. (Honorary), 1960, University of Wisconsin.

RONCI, Victor L. (SM'51—F'61), Director, Pennsylvania Laboratories, Bell Telephone Laboratories, Inc., 555 Union Blvd., Allentown, Pa.
Born: April 28, 1899, New York, N.Y. **Awards:** Naval Ordnance Development Award, 1945.

ROSE, Albert (A'36—M'40—SM'43—F'48), Fellow, RCA Laboratories, Princeton, N.J.
Born: March, 1910, New York, N.Y. A.B., 1931, Ph.D.(Physics), 1935, Cornell University. **Committees:** Editorial Reviewer, 1954. **Awards:** Television Broadcasters Association Award, 1945; Journal Award, Society of Motion Picture Engineers, 1946; IRE Morris Liebmann Memorial Prize, 1946; David Sarnoff Gold Medal, SMPTE, 1958.

ROSE, George M., Jr. (A'31—M'38—SM'43—F'54), Manager, Receiving Tube Advanced Development Tube Division, Radio Corporation of America, 415 S. 5th St., Harrison, N.J.
Born: November 22, 1907, Nashville, Tenn. B.S.(E.E.), 1928, University of North Carolina. **Committees:** Admissions, 1954–60, *chairman, 1955–56.* **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940.

ROSENBERG, Paul (A'43—SM'53—F'61), Director, Research, Paul Rosenberg Associates, 100 Stevens Ave., Mount Vernon, N.Y.
Born: March, 1910, New York, N.Y. B.A., 1930, Columbia College; M.A., 1933, Ph.D., 1941, Columbia University. **Awards:** Fellow, American Association for Advancement of Science, 1943; President, Institute of Navigation, 1950–51; Talbert Abrams Award, American Society of Photogrammetry, 1955.

ROTHE, Horst (M'48—SM'55—F'59), Professor, Dr.Eng., Director of the Institute for High Frequency Technics and Physics, Technical University (Institute of Technology), Karlsruhe, Kaiserstr. 12, Karlsruhe, West Germany.
Born: December, 1899, Hosterwitz/Dresden, Germany. Dipl. Eng., 1923, Dr.Eng., 1925, Technical University (Institute of Technology), Dresden, Germany. **Committees:** Electron Tubes, 1955–61.

ROYDEN, George T. (A'19—M'27—F'33)(L), Retired. 912 West Linger Lane, Phoenix 21, Ariz.
Born: June 20, 1895, Fort Clark, Tex. A.B., 1917, Engineer, 1924, Stanford University. **IRE Offices:** Director, 1946. **Committees:** Admissions, 1941–48, *chairman, 1943–48;* Awards, 1946; Constitution and Laws, 1944, 1949–50; Convention Record, 1953–56; National Convention, 1946; New York Program, 1938–42; Professional Groups, 1952–53; Sections, 1941–45. **Professional Groups:** Communications Systems, *chairman, 1952–53,* Administrative Committee, 1952–55. **Sections:** San Francisco, *chairman, 1933–34.* **IRE Representative:** IRE 7th Region Technical Conference and Electronics Exhibit, *chairman, 1961,* Phoenix.

ROYS, Henry E. (A'27—SM'47—F'55), Chief Engineer, RCA Victor Record Division, Indianapolis, Ind.
Born: January 7, 1902, Beaver Falls, Pa. B.S.(E.E.), 1925, University of Colorado. **Committees:** Audio and Video Techniques, 1948–49; Editorial Reviewer, 1954–60; Papers Review, 1947–53; Sound Recording and Reproducing, 1949–56, *chairman, 1949–52;* Standards, 1950–52; Video Techniques, 1949–50. **IRE Representative:** ASA Sectional Committee (Z57) on Standards for Sound Recording, 1951–56, *chairman, 1957–60;* EIA Phonograph Combinations and Home Recordings (R7), *chairman, 1956–59;* EIA Sound Systems Components, P-8, *chairman, 1960.* **Awards:** Fellow, Audio Engineering Society, 1953; Fellow, Acoustical Society of America, 1954; IRE-PGA Achievement Award, 1956; The Emile Berliner Award, Audio Engineering Society, 1957.

RUMSEY, Victor H. (SM'50—F'60), Professor, University of California, Berkeley, Calif.
Born: November 22, 1919, Devizes, England. B.A.(Math.), 1941, Cambridge. **Committees:** Antennas and Waveguides, 1950–51; Editorial Reviewer, 1954–60. **Professional Groups:** Antennas and Propagation Administrative Committee, 1954–56; Antenna Papers Review, *chairman, 1955–59.*

RUSSELL, John B. (A'36—SM'45—F'58), Manager, Electronics Laboratory, General Electric Company, Syracuse, N.Y.
Born: March 10, 1907, Boston, Mass. B.S., 1928, M.Sc., 1931, D.Sc., 1950, Massachusetts Institute of Technology. **Committees:** Circuit Theory, 1944, 1947–51, *vice-chairman, 1948–49;* Electronics, 1943, 1954–56; Education, 1958–61. **Professional Groups:** Education Administrative Committee, 1960–61. **Sections:** Syracuse, *vice-chairman, 1955–56, chairman, 1957–58; director,* Region 1, *1960–61.* **IRE Representative:** Columbia University, 1941–45. **Awards:** Fellow, American Institute of Electrical Engineers; Fellow, New York Academy of Sciences.

RUST, William M., Jr. (SM'47—F'53), Exploration Coordinator, Humble Oil & Refining Company, 1200 Main, Houston 1, Tex.
Born: January, 1907, Liberty, Tex. B.A., 1928, M.A., 1929, Ph.D., 1931, The Rice Institute. **IRE Offices:** Director, 1951–52. **Committees:** Awards, 1953–55, *chairman, 1954;* Awards Coordination, 1955–56, *chairman, 1956;* Constitution and Laws, 1958–60, *chairman, 1958–59;* Professional Groups, 1953–58. **Awards:** President, Society of Exploration Geophysics, 1945.

RYAN, Francis M. (J'14—A'17—M'26—F'40)(L), Vice President and Director of Engineering, Page Communications Engineers, Inc., 2001 Wisconsin Ave., N.W., Washington, D.C.
Born: February 4, 1895, Seattle, Wash. B.S.(E.E.), 1919, University of Washington. **Committees:** Admissions, 1939; Meetings and Papers, 1930; New York Program, 1930; Papers, 1931–36; Railroad and Vehicular Communication, 1945–46; Tellers, 1938. **Professional Groups:** Communications Systems, *chairman, 1956.* **IRE Representative:** Aeronautic Radio Research, Department of Commerce, 1930; Liaison Committee on Aeronautic Radio Research, 1936, 1939–41.

RYBNER, Jorgen C. F. (A'25—SM'47—F'53), Professor, Royal Technical University of Denmark, Ostervoldgade 10 G, Copenhagen K, Denmark.
Born: November 26, 1902, Frederiksberg, Denmark. M.S.(E.E.), 1926, Royal Technical University of Denmark. **IRE Offices:** Vice President, 1951. **IRE Representative:** President, Danish National Committee of URSI, 1948; Royal Technical University of Denmark, 1959–60. **Awards:** Member, Danish Academy of Technical Sciences, 1937.

RYDER, John D. (A'29—SM'45—F'52), Dean, College of Engineering, Michigan State University, East Lansing, Mich.
Born: May 8, 1907, Columbus, Ohio. B.E.E., 1928, M.S., 1929, Ohio State University; Ph.D., 1944, Iowa State College. **IRE Offices:** President, 1955; Director, 1952–59; Editor, 1958–59. **Committees:** Appointments, 1954–57, ex officio, 1955, *chairman, 1957;* Editorial Board, 1956, *chairman, 1958;* Editorial Reviewer, 1954–60; Education, 1945–46, 1949–60, *chairman, 1953–54;* Executive, 1954–59, *chairman, 1955;* Finance, 1954–57; Membership Relations Coordinator, 1954–57; Nominations, 1956–59, *chairman, 1957;* Papers Review, 1948–53; Policy Advisory, 1952–53, *chairman, 1953;* Professional Groups, 1956–57. **Professional Groups:** Education, *chairman, 1957–58.* **Sections:** Des Moines-Ames, *vice-chairman, 1948.* **IRE Representative:** IRE-AIEE Electron Tube Conference, *vice-chairman, 1951.*

RYDER, Robert M. (SM'45—F'57), Transistor Development Engineer, Bell Telephone Laboratories, Inc., Mountain Ave., Murray Hill, N.J.
Born: March, 1915, Yonkers, N.Y. B.S., 1937, Ph.D., 1940, Yale University. **Committees:** Admissions, 1960; Advanced Developments, 1944–46; Conference Committee on Electron Tube Research, 1948–50, *chairman, 1951;* Editorial Reviewer, 1954–60; Electron Devices, 1949–56, *vice-chairman, 1952–54;* Electron Tubes, 1948–49; Electron Tubes and Solid State Devices, 1949–52; Semiconductor Devices, *chairman, 1949–53;* Task Force on Unit Definitions and Tests, *chairman, 1947–51.* **IRE Representative:** IRE-AIEE Committee on Noise Definitions, 1951.

SALINGER, Hans W. G. (A'37—SM'46—F'51), Scientific Advisor, Components and Instrumentation Laboratory, International Telephone & Telegraph Laboratories, 3700 E. Pontiac St., Fort Wayne, Ind.
Born: April 1, 1891, Berlin, Germany. Ph.D., 1915, University of Berlin. **Committees:** Papers Procurement, 1947–50. **Sections:** Fort Wayne, *chairman, 1949–50.*

SALISBURY, Winfield W. (SM'44—F'47), Technical Director, Microwave Power Laboratory, Varo Manufacturing Co., Inc., 2201 Walnut St., Garland, Tex.
Born: December 27, 1903, Carthage, Ill. A.B., 1926, University of Iowa; D.S. (Honorary), 1950, Cornell College. **Committees:** Education, 1946; Nuclear Studies, 1948–50; Papers Review, 1946; Railroad and Vehicular Communications, 1945–48. **Sections:** East Bay Subsection, *chairman, 1953–54.*

SALZBERG, Bernard (J'25—A'30—M'38—SM'43—F'52), Chief Scientist, Airborne Instrument Laboratory, Walt Whitman Rd., Melville, L.I., N.Y.
Born: July 22, 1907, New York, N.Y. E.E., 1929, M.E.E., 1933, D.E.E., 1941, Polytechnic Institute of Brooklyn. **Committees:** Electronics, 1943–46; Membership, 1938–46. **Professional Groups:** Electron Devices, 1958–59; Military Electronics, 1958. **Awards:** IRE Harry Diamond Memorial Award, 1955.

SAMUEL, Arthur L. (A'24—VA'39—SM'44—F'45), Research Consultant, IBM Research Center, Yorktown, Heights, N.Y.
Born: December 5, 1901, Emporia, Kan. A.B., 1923, College of Emporia; S.B., 1925, S.M., 1926, Massachusetts Institute of Technology; D.Sc. (Honorary), 1946, College of Emporia. **Committees:** Annual Review, 1950–51; Editorial Reviewer, 1955–60; Electron Tubes, 1946–47; Electron Tubes and Solid State Devices, 1949–54, *vice-chairman, 1950–51, chairman, 1951–52;* Electronics, 1944–45; Papers Review, 1952–53; Research, 1949–50; Standards, 1951–52; Symbols, 1946–52; Vacuum Tubes, 1945. **Sections:** Mid-Hudson Subsection, *chairman, 1951–53.* **Awards:** Paper Award, 1937.

SAMUELSON, Robert E. (SM'45—F'57), Assistant General Manager for Research & Development, Motorola Inc., Western Center, 8201 E. McDowell Rd., Scottsdale, Ariz.

Born: February, 1911, St. Paul, Minn. B.Sc.M.E., 1933, University of Minnesota; M.S.(E.E.), 1947, Ph.D.(E.E.), 1949. Northwestern University. **Sections:** Phoenix, *chairman, 1952–53.*

SANDERS, Royden C. (S'35—A'38—SM'55—F'61), President, Sanders Associates, Inc., 95 Canal St., Nashua, N.H.
Born: August 27, 1917, Camden, N.J. **Awards:** Distinguished Public Service Award, U. S. Navy, 1958.

SANDRETTO, Peter C. (A'30—M'40—SM'43—F'54), Deputy Executive, U. S. Defense Group, International Telephone and Telegraph Corporation, 500 Washington Ave., Nutley, N.J.; Brigadier, General, U. S. Air Force Reserve.
Born: April, 1907, Pont Canavese, Italy. Graduate, 1927, Joliet Junior College; B.S.(E.E.), 1930, E.E., 1938, Purdue University. **Committees:** Annual Review, 1950–51; Board of Editors, 1944–52; Industrial Electronics, 1947–48; Membership, 1940; Navigation Aids, 1946–55, *chairman, 1950–55;* Papers, 1942–44; Paper Procurement, 1942–43; Professional Groups, 1952–54; Regular Papers, 1941; Standards, 1950–54. **Professional Groups:** Aeronautical and Navigational Electronics, 1952–58, *vice-chairman, 1952–58.* **Sections:** Chicago, *secretary-treasurer, 1940–41.* **Awards:** Bronze Star, 1945.

SARNOFF, David (A'12—M'14—F'17)(L), Chairman of the Board and Chief Executive Officer, Radio Corporation of America, 30 Rockefeller Plaza, New York, N.Y.; Board Chairman, RCA Communications, Inc.; Director, National Broadcasting Co., Inc.
Born: February 27, 1891, Uzlian, Minsk, Russia. D.Sc. (Honorary), 1927, St. Lawrence University; D.Sc. (Honorary), 1935, Marietta College; D.Lit. (Honorary), 1935, Norwich University; D.C.S. (Honorary), 1938, Oglethorpe University; D.Sc. (Honorary), 1939, Suffolk University; LL.D. (Honorary), 1946, Jewish Theological Seminary; LL.D. (Honorary), 1946, Bethany College; D.C.S. (Honorary), 1948, Boston University; LL.D. (Honorary), 1950, John Carroll University; L.H.D. (Honorary), 1950, University of Louisville; D.Sc. (Honorary), 1952, Pennsylvania Military College; LL.D. (Honorary), 1952, University of Pennsylvania; LL.D. (Honorary), 1953, Fairleigh Dickinson University; D.Eng. (Honorary), 1953, Drexel Institute of Technology; LL.D. (Honorary), 1954, University of Southern California; LL.D. (Honorary), 1954, Pratt Institute; D.Sc. (Honorary), 1955, University of Notre Dame; LL.D. (Honorary), 1955, Fordham University; LL.D. (Honorary), Dropsie College, 1957; LL.D. (Honorary), University of Rhode Island, 1957; D.Sc. (Honorary), 1958, Temple University. **IRE Offices:** Secretary, 1915–17; Director, 1915–17; Manager, 1918–20. **Committees:** Constitutional Amendments, 1915; Financial Matters, 1915; Increase of Membership, 1916–18; Publicity, 1915–19, *chairman, 1916–19;* Wave Length Regulation, 1916–17. **Sections:** San Francisco, 1915. **Awards:** Peter Cooper Medal for Advancement of Science, 1949; Grand Medal of Association des Ingénieurs-Docteurs of France, 1950; National Chairman, 1951, Red Cross Fund Campaign; Honorary Life Member, Engineers Club of Philadelphia, 1952; Honorary Fellow, Weismann Institute of Science, Rehovoth, Israel, 1952; Appointed Brigadier General, Reserve Army of U. S., 1953; Member of Honor Société Française des Ingénieurs Téchniciens du Vide, 1953; IRE Founders Award, 1953; First Keynoter Award, National Association of Radio-Television Broadcasters, 1953; Medal of Merit, Liaison Center, Professional Engineers and Inventors of France, 1954; Gold Medal, The Hundred Year Association of New York, 1955; James Forrestal Memorial Medal of National Security Industrial Association, 1956; U. S. Army Medal for Exceptional Civilian Service, 1956; Certificate of Appreciation, Illuminating Engineering Society, 1956; Gold Pin Award, Radio Pioneers, 1957; Life Member (Honorary), IRE, Australia, 1957.

SCHADE, Otto H. (M'40—SM'43—F'51), Staff Engineer, RCA Tube Department, Radio Corporation of America, 415 S. 5th St., Harrison, N.J.
Born: April 27, 1903, Schmalkalden, Germany. Attended Technische Hochschule, Berlin-Charlottenberg, 1922–24; D.E.E. (Honorary), 1953, Rensselaer Polytechnic Institute. **Committees:** Editorial Reviewer, 1954–60. **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940; RCA Victor Award of Merit, Radio Corporation of America, 1946; IRE Morris Liebmann Memorial Prize, 1950; David Sarnoff Gold Medal, 1951; Fellow, Society of Motion Picture and Television Engineers, 1951; SMPTE Progress Medal, 1960.

SCHAIRER, Otto S. (M'43—SM'43—F'57), Consultant for RCA. Residence: 89 Battle Rd., Princeton, N.J.
Born: October 7, 1879, Saline, Mich. A.B., 1901, B.S.(E.E.), 1902, Dr.Eng. (Honorary), 1942, University of Michigan.

SCHELDORF, Marvel W. (A'26—SM'46—F'58), Senior Engineer, Armour Research Foundation, 10 W. 35 St., Chicago 16, Ill.
Born: February 15, 1902, Westside, Iowa. B.Sc.(E.E.), 1923, Iowa State College. **Committees:** Antennas, 1946–50; Antennas and Waveguides, 1949–51; Papers Review, 1946–51.

SCHELKUNOFF, Sergei A. (A'40—F'44), Professor of Electrical Engineering, Columbia University, New York 27, N.Y.
Born: January 27, 1897, Samara, Russia. B.A., 1923, M.A., 1923, State College of Washington; Ph.D., 1928, Columbia University. **Committees:** Annual Review, 1947–48; Antennas, 1945–49; Antennas and Waveguides, 1949–51; Editorial Reviewer, 1954; Papers, 1942–45; Papers Review, 1946; Radio Wave Propagation and Utilization, 1945–48, *chairman, 1947–48;* Standards, 1947–48. **IRE Representative:** ASA Sectional Committee (C61) on Electric and Magnetic Magnitudes and Units, 1949–60. **Awards:** IRE Morris Liebmann Memorial Prize, 1942; Stuart Ballantine Medal, Franklin Institute, 1949; Fellow, American Association for the Advancement of Science; Fellow, American Institute of Electrical Engineers.

SCHELLENG, John C. (A'23—M'25—F'28)(L), Retired as Director of Radio Research, Bell Telephone Laboratories, Inc., Holmdel, N.J. Residence: 301 Bendermere Ave., Asbury Park, N.J.
Born: November 12, 1892, Freeport, Ill. A.B., 1915, Cornell University. **Committees:** Annual Review, 1937–38; Antennas, 1944–49; Antennas and Waveguides, 1949–50; Awards, 1943; Handbook, 1945–46; Methods of Testing Apparatus, Equipment and Devices, 1929–30, 1945–56; Radio Transmitters, 1945–48; Standardization, 1931–32; Standards, 1936–37; Transmitters, 1944–45; Transmitters and Antennas, 1936–45, *chairman, 1936–38.* **IRE Representative:** ASA Definitions Co-ordinating Committee, 1948; ASA Sectional Committee (C42) on Definitions of Electrical Terms, 1948–50; ASA Subcommittee (C42.13) on Communications, 1948–59; Joint IRE-AIEE-ASA (C42) Definitions Coordinating Committee, 1949–51.

SCHLEIMANN-JENSEN, Arne (A'45—SM'47—F'48), 23450 Ravensbury Ave., Los Altos Hills, Calif.
Born: July 27, 1906, Randers, Denmark. Radio and Telephone Course, Royal Technical University of Denmark, 1925–31.

SCHLESINGER, Kurt (A'41—SM'51—F'54), Engineering Consultant. Cathode Ray Tube Department, General Electric Company, Syracuse, N.Y.
Born: April, 1906, Berlin, Germany. Dipl. Eng., 1928, Dr. Eng. (Physics), 1929, Technische Hochschule, Berlin. **Professional Groups:** Broadcast and Television Receivers Administrative Committee, 1953–55. **Sections:** Chicago, *vice-chairman, 1953–54.*

SCHMIT, Dominic F. (A'25—M'38—SM'43—F'51), Staff Vice President, Product Engineering, Radio Corporation of America, Camden, N.J.
Born: August 30, 1902, Port Washington, Wis. B.S.(E.E.), 1923, University of Wisconsin.

SCHMITT, Otto H. (SM'44—F'55), Professor, Zoology and Physics (Biophysics), University of Minnesota, Minneapolis 14, Minn.
Born: April 6, 1913, St. Louis, Mo. B.A., 1934, Ph.D., 1937, Washington University. **Professional Groups:** Medical Elec-

tronics, *vice-chairman, 1954–55.* **IRE Representative:** IRE-AIEE-ISA Joint Executive Committee on Medicine and Biology, *chairman, 1958.* **Awards:** Sigma Xi Award, 1935; National Research Council Fellowship, 1937; Sir Halley Stewart Fellowship, 1938; Government Citation, 1950; Fellow, American Physical Society, 1953; Fellow, New York Academy of Sciences, 1959; Lovelace Award, 1960.

SCHOLZ, Carl E. (M'26—SM'43—F'56)(L), Retired as Vice President and Chief Engineer, American Cable and Radio Corporation. Residence: 518 Fulton St., Palo Alto, Calif.
Born: November 29, 1894, Campbell, Calif. B.A.(M E), 1917, Stanford University. **Committees:** Admissions, 1939, 1944–47; Constitution and Laws, 1938–40; Membership, 1934–40, *chairman, 1938–39;* Sections, 1938–40; Standardization, 1928–29; Tellers, 1941–44, *chairman, 1943–44.* **Professional Groups:** National Administration Committee on Communications Systems, 1955–58, *vice-chairman, 1956.* **Awards:** Fellow, American Institute of Electrical Engineers, 1955.

SCHOOLEY, Allen H. (A'35—SM'47—F'54), Associate Director of Research for Electronics, Naval Research Laboratory, Washington 25, D.C. During 1956, Research Adviser, Ministerio da Marinha, Rio de Janeiro, Brazil.
Born: December, 1909, Terril, Iowa. B.S.(E.E.), 1931, Iowa State College; M.S.(E.E.), 1932, Purdue University. **Professional Groups:** Engineering Management, Washington, D.C. Chapter, *vice-chairman, 1953–54, chairman, 1954–55.* **Sections:** Washington, D.C., *secretary, 1955–56, vice-chairman, 1956–57, chairman, 1957–58;* Executive Committee, 1955–60; Awards Committee, 1959–61; Organizer of Rio de Janeiro, Brazil Section in 1956. **IRE Representative:** U.S.A. National Committee, URSI, 1958–61; Official U.S.A. Delegate to XII General Assembly, International Union of Geodesy and Geophysics, Helsinki, Finland, 1960. **Awards:** Navy Distinguished Civilian Service Award, 1946; Fellow, AAAS, 1950.

SCHRADER, Harold J. (A'31—M'38—SM'43—F'54), Staff Engineer, Missile & Surface Radar, Defense Electronic Products, Radio Corporation of America, Moorestown, N.J.
Born: May 2, 1900, Schuyler, Neb. 1919–23. Attended University of Nebraska. **Sections:** Philadelphia, *chairman, 1938–39, secretary, 1942–44.*

SCHREIBER, Ernst H. (A'28—M'32—SM'43—F'57), Engineering Education Activities, The Pacific Telephone and Telegraph Company, 747 S. Hill St., Los Angeles 14, Calif.
Born: August 22, 1900, Chicago, Ill. A.B. (Physics), 1922, M.A. (Physics), 1923, University of California. **Sections:** Los Angeles, *chairman, 1932–33.*

SCHRENK, Matthew H. (SM'46—F'57), Research Coordinator, Department of the Navy, Office of Naval Research, 17 St. and Constitution Ave., Washington 25, D.C.
Born: September 6, 1902, Naperville, Ill. B.A., 1922, North Central College; M.A., 1926, Syracuse University; D.Sc. (Honorary), 1959, North Central College. **Professional Groups:** Administrative Committee, Military Electronics, 1957. **Sections:** Washington, *acting vice-chairman, 1952;* Membership Committee, *chairman, 1953.* **Awards:** Presidential Certificate of Merit, 1946; Fellow, American Physical Society, 1952.

SCHROEDER, Alfred C. (A'38—SM'46—F'54), Color Television Research Engineer, RCA Laboratories, Princeton, N.J.
Born: February 28, 1915, West New Brighton, N.Y. B.S., M.S., 1937, Massachusetts Institute of Technology. **Awards:** Radio Corporation of America Laboratory Awards, 1947, 1950, 1951, 1952, 1957.

SCHUCK, O. Hugo (A'34—M'44—SM'49—F'57), Director of Research, Military Products Group, Minneapolis-Honeywell Regulator Company, 2600 Ridgeway Road, Minneapolis 13, Minn.
Born: September 20, 1909, Philadelphia, Pa. B.S.(E.E.), 1931, M.S.(E.E.), 1932, Elect. Eng., 1938, University of Pennsylvania. **Professional Groups:** Administrative Committee on Automatic Control, 1954–. **Sections:** Twin Cities, *vice-chairman, 1947, chairman, 1948.* **Awards:** Certificate of Appreciation, United States Navy, Department of Defense, 1947.

SCHULZ, Elmer H. (A'38—SM'46—F'58), Vice President, Armour Research Foundation of Illinois Institute of Technology, 10 W. 35 St., Chicago 16, Ill.
Born: October, 1913, Lockhart, Tex. B.S.(E.E.), 1935, M.Sc. (E.E.), 1936, University of Texas; Ph.D., 1946, Illinois Institute of Technology. **IRE Offices:** Director, 1958–59. **Committees:** Appointments, 1959–60; Education, 1946–48; Industrial Electronics, 1949–56; Policy Advisory, 1959–60. **Professional Groups:** Industrial Electronics Administrative Committee, 1953–56. **Sections:** Chicago, *chairman, 1949–50;* Region #5, *director, 1958.* **IRE Representative:** National Electronics Conference, 1959. **Awards:** Fellow, American Institute of Electrical Engineers, 1950; Fellow, American Astronautical Society, 1959.

SCHWAN, Herman P. (M'53—SM'55—F'59), Professor of Electrical Engineering, Moore School of Electrical Engineering, University of Pennsylvania, Philadelphia 4, Pa.
Born: August 7, 1915, Aachen, Germany. Ph.D. (Physics & Biophysics), 1940, Dr. habil. (Biophysics), 1946, University of Frankfurt, Germany. **Professional Groups:** Executive Committee, Medical Electronics, 1955–58; Medical Electronics, *chairman, 1960–61.* **IRE Representative:** Joint Executive Committee Medical Electronics, IRE-AIEE-ISA, 1955–57, *vice-chairman, 1958, chairman, 1959.*

SCHWARTZ, Leonard S. (S'42—A'45—M'45—SM'47—F'61), Project Director, Adjunct Professor of Electrical Engineering, Research Consultant, College of Engineering, New York University, New York 53, N.Y.
Born: May, 1914, Pittsburgh, Pa. B.S., 1936, M.S. (Physics), 1939, University of Pittsburgh. **Committees:** Information Theory and Modulation Systems, 1959–61. **Awards:** First Prize Best Paper Award, American Institute of Electrical Engineers, 1956.

SCHWARZ, Bertram A. (M'29—SM'43—F'55), Technical Assistant to the General Manager, Delco Radio Division, General Motors Corporation, Kokomo, Ind.
Born: July 16, 1901, Cambridge, Mass.

SCOTT, Hermon H. (M'35—SM'43—F'52), President and Chairman of the Board, H. H. Scott, Inc., 111 Powdermill Road, Maynard, Mass.; Independent Consultant, Lincoln, Mass.; Chairman of the Board, Institute of High Fidelity Manufacturers; Executive Vice President, Audio Engineering Society.
Born: March 28, 1909, Somerville, Mass. B.S., 1930, M.S., 1931, Massachusetts Institute of Technology. **Committees:** Audio Techniques, 1950–53, *vice-chairman, 1950–52;* Board of Editors, 1950–53; Editorial Reviewer, 1954; Electroacoustics, 1941–47. **Sections:** Boston, *vice-chairman, 1948–49, chairman, 1949–50;* Awards Committee, *chairman, 1960.* **Awards:** Fellow, Acoustical Society of America; Fellow, Audio Engineering Society; John H. Potts Memorial Medal, 1951.

SCOTT, James C. W. (M'47—F'57), Defense Research Member, Canadian Joint Staff, London, England.
Born: March 1, 1904, Havre, France, B.Sc., 1930, University of Washington. **Committees:** Wave Propagation, 1956–61. **Sections:** Ottawa, *chairman, 1951.* **IRE Representative:** Canadian National Committee for URSI, *secretary, 1951–53;* Canadian Commission on Ionosphere for URSI, *chairman, 1951–57.*

SEARS, Raymond W. (A'39—SM'47—F'61), Electron Device Development Engineer, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: January 9, 1906, Cambridge, Ohio. B.A., 1928, Ohio Wesleyan University; M.S., 1929, Ohio State University. **Committees:** Cathode Ray Tube Subcommittee, 1945–48; Electronics Conference, 1938–39; National Convention Technical Program Committee, 1959–60; Storage Tube Subcommittee, 1953–56. **Professional Groups:** Electron Devices, *secretary-treasurer, 1960–61.* **Sections:** New York Chapter, PGED, *vice-chairman, 1955–56, chairman, 1956–57.*

SEDDON, J. Carl (A'41—SM'53—F'58), Consultant, National Aeronautics Space Administration, Washington 25, D.C.
Born: December, 1911, Schenectady, N.Y. B.S.(E.E.), 1933, B.Sc. (Physics), 1934, Union College; M.A., 1936, University of Buffalo. **Awards:** RESA Award in Pure Research, 1955.

SEELEY, Stuart W. (M'40—SM'43—F'43), Administrator, Microwave Communications Projects for Senior Executive Vice President of Radio Corporation of America, 30 Rockefeller Plaza, New York 20, N.Y.
Born: June 23, 1901, Chicago, Ill. B.S.(E.E.), 1925, Michigan State College. **Committees:** Admissions, 1944–48; Awards, 1949; Board of Editors, 1947–53; Circuits, 1944–48; Editorial Reviewer, 1954–60; Modulation Systems, 1947–51; Professional Groups, 1948; Receivers, 1950–59. **Awards:** Modern Pioneers Award, 1940; War Department Citation, 1947; IRE Morris Liebmann Memorial Prize, 1948; Magellanic Gold Medal, American Philosophical Society, 1960.

SEELY, Samuel (A'39—SM'45—F'55), Professor, Department of Electrical Engineering, Case Institute of Technology, Cleveland 6, Ohio.
Born: May 7, 1909, New York, N.Y. E.E., 1931, Polytechnic Institute of Brooklyn; M.S., 1932, Stevens Institute of Technology; Ph.D., 1936, Columbia University. **IRE Offices:** Director, 1957–59. **Committees:** Appointments, 1959; Editorial Reviewer, 1954–60; Education, 1955–59, *chairman, 1957–58;* Nominations, 1959; Papers Review, 1946–58; Policy Advisory, 1957–59. **Sections:** Syracuse, *secretary-treasurer, 1950; secretary, 1951, chairman, 1952.* **IRE Representative:** Syracuse University, 1949; Joint AIEE-IRE Student Activities Coordination Committee, 1957. **Awards:** Army-Navy Certificate of Appreciation, 1947.

SELSTED, Walter T. (SM'53—F'60), Vice President, Engineering, AMPEX Corporation, 934 Charter St., Redwood City, Calif.
Born: December 17, 1921, Berkeley, Calif. B.S.(E.E.), 1944, University of California. **Awards:** Fellowship, Audio Engineering Society, 1959.

SELVIDGE, Harner (A'31—M'40—SM'43—F'58), Vice President, Meteorology Research, Inc., 2420 North Lake Ave., Altadena, Calif.
Born: October 16, 1910, Columbia, Mo. B.S., 1932, M.Sc., 1933, Massachusetts Institute of Technology; S.M., 1934, S.D., 1937, Harvard University. **Committee:** Annual Review, 1949–50; Fellow, 1960; Nuclear Studies, 1949–50; Papers Review, 1944–53; Professional Groups, 1951–54. **Professional Groups:** Nuclear Science, *chairman, 1950, secretary-treasurer, 1951–53.* **Awards:** Naval Ordnance Development Award, Navy Department, United States Navy, 1945.

SENSIPER, Samuel (S'39—A'42—SM'47—F'60), Director, Command and Control Laboratories, Space Electronics Corporation, 930 Airway, Glendale 1, Calif.
Born: April 26, 1919, Elmira, N.Y. S.B., 1939, Massachusetts Institute of Technology; E.E., 1941, Stanford University; Sc.D., 1951, Massachusetts Institute of Technology. **Committees:** Antennas, 1949–51; Antennas and Waveguides, 1949–51; Editorial Reviewer, 1954–60. **Sections:** West Coast Subcommittee, 1952. **IRE Representative:** IRE-AIEE Electron Tube Research Conference Committee, 1956–59, *chairman, 1959.* **Awards:** Certificate of Commendation, United States Navy, 1947; Industrial Electronics Fellow, Massachusetts Institute of Technology, 1947–48; Fellow, American Association for the Advancement of Science, 1959.

SHACKELFORD, Benjamin E. (A'23—M'26—F'38)(L), 743 Mosswood Ave., Orange, N.J.
Born: August 12, 1891, Richmond, Mo. A.B., 1912, A.M., 1913, University of Missouri; Ph.D., 1916, University of Chicago. **IRE Offices:** President, 1948; Director, 1945–50, 1953–55. **Committees:** Appointments, 1948; Awards, 1941, 1943–44, 1950; Bibliography, 1930–31, *chairman, 1930;* Board of Editors, 1937–40; Building Fund, *chairman, 1944–45;* Constitution and Laws, 1946–47, *chairman, 1947;* Convention Policy, 1947–50; Education, 1949; Executive, 1948–49, *chairman, 1948;* Frequency Modulation, 1942–46; Institute Sections, 1929–34, *chairman, 1933;* Meetings and Papers, 1929; National Convention, 1947; New York Program, 1941–42; Nominations, 1949–50; Papers, 1932–36; Papers Procurement, 1942–43; Planning, 1947; Policy Development, 1949–50, *chairman, 1949;* Professional Groups, 1950; Sections, 1943–45, 1949–50; Special Papers, *chairman, 1940–41;* Special Publications Fund, 1947; Standardization, 1931–32; Standards, 1932–33; Winter Technical Meeting, *chairman, 1944.* **IRE Representative:** ASA Sectional Committee on Definition of Electrical Terms, Subcommittee on Vacuum Tubes, 1936, 1939–48; ASA Sectional Committee on Vacuum Tubes for Industrial Purposes, 1936, 1939–48.

SHANK, Robert J. (S'37—A'39—SM'49—F'58), President, American Systems Incorporated, Hawthorne, Calif.
Born: March 19, 1914, LaJunta, Colo. A.B., 1935, Goshen College; B.Sc.(E.E.), 1937, Purdue University. **Professional Groups:** Administrative Committee, Aeronautical and Navigational Electronics, 1956–58; Airborne Electronics, 1951–53. **Sections:** Dayton NCAE, *director, 1955–57.*

SHANNON, Claude E. (S'36—M'48—SM'49—F'50), Research Mathematician, Bell Telephone Laboratories, Inc., Murray Hill, N.J.; Visiting Professor, Massachusetts Institute of Technology, 1956.
Born: April, 1916, Petoskey, Mich. B.S.(E.E.), 1936, University of Michigan; S.M.(E.E.), 1940, Ph.D. (Mathematics), 1940, Massachusetts Institute of Technology. **IRE Representative:** IRE-AIEE Committee on Noise Definitions, 1949–51. **Awards:** Alfred Nobel Prize, American Institute of Electrical Engineers, 1940; IRE Morris Liebmann Memorial Prize, 1949; Stuart Ballantine Medal, Franklin Institute, 1955.

SHAPIRO, Gustave (A'43—SM'56—F'61), Chief, Engineering Electronics Section, National Bureau of Standards, Washington 25, D.C.
Born: July, 1917, New York, N.Y. B.E.E., 1956, George Washington University. **Committees:** International Convention Technical Program Committee, 1960–61. **Professional Groups:** Component Parts Administrative Committee, *founding member, 1953,* 1953–61; *Transactions* on Component Parts, *editor, 1955–61;* Microwave Theory and Techniques Administrative Committee, 1958–61; Microwave Theory and Techniques, Newsletter, *editor,* 1958–61; National Microwave Symposium Committee, 1960–61; National Microwave Symposium Technical Program Committee, *chairman, 1960–61.* **Sections:** Washington Chapter, Component Parts Organizer, 1954, *chairman, 1954–55;* Microwave Theory and Techniques, Organizer, 1957, *chairman, 1957–58, 1960–61;* Management Committee, *chairman, 1960–61.*

SHARPLESS, William M. (A'28—M'38—SM'43—F'58), Radio Research Engineer, Bell Telephone Laboratories, Inc., P.O. Box 107, Red Bank, N.J.
Born: September, 1904, Minneapolis, Minn. B.Sc.(E.E.), 1928, E.E., 1951, University of Minnesota. **Professional Groups:** Liaison for Antennas and Propagation, Microwave Theory and Techniques; National Symposium on Microwave Techniques, 1956. **Sections:** New York, Executive Committee, 1956–57; Monmouth Subsection, *vice-chairman, 1955–56, chairman, 1956–57.*

SHAW, George R. (M'40—SM'43—F'54), Chief Engineer, Tube Division, Radio Corporation of America, 415 S. 5th St., Harrison, N.J.
Born: December 13, 1895, Frederick, Md. A.B., 1915, M.A., 1916, Washington and Lee University; Ph.D., 1920, University of Wisconsin.

SHAW, Henry S. (A'17—M'21—F'35)(L), Retired. 3048 Renatta Drive, Largo, Fla.

Born: November 29, 1884, Boston, Mass. A.B., 1906, Harvard University.

SHEA, Richard F. (A'29—M'32—SM'43—F'54), Consulting Engineer, Electronics, Technical Operation, Knolls Atomic Power Laboratory, General Electric Company, Schenectady, N.Y.
Born: September 13, 1903, Boston, Mass. B.S., 1924, Massachusetts Institute of Technology. **Committees:** Admissions, 1947–48; Annual Review, 1950–51; Editorial Reviewer, 1954–60; Papers Review, 1953; Radio Frequency Interference, 1955; Radio Receivers, 1946–56, *vice-chairman, 1948–49, chairman, 1949–51;* Standards, 1949–61, *vice-chairman, 1954–56, chairman, 1957–59.* **Professional Groups:** Editor of PGNS *Transactions;* Nuclear Science Administrative Committee, 1959–61. **Sections:** Connecticut Valley, *secretary, 1943, vice-chairman, 1944, chairman, 1945;* Syracuse, *vice-chairman, 1952, chairman, 1953.* **IRE Representative:** ASA Committee (N-3), Nuclear Instrumentation, 1958–59; ASA Electrical Standards Board, 1958–59; U. S. National Committee, International Electrotechnical Commission, 1958–59.

SHELDON, John L. (SM'53—F'56), Staff Research Manager, Electrical Products Division, Corning Glass Works, Corning, N.Y.
Born: September, 1904, Battle Creek, Mich. B.S., 1935, Battle Creek College; M.S., 1938, Ph.D., 1940, University of Michigan. **Committees:** Admissions, 1955–60, *chairman, 1957–60.* **Sections:** Elmira-Corning, *vice-chairman, 1953–54, chairman, 1954–55.*

SHEPHERD, James E. (A'36—SM'44—F'48), General Manager, Sperry Rand Research Center, Sudbury, Mass.
Born: May 29, 1910, Houston, Tex. A.B.(Physics, E.E.), 1932, M.A.(E.E.), 1933, University of Missouri; M.S., 1935, D.Sc. (Communication Engineering), 1940, Harvard University. **IRE Offices:** Director, 1948–50. **Committees:** Admissions, 1945; Awards, 1951–63; Constitution and Laws, *chairman, 1949–50;* Convention Policy, *chairman, 1947–50;* Membership, 1943; National Convention, 1947–48, *chairman, 1947;* Sections, 1946–52; Tellers, 1946–47; Winter Technical Meeting, *vice-chairman, 1945–46.* **Sections:** New York, *secretary-treasurer, 1943–44, vice-chairman, 1945–47, chairman, 1947–49.*

SHEPHERD, William G. (A'42—SM'49—F'52), Professor and Head, Electrical Engineering, University of Minnesota, Minneapolis 14, Minn.
Born: August 28, 1911, Fort William, Ont., Canada. B.S.(E.E.), 1933, Ph.D., 1937, University of Minnesota. **IRE Offices:** Director, 1960–62. **Committees:** Electron Devices, 1952–56, *vice-chairman, 1954–56;* Electron Tubes, 1955–58; Electron Tubes and Solid State Devices, 1951–52; Fellow, 1959–60. **Professional Groups:** Electron Devices Administrative Committee, 1955–58.

SHOCKLEY, William (SM'51—F'55), Director, Shockley Transistor, unit of Clevite Transistor, Palo Alto, Calif.
Born: February 13, 1910, London, England, B.S., 1932, California Institute of Technology; Ph.D., 1936, Massachusetts Institute of Technology; D.Sc. (Honorary), 1955, University of Pennsylvania; D.Sc. (Honorary), 1956, Rutgers University. **Awards:** Medal of Merit, War Department, 1946; Citation of Honor, Air Force Association, 1951; IRE Morris Liebmann Award, 1952; Oliver E. Buckley Solid State Physics Prize, American Physical Society, 1953; Certificate of Appreciation, U. S. Army, 1953; Comstock Prize, National Academy of Sciences, 1954; Nobel Prize in Physics, 1956.

SHOUPP, William E. (SM'45—F'51), Technical Director, Westinghouse Atomic Power Department, P.O. Box 355, Pittsburgh, Pa.
Born: October 5, 1908, Troy, Ohio. B.A., 1931, Miami University; M.A., 1933, Ph.D., 1937, University of Illinois. **Committees:** Nuclear Studies, 1948–50; Papers Procurement, 1949–50; Professional Groups, 1955. **Professional Groups:** Nuclear Science, *chairman, 1956–57.* **Sections:** Pittsburgh, *chairman, 1946–47.* **IRE Representative:** ASA Nuclear Standards Board, *alternate, 1957–59.*

SICHAK, William (M'46—SM'56—F'60), Director, Communications Systems, ITT Federal Laboratories, A Division of International Telephone and Telegraph Corporation, 500 Washington Ave., Nutley 10, N.J.
Born: January 7, 1916, Lyndora, Pa. B.A.(Physics), 1942, Allegheny College. **Committees:** Antennas & Waveguides, 1954–61; Papers Review; Subcommittee on Basic Waveguide Symbols, 1947. **Professional Groups:** Antennas & Propagation, 1954–56; Communications Systems, 1955–60; Microwave Theory & Techniques, 1956–61. **Sections:** Northern New Jersey, Program Committee, 1954–55; PGMTT Northern New Jersey Organizing Committee, 1954.

SILING, Philip F. (M'40—SM'43—F'51), Director, RCA Frequency Bureau, 30 Rockefeller Plaza, New York 20, N.Y. and 425 13 St., N.W., Washington 4, D.C.
Born: August 14, 1897, Oil City, Pa. Ph.B., 1917, Yale University. **Committees:** National Convention, *vice-chairman, 1947;* Nominations, 1946; Winter Technical Meeting, 1946. **IRE Representative:** Joint Technical Advisory Committee, 1948–58, *chairman, 1948, 1958.*

SILVER, Samuel (M'46—SM'50—F'54), Professor of Engineering Science, Department of Electrical Engineering and Director of the Space Sciences Laboratory, University of California, Berkeley 4, Calif.
Born: February 25, 1915, Philadelphia, Pa. A.B., 1935, M.A. 1937, Temple University; Ph.D.(Physics), 1940, Massachusetts Institute of Technology. **Professional Groups:** Member, PGAP and PGMTT. **Sections:** San Francisco, *director, 1956–58.* **IRE Representative:** Commission on Radio Waves and Circuits, URSI, *president, 1954–60;* U.S.A. National Committee of URSI, *secretary, 1958–.* **Awards:** Guggenheim Fellowship, John Simon Guggenheim Memorial Foundation, 1953–54, 1960–61; Fellow, American Physical Society.

SILVERMAN, Daniel (A'42—SM'51—F'53), Geophysical Research Director, Pan American Petroleum Corporation, P.O. Box 591, Tulsa, Okla.
Born: June 24, 1905, Montreal, P.Q., Canada. B.S., 1927, University of California; M.S., 1929, Sc.D., 1930, Massachusetts Institute of Technology. **Committees:** Fellow, 1959–60; Papers Procurement, 1947–50. **Sections:** Tulsa, *chairman, 1951–52.* **Awards:** Medalist, 1927; Heller Travelling Fellow, University of California, 1928–30.

SIMON, Emil J. (IRE Charter Member) (A'12—M'12—F'15) (L), Consulting Engineer, 50 Church St., New York 7, N.Y.
Born: October 25, 1888, New York, N.Y. Attended Columbia University, 1905–09; Licensed Professional Engineer; Professional Engineer, New York State Education Department. **IRE Offices:** Director, 1912–14; Secretary, 1912–14; Manager, 1915. **Committees:** Publicity, 1913, 1915; Specifications for Steamship Radio Equipment, 1914–15; Standardization, 1914–15. **Awards:** Marconi Medal for Service, Veteran Wireless Operators Association, 1958.

SIMPSON, LeRoy C. (J'28—A'30—M'41—SM'43—F'59), Manager, Communications Engineering, RCA International Division, Clark, N.J.
Born: April 24, 1908, Worcester, Mass. B.Sc., 1928, University of New Hampshire. **Sections:** Buenos Aires, *founding member, 1939, secretary-treasurer, 1941, vice-chairman, 1942–43 chairman, 1944.*

SINCLAIR, Donald B. (J'30—A'33—M'38—SM'43—F'43), Executive Vice President and Technical Director, General Radio Company, Baker Ave., West Concord, Mass.
Born: May 23, 1910, Winnipeg, Man., Canada. S.B., 1931, S.M., 1932, Sc.D., 1935, Massachusetts Institute of Technology. **IRE Offices:** President, 1952; Vice President, 1959; Director, 1945–54, 1958–59; Treasurer, 1949–50. **Committees:** Admissions, 1948; Antennas, 1944–47; Appointments, 1958–59, *chairman, 1954;* Awards, 1951; Awards Management, 1961; Editorial Reviewer, 1955–61; Executive, 1948–50, 1952–53, 1959–60, *vice-chairman, 1949–50, chairman, 1952;* Finance, ex officio, 1949–50, 1952–53; Membership, 1947–48, 1953–56; National Convention, 1949; Nominations, 1948, 1953–54, *chairman, 1954;* Papers, 1941–45; Papers Procurement, 1945–46; Planning, 1947; Radio Transmitters, 1945–46; Special Publication Fund, 1947; Television, 1940–46; Transmitters, 1944; Transmitters and Antennas, 1941–44. **Professional Groups:** Administrative Committee, Engineering Management, 1957–59. **IRE Representative:** Radio Technical Planning Board, 1947–48, *alternate, 1945–46;* Joint IRE-AIEE Co-ordination Committee, ex officio, 1952; Division of Engineering and Industrial Research, National Research Council, 1960–63. **Awards:** President's Certificate of Merit, 1948. Fellow, American Institute of Electrical Engineers.

SINCLAIR, George (A'37—SM'46—F'54), Professor, University of Toronto, Electrical Building, Toronto 12, Ont., Canada; President, Sinclair Radio Laboratories, Ltd., P.O. Box 179, Downsview, Toronto, Ont., Canada.
Born: November, 1912, Hamilton, Ont., Canada. B.Sc., 1933, M.Sc., 1935, University of Alberta; Ph.D., 1946, Ohio State University. **IRE Offices:** Director, 1960–62. **Committees:** Antennas, 1945–49; Antennas and Waveguides, 1946–60; Awards, 1956–59; Editorial Reviewer, 1954–60; Education, 1951–60; Nominations and Appointments, 1960; Papers Review, 1951–53; Professional Groups, 1959–60; Wave Propagation, 1946–55; Wave Propagation and Utilization, 1946–49. **Professional Groups:** Antennas and Propagation, *chairman, 1951, 1959–60;* Administrative Committee, Microwave Techniques, 1957–60. **Sections:** Toronto, *vice-chairman, 1950, chairman, 1951.* **IRE Representative:** University of Toronto, 1948–58; Technical Program Committee, Canadian IRE Convention, *chairman, 1956–57;* Canadian IRE Convention, *general chairman, 1958;* Sub-Commission VI-3 URSI, *chairman, 1954–60.* **Awards:** U. S. War and Navy Departments, Certificate of Appreciation, 1948; Guggenheim Fellowship, 1958.

SINK, Robert L. (S'37—A'41—SM'48—F'60), Engineering Manager, MECD Division, Burroughs Corporation, 14300 Tireman Ave., Detroit 28, Mich.
Born: February 4, 1915, Terre Haute, Ind. A.B., 1936, E.E., 1938, Stanford University. **Professional Groups:** Instrumentation, *vice-chairman, 1953–54, chairman, 1954–55.* **Sections:** Los Angeles, *vice-chairman, 1949, chairman, 1950;* Regional Director, 1952–53.

SINNETT, Chester M. (SM'52—F'55), Director, Product Engineering Professional Development, RCA Staff, Camden 8, N.J.
Born: January 19, 1900, Livermore Falls, Me. B.S.(E.E.), 1924, University of Maine. **Sections:** Philadelphia, *secretary-treasurer, 1950, chairman, 1952.*

SKELLETT, A. Melvin (M'44—SM'50—F'56), Director of Research, Tung-Sol Electric, Inc., 200 Bloomfield Ave., Bloomfield, N.J.
Born: July 14, 1901, St. Louis, Mo. A.B., 1924, M.S., 1927, Washington University; Ph.D., 1933, Princeton University. **Committees:** Accounting, *chairman, 1949;* Awards, *chairman, 1950;* Membership, *chairman, 1949–50;* Papers Procurement, 1945. **Sections:** Northern New Jersey, *chairman, 1956–57.*

SKIFTER, Hector R. (A'31—M'36—SM'43—F'51), President, Airborne Instrument Laboratory, Division of Cutler-Hammer, Inc., Deer Park, L.I., N.Y.
Born: March 4, 1901, Austin, Minn. B.A., 1922, Sc.D., 1945, Saint Olaf College. **Committees:** Navigation Research and Development Board, *chairman, 1950–51.* **Sections:** New York Section for PGEM, *program chairman;* Member, Administrative Committee. **Awards:** Presidential Certificate of Merit, 1947.

SLATTERY, John J. (J'29—A'30—SM'46—F'56), General Manager, Electronics Division, Martin-Baltimore Division, The Martin Co., Baltimore 3, Md.
Born: August 2, 1909, East Orange, N.J. B.S.(E.E.), 1930, Villanova College; M.S.(Physics and Math.), 1949, Stevens Institute of Technology. **Professional Groups:** Engineering Management, *secretary, 1955–56;* Military Electronics; Medical Electronics. **Awards:** Legion of Merit, U. S. Army, 1945.

SLEPIAN, Joseph (SM'45—F'45), Retired. 1115 Lancaster St., Pittsburgh 18, Pa.
Born: February 11, 1891, Boston, Mass. A.B., 1911, A.M., 1912, Ph.D., 1913, Harvard University; Dr.Eng. (Honorary), 1949, Case Institute of Technology; Dr.Sc. (Honorary), 1955, University of Leeds. **Awards:** John Scott Medal, 1932; American Institute of Electrical Engineers Award, 1933; Benjamin Garver Lamme Medal, American Institute of Electrical Engineers, 1942; Edison Medal, American Institute of Electrical Engineers, 1948.

SLOAN, David H. (A'27—SM'50—F'59), Associate Professor, University of California, Berkeley 4, Calif.
Born: September 8, 1905, Lyman, Wash. B.S., 1928, M.S., 1929, Washington State College; Ph.D., 1941, University of California.

SMALE, J. A. (F'58), Retired as Engineer-in-Chief, Cable and Wireless, Ltd., London, England. Technical Consultant, Marconi's Wireless Telegraph Co., Ltd., Chelmsford, England.
Born: February 16, 1895, Lydney, England. B.Sc.(E.E.), 1914, Bristol University. **Awards:** Commander of the Order of the British Empire, 1953.

SMITH, Carl E. (A'30—M'39—SM'43—F'55), Proprietor, Carl E. Smith Consulting Radio Engineers; President, Smith Electronics, Inc., 8200 Snowville Road, Brecksville, Ohio; President, Cleveland Institute of Electronics, Inc., 1776 E. 17 St., Cleveland 14, Ohio.
Born: November 18, 1906, Eldon, Iowa. B.S.(E.E.), 1930, Iowa State College; M.S.(E.E.), 1932, E.E., 1936, Ohio State University. **Committees:** Board of Editors, 1946–53; Editorial Reviewer, 1954–60; Industrial Electronics, 1956–58; Professional Groups, 1955. **Professional Groups:** Industrial Electronics Administrative Committee, 1950–60, *secretary, 1951–54, vice-chairman, 1954–56, chairman, 1956–57;* Broadcasting Administrative Committee, 1955–57. **Sections:** Cleveland, *chairman, 1940–41;* Summer Convention, *chairman, 1942.* **Awards:** War Department Commendation for Exceptional Civilian Service, 1946; Fellow, American Institute of Electrical Engineers, 1956.

SMITH, David B. (A'35—SM'44—F'48), Vice President, Philco Corporation, Tioga & C Sts., Philadelphia 34, Pa.
Born: December 3, 1911, Newton, N.J. S.B., 1933, S.M., 1934, Massachusetts Institute of Technology. **IRE Offices:** Director, 1947. **Committees:** Frequency Modulation, 1940–47; Membership, 1949–51; Public Relations, 1947–48; Special Publications Fund, 1947; Television, 1942–49; Television Systems, 1949–61. **Sections:** Philadelphia, *chairman, 1945–46;* Awards Committee, 1960. **IRE Representative:** IRE-RMA Problem No. 2 Committee.

SMITH, J. Ernest (A'37—SM'47—F'55), Vice President and Director of Engineering, Electronic Data Processing Division, Minneapolis-Honeywell Regulator Company, 151 Needham St., Newton Highlands 61, Mass.
Born: July 9, 1908, Carrollton, Mo. B.A., 1932, Jamestown College; M.E.E., 1944, Polytechnic Institute of Brooklyn; D.Sc. (Honorary), 1959, Jamestown College. **Committees:** Annual Review, 1949–50; Fellow, 1960; Membership, 1929–35, 1937–40; Papers Procurement, 1947–48; Papers Review, 1949–53; Radio Transmitters, 1949–50; Space Electronics and Telemetry, 1959–.

SMITH, Newbern (A'41—SM'46—F'52), Professor of Electrical Engineering, University of Michigan, Ann Arbor, Mich.
Born: January 21, 1909, Philadelphia, Pa. B.S.(Eng.), 1930, M.S.(Eng.), 1931, Ph.D.(Physics), 1935, University of Pennsylvania. **Committees:** Administrative Committee of the Board of Editors, 1951–53; Board of Editors, 1951–53; Editorial Administrative, 1949–51; Professional Groups, 1948; Standards, 1952–56; Wave Propagation, 1948–56, *chairman, 1952–55.* **Professional Groups.** Antennas and Propagation, *chairman, 1950;* Communications Systems. **Awards:** IRE Harry Diamond Memorial Award, 1952.

SMITH, Otto J. M. (M'44—SM'51—F'59), Professor, Electrical Engineering Department, University of California, Berkeley 4, Calif.
Born: August, 1917, Urbana, Ill. B.S.(Chemistry), 1938, Oklahoma A and M College; B.S.(E.E.), 1938, University of Oklahoma; Ph.D.(E.E.), 1941, Stanford University. **Committees:** Editorial Reviewer, 1954–62. **Professional Groups:** Automatic Control Administrative Committee, 1958–59. **Sections:** San Francisco, *secretary, 1952, vice-chairman, 1953.* **Awards:** American Institute of Electrical Engineers First Prizes, Technical Paper Contests, 1953, 1959; Fellow, American Association for the Advancement of Science, 1954; Guggenheim Fellow, Institut für Regelungstechnic, Technische Hochschule, Darmstadt, 1960; Delegate, International Congress on Automatic Control, Moscow, 1960.

SMITH, Philip T. (A'38—SM'46—F'60), Technical Director, C Stellarator Associates, P.O. Box 451, Princeton, N.J.
Born: September 2, 1902, St. Paul, Minn. B.A., 1927, Ph.D., 1931, University of Minnesota. **Committees:** Editorial Reviewer, 1954–55.

SMITH, Phillip H. (A'34—SM'46—F'52), Technical Staff, Bell Telephone Laboratories, Inc., Morristown Road, Whippany, N.J.
Born: April 29, 1905, Lexington, Mass. B.S.(E.E.), 1928, Tufts College. **Committees:** Antennas, 1946–49; Antennas and Waveguides, 1949–61, *vice-chairman, 1953–54, chairman, 1954–56;* Subcommittee 2.6, *chairman, 1959–61;* Standards, 1954–56. **Professional Groups:** Antennas and Propagation, *secretary-treasurer, 1953–54;* Antennas and Propagation Anniversary Committee, *chairman, 1959–60.* **Sections:** Northern New Jersey, Awards Committee, 1960.

SMITH, Theodore A. (J'25—A'26—SM'45—F'61), Executive Vice President, Industrial Electronic Products, Radio Corporation of America, Front & Cooper Sts., Camden 2, N.J.
Born: February 17, 1905, Brooklyn, N.Y. M.E., 1925, Stevens Institute of Technology. **Sections:** Philadelphia, *chairman, 1944–45.*

SMITH-ROSE, Reginald L. (SM'44—F'44), President, International Scientific Radio Union, 21 Tumblewood Rd., Banstead, Surrey, England.
Born: April 2, 1894, London, England. B.Sc., 1914, M.Sc., 1922, Ph.D., 1923, D.Sc., 1926, Imperial College of Science and Technology. **IRE Offices:** Vice President, 1948; Director, 1948. **Committees:** Radio Wave Propagation, 1944–45; Radio Wave Propagation and Utilization, 1945–49; Wave Propagation, 1949–61. **IRE Representative:** IRE-IEE International Liaison Committee, 1955–59; President, URSI, 1960–. **Awards:** Student Premium, 1917; Wireless Premium, 1925, 1938, 1939; Duddell Premium, 1942, Institution of Electrical Engineers, London; Coronation Medal, 1937, 1953; United States Medal of Freedom with Silver Palm, 1947; Fellow, City and Guilds Institute, 1951; Commander of the Order of the British Empire, 1952.

SMULLIN, Louis D. (S'39—A'40—SM'51—F'57), Professor, Electrical Engineering, Massachusetts Institute of Technology, 77 Massachusetts Ave., Cambridge, Mass.
Born: February 5, 1916, Detroit, Mich. B.S.(E.E.), 1936, University of Michigan; M.S., 1939, Massachusetts Institute of Technology. **Committees:** Editorial Reviewer, 1954–60. **Professional Groups:** Electron Devices Administrative Committee, 1959–62. **Awards:** Army-Navy Certificate of Appreciation, 1948.

SMYTH, John B. (SM'52—F'56), Smyth Research Associates, 3555 Aero Court, San Diego 11, Calif.
Born: June 8, 1914, Pembroke, Ga. B.S., 1934, M.S., 1937, University of Georgia; Ph.D., 1942, Brown University. **Committees:** Wave Propagation, 1956–61. **Professional Groups:** Antennas and Propagation, Editor of *Transactions,* 1953–59; Administrative Committee, Antennas and Propagation, 1952–59. **Awards:** Electronics Achievement Award, Seventh Region, IRE, 1954.

SNOW, Harold A. (A'24—VA'39—F'56), Retired as Senior Scientist, ITT Laboratories. Residence: 30 Old Salem Rd., West Orange, N.J.
Born: October, 1898, Santa Barbara, Calif. B.S.(E.E.), 1921, George Washington University.

SOMERS, Richard M. (A'42—M'42—SM'43—F'61), Director, Engineering, The Bendix Corporation, P.O. Box 1159, Kansas City 41, Mo.
Born: December 22, 1904, Orange, N.J. E.E., 1926, Rensselaer Polytechnic Institute. **Awards:** Audio Engineering Award, 1953.

SOMMER, Alfred H. (SM'54—F'60), Fellow, Technical Staff, RCA Laboratories, Inc., Princeton, N.J.
Born: November 19, 1909, Frankfurt, Germany. Ph.D., 1934, Berlin University, Germany. **Committees** Editorial Reviewer, 1954–60; Electron Tubes, Subcommittee 7.4, 1956–61.

SORIA, Rodolfo M. (S'38—A'43—M'46—SM'49—F'58), Vice President, Research & Engineering, Amphenol-Borg Electronics Corporation, 2801 S. 25 Ave., Broadview, Ill.
Born: May 16, 1917, Berlin, Germany. B.S.(E.E.), 1939, M.S. (E.E.), 1940, Massachusetts Institute of Technology; Ph.D. (E.E.), 1947, Illinois Institute of Technology. **Committees:** Antennas and Waveguides, 1950–51; Awards, 1958–60. **Professional Groups:** Component Parts Administrative Committee, 1955–60, *chairman, 1956–58;* Engineering Management Administrative Committee, 1959–62. **Sections:** Chicago, *treasurer, 1954–55, vice-chairman, 1955–56, chairman, 1956–57.* **IRE Representative:** Illinois Engineering Council, 1952–55; National Electronics Conference, 1952–54; International Electrotechnical Commission; U. S. Delegate on Radio Frequency Transmission Lines and their Accessories, Philadelphia, 1954; Ulm, Germany, 1959.

SOUTHWORTH, George C. (M'26—F'41)(L), Technical Consultant, 19 Williams Rd., Chatham, N.J.
Born: August 24, 1890, Little Cooley, Pa. B.S., 1914, Grove City College; Ph.D., 1923, Yale University; Sc.D. (Honorary), 1931, Grove City College. **Committees:** Circuit Elements, 1928–29; Meetings and Papers, 1930; Papers, 1931–34; Standardization, 1928. **Awards:** IRE Morris Liebmann Memorial Prize, 1938; Louis Levy Medal, Franklin Institute, 1946; Stuart Ballantine Medal, Franklin Institute, 1947.

SPANGENBERG, Karl R. (A'34—SM'45—F'49), Engineering Consultant, 2100 Page Mill Rd., Palo Alto, Calif.
Born: April, 1910, Cleveland, Ohio. B.S.(E.E.), 1932, M.S. (E.E.), 1933, Case Institute of Technology; Ph.D., 1937, Ohio State University. **Committees:** Awards, 1950; Education, 1946, 1949–51; Electron Tubes, 1955; Membership, 1941; Papers, 1943–45; Papers Procurement, 1942–43, 1945; Regular Papers, 1941. **Sections:** San Francisco, *secretary, 1940–43, chairman, 1943–44;* San Francisco Section Awards Committee, 1958–60; WESCON Technical Program Committee, *chairman, 1959.* **IRE Representative:** Stanford University, 1942–47.

SPEAKMAN, Edwin A. (A'43—M'44—SM'48—F'54), Vice President, Missile Range Programs, RCA Service Company, Radio Corporation of America, Camden 8, N.J.; Vice President and General Manager, Fairchild Guided Missiles Division, Wyandanch, L.I., N.Y.; Vice Chairman Research and Development Board, DoD, Washington, D.C., 1954–57.
Born: August 14, 1909, Gratz, Pa. B.S., 1931, Haverford College. **Committees:** IRE Symposium on Components, Planning Committee, 1950. **Professional Groups:** Military Electronics, National Administrative Committee, 1955–59, *chairman, 1958–59.* **Awards:** Naval Civilian Service Award, 1947; Naval Citation, United States Navy, 1948; Associate Fellow, Institute of Aeronautical Sciences, 1953.

SPENCER, Percy L. (A'53—SM'53—F'55), Senior Vice President and Director, Raytheon Company, Lexington 73, Mass.
Born: July 9, 1894, Howland, Me. Sc.D. (Honorary), 1950, University of Massachusetts. **Awards:** Naval Ordnance Development Award, 1945; USN Certificate of Commendation, 1947; USN Distinguished Public Service, 1949; Fellow, American Academy of Arts and Sciences, 1955.

SPENCER, Roy C. (M'46—SM'50—F'60), Principal Staff Scientist, The Martin Company, Baltimore 3, Md.

Born: April 14, 1901, Pennellville, N.Y. A.B., 1922, Cornell University; Ph.D., 1932, Columbia University. **Committees:** Editorial Reviewer, 1954–59. **Professional Groups:** Antennas and Propagation, 1954–59. **IRE Representative:** Delegate to International General Assemblies of URSI, 1952, 1954, 1957; Member, U. S. National Committee of Commission VI of URSI, 1952–. **Awards:** Fellow, American Association for the Advancement of Science, 1940; Fellow, American Physical Society, 1957.

SPITZER, Edwin E. (A'28—M'38—SM'43—F'56), Manager, Power Tube Operations, Industrial Tube Products, Radio Corporation of America, Lancaster, Pa.
Born: February, 1905, Fitchburg, Mass. B.S., 1926, M.S., 1927, Massachusetts Institute of Technology. **Committees:** Papers Review, 1946–52. **Sections:** Lancaster Subsection, *vice-chairman, 1950–51, chairman, 1951–52.*

STEARNS, H. Myrl (S'39—A'40—SM'48—F'59), President, Varian Associates, 611 Hansen Way, Palo Alto, Calif.
Born: April, 1916, Kiesling, Wash. B.S.(E.E.), 1937, University of Idaho; E.E., 1939, Stanford University; D.Sc. (Honorary), 1960, University of Idaho. **Committees:** Frequency Modulation, 1946–47. **Sections:** Palo Alto Subsection, *secretary, 1951, chairman, 1953.* **Awards:** Certificate of Commendation, Secretary of Navy, 1946.

STEEL, W. Arthur (M'19—SM'43—F'50)(L), Director, Standard Telephones and Cables Manufacturing Company, Ltd., 9600 St. Lawrence Blvd., Montreal, P.Q., Canada.
Born: November, 1890, Castleton, Ont., Canada. B.A.Sc., 1915, Toronto University. **Committees:** Broadcast, 1936–37. **Sections:** Ottawa, *chairman, 1945–46.*

STEEN, Jerome R. (A'36—M'36—SM'43—F'50), Division Reliability Coordinator, Sylvania Electric Products, Inc., 63 Second Ave., Waltham 54, Mass.
Born: June 29, 1901, West Bloomfield, N.Y. B.S.(E.E.), 1923, University of Wisconsin; Registered Professional Engineer, State of Massachusetts. **Committees:** Annual Review, 1948–49; Editorial Reviewer, 1954–60; Electron Tubes, 1946–47; Electronics, 1944–45; Measurements and Instrumentation, 1949–55; Papers Review, 1948–57; Professional Groups, 1950–52; Standards, 1948–51; Symbols, 1945–47; Vacuum Tubes, 1945–46. **IRE Representative:** ASA Sectional Committee (C67) on Standardization of Voltages—Preferred Voltages—100 Volts and Under, 1951–53 (No IRE Voting Representative; Liaison, 1954–61). **Awards:** Fellow, American Society for Quality Control; Fellow, Radio Club of America.

STEVENS, Archie M. (A'12—M'25—F'31)(L), Consulting Radio Engineer, 539 Prospect Ave., Mamaroneck, N.Y.
Born: September 22, 1887, Glidden, Iowa. A.B., 1909, Leland Stanford Junior University. **Sections:** Buenos Aires, *chairman, 1940.*

STODDART, Richard R. (SM'45—F'58), President, Stoddart Aircraft Radio Co., Inc., 6644 Santa Monica Blvd., Hollywood 38, Calif.
Born: December 1, 1900, New York, N.Y.

STODOLA, Edwin K. (A'37—SM'45—F'61), Assistant to The President, Reeves Instrument Corporation, East Gate Blvd., Roosevelt Field, Garden City, L.I., N.Y.
Born: October, 1914, Brooklyn, N.Y. B.S.(E.E.), 1936, E.E., 1947, Cooper Union. **Committees:** Papers Review, 1946–50; Radio Receivers, 1943–45; Standards, 1952–61. **Sections:** Long Island, Fellow Awards, *chairman, 1957–58;* By-Laws, *secretary, 1958–59; chairman, 1959–61.*

STONE, Ellery W. (A'14—M'16—F'24)(L), Rear Admiral, United States Naval Reserve; Chairman of the Board, American Cable and Radio Corporation; Chairman of the Board, All America Cables and Radio, Inc.; Chairman of the Board, The Commercial Cable Company; Chairman of the Board, Mackay Radio and Telegraph Company; Vice President and Director, International Telephone and Telegraph Corporation; Director, International Marine Radio Company, Ltd. (England); Chairman of the Board, ITT Communication Systems; Director, International Electric Corporation; Director, Federal Electric Corporation, 67 Broad St., New York, N.Y.; Chairman of the Board, Globe Wireless, Ltd.; Vice President and Director, International Standard Electric Company.
Born: January 14, 1894, Oakland, Calif. **Committees:** Meetings and Papers, 1930; Membership, 1925. **Awards:** Grand Officer, Crown of Italy, 1944; United States Army Distinguished Service Medal, 1945; Knight Commander of the British Empire, 1945; Knight of Grand Cross of St. Maurice and St. Lazarus, Italian Government, 1945; Knight of Grand Cross, San Marino, 1946; United States Navy Distinguished Service Medal, 1946; Marconi Medal of Achievement, VWOA, 1953.

STRAITON, Archie W. (M'47—SM'49—F'53), Professor of Electrical Engineering and Director, Electrical Engineering Research Laboratory, Department of Electrical Engineering, University of Texas, Austin, Tex.
Born: August, 1907, Arlington, Tex. B.S.(E.E.), 1929, M.A., 1931, Ph.D., 1939, University of Texas. **IRE Offices:** Director, 1953–54. **Committees:** Appointments, 1954; Awards, 1956–58; Editorial Reviewer, 1955–60; Education, 1955–60; Nominations, 1953–54; Policy Advisory, 1953–54; Wave Propagation, 1949–61. **IRE Representative:** University of Texas, 1947–50.

STRANDBERG, Malcom W. P. (A'42—SM'51—F'59), Professor of Physics, Massachusetts Institute of Technology, Cambridge 39, Mass.
Born: March 9, 1919, Box Elder, Mont. S.B., 1941, Harvard University; Ph.D., 1948, Massachusetts Institute of Technology. **Awards:** Fellow, American Physical Society; Fellow, American Academy of Arts and Sciences; Fellow, New York Academy of Arts and Sciences; Fellow, American Association for the Advancement of Science; Visiting Scientist for American Institute of Physics, 1957–59.

STRATTON, Julius A. (M'42—SM'43—F'45), President, Massachusetts Institute of Technology, Cambridge 39, Mass.
Born: May 18, 1901, Seattle, Wash. S.B., 1923, S.M., 1925, Massachusetts Institute of Technology; Sc.D., 1927, Technische Hochschule, Zurich, Switzerland; D.Eng. (Honorary), 1955, New York University; D.Sc. (Honorary), 1957, St. Francis Xavier University; LL.D. (Honorary), 1957, Northeastern University; LL.D. (Honorary), 1958, Union College; LL.D. (Honorary), 1959, Harvard University; LL.D. (Honorary), 1959, Brandeis University; LL.D. (Honorary), 1960, Carleton College. **IRE Offices:** Director, 1948–51, 1954. **Committees:** Annual Review, 1945–46; Appointments, 1948; Board of Editors, 1946–53; Editorial Board, 1954–55; Education, 1945; Membership, 1947–48; Policy Development, 1949–51; Professional Groups, 1954; Radio Wave Propagation and Utilization, 1945–48, *chairman, 1945–47;* Standards, 1945–46. **IRE Representative:** IRE-IEE International Liaison Committee, 1949, 1955–59. **Awards:** Presidential Medal for Merit, 1946; IRE Medal of Honor, 1957.

STRIEBY, Maurice E. (M'31—SM'43—F'61), Consultant, Communications Engineering, 175 Sagamore Rd., Millburn, N.J.
Born: May 2, 1893, Colorado Springs, Colo. A.B., 1914, Colorado College; B.S.(E.E.), 1916, Massachusetts Institute of Technology; B.S., 1916, Harvard University; D.Sc.(Honorary), 1946, Colorado College; Professional Engineer, New York State. **Committees:** Admissions, 1944–47; Television, 1946–49; Television Systems, 1949–56. **Awards:** Co-receiver of Best Paper Prize, American Institute of Electrical Engineers, 1935; Presidential Certificate of Merit, World War II, 1947; Fellow, American Institute of Electrical Engineers, 1941; Fellow, American Association for Advancement of Science, 1954.

STRONG, Charles E. (A'25—M'27—SM'43—F'49), Manager, Radio Division, Standard Telephones and Cables, Ltd., Oakleigh Rd., New Southgate, N. 11, London, England.
Born: November, 1898, Omagh, Tyrone County, Northern Ireland. B.A., 1922, Trinity College, Dublin; B.A.I., 1922, University

of Dublin. **Awards:** Officer of the Order of the British Empire, 1947.

STRUTT, Max J. O. (SM'46—F'56), Professor, Director, Institute of Advanced Electrical Engineering, Dean of Electrical Engineering, Swiss Federal Institute of Technology, Zurich, Switzerland.
Born: October, 1903, Surakarta, Java, Indonesia. E.E., 1926, d.Tech.Sc., 1927, Institute of Technology, Delft, Holland; Doctor (honoris causa), 1950, Institute of Technology, Karlsruhe, Germany. **Awards:** Gauss Medal, Brunswick (Germany) Society of Sciences, 1954; Honorary Member, Brunswick Society of Sciences, 1955; Honorary Member, International Television Committee, 1956.

SUITS, C. Guy (SM'55—F'56), Vice President and Director of Research, General Electric Company, The Knolls, Schenectady, N.Y.
Born: March 12, 1905, Oshkosh, Wis. B.A., 1927, University of Wisconsin; D.Sc., 1929, Technische Hochschule, Zurich, Switzerland; D.Sc. (Honorary), 1944, Union College; D.Sc. (Honorary), 1946, Hamilton College; D.Eng. (Honorary), 1950, Rensselaer Polytechnic Institute; D.Sc. (Honorary), 1955, Drexel Institute of Technology; D.Sc. (Honorary), 1959, Marquette University. **Awards:** America's Young Men Award, 1940; His Majesty's Medal for Service in the Cause of Freedom, 1948; Medal for Merit, U. S. Government, 1948; Silliman Lecturer, Yale University, 1952; Proctor Prize Award, Scientific Research Society of America, 1958; Distinguished Service Award, American Management Association, 1959.

SULZER, Peter G. (A'46—M'55—SM'56—F'58), Consulting Engineer; President, Sulzer Laboratories, Inc., 5526 Dorsey Lane, Washington 16, D.C.
Born: August 3, 1922, Media, Pa. B.S.(E.E.), 1948, M.Sc.(E.E.), 1949, Pennsylvania State College.

SUNSTEIN, David E. (M'44—SM'51—F'58), President, General Atronics Corporation; Vice President Atronic Products, Inc., One Bala Ave., Bala-Cynwyd, Pa.
Born: July 29, 1918, Pittsburgh, Pa. B.S.(E.E.), 1940, Massachusetts Institute of Technology. **Committees:** Editorial Reviewer, 1955–58. **Awards:** Army-Navy Individual Merit Certificate, United States Navy, 1945.

SWINYARD, William O. (A'37—M'39—SM'43—F'45), Vice President and Director, Hazeltine Research, Inc., 5445 W. Diversey Ave., Chicago 39, Ill.
Born: July 17, 1904, Logan, Utah. B.S., 1927, Utah State University. **IRE Offices:** Director, 1945–46. **Committees:** Annual Review, 1947–48; Education, 1945–48; National Convention, 1947; Radio Receivers, 1946–50, 1954–61, *chairman, 1946–48, vice-chairman, 1956–57;* Sections, 1945–50, *chairman, 1946–47;* Standards, 1947–48. **Professional Groups:** Broadcast and Television Receivers Administrative Committee, 1957, *vice-chairman, 1958, 1959–60.* **Sections:** Chicago, *secretary, 1943–44, chairman, 1944–45.* **IRE Representative:** National Electronics Conference, *president, 1946, chairman of the board, 1947, 1960–61;* TASO Panel 2, *chairman;* President, Radio Engineers Club of Chicago, 1945. **Awards:** Eta Kappa Nu (Professional Member); Fellow, Radio Club of America, 1956; Fellow, American Association for the Advancement of Science, 1958.

SYKES, Roger A. (A'41—M'42—SM'43—F'57), Transmission Apparatus Engineer, Bell Telephone Laboratories, Inc., North Andover, Mass.
Born: February 17, 1908, Windsor, Vt. B.S., 1929, M.S., 1930, Massachusetts Institute of Technology; 1930–34, Columbia University. **Committees:** Piezoelectric Crystals, 1945–59, *vice-chairman, 1948–51, chairman, 1951–57;* Piezoelectric and Ferroelectric Crystals, 1959–61; Standards, 1951–54.

SZEGHO, Constantin S. (A'41—SM'51—F'52), Vice President-in-Charge-of Research, The Rauland Corporation, 4245 N. Knox Ave., Chicago 41, Ill.
Born: March 15, 1905, Hungary. Dr. of Engineering, 1932, Institute of Technology, Aachen, Germany; E.E., 1928, Institute of Technology, Munich, Germany. **Committees:** Papers Review, 1952–53.

SZIKLAI, George C. (A'41—M'43—SM'43—F'55), Assistant to the Vice President, Engineering, Westinghouse Electric Corporation, Pittsburgh 30, Pa.
Born: July 9, 1909, Budapest, Hungary. Absolutorium, 1928, University of Budapest. **Committees:** Administrative Committee of the Board of Editors, 1951–53; Board of Editors, 1951–53; Editorial Administrative, 1951–53; Editorial Reviewer, 1954–60; Papers Review, 1949–50. **Sections:** Princeton, *secretary-treasurer, 1953–54, vice-chairman, 1954–55, chairman, 1955–56.* **Awards:** Radio Corporation of America Laboratories Awards, 1947, 1951, 1952.

TANK, Franz (A'31—F'49), Professor, Retired. Frohburgstrasse 174, Zurich 57, Switzerland.
Born: March, 1890, Zurich, Switzerland. Ph.D., 1915, University of Zurich; Rector, 1943–47, Swiss Federal Institute of Technology; President. Swiss National Committee, URSI, 1950–57; President, Swiss Electrotechnical Institution, 1952–56. **IRE Offices:** Vice President, 1955; Director, 1955. **IRE Representative:** Swiss Federal Institute of Technology, 1959.

TANNER, Robert H. (A'38—SM'48—F'58), Manager, Communications Systems Development, Northern Electric Research & Development Laboratories, P.O. Box 3511 Station C, Ottawa, Ont., Canada.
Born: July 22, 1915, London, England. B.Sc., 1935, Imperial College of Science, University of London. **Committees:** Awards, 1960.

TAYLOR, A. Hoyt (M'16—F'20)(L), Retired. 691 W. 12 St., Claremont, Calif.
Born: January 1, 1879, Chicago, Ill. B.S., 1902, Northwestern University; Ph.D., 1909, University of Göttingen, Germany; D.Sc. (Honorary), 1953, University of North Dakota. **IRE Offices:** President, 1929; Director, 1929–31. **Committees:** Awards, 1928–31; Institute Sections, 1928; Meetings and Papers, 1928. **Sections:** Washington, *chairman, 1919–28.* **Awards:** IRE Morris Liebmann Memorial Prize, 1927; John Scott Medal and Premium, Board of City Trustees, Philadelphia, 1942; IRE Medal of Honor, 1942; Presidential Medal of Merit, 1944; Pioneer Award, Professional Group on Aeronautical and Navigational Electronics, 1952; Stuart Ballantine Medal, Franklin Institute, 1959.

TAYLOR, Charles H. (M'13—F'15)(L), 390 Riverside Dr., New York 25, N.Y.
Born: August 22, 1875, Uxbridge, Middlesex, England. **Committees:** Antenna Terminology, *chairman, 1924–25;* Membership, 1925; Sections, 1925; Standardization, 1914–21, 1924–25.

TEAL, Gordon K. (SM'53—F'56), Assistant Vice President and Director of Research, Texas Instruments Incorporated, P.O. Box 5474, Dallas 22, Tex.
Born: January 10, 1907, Dallas, Tex. A.B., 1927, Baylor University; Sc.M., 1928, Ph.D., 1931, Brown University. **IRE Offices:** Director, 1959. **Committees:** Editorial Board, 1958–60; Editorial Reviewer, 1955–60; Section Publications, *chairman, 1957–60;* Technical Program Committee, International IRE Convention, *chairman, 1960–61.* **Sections:** Dallas-Fort Worth, *secretary, 1953–54, vice-chairman, 1955–56;* Dallas, *chairman, 1956–57.* **IRE Representative:** Board of Directors SWIRECO, 1957–59; Southwestern IRE Conference and Electronics Show, *vice-chairman, 1959.* **Awards:** Fellow, American Association for the Advancement of Science.

TEARE, Benjamin R., Jr. (A'41—SM'45—F'51), Dean, College of Engineering and Science, Carnegie Institute of Technology, Pittsburgh, Pa.
Born: January, 1907, Menomonie, Wis. B.S.(E.E.), 1927, M.S., 1928, University of Wisconsin; D.Eng., 1937, Yale University. **Committees:** Education, 1944. **Sections:** Pittsburgh, *vice-chairman, 1942–43, chairman, 1943–44.* **IRE Representative:** Carnegie Institute of Technology, 1944–45. **Awards:** George Westinghouse Award, American Society for Engineering Education, 1947.

TELLEGEN, B. D. H. (SM'52—F'55), Scientific Adviser, Philips Research Laboratories, Eindhoven, Netherlands; Professor, Electrical Engineering, Technical University, Delft, Netherlands.
Born: June 24, 1900, Winschoten, Netherlands. E.E., 1923, Technical University, Delft, Netherlands. **Awards:** Honorary Member, Netherlands Radio Institution, 1951; Honorary Life Member, Institution of Radio Engineers, Australia, 1953; Gold Research Medal, Royal Netherlands Institution of Engineers, 1954; Member, Royal Netherlands Academy of Sciences, 1960.

TELLIER, Joseph C. (S'35—A'37—SM'45—F'59), Research Manager, Philco Research Division, Blue Bell, Pa.
Born: June 24, 1914, Des Moines, Iowa. B.S.(E.E.), 1935, University of Pennsylvania. **Committees:** Editorial Reviewer, 1955–60. **Awards:** Certificate of Service, Office of Scientific Research and Development, 1943.

TERMAN, Frederick E. (A'25—F'37), Vice President and Provost, Stanford University, Stanford, Calif.
Born: June 7, 1900, English, Ind. A.B., 1920, Eng. 1922, Stanford University; Sc.D., 1924, Massachusetts Institute of Technology; Sc.D. (Honorary), 1945, Harvard University; Sc.D. (Honorary), 1950, University of British Columbia; 1955, Syracuse University. **IRE Offices:** President, 1941; Vice President, 1940; Director, 1940–43, 1948–49. **Committees:** Admissions, 1940; Annual Review, 1946–47; Appointments, 1949; Awards, 1940, 1942–43; Constitution and Laws, 1944–47; Education, 1949–50; Handbook, 1945–48; Membership, 1939–40, 1942, 1949–50, *chairman, 1942;* Nominations, 1943, 1948–49, 1951, 1953, 1955, *chairman, 1951;* Policy Development, 1948–50; Professional Groups, 1943; Research, *chairman, 1945–49;* Standards, 1934–41, 1946–47. **Sections:** San Francisco, *secretary, 1931–32, chairman, 1939–40.* **IRE Representative:** Stanford University, 1941; National Research Council, Division of Engineering and Research, 1943–46. **Awards:** IRE Medal of Honor, 1950.

THAYER, Gordon N. (SM'47—F'51), Vice President, Operations, American Telephone and Telegraph Company, 195 Broadway, New York 7, N.Y.
Born: October 6, 1908, Delta, Colo. 1926–30, M.E., 1946 Stevens Institute of Technology.

THOMAS, Henry P. (A'39—VA'39—M'44—SM'47—F'51), Engineer, Communication Products Department, General Electric Company, Lynchburg, Va.
Born: May, 1904, Boston, Mass. B.A., 1925, M.S., 1927, Harvard University. **Committees:** Editorial Reviewer, 1954–60; Papers Review, 1946–53; Radio Wave Propagation, 1942–46; Wave Propagation, 1940–41. **Awards:** Charles A. Coffin Award, General Electric Company, 1948.

THOMPSON, Leland E. (A'35—SM'44—F'57), Engineer, Radio Corporation of America, Camden, N.J.
Born: September 18, 1905, Creighton, Neb. B.S.(E.E.), 1929, University of South Dakota.

TICE, Thomas E. (S'46—A'50—SM'55—F'61), Professor, Electrical Engineering; Director, Antenna Laboratory, Department of Electrical Engineering, The Ohio State University, 2024 Neil Ave., Columbus 10, Ohio.
Born: January 24, 1924, Florence, Ala. B.E.E., 1947, M.Sc., 1948, Ph.D., 1951, The Ohio State University. **Sections:** Columbus, Program Committee, 1953–54; Section *secretary-treasurer, 1954–55, vice-chairman, 1955–56, chairman, 1956–57;* CTC Representative, 1957–58; Regional Committee, *secretary, 1954–56.*

TINUS, William C. (A'31—M'36—SM'43—F'51), Vice President, Bell Telephone Laboratories, Inc., Whippany, N.J.
Born: October 18, 1905, Chicago, Ill. B.S.(E.E.), 1928, Dr.Eng. (Honorary), 1954, Texas A and M College. **Committees:** Board of Editors, 1946–53.

TOLLES, Walter E. (M'46—SM'56—F'60), Head, Department of Medical and Biological Physics, Airborne Instrument Laboratory, A Division of Cutler-Hammer, Inc., Deer Park, L.I., N.Y.
Born: February, 1916, Moline, Ill. B.S.(Physics), 1939, Antioch College; M.S.(Physics), 1941, University of Minnesota. **Committees:** Medical Electronics, 1956, *chairman, 1957–58;* Professional Groups, 1960, Standards, 1956. **Professional Groups:** Medical Electronics, *secretary-treasurer, 1957, vice-chairman, 1958–59, chairman, 1959–60.* **Awards:** Fellow, American Association for Advancement of Science, 1947; Fellow, New York Academy of Science, 1957.

TOLMIE, John R. (J'15—A'18—M'32—SM'43—F'55), Retired as Staff Supervisor, Pacific Telephone & Telegraph Co. Residence: 1624 Boren Ave., Seattle, Wash.
Born: March 19, 1897, Seattle, Wash. B.S.(E.E.), 1919, M.S. (E.E.), 1923, University of Washington. **Sections:** Seattle, *secretary, 1919–20, chairman, 1923–24.*

TOMOTA, Miyaji (SM'53—F'61), Executive Vice President, Yokogawa Electric Works, Lt., 3000 Kichijoji, Musashino City, Tokyo; Lecturer, University of Tokyo, Bunkyo-Ku, Tokyo, Japan.
Born: August 22, 1905, Hiroshima City, Hiroshima Prefecture, Japan. B.E., 1927, Hiroshima College of Technology; Ph.D., 1952, University of Tokyo. **Sections:** Tokyo, *vice-chairman, 1959–61;* Publicity Committee, *chairman, 1956–59.* **Awards:** Asahi Invention Award, 1957; Purple Ribbon Medal, Japanese Government, 1958.

TOTH, Emerick (SM'48—F'58), Head of Radio Techniques Branch, U. S. Naval Research Laboratory, Washington 25, D.C.
Born: June, 1905, New York, N.Y. B.S.(E.E.), 1927, Newark College of Engineering. **Professional Groups:** Awards, *chairman;* Communication Systems Administrative Committee; Nomination Committee; PGMIL Administrative Committee. **Sections:** Washington Section Awards Committee; Washington Chapter, PGMIL, *chairman.* **IRE Representative:** Member, U. S. Commission VI, URSI. **Awards:** Meritorious Civilian Service Award, United States Navy, 1946.

TOWN, George R. (A'37—SM'44—F'50), Dean of Engineering, Iowa State University, Ames, Iowa.
Born: May 26, 1905, Poultney, Vt. E.E., 1926, D.Eng., 1929, Rensselaer Polytechnic Institute. **IRE Offices:** Director, 1949–53. **Committees:** Appointments, 1952; Awards, 1948–49; Education, 1945–48; Frequency Modulation, 1946–47; Membership, 1953–55; Papers Procurement, 1947–50. **Professional Group:** Broadcasting Administrative Committee, 1957–60. **Sections:** Rochester, *secretary, 1942–44, chairman, 1944–46.* **Awards:** IRE Professional Group on Broadcast and Television Receivers, 1959.

TOWNER, Orrin W. (A'24—M'29—SM'43—F'58), Director of Engineering, WHAS, Inc., 525 W. Broadway, Louisville 2, Ky.
Born: March 29, 1903, Peterson, Iowa. A.A.(Eng.), 1924, Junior College of Kansas City; B.Sc.(E.E.), 1927, E.E., 1933, University of Kansas. **Committees:** Broadcast Transmission Systems Group, *chairman, 1949.* **Sections:** Louisville, *chairman, 1947–49, 1956–57.* **Awards:** Presidential Certificate of Merit, 1948.

TRAVIS, Irven (SM'46—F'53), Vice President of Research, Burroughs Corporation, 6071 Second Ave., Detroit 32, Mich.
Born: March, 1904, McConnellsville, Ohio. B.S.(E.E.), 1926, Drexel Institute of Technology; M.S.(E.E.), 1928, Sc.D.(E.E.), 1938, University of Pennsylvania. **Committees:** Awards, 1959–60, *chairman, 1960;* Fellow, 1958. **Sections:** Philadelphia, *vice-chairman, 1933–34.* **Awards:** Alumni Citation, Drexel Institute of Technology; Commendation, United States Navy, 1946.

TREVOR, Bertram A. (A'29—M'38—SM'43—F'53), Senior Engineering Scientist, Radio Corporation of America, Surface Communications Systems Laboratory, Box 5644, Tucson, Ariz.
Born: February, 1906, Ithaca, N.Y. E.E., 1928, Cornell University.

Committees: Frequency Modulation, 1946–47; Membership, 1943–46; Modulation Systems, 1947–52, *vice-chairman, 1948–50, chairman, 1950–51;* Papers Review, 1946–53; Standards, 1950–51.

TROLESE, Louis G. (A'42—SM'47—F'60), Vice President, Smyth Research Associates, 3555 Aero Court, San Diego, Calif.
Born: July 2, 1908, Sonora, Calif. B.S.(E.E.), 1930, University of California, Berkeley; Professional Engineer. **Committees:** Papers Procurement, 1947–50. **Professional Groups:** Antenna & Propagation Administrative Committee, 1960–62. **Sections:** San Diego, *chairman, 1949–50.* **IRE Representative:** Seventh Region Technical Conference and Trade Show, *chairman, 1957;* Member, U.S.A. Commission II of the URSI.

TRUXAL, John G. (S'47—A'48—SM'54—F'59), Head, Electrical Engineering Department, Polytechnic Institute of Brooklyn, 333 Jay St., Brooklyn, N.Y.
Born: February 19, 1924, Lancaster, Pa. A.B., 1944, Dartmouth College; B.S., 1947, Sc.D., 1950, Massachusetts Institute of Technology. **Committees:** Editorial Reviewer, 1954–59. **Professional Groups:** *Education, chairman, 1959–.*

TUPPER, Bertram R. (A'36—SM'46—F'54), Chief Engineer of the British Columbia Telephone Company, 768 Seymour St., Vancouver 2, B.C., Canada.
Born: April 15, 1906, Vancouver, B.C., Canada. B.S., 1928, University of British Columbia. **Sections:** Vancouver, *chairman, 1959;* Director, 8th Region, 1961–62.

TURNER, George S. (A'22—M'28—SM'43—F'57), Chief, Field Engineering and Monitoring Bureau, Federal Communications Commission, Washington 25, D.C.
Born: June 25, 1900, Independence, Mo. LL.M., 1939, Atlanta Law School. **Committees:** Membership, 1927. **Sections:** Atlanta, *secretary, 1938–39, vice-chairman, 1940.*

TURNER, Hubert M. (A'14—M'30—F'37)(L), Associate Professor, Emeritus, Electrical Engineering, Yale University, New Haven, Conn.
Born: July 20, 1882, Hillsboro, Ill. B.S., 1910, M.S., 1915, University of Illinois. **IRE Offices:** President, 1944; Director, 1933–46. **Committees:** Admission, 1936, 1939–43, *chairman, 1941–42;* Annual Review, 1937–40, 1943–44; Awards, 1934, 1938–41, *chairman, 1934, 1940;* Bibliography, 1930–31; Circuit Elements, *chairman, 1927–28;* Constitution and Laws, 1936–43, *chairman, 1936–40;* Executive, *chairman, 1944;* Investments, 1944–46; Meetings and Papers, 1929; Nominations, 1938, 1941, 1945, *vice-chairman, 1945;* Papers, 1932–44; Papers Procurement, 1942–43; Preparedness, 1940–41; Regular Papers, 1941; Sections, 1952; Standardization, 1926–32; Standards, 1932–38, 1940–48; Symbols, 1940–49, *chairman, 1940–45;* Tellers, 1940. **IRE Representative:** Yale University, 1941–47; ASA Subcommittee on Letter Symbols for Radio, 1936–54; ASA Electrical Standards Committee, 1939–46; ASA Sectional Committee (C-18) on Specifications for Dry Cells and Batteries, 1936–51; ASA Subcommittee on Communication Symbols of Sectional Committee on Graphical Symbols and Abbreviations for Use on Drawings, 1939–48; ASA Sectional Committee (Y-10) on Letter Symbols, *chairman, 1940–60;* United States National Committee of the International Electrotechnical Commission, 1944–48; Technical Advisor, United States National Committee, International Electrotechnical Commission, Letter Symbols, 1946–60; Chief Delegate, United States National Committee on Letter Symbols for Electrical Quantities, International Electrotechnical Commission, Paris, France, 1950; Philadelphia, 1954; Stockholm, 1958; United States Paper Committee, World Power Conference, London, 1950; Member, Examining Committee for the Connecticut Board of Registration for Professional Engineers, 1942–59, *chairman, 1957–60.*

TUSKA, Clarence D. (A'14—M'41—SM'43—F'57), Staff Consultant, Patents, Radio Corporation of America, David Sarnoff Research Center, Princeton, N.J.
Born: August 15, 1896, New York, N.Y. B.S., 1919, Trinity College; LL.B., 1934, La Salle Extension University.

TUTTLE, David F., Jr. (S'34—A'39—M'47—SM'54—F'60), Professor of Electrical Engineering, Electrical Engineering Department, Stanford University, Stanford, Calif.
Born: July 5, 1914, Briarcliff Manor, N.Y. B.A., 1934, Amherst College; S.B., S.M., 1938, Sc.D., 1948, Massachusetts Institute of Technology. **Committees:** Editorial Reviewer, 1955–60. **Awards:** Fellow, American Institute of Electrical Engineers, 1960.

TUTTLE, W. Norris (A'26—SM'46—F'49), Engineering Consultant, General Radio Company, 22 Baker Ave., West Concord, Mass.
Born: March 29, 1902, Croton-on-Hudson, N.Y. A.B., 1924, S.M. (Electrical Communication Engineering), 1926, Ph.D.(Physics), 1929, Harvard University. **Committees:** Annual Review, 1949–51; Circuits, 1944–61, *chairman, 1949–51;* Editorial Board, 1954–58; Education, 1953–60; Papers Review, 1948–52; Policy Development, 1948–50; Standards, 1949–51. **Awards:** Medal of Freedom, War Department, 1946

TUVE, Merle A. (A'45—F'45), Director, Department of Terrestrial Magnetism, Carnegie Institution of Washington, 5241 Broad Branch Rd., N.W., Washington 15, D.C.
Born: June 27, 1901, Canton, S.D. B.S., 1922, A.M., 1923, University of Minnesota; Ph.D., 1926, The Johns Hopkins University; D.Sc., 1948, Case Institute; D.Sc., 1949, Kenyon College; D.Sc., 1949, Williams College; D.Sc., 1950. The Johns Hopkins University; D.Sc., 1953, University of Alaska. **IRE Representative:** U. S. National Committee for International Geophysical Year, Executive Committee, 1954–; NAS-Natl. Research Council Geophysics Research Board, *chairman, 1960–;* Carnegie Telescope Image Converter Committee, *chairman, 1954–.* **Awards:** Fellow, American Physical Society; Fellow, American Academy of Arts and Sciences; Fellow, National Academy of Sciences; Fellow, American Philosophical Society; American Association for the Advancement of Science Prize, 1931; Presidential Medal for Merit, 1946; Research Corporation Award, 1947; John Scott Award, 1948; Comstock Prize, 1949; Commander of the Order of the British Empire, 1949; Howard N. Potts Medal, Franklin Institute, 1950; Outstanding Achievement Medal, University of Minnesota, 1950; Barnard Medal, Columbia University, 1955.

TYSON, Benjamin F. (S'36—A'39—VA'39—SM'49—F'58), Engineering Manager, General Telephone & Electronics Laboratories, Inc., 208–20 Willets Point Blvd., Bayside, L.I., N.Y.
Born: November 18, 1913, Chatham, N.J. M.E., 1935, M.Sc., 1937, Stevens Institute of Technology. **Committees:** Admissions, 1960; National Convention Committee, 1956–57; Tellers, 1954–56, *chairman, 1955;* Video Techniques, 1951–55. **Professional Groups:** Broadcast & Television Receivers Administrative Committee, 1957–61. **Sections:** Long Island Subsection, *secretary, 1952.* **Awards:** Certificate of Commendation, Bureau of Ships, United States Navy, 1947.

ULLRICH, Edward H. (M'26—F'39), Retired from Standard Telephones and Cables, Ltd., Connaught House, Aldwych, London, W.C.2, England. Residence: 6 Ryder St., Cardiff, Wales.
Born: December 8, 1894, Cardiff, Wales. Mechanical Sciences Tripos, 1921, Christ's College, Cambridge, England. **Committees:** Membership, 1927. **Awards:** Institution Premium, Institution of Electrical Engineers, 1936; Ex Gratia Joint Award by Royal Commission on Awards to Inventors for Invention, 1941.

ULREY, Dayton (A'28—M'40—SM'43—F'50), Retired. 324 Suwanee Ave., Ballantine Manor, Sarasota, Fla.
Born: September, 1884, North Manchester, Ind. B.A., 1911, M.A., 1912, Indiana University; Ph.D., 1917, Stanford University. **Committees:** Electronics, 1936–37; Papers, 1940–45; Papers Review, 1946–52.

VALLEY, George E., Jr. (SM'55—F'60), Professor of Physics, Massachusetts Institute of Technology, Cambridge 39, Mass.
Born: September 5, 1913, New York, N.Y. S.B., 1935, Massachusetts Institute of Technology; Ph.D., 1939, University of Rochester. **Awards:** U. S. Army Letter of Appreciation, 1945; President's Certificate of Merit, 1948; Air Force Association Distinguished Service Award, 1951; Exceptional Civilian Service Medal, 1956, 1958; Fellow, American Physical Society.

VAN ALLEN, James A. (SM'59—F'60), Professor of Physics and Head of Department of Physics and Astronomy, State University of Iowa, Iowa City, Iowa.
Born: September 7, 1914, Mount Pleasant, Iowa. B.S.(Physics), 1935, Iowa Wesleyan College; M.S.(Physics), 1936, Ph.D. (Physics), 1939, State University of Iowa; Sc.D. (Honorary), 1951, Iowa Wesleyan College; Sc.D. (Honorary), 1957, Grinnell College; Sc.D. (Honorary), 1958, Coe College; Sc.D. (Honorary), 1959, Cornell College; Sc.D. (Honorary), 1960, University of Michigan; Sc.D. (Honorary), 1960, Northwestern University; Sc.D. (Honorary), 1960, University of Dubuque. **Awards:** C. N. Hickman Medal of American Rocket Society for Development of the Aerobee, 1949; Physics Award of the Washington Academy of Sciences, 1949; Space Flight Award, American Astronautical Society, 1958; Distinguished Civilian Service Medal, U. S. Army, 1959; Louis W. Hill Space Transportation Award, 1960; Fellow, American Physical Society; Fellow, American Astronautical Society; Fellow, American Rocket Society.

VAN ATTA, Lester C. (M'42—SM'43—F'52), Director, Technical Information and Education, Hughes Aircraft Company, Culver City, Calif. Special Assistant for Arms Control to Director, Defense Research and Engineering, Office of Secretary of Defense (on loan from Hughes Aircraft Co.)
Born: April 18, 1905, Portland, Ore. B.A., 1927, Reed College; M.S., 1929, Ph.D., 1931, Washington University. **IRE Offices:** Board of Directors, 1961–63, Director-at-Large/Delegate-at-Large. **Committees:** Antennas, 1945–48, *vice-chairman, 1948–49;* Antennas and Waveguides, 1949–51, *chairman, 1949–51;* Awards, 1953; Editorial Reviewer, 1954–60; Membership, 1953; Papers Review, 1951–53; Professional Groups, 1951–60, *vice-chairman, 1953;* Research, 1946–47, 1949–51; Standards, 1949–51. **Professional Groups:** Antennas and Propagation Administrative Committee, 1951–55, *chairman, 1949–50.* **Sections:** Los Angeles, *chairman, 1958–59;* Los Angeles IRE Winter Convention on Military Electronics, *chairman, 1960.*

van der ZIEL, Aldert (SM'49—F'56), Professor of Electrical Engineering, University of Minnesota, Minneapolis 14, Minn.
Born: December 12, 1910, Zandeweer, Groningen, Netherlands. B.A.(Physics and Math.), 1930, M.A.(Physics and Math.), 1933, Ph.D.(Physics and Math.), 1934, University of Groningen.

VAN DEUSEN, George L. (A'22—SM'46—F'58), Major General, United States Army, Retired. Consultant, RCA Institutes, Inc., 350 W. 4 St., New York 14, N.Y.
Born: February 10, 1888, Passaic, N.J. B.Sc., 1909, United States Military Academy; M.Sc., 1921, Yale University. **Committees:** Annual Review, 1950–52; Public Relations, 1951. **Awards:** Distinguished Service Medal, United States Army, 1946.

VAN DUUREN, Hendrik C. A. (SM'58—F'61), Head of the Dr. Neher Laboratory, Netherlands Postal and Telecommunications Services, St. Paulusstraat 4, Leidschendam, Netherlands.
Born: November 24, 1903, The Hague, Netherlands. E.E., 1926, Dr., 1941, Technical University at Delft. **Sections:** Benelux. **Awards:** Dr. de Groot Plaquette, Dr. de Groot Fonds, 1960.

VAN DYCK, Arthur F. (IRE Charter Member) (A'12—M'18—F'25)(L), Retired. 516 Bougainvillea Lane, Vero Beach, Fla.
Born: May 20, 1891, Stuyvesant Falls, N.Y. Ph.B., 1911, Yale University. **IRE Offices:** President, 1942; Director, 1932–35, 1939–44; Manager, 1930–32. **Committees:** Admissions, 1930–34, 1937–40, 1943, *chairman, 1932–33, 1940, 1943;* Annual Review, 1937–40, 1943–44, *chairman, 1937–40;* Awards, 1934, 1940, 1952–53; Bibliography, 1930–32; Constitution and Laws, 1933–34, 1943; Executive, 1942–43, *chairman, 1942;* History, 1960; New York Program, 1934–35, 1939–40, *chairman, 1934;* Nominations, 1932, 1951; Papers, 1940; Papers Procurement, 1942–43; Public Relations, 1940–41, 1943–46, *chairman, 1941;* Registration of Engineers, 1940; Regular Papers, 1941; Research, 1946–47; Standards, 1933–36; Tellers, 1932–33, 1935, *chairman, 1935.* **IRE Representative:** ASA Sectional Committee (Z17) on Preferred Numbers, 1936, 1939–55; ASA Sectional Committee (Z67) on Standardization of Voltage—Preferred Voltages 100 Volts and Under, 1949–50. **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940; Legion of Merit, 1946.

VAN DYKE, Karl S. (A'15—M'26—SM'43—F'44)(L), Professor Emeritus, Physics, Wesleyan University, Scott Laboratory, Middletown, Conn.
Born: December 8, 1892, Brooklyn, N.Y. B.S., 1916, M.S., 1917, Wesleyan University; Ph.D., 1921, University of Chicago. **Committees:** Admissions, 1929; Annual Review, 1941, 1949–51; Board of Editors, 1933–40, 1947–53; Editorial Reviewer, 1957–60; Meetings and Papers, 1929–31, *chairman, 1929;* Membership, 1942–47; Papers, 1932–33, 1944–45; Papers Procurement, 1945–48; Papers Review, 1946; Piezoelectric Crystals, 1940–43, 1945–59, *chairman, 1940–42, 1949–51;* Piezoelectric and Ferroelectric Crystals, 1959–61; Standards, 1941, 1949–51. **Sections:** Connecticut Valley, *secretary-treasurer, 1927; chairman, 1934–35.* **IRE Representative:** Wesleyan University, 1955–60.

***VARIAN, Russell H. (A'40—SM'51—F'52),** Chairman, Board of Directors, Varian Associates, 611 Hansen Way, Palo Alto, Calif.
Born: April 24, 1898, Washington, D.C. A.B., 1925, M.A., 1927, Stanford University; Dr.Eng. (Honorary), 1943, Polytechnic Institute of Brooklyn. **Awards:** Fellow, American Physical Society; John Price Wetherill Medal, Franklin Institute, 1950.

VILLARD, Oswald G., Jr. (S'38—A'41—SM'51—F'57), Professor, Electrical Engineering, Stanford University, Stanford, Calif.
Born: September 17, 1916, Dobbs Ferry, N.Y. B.A., 1938, Yale University; E.E., 1943, Ph.D., 1949, Stanford University. **Committees:** Editorial Reviewer, 1955–60; Wave Propagation, 1959. **Sections:** Palo Alto Subsection, *chairman, 1952.* **Awards:** Outstanding Young Bay Area Engineer, Bay Area Engineers' Week Committee, 1955; IRE Morris Liebmann Memorial Prize, 1957.

VOGELMAN, Joseph H. (M'46—SM'49—F'59), Vice President, Research, Development and Engineering, Capehart Corporation, 87–46 123 St., Richmond Hill, L.I., N.Y.
Born: August 18, 1920, New York, N.Y. B.S., 1940, City College of New York; M.(E.E.), 1948, D.(E.E.), 1957, Polytechnic Institute of Brooklyn. **Committees:** Admissions, 1954. **Professional Groups:** Communications Systems Papers Study and Procurement Committees, 3 years; Communications Systems Awards Committee. **Sections:** Rome Subsection, *chairman, 1953;* Rome-Utica, *chairman, 1954;* 3rd, 4th and 5th National Communication Symposium, Utica; Guest Speakers, *chairman, 1957;* Scholarship Fund, *chairman, 1958–59.*

VOLLUM, Howard (SM'50—F'55), President, Tektronix, Inc., P.O. Box 500, Beaverton, Ore.
Born: May 31, 1913, Portland, Ore. B.A., 1936, Reed College; Sc.D. (Honorary), 1953, Portland University. **IRE Offices:** Director, 1955. **Sections:** Portland, *chairman, 1954–55.* **Awards:** Legion of Merit, 1945; Oak Leaf Cluster, 1946.

vonBAEYER, Hans J. (SM'53—F'59), Vice President, National Telecommunication Supply, Ltd., 298 Elgin St., Ottawa, Ont., Canada.
Born: August, 1912, Munich, Germany. Dr.Phil., 1935, University of Heidelberg, Germany.

WAIDELICH, Donald L. (S'37—A'39—SM'44—F'58), Professor of Electrical Engineering, University of Missouri, Columbia, Mo.
Born: May 3, 1915, Allentown, Pa. B.Sc.(E.E.), 1936, M.Sc., 1938, Lehigh University; Ph.D., 1946, Iowa State College. **Com-**

* Deceased.

mittees: Education, 1952–57. **IRE Representative:** University of Missouri, 1946–50. **Awards:** Eta Kappa Nu Honorable Mention Award, 1946; Fulbright Award, U. S. Government, 1951–52, 1961–62; Fellow, American Institute of Electrical Engineers.

WALKER, Eric A. (M'47—F'60), President, The Pennsylvania State University, University Park, Pa.
Born: April, 1910, Long Eaton, England. B.S., 1932, M.S., 1933, Sc.D., 1935, Harvard University. **Awards:** Presidential Certificate of Merit for Service to Armed Forces for Development of Acoustic Torpedo, 1948; Paper, "An Electroacoustical System," First Prize, Communication Group, 1950; Paper, "A Polar Vector Indicator," Second Prize, Science and Electronics Group, 1950, American Institute of Electrical Engineers; Navy Distinguished Public Service Award, 1958; Tasker H. Bliss Award, American Society of of Military Engineers, 1959; Fellow, American Acoustical Society; Fellow, American Institute of Electrical Engineers; Fellow, American Physical Society.

WALLACE, James D. (A'29—SM'44—F'59), Section Head, Communication Systems Section, Radio Division, Naval Research Laboratory, Washington 25, D.C.
Born: March 6, 1904, Gloster, Miss. B.A., 1925, M.A., 1927, University of Mississippi, **Professional Groups:** Chapter Activities Committee, *chairman, 1957–58;* Communication Systems Administrative Committee, 1957–60. **Sections:** Washington, *secretary, 1942; chairman, 1944; patron, 1956.*

WALLACE, Robert L., Jr. (SM'53—F'56), Director of Special Electronics Research, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: February 21, 1916, Coolidge, Tex. B.A.(Physics), 1936, M.A.(Physics), 1939, University of Texas. **Committees:** Editorial Reviewer, 1954–60.

WANG, Chao Chen (A'43—SM'49—F'57), Department Head, Microwave Tube Research, Sperry Gyroscope Company, Great Neck, L.I., N.Y.
Born: October 20, 1914, Changchow, Kiangsu, China. B.S., 1936, Chiao-Tung University, Shanghai; S.M., 1938, Sc.D., 1940, Harvard University. **Committees:** Editorial Reviewer, 1955–60. **Awards:** Victor Emanuel Distinguished Professorship, Cornell University, 1960; Distinguished Achievement Award by Seven Long Island Colleges, 1960.

WARNECKE, Robert R. (SM'48—F'50), Director, Centre de Physique Electronique et Corpusculaire, Manager of and/ Division Tubes Electroniques, Compagnie Générale de Telegraphie Sans Fil, Domaine de Corbeville, B.P. N° 10, Orsay, Seine et Oise, France.
Born: November, 1906, Tours, France. Doctor, 1933, University of Paris; D.Eng. (Honorary), 1958, Polytechnic Institute of Brooklyn. **Committees:** Electron Tubes, 1955–56, 1959–61. **Professional Groups:** *President, 1958,* Societe Française des Ingenieurs et Techniciens du Vide. **Awards:** Ancel Prize, French Society of Electricians, 1943; Henri Becquerel Prize, Academy of Sciences of Paris, 1945; Blondel Medal, 1951; d'Aumale Prize, Academy of Sciences of Paris, 1952; IRE Morris Liebmann Memorial Prize, 1954; Member, French Society of Physics; French Society of Electricians; Society of Radioelectricians (President of the "Microwaves Section," 1953–58).

WATANABE, Yasushi Y. W. (SM'57—F'59), Doctor of Engineering, Department of Electrical Engineering, Tohoku University, 5 Sakurakoju, Sendai, Japan.
Born: November 15, 1896, Kuji-machi, Hitachi, Ibaraki Pref., Japan. B.S., 1921, University of Tokyo; D.Eng., 1926, Tohoku University. **Awards:** Asano Memorial Prize, Institution of Electrical Engineers of Japan, 1939; Prize Medal, Institution of Communication Engineers of Japan, 1941.

WATKINS, Dean A. (A'47—M'48—S'49—A'51—SM'55—F'58), Professor, Stanford University, Stanford, Calif.; President, Watkins-Johnson Company, Palo Alto, Calif.
Born: October 23, 1922, Omaha, Neb. B.S., 1944, Iowa State College; M.Sc., 1947, California Institute of Technology; Ph.D., 1951, Stanford University. **Committees:** Editorial Reviewer, 1955–60; Electron Tube Research Conference; Technical Program Committee, 1955–57. **Professional Groups:** Electron Devices Administrative Committee, 1958–. **Awards:** IRE Seventh Region Achievement Award, 1957.

WATSON-WATT, Sir Robert (SM'46—F'47), Chairman, Scientific Advisory Board, Axe Science and Electronics Corporation, 730 Fifth Ave., New York, N.Y.; Residence: Maple Brook, Sterling Forest, Tuxedo, N.Y.
Born: April 13, 1892, United Kingdom. C.B., D.Sc., LL.D. **IRE Offices:** Vice President, 1950; Director, 1950. **Awards:** Presidential Medal for Merit, U. S., 1946; Valdemar Poulsen Gold Medal, Danish Academy of Technical Sciences, 1947; Hughes Medal, Royal Society of London, 1948; Elliott Cresson Medal, Franklin Institute, 1957; Fellow, Royal Society.

WAYNICK, Arthur H. (A'43—SM'46—F'57), Professor and Head, Electrical Engineering Department; Director, Ionosphere Research Laboratory, Pennsylvania State University, University Park, Pa.
Born: November 9, 1905. B.S., 1935, M.S., 1936, Wayne University; 1937–39, University of Michigan Electronics Institute and Cambridge University, England; Sc.D., 1943, Harvard University. **IRE Offices:** Director, 1959–60. **Committtees:** Editorial Board, *vice-chairman, 1959–60;* Nominations, 1959–60; Policy Study, 1960; Professional Groups, 1954; Wave Propagation, 1949–61. **Professional Groups:** Antennas and Propagation, *chairman, 1952.* **IRE Representative:** National Bureau of Standard Technical Advisory Committee, 1957–59; U.S.A. Technical Program Committee, XII URSI General Assembly, *chairman;* U.S.A. National Committee of URSI, *past chairman;* U.S.A. National Committee of URSI, *treasurer;* Journal of Geophysical Research, *associate editor.* **Awards:** Navy Ordnance Development Award, 1945; Office of Scientific Research and Development Award, 1945; Guggenheim Fellow, Cambridge University, England, 1954–55; Distinguished Alumni Award, Wayne State University, 1957.

WEBB, Richard C. (A'41—M'46—SM'56—F'58), President, Colorado Research Corporation, Broomfield, Colo.
Born: September 2, 1915, Omaha, Neb. B.Sc.(E.E.), 1937, University of Denver; M.Sc.(E.E.), 1944, Ph.D., 1951, Purdue University. **Committees:** Editorial Reviewer, 1953–54; Papers Review, 1953. **Sections:** Denver, *vice-chairman, 1955–56, chairman, 1956–57.* **IRE Representative:** Denver University, 1953–55. **Awards:** RCA Laboratories Awards, 1947, 1949.

WEBBER, Stanley E. (S'42—A'43—SM'49—F'59), Manager, Engineering, Traveling Wave Tube Product Section, General Electric Company, 601 California Ave., Palo Alto, Calif.
Born: June 8, 1919, Boston, Mass. B.S.(E.E.), 1941, M.S.(E.E.), 1942, Massachusetts Institute of Technology. **Committees:** Editorial Reviewer, 1955–60; Electron Tubes, 1956–60; Microwave Tube Subcommittee, 1950–56; Tube Research Conference Committee, 1953–56.

WEBER, Ernst (M'41—SM'43—F'51), President, Polytechnic Institute of Brooklyn, 333 Jay St., Brooklyn 1, N.Y.
Born: September 6, 1901, Vienna, Austria. Dipl. Eng.(E.E.), 1924, Technical University, Vienna; Ph.D., 1926, University of Vienna; Sc.D., 1927, Technical University. **IRE Offices:** President, 1959; Director, 1952–61; Board of Directors, Chairman, 1959. **Committees:** Administrative Committee of Board of Editors, 1951; Annual Review, 1950–51; Appointments, 1959–61; Awards, 1952–54, *chairman, 1953–54;* Awards Coordination, 1958; Board of Editors, 1949–53; Circuits, 1949–53; Editorial Administrative, 1949–51; Education, 1944–51; Executive, 1957–61, *chairman, 1959–60;* Finance, 1952, 1959–60; Instruments and Measurements, 1948–52, *chairman, 1949–51;* Measurements and Instrumentation, *chairman, 1945–55;* Membership, 1941–48; National Convention, 1947, 1951; Nominations, 1959–61; Policy Advisory, 1952, 1956, *chairman, 1960;* Policy Study, *chairman, 1960;* Professional Groups, 1951–60, *vice-chairman, 1954–56,* Eastern Division, *vice-chairman, 1957–59, chairman, 1960–61;*

Standards, 1949–60, *vice-chairman, 1951–54, chairman, 1954–56, ex-officio, 1957–59.* **Professional Groups:** Measurements and Instrumentation, *chairman, 1950–52.* **IRE Representative:** ASA Standards Council, 1952–61; ASA Electrical Standards Board, 1955–60; ASA Acoustical Standards Board, 1958–61; ASA Sectional Committee (C16) on Radio, 1954–61, *chairman, 1957–61;* ASA Subcommittee (C42.6) on Electrical Instruments, 1952–55; C.C.I.R., Executive Committee on U. S. Delegation, 1958–61; National Academy of Sciences-National Research Council, Advisory Board of the Office of Critical Tables, 1959–61; United States National Committee, International Electrotechnical Commission, Adviser on Electrical Measuring Instruments, *alternate, 1952, 1958–59;* United States National Committee, URSI, 1956–61; Joint Technical Advisory Committee, 1955–57, 1959–61, *vice-chairman, 1955–56, chairman, 1956–57;* ASA Sectional Committee (C42) on Definition of Electrical Terms, 1955; International Radio Consultative Committee, Executive Committee of U. S. Delegation, 1955–57; URSI, Executive Committee, *alternate, 1955–56;* U. S. National Committee of the International Electrotechnical Commission, 1955–59. **Awards:** Fellow, American Institute of Electrical Engineers; Fellow, American Physical Society; Presidential Certificate of Merit, 1948.

WEBER, Joseph (S'44—M'46—SM'53—F'58), Professor of Electrical Engineering and Physics, University of Maryland, College Park, Md.
Born: May 17, 1919, Paterson, N.J. B.S., 1940, U. S. Naval Academy; Ph.D. (Physics), 1951, Catholic University of America. **Awards:** Scientific Achievement, Washington Academy of Sciences, 1958.

WEBSTER, Edward M. (A'30—M'38—SM'43—F'44), Telecommunications Consultant, 9518 E. Stanhope Rd., Kensington, Md.; Commodore, U. S. Coast Guard, Retired. Formerly, Commissioner, Federal Communications Commission.
Born: February 28, 1889, Washington, D.C. **IRE Offices:** Director, 1946. **Committees:** Membership, 1940; Public Relations, 1945–46. **Sections:** Washington, *secretary, 1940, chairman, 1942.* **Awards:** Legion of Merit, Marconi Memorial Medal, VWOA, 1950; Distinguished Service Award, Washington Section IRE, 1956.

WEBSTER, William M. (A'48—SM'54—F'60), Director, Electronic Research Laboratory, RCA Laboratories, Inc., Princeton, N.J.
Born: June 13, 1925, Warsaw, N.Y. 1942–43, Renssalaer Polytechnic Institute; B.S.(Physics), 1943–45, Union College; Ph.D., 1954, Princeton University. **Committees:** Editorial Reviewer, 1954–58; Professional Groups, 1960; Solid State Devices, 1956–60, *vice-chairman, 1957–59.* **Professional Groups:** Electron Devices, *chairman, 1959–60.* **Awards:** IRE Editor's Award.

WEEKS, Paul T. (A'19—M'28—SM'43—F'54)(L), 31 Edmunds Rd., Wellesley Hills, Mass.
Born: November, 1890, Clarksfield, Ohio. A.B., 1913, Oberlin College; Ph.D., 1917, Cornell University. **Committees:** Annual Review, 1938–42; Electronics, 1936–42, *chairman, 1938–42;* Meetings and Papers, 1927–29; Papers, 1938–41; Regular Papers, 1941; Standards, 1938–42. **Awards:** Fellow, American Association for the Advancement of Science; Naval Ordnance Development Award, 1945.

WEIHE, Vernon I. (SM'45—F'58), Director, Advanced Systems Planning Group, General Precision, Inc., 724 14 St., N.W., Washington 5, D.C.
Born: March 3, 1909, Louisville, Ky. B.Sc.(E.E.), 1931, Speed Scientific School, University of Louisville. **Professional Groups:** Administrative Committee, Aeronautical and Navigational Electronics, 1956–57. **Awards:** Collier Trophy, Award for Civilian Achievement, 1948.

WEIL, Joseph (M'37—SM'43—F'57), Dean, College of Engineering; Director, Engineering and Industrial Experiment Station; Professor, Electrical Engineering, University of Florida, Gainesville, Fla.
Born: July 19, 1897, Baltimore, Md. 1911–15, Baltimore Polytechnic Institute; B.S.E., 1918, The Johns Hopkins University; M.S., 1926, University of Pittsburgh; D.Sc. (Honorary), 1960, Jacksonville University. **Committees:** Awards, 1960–61; Fellow, 1958–60. **IRE Representative:** University of Florida, 1941–42. **Awards:** Presidential Medal, Florida Engineering Society, 1940; Honorable Mention, Florida Engineering Society, 1944; Certificate of Service, Office of Scientific Research and Development, 1945; Naval Ordnance Department Award, 1946; Honorable Membership, Southeastern Metermen's Association, 1948; Distinguished Service Certificate, National Council of State Boards of Engineers, 1955; Outstanding Service Award, Florida Engineering Society, 1956; Distinguished Service Award, Jacksonville University, 1958; Florida Alpha, Tau Beta Pi, 1961.

WEIMER, Paul K. (A'43—SM'51—F'55), Research Engineer, RCA Laboratories Division, Princeton, N.J.
Born: November 5, 1914, Wabash, Ind. B.A., 1936, Manchester College; M.A., 1938, University of Kansas; Ph.D., 1942, Ohio State University. **Committees:** Editorial Reviewer, 1954–60. **Sections:** Princeton, *secretary, 1956, vice-chairman, 1957, chairman, 1958.* **Awards:** Television Broadcasters Association Award, 1946; IRE Vladimir K. Zworykin Television Prize, 1959.

WEINBERG, Louis (M'52—SM'56—F'60), Assistant Vice President of Engineering and Vice President of Communications, (Acting), Conductron Corporation, 343 South Main St., Ann Arbor, Mich.
Born: July 15, 1919, Brooklyn, N.Y. A.B., 1941, Brooklyn College; M.S., 1947, Harvard University; Sc.D., 1951, Massachusetts Institute of Technology. **Committees:** Circuits, 1954–61; Editorial Reviewer, 1954–58; Linear Lumped-Constant Passive Circuits Subcommittee, *chairman, 1954–60;* Transistor Circuitry Subcommittee, 1953–56. **Professional Groups:** Circuit Theory Administrative Committee, 1959–60; Education Administrative Committee, 1960–. **Sections:** Guest Editor of WESCON papers, March, 1955 issue on Transactions on Circuit Theory; Papers Selection Committee for Circuit Theory Sessions, WESCON, 1953–54; Los Angeles Chapter, *first chairman, 1952–53,* on Circuit Theory. **IRE Representative:** Circuit Theory for International Symposium on Circuit and Information Theory, 1959.

WEINBERGER, Julius (A'13—F'25)(L), Retired as Consulting Engineer, 6 Carrington Dr., East Northport, N.Y.
Born: July 22, 1893, New York, N.Y. B.S., 1913, College of the City of New York. **Committees:** Industrial Electronics, 1946–58; Meetings and Papers, 1929; Research, 1946–48. **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1940.

WEIR, Irvin Reed (A'25—M'41—SM'43—F'49), Engineering Administration, Heavy Military Electronics, G.E. Department, General Electric Company, Syracuse, N.Y.
Born: September, 1897, Prairie Creek, Ind. B.S., 1921, E.E., 1932, Rose Polytechnic Institute. **Committees:** Annual Review, 1950–51; Antennas, 1944–45; Radio Transmitters, 1945–60; Transmitters, 1944–45.

WELCH, H. William, Jr. (A'47—SM'52—F'58), Director of Research and Development, Military Electronics Division; Manager, Solid State Electronics and Controls Departments, Motorola Inc., 8201 E. McDowell Rd., Scottsdale, Ariz.
Born: October 21, 1920, Beardstown, Ill. B.A.(Physics), 1942, DePauw University; M.Sc.(Physics), 1949, Ph.D.(E.E.), 1952, University of Michigan. **Awards:** IRE Browder J. Thompson Memorial Prize, 1952.

WELDON, James O. (A'26—SM'46—F'54), President, Continental Electronics Manufacturing Company, 4212 S. Buckner Blvd., Dallas 27, Tex.
Born: March 15, 1905, Canton, Mo. **Committee:** Editorial Reviewer, 1955–60.

WELLS, Frank H. (A'39—SM'48—F'58), Sr. Principal Scientist, Atomic Energy Research Establishment, Harwell, Berkshire, England.

Born: March, 1915, London, England. B.Sc.(Eng.), 1935, M.Sc. (Eng.), 1936, Imperial College of Science and Technology.

WELLS, Harry W. (M'36—SM'43—F'53), Scientific Attaché, U. S. Embassy, Rio de Janeiro and Chairman, on leave, Upper Atmosphere Section, Carnegie Institution of Washington, Department of Terrestrial Magnetism, 5241 Broad Branch Rd., Washington 15, D.C.
Born: January 13, 1907, Washington, D.C. B.S.(E.E.), 1928, E.E., 1937, University of Maryland. **IRE Offices:** Director, 1954–55 **Committees:** Annual Review, 1950–51; Awards, 1953, 1956–58; Nominations, 1955–57; Policy Advisory, 1955; Radio Wave Propagation and Utilization, 1945–48; Wave Propagation, *vice-chairman, 1949–52.* **Professional Groups:** Antennas and Propagation, *Editor, 1951–52.* **Sections:** Washington, *secretary, 1948, vice-chairman, 1949–50, chairman, 1949–50.* **IRE Representative:** National Research Council, Division of Engineering and Industrial Research, 1957–60; Member, U.S.A. National Committee for International Geophysical Year, ex officio; National Bureau of Standards Technical Advisory Committee, 1957–59; United States National Committee, URSI, *chairman.* **Awards:** Scientific Achievement, Washington Academy of Sciences, 1947.

WENDELL, Edward N. (A'26—M'33—SM'43—F'47), Retired. Bearskin Neck, Rockport, Mass.
Born: August 11, 1903, Rockport, Mass. B.Sc., 1925, Massachusetts Institute of Technology.

WENDT, Karl R. (A'36—SM'46—F'54), Executive Vice President, Colorado Research Corporation, Broomfield, Colo.
Born: January, 1906, Coshocton, Ohio. **Committees:** Papers Review. 1951–53. **Sections:** Buffalo-Niagara, *secretary-treasurer, 1949–50, chairman, 1950–51.* **Awards:** Radio Corporation of America Laboratories Award, 1947.

WHEELER, Harold A. (A'27—M'28—F'35), President, Wheeler Laboratories, Inc., 122 Cutter Mill Road, Great Neck, L.I., N.Y.; Vice President, Hazeltine Corporation, Little Neck, L.I., N.Y.
Born: May 10, 1903, St. Paul, Minn. B.S.(Physics), 1925, George Washington University. **IRE Offices:** Director, 1934, 1940–45. **Committees:** Administrative Committee of the Board of Editors, 1951–53: Annual Review, 1937, 1940–48; Awards, 1942–44, *chairman, 1943;* Bibliography, 1930–32; Board of Editors, 1940–53; Broadcast, 1935–38; Circuits, 1944–47; Editorial Administrative, 1949–53; Editorial Reviewer, 1954–60; Executive, 1943–44; Handbook, *chairman, 1945–48;* Meetings and Papers, 1929–30; Membership, 1941–42; New York Program, 1931; Nominations, 1948; Papers, 1931–33, 1935–39; Papers Procurement, 1942–44; Public Relations, 1940; Radio Receivers, 1936–37, *chairman, 1937–38;* Regular Papers, 1941; Special Papers, 1940–41; Standardization, 1931–32; Standards, 1932–33, 1936–49, *chairman, 1940–45;* Symbols, 1946–47. **Special Committees:** Professional Recognition, 1947. **Sections:** Long Island Subsection, *chairman, 1948–49.* **IRE Representative:** ASA Sectional Committee (C42) on Definitions of Electrical Terms, 1948, 1950–51; National Television Systems Committee, *alternate, 1940–43.* **Awards:** Fellow, American Institute of Electrical Engineers; Fellow, Radio Club of America; Modern Pioneer Award, National Association of Manufacturers, 1940; IRE Morris Liebmann Memorial Prize, 1940; United States Navy Certificate of Commendation, 1947.

WHINNERY, John R. (A'41—SM'44—F'52), Professor and Dean, College of Engineering, University of California, Berkeley 4, Calif.
Born: July 26, 1916, Read, Delta County. Colo. B.S., 1937, Ph.D., 1948, University of California. **IRE Offices:** Director, 1956–58. **Committees:** Antennas, 1948–49; Appointments, 1957; Awards, 1952; Board of Editors, 1946–53; Editorial Reviewer, 1954–60; Education, 1956–58; Handbook, 1945–48; Nominations, 1957–58; Papers, 1944–45; Papers Procurement, 1947–50; Policy Advisory, 1958; Professional Groups, *vice-chairman, 1960.* **Sections:** San Francisco, *secretary-treasurer, 1949–50, vice-chairman, 1950–51, chairman, 1953–54.*

WHITE, Edwin L. (A'24—M'31—SM'43—F'55), Colonel, United States Air Force, Retired. Consulting Engineer, 460 Coffee Pot Riviera, St. Petersburg 4, Fla.
Born: July 5, 1896, Valley City, N.D. B.A., 1922, M.S., 1925, George Washington University. **Professional Groups:** Administrative Committee, Vehicular Communications, 1950–56. **Sections:** Florida West Coast, *chairman, 1956–57.* **Awards:** Bronze Star; Fellow, American Institute of Electrical Engineers, 1947.

WHITE, Warren D. (A'47—SM'48—F'57), Engineering Consultant, Airborne Instrument Laboratory, Walt Whitman Road, Melville, L.I., N.Y.
Born: July 7, 1915, Springfield, Mo. B.S., 1936, Drury College; B.S.(E.E.), 1938, Missouri School of Mines and Metallurgy. **Committees:** Admissions, 1961; Editorial Reviewer, 1954–60; Frequency Modulation, 1942–46; Information Theory and Modulation Systems, 1959–60; Radio Wave Propagation, 1942–46; Transmitters and Antennas, 1942–45. **Professional Groups:** Information Theory Administrative Committee, 1952–57.

WHITE, William C. (A'15—M'25—F'40)(L), Retired. 1422 Lowell Road, Schenectady 8, N.Y.
Born: March 24, 1890, Brooklyn, N.Y. E.E., 1912, Columbia University. **IRE Offices:** Treasurer, 1946; Director, 1943–47. **Committees:** Awards, 1944–46, *chairman, 1945;* Bibliography, 1930–32; Board of Editors, 1930, 1944, 1946–53; Education, 1945–46; Executive, *vice-chairman, 1946;* Investments, *chairman, 1946;* Meetings and Papers, 1928–30; Membership, 1947, 1949–54, *chairman, 1953–54;* Nominations, 1933, 1940, 1944–46; Office Practices, 1947; Papers, 1931–44; Papers Procurement, 1944–50; Standardization, 1925–26, 1929–30; Vacuum Tubes, 1927–28. **Special Committees:** Professional Recognition, *chairman, 1947.* **IRE Representative:** National Electronics Conference Board of Directors, 1947–50.

WHITTEMORE, Laurens E. (A'16—M'25—F'27)(L), 31 Martindale Road, Short Hills, N.J.
Born: August 20, 1892, Topeka, Kan. A.B., 1914, Washburn, College; M.A., 1915, University of Kansas. **IRE Offices:** Vice President, 1928; Director, 1928, 1935–37; Manager, 1926–27, 1929. **Committees:** Administrative Committee of the Board of Editors, 1951–53; Annual Review, 1927–53, *chairman, 1940–53;* Awards, 1937, 1948; Bibliography, 1930–32; Board of Editors, 1929–53; Broadcast, 1933–34, 1953; Direction Finding Terminology, *chairman, 1924–25;* Editorial Administrative, 1946–53; Electroacoustic Devices, 1927–28; History, 1956–59; Institute Sections, *chairman, 1926;* Meetings and Papers, 1929; Membership, *chairman, 1925;* Standardization, 1920–32, *chairman, 1926–29;* Standards, 1932–36, 1944–52; Symbols, *chairman, 1944–45;* Tellers, 1934. **IRE Representative:** ASA Sectional Committee on Graphical Symbols and Abbreviations for Use on Drawings, 1939; ASA Sectional Committee on Radio, 1930, 1936, 1939–48; ASA Sectional Committee on Radio Electrical Co-ordination, 1936, 1939–46; ASA Sectional Committee on Standards for Drawings and Drafting Room Practices, 1930, 1936, 1939; ASA Subcommittee on Electrical Abbreviations, Including Radio, 1930; United States National Committee—Advisors on Symbols, 1936, 1939–51.

WICKIZER, Gilbert S. (A'28—SM'46—F'61), Member, Technical Staff, RCA Laboratories, Rocky Point, L.I., N.Y.
Born: August, 1904, Warren, Pa. B.S.(E.E.), 1926, Pennsylvania State University. **Committees:** Admissions, 1946–48; Papers Procurement, 1947–49. **Professional Groups:** Communications Systems, Meetings, 1952.

WIESNER, Jerome B. (S'36—A'40—SM'48—F'52), Special Assistant for Science & Technology to President Kennedy, Room 200, Executive Office Building, Washington 25, D.C.
Born: May 30, 1915, Detroit, Mich. B.S., 1937, M.S., 1938, Ph.D., 1950, University of Michigan. **Committees:** Awards, 1954–55; Board of Editors, 1949–53; Editorial Reviewer, 1954–60; Modulation Systems, 1949–50; Nuclear Studies, 1948–49; Professional Groups, 1955; Research, 1949–50. **IRE Representative:** National Bureau of Standards Technical Advisory Committee, 1958–60.

WILKINS, Arnold F. (A'30—SM'48—F'58), Senior Principal Scientific Officer, Department of Scientific and Industrial Research, Radio Research Station, Ditton Park, Slough, Buckinghamshire, England.
Born: February 20, 1907, Manchester, England. M.Sc.(Tech.), 1928, University of Manchester. **Awards:** Officer of the Order of the British Empire, 1942.

WILLIAMS, Albert J., Jr. (A'30—VA'39—SM'49—F'55), Science Advisor, Leeds & Northrup Company, Dickerson Rd., North Wales, Pa.
Born: February 28, 1903, Media, Pa. B.A.(E.E.), 1924, Swarthmore College. **Awards:** John Price Wetherill Medal, Franklin Institute, 1952; Fellow, American Institute of Electrical Engineers.

WILLIAMS, Charles E. (J'15—A'17—M'24—SM'43—F'52)(L), Retired. 2207 Broadway E., Seattle 2, Wash.
Born: March 15, 1896, Seattle, Wash. **Committees:** Sections, 1925; Standardization, 1929–30. **Sections:** Seattle, *secretary, 1920–24, 1935–36, chairman, 1925–26.*

WILLIAMS, Everard M. (S'36—A'41—SM'44—F'54), Professor and Head, Electrical Engineering, Carnegie Institute of Technology, Schenley Park, Pittsburgh 13, Pa.
Born: February 2, 1915, New Haven, Conn. B.E., 1936, Ph.D., 1939, Yale University. **Committees:** Awards, 1956–57, *chairman, 1958;* Awards Coordination, 1959–60; Sections, 1947–48. **Sections:** Pittsburgh, *chairman, 1947.* **IRE Representative:** Carnegie Institute of Technology, 1946–51. **Awards:** Presidential Certificate of Merit for Outstanding Civilian Service in World War II; Eta Kappa Nu Award, 1946.

WILLIAMS, Frederic C. (SM'54—F'57), Edward Stocks Massey Professor, Electrical Engineering, University of Manchester, Sandy Lane, Romiley, Cheshire, England.
Born: June, 1911, Romiley, Cheshire, England. B.Sc., 1932, M.Sc., 1933, D.Sc., 1939, Manchester University, England; D.Phil., 1936, Oxford University. **Awards:** Order of the British Empire, 1945; Fellow, The Royal Society, England, 1950; Benjamin Franklin Medal, 1957; John Scott Award, 1960.

WILLIAMS, Samuel B. (A'47—SM'53—F'57), Consulting Electrical Engineer, 3701 Taylor St., Chevy Chase 15, Md.
Born: May 26, 1881, Dayton, Ohio. M.E.(E.E.), 1905, Ohio State University.

WILLIAMSON, Raymond H. (A'31—M'44—SM'46—F'51), Manager, Engineering Administration, Communication Products Department, General Electric Company, Lynchburg, Va.
Born: April 6, 1907, Eagle Grove, Iowa. B.S.(E.E.), 1928, Iowa State College; M.S.(E.E.), 1935, Union College. **Committees:** Membership, 1945–56; Papers Procurement, 1947–50. **Sections:** Syracuse, *vice-chairman, 1948–49, chairman, 1949–50;* Virginia, Awards Committee, *chairman, 1960–.*

WILMOTTE, Raymond M. (M'29—F'38), Radio Corporation of America Advanced Military Systems, Princeton, N.J.
Born: August 13, 1901, Paris, France. M.A., 1921, Sc.D., 1958, Cambridge University, England. **Committees:** Handbook, 1945–48; Industrial Electronics, 1947–48; New York Program, 1933; Papers, 1932–33; Papers Review, 1946–52; Radio Receivers, 1940–47; Radio Transmitters and Antennas, 1929–30; Sections, 1932; Standardization, 1931–32; Standards, 1931–32. **Awards:** Premium for Research, Institution of Electrical Engineers, 1930; Bureau of Ordnance Development Award, 1945.

WILSON, James R. (M'31—SM'43—F'54), 25 Moraga Via, Orinda, Calif.
Born: December 17, 1894, Spokane, Wash. B.A., 1919, Reed College; M.S. 1920, California Institute of Technology; M.S., 1923, Columbia University. **Committees:** Electronics, 1939–46. **Professional Groups:** Electron Devices, Reliability and Quality Control.

WING, Arthur K., Jr. (J'28—A'30—M'40—SM'43—F'57), Technical Director, International Telephone & Telegraph Federal Laboratories, 500 Washington Ave., Nutley 10, N.J.
Born: July 1, 1908, New York, N.Y. B.S.(E.E.), 1930, Yale University; M.S.(E.E.), 1931, Massachusetts Institute of Technology. **Committees:** 7.1 Subcommittee on Tubes in Which Transit-Time is Not Essential; Tellers, 1953. **Professional Groups:** New York, *chairman,* Electron Devices, *1955–56;* General Committee, 2nd Annual Technical Meeting, Electron Devices, *secretary, 1956;* General Committee, 3rd Annual Technical Meeting, Electron Devices, *chairman, 1957;* Administrative Committee, 1955–58, 1959–61, *secretary-treasurer, 1958–59, vice-chairman, 1959–60, chairman, 1960–61;* Professional Group Committee, 1960–61.

WINTRINGHAM, William T. (A'26—SM'45—F'51), Engineer-in-Charge of Visual Systems Research, Bell Telephone Laboratories, Inc., Murray Hill, N.J.
Born: January 18, 1904, Brooklyn, N.Y. B.S.(E.C.E.), 1924, Harvard University. **Committees:** Papers Review, 1948–49; Standards, 1957–61; Television Systems, 1953–61, *vice-chairman, 1954–55, chairman, 1955–57.* **Sections:** New York, *treasurer, 1949–50.*

WISCHMEYER, Carl R. (S'38—A'41—M'45—SM'50—F'61), Master of Baker College; Professor, Electrical Engineering, Rice University, P.O. Box 1892, Houston 1, Texas.
Born: October 2, 1916, Terre Haute, Ind. B.S., 1937, Rose Polytechnic Institute; M.E.(E.E.), 1939, Yale University; E.E., 1942, Rose Polytechnic Institute. **Committees:** Board of Consultants of Student Quarterly, 1959–; Education, 1951. **Sections:** Houston, Charter Member, 1946; Membership Committee, 1947–48, Section, *chairman, 1949–50;* Meetings & Papers Committee, 1950–53; Students Committee, *vice-chairman, 1952–53;* Student Activities, *chairman, 1954–55, 1958–59;* Region 6 Committee, 1950–51; Education, 1950–. **IRE Representative:** Rice Institute, Rice University, 1949–. **Awards:** Fellow, American Institute of Electrical Engineers, 1951.

WOLCOTT, C. Frederick, Jr. (J'26—A'28—M'36—SM'43—F'57), Technical Consultant, Gilfillan Bros., Inc., 1815 Venice Blvd., Los Angeles 6, Calif.
Born: January 11, 1907, Anderson, Ind. Northwestern University. **IRE Offices:** Director, 1956–57. **Committees:** Appointments, 1957–58; Nominations, 1956; Policy Advisory, 1956, *chairman, 1957;* Receivers, 1946–49. **Professional Groups:** Liaison Officer, IRE-WEMA WESCON, 1948; WESCON Registration, *chairman, 1950;* WESCON Advisory Group, *chairman, 1953;* WESCON Convention, *vice-chairman, 1954;* WESCON Board of Directors, *chairman, 1956.* **Sections:** Los Angeles, *secretary, 1941, chairman, 1942;* Nominating Committee, 1960, *chairman, 1951, 1961;* Sections Relations Committee, *chairman, 1954–56;* Fellow Nominating Committee, 1960, *chairman, 1958;* West Coast Convention, 1950; Advisory Group, WESCON, *chairman, 1953;* WESCON Convention, *vice-chairman, 1954;* WESCON Board of Directors, *chairman, 1956.*

WOLFF, Irving G. (A'27—VA'39—F'42), Consultant, Chairman, RCA Education Committee, 111 Red Hill Rd., Princeton, N.J.
Born: July, 1894, New York, N.Y. B.S., 1916, Dartmouth College; Ph.D., 1923, Cornell University. **IRE Offices:** Director, 1952–53. **Committees:** Appointments, 1952; Awards, 1954–56, *chairman, 1955;* Awards Coordination, 1958–59; Board of Editors, 1946–53; Editorial Reviewer, 1954–60; Education, 1945–46, 1948–52; Electroacoustic Devices, 1920–30; Electronics, 1943–46; Meetings and Papers, 1928–30; Nominations, 1952–54; Papers, 1931–45; Sections, 1937, *chairman, 1953;* Standardization, 1927–30; Use of Transmission Unit, 1928–29. **Sections:** Philadelphia, *chairman, 1936–37.* **IRE Representative:** ASA Sectional Committee on Acoustical Measurements and Terminology, 1936, 1939. **Awards:** Distinguished Public Service Award, United States Navy, 1949; Cresson Medal, Franklin Institute, 1959.

WOOLDRIDGE, Dean E. (SM'50—F'54). President, Thompson Ramo Wooldridge Inc., 8433 Fallbrook Ave., Canoga Park, Calif.

Born: May 30, 1913, Chickasha, Okla. B.A., 1932, M.S., 1933, University of Oklahoma; Ph.D.(Physics), 1936, California Institute of Technology. **Awards:** National Research Fellowship, California Institute of Technology, 1936; Citation of Honor Award for Outstanding Achievements in Field of Electronic Research and Development, Air Force Association, 1950; Raymond E. Hackett Award, 1955; Distinguished Service Citation for Outstanding Service to State and Nation, University of Oklahoma, 1960.

WOOLVERTON, Robert B. (A'13—M'13—F'15)(L), Colonel, United States Army, Retired. 2701 Pacheco St., San Francisco 16, Calif.
Born: September 22, 1884, Greensboro, Pa. B.S., 1912, Harvard University. **Committees:** Increase of Membership, 1914; Papers, 1915; Publicity, 1915–19. **Sections:** San Francisco, *chairman, 1915.*

WOONTON, Garnet A. (A'40—SM'44—F'51), Macdonald Professor of Physics; Director, Eaton Electronics Research Laboratory; Chairman, Department of Physics, McGill University, Montreal, P.Q., Canada.
Born: July, 1906, London, Ont., Canada. B.A., 1925, M.A., 1931, D.Sc., 1955, University of Western Ontario. **Committees:** Education, 1945–46. **Sections:** London, *chairman, 1945.* **IRE Representative:** International Vice President, URSI; University of Western Ontario, 1941–47. **Awards:** Fellow, Royal Society of Canada.

WRIGHT, Jay W. (A'42—SM'44—F'58), Director of Facilities, King Broadcasting Company, 320 Aurora Ave., Seattle 9. Wash.
Born: November, 1909, Salt Lake City, Utah. A.B.(Physics), 1935, M.Sc.(Physics), 1936, University of Utah. **Committees:** Antennas, 1946–49; Constitution and Laws, 1940–41; Frequency Modulation, 1946–47; Modulation Systems, 1947–48; Papers, 1942–45; Papers Review, 1946–50; Radio Wave Propagation and Utilization, 1946–49; Wave Propagation, 1949–56. **Awards:** Navy Department Certificate of Appreciation, War Department, 1948.

WYCKOFF, Ralph D. (M'29—SM'43—F'55), Director, Instrument Development Division, Gulf Research & Development Company, P.O. Box 2038, Pittsburgh 30, Pa.
Born: December 10, 1897, Jacobsville, Mich. B.S.(E.E.), 1920, Michigan State. **Sections:** Pittsburgh, *chairman, 1935–36.* **Awards:** OSRD Certificate of Appreciation, 1945; War and Navy Departments' OSRD Certificates of Appreciation, 1946.

YAGI, Hidetsugu (F'53), President, Musashi College of Technology, Todoroki 1, Setagayaku, Tokyo, Japan.
Born: January 28, 1886, Osaka, Japan. M.Eng., 1909, Tokyo University; Dr.Eng., 1919, Tohoku University; Member, 1951, Japan Academy. **Committees:** Meetings and Papers, 1929; Standardization, 1927–31. **Sections:** Tokyo, *chairman, 1956.*

YOUNG, Charles J. (A'35—SM'45—F'53), Associate Laboratory Director, RCA Laboratories Division, Radio Corporation of America, Princeton, N.J.
Born: December 17, 1899, Cambridge, Mass. B.A., 1921, Harvard University. **Committees:** Annual Review, 1944–47; Board of Editors, 1941–46; Facsimile, 1939–56, *chairman, 1944–47, vice-chairman, 1948–51;* Papers Procurement, 1947; Standards, 1944–47; Television and Facsimile, 1936–39. **Awards:** Modern Pioneer Award, National Association of Manufacturers, 1946.

YOUNG, Leo C. (A'19—M'29—SM'43—F'43)(L), Consultant, Naval Research Laboratory, Washington 25, D.C.
Born: January 12, 1891, Danville, Ill. **Sections:** Washington, *secretary, 1938–39, chairman, 1940.* **Awards:** Presidential Certificate of Merit, 1946; Stuart Ballantine Medal, Franklin Institute, 1957; Distinguished Civilian Service, 1958.

ZADEH, Lotfi A. (S'45—A'47—M'50—SM'56—F'58), Professor of Electrical Engineering, University of California, Berkeley 4, Calif.
Born: February 4, 1921, Baku, Russia. B.S., 1942, University of Teheran; M.S., 1946, Massachusetts Institute of Technology; Ph.D., 1949, Columbia University. **Committees:** Editorial Reviewer, 1954–60. **Professional Groups:** Administrative Committee, Circuit Theory, 1954–57; Administrative Committee, Information Theory, 1958–.

ZAHL, Harold A. (A'39—SM'46—F'50), Director of Research, U. S. Army Signal Research & Development Laboratory, Fort Monmouth, N.J.
Born: August, 1904, Chatsworth, Ill. A.B., 1927, North Central College; M.S., 1929, Ph.D., 1931, State University of Iowa. **IRE Offices:** Director, 1949. **Committees:** Administrative Committee on the Board of Editors, 1951–53; Awards, 1956–58; Awards Coordination, *chairman, 1959;* Board of Editors, 1951–53; Editorial Administrative, 1949–53; Electroacoustics, 1936–37; Electronics, 1943–44. **Awards:** Legion of Merit, Department of the Army, 1945; IRE Harry Diamond Memorial Award, 1954.

ZAREM, Abe M. (S'42—A'46—SM'54—F'61), President, Electro-Optical Systems, Inc., 125 North Vinedo Ave., Pasadena, Calif.
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NEW8—Newfoundland
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NA8—Northern Alberta
NNJ2—Northern New Jersey
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OML5—Omaha-Lincoln
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TC5—Twin Cities
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Fairfield (HUN-3)
Clements, C. C. (M)
Cordero, F. (A)

Falkville (HUN-3)
Howard, J. R. (M)

Florence (HUN-3)
Morris, J. B. (M)

Grove Hill (MOB-3)
Sheetz, E. P. (A)

Guntersville (HUN-3)
Elder, L. D. (M)

Hartselle (HUN-3)
Brown, R. M. (A)
Self, F. J. (M)

Horton (HUN-3)
Morgan, A. O. (A)
Nash, T. F. (M)

Huntsville (HUN-3)
Allen, W. S. (A)
Angele, W. (A)
Artis, P. T. (M)
Attaway, O. L. (A)
Bailey, J. C., Jr. (M)
Bailey, R. M. (A)
Barr, T. A. (A)
Beverly, P. L. (M)
Black, A. M. (M)
Blanton, J. E. (M)
Boothe, R. R. (M)
Brandon, R. A. (A)
Bratcher, A. L. (SM)
Brock, C. O. (M)
Bull, J. T. (M)
Busby, J. M. (A)
Butler, J. P. (M)
Butler, P. H. (M)
Cantrell, E. R. (M)
Casey, C. W. (M)
Cecil, J. W. (M)
Clanton, E. A. (M)
Clinkenbeard, H. (M)
Collins, T. C. (M)
Cook, W. H., Jr. (M)
Copland, D. E. (M)
Cornutt, H. D. (M)
Culver, W. N. (A)
Daly, J. A., Jr. (A)
Daniel, A. C. (M)
Daniel, W. E. (M)
Daniels, L. H. (M)
Davis, A. J. (M)
Denton, D. E., Jr. (M)
De Poy, M. L. (M)
Derington, J. C. (M)
Douma, J. E. (A)
Dyess, C. H. (A)
Edwards, R. L. (M)
Egbert, D. E. (M)
Eichelberger, R. P. (M)
Eubanks, J. E., Jr. (M)
Farmer, R. H. (M)
Felch, J. L. (M)
Field, F. B., Jr. (A)
Fogle, V. (M)
Foster, L. E. (M)
Fray, C. R. (M)
French, D. E. (SM)
Frey, P., Jr. (M)
Frisbee, F. W. (A)
Frost, W. O. (SM)
Garrison, J. P. (M)
Gibson, M. (M)
Glowacki, R. E. (M)
Gravlee, G. P. (M)
Green, C. E. (M)
Green, O. C. (M)
Greenwood, T. L. (SM)
Grivet, P. E. (M)
Gudaitis, W. V. (M)
Gullatt, G. E. (M)
Guyton, E. L. (A)
Hallowes, J. P., Jr. (M)
Hamby, P. V., Jr. (M)
Hammond, R. L. (A)
Harper, A. Y. (M)
Harris, G. G., Jr. (M)
Haughey, J. W. (A)
Hirschler, O. H. (M)
Hoberg, O. A. (SM)
Hoff, F. H. (M)
Hogg, F. G. (SM)
Holeman, J. L. (M)
Holmes, W. M. (M)
Homan, R. E. (M)
Horn, H. J. (M)
Hosenthien, H. H. (M)
Howell, J. E., Jr. (A)
Huff, W. A. (M)
Jackson, C. M. (M)
Jackson, D. L. (M)
Jeffcoat, T. D. (M)
Jennings, R. B. (M)
Johns, J. H. (M)
Johnston, S. L. (SM)
Jones, C. H. (M)
Justus, J. R. (A)
Katter, O. E., Jr. (M)
Keelfe, T. A. (M)
Kelley, B. E. (M)
King, J. J. (M)
King, O. B. (M)
Lakebrink, R. T. (M)
Landwehr, G. O. (M)
Lee, C. E. (M)
Lee, R. H. (M)
Lindberg, W. J. (M)
Livingston, J. L. (M)
Loeb, W. S. (M)
Lowery, H. R. (M)
MacCrone, C. R. (M)
Manders, J. H. (M)
Martin, C. L. (M)
McCoy, R. C. (M)
McGrede, A. D. (M)
McLemore, B. B. (M)
Miller, P. T. (SM)
Milisap, W. J. (SM)
Moore, R. L. (M)
Morris, J. K. (M)
Muse, A. W., Jr. (M)
Norman, J. E. (SM)
Otto, W. F. (M)
Pakulski, F. J. (M)
Pass, J. H. (M)
Paul, C. H. (A)
Pelgler, F. K. (A)
Perry, H. T. (SM)
Peters, R. L. (M)
Power, J. A. (M)
Reid, H. (M)
Reinbolt, E. J. (M)
Ritterhouse, C. L. (M)
Robinson, W. J., Jr. (M)
Root, L. W., Jr. (M)
Roth, P. A. (M)
Rowe, D. E. (SM)
Ruge, H. C. (A)
Russell, C. H. (M)
Salonimer, D. J. (M)
Sarge, A. E. (A)
Saunders, G. H. (SM)
Scalf, P. L. (M)
Schultz, D. N. (M)
Schwinghamer, R. J. (M)
Seashore, C. R. (M)
Sedlazek, M. F. (M)
Sego, C. T., Jr. (A)
Shaver, F. T. (M)
Simmons, R. H. (M)
Simpson, D. C. (M)
Smollen, J. W., III (M)
Smyth, L. J., Jr. (M)
Snead, C. R. (M)
Standish, M. M. (M)
Stanford, J. A. (M)
Steele, F. H. (M)
Steinberg, A. (M)
Stluka, E. F. (M)
Stuhlinger, E. (A)
Swindall, P. M. (M)
Taylor, H. M., Jr. (M)
Thomas, L. J. (M)
Thornthwaite, W. L. (M)
Threlkeld, W. B., Jr. (M)
Tibbs, R. L. (M)
Unger, J. H. W. (M)
Vallely, D. P. (M)
Venters, J. B. (M)
Vernon, J. A. (M)
Vincent, H. F. (SM)
Wallace, R. E. (M)
Weimer, J. W. (M)
Wells, E. H. (SM)
Weyler, G. M., Jr. (M)
White, P. R. (M)
Williams, V. B. (M)
Wilson, B. J. (M)
Wilson, M. L. (M)
Wise, J. P. (M)

Lanett (ATL-3)
Stancel, A. L., Jr. (M)

Madison (HUN-3)
Brown, B. C. (M)
Harper, J. W. (M)
Meador, D. X. (M)
Wilson, C. L. (M)

Maxwell AFB (ATL-3)
Brennan, J. X. (M)
Hirsch, C. O. (A)

Meridianville (HUN-3)
Scofield, H. N. (M)

Mobile (MOB-3)
Baucum, P. G. (M)
Beach, K. R. (M)
Burhans, V. (M)
Burnett, T. H., Jr. (SM)
Chapin, J. H. (M)
Davis, M. H. (M)
Denson, J. J. (M)
Diamond, J. R. (M)
Dodd, A. W. (M)
Dutton, D. C. (M)
Fitts, B. N. (A)
Flanders, M. C. (M)
Frekot, J. J. (M)
Gill, D. J. (M)
Gobel, L. J. (A)
Gunthorpe, G. F. (M)
Hale, L. F. (M)
Hansford, J. L. (M)
Harbin, T. F. (M)
Harris, M. G. (M)
Hart, J. L., Jr. (M)
Hicks, C. R. (M)
Hurley, R. B. (M)
Jacobson, E. H. (M)
Justice, W. M. (M)
Kelly, B. S. (M)
Kempson, A., Jr. (M)
Lock, M. K. (M)
Loveless, F. B. (M)
Machen, J. W. (M)
Mahan, O. C. (M)
Martin, C. N. (A)
McCoy, M. E. (M)
McDonald, T. B. (M)
O'Brien, D. J. (M)
Parish, J. P. (M)
Partridge, D. A. (M)
Phillips, L. G. (M)
Rabon, W. R. (M)
Rountree, J. W. (M)
Sawyer, A. L. (A)
Schone, E. G. (M)
Seid, H. R. (M)
Smith, D. M. (M)
Szymonik, J. F. (A)
Wallis, C. L. (A)
Watt, J. R. (M)
Woods, E. G. (M)

Montevallo (HUN-3)
Cooke, S. L., Jr. (M)

Montgomery (ATL-3)
Briggs, N. W. (A)
Buntschuh, R. F. (M)
Craddock, G. L. (M)
Cude, H. H. (A)
Fitts, R. E. (M)
Gaston, C. W. (M)
Hargreaves, L. D. (A)
Harris, H. H. (M)
Hawkins, C. F. (M)
Hayward, R. M. (A)
Hellings, F. J. (M)
Herman, H. (SM)
Holliday, E. M. (M)
Holman, W. S. (M)
Klein, W. F. (M)
Lange, T. J. (M)
Steigerwald, J. W. (M)
Wemtz, T. L. (M)
Wilson, R. P. (A)

Opelika (ATL-3)
Manly, W. A., Jr. (M)
Pappas, R. L. (SM)

Oxford (HUN-3)
Wood, C. H. (M)

Ozark (ATL-3)
Sevener, F. D. (M)

Redstone Arsenal (HUN-3)
Barclay, J. A. (SM)
Brick, G. E., Jr. (A)
Chasteen, P. C. (M)
Cline, R. B. (A)
Davis, P. C. (M)
Davitt, J. H. (SM)
Dorris, W. A., Jr. (M)
Egan, W. F. (M)
Ferry, B. A. (M)
Guzinsky, L. (M)
Halford, J. R. (M)
Harrison, C. E. (M)
Holmes, H. B., III (M)
Johnson, B. A. (M)
Johnson, V. W. (M)
Maguire, K. J. (M)
Malwald, R. G. (M)
Sherwood, R. A., Jr. (M)
Williams, F. R. (M)

Silverhill (MOB-3)
Lacey, H. L. (M)

Theodore (MOB-3)
Givens, V. Y. (M)
Rawls, M. L. (M)

Thomasville (MOB-3)
Corner, B. C. (M)
Nicholas, E. R. (A)

Toney (HUN-3)
Gassen, J. A. (M)

Toxey (ATL-3)
Roberts, S. E. (M)

Tuscaloosa (HUN-3)
Lueg, R. E. (M)
Mott, H. (SM)
Ryan, P. J. (A)

University (HUN-3)
Asquith, C. F. (M)
Blackwell, C. A. (M)

ALABAMA

Gray, W. F. (SM)
Jetton, R. P. (M)
McDuff, O. P. (M)
Whitehurst, R. N. (M)

Wetumpka (ATL-3)
Thomas, E. C. (M)

ALASKA

Anchorage (ANC-7)
Boothe, E. T. (M)
Brazil, H. D. (M)
Chiei, F. D., Jr. (M)
Clark, T. D. (A)
Cochran, U. E. (M)
Davis, L. J. (M)
De Lung, D. O. (A)
De Voe, H. D. (SM)
Ellis, J. V. (M)
Fulton, D. A. (M)
Gray, C. M. (A)
Grob, L. W. (A)
Hager, K. F. (SM)
Hannon, G. A. (M)
Hayes, J. C. (SM)
Hirschel, J. (A)
Honea, L. W. (M)
Hurt, W. C. (A)
Hutchinson, R. E. (A)
Jekic, W. W. (A)
Johnson, C. A. (M)
Johnson, R. L. (A)
Joss, J. W. (A)
Knox, W. E., Jr. (A)
Law, P. E., Jr. (M)
Lee, W. (M)
Mann, W. W. (A)
Martone, F. P. (A)
Mazoonin, G. V. (A)
McBride, H. E. (A)
McKee, W. H. (M)
McLaughlin, R. B. (M)
Mildebrath, E. R. (M)
Olsen, L. G. (M)
Parker, C. V., III (A)
Patterson, G. B. (A)
Potosky, R. L. (A)
Rigan, J. S. (A)
Rourke, K. J. (M)
Silven, J. W. (M)
Smith, C. H. (M)
Snoderly, R. O. (M)
Svetc, D. L. (A)
Tvrdy, J. J. (M)
Vrooman, J. R. (M)
Wayer, C. F., Jr. (M)
Weatherly, M. R. (M)
West, G. A. (SM)
Wheaton, T. H. (A)
Winchell, W. L. (M)
Woolsey, R. A. (M)
Young, T. R. (SM)

Big Mountain (ANC-7)
Scott, R. C. (A)

Clear (ANC-7)
Berthold, J. R. (M)
Child, P. J. (M)
Chu, H. (M)
Duncan, F. S. (A)
Hodson, L. M. (M)
Hunt, A. E. (M)
Koonce, J. P. (M)
Kroop, R. J. (A)
Litman, L. S. (M)
Nagle, J. I. (M)
Page, F. E., Jr. (SM)
Pitt, N. E. (M)
Roherty, T. M. (M)
Shannon, R. E. (SM)
Stewart, H. W. (M)
Taylor, K. A. (M)
Whitworth, W. D. (M)

College (ANC-7)
Bryce, D. H. (M)
Flock, W. L. (M)
Gauss, E. J. (M)
Hunsucker, R. D. (M)
Leinbach, H. (M)
Leonard, R. S. (M)
Merritt, R. P. (M)
Owren, L. (M)
Parthasarathy, R. (SM)
Stanley, G. M. (M)
Stiltner, E. (M)
Tryon, J. G. (M)
Warman, N. E. (A)

Fairbanks (ANC-7)
Firth, J. H. (M)
Herrmann, P. A. (A)
Miller, J. M. (M)
Roady, A. O. (A)
Southall, A. M. (A)

Homer (ANC-7)
Long, J. E. (A)

Juneau (ANC-7)
Buck, C. L. (M)
Campbell, G. R. (A)
Larman, B. T. (M)
Stewart, J. P. (M)

Kenai (ANC-7)
Carruthers, C. M. (A)
Miller, K. E. (M)

Kodiak (ANC-7)
Brazeal, R. H., Jr. (M)
Smaker, T. P., Jr. (A)

Mountain View (ANC-7)
Allen, D. J. (A)
Tradup, R. H. (M)

Nenana (ANC-7)
Cyphers, R. F. (M)

Nome (ANC-7)
Sundstrom, L. C. (A)

Petersburg (ANC-7)
Pierce, E. R. (M)
St. Paul Island (ANC-7)
Efstatos, N. (M)

Spenard (ANC-7)
Browne, C. W. (M)
Grau, L. J., Jr. (M)
Lewis, F. R. (M)
Little, J. T. (M)
Roberson, F. E. (M)

ARIZONA

Benson (FT-H-7)
Blom, B. V. (SM)
Bundy, R. C. (SM)
Campbell, R. E. (M)
Ehler, W. M. (M)
Johnson, H. G. (A)
Johnson, W. I. (M)
Spittle, S. E. (M)

Bisbee (FT-H-7)
Candiello, V. S. (M)
Diehl, F. A. (M)
Homsy, J. H. (SM)
Knowles, E. R. (SM)

Cave Creek (PHO-7)
Cockburn, C. D. (M)

Flagstaff (PHO-7)
Hart, P. C. (A)
Phillipoi, E. C. (M)
Fort Huachuca (FT-H-7)
Abercrombie, G. D. (A)
Adams, T. H., IV (M)
Archer, R. F., Jr. (M)
Bass, J. G. (M)
Boyd, A. H. (M)
Brett, W. W. (M)
Brock, R. E., Jr. (M)
Brown, G. J. (M)
Bundick, W. T. (M)
Caldwell, J. R. (M)
Campton, E. J. (SM)
Cronin, W. M. (SM)
Dickinson, A. F. (A)
Dillingham, J. H. (M)
Dominque, J. C. (SM)
Dyer, S. M. (M)
Enslow, P. H., Jr. (M)
Fink, M. J. (M)
Frese, R. E. (SM)
Garcia, V. A. (SM)
Giorgi, C. M. (M)
Gorflick, A. P. (M)
Harris, J. S. (M)
Howard, E. B. (M)
Hulit, C. E. (M)
Iverson, J. H. (M)
Knight, L. J. (M)
Kundel, K. K. (M)
Lew, F. J. (M)
Lotz, W. E., Jr. (SM)
Lyman, R. P. (SM)
Maino, L. T., Jr. (M)
Mudgett, A. H. (SM)
Niemi, A. N. (M)
Oliver, J. K. (SM)
Reid, J. G., Jr. (SM)
Richards, S. D. (M)
Stone, E. P. (M)
Storck, H. C. (SM)
Strange, R. T. (M)
Strawn, G. M. (SM)
Trezise, E. A. (A)
Uhrhane, F. F. (SM)
Upton, F. R., Jr. (A)
Virden, J. W. (SM)
Wilcox, C. S. (M)

Glendale (PHO-7)
Bliss, W. P. (M)
Bochem, H. P. (M)
Bundy, E. R. (A)
Cappon, A. M. (M)
Chauvin, D. M. (M)
Cooper, G. P. (M)
Eaton, A. W. (M)
Edwards, B. G., III (M)
Edwards, M. J. (M)
Halacy, D. S., Jr. (M)
Herbstritt, R. L. (M)
Holmes, R. B. (M)
King, C. G., Jr. (M)
McCreary, W. J. (M)
Morgan, H. L. (M)
Murray, P. W. (M)
Parrott, J. H., Jr. (M)
Shaffer, W. H. (M)
Simine, E. B. (M)

Goodyear (PHO-7)
Ash, H. Q. (M)
Baerwald, N. G. (M)
Blount, E. M. (M)
Griswold, F. B. (M)

Hereford (FT-H-7)
Foley, W. R. (SM)
Stiles, N. G. (M)
Webster, R. G. (SM)

Huachuca City (FT-H-7)
Graham, R. W. (SM)
Jantz, M. A. (M)
Morris, W. J. (A)
Pritchard, C. A. (M)
Williamson, A. K. (A)

Laveen (PHO-7)
Jones, E. R. (M)

Litchfield Park (PHO-7)
Belanger, F. (M)
Robertson, S. D. (F)
Sherwood, J. N. (M)

Maricopa (PHO-7)
Howe, R. B. (A)
Locke, R. B. (M)
Yuricic, J. F. (M)

Mesa (PHO-7)
Chapman, A. C. (M)
Chlebus, J. R. (M)
Forrester, R. E. (M)
Koch, F. L. (SM)
Layton, F. W. (M)
Olson, D. E. (M)
Sabin, W. D. (M)
Serikaku, M. M. (A)
Smith, D. A. (SM)
Vellinga, J. A. (M)
Wisseman, L. (M)

Peoria (PHO-7)
Tang, E. (M)

Phoenix (PHO-7)
Acer, J. W. (M)
Adams, G. E. (M)
Adams, W. L. (A)
Adley, D. L. (M)
Allard, G. A. (M)
Andeen, R. E. (M)
Anderson, W. J. (A)
Auten, B. H. (M)
Baeuchler, E. W. (A)
Baird, D. R. (A)
Barnes, J. L. (M)
Barnett, W. C. (M)
Baroch, G. F. (M)
Barth, J. A. (M)
Bathauer, R. N. (A)
Baum, R. H. (M)
Baum, R. V. (M)
Beers, M. I. (SM)
Benham, M. J. (M)
Benson, R. A. (A)
Bentivegna, M. J. (M)
Berlind, R. (M)
Bettis, L. W. (M)
Betz, C. R. (M)
Biggs, E. M., Jr. (M)
Birmingham, D. J. (M)
Black, J. R. (M)
Blackert, R. O. (M)
Blair, L. W. (A)
Blatchford, R. C. (M)
Boat, R. M. (M)
Bramall, W. F. (M)
Brawner, R. L. (M)
Breeland, G. L. (M)
Brendecke, W. H., Jr. (A)
Brewer, S. (A)
Bricker, N. P. (M)
Bridge, W. H. (M)
Brown, W. R. (A)
Buffington, J. P. (M)
Burmeister, W. W. (M)
Burnett, K. N. (M)
Burns, C. L. (M)
Butcher, R. J. (M)
Butler, E. H. (M)
Cachelin, D. B. (A)
Cacheris, J. C. (SM)
Campbell, R. L. (M)
Carden, M. W., Jr. (M)
Carter, D. F. (M)
Casillias, F. C. (M)
Cavalier, P. E. (M)
Chadek, T. J. (M)
Chamberlain, P. L. (A)
Chambers, J. A. (F)
Chase, S. E. (M)
Clar, P. L. (M)
Clark, C. J. (M)
Clark, G. F. (M)
Clark, O. M. (A)
Cleary, E. P. (M)
Cook, K. S. (M)
Cook, M. F. (M)
Cooper, R. R. (M)
Cothran, G. W. (M)
Craig, T. A. (M)
Crain, N. R. (M)
Crewfis, E. D., Jr. (SM)
Cronshey, R. W. (M)
Cubbage, J. F. (M)
Culver, J. E. (M)
Darter, C. U. (M)
Davis, B. R. (M)

Davisson, R. R. (A)
Dickson, D. C., Jr. (M)
Dreste, F. E. (SM)
Drilling, R. E. (M)
Dwork, L. E. (SM)
Eberhard, E. (SM)
Echols, R. A. (M)
Eckstein, R. J. (M)
Edson, G. L. (SM)
Elbinger, L. P. (SM)
Ellstrom, R. V. (A)
Eme, K. J. (M)
Emerson, J. (SM)
Engelbardt, R. M. (M)
Esher, M. (A)
Estfan, E. F. (M)
Falk, D. B. (M)
Fesler, R. (A)
Finch, T. R. (M)
Fischer, D. H. (M)
Flesh, R. D. (M)
Flood, B. H. (M)
Fontenot, J. A. (M)
Frazee, O. P. (M)
Freeman, G. H. (M)
Fresh, D. L. (SM)
Frischmann, P. G. (M)
Fussell, L. B. (A)
Gaines, W. M. (SM)
Gamble, G. W. (M)
Gaylor, R. (M)
Gerould, L. D. (M)
Glass, T. J. (M)
Gleichauf, T. J. (M)
Glinn, A. F. (M)
Goj, W. W. (M)
Goldstein, R. (M)
Golliwitzer, R. L. (M)
Goodman, R. G. (M)
Goris, E. N. (M)
Gotch, C. N. (M)
Graham, L. C. (M)
Gramer, E. E., Jr. (M)
Greenburg, A. R. (M)
Greene, R. A. (M)
Greer, J. D. (M)
Greer, P. H. (M)
Grimalla, A. G. (M)
Gundry, J. C. (A)
Hall, C. A. (M)
Hall, R. M. (M)
Ham, N. C. (M)
Hammond, J. R. (A)
Hanks, J. R. (A)
Hann, J. D. (M)
Harris, T. L. (M)
Harry, J. W. (M)
Hartig, E. O. (SM)
Hartmann, D. W. (M)
Helmick, R. B. (M)
Heltemes, R. B. (M)
Hempel, R. A. (A)
Herrera, E. A. (M)
Hickman, J. E. (M)
Hill, R. S. (M)
Hinkelman, T. D. (A)
Hittel, L. A., Jr. (M)
Hocker, D. E. (M)
Hodson, R. B. (A)
Hofferber, H. E. (M)
Hogan, A. W. (M)
Hogan, C. L. (F)
Hogg, J. E. (M)
Hopper, B. (M)
Houston, W. B. (M)
Hronek, J. W. (M)
Huggins, L. L. (M)
Hulet, J. F. (M)
Hume, A. S. (SM)
Hummels, D. R. (A)
Hunter, R. D., Jr. (M)
Huntington, R. C. (M)
Ittenbach, L. J., Jr. (M)
Jachowski, R. F. (M)
Jarrad, D. S. (A)
Jensen, C. E. K. (M)
Jensen, R. E. (M)
Johnson, R. R. (M)
Jones, G. (A)
Jude, G. F. (SM)
Kauper, L. T. (M)
Kelley, H. M. (M)
Kemmeries, F. D. (SM)
Kenrich, C. M. (A)
Kerr, J. L. (M)
Kettlety, R. W. (M)
Kidwell, W. M. (SM)
Kiltredge, P. E. (M)
Kleykamp, G. C., Jr. (M)
Klontz, W. C. (M)
Knowles, W. N. (M)
Koffman, R. Y., Jr. (M)
Koster, C. A. (M)
Krasin, E. (M)
Kryesman, C. (A)
Kulesza, G. G. (SM)
Lahl, W. C. (M)
LaPrade, G. L. (M)
Lasher, C. C. (SM)
Lee, H. P. (A)
Leo, R. E. (M)
Levine, D. (SM)
Lightcap, J. L. (M)
Lindsay, J. D. G. (M)
Liska, R. W. (M)
Lofquist, R. J. (M)
Long, K. A. (M)
Loonam, J. R. (M)
Love, A. W. (M)
Lowenstein, J. F. (SM)
Macmillan, R. R. (M)

MacMillan, T. S. (M)
Madland, G. R. (M)
Majorowicz, G. A. (M)
Malley, F. (A)
Manning, K. P. (M)
Martin, G. L. (M)
Martin, W. L. (M)
Mattausch, A. J. (M)
Mayes, T. L., Jr. (M)
Maynard, F. B. (SM)
McCall, J. D. (M)
McCary, R. O. (M)
McClanathan, G. L. (M)
McCoy, E. C. (M)
McNeill, H. N. (A)
McNemar, C. W. (A)
McShane, L. P. (M)
Meinelt, K. H. (M)
Meyers, K. F. (M)
Michel, W. E. (M)
Milford, R. E. (M)
Miller, L. E. (A)
Mills, T. L. (M)
Montgomery, E. B. (M)
Montgomery, S. A. (M)
Morris, S. H. (M)
Morrison, F. (M)
Moss, C. R., Jr. (A)
Moss, P. L. (M)
Myers, P. B. (SM)
Nelson, J. L. (M)
Newton, S. B. (M)
Nichols, N. F. (A)
Nicolau, N. G. (M)
Nielson, L. C. (M)
Noble, D. E. (F)
Norde, L. (SM)
Nyswander, R. E. (M)
Olesen, A. (M)
Osder, S. S. (M)
O'Sullivan, M. J. (M)
Owen, W. L. (A)
Painter, J. P. (A)
Palais, J. C. (M)
Peabody, S. J. (M)
Peek, J. E. (M)
Penner, W. D. (M)
Perrine, R. A. (M)
Peters, H. L. (A)
Petersen, C. C. (M)
Peterson, G. L. (M)
Peterson, R. K. (SM)
Peterson, V. E. (A)
Phillips, W. E., Jr. (A)
Phipps, J. P. (M)
Plotkin, L. E. (SM)
Pochop, D. R. (M)
Porter, K. W. (M)
Prator, J. C., Jr. (M)
Pringle, D. L. (M)
Propst, B. D. (A)
Rabbitt, J. T. (A)
Rabinowitz, A. A. (M)
Radtke, R. K. (M)
Ranck, C. A. (A)
Reak, D. L. (M)
Reece, D. A. (M)
Reynolds, J. E. (M)
Reynolds, K. A. (M)
Rheinfelder, W. A. (M)
Robertson, W. T. (SM)
Rogers, W. C. (A)
Rojoko, R. M. (M)
Rook, C. W. (M)
Ross, J. M. (SM)
Rowley, N. P. (M)
Royden, G. T. (F)
Rudolph, R. H. (M)
Russell, J. A. (A)
Russell, W. F. (M)
Rutherford, R. R. (M)
Sabel, A. R. (M)
St. Thomas, G. F. (M)
Samuelson, R. E. (F)
Sanders, C. H. (M)
Sarlo, G. S. (M)
Saxon, W. R. (M)
Schaefer, O. L. (M)
Schaffner, G. (M)
Schauer, H. L. (M)
Schmitz, D. W. (M)
Schoephoerster, D. J. (M)
Schulte, F. E. (M)
Schwartz, J. W. (A)
Shaner, J. R. (M)
Shapiro, M. D. (M)
Sharp, J. A. (M)
Sheffield, W. B. (SM)
Shepard, E. S., Sr. (SM)
Shipley, P. P. (M)
Shuck, L. M. (M)
Simpson, E. J. (A)
Sloan, S. C., Jr. (M)
Smith, A. L. (M)
Smith, D. L. (M)
Smith, L. R. (M)
Sommers, C. E. (M)
Staats, R. L. (M)
Staats, R. U. (A)
Stehr, W. G. (M)
Sterner, E. L. (M)
Stevens, C. R. (M)
Stites, R. S. (A)
Stone, R. F. (M)
Stotz, C. C. (M)
Strege, R. J. (A)
Strong, D. E. (A)
Stubbe, L. H. (A)
Sutter, C. G. (M)
Tallent, G. R. (M)
Thelen, E. S. (A)

Thoennes, E. O. (M)
Thomson, M. E. (M)
Tilstan, G. (M)
Tillman, W. F. (M)
Toberman, A. J. (SM)
Tom, D. (M)
Trego, D. G. (SM)
Vandiveer, P. R. (M)
Van Ness, B. O. (M)
Van Poppelen, F. J. (A)
Vecchio, E. A. (M)
Volgts, W. H. (A)
Waldvogel, J. (M)
Wallace, R. A. (M)
Walsh, P. J. (A)
Warner, R. M., Jr. (SM)
Washburn, R. P. (SM)
Weiler, J. H. (M)
Welch, H. W., Jr. (F)
Wells, H. N. (M)
Wexler, J. M. (M)
White, E. A. (M)
Wilcox, F. P. (M)
Wiley, C. A. (M)
Wilhelm, R. L. (A)
Willbern, C. B. (M)
Williams, D. J. (M)
Willibald, G. E. (SM)
Winkler, M. R. (SM)
Wirtz, E. L. (A)
Wittenburg, C. W. (M)
Wood, M. E. (M)
Woodside, W. J. (M)
Woody, W. C. (M)
Wunderlich, L. J. (M)
Young, R. G. (A)
Zusman, D. (M)

Prescott (PHO-7)
Hargrove, B. E. (SM)
Henson, H. W. (M)

Safford (PHO-7)
Shaver, F. W. (M)

San Jose (FT-H-7)
Clark, R. N. (M)

Scottsdale (PHO-7)
Aden, A. L. (SM)
Attwood, S. W. (M)
Axel, E. K. (M)
Bailey, D. C. (A)
Baetkno, H. O. (M)
Barnes, R. F. (SM)
Barrow, D. M. (M)
Behringer, N. C. (M)
Berck, H. S. (M)
Berens, G. F. (SM)
Bielek, A. D. (M)
Bitter, C. R., Jr. (M)
Blist, R. E. (M)
Boothe, A. M. (SM)
Botos, R. A. (M)
Boyd, P. C., Jr. (M)
Bracken, W. H. (M)
Braman, M. D. (M)
Bremmer, R. A. (M)
Brennan, R. F. (M)
Brown, R. J., Jr. (M)
Brubaker, R. J. (M)
Burch, J. I. (M)
Burdoin, R. B. (M)
Bush, D. J. (M)
Campbell, N. L. (M)
Carter, P. M. (M)
Celsi, C. J. (M)
Chapin, D. W. (M)
Chittenden, W. R. (A)
Christman, J. (A)
Cook, G. W. (M)
Cooper, H. W. (M)
Coopock, R. A. (M)
Corby, R. B. (M)
Cranston, H. J., Jr. (M)
Cuckler, V. A. (M)
Dahl, W. E. (M)
Dawson, J. E. (M)
De Baryshe, B. D. (M)
Deerhake, F. M. (SM)
Dimucci, V. A. (M)
Diven, L. (SM)
Dye, N. E. (M)
Edwards, E. D. (M)
Elliott, R. W. (M)
Elsner, R. W. (SM)
Estes, C. L. (SM)
Fleming, I. A. (A)
Foster, J. C., Jr. (M)
Gabrielsen, F. T. (M)
Gabrielsen, R. G. (M)
Gaunt, A. E. (M)
Gazin, H. E. (M)
Gibson, J. G. (M)
Green, H. H. (M)
Groth, E. J., Jr. (SM)
Grover, D. N. (M)
Gustafson, E. M. (A)
Haenichen, J. C. (A)
Hagler, L. H. (A)
Hale, R. E. (M)
Hall, T. G. (A)
Harris, F. L. (M)
Havens, R. C. (M)
Helber, C. (M)
Helms, G. W. (M)
Henbise, P. M. (A)
Herring, R. H. (M)
Hinsdale, J. G. (SM)
Holmes, J. C. (M)
Holzer, W. A. (M)

Howe, J. C. (M)
Hyder, H. R., III (SM)
Jacobsen, A. B. (SM)
Jones, A. C. (M)
Kelling, W. M., Jr. (A)
Kirch, J. E. (M)
Kline, A. J., Jr. (M)
Knoob, G. B. (SM)
Knowles, C. H. (M)
Koch, J. G. (M)
Kret, D. B. (M)
Krohn, C. A. (M)
Kulb, B. A. (M)
La Vance, C. N. (M)
Lehner, L. L. (M)
Lesk, I. A. (SM)
Levinthal, J. G. (M)
Lundy, D. S. (M)
Lynch, P. D. (M)
McInnis, P. A. (M)
McKee, R. M. (M)
Moore, W. C. (SM)
Moyer, H. L. (M)
Muller, H. L. (M)
Muschinske, J. E. (M)
Naas, H. M. (M)
Nord, J. C. (M)
Oliver, D. S. (M)
Palmer, W. L. (M)
Pennington, R. J. (M)
Peverill, W. L. (M)
Phillips, A. B. (M)
Pierce, J. F., Jr. (M)
Pine, C. C. (M)
Pursel, H. H., Jr. (M)
Putman, W. G. (A)
Quinn, T. J., Jr. (M)
Radcliffe, J. C. (SM)
Raile, J. D. (M)
Reque, S. G. (M)
Reynolds, R. H., Jr. (SM)
Riall, R. T. (M)
Rice, C. T. (SM)
Robbins, E. R. (A)
Roberts, R. E. (M)
Robinson, P. T. (M)
Roehr, W. D. (M)
Ross, H. M. (M)
Rowbotham, J. R. (M)
Sanneman, R. W. (M)
Scott, D. E. (A)
Severns, R. A. (M)
Shaffer, D. K. (M)
Siegmund, G. C. (M)
Skomal, E. N. (SM)
Staalberg, L. W. (M)
Steams, W. P. (SM)
Steele, R. B. (M)
Stewart, J. L. (M)
Struble, L. G. (A)
Takesuye, J. S. (M)
Telford, A. L. (M)
Tinsley, C. G. (M)
Tomas, S. M. (M)
Tribken, E. R. (SM)
Vanhorn, H. E. (A)
Waller, K. L. (M)
Waters, H. E. (M)
Watters, J. E. (SM)
West, H. B., Jr. (M)
West, R. G. (M)
Wheeler, W. S. (M)
Whitworth, W. C. (M)
Williams, C. R. (M)
Willis, E. M. (M)
Winstead, D. D. (M)
Woodka, C. J. (M)
Wygalter, S. S. (A)
Wuerburger, R. R. (M)
Yost, R. R., Jr. (M)

Sierra Vista (FT-H-7)
Albee, M. M. (SM)
Blatchley, C. M. (M)
Bogle, R. E. (SM)
Buscall, D. C., Jr. (M)
Catlett, G. F. (M)
Christensen, R. L. (M)
Cook, L. E. (M)
Godbout, J. (M)
Grady, G. E. (A)
Greco, R. C. (M)
Hart, B. H. (SM)
Heinsen, D. E. (M)
Hess, H. J. (M)
Inman, F. W. (M)
Jones, A. F. (SM)
Lamb, J. J. (F)
Lewellyn, J. R. (SM)
McClellan, J. P. (M)
Montasser, A. S. (M)
Perry, W. S., Jr. (M)
Plicato, W. L. (A)
Risser, A. K. (M)
Rocks, J. K. (A)
Sherbundy, C. D. (A)
Smith, H. R. (M)
Staples, Z. B. (M)
Ternow, H. G. (SM)
Veir, R. E. (A)
Vidlak, L. (M)

Sonita (PHO-7)
Le Gendre, H. P. (M)

Tempe (PHO-7)
AX, L. S. (SM)
Baker, M. (M)
Barkson, J. A. (SM)
Biey, J. H. (M)

Board, C. Z. (M)
Buster, J. C. (M)
Clifton, J. K. (M)
Covey, R. L. (M)
Crane, N. B., Jr. (M)
Dryer, L. E. (M)
Erickson, D. L. (M)
Goldman, W. W. (M)
Hausman, D. I. (A)
Manhart, R. A. (SM)
Miraglia, J. F. (A)
Morton, D. E. (M)
Ozment, A. D. (M)
Risk, W. P., Jr. (M)
Russell, F. D. (M)
Schwarz, F. W. (A)
Smith, J. W. (M)
Steinmann, W. L. (SM)
Tartar, J. (M)
Thompson, T. B. (SM)
Voorhaar, F. R., Jr. (M)
Wallace, R. W. (M)
Worcester, K. P. (SM)
Zimmer, C. R. (M)

Tombstone (FT-H-7)
Dahl, O. S. (A)

Tucson (TUC-7)
Ajeman, M. S. (M)
Allen, H. C. (SM)
Anderson, M. A. (M)
Andres, W. F. (M)
Angelastro, M. (M)
Armstrong, A. C. (A)
Babcock, L. F. (M)
Baldwin, H. A. (M)
Balk, S. (M)
Bard, W. E. (M)
Barker, B. A. (M)
Bastian, W. M. (M)
Battistelli, J. J. (M)
Bayless, C. R. (M)
Becker, C. L. (M)
Becker, S. (SM)
Bellee, E. C. (M)
Bernbach, A. J. (SM)
Blalkowski, M. (M)
Blanchard, J. W. (M)
Bodenhamer, W. F. (M)
Bouchard, E. N. (A)
Boutin, C. U. (M)
Brown, T. R., Jr. (M)
Card, C. D. (M)
Camevale, A. D. (A)
Carrick, G. R. (M)
Chinnock, R. S. (M)
Cinquemani, A. P. (M)
Clark, H. L. (SM)
Collins, H. C. (M)
Cooper, R. N. (M)
Cooper, R. K. (M)
Creighton, A. M., Jr. (SM)
Cress, R. B. (M)
Cronk, T. G. (A)
Daly, W. E. (M)
Dart, M. (M)
De Long, H. (A)
Diehl, H. A. (M)
Dlouhy, F. W. (M)
Donaldson, J. W. (M)
Douglas, H. T. (M)
Duggan, C. R. (M)
Dunn, J. L. (SM)
Dusterdick, H. G. E. (M)
Eanes, R. M. (M)
Eddy, R. C. (M)
Estes, E. M., Jr. (M)
Evans, W. H. (M)
Featherston, J. R. (A)
Fessler, A. L. (M)
Fish, W. Y. (M)
Flagg, J. M. (A)
Flahle, T. J. (M)
Fledman, L. J. (SM)
Follett, L. (M)
Forcier, R. A. (SM)
Foy, J. J., Jr. (M)
Fraser, D. W. (SM)
Frederick, D. E. (M)
Friedman, M. F. (M)
Gardiner, A. J. (M)
Gerdes, R. C. (A)
Gharis, W. J. (A)
Giles, D. L. (M)
Gillespie, C. M., Jr. (M)
Glaesser, E. (M)
Gravell, A. J. (M)
Griffith, P. G. (M)
Griggs, W. M. (M)
Hamilton, D. J. (M)
Hansell, G. E. (SM)
Hansen, R. L. (M)
Harber, E. E., Jr. (M)
Hausenbauer, C. R. (M)
Hayes, E. A. (SM)
Henrikson, A. E. (M)
Hessemer, R. A., Jr. (M)
Hoehn, A. J., Jr. (SM)
Howland, R. L. (A)
Huddleston, R. R. (M)
Huelsman, L. P. (SM)
Humble, A. B. (M)
Hyatt, J. L. (M)
Ide, H. A. (SM)
Jackson, J. J. (M)
Jaxel, A. R. (M)
Johnson, J. C. (SM)
Jorden, B. W., Jr. (M)
Kachnic, J. E. (M)
Kees, H. (SM)

Kemkamo, C. F. (A)
Klaus, W. J. (M)
Koerner, H. (M)
Kolz, A. L. (M)
Koons, E. E. (M)
Krieger, H. C. (M)
Larson, R. D. (M)
Latham, D. C. (M)
Legel, G. W. (M)
Lenzner, E. (F)
Little, D. E. (M)
Lockwood, V. M. (M)
Marston, E. J. (M)
Martin, L. C. (M)
Martin, R. E. (SM)
Martin, T. L., Jr. (M)
McCandless, S. W. (M)
McCoy, L. E. (M)
McCumin, T. W. (M)
McIntyre, M. V. (M)
McLaughlin, G. (SM)
Mearls, W. J. (M)
Mehrten, J. A. (M)
Metzer, J. A. (M)
Meyer, H. E. (SM)
Michalk, E. R. (M)
Mitchell, C. A. (M)
Morgan, E. J. (M)
Morrison, E. L., Jr. (M)
Morrow, K. D. (M)
Nabours, R. E. (M)
Nielson, R. M. (M)
Noble, J. C. (M)
Noorland, M. (SM)
Odeirzl, D. J. (A)
Oliver, J. K., Jr. (M)
Otero, J. L. (M)
Palmerson, P. J. (M)
Pascoe, D. (M)
Patterson, R. L. (M)
Perkins, B. M. (A)
Perner, L. (SM)
Pestell, G. A. (SM)
Peterson, G. R. (M)
Pethel, F. C. (M)
Pierce, E. P., Jr. (M)
Pilling, L. H. (M)
Powell, D. S. (SM)
Reeves, D. B. (SM)
Reinecke, B. E. (SM)
Renwick, G. J. (M)
Richards, D. W. (A)
Rivera, E. V. (M)
Ross, B. R. (M)
Rudolph, J. D. (M)
Russell, G. M. (SM)
Russell, P. E. (SM)
Sage, A. P., Jr. (M)
St. John, J. W. (M)
Shaver, H. N. (M)
Sleplan, P. (SM)
Smith, J. (A)
Sorkin, I. J. (M)
Spira, H. (M)
Spogen, L. R., Jr. (M)
Steele, L. L. (M)
Steinebach, R. E. (M)
Stewart, H. E. (SM)
Stewart, J. L. (SM)
Stinson, D. C. (M)
Stith, G. A. (M)
Stock, G. B. (A)
Strang, R. P. (M)
Streets, R. B., Jr. (M)
Stuckl, A. B. (M)
Stultz, L. R. (M)
Swalford, J. E. (M)
Swartz, A. (A)
Terrazas, C. (M)
Thelss, J. B. (M)
Trevor, B. (F)
Vendich, J. F. (M)
Wade, J. A. (M)
Walker, G. A. (SM)
Walker, R. L. (M)
Walsh, L. R. (SM)
Ware, H. W., Jr. (SM)
Whatley, W. W. (SM)
Wilde, N. (SM)
Willis, A. H. (M)
Wipff, F. P. (M)
Yingling, R. C. (S)
Yoshida, T. (M)

Yuma (PHO-7)
Lundy, W. D. (M)
Powell, D. R. (M)

ARKANSAS

Arkadelphia (LR-6)
Sandlin, G. L. (M)

Austin (LR-6)
Rick, C. W., Jr. (M)

Blytheville AFB (LR-6)
Maurer, R. J. (M)

El Dorado (LR-6)
Bellew, R. W. (A)
Sorrells, W. E. (M)

Emmet (LR-6)
Reyenga, T. S. (M)

England (LR-6)
McClanahan, W. J. (A)

Fayetteville (LR-6)
Cannon, W. W. (M)

Esposito, R. (A)
Gosnell, D. G. (A)
Green, J. W., Jr. (SM)
Lewis, F. W. (M)
Purdy, J. A. (A)
Thompson, P. H. (A)
Walton, W. T. (M)
Westmeyer, E. R. (M)

Fort Smith (LR-6)
Duvall, G. (M)
Widmer, C. W. (M)

Gravette (LR-6)
Dreisoerner, D. A. (A)
Durkee, J. D. (M)

Hope (LR-6)
Klipsch, P. W. (SM)

Horatio (LR-6)
McNully, J. L. (M)

Jacksonville (LR-6)
Bolton, B. W. (A)
Moyers, R. K. (M)

Little Rock (LR-6)
Allsopp, W. C., Jr. (A)
Anders, R. V. (SM)
Dortch, H. F. (M)
Ellefson, G. E., Jr. (M)
Foley, N. D. (SM)
Hardy, L. H. (M)
Hegar, E. A. (SM)
Hof, A. R. (M)
Kellogg, J. R. (M)
Martin, R. E. (M)
McDonald, A. E. (M)
Miller, C. H., Jr. (M)
Mitchell, C. H. (A)
Mountjoy, G. (F)
Oberste, J. A. (A)
Packard, A. (SM)
Ralble, R. W. (M)
Ramoly, B. M., Jr. (M)
Reid, J. D. (F)
Warren, D. (A)
Wilson, F. J. (SM)

Magnolia (LR-6)
Cordrey, E. E. (SM)
Sizemore, G. M. (M)

Malvern (LR-6)
Beem, R. M. (SM)

Mena (LR-6)
Darr, J. J. (M)

North Little Rock (LR-6)
Berg, S. L. (M)
Hudson, C. L. (M)
Lowery, H. J. (M)
Meyer, J. A. (A)
Noll, R. A. (A)
Runge, R. T. (M)
Stanley, B. B. (M)
Tisdale, J. W. (A)
Vinson, H. L. (M)

Pine Bluff (LR-6)
Basinger, E. G. (M)

Quitman (LR-6)
Tarver, A. (M)

Scott (LR-6)
McRae, J. P. (M)

Searcy (LR-6)
Bennett, H. W. (M)

Siloam Springs (LR-6)
Smith, C. E. (M)

Springdale (LR-6)
Anderson, M. K. (M)
Lawrence, J. C. (M)

Stuttgart (LR-6)
Burrow, W. R. (M)

Van Buren (LR-6)
Walker, D. R. (A)

Wynne (LR-6)
Dallas, D. M. (M)

CALIFORNIA

Agoura (LA-7)
Bradley, G. A. (M)

Alameda (SF-EB-7)
Hall, T. D. (M)
Luckey, O. E. (A)
McNulty, J. W. (M)

Alamo (SF-EB-7)
Bundrick, R. J. (A)
Cummings, D. B. (SM)
Stripelka, A. J. (SM)

Albany (SF-EB-7)
Herendeen, C. E. (M)
Kirkpatrick, T. I. (M)
Liston, D. H. (M)
Wing, C. (M)
Zimmerman, H. A. (M)

Alhambra (LA-P-7)
Bunker, E. R., Jr. (M)
Hirsch, J. S. (M)
Hitchcock, E. T. (A)
Hoffman, T. S. (A)
Horton, D. K. (M)
Jones, C. E. (M)
Ludekens, L. E. (M)
Mack, D. R. (M)
Mather, J. B., Jr. (A)
McDonald, D. S. (M)
McSweeney, J. E. (M)
Miller, W. A. (SM)
O'Neill, F. G. (M)
Rousseve, C. J. (M)
Seidner, D. R. (M)
Walker, H. L. (M)
Weeks, A. D. (M)
Whitacre, D. P., Sr. (SM)

Alondra (LA-7)
Comell, J. R. (M)

Altadena (LA-P-7)
Acord, J. D. (M)
Alrich, J. C. (M)
Atwood, J. R. (M)
Bagley, G. D. (SM)
Barton, L. R. (M)
Baugh, H. W. (M)
Biedebach, M. C. (M)
Breckenridge, W.C., Jr. (M)
Brown, M. F., Jr. (M)
Bruns, R. A. (M)
Burke, J. J. (SM)
Cox, W. F. (A)
Davis, F. W. (M)
Doemer, B. W. (M)
Downs, G. W., Jr. (SM)
Easterling, M. F. (M)
Eichwald, W. F. (M)
Eyraud, J. P. (M)
Fearman, E. L. (A)
Gossland, J. K. (SM)
Hare, G. H. (M)
Hartig, D. E. (M)
Heacock, R. L. (M)
Holmes, K. G. (M)
Humphrey, F. S. (M)
Jacobson, A. D. (M)
Jones, A. V. (A)
Kalbach, J. F. (SM)
Kennedy, C. J. (SM)
Kimmel, R. O. (M)
Kirk, C. E., Jr. (M)
Kowallis, O. K. (A)
Lane, J. H. (M)
Leflang, W. G. (M)
Lewis, R. S. (A)
Lewyn, L. L. (M)
Lindley, P. L. (SM)
Linnes, K. W. (SM)
Locanthi, B. N. (M)
Lolass, A., Jr. (M)
Loomba, R. P. (M)
Malling, L. R. (M)
Mathison, R. P. (M)
Mauk, L. H. (M)
McCarthy, E. R. (A)
Morris, R. V. (M)
Paris, H. B., Jr. (M)
Pedigo, J. V. (M)
Pickett, M. F. (M)
Piereson, R. G. (M)
Prinz, F. J. (A)
Purdy, W. E. (A)
Ramstedt, C. F. (M)
Rhinehart, N. G. (M)
Riedel, J. C. (M)
Ross, I. (A)
Saklem, S. J. (M)
Schubert, E. J. (SM)
Schuster, D. (M)
Selvidge, H. (F)
Small, R. H. (M)
Stahl, J. (SM)
Sturm, T. F. (SM)
Szirmay, S. Z. (M)
Tanguay, A. R. (SM)
Tehan, M. F. (A)
Thurman, R. V. (M)
Capellen, A. G. V. (M)
Watkins, K. S. (M)
West, L. E. (SM)
Westlake, P. R. (M)
White, R. C. (M)
Whitney, M. G. (M)
Wilcher, J. H. (M)
Wolf, M. (SM)
Worlock, R. M. (M)

Anaheim (LA-SA-7)
Akers, R. C. (A)
Alderete, C. T. (M)
Allen, K. D. (A)
Anderson, K. W. (SM)
Anderson, P. R. (M)
Anderson, M. D. (M)
Angevine, A. R. (M)
Arrington, R. A. (A)
Attanasio, J. F. (M)
Atwood, A. G. (M)
Averill, R. J. (M)
Balducci, J. D. (M)
Baldwin, W. E. (M)
Barker, H., Jr. (M)
Barnhart, M. W. (M)
Bertl, J. (M)
Bills, G. W. (M)
Boutwell, E. O., Jr. (M)
Boyarsky, D. (M)
Breecher, G. G. (M)
Brewer, H. E. (M)
Broadbent, L. C. (M)
Butler, D. S. (M)
Cannon, C. D. (M)
Carpenter, J. H. (SM)
Chadburn, W. J. (A)
Chambers, G. P. (M)
Chavannes, T. E. (M)
Childers, D. G. (M)
Childs, G. D. (M)
Clark, W. P. (M)
Cole, C. E. (A)
Colla, C. P. (M)
Colmer, W. D. (M)
Conrad, E. (SM)
Coolidge, J. E. (M)
Cooney, K. B. (M)
Cooper, G. L. (M)
Corsiglia, J. (M)
Crandon, L. H. (SM)
Crane, J. W. (M)
Cranston, E. M. (A)
Culberth, W. W. (M)
Curry, W. S., Jr. (M)
Davis, J. C. (M)
Davis, R. G. (M)
Deaver, J. M. (A)
De Cristoforo, E. J. (A)
Dempster, R. J. (M)
DeWitt, W. H. (A)
Dhanjal, K. S. (M)
Diedrich, W. A. (M)
Dixon, R. G. (M)
Doss, P. F. (M)
Doty, R. L. (SM)
Edds, J. D. (M)
Enoch, V. L. (M)
Eskridge, T. P. (M)
Ethington, D. A. (M)
Evinger, H. W. (M)
Ewing, D. L. (M)
Filkoff, H. L. (SM)
Finley, W. S. (M)
Fleming, R. W. (M)
Flock, D. C. (M)
Foster, M. M. (A)
Friest, D. T. (M)
Geiger, A. E. (M)
Gibbs, V. E. (M)
Glowacki, W. V., Jr. (SM)
Glowalla, J. (M)
Graham, H. E. (A)
Green, C. S. (A)
Green, V. H. (M)
Gregg, R. W. (M)
Hall, R. E. (SM)
Halverson, P. C. (M)
Harris, M. T. (M)
Haynes, J. (M)
Heaton, G. C. (M)
Held, K. W. (M)
Hobbs, W. D., Jr. (A)
Hoffman, M. (SM)
Hooton, L. C. (M)
Hendrickson, H. C. (M)
Hendrix, L. A. (M)
Hennino, J. V. (M)
Herlein, R. F. (M)
Hildebrand, B. P. (M)
Hindler, R. D. (SM)
Houck, R. D. (M)
Hruby, R. J. (M)
Hughes, R. A. (M)
Hunter, O. E. (A)
Igram, R. G. (M)
James, E. A. (M)
Jenkins, J. F., Jr. (SM)
Jeschke, A. W. (M)
Johnson, M. H. (M)
Johnson, P., Jr. (M)
Johnson, R. W. (SM)
Jones, A. H. (SM)
Jones, W. D. (M)
Katz, L. (SM)
Kelfer, L. F., Jr. (M)
Kempf, R. A. (M)
Kersch, C. J. (M)
Kidd, R. A. (A)
Kingsbury, A. D. (M)
Kleniff, E. R. (M)
Klein, W. J. J. (M)
Knepper, R. C. (M)
Knott, G. D. (A)
Lambert, R. F. (M)
Larsen, G. R. (M)
Leifeste, K. W. (M)
Levin, H. M. (M)
Lewis, J. D. (M)
Lindenmeyer, J. G. (M)
Love, R. R. (M)
Maisch, G. (M)
Marble, W. T., Jr. (M)
Masenter, W. K. (M)
Masin, G. F. (SM)
Maze, R. D. (A)
McAteer, J. E. (M)
McColg, K. W. (A)
McCone, G. L. (M)
McFarlane, M. D. (F)
McKelvey, E. J. (M)
McLeod, B. C. (M)
Medak, M. M. (M)
Mellas, A. (M)
Miller, R. J. (SM)
Milligan, H. I. (M)
Miyamoto, C. K. (M)
Modiano, V. J. (M)
Moroan, H. C. (SM)
Morton, W. B., Jr. (SM)
Mras, R. J. (M)
Myers, O. D. (A)
Nealey, C. C. (M)
Neehus, H. (M)
Nicholson, W. Q. (M)
Nielsen, C. L. (SM)
Nielson, I. J. (M)
Ogata, A. I. (M)
Olson, C. P., Jr. (M)
O'Neil, C. E. (M)
Orelup, J. L. (M)
Pariser, J. J. (M)
Paschal, E. A. (M)
Pass, H. R. (M)
Payne, D. W. (M)
Perkel, D. (M)
Peterson, C. A. (M)
Peterson, H. C. (A)
Peterson, L. A. (M)
Phelps, J. F., Jr. (M)
Pierce, C. G. (SM)
Pinson, J. C. (M)
Porter, R. G. (A)
Potwardowski, B. (M)
Pratt, S. (M)
Pride, E. W. (SM)
Purvis, R. L. (M)
Ramont, R. L. (A)
Ramsay, S. P. (SM)
Ranalli, R. (M)
Rassier, D. B. (M)
Reamer, E. D. (M)
Redden, E. T. (M)
Reichenthal, A. (M)
Reid, H. I. (M)
Reinhard, C. J. (M)
Richmond, R. C. (M)
Rivera, E. (M)
Robinson, D. E. (A)
Robinson, P. N. (M)
Rogeness, G. G. (M)
Rubenstein, S. Z. (M)
Rumble, B. E. (M)
Salow, S. R. (A)
Sanford, R. (SM)
Sargeant, H. I. (SM)
Sawyers, J. H. (M)
Schalk, N. (M)
Schenck, S. R. (A)
Schmit, D. E. (M)
Schmitz, J. F. (M)
Schonholtz, J. L. (A)
Secor, B. K. (M)
Seemann, K. J. (M)
Shapiro, H. (M)
Shearer, G. W. (M)
Sheehan, J. F. (M)
Showalter, J. A. (M)
Silverman, D. (M)
Sisco, W. B. (M)
Smith, H. O. (M)
Smith, S. L. (M)
Spencer, G. W. (M)
Squires, J. R. (M)
Stephens, E. J. (M)
Stemberg, W. J. (A)
Stiles, W. V. (M)
Stone, J. A. (A)
Storch, H. (SM)
Sullivan, S. J. (M)
Taylor, D. F. (M)
Thompson, W. W. (M)
Tilkens, G. C. (M)
Tracey, J. R. (M)
Turkelrott, S. Z. (M)
Uyechi, S. T. (A)
Vahlstrom, R. E. (M)
Valerio, J. R. (A)
Vamum, A. M. (M)
Verano, F. (M)
Voiran, E. R. (M)
Wack, C. B. (M)
Waggoner, B. A. (A)
Walker, W. E. (M)
Webster, G. C. (M)
Weink, R. H. (A)
Weiss, R. H. (M)
Wendt, J. R. (M)
Wenick, R. L. (A)
Wheeler, L. A. (M)
Wilbur, D. I. (SM)
Wiley, D. V. (M)
Williams, D. D. (A)
Williamson, R. J. (M)
Wilson, S. L., Jr. (M)
Winter, J. A. (M)
Yeager, T. B. (A)
Yerdon, G. W. (SM)
Yowell, C. O. (A)
Zike, W. L. (A)

Angwin (SF-7)
Neilsen, I. R. (M)
Robinson, J. D. (M)

Apple Valley (LA-7)
Ball, L. G. (A)
Stackhouse, A. (M)
White, J. L. (M)

Aptos (SF-7)
Kahle, J. G. (A)
Reinartz, J. L. (F)

Arcadia (LA-P-7)
Anderson, R. I. (A)
Askren, P. S. (M)
Babeaux, A. G. (A)
Backus, R. A. (M)
Beatty, C. G. (M)
Breitwieser, C. J. (F)
Chess, R. B. (SM)
Cramer, P. W., Jr. (A)
Crisp, R. F. (SM)
Eland, R. C. A. (SM)
Fiske, J. J. (M)
Foster, J. F. (M)
Fritz, W. (M)
Galavan, T. P. (M)
Gehring, D. E. (M)
Gilbertson, S. R. (M)
Goodman, H. D. (M)
Grobecker, A. J. (M)
Gum, J. D. (M)
Hadady, R. E. (M)
Haubrichs, F. P. (SM)
Horton, E. J. (M)
Jackson, A. S. (M)
King, T. H. (M)
Lackowski, D. H. (M)
Lang, D. W. (A)
Le Vay, T. C. (M)
Martin, G. M., Jr. (M)
Maxwell, G. D. (M)
Meyer, R. G. H. (SM)
Neumeyer, B. W. (M)
Nielsen, J. J., Jr. (SM)
Nienstedt, D. A. (M)
Orr, R. A. (M)
Page, F., Jr. (M)
Paquin, J. H. (SM)
Patterson, A. R. (A)
Pitzer, R. L. (M)
Platt, J. H. (M)
Potter, P. D. (M)
Rodgers, D. A. (SM)
Schenkel, L. F. (M)
Schindler, D. A. (M)
Schwarzmann, W. A. (SM)
Shaw, W. C., Jr. (M)
Show, L. W. (A)
Sorge, B. W. (SM)
Speck, G. (M)
Swan, M. L. (SM)
Waldschmidt, N. E. (M)
Wall, R. E., Jr. (M)
Walp, R. M. (M)
Watts, H. M. (SM)
Wheelon, W. E. (A)
Wood, A. M. (A)
Wright, R. W. (M)

Arleta (LA-SF-7)
Bolen, J. S. (M)
Dixon, A. M. (M)
Kelling, D. G. (M)
Klenast, D. J. (M)
MacDonald, R. D. (M)
McKee, R. W. (M)
Palmer, D. L., Jr. (M)
Walker, G. A. (M)

Arlington (LA-OB-7)
Albertson, R. E. (M)
Batchelder, D. D. (M)
Bradford, W. C. (A)
Bradshaw, S. R. (SM)
Espeland, R. H. (M)
Frederiksen, T. M. (M)
Freydl, E. J., Jr. (M)
Galbraith, H. J. (M)
Garrison, G. W. (M)
Grinlus, L. L. (SM)
Kalol, C. M. (M)
Kolden, J. R. (M)
Lots, L. R. (A)
Makinson, F. H. (M)
Moore, L. C. (A)
Pierce, C. C. (M)
Ralatos, P. A. (M)
Smith, P. R. (M)
Strief, M. J. (M)
Weiss, J. G. (M)

Arroyo Grande (LA-SB-7)
Hilliard, D. R. (M)
Stow, R. A. (M)

Artesia (LA-SA-7)
De Jong, R. H. (M)
Seldeen, D. J. (M)

Atherton (SF-7)
Allison, J. E. (M)
Blanchard, H. P. (M)
Borden, H. G., Jr. (M)
Brown, C. M. (SM)
Cameron, E. G. (SM)
Carter, J. M. (SM)
Crapuchettes, P. W. (F)
Daniel, D. D. (A)
Jones, R. M. (SM)
Kane, R. W. (M)
Levinthal, E. C. (SM)
Maravich, R. (A)
Merz, R. A. (M)
Moore, N. H. (SM)
Most, N. (M)
Rist, A. D. (SM)
Ross, D. H. (M)
Ryan, A. H. (SM)
Singleton, R. C. (SM)
Tracy, T. J. R. (M)
Walters, G. A. (SM)
Welling, C. G. (A)

Auburn (SAC-7)
Chesney, A. P. (SM)

Azusa (LA-OB-7)
Allen, C. A. (M)
Bowers, D. L. (M)
Brady, F. H. (M)
Clark, P. A. (M)
Hopkins, C. L. (M)
Horak, F. A. (SM)
Moss, J. F., Jr. (A)
Peck, J. W. (A)
Rahlf, J. P. (A)
Schuster, J. J. (M)

Bakersfield (LA-7)
Mead, J. A. (M)
Overton, M. F. (A)
Patterson, G. E. (A)
Whiting, W. E. (SM)

Balboa (LA-SA-7)
Brown, H. R., Jr. (SM)
Browning, R. (M)
Gardner, R. S. (SM)
Kossen, D. J. (A)

Balboa Island (LA-SA-7)
Andress, E. A. (M)
Barlett, F. R. (A)
Fish, V., Jr. (A)
Hansen, E. H. (F)

Baldwin Park (LA-OB-7)
Craig, W. C. (M)
Michie, C. G. (M)

Barstow (LA-OB-7)
Bell, W. C. (A)
Billings, R. D. (M)
Chase, H. E. (M)
Johnson, V. H. (M)
Olsen, H. G. (M)
Young, E. N. (M)

Beale AFB (SAC-7)
Arsenault, L. J. (M)

Beaumont (LA-7)
Hotine, W. (M)

Bell (LA-7)
Zelenay, J. (A)

Bellflower (LA-SA-7)
Bailey, E. L. (M)
Bravo, A. (M)
Bruce, J. P. (M)
Christopher, L. J. (M)
Colebank, J. M. (M)
Cone, R. D. (M)
Costello, R. G. (M)
Creswell, J. C. (M)
Emery, W. S. (M)
Fridenberg, J. T. (M)
Lane, H. K. (A)
Louie, W. (A)
Morgan, R. M. (M)
Noar, R. (A)
Podnar, H. (A)
Rogers, W. J. (M)
Sakai, P. R. (M)
Thompson, M. F. (SM)
Wells, W. W. (SM)
Wielenga, W. G. (M)

Bell Gardens (LA-7)
Adams, R. L. (A)
Bradley, R. J. (M)
Rickard, L. D. (A)

Belmont (SF-7)
Burgwald, G. M. (M)
Damonte, J. B. (SM)
Eakin, J. H. (SM)
Gates, W. F. (M)
Ginsburg, C. P. (SM)
Hack, W. L. (A)
Hadik-Barkoczy, A. B. (M)
Holaday, R. E. (A)
Huebler, M. A. (SM)
Hyne, A. D. (SM)
Koerner, J. (M)
Koloboff, G. J. (M)
Krajewski, E. Z. (M)
Lee, S. (M)
Mills, J. J. (M)
Pekarek, K. L. (M)
Pogue, M. C. (M)
Renton, W. L. (M)
Robben, J. D. (A)
Rose, P. L. (M)
Shapiro, S. S. (M)
Smith, D. C. (M)
Stark, R. D. (M)
Thompson, J. E. (A)
Towne, A. E. (M)
Wilson, D. E. (M)
Woodruff, R. L. (M)
Zellmer, N. A. (M)

Belvedere-Tiburon (SF-7)
McFadden, R. R. (M)

Benicia Arsenal (SAC-7)
Elsiminger, T. I. (M)

Ben Lomond (SF-7)
Cottrell, W. C. (M)
Fulmer, R. F. (A)

Berkeley (SF-EB-7)
Acker, R. C. (SM)
Angelakos, D. J. (SM)
Anger, H. O. (M)
August, G. (M)
Bently, D. E. (M)

Bergen, A. R. (M)
Bevensee, R. M. (M)
Birdsall, C. K. (SM)
Bonner, H. W. (M)
Borgiotti, G. (A)
Bourne, H. C., Jr. (SM)
Breeding, C. R. (A)
Brown, L. E. (M)
Brown, M. (M)
Bruun, G. (SM)
Bryson, J. D. (M)
Buffum, J. H. (A)
Bulow, A. A. (M)
Carlile, R. N. (M)
Carlyle, J. W. (M)
Carter, L. J., Jr. (M)
Chernoff, R. C. (M)
Clapp, F. D. (SM)
Davis, D. D. (M)
Desoer, C. A. (SM)
Dimmick, R. R. (M)
Douglas, E. S. (M)
English, A. C. (M)
Evans, F. (SM)
Everhart, T. E. (M)
Farly, G. M. (SM)
Freeman, E. D. (M)
Furman, G. G. (M)
Gagnon, R. J. (M)
Galindo, V. (M)
Gallichotte, J. H. (M)
George, A. J. (M)
Gill, A. (M)
Goldsmith, E. (M)
Hansen, C. F. (M)
Hara, H. H. (M)
Harris, B. J. (M)
Harvey, M. J. (M)
Hausvick, R. L. (M)
Hill, L. O. (M)
Hogan, I. J. (SM)
Hopkin, A. M. (A)
Howard, J. A. (M)
Hunter, J. (A)
Huskey, H. D. (M)
Isberg, R. A. (SM)
Iwama, M. (M)
Jenkins, K. D. (M)
Johnson, B. M. (A)
Jorge, C. D. (A)
Jury, E. I. (SM)
Kemanis, G. (M)
Kortegaard, B. L. (M)
Kuh, E. S. (M)
Kunin, L. (M)
Lambert, L. M., Jr. (M)
Lipman, J. F. (M)
Lutz, I. C. (SM)
Mack, D. A. (SM)
Manabe, S. K. (M)
McClure, D. E. (M)
McElhoe, B. A. (M)
McLaughlin, A. W. (A)
McVey, B. D. (SM)
Melvin, R. M. (A)
Merryman, W. R. (M)
Morris, R. J. (M)
Morton, P. L. (F)
Nelson, W. H. (SM)
Nishizaki, R. (M)
Noller, W. E. (SM)
Nunamaker, T. A. (M)
Oberbillih, D. D., Jr. (A)
Pederson, D. O. (M)
Plutchok, H. (M)
Rasmussen, F. M. (A)
Rea, D. E. (M)
Reukema, L. E. (F)
Rumsey, V. H. (F)
Russell, J. A. G. (M)
Schoenemann, P. T. (M)
Scott, D. A. (A)
Scott, H. J. (SM)
Semeniuk, B. G. (M)
Sherman, S. (A)
Shiu, P. D. C. (A)
Silver, S. (F)
Singer, J. R. (SM)
Sloan, D. H. (F)
Smith, B. H. (SM)
Smith, O. J. M. (F)
Snavely, J. D. (M)
Soule, W., Jr. (A)
Spitze, J. M. (M)
Spitzer, W. S. (A)
Stout, G. H. (A)
Strothman, R. A. (M)
Susskind, C. (SM)
Taskett, D. A. (M)
Thomasian, A. J. (M)
Thornton, D. D. (M)
Trivelpiece, A. W. (M)
Turin, G. L. (SM)
Turner, S. E. (A)
Van Duzer, T. (M)
Wang, S. (M)
Wattenburg, W. H. (M)
Welch, W. J. (M)
Westwick, O. B. (M)
Whinnery, J. R. (F)
Williams, C. S. (A)
Williams, D. R. W. (M)
Windsor, A. A. (M)
Woo, B. B. (M)
Woodyard, J. R. (M)
Yakowitz, S. J. (M)
Yee, P. K. (M)

Beverly Hills (LA-7)
Albin, F. G. (A)
Anderson, H. L. (M)
Atkinson, J. M. (M)
Austrian, R. B. (SM)
Bell, H., Jr. (M)
Brown, C. A. (M)
Cannon, H. L. (M)
Cheatham, T. P., Jr. (SM)
Cohen, L. B. (M)
Crawford, A. A. (SM)
Crosley, D. V. (M)
Fielding, J. C. (M)
Fisch, B. M. W. (A)
Fitzgerald, G. E. (M)
Gillmann, H. E. (M)
Gray, H. J. (A)
Green, D. J. (SM)
Gruber, K. (M)
Harczo, E. (A)
Harmon, W. S. (SM)
Hatch, M. M. (M)
Herzfield, G. M. (M)
Krack, J. J. (A)
Lichteman, G. (M)
Magnuson, R. W. (M)
McCauley, D. D. (M)
McWaid, J. A. (A)
Mullin, J. T. (M)
Nutt, J. H. (A)
Pederson, W. O. (M)
Phillips, H. D. (M)
Queen, P. D. (M)
Rutherford, C. E. (SM)
Schott, W. L. (SM)
Speck, L. P., Jr. (M)
Terry, R. L. (SM)
Winchell, R. W. (M)
Wise, J. A. (M)
Wolcott, C. F. (F)

Big Bear Lake (LA-OB-7)
Black, J. M. (M)

Big Creek (SF-7)
Miller, W. C., Jr. (M)

Bishop (CL-7)
Rudolph, E. (A)

Boulder Creek (SF-7)
Huntington, N. L. (A)

Bradbury (LA-P-7)
Ranck, J. C. (A)

Brea (LA-SA-7)
Bertorello, R. J. (M)
Donner, W. (M)
Kiyan, N. R. (M)
Kreider, P. A. (M)
Meyers, L. J. (M)
Painchaud, P. A. (M)
Schmidt, L. O. (M)
Sutliff, C. N. (M)
Thomas, T. E. (M)
Wolking, D. H. (SM)

Brentwood (SF-EB-7)
Habra, J. (M)

Buena Park (LA-SA-7)
Algeo, J. A. (M)
Andrews, L. V. A. (M)
Armstrong, T. J. (A)
Aukland, J. C. (M)
Bailey, G. L. (M)
Benedetti, F. J., Jr. (M)
Bunnell, C. D. (M)
Burnett, E. D. (M)
Chapman, D. M. (M)
Cornelius, W. B. (A)
Cuningham, G. W. (A)
Dampier, W. P. (M)
Demeter, J. P., Jr. (M)
Espinoza, R. J. (M)
Fanzol, A. H. (M)
Fenwalt, W. H. (A)
Gray, B. C. (M)
Holder, J. R. (A)
Holm, F. E. (M)
Hovda, R. E. (M)
Humphreys, T. I. (SM)
Kemper, D. M. (A)
Koegel, J. S. (A)
Laity, I. A., Jr. (M)
Lowry, R. C. (A)
McLeod, J. C. (M)
Monsees, L. R. (M)
Moynihan, P. A. (M)
Nagel, R. (M)
Newcomb, P. F. (M)
Owca, A. E. (M)
Patrick, D. W. (M)
Richion, E. S. (M)
Roark, G. L. (SM)
Sarkavoni, D. W. (M)
Shinmachi, T. K. (A)
Smith, B. E. (M)
Sperling, R. W. (M)
Stack, T. K. (M)
Strain, D. A. (M)
Thoennes, W. P. (A)
Thomas, A. G. (A)
Vincent, W. K. (M)
Widdoss, M. G. (M)
Williford, J. G. (M)

Burbank (LA-SF-7)
Askins, J. J., Jr. (M)
Bates, G. A. (M)
Baworouski, J. (A)
Bennett, P. L. (M)
Blackburn, W. E. (M)
Bodner, M. (SM)
Bolton, M. W. (A)
Braun, M. F. (M)
Brockway, D. C. (M)
Brown, C. W. (M)
Bukhoud, J. (A)
Campbell, D. E. (SM)
Carpenter, M. R. (M)
Carpenter, R. W. (SM)
Chrupcala, W. J. (SM)
Coggshall, J. (SM)
Dugan, J. M. (M)
Edgerton, A. K. (M)
Everett, F. A. M. (M)
Fawcett, K. D., Jr. (A)
Flores, R. A. (M)
Forbath, F. P. (SM)
Fox, C. W. (M)
Ganzenhuber, J. H. (SM)
Giesecke, H. W. (M)
Gilbert, E. M. (SM)
Girouard, L. O., Jr. (M)
Goldman, R. F. (SM)
Goodale, D. M. (M)
Gossard, M. G. (M)
Grayson, G. K. (M)
Hancock, T. W. (SM)
Helmreich, L. W. (SM)
Henning, E. S. (A)
Hoff, K. (SM)
Hutchinson, W. M. (M)
Itami, F. S. (M)
Jones, W. F. (M)
Kemper, D. A. (M)
Lawton, E. F. (M)
Lee, S. (A)
Lekven, C. M. (M)
Lewis, N. O. (M)
Light, S. K. (A)
Long, R. J. (M)
Lyons, S. (M)
Markley, J. E., Jr. (A)
Matthews, C. (SM)
McAdam, J. C. (M)
McCroskey, D. C. (A)
McKenzie, J. B. (SM)
Mielke, R. N. (M)
Miller, J. A. (M)
Miller, W. C. (M)
Mintz, F. (M)
Mitchell, J. A. (M)
Monfort, R. A. (SM)
Mont, C. H. (M)
Mosier, R. R. (SM)
Muret, R. N. (M)
Nicol, R. A. (M)
Norris, J. M. (M)
Perlman, D. (M)
Powell, L. A. (M)
Primozich, F. G. (M)
Ricketts, M. V. (SM)
Romandia, R. R. (M)
Rosenbaum, O. G. (M)
Rosenbaum, P. L. (M)
Salers, J. L. (M)
Sassman, R. W. (M)
Schneider, W. J., Jr. (M)
Schwartz, N. A. (M)
Seitz, F. R. (M)
Selenius, O. E. (M)
Shahan, O. (M)
Sheldon, P. H. (M)
Slife, J. F. (A)
Slingerland, K. D. (M)
Smith, C. A., Jr. (M)
Smith, S. R. (SM)
Starr, A. R. (A)
Stewart, E. W. (M)
Vallar, T. F. (M)
Vinton, B. W. (M)
Warrington, W., Jr. (A)
Weatherford, R. V. (A)
Woodard, T. C. (M)
Woodring, R. L. (M)
Zanella, F. H. (M)

Burlingame (SF-7)
Baldwin, R. S. (M)
Boss, L. J. (M)
Lufkin, P. M. (M)
Peck, C. D. (SM)
Robinson, W. H. (M)
Roth, P. R. (M)
Ryman, J. L. (M)

Calabasas (LA-SF-7)
Ball, K. E. (SM)
Beard, A. D. (M)
Bryson, H. C., Jr. (SM)
Chandler, C. W. (M)
Clavin, A. (SM)
Cohn, S. B. (F)
Fleeman, P. J. (M)
Higgins, W. A. (M)
Kanawyer, W. H. (M)
King, W. J. (M)
Krausz, R. (SM)
Martin, W. R. (M)
Moyer, J. N. (SM)
Rosen, S. A. (M)
Shovlowsky, M. (M)
Snyder, W. A. (SM)
Spalinger, E. L. (SM)
Wells, J. L. (M)

Calexico (SD-7)
Aguilar, A. (A)
Bezdes-Skewes, E. (M)
Lacarra, A. A. (A)
Camarillo (LA-B-7)
Githens, D. P., Jr. (M)
Hamilton, W. T. (M)
Harvey, J. P. (M)
Jennett, N. E., Jr. (M)
Keigher, J. P. (M)
Keller, E. G. (A)
Lewis, C. H. (SM)
Lund, F. H. (M)
McPheeters, C. A. (M)
Miller, J. W. (M)
Ogden, D. E. (M)
Osborn, A. (M)
Shelton, W. C. (SM)
Van Ackere, M. G. (M)
Wood, L. E. (SM)

Cambria (LA-SB-7)
Ohl, R. S. (F)

Camino (SAC-7)
Ozment, W. L. (M)

Campbell (SF-7)
Allen, F. K. (M)
Anderson, D. L. (M)
Bitgood, R. C. (M)
Dye, R. E. (M)
Ellis, J. R., Jr. (M)
Freedman, N. E. (M)
Gorman, E. B. (A)
Hansen, R. J. (M)
Hanson, D. W. (M)
Higuchi, M. (M)
Kahn, H. (M)
Latham, R. A. (M)
McGrath, M. L. (M)
Pack, E. L. (M)
Paige, A. (M)
Riccardi, J. A. (A)
Robbins, C. M., Sr. (SM)
Shuster, J. W. (M)
Stromberg, R. T. (A)
Thompson, A. J. (M)
Tidball, R. M. (SM)
Vaughn, J. E. (A)
Watson, C. L. (M)
Weckler, G. P. (M)
Wiley, J. L. (A)
Wilson, J. E. (M)
Yamagami, Y. (M)

Canoga Park (LA-SF-7)
Albin, N. E. (A)
Alden, J. R. (M)
Allgeyer, G. O. (A)
Alvarez, A. R. (M)
Anderman, A. (M)
Angle, S. L. (M)
Apa, F. E. (A)
Apple, J. S. (M)
Aurich, W. G. (M)
Axsom, A. E. (M)
Babin, R. S. (SM)
Baker, B. W. (M)
Baker, R. O. (M)
Barton, R. L. (A)
Bauer, W. F. (A)
Bauman, V. R. (A)
Bemis, P. S. (M)
Benning, F. N. (M)
Benson, C. E. (M)
Berryman, G. C. (M)
Bertram, S. (SM)
Bertucci, J. F. H. (M)
Bishop, J. E. (A)
Bolman, R. G. (SM)
Bond, F. E. (SM)
Bower, G. C. (SM)
Bradley, J. O. (M)
Bressler, S. (M)
Brockett, D. L. (M)
Brown, M. (M)
Bruecker, C. A. (M)
Buchholz, C. W. (M)
Burd, E. M. (M)
Burdett, D. F. (M)
Carfagno, S. J. (M)
Carpenter, D. D. (M)
Carson, V. S. (F)
Carter, J. K. (M)
Causey, G. D. (M)
Cervini, R. A. (A)
Chapman, H. R. (A)
Checketts, D. A. (M)
Chudacoff, N. E. (M)
Clausen, H. (M)
Cluck, H. D. (A)
Cohen, A. C. (M)
Collmer, R. C. (SM)
Compton, R. L. (M)
Conway, J. P. (M)
Conway, W. H. (M)
Cooper, H. V. (M)
Corbell, R. C. (M)
Crawford, D. B. (A)
Croft, W. S. (M)
Cutler, W. D. (M)
Danner, D. H. (M)
Davis, M. G., Jr. (M)
Day, J. M. (M)
Del Morris, R. (A)
Demosey, R. C. (M)
Deuser, D. A. (M)
De Villier, J. (M)
Dorrell, V. A., Jr. (M)
Doyle, P. A., Jr. (M)
Doyle, W. P. (M)
Droste, G. T. (M)
Duncan, J. G. (M)
Dunwell, R. D. (M)
Eaton, H., Jr. (M)
Epstein, M. P. (M)
Erdag, J. M. (M)
Ervin, H. D. (M)
Ess, A. J. (M)
Evans, F. A. (M)
Eyster, H. L. (M)
Fabian, S. H. (M)
Fetebacher, J. J. (M)
Felman, M. F. (M)
Finn, D. J. (A)
Fleer, R. P. (M)
Flint, J. C. (M)
Ford, J. P. (SM)
Foxman, E. (M)
Frame, J. L. (M)
Frank, M. E. (M)
Frankos, D. T. (M)
Freed, R. S. (M)
Geary, L. W. F. (SM)
Gebel, J. L. (A)
Gehrke, R. A. (M)
Georges, L. (A)
Gilliam, T. J. (M)
Gladser, L. (M)
Gleeroo, R. E. (M)
Goebels, F. J., Jr. (M)
Goldstein, A. (M)
Grabbe, E. M. (M)
Graham, R. F. (M)
Graham, W. (M)
Grant, P. M. (M)
Gray, R. K. (M)
Greenberg, R. B. (M)
Gregory, G. D. (M)
Gribben, R. L. (SM)
Griffin, E. F. (A)
Griffin, R. G. (M)
Haining, L. E. (M)
Hale, J. R. (M)
Hall, J. R. (M)
Hamilton, L. E. (M)
Harshman, G. A., Jr. (M)
Hart, J. P. (M)
Hartmann, S. (M)
Haywood, V. M. (M)
Henderson, M. C. (M)
Hesse, V. L. (M)
Heyne, N. W. (M)
Hirsch, S. L. (M)
Hitz, G. D. (M)
Hoefener, C. E. (A)
Hoff, R. G. (M)
Hoffman, P. (M)
Hollis, G. L. (A)
Hom, F. M. (SM)
Homer, E. G. (M)
Homing, T. D. (A)
Horton, B. W. (M)
Howard, C. T. (A)
Hurd, E. (M)
Hunter, D. R. (M)
Issacs, D. (M)
Ives, G. M. (SM)
Jacobsen, D. W. (M)
Jaeger, R. P. (SM)
Johnson, G. F. (M)
Johnson, M. G. (M)
Jones, R. C., Jr. (M)
Judge, H. (M)
Keil, H. A. (M)
Kellogg, C. H. (M)
Kemp, R. F. (M)
Kennedy, J. D. (A)
Kennedy, J. B. (M)
Kiesel, R. H. (M)
King, J. E. (M)
King, R. H. (M)
Klein, G. H. (A)
Kline, K. H. (SM)
Knapp, R. E. (M)
Koster, R. A. (M)
Kriewall, A. A. (M)
Kroeckel, C. H. (M)
Kuhn, T. G. (M)
Landwald, A. (M)
Leach, H. L. (M)
Lee, E. C. F. (M)
Lee, J. J., Jr. (M)
Leon, B. J. (M)
Leonard, T. J., Jr. (M)
Lezak, M. S. (M)
Lieberknecht, J. A. (A)
Lieberman, J. L. (A)
Littlefield, K. E. (M)
Longmire, R. M. (M)
Lowitz, G. E. (SM)
Lushinsky, G. A. (A)
Maldoon, L. M. (M)
Marsh, W. A. (A)
Martin, H. C. (M)
Mast, L. T. (M)
Matonak, L. A. (M)
Maughmer, R. W. (M)
McCaskey, S. D. (M)
McCreary, H. J. (SM)
McDemid, F. A., Jr. (M)
McHenry, L. E. (M)
McKinnon, R. J. (A)
Merchant, S. A., Jr. (M)
Meredith, C. M. (M)
Milham, R. F., Jr. (M)
Montrose, J. O. (M)
Moody, R. D. (M)
Morals, B. G. (M)
Morgan, T. M., Jr. (M)
Morris, R. J. (M)
Mortsher, L. R. (A)
Moy, H. L. (M)

Nakano, O. (A)
Neal, R. B. (M)
Neudorfer, W. L. (M)
Nishimura, R. K. (M)
Nissim, S. (M)
Norsell, H. C. (M)
Novak, J. R. (M)
Olson, J. B. (M)
Ordahl, C. A. (M)
O'Reilly, G. A. (SM)
Orr, W. D. (M)
Pallett, H. E. (M)
Paulus, R. L. (A)
Pinckney, K. R. (A)
Pollack, S. (A)
Porst, H. B. (M)
Porter, R. L. (M)
Pratt, J. W., Jr. (M)
Priest, E. J. (M)
Puskorius, J. (M)
Ramo, S. (F)
Reitz, G. (M)
Ress, T. I. (M)
Rhodes, J. P. (M)
Rice, S. M. (M)
Richards, R. E. (M)
Riekeman, E. C. (M)
Rodgers, J. W., Jr. (M)
Rogers, N. A. (A)
Ross, H. H., Jr. (M)
Ross, W. E. (M)
Ruppenthal, W. (A)
Salmi, T. W. (M)
Schlowitz, H. H. (M)
Schneberger, E. J. (M)
Shively, R. P. (M)
Shoemaker, H. L. (M)
Silverstein, M. M. (M)
Sisson, A. R. (SM)
Slocum, J. D. (M)
Snider, R. C. (M)
Statham, P. T. (M)
Stout, T. M. (SM)
Stuckelman, R. M. (M)
Sullivent, E. E., Jr. (M)
Swanson, E. C. (M)
Taylor, J. R. (A)
Tenenberg, S. E. (M)
Terzian, R. C. (M)
Thomas, R. (M)
Thornburg, R. O. (M)
Thorne, M. F. (A)
Todd, E. G. (M)
Trenholm, R. B. (M)
Tucker, A. E. (M)
Ulrich, D. A. (M)
Van Doorne, J. R. (M)
Van Velzer, V. C. (M)
Wada, J. Y. (M)
Walker, V. M. (M)
Waltmire, W. A. (A)
Ward, W. E. (M)
Warren, C. S. (M)
Warren, J. R. (M)
Weatherford, A. V. (M)
Weber, D. R. (M)
Weiner, E. L. (M)
Wennerstrom, D. O. (M)
Wheeler, S. D. (M)
Wierman, E. T. (M)
Wigdahl, E. E. (M)
Wilcox, R. C. (SM)
Wilson, F. V. (M)
Wilson, R. A. (M)
Winning, R. M. (A)
Wooldridge, D. E. (F)
Woolever, H. S. (M)
Wylie, J. A. (M)
York, R. L. (M)
Young, D. W., Jr. (M)
Yuen, R. (M)
Zamites, C. J. (M)
Zaricki, W. (M)
Zerbel, D. W. (M)
Zieser, H. S. (M)
Zillman, J. R. (A)

Cardiff-by-the-Sea (SD-7)
Graham, J. P. (A)
Simpson, B. L. (M)

Carlsbad (SD-7)
Bennett, J. L. (M)
Wunderlich, G. F. (SM)

Carmel (SF-7)
Neill, G. M. (M)
Pastel, M. P. (M)
Robinson, K. L. (M)

Carmichael (SAC-7)
Ashley, A. B. (M)
Ballard, R. B. (M)
Bixler, R. W. (SM)
Harbidge, E. A. (A)
Jenkins, O. D. (A)
Kelliher, J. E. (M)
Linquist, G. A. (A)
McKinney, R. L. (M)
Murphy, J. L. (A)
Ursery, W. G. (M)
Wilson, J. T. R. (M)

Carpinteria (LA-SB-7)
Andersen, J. F. (M)
Scholz, P. A. (SM)

Castro Valley (SF-EB-7)
Behrin, E. (M)
Boyrie, E. A., Jr. (M)
Browning, G. D. (M)
Dean, M. H. (A)
Kipperman, D. O. (M)
Lorschar, K. R. (M)
Pechacek, R. E. (M)
Roulette, R. E. (M)
Rufer, R. P. (M)
Sorensen, R. W. (M)

Central Valley (SAC-7)
Maki, P. J. (A)

Chatsworth (LA-SF-7)
Babbe, E. L. (M)
Baggett, R. L. (M)
Benson, S. A. (A)
Bowers, E. O. (M)
Burbridge, H. K. (M)
Couvillion, A. J., Jr. (M)
Davison, R. E. (A)
Gage, N. C. (M)
Gigante, V. (M)
Gould, E. B., III (M)
Gunnarson, L. P. (M)
Haas, R. W. (M)
Harper, R. B. (M)
Hassencahl, L. J. (M)
Isbell, C. H. (M)
Jones, V. E., Jr. (A)
Kaatz, F. P. (M)
Kline, K. L. (M)
Kraemer, J. R. (A)
McInnis, J. H., Jr. (M)
McVey, I. M. (M)
Merrill, P. R. (M)
Moss, R. K. (M)
Murphy, J. J. (M)
Paulson, E. T. (SM)
Rodine, J. C. (M)
Schaefer, J. H. (M)
Shlonsky, L. P. (M)
Smith, J. D. (M)
Szyska, E. J. (M)
Todd, B. J. (M)
Toman, J. R. (M)
Tondreau, H. J. (M)
Weems, S. (M)
Yamamoto, T. G. (M)

Chico (SAC-7)
Gerrish, H. H. (M)
Lane, W. G. (M)
Pope, R. B. (M)

China Lake (CL-7)
Afendykiw, M. (M)
Arnold, P. G. (M)
Ashbrook, F. M. (SM)
Atkinson, R. E. (M)
Beresford, D. R. (M)
Berryman, A. R. (A)
Blanc, C. G. (M)
Boyd, R. V. (M)
Boyle, J. M. (M)
Breitenstein, R. E. (M)
Brookman, A. S. (M)
Bryant, L. D. (M)
Burkey, C. E., Jr. (M)
Carlisle, F. L. (M)
Colvard, J. E. (M)
Compton, R. E., Jr. (M)
Corzine, R. G. (M)
Crawford, J. A. (M)
Creusere, M. C. (M)
Davis, G. W. (M)
De Groot, N. F. (M)
Deyoe, D. C. (M)
Dull, M. J. (M)
Everett, J. A. (A)
Farrington, H. W. (A)
Ferris, A. B. (A)
Freeman, C. F. (M)
Glatt, B. (M)
Gregory, J. H. (SM)
Harris, J. F. (A)
Haun, L. A. (M)
Heeke, G. D. (M)
Hendrix, C. E. (SM)
Herbert, E. E. (M)
Ikendyama, F. K. (M)
Iwamura, D. C. (M)
Jeung, J. L. (M)
Johanboeke, R. B. (M)
Johnson, J. M., Jr. (M)
Kermode, D. W. (SM)
Kim P. K. S. (M)
Lawrence, R. E. (M)
Loper, W. E. (M)
Lowe, N. (M)
McLane, J. J. (M)
McLean, W. B. (SM)
Merriam, R. T. (SM)
Mitchell, J. C. Jr. (M)
Mosko, J. A. (M)
Neal, C. L. (M)
Nickell, T. W. (M)
Oblinger, G. H., Jr. (A)
Ogden, C. K. (M)
Oishi, H. (M)
Phillips, M. L. (M)
Rand, R. L. (M)
Reuben, E. M. (M)
Rockwell, R. E. (A)
Roehr, K. M. (M)
Ronning, H. N. (A)
Rosenberg, H. W. (M)
Ross, M. E. (M)
Rountree, W. R. (A)
Ruggieri, F. A. (M)
Schiefer, G. R. (M)
Seeger, J. A. (M)
Selbold, J. M. (M)
Sewell, R. G. S. (SM)
Trimble, J. (M)
Vore, W. E. (M)
Weber, J. E. (M)
Weimholt, J. E. (M)
Wickenden, R. C. (M)
Wong, T. (M)
Zellmer, W. G. (M)

Chino (LA-OB-7)
Davison, J. H. (M)
Gatlin, B. R. (M)
McKoy, G. C. (M)
Van Dyken, G. A. (M)
Warren, J. R. (M)

Chula Vista (SD-7)
Courtright, J. A. (M)
Creel, J. W. (A)
Daniel, W. A. (M)
Hart, J. M. (M)
Hauk, G. L. (A)
Johnson, W. H. (A)
Knudsen, R. E. (M)
Lippitt, K. H. (SM)
Lowell, D. R. (M)
Mingo, D. J., Sr. (M)
Newkirk, C. A. (M)
Patterson, W. T. (M)
Pulliam, P. E. (M)
Varian, R. H. (A)
Wilson, W. R. (M)

Citrus Heights (SAC-7)
Croker, K. S. (M)
Frevert, D. E. (M)
Hartman, K. L. (M)
Skinner, M. W. (A)

Claremont (LA-OB-7)
Agerholm, M. (M)
Andrew, J. J. (F)
Angle, D. R. (A)
Antul, J. J. (SM)
Block, K. A. (M)
Branigan, J. T. (A)
Clanton, H. M. (SM)
Coulombe, R. A. (SM)
Culver, C. A. (F)
Czak, A. J. (M)
Deno, T. L. (M)
Dienes, G. (M)
Doshay, I. (SM)
Easton, J. D. (A)
Focke, A. B. (SM)
Gaddis, L. W. (M)
Gaddis, M. T. (A)
Gibbons, T. J. (SM)
Girvin, R. A. (M)
Groszewski, D. J. (M)
Grumbein, P., Jr. (M)
Guay, J. F. (A)
Halliday, J., Jr. (M)
Harry, H. E. (SM)
Hennings, N. H. (M)
Holtum, A. G., Jr. (SM)
Hostetler, R. R. (SM)
Irvine, R. G. (M)
Jacobson, O. M. (M)
Karish, J. A. (M)
Lambert, J. S. (M)
Lindquist, J. R. (M)
Lloyd, A. T. (SM)
Martin, R. L. (M)
McDowell, D. E. (M)
Moore, D. H. (M)
Moreno, J. A. (M)
Newbold, R. F. (M)
Parker, L. G. (M)
Pile, D. H. (SM)
Porter, J. W. (A)
Pribble, H. A., Jr. (M)
Schock, J. O. (SM)
Sell, W. B. (SM)
Setzer, L. E. (SM)
Sirvatka, W. E. (M)
Sly, W. G. (M)
Smith, R. E. (M)
Stephens, F. M. (M)
Taylor, A. H. (F)
Wilder, H. B. (SM)
Willsey, R. H. (M)
Woods, W. A. (M)
Young, C. W. (SM)

Colfax (SAC-7)
Becker, V. H. (A)

Colton (LA-7)
Anglin, C. D. (A)
Hollinrake, J. M. (M)

Colusa (SAC-7)
Pendleton, L. S. (A)
Pickles, S. (SM)

Compton (LA-7)
Brown, D. W. (M)
Duarte, S. R. (M)
Isaacs, J. P. (M)
Miller, D. E. (M)
Pritchette, T. J. (A)
Schneider, R. L. (M)
Smith, E. G. (M)
Smyth, L. E. (A)
Steele, R. W. (M)
Willcocks, S. J. (A)

Concord (SF-EB-7)
Armstrong, R. S. (M)
Billinghurst, E. M. (M)
Bogdanoff, A. G. (M)
Carter, C. R., Jr. (M)
Castanera, T. E. (M)
Clemens, G. W., Jr. (M)
Hopkins, D. B. (M)
Landeck, O. (A)
Mancuso, W. (M)
Ruch, R. L. (M)
Sansum, V. H. (A)
Thomas, C. L. (A)
Waltrip, D. F. (M)
Wymond, W. H. (A)

Cornell (LA-7)
Middleton, R. G. (SM)

Corona (LA-OB-7)
Adrian, D. J. (M)
Alday, J. R. (M)
Bastedo, G. R. (SM)
Bell, D. E. (SM)
Berry, J. J. (M)
Blank, S. (M)
Broughall, H. S. (M)
Dealy, M. E. (A)
Dorn, C. G. (SM)
Dow, J. J. (M)
Emerson, R. R. (M)
Ganahl, P. J. (SM)
Gilbert, L. L. (M)
Hamilton, R. E. (M)
Harris, E. A., Jr. (M)
Hendrix, D. L. (M)
Hill, J. L. (M)
Husten, B. F. (SM)
Jaeger, H. L. (M)
Johnson, H. A., Jr. (M)
Kimball, F. L. (M)
LaBahn, R. W. (M)
Meggers, W. F., Jr. (SM)
Munn, R. E. (M)
Nichols, R. L. (M)
Nordseth, M. P. (M)
Orr, R. D. (M)
Ostenso, A. S. (M)
Peck, F. R. (SM)
Peringer, P. (M)
Sakamoto, R. (M)
Scharp, G. A. (M)
Scheets, D. F. (SM)
Strother, C., Jr. (M)
Talbot, R. V. (SM)
Thomas, M. G. (M)
Vigilotta, A. P. (SM)
Warrick, S. C., Jr. (M)
Weiss, R. E. (M)
Whiteley, T. B. (M)
Wieder, H. H. (M)
Wood, B. C. (M)

Corona Del Mar (LA-SA-7)
Burton, J. W. (M)
Cooke, W. A. (M)
Crimp, J. G. (SM)
Dempsey, A. D. (M)
Elms, J. C. (SM)
Gantsweg, M. (M)
Goodwin, P. H., Jr. (M)
Harrowby, T. E. (M)
Hobbs, L. C. (M)
Kazelis, A. J. (M)
Kerfoot, B. P., Jr. (SM)
Kollanse, D. C. (M)
Kouelter, M. N. (M)
Kuehn, R. L. (SM)
Kull, D. W. (M)
Linebarger, P. J. (A)
Lusk, J. R. (M)
Messenger, G. C. (SM)
Nelson, E. E., Jr. (M)
Pastor, G. J. (M)
Reese, R. F. (SM)
Reynolds, G. W. (SM)
Secard, E. L. (M)
Small, J. E. (SM)
Stockett, T. E. (M)
Straw, L. J. (M)
Suthers, B. H., Jr. (M)
Waniek, R. W. (SM)

Coronado (SD-7)
Aller, J. C. (A)
Clark, E. N. (A)
Everingham, L. R. (SM)
Farrar, J. H. (M)
Franks, B. W. (M)
Held, R. W. (M)
Holmes, W. R. (M)
King, L. E. (SM)
Larson, A. G. (M)
Lockwood, F. P., Jr. (A)
Mathews, A. E. (A)
Muhl, W. O. (M)
Swallow, C. E. (M)
White, R. W. (M)

Corte Madera (SF-7)
Pradenas, F. (M)
Seleistad, H. D. (SM)

Costa Mesa (LA-SA-7)
Adamson, L. H. (M)
Akers, R. (M)
Allen, J. R. (M)
Bannick, R. E. (M)
Barfield, R. O. (M)
Bequette, J. N. (M)
Bobitch, B. F. (M)
Boothe, G. W. (M)
Bosen, L. R. (M)
Braden, J. R. (M)
Brown, L. V. (M)
Call, U. D. (M)
Carroll, R. V. (M)
Ceccarini, R. E. (M)
Charter, T. R. (M)
Chang, T. (M)
Clark, E. C. (M)
Coffman, V. C. (A)
Cory, R. W. (A)
Craven, T. E. (M)
Damroth, J. F. (M)
Davies, J. B. (M)
Davies, R. E. (M)
Dill, H. G. (M)
Di Natale, J. A. (M)
Duran, S. (M)
Edmonds, A. (M)
Edwards, E. H. (M)
Edwards, W. B., Jr. (M)
Eng, S. T. (M)
Enz, R. E. (M)
Fairbanks, G. G. (M)
Fawcett, D. G. (M)
Fawcett, J. K. (M)
Fermelia, L. R. (M)
Galopin, A. (M)
Geis, E. R. (M)
Georgi, G. L. (M)
Gibson, G. A. (M)
Gildea, R. P. (M)
Godwin, P. F., Jr. (M)
Goodman, K. (M)
Grossman, J. J. (M)
Hall, R. T. (M)
Hawkins, J. K. (M)
Heathcote, B. G. (A)
Hoo, E. (M)
Hood, H. E. (A)
Horowitz, P. (M)
Howard, D. W. (A)
Hunzeker, W. R. (M)
Iannelli, J. A. (M)
Ivy, A. W. (M)
Joujon-Roche, P. J. (M)
Kaluger, M. M. (M)
Kitchens, W. L. (M)
Kleitsch, J. C. (M)
Lambros, J. G. (SM)
Larson, J. C. (SM)
Lauritzen, L. (M)
Lipiz, S. G. (M)
Maher, P. D., III (M)
Margol, L. (M)
Martin, K. W. (M)
Martin, L. J. (M)
McAuliffe, G. K. (M)
McClay, M. (M)
Munsey, C. J. (M)
Murrel, R. R. (M)
Nichols, T. L. (M)
Ochi, S. (SM)
O'Donoghue, H. J., Jr. (M)
O'Neil, W. F. (M)
Onsager, R. W. (M)
Oslake, J. L. (SM)
Patterson, A. C. (A)
Pernick, L. J. (M)
Petitt, J. G. (M)
Pinsky, D. D. (A)
Prouty, T. P. (SM)
Quincy, E. A. (M)
Reed, R. C. (A)
Renshaw, K. H. (M)
Robinett, D. B. (A)
Ruefle, H. F. (M)
Schneider, S. (M)
Schupak, L. (M)
Schwank, R. T. (A)
De Sa E Silva, C. (M)
Smith, A. P. (M)
Smith, J. D. (M)
Snider, G. L., Jr. (M)
Stanton, W. A. (M)
Stoy, W. R. (A)
Swetland, G. R. (SM)
Theis, O. J. (M)
Todd, C. D. (M)
Trammell, F. S., Jr. (M)
Tucker, G. T. (M)
Volder, J. E. (SM)
Walz, D. A. (M)
Wilcox, W. R. (M)
Woodhall, T. W. (M)
Worden, D. M. (M)
Wright, D. (M)
Wright, W. A. (A)
Yoder, R. F. (M)
Zlenkosky, J. E. (A)
Zuleeg, R. (M)

Covina (LA-OB-7)
Anderson, R. W. (M)
Bazard, R. J. (M)
Bewley, L. L. (A)
Carlson, H. (A)
Carpenter, H. C. (A)
Dobbin, C. K. (M)
Gilliam, D. (M)
Henson, M. J. (M)
Johnson, C. W. (M)
Johnson, D. L. (A)
Joyce, J. H. (M)
Kennerknecht, R. J. (M)
Kowalski, L. E. (M)
Little, B. W. (M)
Lord, D. S. (SM)

Lowe, M. E. (M)
Lucas, F. G. (M)
Luty, R. C., Jr. (A)
MacDonald, D. A. (M)
Mleczko, E. L. (M)
Moore, T. O. (SM)
Pedersen, J. H. (A)
Powers, K. G. (M)
Stolte, J. J. (A)
Sundberg, G. G. (M)
Sylvester, G. E. (M)
Toomney, G. H., Jr. (SM)
Thomas, R. L. (M)
Weatherall, T. Q. (M)
Wellacker, R. E. (M)

Crannell (SF-7)
Kidder, R. T. (A)

Cucamonga (LA-OB-7)
Wilton, L. P., Jr. (M)

Culver City (LA-7)
Abascal, N. (M)
Adomian, G. (SM)
Allard, B. P. (M)
Althaus, E. J. (M)
Armstrong, J. L. (M)
Bailey, J. C. (M)
Baldwin, L. W. (SM)
Bateman, L. J. (M)
Beneteau, B. A. (M)
Bernath, J. (A)
Blair, G. R. (M)
Buchman, W. W. (M)
Butler, W. F. (M)
Byington, P. W. (SM)
Byrd, D. J. P. (SM)
Campbell, G. (M)
Campbell, R. A. (SM)
Carden, R. C., III (M)
Clark, M. A. (SM)
Craven, W. A., Jr. (SM)
Crown, L. (M)
Currie, M. R. (SM)
Day, R. A. (A)
Dean, C. F. (M)
Deyo, R. J. (A)
Dibos, R. A. (M)
Dodak, M. (M)
Doig, A., Jr. (SM)
Douglas, L., Jr. (M)
Dunn, R. A. (M)
Ehrlich, M. J. (SM)
Epstein, R. A. (M)
Euler, K. C. (A)
Felburg, W. F. (M)
Filler, J. F. (M)
Forant, S. A. (A)
Friebertshauser, P. E. (M)
Glaser, P. S. (M)
Gold, A. R. (M)
Goldman, S. J. (M)
Gooley, T. J. (M)
Gould, L. M. (SM)
Greenberg, E. L. (M)
Grunsky, C. E. (SM)
Guptill, H. R. (A)
Hall, N. I. (F)
Hall, S. L. (A)
Hall, T. C. (SM)
Heffner, E. K. (A)
Hennessey, J. A. (A)
Hermfeld, F. P. (SM)
Hersh, M. (M)
Hiehle, M. E. (SM)
Hirshson, R. M. (M)
Holsborg, W. (M)
Husted, R. A. (M)
Hyland, L. A. (F)
Ihly, F. J. (M)
Jameson, D. C. (SM)
Jensen, R. D. (M)
Jerrems, A. S. (SM)
Johnson, D. H. (SM)
Johnston, W. R. (M)
Julian, R. S. (SM)
Kapp, E. (M)
Kazan, B. (SM)
Keller, B. W. (M)
Klein, E. A. (M)
Klein, S. I. (M)
Klestadt, B. (SM)
Knowlton, C. S. (M)
Kogle, G. G. (M)
Lambert, N. E. (M)
Lana, W. M. (M)
Lasher, R. W. (M)
Leibman, M. H. (M)
Levin, S. (SM)
Lew, C. (SM)
Lindgren, E. A. (A)
Livesay, M. A. (SM)
Lorenz, R. (M)
Lotterman, C. (A)
Lunn, W. B. (A)
Lym, V. W. (M)
Mackey, J. E. (M)
Maiden, C. E. (M)
Maiden, E. E. (M)
Matthews, D. A. (M)
Maxey, T. J. (SM)
Mazdield, R. C. (M)
Mayper, V., Jr. (M)
Medow, A. (M)
Meerschaert, C. M. (M)
Metcalf, D. E. (M)
Miller, C. E. (A)
Miya, K. (A)
Modlinski, W. M. (M)
Moreau, A. (M)
Morita, J. T. (M)
Partridge, A. B. (M)
Plummer, D. (SM)
Possner, L. (M)
Poulos, P. S. (SM)
Pousson, J. R. (M)
Price, D. R. (SM)
Ranftl, R. M. (SM)
Regal, W. J. (A)
Reschetar, F. M. (M)
Riley, R. L. (M)
Rosien, R. A. (M)
Rowe, C. R. (SM)
Schemmer, D. L. (M)
Schetne, H. A. (M)
Schmidt, R. D. (M)
Schmitt, M. J. (A)
Scholnick, S. A. (M)
Schonlau, F. K. (M)
Schwartz, E. V. (M)
Shamban, W. S. (A)
Shelton, R. E. (M)
Shimizu, J. K. (M)
Skene, R. A. (M)
Skinner, D. M. (M)
Sklar, S. (SM)
Smith, C. R. (M)
Solat, N. (M)
Stein, R. L. (M)
Stevens, S. (M)
Stitch, M. L. (SM)
Stuart-Williams, R. (SM)
Swanson, G. W. (A)
Talcott, G. P. (SM)
Tate, W. R. (M)
Tomash, E. (SM)
Thompson, B. V. (SM)
Trapeur, R. E. (SM)
Trowbridge, L. M. (M)
Villeneuve, A. T. (M)
Wager, M. C. (M)
Walker, K. R. (M)
Warfield, C. N. (SM)
Watanabe, E. (M)
Weber, G. J. (M)
Wegman, R. S. (SM)
Wendahl, R. E. (A)
Wheeler, E. G. (M)
Wheelock, M. E. (M)
White, J. G. (SM)
Wong, K. L. (M)
Woodruff, M. J. (M)
Woolley, R. L. (M)
Young, G. O. (SM)
Zelin, E. M. (M)
Zuccaro, S. J. (A)
Zussman, A. L. (M)

Cupertino (SF-7)
Aaron, R. J. (M)
Barnes, J. W. (M)
Barranger, B. J. (A)
Beltendorff, O. A. (M)
Bleasdale, E. J. (M)
Blessing, R. L., Jr. (M)
Brennan, R. D. (M)
Burnside, C. J. (SM)
Davis, S. W. (M)
Dionne, P. J. (M)
Dobratz, D. M. (A)
Dudley, R. L. (M)
Elliott, P. C., Jr. (M)
Favorito, D. J. (M)
Fleming, H. A. (M)
Forge, C. O. (M)
Garcia, G. F. (M)
Gillmeister, F. W. (M)
Gilman, V. V. (M)
Hawkins, S. R. (M)
Henry, R. A. (M)
Jones, W. V., Jr. (SM)
Kurth, H. A. (M)
LeVezu, C. G. (M)
Lucero, R. C. (M)
Lykins, G. E. (M)
MacKerrow, D. E. (M)
Milner, L. L. (A)
Norans, M. (M)
Patmore, R. A. (M)
Patterson, K. P. (SM)
Perry, R. L. (M)
Prosser, T. F. (M)
Rickey, R. G. (A)
Riley, J. M. (A)
Royer, G. H. (M)
Smith, G. M. (M)
Snyder, C. K. (M)
Stone, R. H., Jr. (M)
Stump, G. C., Jr. (M)
Theisner, W. G. (M)
Utterback, W. J. (M)
Welner, A. (M)
Westerman, R. L. (M)
Woldow, A. F. (M)

Cypress (LA-SA-7)
Will, W. G. (M)

Daggett (LA-OB-7)
Hoskins, R. E. (A)

Daly City (SF-7)
Chang, W. H. K. (M)
Marxheimer, R. B. (M)
Moreno, R. W. (A)
Ritter, H. F. (M)
Sinclair, K. F. (SM)
Skewis, J. B. (A)
Stine, H. A. (M)
Tudor, B. J. (A)
Danville (SF-EB-7)
Bunn, H. L. (SM)
Gray, H. F., Jr. (SM)
Kestell, D. L. (M)
Laine, E. F. (SM)
McDonald, H. C., Jr. (SM)
Nish, J. G. (SM)
Overett, T. H. R. (M)
Thompson, F. C. (M)

Davis (SAC-7)
Hickerson, R. L. (M)
Jacob, F. C. (M)

Delano (LA-7)
Biell, F. J. (SM)
Fulmis, M. J. (A)

Del Mar (SD-7)
Benton, L. A. (M)
Boelens, J. (A)
Carson, D. E. (M)
Firle, T. E. (M)
Heinzmann, F. C (M)
Larson, M. E. (M)
Rogers, S. (SM)
Scanlan, T. J. (A)
Schlicht, R. W. (M)
Stephenson, R. O. (M)
Windermann, J. A. (M)
Zuefeldt, R. D. (M)

Del Paso Heights (SAC-7)
Pehrson, C. R. (A)

Denair (SAC-7)
Sayre, M. B. (M)

Diamond Bar (LA-OB-7)
Lank, G. W. (M)

Dinuba (SF-7)
Walston, A. G. (M)

Downey (LA-SA-7)
Albright, T. B. (M)
Altman, G. G. (M)
Alvarez, M. E. (A)
Andert, D. J. (M)
Andert, E. P. (M)
Anick, C. F. (M)
Audzay, W. S. (M)
Baerst, L. R. (M)
Baggao, J. J. (A)
Bennett, L. N. (M)
Box, J. L. (M)
Brandes, R. E. (M)
Brown, R. (M)
Buchak, T. (A)
Bunker, R. S. (M)
Burke, J. W. (A)
Butler, A. G. (M)
Campbell, A. T. (SM)
Clements, Z. S. (A)
Cliffgard, A. (M)
Cole, F. B. (M)
Comyns, L. S. (M)
Cox, D. N. (M)
Dalke, D. D. (M)
Decker, O. T. (A)
Dell-Amico, J. D. (M)
Desmond, T. P. (M)
Deutsch, W. F. (M)
Di Giovanni, M. (M)
Doll, J. L. (M)
Donaldson, L. J. (M)
Downs, R. (M)
Epstein, H. C. (M)
Fairbanks, R. L. (M)
Friesen, H. W. (M)
Gaude, W. G. (M)
Goldstein, A. (M)
Gruber, W. C. (M)
Hailey, R. D. (A)
Hall, G. E. (M)
Harper, C. E. (A)
Heimbigner, G. L. (M)
Hochwald, W. (SM)
Hodson, W. G. (SM)
Hoecker, N. L. (M)
Hoogeveen, A. (M)
Hoskins, H. T. (M)
Howard, D. T. (M)
Hunter, G. E. (M)
Imamura, A. (M)
Jackson, C. H. (SM)
Jackson, R. H. (M)
Je Schonek, A. A. (A)
Johnson, M. W. (M)
Kameda, E. Y. (M)
Kashian, G. R. (A)
Kennel, J. M. (SM)
Kilroy, J. J. (SM)
Klaus, T. E. (A)
Kripens, R. J. (M)
Larsen, H. F. (M)
Leary, R. W. (M)
Leicester, J. F., III (M)
Levy, W. L. (M)
Lorenzen, D. R. (M)
Lou, C. B. (M)
Lynch, J. F. (M)
Manley, T. M. (M)
Marshall, R. L. (M)
Maticich, J. R. (M)
Matsumoto, R. T. (M)
Matuszewski, H. E. (M)
Miller, D. L. (M)
Minami, R. Y. (M)
Moore, J. P. (M)
Morasz, M. J. (M)
Morgan, V. T. (M)
Muraoka, D. I. (M)
Nameth, J. F. (A)
Nelly, E. C. (A)
Nelson, R. A. (M)
Nieckula, E. W. (A)
Nishioka, N. S. (A)
Palmer, W. E. (M)
Pattenaude, H. E. (M)
Paynter, E. J. (SM)
Pierson, D. N. (M)
Pilcicki, J. W. (M)
Pollack, M. (SM)
Pope, W. S. (M)
Pono, D. R. (A)
Porter, B. W. (M)
Pugh, R. A. (M)
Quigley, L. E. (A)
Raines, R. F. (M)
Rasmussen, C. F. (M)
Reynolds, M. M. (M)
Rowley, E. H. (M)
Ryan, E. D. (M)
Sandberg, G. L. (M)
Sandusky, Z. A. (M)
Scheffler, H. S. (M)
Schmidt, J. N. (M)
Seaward, E. F. (M)
Shapiro, A. (A)
Shelley, R. G. (SM)
Slattery, M. C. (M)
Smyth, R. K. (M)
Swanson, R. G. (M)
Szabo, J. E. (A)
Taisuta, R. S. (A)
Terry, F. R. (M)
Thatcher, R. B. (M)
Thelsinger, L. P. (M)
Trousdale, R. B. (M)
Varanay, C. J. (M)
Von Pahlen-Fedoroff, G. (A)
Waggoner, W. L. (M)
Weber, D. J. (M)
Weber, R. L. (M)
Weida, V. (A)
Williams, N. (M)
Williams, P. L. (M)
Wixtrom, L. A. (M)

Duarte (LA-P-7)
Bain, M. B. (M)
Bradley, E. J. (A)
Braun, V. J. (SM)
Canova, G. M. (M)
Harriman, T. J. (M)
Hogg, J. A. (SM)
Howard, R. C. (SM)
Nelson, R. E. (M)
O'Neal, E. D. (M)
Rodriquez, P. T. (M)
Saunders, J. T. (M)
Sear, A. W. (SM)
Sitler, G. W. (A)
Tong, S. R. (M)
Ullrich, W. J. (A)
Williams, G. E. (A)

East Palo Alto (SF-7)
Baird, D. W. (M)
Givens, S. D. (M)
Hall, H. J. (A)
Henderson, K. W. (M)
Johansson, H. B. (A)
Kanbergs, J. V. (SM)
Leonard, H. P. (A)
Morgan, D. E. (M)
Reif, P. A. (M)
Scheibe, P. O. (M)
Schmitt, D. E. (M)

East View (LA-7)
Evans, N. T. (M)
Hulfman, J. L. (M)
Swisher, P. E. (SM)
Weisz, P. H. (M)

East Whittier (LA-SA-7)
Sanders, L. L. (M)
Sorensen, E. G. (M)

East Woodland Hills (LA-SF-7)
Hughes, W. A. (SM)

Edwards (CL-7)
Borek, R. W. (M)
Brandt, R. D. (M)
Cox, W. A. (M)
Inskeep, J. Z. (M)
Porter, L. K. (M)
Readiger, A. F. (M)
Richardson, P. W. (M)
Young, D. D. (M)

Edwards AFB (CL-7)
Clark, R. E. (M)
Collins, L. N. (M)
Cox, F. B., Jr. (M)
Davis, J. E. (M)
Fine, T. H. (M)
Haynes, J. H. (M)
Heidrich, A. J. (M)
Lathrop, R. C. (M)
Luisi, J. A. (M)
Polansky, R. G. (M)
Riess, D. A. (A)
Roberts, C. L. (M)

El Cajon (SD-7)
Bayley, L. B., Jr. (M)
Blalock, J. N. (A)
Burton, K. M. (A)
Cunningham, E. E. (M)
Dana, J. J. (M)
Denny, F. J. (M)
Dickey, W. S. (SM)
Essen, O. E. (M)
Foster, C. B. (M)
Gramman, E. G. (M)
Hardy, W. G. (M)
Harris, R. C. (M)
Hiser, E. F., Jr. (M)
Jacobson, R. (SM)
Mason, J. R. (M)
Maxa, R. F. (M)
Mayekawa, M. (A)
Meierbachtol, C. J. (M)
Moore, J. E. (A)
Oliver, E. F. (M)
Petersen, V. W. (M)
Pitkin, R. S. (M)
Pitt, C. J. (M)
Quintana, I. M. (M)
Redman, J. P. (M)
Rees, B. A. (M)
Steiner, F. A. (M)
Turner, P. M. (M)
Wells, T. C. (M)
Wood, C. M. (M)

El Centro (SD-7)
Hesse, J. F. (M)
Roswurm, R. C. (M)

El Cerrito (SF-EB-7)
Banchero, P. G. (A)
Binnall, E. P. (M)
Innes, T. G. (M)
Lawischeff, J. T. (M)
Lawrence, M. J. (M)
Patterson, S. J. (A)
Spiegel, L. (M)
Vogelsberg, F. E. (M)

El Dorado (SAC-7)
Jones, A. F. (M)

El Granada (SF-7)
Underwood, W. B. (M)

El Monte (LA-P-7)
Alsip, E. B. (M)
Atherton, C. A. (M)
Dolde, L. A. (A)
Giles, J. N. (M)
Kaye, S. (M)
Maurer, R. A. (M)
Prince, M. B. (SM)
Smith, A. J. (M)
Swanstrom, R. S. (M)
Upadhyaya, S. P. (M)

El Segundo (LA-7)
Arsenault, W. R. (M)
Black, J. (M)
Brett, C. F. (M)
Buczek, C. J. (M)
Butterworth, J. E. (M)
Carter, E. V. (M)
DeLaGarrigue, J. E., Jr. (M)
Diamond, P. (SM)
Faulkner, A. H. (SM)
Garon, R. J. (SM)
Goostree, F. T., Jr. (M)
Gould, G. P. (M)
Gruber, A. L. (SM)
Hansen, H. S. (M)
Harris, D. C. (M)
Kanthak, B. G. (M)
Knauss, H. C. (SM)
Kudlich, R. A. (SM)
Lauric, W. H. (M)
Leatherman, R. H. (M)
Linquist, W. I. (A)
Loughridge, D. H. (SM)
McClung, J. W. (M)
McCall, D. R. S. (SM)
Mesak, C. (M)
Miller, R. A., Jr. (M)
Mousel, G. W. (A)
Pedersen, R. J. (M)
Pelzman, G. P. (M)
Reed, A. C. (M)
Retzlaff, E. E. (A)
Rogers, J. R. (SM)
Rutherford, D. H. (M)
Severs, W. W. (A)
Sodano, J. A. (A)
Stringer, R. B. (M)
Tompkins, J. S. (M)
Toppen, H. J. (M)
Vicente, R. S. (M)
Watson, A. R. (M)
Weathers, D. A. (A)
Woodworth, R. I. (M)

El Sobrante (SF-EB-7)
Corl, J. L. (SM)
Weinstein, D. A. (M)

El Toro (LA-SA-7)
Burke, R. M. (A)

Emeryville (SF-EB-7)
Cowley, P. E. A. (M)

Encinitas (SD-7)
Bauer, J. A. (M)

Encino (LA-SF-7)
Anderson, R. E. (M)
Barker, A. C. (M)
Brown, B. J. (M)

Cain, G. A. (M)
Carroll, C. T. (M)
Catlett, L. E. (M)
Clark, F. J. (M)
Clark, T. C. (SM)
Cobiff, G. L. (M)
Dessau, H. P. (M)
Domike, D. A. (SM)
Ferber, D. (SM)
Fifield, P. K. (M)
Fuller, C. L. (M)
Garbiff, A. M. (SM)
Gilder, G. (M)
Glaser, P. F. (M)
Griswold, W. A. (M)
Hall, R. D. (M)
Harris, K. W. (M)
Hespenle, C. M. (SM)
Hoover, J. R. (A)
Jacobsen, T. L. (M)
Jir, C. J. (A)
Kesselman, M. S. (A)
Krebs, J. H. (A)
Lacy, R. P. W. (M)
Lashbury, C. W. (M)
Mann, A. (A)
Marsh, J. A. (SM)
McCann, J. G. (SM)
McFadden, B. W. (M)
Meyer, H. F. (SM)
Nibbe, G. H. (SM)
Paine, N. W. (M)
Paller, J. L. (M)
Perrine, C. D., Jr. (A)
Pfeffer, I. (M)
Rouse, J. C. (M)
Sarture, C. W. (M)
Schroder, R. D. (SM)
Scott, H. A. (SM)
Seltzer, L. J. (A)
Seml, H. R. (SM)
Sharpe, L. E. (A)
Stewart, R. M. (SM)
Swift, C. W. (A)
Turner, J. G. (M)
Von Buelow, R. (SM)
Wall, V. W. (SM)
Widell, C. D. (SM)
Wikholm, W. A. (M)
Wilson, C. A. (M)
Zukin, A. S. (M)

Escondido (SD-7)
Althouse, J. E. (M)
Barber, G. D. (A)
Farmer, P. D. (A)
Hall, J. T. (M)
Hitney, C. J. (M)
Hoerl, B. H. (M)
Howe, D. H. (M)
Hubiak, D. D. (M)
Lewis, H.V., Jr. (M)
Peek, G. E. (A)
Philp, J. L. (M)
Sandberg, J. W. (A)
Seabaugh, D. A. (M)
Steinhardt, L. R. (M)

Eureka (SF-7)
Kang, E. K. (A)
Olson, A. E. (A)
Smullin, W. B. (A)

Fairfax (SF-7)
Gray, G. P. (M)

Fairfield (SF-7)
Walsh, J. F. (A)

Fair Oaks (SAC-7)
Blissett, J. C. (M)
Cox, R. J. (M)
Gaines, J. E. (M)
Hartman, W. H. (M)

Fallbrook (SD-7)
Clark, J. H. (SM)

Farmersville (SF-7)
Waddle, C. D. (A)

Felton (SF-7)
Morris, G. H. (A)
Thomas, A. H. (M)

Fillmore (LA-B-7)
Alker, C. A. (A)

Folsom (SAC-7)
Waller, R. L. (M)

Fontana (LA-OB-7)
Froess, P. A. (M)
Hill, H. K. (A)
Kolbo, G. H. (A)
Riggins, M. R. (A)
Zinn, S. D. (M)

Fort Jones (SAC-7)
Fowler, J. A. B. (M)

Fort Ord (SF-7)
Conroy, T. R. (M)

Fremont (SF-EB-7)
Clarlo, D. R. (M)
Easterday, R. B. (A)
Gausmann, W. H. (A)
Jensen, P. W. (M)
Rudd, W. E. (M)
Minks, A. D. (A)
Mossing, R. L. (M)
Weed, N. W. (M)
White, J. (M)
Woodward, W. J. (A)
Yarborough, J. R. (M)

Fresno (SF-7)
Clark, J. F., III (M)
Foin, O. F., Jr. (SM)
Foreman, R. E. (A)
Hancock, J. B. (A)
Mealey, K. L. (M)
Morey, J. A. (M)
Rolpin, D. B. (M)
Turkot, A. (A)
Whitby, E. R. (M)

Fullerton (LA-SA-7)
Adam, M. F. (M)
Adamson, P. A. (SM)
Afonsky, D. D. (M)
Afoka, J. S. (M)
Alexander, P. A. (M)
Allen, F. W. (M)
Andersen, E. A. (M)
Asher, R. W. (M)
Autrey, S. W. (M)
Baker, D. L. (M)
Barr, L. V. (M)
Barter, L. D. (A)
Bartlett, T. L. (M)
Bashore, V. (M)
Beck, L. (M)
Becker, D. R. (M)
Begovich, N. A. (M)
Berger, J. E. (M)
Berns, P. B. (M)
Bishop, J. F. (M)
Blosser, R. D. (M)
Blum, L. M. (M)
Boenig, D. E. (M)
Britt, C. F. (A)
Brown, D. A. (M)
Brunn, K. R. (M)
Bubolitz, C. P. (A)
Burch, E. C. (M)
Cannon, D. R. (M)
Carlson, R. L. (M)
Cartwright, V. F. (M)
Chaffee, B. J. (M)
Chambers, W. A. (A)
Chang, Y. N. (M)
Chapin, L. W. (M)
Chapman, C. W. (SM)
Chew, L. (M)
Christensen, M. M. (SM)
Clanton, R. A. (M)
Clark, C. M. (M)
Cole, E. J. (SM)
Cother, R. H. (A)
Courts, D. C. (M)
Courtier, J. D. (M)
Crone, R. L. (SM)
Dufault, D. J. (M)
Du Fort, E. C. (M)
Duhamel, R. H. (M)
Dunlevie, J. B. (M)
Eliades, J. (M)
Elias, J. (M)
Ennis, F. L. (M)
Eschner, A., Jr. (SM)
Fischer, J. J. (M)
Fisher, J. B. (A)
Fitzpatrick, G. B. (M)
Flatten, O. H. (M)
Fletcher, T. C. (M)
Forbes, R. F., Jr. (M)
Ford, J. R. (M)
Foster, H. E. (M)
Foster, R. A. (M)
Fuchiek, R. J. (M)
Funk, J. R. (M)
Fursa, A. (M)
Gade, D. W. (SM)
Gaines, B. R. (SM)
Garcia, E. E. (M)
Gayton, C. F., Jr. (M)
Gelpel, D. H. (A)
Gilmore, W. C. (M)
Golden, E. R. (M)
Goodrich, P. E. (M)
Gray, R. W. (SM)
Griffin, C. L. (A)
Grossfield, S. (SM)
Grumich, J. (SM)
Gunning, W. F. (M)
Hafstrom, W. F. (M)
Hansell, G. E. (A)
Hartenstine, R. M. (SM)
Hayes, M. H., Jr. (SM)
Hearne, J., Jr. (M)
Henderson, F. B. (M)
Herold, H. L. (M)
Hinrichs, K. (SM)
Hollander, G. L. (SM)
Holley, A. E. (M)
Holt, A. R. (M)
Horowitz, L. B. (SM)
Horrocks, S. W. (M)
Hough, W. E. (M)
Hules, J. C. (M)
Hunt, E. B. (M)
Hyneman, R. F. (M)
Israel, J. D. (M)
Janeway, R. K. (M)
Joerger, J. C. (M)
Johnston, W. C. (M)
Kalson, N. H. (SM)
Karaolanis, L. C. (M)
Kasten, J. W. (M)
Kazebee, C. R. (SM)
Kerber, S. M. (SM)
Kerr, A. (M)
King, S. (SM)
Klein, W. W., Jr. (M)
Knipe, W. M. (A)
Kohlenberger, C. W. (M)
Komrosky, G. L. (M)
Kramer, R. F. (M)
Kuhmann, C. A. (M)
Kurkjian, L. H. (M)
Lapoi, U. T. (M)
Leisz, G. W. (SM)
Lewis, B. G. (M)
Lewis, H. F. (M)
Lillie, G. L. (M)
Lo Cascio, R. J. (M)
Lubell, A. H. (M)
MacLachlan, R. K. (M)
Madsen, R. L. (M)
Markinen, E. J. (A)
Manning, R. E. (M)
Marshall, B. (M)
Marshall, T. C. (A)
Matson, D. L., Sr. (M)
McFall, W. A. (M)
McGunigle, R. D. (M)
McKinster, R. G. (M)
Meyer, A. W. (M)
Meyer, H. R. (M)
Moore, J. R. (F)
Morgan, R. C. (SM)
Morrell, R. P. (M)
Muchlinski, D. A. (M)
Neben, D. F. (M)
Nelson, H. H. (M)
Nichols, R. A. (M)
Norman, T. L. (M)
Oatt, R. L., Jr. (M)
Palmer, D. R., Jr. (M)
Pease, N. H. (SM)
Prince, L. E. (M)
Ramage, R. E. (M)
Ramsey, H. L. (M)
Rasmussen, R. R. (M)
Rawlings, J. H. (M)
Redlich, H. S. (M)
Reed, R. H. (M)
Reinen, G. O. (M)
Rhoad, E. J. (SM)
Richter, E. M., Jr. (M)
Roberson, R. E. (SM)
Robertson, J. V. (M)
Roe, G. F., Jr. (M)
Rogers, J. G. (M)
Romanelli, J. (M)
Savage, W. R. (M)
Scherbinske, L. (A)
Schmick, B. F. (M)
Seay, J. E. (M)
Shapin, T., Jr. (M)
Shohara, S. (M)
Silva, L. M. (M)
Slobodin, R. J. (M)
Smedley, L. A. (A)
Snook, M. E. (M)
Snyder, E. H. (M)
Snyder, R. M. (M)
Sollenberger, T. E. (SM)
Soulres, F. B., Jr. (SM)
Stameson, S. A. (M)
Stark, L. (SM)
Stein, M. (A)
Stephens, R. C. (M)
Stockdale, T. C. (M)
Strauch, R. D. (M)
Stull, R. J. (SM)
Sutherland, C. W. (M)
Tang, R. (M)
Tanner, L. M. (M)
Taylor, J. W. (M)
Thomas, D. L. (M)
Topp, H. A., Jr. (M)
Tillom, G. H., Jr. (M)
Valentine, R. H. (M)
Velardi, L. A. (M)
Vettese, L. (M)
Vincent, G. A. (M)
Vogel, O. F., Jr. (SM)
Vogel, V. H. (M)
Wada, R. T. (M)
Walters, W. H. (M)
Way, G. B. (M)
Weber, W. R. (M)
Webster, J. P. (M)
Weir, W. R. (M)
Weiss, D. H. (M)
White, L. M. (M)
Wiggins, D. G. (M)
Wiggins, D. E. (M)
Williams, A. S. (M)
Wipson, J. W. (M)
Wiltels, I. M. (M)
Whittmann, F. P., III. (M)
Wong, J. L. Y. (M)
Woods, L. A. (M)
Yaru, N. (SM)
Young, C. E. (SM)

Galt (SAC-7)
Patterson, W. L. (M)

Gardena (LA-7)
Alpert, P. L. (A)
Andrews, L. J. (M)
Atkinson, W. R. (M)
Barry, T. S. (M)
Berry, D. C. (A)
Boscia, A. F. (SM)
Boyshow, R. (M)
Boyd, A. F. (M)
Brown, W. A. (M)
Buzzelli, T. S. (A)
Campbell, D. A. (SM)
Cassidy, L. D. (M)
Cook, W. E. (M)
Currie, D. E. (M)
Dearness, J. L. (A)
Dichter, H. S. (SM)
Dillon, M. M. (M)
Dillon, R. S. (M)
Doyle, R. E. (M)
Durrett, R. L. (M)
Du Vall, W. E. (M)
Egan, J. J. (M)
Eick, M. K. (A)
Evans, G. L. (SM)
Field, J. O. (M)
Fine, E. (M)
Froelich, R. W. (M)
Fujimoto, T. Y. (M)
Giese, C. (M)
Giquere, A. J. (M)
Ginsburg, S. (M)
Grimmett, C. A. (SM)
Hack, N. R. (M)
Halliday, R. G. (M)
Hans, E. (A)
Hargrove, R. O. (M)
Harkins, S. F. (A)
Harrington, L. M. (M)
Harris, A. W. (M)
Hayes, J. E. (M)
Holloran, T. P. (SM)
Honda, F. S. (M)
Inouye, G. T. (M)
Jonasen, R. W. (A)
Jurkovich, G. M. (A)
Kawahara, M. (M)
Keller, K. H. (SM)
Kelly, K. C. (M)
Kennann, J. E. (M)
Kerster, G. (M)
King, H. E. (SM)
Knopp, G. L. (M)
Komatsu, G. A. (A)
Kono, G. (M)
Kott, W. O. (SM)
Krumreich, W. A. (M)
Lachenmeier, G. E. (A)
Leuschner, R. H. (M)
Lowe, J. R. (M)
Lower, D. H. (M)
Lutze, D. L. (M)
Magnuson, V. P. (M)
Mankiewicz, E. J. (A)
Marcinko, A. M. (M)
Martin, A. P. (M)
Maxson, S. H. (M)
Maxson, V. G. (M)
McElroy, C. M. (M)
McGhee, R. B. (M)
McGregor, G. L. (M)
McKenzie, J. N. (M)
Middleton, B. A. (M)
Minka, G. F. (M)
Molik, R. E. (M)
Moller, R. T. (M)
Motolike, S. (A)
Munar, A. V. (M)
Nakatsukasa, F. Y. (M)
Nelson, J. E. (A)
Nishime, F. S. (M)
Nissim, W. (M)
Olsen, L. V. (M)
Quick, T. C. (M)
Reading, J. (M)
Reiter, G. S. (M)
Reynolds, T. S. (M)
Rose, D. J. (M)
Rothwell, T. L., Jr. (M)
Row, R. J. (A)
Sandberg, A. J., Jr. (M)
Schmid, F. R. (M)
Schroeder, W. (M)
Scott, A. W. (M)
Seehof, J. M. (SM)
Sheppard, A. S. (M)
Shiratori, W. N. (M)
Shishido, T. C. (M)
Sievers, S. S. (M)
Silva, B., Jr. (M)
Skinner, M. R. (M)
Slaughter, R. G. (A)
Stout, R. E. (M)
Sumida, W. S. (M)
Taber, J.E. (M)
Thompson, W. C., Jr. (M)
Tong, K. C. (M)
Walker, P. C. (M)
Walsh, J. F. (M)
Whelden, J. W. (M)
Williams, J. M. (A)
Wizelman, A. (M)
Worrall, J. W. (M)
Yamasaki, R. G. (M)
Yonemoto, N. (M)
Young, G. L. (M)

Garden Grove (LA-SA-7)
Alexander, H. S. (M)
Allbaugh, J. D. (M)
Allen, J. K. (M)
Anton, R. C. (A)
Baxter, W. A. (A)
Bertzen, C. J. (M)
Binnix, R. G. (A)
Bonem, E. J. (M)
Bruemmer, R. K. (M)
Cantrell, J. W. (A)
Cherney, J. F. (M)
Clithero, W.H., Jr. (M)
Collins, J. L. (A)
Connell, A. D. (A)
Connell, M. E. (M)
Cressy, W. A. (SM)
Degraffenried, D. L. (M)
Del Duca, A. (M)
Dellevaz, C. J., Jr. (M)
Deloit, R. J., Jr. (M)
Diepeveen, M. H. (M)
Dierken, K. C. (M)
Dunkley, L. H. (SM)
English, D. L. (A)
Eno, R. F. (M)
Evangelista, J. J. (M)
Farvolden, E. (M)
Freeman, R. E. (M)
Fukuda, S. I. (M)
Gebhardt, C. C. (M)
George, R. E. (M)
Gillings, J. W. (M)
Glancy, D. R. (SM)
Grady, R. J. (M)
Gregory, J. H. (M)
Guthrie, J. W. (A)
Hajjar, N. S. (M)
Hamro, M. D. (M)
Hendrick, J., Jr. (M)
Hoyt, E. P. (M)
Jacklin, E. M. (A)
Jones, R. W. (M)
Jungclas, E. E., Jr. (M)
Kasten, C. L. (M)
Katayama, T. T. (A)
Katzenberger, H. S. (M)
Kittiver, L. I. (M)
Klinger, I.C. (M)
Knecht, R. O. (M)
Lind, W. P. N (M)
Lindley, C. J. (A)
Linton, T. B. (M)
Lucic, A. (SM)
Lukenbill, R. S. (M)
Lum, M. A. (M)
Maeda, G. Y. (A)
Marsden, R. A. (M)
Ostrem, R. E. (A)
Packard, D. F. (SM)
Parker, R. A. (M)
Patterson, G. D. (A)
Peacock, W. J. (A)
Perkins, W. E. (M)
Prather, R. D. (M)
Press, J. L. (M)
Rabbin, I.G. (M)
Reeves, J. J. (SM)
Reinherr, R. N. (M)
Rhoades, W. T. (M)
Richards, E. S. (M)
Robinson, E. P. (M)
Robinson, L.M. (M)
Rosenbaum, A. (A)
Sampson, H. I. (A)
Scherzer, K. (M)
Schnitger, A. W. (M)
Schwetz, T. B. (A)
Sult, C. D. (M)
Swenson, R. L. (A)
Valstar, J. E. (M)
Vulliet, P. O. (M)
Watt, E. J. (M)
White, J. W. (M)
Wyatt, W. C. (A)
Zeitlin, A. L. (M)

Glendale (LA-SF-7)
Abrahamson, G. D. (M)
Arnold, R. H. (M)
Atherton, T. L., Jr. (M)
Auerbach, M. (A)
Bertolet, E. C. (SM)
Bible, R. E. (M)
Bird, R. M. (M)
Blitch, M. G. (M)
Booth, R. A. (M)
Bridges, R. L. (M)
Brouillette, D. A. (M)
Buchanan, H.R. (M)
Burke, F. P., Jr. (M)
Calaway, P. R. (M)
Clark, J. E. (M)
Collins, D. L. (M)
Curran, G. W. (SM)
Davis, J. S. (M)
Davis, J. P. (M)
Deen, J. R. (M)
De Witz, G. H. (SM)
Drucker, S. (M)
Ericson, R. L. (M)
Euwer, H. G. (A)
Feland, R.F., Jr. (A)
Foodim, C. (SM)
Foster, D. E. (F)
Fredendall, B. F. (M)
Froehlich, J. E. (SM)
Fung, L. E. (A)
Gates, H. A. (SM)
Gaunt, R. P. (SM)
Geist, W. K. (M)
Ghose, R. N. (SM)
Glassford, H. A. (A)
Green, L. R. (A)
Griffing, W. R. (A)
Grill, F. J. (A)
Gritton, D.G. (M)
Haddon, M. C. (M)
Hamilton, H. J. (SM)
Hand, F.W., Jr. (M)
Harbaugh, A. W. (M)
Hart, T. J. (M)
Hartwick, A. J. (M)
Ingall, W. E. (M)
Insalaco, J.J. (M)
Johnson, R. W. (M)

Kampe, T. W. (M)
Kilpatrick, H. N. (M)
Kiser, A. J. (M)
Klingensmith, W. R. (A)
Koerner, C. T. (SM)
Krill, C. K. (SM)
Ladine, D. A. (M)
Larter, T. C. (SM)
Lashler, H. M. (M)
Lehan, F. W. (SM)
Lienhard, J. T. (M)
Lyons, L. H. (M)
Mancini, R. A. (M)
Masline, E. J. (M)
McIntyre, M. V. (SM)
Meersman, R.J. (M)
Mertz, H. R. (M)
Michael, C. (A)
Newberry, A. W. (SM)
Newcomb, R. (SM)
Nixon, H. C. (M)
Numberger, W. H. (M)
Nuut, A. (M)
Ockene, N. J. (M)
Ohlson, G. A. (M)
Osborn, W.C. (SM)
O'Shaughnessy, C. A. (M)
Parzl, R.C. (M)
Paul, F. A. (SM)
Pope, G. S. (M)
Pruitt, C. R. (M)
Pyle, F. J. (M)
Rado, L. G. (SM)
Roberts, D. G. (M)
Rolz, E. F. (M)
Royer, R. N. (M)
Sanders, R. W. (SM)
Schmidt, L. M. (SM)
Scott, W. F. (M)
Scoville, R. R. (SM)
Shank, H. C. (SM)
Slack, C. B. (M)
Snell, J.L. (M)
Spencer, R. L. (A)
Spray, W. D. (M)
Steele, E. E. (M)
Stokes, I. (SM)
Stuhrenberg, M. B. (A)
Swenson, A.N., Jr. (M)
Swygard, G. F. (M)
Tzschentke, H. A. (M)
Webb, A. W. (M)
Williams, R. W. (M)
Wong, D. S. (M)
Worthen, W. L. (A)

Glendora (LA-OB-7)
Argelander, E. J. (M)
Bennett, J. R. (M)
Bezold, F. L. (M)
Boe, D. P. (M)
Burk, P. O. (M)
Doeleman, H. (SM)
Gehring, J. E. (M)
Given, R. L. (M)
Graham, J. D. (M)
Grinnell, A. L. (M)
Hartke, D.H. (M)
Hintz, W. F. (M)
Hodder, W. K. (M)
Hooper, P. B. (A)
Johannessen, K. M. (A)
Jones, J. G. (M)
Kneen, W. (SM)
Koshinz, E. F. (M)
Kreuder, N. L. (SM)
Kuwahara, D. J. (M)
McElwee, J. F. (SM)
McGee, H. A. (SM)
Nyder, R. C. (M)
Peters, W. F., Jr. (M)
Petry, C. B. (SM)
Reilly, M. (M)
Sandberg, H. L. (M)
Schultz, R. T. (M)
Sparling, W. N. (M)
Stack, G. C. (M)
Tallman, C. R. (M)
Waltz, D. M. (M)
Welch, J. P. (M)
Whistler, W. J. (M)
Wolfe, C. M. (M)
Worthy, N. M. (SM)

Goleta (LA-SB-7)
Ainsworth, M. J. (SM)
Berg, F. J. (M)
Bradley, D. K. (M)
Brown, W. P. (M)
Bush, W. D. (M)
Cohan, L. (M)
Engler, A. R. (M)
Fleischer, A. A. (M)
Frasure, L. R. (M)
Fusfield, R. L. (M)
Hanson, O. W. (M)
Hawkes, P. H. (M)
Henriksen, L. L. (M)
Holzgraff, H. G. (M)
Jenkins, P. R. (M)
Karlson, A. T. (M)
Koenitzer, R. D. (M)
Larsen, R. A., Jr. (M)
McBurney, M. D. (M)
McVay, F. C. (M)
Miller, C. E., Jr. (M)
Moore, W. L. (M)
Paden, A. R. (M)
Paul, A. D. (M)
Petroka, E. L. (M)
Quan, W. M. (M)
Reed, R. V. (M)
Robbins, W. M., Jr. (A)
Roberts, L. L. (M)
Savage, R. P. (M)
Sayre, G. L. (M)
Spayth, F. (M)
Strauss, L. (M)
Walker, J. E. (M)
Wanless, C. B. (M)
White, R. L. (M)
Whitman, R. L. (M)
Wilkerson, C. E. (M)

Granada Hills (LA-SF-7)
Abbott, E. A., Jr. (M)
Absher, G. E. (M)
Aleshire, T. S. (M)
Allen, R. J. (M)
Alpine, P. E. (SM)
Axtelle, G. E. (M)
Bartman, R., Jr. (SM)
Batson, D. D. (M)
Bellman, H. C. (M)
Bertrand, W. T. (M)
Blair, G. (M)
Borofka, R. P. (M)
Bredon, A. D. (M)
Brown, J. L. (M)
Brown, W. A. (A)
Buckley, J. R. (M)
Burbeck, D. W. (M)
Canfield, L. D. (M)
Carl, R. J. (M)
Chang, J. (M)
Clark, R. W., Jr. (M)
Conant, J. A. (M)
Curran, T. V. (A)
Deaux, F. J. (M)
Dell, B. H. (M)
Dillon, C.L. (M)
Eckel, K. G. (M)
Edwards, R. O. (A)
Entin, A. J. (M)
Felthousen, A. Q. (SM)
Fletcher, F. L. (M)
Foster, J. R. (A)
Foy, S. (A)
Freed, A. J. (M)
Freedman, L. M. (A)
Fujimoto, K. K. (A)
Galati, V. J. (M)
Gautney, L. (A)
Gillespie, E. S. (M)
Goda, O. S. (A)
Goldman, S. (M)
Grigos, J. R. (SM)
Hanifan, D. T. (M)
Hoyle, J. (M)
Kalayjian, J., Jr. (M)
Katz, J. (A)
Keiser, J. A. (A)
Kendle, J. P. (M)
Kramer, R. G. (M)
Kreinheder, D. E. (M)
Lawrence, D. H. (M)
Levine, S. E. (M)
Lochner, J., Jr. (M)
Logee, D. B. (M)
Lombardo, C. P. (A)
Loveless, R. M. (M)
Machlis, J. (SM)
MacColl, J. B. (A)
Marcille, R. E. (SM)
Martin, D. R. (M)
Martin, R. W. (M)
McDougle, R. H. (M)
McMillin, A. L. (M)
Mentzer, S. C. (SM)
Meyer, D. R. (M)
Midcalf, W. A. (A)
Mooney, G. F. (A)
Moriarty, J. J. (M)
Morrow, H. W. (M)
Morse, F. A. (M)
Murray, R. A. (M)
Naatz, R. C. (M)
Nelson, G. A. (M)
Northrop, G. M. (M)
Olson, O. P. (M)
Patterson, M. A. (SM)
Peirce, R. J. (M)
Pekrul, P. J. (M)
Perkins, L. M. (M)
Perlman, M. (M)
Phillips, G. A. (M)
Plaut, A. S. (M)
Price, J. F. (M)
Richter, W. A. (M)
Rieg, G. L. (SM)
Robertson, D. C. (SM)
Rudy, E. W. (A)
Rush, R. B. (M)
Shapiro, S. (M)
Sherman, M. (M)
Sherman, R. W. (A)
Sigler, H. R., Jr. (SM)
Smeester, R. J. (M)
Smith, G. M. (M)
Sofen, I. A. (M)
Sohlgren, C. E. (M)
Soper, G. T. (SM)
Sorensen, C. A. (M)
Spears, R. W. (M)
Steavenson, C. C. (M)
Strohm, R. B. (M)
Thomson, B., Jr. (M)
Tingleff, R. D. (M)
Troutman, A. F. (M)
Ulrick, S. G. (M)
Valery, N. A. (A)
Varoo, A., Jr. (M)
Walsh, B. L. (M)
Ward, B. M., Jr. (M)
Watanabe, K. (M)
Weimar, G. P., Jr. (M)
Welch, W. E. (SM)
Williams, W. E. (M)
Winslow, L. M. (M)
Witteis, J. R. (M)
Wolfson, H. (M)
Yackey, C. H., Jr. (M)
Yost, E. A., Jr. (M)

Grass Valley (SAC-7)
Litton, C. V. (F)

Grossmont (SD-7)
Applin, R. H. (M)

Guadalupe (LA-SB-7)
Chandler, D. P. (M)

Half Moon Bay (SF-7)
Binns, F. W. (M)

Hamilton AFB (SF-7)
Burritt, E. J. (A)
Diamond, E. H. (M)
Engle, C. G. (M)
Richter, W. C. (A)
Voight, D. A. (M)
Young, R. W. (A)

Hawthorne (LA-7)
Arcluch, J. P. (M)
Baker, R. G. (M)
Berdechowski, D. (M)
Berkemeyer, R. W. (M)
Bloom, L. (M)
Bolman, R. P. (M)
Brandt, F. D. (M)
Brunswick, H. D. (M)
Bryan, D. H. (A)
Bucklin, E. P., Jr. (M)
Carr, D. E. (M)
Cavanagh, J. R. (SM)
Chao, J. T. (M)
Chemin, M. G. (SM)
Childs, H. W. (M)
Christensen, A. V. (M)
Clark, G. L. (M)
Cole, W. R. (M)
Cooper, J. I. (A)
Dao, T. T. (A)
Drake, R. L. (M)
Erznoznik, F., Jr. (SM)
Evans, B. H. (A)
Finstuen, R. E. (M)
Fort, J. E. (M)
Frederick, J. W. (M)
Galle, H. P. (A)
Gaspard, L. J. (M)
Gee, L. C. (M)
Geisert, W. D. (M)
George, R. D. (M)
Gillespie, D. P. (A)
Griswold, T. W. (M)
Hagerty, R. J. (M)
Haggal, T. F. (M)
Hammond, J. S., III (M)
Hansen, G. J. (M)
Helbel, J. D. (M)
Hoffman, R. J. (A)
Hougardy, H. H. (M)
Hurst, A. H. (M)
Hwang, C. (M)
Jones, H. J. (A)
Jugend, H. E. (M)
Keskeys, G. N. (M)
Kincaid, N. L. (M)
Kissel, P. J. (M)
Klammer, R. W. (M)
Knoll, D. W. (M)
Langdon, J. G. (M)
Laramee, A. (A)
Larson, J. M. (M)
Lawis, A. (M)
Loveland, R. D. (M)
Mac Garvey, E. R. (M)
Mak, S. (M)
Maloney, J. R. (M)
Martes, G. E. (M)
McCann, F. A. (M)
McNeely, T. L. (M)
Mikkelson, M. E. (M)
Miller, E. R. (A)
Mitchell, J. D. (M)
Moorhouse, D. M. (M)
Myers, W. C. (SM)
Nalbandian, A. (M)
Nardi, F. G. (M)
Neumann, J. W. (M)
Osborn, C. R. (SM)
Pasale, L. R. (M)
Pearlston, C. B., Jr. (M)
Pfeiffer, W. G. (M)
Ploher, R. W. (SM)
Popovich, S. S. (M)
Porter, S. N. (A)
Proctor, C. A., Jr. (A)
Quan, N. (M)
Rufus, D. (M)
Ruhl, G. L. (A)
Sagey, W. E. (M)
St. John, E.E. (SM)
Shank, R. J. (F)
Simpson, J. H. (A)
Singleton, G. E. (M)
Smith, E. A. (A)
Stein, S. (M)
Stewart, G. R. (M)
Tang, T. T. (M)
Tucknott, T. P. (M)
Twohig, P. E. (A)
Valentine, S. L. (M)
Van Winkle, D. M. (SM)
Wam, K. L. (M)
Weber, J. W. (M)
Wendel, D. R. (M)
Wilhite, D. B. (M)
Wilkinson, J. H. (M)
William, H. W., Jr. (M)
Willis, M. R. (M)
Winslow, C. W. (M)
Woerdemann, H. H. (SM)
Wolfe, R. E. (M)
Yahiro, R. K. (M)
Yoder, D. R. (M)
Young, J. W., Jr. (A)

Hayward (SF-EB-7)
Anderson, E. R. (M)
Brenkwitz, J. M. (M)
Brown, A. E. (A)
Cook, R. A. (M)
Dawson, R. T. (M)
Floyd, G. M. (M)
Fort, J. R. (A)
Gordon, H. L. (M)
Kees, A. A. (M)
Kiyoi, G. T. (M)
Lund, K. A. (A)
Rudkin, R. L. (M)
Ruzic, J. (A)
Siefert, D. G. (M)
Smith, E. E. (A)

Hermosa Beach (LA-7)
Akin, P. A. (M)
Anderson, R. W. (M)
Brandi, E. (M)
Chouinard, R. J. (A)
Cleary, J. D. (A)
Dennis, P. A. (M)
Drucker, A. N. (M)
Edgerton, A. D. (M)
Hope, H. R. (SM)
Jones, L. E. (M)
Lane, W. L. (M)
Lentz, T. (A)
Malmsten, L. J. (M)
Morehouse, T. P. (M)
Palcuk, C. J. (M)
Pierson, J. E. (M)
Russell, W. J. (M)
Slagle, W. R. (M)
Sullivan, J. W. (M)
Swarts, L.E., Jr. (SM)
Weinstein, A. K. (M)
Wiley, C. A. (M)

Hesperia (LA-OB-7)
Poulson, W. A. (M)
Wolf, J. E. (M)

Highgrove (LA-OB-7)
Solomon, J. E. (M)

Hillsborough (SF-7)
Bullock, J. B. (A)
Gunst, M.A., Jr. (M)
Hellman, C. G. (M)
Lasky, P. G. (M)
Ogilvie, A. R. (SM)

Hollister (SF-7)
Haruff, J.J., Jr. (M)

Hollydale (LA-SA-7)
Brown, B. L. (A)
Hesgard, N. A. (M)

Hollywood (LA-7)
Aronowitz, A. (M)
Bammel, M. E. (A)
Benham, E. E. (SM)
Benson, A. L. (M)
Binkey, R. A. (M)
Bryant, H. L. (A)
Came, G. G. (SM)
Denechaud, R. G. (M)
Denney, B. H. (A)
De Picciotto, S. (M)
Derin, H. (M)
Estkowski, M. H. (M)
Fazel, V. M. (SM)
Flannell, C. F. (M)
Foster, D. (M)
Fugate, K. O. (M)
Garabedian, A. (M)
Glass, W. G. (M)
Glaze, G. O. (M)
Grenler, T. B. (M)
Grove, H. G. (A)
Hartmann, E. C. (M)
Helm, F. A. (M)
Hughey, A. H. (M)
Johnson, C. E. (M)
Joseph, D. A. (A)
Kruger, B. E. (M)
Lacey, M. R. (M)
Lane, S. H. (M)
Lubcke, H. R. (F)
MacKenzie, L. G. (A)
McCauscher, R. P. (M)
Meissner, K. H. (SM)
Michael, H. (M)
Miller, A. H. (M)
Miller, G.B. (M)
Moody, R. C. (SM)
Olson, D. A. (M)
Petrillo, B. J. (M)
Polhovsky, V. (M)
Rainbird, K. V. K. (M)
Regan, E. D. (M)
Reimann, W. G. (M)
Riek, F. O., Jr. (M)
Schroter, R. E. (A)
Schwartz, N. (M)
Small, J. N. (A)
Smith, L. S. (M)
Solomon, B. D. (M)
Solow, B. (M)
Stafford, J. W. (M)
Stefanov, B. (M)
Stem, D. (A)
Stoddart, R. R. (F)
Taylor, W. U. (M)
Templin, E. W. (SM)
Thatcher, R. (M)
Thomas, J. E. (A)
Uecke, E. H. (A)
Urey, G. M. (M)
Watson, G. G. (M)
Wills, C. F. (M)
Woltz, R. L. (A)

Huntington Beach (LA-SA-7)
Greenfield, A. R. (M)
Guffey, W. B. (M)
Hill, D. R. (M)
McClellan, R G. (M)
Tomita, W. K. (M)
Tor, W. G. (M)
Vincent, R. J. (M)
Wilson, L. W. (SM)
Yap, D. W. S. (M)

Huntington Park (LA-7)
Allen, R. M. (A)
Bose, R. R. (M)
Dowers, A. A. (M)
Twarowski, R. J. (M)

Idyllwild (LA-OB-7)
Brown, F. W (M)

Imperial Beach (SD-7)
Farrar, R. L. (A)
Trenholm, K.S. (A)

Indio (LA-7)
Tilley, G R. (A)

Inglewood (LA-7)
Agnew, C. V. (M)
Allgood, B. L. (M)
Anderson, A. T. (M)
Anderson, G. T. (M)
Arand, E. M. (M)
Barker, R. D. (M)
Baron, R. L. (M)
Beleskas, S. M. (A)
Bernescut, R. L. (M)
Berry, G. L. (A)
Binsack, J. H. (M)
Blanchard, B. R. (M)
Blasnek, C. M. (M)
Blowers, R. C. (A)
Borsch, K. S. (SM)
Brands, C. W. (M)
Burns, B. E. (A)
Camel, H. H. (M)
Christner, W. G. (M)
Clark, J. C. (M)
Clough, R. W. (M)
Cole, G. (M)
Culver, W. L. (A)
Dahl, E. E. (M)
Danta, R. C. (M)
Deininger, C. F. (M)
Dewhirst, D. R. (M)
Dietrich, R. G. (M)
Dukarski, R. F. (M)
Durand, T. S. (M)
Dwyer, R. E. (M)
Ellison, M., Jr. (M)
Fathi, S. (M)
Fields, H. R. (M)
Fitzsimmons, C. K. (A)
Floeder, T. O. (M)
Fornica, J. (A)
Frolick, S. C. (M)
Frostad, D. G. (M)
Fujii, S. (M)
Gambill, D. B. (A)
Garcia, J. A. (A)
Garland, W. J. (A)
Getzin, K. E. (M)
Greenemeyer, J. R. (M)
Gregory, C.N., Jr. (M)
Habbal, N. A. (A)
Hall, G. D. (M)
Hansen, H. R. (M)
Hargis, W. O. (M)
Helm, E. M. (M)
Hoffer, R. L. (M)
Holloway, V. C. (SM)
Holm, W. E. (M)
Honda, J. S. (M)
Howard, L. W. (SM)
Howe, W. H. T. (M)
Howes, R. E. (M)
Hughes, H. M. (M)
Ivanoff, R. G. (M)
Izuel, A. G. (M)
Jennings, K. S. (M)
Jones, C. R. (M)
Jury, L. D. (A)
Kayner, H. J. (SM)
Kilpinen, R. M. (M)
Kinchoff, W. L. (M)
Klenk, W. J. (M)
Kotlarski, J. R. (M)
Kubischta, P. B. (M)
Kuefler, P. M. (M)

La Frentz, P. H. (A)
Lanning, R. L. (A)
Latiner, D. T., Jr. (SM)
Lawrence, A. F., III (M)
Lee, H. E. (M)
Lenestra, R. (M)
Leverett, G. T. (M)
Lias, R. B. (SM)
Lissauer, S. (SM)
Lorentz, N. A., Sr. (M)
Macaruso, E. E. (M)
Magaleno, R. E. (M)
Mahoney, D. E. (A)
Malone, H. L. (A)
Manly, R. (A)
Marable, H. E. (M)
Mayberry, L. A. (SM)
Mayo, J. J. (M)
McCrary, A. A., Jr. (M)
McKechnie, R. M. (SM)
McLeod, M. G. (M)
McMullin, E. K. (SM)
McRuer, D. T. (SM)
Meier, D. A. (SM)
Mefles, I. B. (M)
Miers, S. M. (SM)
Miller, M. L. (A)
Mitchell, R. O. (M)
Miwa, T. M. (M)
Mock, G. W. (A)
Monos, S. (M)
Nelson, F. E. (M)
Niemoeller, D. E. (M)
Noland, J. W. (M)
Northwood, W. E. (A)
Ortiz, R. J. (M)
Owens, W. W. (A)
Paschke, M. J. (M)
Patrusky, N. (SM)
Pelline, P. E. (M)
Pickens, D. H. (SM)
Pol, W. F. (M)
Pomeroy, I. D. (M)
Price, M. R. (M)
Rand, S. (M)
Raybin, M. W. (SM)
Reid, C. T. (M)
Roland, L. F. (A)
Romine, J. R. (M)
Rush, T. D. (M)
Ryan, L. E. (M)
Schiewe, A. J. (M)
Schnurr, M. J. (SM)
Schwab, B. B. (M)
Schwartz, S. I. (M)
Seid, E. (M)
Seigenthaler, R. F. (M)
Shunate, M. S. (M)
Silva, W. (M)
Simpson, R. H. (M)
Skidmore, L. J. (M)
Smith, A. E. (M)
Smith, C. C. (M)
Springer, K. E. (M)
Squire, G. K. (M)
Staats, A. A. (SM)
Stacey, J. M. (M)
Stevens, J. E. (M)
Switzer, O. J. (M)
Taylor, E. N. (M)
Trainer, R. E. (M)
Troedson, W. H. (M)
Valette, H. C. (M)
Walsh, W. G. (M)
Webster, S. L. (M)
Weeks, R. F. (M)
Wertz, C. C. (M)
Whirry, W. L. (M)
Widenhoefer, J. G. (A)
Williams, J. F. (M)
Wilmanns, I. G. (M)
Wilmers, F. J. (M)
Winters, L. L. (A)
Wylie, P. A., Jr. (M)
Yopp, W. B. (M)
Young, R. A. (M)
Zabriskie, W. C. (M)

Inverness (SF-7)
Reid, I. H. (M)

Irvington (SF-EB-7)
Bender, R. G. (A)

Jackson (SAC-7)
Van Thiel, J. (M)

Joshua Tree (LA-OB-7)
Easter, W. A. (M)

Kentfield (SF-7)
Conrad, R. C. (M)

Kenwood (SF-7)
Hosmer, E. A. (SM)

Kerman (SF-7)
Anson, C. T. (M)

Kingsburg (SF-7)
Kidd, T. L. (M)

La Canada (LA-P-7)
Barnes, R. B. (M)
Benioff, H. (M)
Brewer, D. R. (SM)
Broman, P. R. (A)
Brown, W. E., Jr. (M)
Bullock, R. W. (M)
Burcham, D. P. (SM)
Cane, M. P. (A)
Conklin, E. H. (SM)
Curtis, H. A. (M)
Dakan, D. L. (SM)
Faris, E. M. (M)
Goodwin, P. S. (SM)
Haglund, H. H. (A)
Henry, D. S. (A)
Herron, J. R. (SM)
Higgins, S. F. (M)
Kenkel, H. H. (SM)
Keyser, J. H., Jr. (SM)
Kowalski, W. S. (M)
Levy, G. S. (M)
Lindsay, W. W., Jr. (F)
MacMillan, R. S. (M)
Maithonis, W. C. (A)
McFadden, W. C. (M)
Nelson, K. L. (M)
Parks, R. J. (M)
Peoples, J. E. (A)
Read, G. W. (M)
Reynolds, C. M., Jr. (M)
Rhoads, J. A. (SM)
Rodine, R. R. (M)
Schor, F. W. (SM)
Seeley, W. M., Jr. (A)
Siri, N. (M)
Smith, J. R. (M)
Weil, F. M. (SM)
Werst, H. J. (M)
Whistler, W. B. (M)
Wieland, C. W. (M)
Wolfe, H. (M)
Younger, U. E. (M)
Zottarelli, L. J. (M)

La Crescenta (LA-P-7)
Baerg, H. R. (A)
Boensel, D. W. (M)
Briggs, J. B. (A)
Gangl, A. F. (M)
Geib, D. G. (M)
Holt, D. E. (A)
Hughes, D. W. (M)
Jurich, S. (A)
Kindt, D. H. (M)
Lange, G. E. (A)
Laubacher, J. E. (M)
Linsley, A. O. (M)
Lorens, C. S. (M)
Meyer, H. (M)
Morecroft, J.H., Jr. (SM)
Nadeel, E. N. (M)
Noland, A. R. (M)
O'Neil, W. T. (M)
Pirounian, M. A. (M)
Reinholtz, W. H. (M)
Riser, C. R. (M)
Stagnaro, J. A. (SM)
Thompson, R. W. (M)
Yule, J. E. (SM)
Zygielbaum, J. L. (M)

Lafayette (SF-EB-7)
Barlow, O. M. (M)
Keller, J. E. (M)
Kirsten, F. A. (M)
Krueger, R. E. (M)
Lothrop, F. H. G. (M)
Marble, F. G. (SM)
Martin, W. L. (M)
Montalbano, M. (M)
Morrison, K. G. (M)
Norton, J. S. (SM)
Smith, L. C. (M)
Steed, W. P. (M)
Waddell, J. F. (SM)

Laguna Beach (LA-SA-7)
Capobianco, J. A. (M)
Flackbert, C. (SM)
Holmes, P. J. (A)
Marsau, J. S. ( )
Morell, C. S. (M)
Tellez, J. M. B. (M)
Wetzel, G. N. (M)

La Habra (LA-SA-7)
Antista, B. A. (M)
Batchelder, D. E. (M)
Beau, J. F. (M)
Bechtold, E. C. (SM)
Beckman, W. R. (M)
Beihl, P. A. (M)
Carlson, R. S. (M)
Chester, M. E. (M)
Clark, A. R. (M)
Clarke, J. K. (M)
Creager, F. L. (M)
Davies, C. L. (M)
Deess, S. R (M)
D'Evelyn, R. P. (M)
Dolce, S. L (M)
Downey, W. F. (M)
Effinger, D. D. (M)
Fisher, C. E. (A)
Griffin, S. J. (M)
Hawkins, W. J. (M)
Hinder, G. (SM)
Hoyt, C. L. (M)
Husman, P. A. (A)
Klopfenstein, A. (SM)
Knobbe, L. J. (M)
Knox, R. V. (M)
Knudsen, A. C. (M)
Knudtson, R. G. (M)
Kottmeier, F. A. (M)
Kowalsky, M. (M)
Laird, R. R. (M)
Lanctot R. B. (M)
Linder, C. O. (M)
McCollough D. G. (M)
Pope, J. W., Jr. (M)
Provost, C., Jr. (M)
Rollins, R. C. (M)
Sabih, D. S. (M)
Shade, R. R. (M)
Steisslinger, H. R. (A)
Struve, L. M. (M)
Thomas, J. E. (M)
Tilley, A. E. (M)
Unterberger, R. R. (M)

La Jolla (SD-7)
Adams, J. C. (M)
Alexander, W. G. (SM)
Babits, V. A. (F)
Barnard, J. C. (M)
Bartelme, R. (M)
Bidwell, G. E. (M)
Bishop, H. O. (SM)
Brantnall, E. H. (SM)
Bryan, W. L. (M)
Burgar, D. G. (A)
Cardiff, D. L. (M)
Carlson, E. W. (M)
Catlin, K. (M)
Chadbourne, H. L. (M)
Cotcher, A. L. (SM)
Courtney, E. W. (M)
Daly, W. A. (A)
Dean, E. K. (A)
Erickson, W. A. (M)
Eskedal, T. (A)
Flarity, W. H. (M)
Garvin, J. A. (M)
Giddings, K. L. (M)
Godfrey, W. C. (M)
Hafstrom, J. R. (SM)
Halstenberg, R. V. (M)
Hamann, O. F. (A)
Hatch, A. R. (M)
Herreshoff, J. B. (M)
Ikerd, H. M. (SM)
Jensen, R. O. (SM)
Jones, C. E. (M)
Kafitz, P. H. (M)
Kaswen, M. (M)
Kipp, S. G. (M)
Langston, J. F. (M)
Liddiard, G. E. (M)
Martin, A. R., III (M)
McLeod, J. H., Jr. (M)
Michael, F. H. (M)
Miller, P. G. (M)
Munk, R. (M)
Murray, W. M. (M)
Naive, J. A. (M)
Norris, B. J. (M)
O'Neal, K. R. (M)
Otis, E. J. (M)
Patten, S. F. (SM)
Petrini, A. A. (A)
Ringland, R. F. (M)
Ritchart, R. C. (M)
Robbins, D. L. (A)
Robbins, J. E. (M)
Sadler, E. J. (M)
Schubert, L. L. (M)
Schupp, A. A., Jr. (M)
Shannon, C. V. (M)
Slagle, W. C. (M)
Theobald, D. J. (M)
Tucker, D. P. (SM)
Von Peccoz, B. (M)

Lakeside (SD-7)
Rogers, T. E. (M)
Smith, W. R. (A)

Lakewood (LA-SA-7)
Ashcraft, W. D. (M)
Beard, G. W. (M)
Beers, K. H. (SM)
Britten, E. F. (M)
Cain, G. H., Jr. (M)
Costanzo, P. (M)
Crane, H. (M)
Dahlin, R. K. (A)
Ekaarian, J. (M)
Francis, T. F. (A)
Frankiewich, C. (M)
Gerhard, F. H. (M)
Guggenheim, R. W. (M)
Hawley, A. E. (M)
Hayman, W. H. (M)
Lee, R. E. (A)
McKown, S. J. (M)
McLaughlin, W. J. (M)
Oehlke, A. E. (M)
Overmier, C. S. (M)
Page, R. K. (M)
Pfeifer, A. F. (M)
Read, G. R., Jr. (M)
Sampson, A. A. (M)
Schrader, G. F. (SM)

La Mesa (SD-7)
Ackerman, S. L. (SM)
Ball, N. E. (M)
Benson, R. S. (M)
Burns, G. A. (M)
Campbell, C. C. (M)
Carberry, J. F. (M)
Cary, R. J., Jr. (M)
Clapp, E. B. (M)
Derenthal, R. J. (M)
Dickinson, J. D. (A)
Farmer, A. A., Jr. (A)
Fisher, H. G. (A)
Hill, D. M. (M)
Huckle, D. R. (M)
Hulbert, S. G. (M)
Kimball, J. L. (M)
Loveberg, A. G., Jr. (M)
Lowe, D. M. (M)
Madsen, E. C. (SM)
Masterman, H. W. (M)
Mathisen, W. D. (A)
McGinley, G. W. (M)
Miller, R. H., Jr. (SM)
Moody, D. G. (M)
Moore, W. E. (M)
Oertel, E. C. (SM)
Raper, A. J. (A)
Ratkevich, A. E. (M)
Runyan, T. W. (A)
Schmidt, M. A. (M)
Smith, D. I. (M)
Smyth, J. B. (F)
Torrible, A. W. (A)
Tweed, G. C., Jr. (M)
Walker, W. D. (A)
Welch, O. R. (M)
Whitaker, J. L. (M)
Williams, A. A. (A)

La Mirada (LA-SA-7)
Alfrey, P. R. (M)
Benjamin, F. (M)
Bruder, R. M. (M)
Cain, E. L. (M)
Cherney, R. W. (M)
Davis, K. J. (M)
Davisson, J. R. (M)
Dawirs, N. L. (M)
De Vore C. D. (M)
Dyment, R. F. (M)
Eisner, W. (M)
Fujii, T. T. (M)
Gaston, J. B. (M)
Gillen, T. W. (M)
Gilmore, D. A. (M)
Gordon, A. I. (M)
Grabowski, K. P. (M)
Grieve, W. R. (M)
Guffin, R. M. (M)
Halbirt, C. D. (M)
Haughawout, J. H. (M)
Holt, W. L. (A)
James, B. B. (M)
Jasper, J. D. (M)
King, D. L. (M)
Kirk, R. J. (M)
Kleyn, P. A. (M)
Kraemer, W. H. (M)
Kreager, P. C. (A)
Kruger, F. W. (M)
Lamb, W. G. (M)
Lawson, M. W. (A)
Leever, W. E. (M)
Loop, D. M. (SM)
Marsh, S. V. (SM)
McClure, D. H. (M)
McCone, K. D. (M)
Michael, J. A. (M)
Molloy, J. M. (M)
Myers, W. A. (M)
Nicolaides, M. E. (M)
Nystrom, H. A. (M)
Olson, W. J. (M)
Padgett, C. W. (M)
Parsons, J. H. (M)
Peterson, W. R. (SM)
Price, H. J. (SM)
Propster, J. A. (M)
Robertson, S. D. (M)
Sandoval, F. O. (M)
Saunders, R., Jr. (SM)
Scofield, B. L. (A)
Simmons, D. M. (M)
Simmons, J. W., III (M)
Smith, D. S. (SM)
Smith, E. C., Jr. (M)
Smith, G. C. (M)
Spiglanin, E. (SM)
Stodola, R. A. (A)
Stone, R. J. (M)
Teague, J. W. (M)
Tenney, J. E. (M)
Thomsen, G. A. (M)
Toomey, A. J. (A)
Tuppy, R. J. (M)
Westwick, J. (M)
White, S. A. (M)
Wolfe, G., Jr. (A)

Lancaster (LA-7)
Archer, J. E. (M)
Barbour, L. D. (M)
Barlow, K. (M)
Barry, R., M. (M)
Belcher, A. C. (A)
Bryant, J. E. (M)
Commons, H. E. (SM)
Durham, S. C. (M)
Eisenman, T. W. (M)
Finney, B. W. (A)
Green, F. W. (M)
Lynn, F. M. (M)
Miller, J. R. (A)
Natenstedt, H. (M)
Osborn, R. H. (A)
Parsons, G. W. (A)
Ponticello, J. A. (M)
Roberts, F. C. (M)
Schnert, P. J. (M)
Shumate, C. L. (M)
Stelnbrenner, E. W. (A)
Tondl, B. J. (M)
Welt, S. (M)
Wichels, J., Jr. (M)
Wolfe, A. E., Jr. (SM)
Woodcock, C. A. (M)

La Puente (LA-OB-7)
Airhart, R. V. (M)
Arnett, J. D. (M)
Berkley, W. H. (A)
Davis, D. K. (A)
Griffin, D. J., Jr. (M)
Kidwell, O. A. (M)
McIntosh, D. (M)
McMahon, J. E. (M)
Pluth, J., Jr. (M)
Poirier, G. R. (M)
Reynolds, W. E. (M)
Wise, M. (A)

La Sierra (LA-OB-7)
Besel, H. W. (M)

La Verne (LA-OB-7)
Buehler, M. E. (A)
Carroll, L. R. (M)
Crofts, G. B. (M)
Edson, M. C., Jr. (A)
Gott, A. H. (M)
Huggin, F. E. (SM)
Ilgenfritz, N. H. (M)
Resnik, A. E. (M)
Riley, O. V. (M)
Schertz, C. W. (A)

Lawndale (LA-7)
Acton, D. J. (M)
Ahlberg, W. E. (A)
Barnes, S. H. (M)
Collins, M. H. (M)
Crackel, J. E. (M)
Dalton, R. A. (M)
Gerson, H. (M)
Helner, A. J. (M)
Hollingsworth, V. N. (A)
Houghtaling, R. B. (A)
Jensen, P. K. (M)
Lambert, T. C. (M)
Lum, P. H. P. (A)
Mann, G. A. (M)
North, H. Q. (F)
Pearson, R. E. (M)
Schnepple, W. F. (M)
Sidle, C. D. (M)
Stager, D. N. (M)
Sur, J. (M)
Swan, R. L. (M)
Wood, R. M. (A)
Zobel, E. R. (M)

Lemon Grove (SD-7)
Kogan, J. C. (A)
Leitner, P. R. (M)
Martinez, M., Jr. (M)
Moore, R. A. (M)
Nunn, M. E. (M)
Scheidler, W. E. (M)
Vanderway, C. J. (M)

Littlerock (AL-7)
Power, R. L. (SM)

Lodi (SAC-7)
Reimche, W. E. (M)

Loma Linda (LA-OB-7)
Woods, R. W. (SM)

Lomita (AL-7)
Armstrong, M. S. (M)
Frazier, R. E. (SM)
Goodman, R. L. (M)
Howe, C. J. (A)
Roper, W. J. (M)
Skoubo, L. A. (M)

Lompoc (LA-SB-7)
Aronson, J. W. (M)
Boyer, B. E. (SM)
Burnett, W. B. (A)
Cameron, T. J. (SM)
Darrah, G. L. (A)
Du Bose, T. I. (M)
Duffy, B. A. (M)
Eckmeier, W. L. (M)
Elgin, J. H. (M)
Haithcoat, J. W., Jr. (M)
Hayes, R. W. (M)
Hughes, D. D. (A)
Jenkins, D. E. (M)
Juchum, D. M. (M)
Keup, R. L. (A)
Kment, R. P. (A)
Kuchera, A. T. (M)
Lauver, H. O. (M)
Lynch, V. J. (SM)
Mangino, J. M. (A)
Massa, M. G. (M)
Mize, F. F. (M)
Olson, C. E. (A)
Organ, W. H. (SM)
Pefferle, D. L. (M)
Rice, R. E. (A)
Ricker, J. A. (M)
Stitch, B. D. (A)
Supple, J. L. (M)
Thompson, R. L. (A)
Vernon, F. C. (M)
Vogel, M. D. (M)
Westbury, R. (M)
Whitman, H. F. (M)

Long Beach (LA-7)
Anderson, R. W. (M)

Andreosky, E. (M)
Ashcraft, A. E., Jr. (M)
Avery, E. V., Jr. (M)
Beamsley, G. V. (M)
Bement, W. A. (M)
Bergman, C. E. (M)
Beyer, E. J. (M)
Blakely, L. (A)
Blough, A. K., Jr. (M)
Bodnar, L. L. (M)
Bretherton, S. E. (M)
Brown, G. W. (A)
Brown, K. H. (M)
Browne, K. R. (M)
Burns, J. J., Jr. (M)
Burr, K. L. (A)
Campora, M. T. (M)
Carey, G. D. (M)
Carmichael, R. M. (M)
Chavarria, J. N. (SM)
Cole, B. T. (M)
Conrad, E. G. (A)
Cramley, R. E. (A)
Curran, T. F. (M)
Dale, E. E. (M)
Dierking, L. D. (A)
Drake, W. H. (M)
Elliott, J. D. (M)
Emery, S. (A)
Enholm, E. C. (M)
Feggeira, R. (A)
Fether, W. B. (A)
Frank, A. A. (M)
Frieberg, M. (A)
Gall, C. E. (M)
Gardner, F. H. (SM)
Goldsmith, M. L. (M)
Grammes, E. G., Jr. (A)
Gregerson, G. A. (M)
Halprin, L. H. (M)
Hayden, R. J. (A)
Hetlinger, F. J. (M)
Heyman, E. R. (A)
Hilke, R. G. (M)
Hill, C. V. (M)
Howard, R. D. (A)
Humphries, D. H. (M)
Hutcherson, J. V. (M)
Jenkins, A. F., Jr. (M)
Jimenez, J. W. (M)
Katzman, H. J. (M)
Keldsen, B. L. (M)
Kelly, S. T. (M)
Keppel, R. A. (SM)
Kubo, E. Y. (M)
Lewis, R. C. (SM)
Liltenberg, W. (M)
Loewenstein, C. N. (M)
Mackey, E. F. (M)
Maher, R. C. (A)
Mangels, R. H. (M)
Mann, R. W. (A)
Manson, J. D. (M)
Martin, W. B. (M)
Mayfield, W. H. (M)
McFadden, R. M. (A)
McGee, G. C. (M)
Meline, P. J. (M)
Mines, R. E. (M)
Mitsutomi, T. (M)
Morris, T. J., Jr. (M)
Muhlestein, R. W. (M)
Murad, E. M. (M)
Murray, R. J. (M)
Pelc, T. (SM)
Pelteson, F. M. (M)
Petersen, E. L. (M)
Poff, A. C., Jr. (M)
Ramer, F. H., Jr. (M)
Roberts, H. M., Jr. (M)
Rogers, J. M. (M)
Rohland, A. E. (M)
Rossi, R. J. (M)
Rumsey, W. E., Jr. (M)
Rupert, M. J. (M)
Sakai, R. Y. (M)
Saul, R. S. (M)
Samuelian, B. (M)
Schultz, B. G. (M)
Schwartz, M. J. (M)
Sims, J. L. (M)
Skorheim, R. D. (M)
Smith, C. V. (M)
Smith, J. E. (M)
Smith, R. G. (A)
Souter, R. E. (M)
Stephens, H. M. (A)
Stoll, P. J. (M)
Strasburger, T. J. (M)
Stromberg, G. W. (M)
Sutherland, J. E. (A)
Tapo, J. E. (M)
Teasley, C. J., Jr. (M)
Terry, R. E. (M)
Thresh, J. L. (A)
Tilcomb, R. D. (M)
Tripodi, C. (M)
Uebele, G. S. (M)
Wells, D. R. (M)
Wiley, F. L. (M)
Williams, C. E. (SM)
Williams, C. A. (A)
Williams, J. (M)
Worch, A. B. (M)
Wyels, P. J. (M)
Yee, G. (M)
Young, J. A. (M)
Zappulla, D. (M)

Los Alamitos (LA-SA-7)
Anderson, F. A. (M)
Appleton, D. T. (M)
Beall, A. (M)
Coatney, N. E. (M)
Douglas, D. L. (SM)
Greer, J. G. (M)
Hershey, L. M. (SM)
Kerbs, W. A. (A)
Kirk, R. A. (M)
Lavin, J. H. (M)
Moorhouse, T. R. (A)
Romano, A. J. (M)
Schandl, E. (M)
Schulz, D. P. (M)
Seymour, E. E. (M)
Shore, J. D. (M)
Swain, P. F. (SM)
Weiss, C. F. (M)

Los Altos (SF-7)
Aboussleman, W. (SM)
Adams, M. B. (SM)
Aiken, W. R. (M)
Alberding, R. C. (A)
Alfano, W. A. (M)
Allen, T. L., Jr. (M)
Anderson, R. W. (M)
Angst, D. C. (M)
Antony, C. (SM)
Atherstone, T. E. (SM)
Austin, G. E. (M)
Avis, J. A. (SM)
Ayres, W. P. (M)
Baird, H. S. (M)
Baker, J. C. (SM)
Baldwin, E. M. (M)
Barchenger, B. W. (M)
Bastow, W. R. (M)
Bean, T. C. (M)
Beatie, R. N. (M)
Beckwith, J. R. (SM)
Bellamy, J. L. (SM)
Bend, W. I. (M)
Bergman, R. S. (M)
Blasl, E. A. (SM)
Blight, A. F., Jr. (M)
Blumberg, M. (M)
Boswau, H. P. (SM)
Breitsprecher, M. H. (M)
Bruser, L. (A)
Buell, V. B. (M)
Burgess, J. E. (M)
Burn, J. W., Jr. (A)
Butterfield, F. E. (M)
Buttschardt, C.C., Jr. (M)
Cage, J. M. (SM)
Caryotakis, G. (M)
Christensen, W. V. (M)
Cogswell, W. P. (SM)
Colburn, J. H. (M)
Corduan, A. E. (SM)
Corey, V. B. (M)
Corson, D. K. (M)
Cox, J. E. (M)
Crowther, E. E. (M)
Dahl, J. D. (M)
Damron, S. S. (M)
Decker, H.J., Jr. (M)
Densmore, M. E. (SM)
De Young, M. W. (M)
Doersam, P. D. (SM)
Don Carlos, J. E. (M)
Dorsett, J.W., Jr. (M)
Dunwoodie, D. E. (M)
Earle, D. H. (M)
Eaves, H. H. (SM)
Edberg, E. B. (M)
Ehret, R. J. (SM)
Elbinger, B. (SM)
Eldredge, E. E. (SM)
Ellis, A. R. (SM)
Ellsworth, R. L. (M)
Elpel, E. A. (M)
Elster, S. (M)
Elwell, C. F. (F)
Everson, C. T. (A)
Farina, D. E. (M)
Farrior, J. S. (SM)
Ferguson, J. P. (M)
Ferri, G. (M)
Fitzgerald, P. M. (M)
Flugge-Lotz, I. (M)
Fowler, B. V. (M)
Freeman, G. V. H. (A)
Freiermuth, V. J. (M)
Freise, W. H. (A)
Frohman, R. (M)
Gamara, N. J. (M)
Gardner, B. C. (SM)
Gillett, G. D. (F)
Giulie, J. D. (M)
Good, D. C. (SM)
Gunnell, G. T. (M)
Hackley, G. E. (SM)
Hagopian, R. H. (M)
Hall, S. C. (A)
Hanisch, W. R. (M)
Hanson, R. A. (M)
Harper, P. T. (M)
Harrison, H. W. (M)
Heintz, R.M., Jr. (M)
Helwig, N. C. (M)
Heskett, J. A. (SM)
Hewson, J. F. (SM)
Hiestand, N. P (M)
Hilbiber, D. F. (M)
Hill, C. M. (M)
Hill, O. R. (M)
Hilton, E. A. (SM)
Hix, R. C. (M)
Hockett, S. W. (M)
Hodges, E. B. (M)
Hoeke, F. W. (M)
Hoernl, J. A. (M)
Holly, J. A. (M)
Holmes, D. K. (A)
Horn, R. H. (M)
Humfeld, J. B. (SM)
Hunter, P. B. (SM)
Hussey, J. G. (M)
Irick, J. (SM)
Isacson, E. R. (M)
Jans, J. T. (M)
Jipp, J. (M)
Johannesen, O. M. (SM)
Johnson, L. W. (M)
Johnson, P. M. (M)
Johnson, R. T. (M)
Jones, M. H. (M)
Justice, R. (SM)
Kellogg, H. A. (M)
Kent, R. C. (SM)
Keyes, J. C. (SM)
Kinman, E. W. (SM)
Klingman, W. A. (M)
Knudson, B. C. (M)
Koehler, L. K. (M)
Koenig, W. A. (SM)
Kunnes, H. (M)
Lambert, A. G. (M)
Lange, B. O. (M)
Larse, G. L. (M)
La Rue, A. D. (SM)
La Rue, J. S. (SM)
La Tourrette, P. M. (M)
Lauler, L. J. (M)
Leake, C. E. (SM)
Leifer, M. (F)
Leungans, R. W. (M)
Lewis, P. L. (M)
Lindseth, C. O. (M)
Lipanovich, M. I. (M)
Lowe, M. E. (SM)
Mac Kenzie, R. P. (M)
Maniger, R. C. (M)
Marietta, R. A. (M)
Masher, D. P. (M)
Matschke, A. M. (M)
Maximoff, B. S. (M)
May, B. B. (M)
May, R. W. (M)
Mc Connell, R. A. (M)
McDonald, J. C. (M)
McGuigan, W. D. (SM)
McKee, L. H. (M)
McMenomey, J. M. (M)
Meadows, F. D. (SM)
Melchor, J. L. (SM)
Meyer, C.F., Jr. (SM)
Meyer, J. C. (M)
Miller, F. N. (SM)
Miller, H. C. (M)
Mills, M. E. (M)
Moreno, T. (F)
Morgan, E. C. (M)
Morris, F.W., Jr. (SM)
Morris, G. R. (SM)
Murphy, E. J. (SM)
Myers, W. D. (SM)
Napier, C. J. (SM)
Nawrocki, J. R. (SM)
Nelson, B. E. (M)
Nelson, F. R. (M)
Nikonenko, P.V. (SM)
Norgaard, D. E. (SM)
Norman, R. H. (A)
Norris, C. B. (M)
Numela, G. E. (A)
Ohlmann, G. A. (M)
O'Keefe, W. J. (SM)
Overacker, H. E. (SM)
Pallakoff, O. E. (M)
Palmquist, N.B., Jr. (SM)
Parks, J. K. (M)
Patterson, H. R. (SM)
Patton, F. K. (M)
Perkins, C. K. (M)
Peshel, R. L. (SM)
Peters, E. O. (A)
Peterson, A. M. (M)
Peterson, C. J. (M)
Peterson, W. R. (M)
Pfister, G. H. (M)
Pilgrim, C.A., Jr. (M)
Price, G. W. (SM)
Price, V. G. (M)
Pruett, J. W. (M)
Raffensperger, M. J. (SM)
Rhodes, R. D. (A)
Rich, G. C. (SM)
Roberts, B. C. (M)
Roberts, W. L. (M)
Robertson, D. M. (M)
Robinson, G. G. (M)
Rocklitz, H. C. (M)
Rockwood, C. G. (M)
Rodgers, A. P. (M)
Rodgers, J. L. (M)
Roumbanis, T. (M)
Scal, R.K-F (SM)
Scholes, H.M. (M)
Schrock, N. B. (SM)
Schulke, G. F. (M)
Sedlacek, W. C. (M)
Shaw, T. M. (SM)
Shockley, W. (F)
Show, O. C. (A)
Sifford, B. M. (M)
Silver, J. (M)
Simpson, O. T. (SM)
Smith, C. A. (M)
Smith, D. I. (M)
Soderstrom, H. W. (M)
Sokoloff, P. W. (SM)
Sorensen, R. J. (M)
Sorvaag, C. M. (SM)
Spivey, J. F. (M)
Stangl, M. E. (M)
Stanley, C. B. (SM)
Stead, D. A. (M)
Stein, R. S. (SM)
Stewart, E. C. (SM)
Stimson, J. S. (M)
Stone, J. E. (M)
Storke, F.P., Jr. (M)
Strehlow, R. J. (M)
Stubbles, J. E. (M)
Sturrock, P. A. (SM)
Summers, J. W. (M)
Sutton, J.G., Jr. (M)
Sweency, J. F. (M)
Taleporos, A. D. (M)
Teall, D. E. (M)
Thoms, C. W. (M)
Tracy, T. (M)
Troxell, R. R. (M)
Twersky, V. (M)
Vader, R. L. (SM)
Van Rensselaer, C. (SM)
Van Zuuk, D. A. (M)
Varenhorst, V. D. (SM)
Vincent, W. R. (M)
Wallace, D. L. (M)
Walters, A. M. (M)
Wambsganss, B. A. (SM)
Ward, C. E. (SM)
Ward, R. B. (M)
Weagant, G. A. (M)
Weber, P. J. (M)
Weismann, R. J. (SM)
Weldon, J. M. (M)
Werner, H. C. (SM)
Wheeler, F.K. B. (SM)
Wheeler, G. J. (SM)
Whitacre, R. N. (A)
Whitmer, R. F. (M)
Wholey, W. B. (SM)
Wilcox, D.D., Jr. (M)
Wildanger, E. G. (M)
Wilder, K. T. (M)
Wilkerson, J. R. (SM)
Williams, H. A. (M)
Willoughby, D. E. (A)
Wirth, C. H. (M)
Wohl, J. (M)
Woodward, D. E. (M)
Woodward, R. F. (A)
Woolsey, S. W. (M)
Zachiropoulos, R. (M)
Zinky, W. R. (M)

Los Altos Hills (SF-7)
Anderson, J. R. (M)
Bagley, A. S. (SM)
Baker, R. H. (M)
Bourquin, K. R. (M)
Bowler, G. E. (SM)
Brandeis, E. P. (M)
Budd, W. E. (M)
Dawley, J.R., Jr. (M)
Doak, R. S. (SM)
Doten, E. F. (M)
Fimmel, R. O. (M)
Gerling, J. E. (M)
Goodman, D. H. (SM)
Haman, W. A. (M)
Hoover, W. G. (M)
Jackson, S. R. (M)
Libby, L. L. (SM)
Loh, G. M. (M)
Main, W.F., Jr. (M)
McCullough, J. A. (F)
Metzger, J. F. (M)
Orth, R. T. (SM)
Rasmussen, R. H. (M)
Richter, E. O. (A)
Rock, A. J. (M)
Schleimann-Jensen, A. (F)
Shelton, E.J., Jr. (M)
Skowron, J. F. (A)
Spitzer, C. F. (SM)
Towle, R. W. (M)
Wells, F. C. (SM)

Los Angeles (LA-7)
Abrams, G. I. (M)
Adachi, T. (SM)
Adey, W. R. (SM)
Adler, S. L. (M)
Ahlport, B. T. (M)
Akamatsu, K. (A)
Albrecht, A. (SM)
Allen, F. W. (SM)
Allen, M. M. (A)
Allen, W. L. (M)
Ambrosio, A. (M)
Andelin, D. R. (M)
Anders, W. R. (M)
Anderson, D. N., Jr. (M)
Anderson, R. S. (M)
Anderson, W. J. (M)
Angwin, B. S. (SM)
Antell, S. (M)
Aoki, M. (M)
Appleby, V. L. (M)
Appleton, H. (A)
Arakawa, W. J. (M)
Arany, R. (M)
Arase, S. (M)
Armstrong, H. R. (M)
Armstrong, J. N. (A)
Arn, S. F. (SM)
Arnold, J. R. (M)
Arnold, W. O. J. (A)
Arnstein, G. P. (M)
Arterbery, A. C. (M)
Aseltine, J. A. (M)
Ashby, J. D. (A)
Ashley, L. F. (M)
Assaf, E. J. (M)
Ausbourne, R. K. (SM)
Avnet, R. H. (A)
Axelband, E. I. (M)
Ayers, R. D. (M)
Ballin, L. L. (SM)
Bakeman, D. C. (M)
Baker, E. E. (M)
Baker, J. J. (M)
Baker, T. L. (A)
Balakrishnan, A. (SM)
Balden, S. B. (M)
Baldwin, R. C. (M)
Ball, L. D. (M)
Ballard, K. C. (M)
Balluff, R. L. (M)
Baluyo, J. J. (A)
Banks, L. (M)
Banks, R. E. (A)
Bantum, W. F. (A)
Baran, P. (SM)
Barcus, E. D. (SM)
Barlow, J. T. (M)
Barnes, D. B. (M)
Barnes, J. L. (F)
Barnett, R. S. (M)
Barnum, J. F. (M)
Barry, C. D. (M)
Baskevitch, E. (M)
Bates, D. J. (SM)
Bath, H. M. (M)
Battocletti, J. H. (SM)
Bauerschmidt, D. K. (M)
Baum, R. F. (SM)
Bayley, R. M. (M)
Beamish, J. C. (M)
Beavin, R. L. (M)
Beck, J. O. (M)
Becker, H. (M)
Beecher, D. E. (SM)
Bejack, B. (M)
Bell, W. H. (SM)
Berkowitz, E. (A)
Berkson, M. A. (M)
Berman, B. (M)
Berman, B. H. (A)
Berman, M. (M)
Bernhard, H. A. (M)
Bernstein, H. L. (M)
Bernstein, R. (M)
Bernstein, T. (M)
Berry, B. F., Jr. (M)
Berry, G. A. (M)
Berry, R. P. (M)
Berwin, T. W. (M)
Bialek, J. (SM)
Bice, W. O. (M)
Bieging, G. P. (M)
Billey, J. C., Jr. (M)
Bilyeu, R. P. (M)
Birbillis, N. (A)
Bissell, H. M. (M)
Blackburn, J. F. (M)
Blackhall, O. R. (M)
Blackman, B. G. (SM)
Blair, L. L. (M)
Blake, J. B. (M)
Blake, J. T. (SM)
Blanc, S. L. (M)
Blanchard, D. I. (M)
Blatterman, H. L. (M)
Blau, A. B. (A)
Billie, J. L. (M)
Blocher, H. L. (SM)
Blum, E. K. (M)
Bocast, D. R. (SM)
Bodenstein, J. (M)
Boggs, C. A. (SM)
Bohlke, P. G. (SM)
Boland, T. L. (M)
Bolster, C. A. (M)
Bondar, M. M. (M)
Bone, R. R. (M)
Bonner, P. R. (M)
Bonney, L. A. (M)
Boothroyd, J. H. (M)
Booton, R. C. (M)
Botzong, W. B. (M)
Bourbeau, F. J. (A)
Bouse, G. B. (A)
Bowman, W. G. (M)
Box, F. M. (A)
Boyden, L. K. (A)
Boykin, T. R., Jr. (M)
Braden, R. L. (A)
Bradley, J. L. (SM)
Brady, M. E. (SM)
Brandt, R. (M)
Brauer, G. W. A. (SM)
Braun, E. L. (SM)
Break, D. A. (M)
Bright, D. C. (SM)
Briner, D. M. (M)
Brinkman, K. L. (M)
Britton, C. W. (A)
Brockway, W. W. (SM)
Brooks, D. (M)
Browdy, A. A. (M)
Brown, E. L. (SM)
Brown, K. (SM)
Brownstone, N. (M)
Broyles, R. S. (M)
Brubaker, G. P., Jr. (M)
Brugma, F. C. (M)
Brugman, W. E. (M)
Brunner, H. (M)

Budnick, J. A. (M)
Bull, W. I. (SM)
Burch, J. E., Jr. (M)
Burdick, D. D. (M)
Burk, W. A. (M)
Burnett, J. R. (SM)
Burnham, J. (M)
Burns, W. L. (A)
Burnsweig, J., Jr. (M)
Bush, A. (A)
Buskirk, J. F. (M)
Bussell, B. (M)
Butterfield, J. F. (A)
Cady, E. D. (M)
Camden, J. E. (A)
Campbell, F. L. (SM)
Campbell, F. D. (M)
Campbell, W. N. (A)
Cannon, J. H. (M)
Carlson, C. O. (M)
Carlson, E. H., Jr. (M)
Carnegis, G. A. (M)
Carpenter, R. L. (A)
Carroll, F. E. (SM)
Carroll, G. R. (M)
Carter, C. J. (M)
Carter, E. C. (M)
Carter, J. E. (SM)
Case, R. H. (A)
Cassard, D. V. (A)
Castle, K. J. (M)
Cataldo, J. T. (M)
Cate, F. M. (M)
Caulkins, D. C. (M)
Cayot, W. S. (M)
Chait, H. N. (M)
Chandaket, P. (M)
Chang, D. (M)
Chapman, D. L. (M)
Chapsky, J. (M)
Chatt, R. H. (M)
Chee, F. (M)
Chernish, G. (SM)
Chew, T. W. (SM)
Chieffo, A. B. (SM)
Childress, J. W., III (M)
Christian, B., Jr. (M)
Christoffers, W. H. (SM)
Churchill, O. R. (M)
Claar, D. E. (M)
Clabaugh, R. G. (M)
Clark, A. C. (A)
Clark, B. L. (M)
Clark, D. R. (M)
Clark, D., Jr. (M)
Clark, F. A. (M)
Clark, R. W. (SM)
Coffey, G. P. (M)
Cohen, M. (A)
Cohn, E. L. (M)
Coil, E. A. (M)
Cole, E. M., Sr. (M)
Cole, W. Y. (M)
Collier, W. C. (M)
Colombano, L. (M)
Collin, A. H. (M)
Considine, J. M. (A)
Conviser, H. (M)
Cook, I. M. (M)
Cook, L. (SM)
Cook, W. M. (A)
Cooke, C. W., Jr. (SM)
Cooke, R. M. (M)
Cooper, H. K. (M)
Cooper, L. (M)
Cooper, R. G. (A)
Copeland, W. H. (SM)
Corlett, H. G. (M)
Costanza, S. T. (M)
Court, P. R. J. (SM)
Cowan, J. E. (A)
Crabb, R. C. (SM)
Craig, G. H. (M)
Cramer, M. (M)
Crapotta, F. C. (M)
Crook, G. M. (SM)
Crooke, V. E. (SM)
Crost, E. F. (M)
Crowder, H. A. (SM)
Cryden, J. (SM)
Cubbage, J. C. (M)
Culbertson, G. T. (M)
Cullan, T. A. (M)
Culumber, G. L. (M)
Culver, W. H. (A)
Cunningham, E. W. (M)
Currie, J. D. (M)
Currie, W. D. (M)
Damon, N. E. (M)
Daniels, J. A. (M)
Danyliw, M. C. (A)
Darling, J. K. (A)
D'Asta, J. (A)
Dautremont, J. L., Jr. (M)
Davenport, E. J. (A)
Davie, W. C. (M)
Davies, L. F. (M)
Davis, H. G., Jr. (M)
Davis, H. (SM)
Davis, J. F. (M)
Davis, J. I. (SM)
Dawson, S. L. (SM)
Day, R. L. (M)
De Forest, L. (F)
Demarest, J. W. (M)
Denny, W. I. (A)
Desmer, D. M. (M)
Dere, J. R. (A)
Dernham, C. R. (M)
Dethlefsen, D. G. (M)
Deutsch, W. E. (M)
De Vot, A. J. (M)
Dexter, G. W. (SM)
Dexter, P. F. (A)
Dhein, D. D. (M)
Diamond, R. L. (M)
Dibble, T. R. (M)
Di Blas, R. L. (M)
Diesel, J. W. (M)
Digiulio, E. (A)
Dinicola, A. J. (M)
Dinsmore, S. H. (M)
Dlugatch, I. (SM)
Dobbertin, W. H. (SM)
Dodd, G. M. (M)
Doll, E. B. (SM)
Donahue, T. H. (A)
Dong, P. (M)
Donnell, J. W. (M)
Downes, L. C. (SM)
Dreese, W. R. (M)
Driver, D. L., Jr. (SM)
Dudek, M. J. (M)
Dulin, J. J. (M)
Dunnigan, F. A. (SM)
Dutton, O. B. (SM)
Du Waldt, B. J. (M)
Dvorak, J. F. (M)
Dzilvelis, A. A. (M)
Eads, J. J., Jr. (A)
Easley, W. A., Jr. (A)
Eason, T. S. (M)
Eastman, R. S. (M)
Eckert, J. A., Jr. (M)
Eckess, W. S., Jr. (M)
Eckstein, J. (M)
Eddy, T. G. (SM)
Edelsohn, C. R. (M)
Edelson, L. (M)
Edelson, R. H. (M)
Edson, C. R. (M)
Edson, M. (M)
Elermann, R. R. (M)
Eisenscher, E. S. (M)
Eisenstein, A. M. (M)
Eisler, G. (M)
Elliott, J. A. (M)
Elliott, R. S. (F)
Ellis, A. (M)
Ellsworth, A. R. (M)
Endo, F. Y. (M)
Endo, M. T. (SM)
Enright, F. E. (A)
Epperson, H. A. (M)
Epstein, J. I. (M)
Erickson, R. L. (A)
Escoffery, C. A. (M)
Estep, C. R. (M)
Estersohn, N. (M)
Estrin, G. (M)
Estrin, T. A. (M)
Euler, L. J., Jr. (A)
Evans, H. W. (A)
Evans, J. C. (M)
Falk, M. M. (M)
Fatton, G. A. (SM)
Featherstone, J. D. (M)
Felgus, J. (A)
Feldman, N. E. (SM)
Feldman, R. E. (M)
Fenaughty, A. L. (M)
Fernandez, F. (M)
Fiala, H. E. (M)
Field, L. M. (F)
Fields, L. G. (A)
Fifield, D. (M)
Fingold, L. L. (M)
Finger, T. A. (M)
Fitch, E. (M)
Fischer, B. (SM)
Fischer, C. H. (M)
Fishback, K. H. (M)
Fitzwater, H. L. (M)
Flavin, M. A. (M)
Fleary, W. K. (A)
Fleischer, R. J. (M)
Fletcher, J. C. (M)
Floyd, G. W. (M)
Fluhrer, A. C. (M)
Fodor, F. H. (M)
Fonda-Bonardi, G. (SM)
Force, D. C. (M)
Ford, W. (M)
Forman, J. (SM)
Fortuna, A. F. (A)
Foster, D. H. (M)
Foulon, F. (SM)
Fox, E. M. (M)
Fox, R. K. (M)
Fox, S. R. (M)
Fraenkel, A. S. (A)
Frankel, S. P. (M)
Fraser, R. H. (M)
Freedman, L. M. (A)
Freeman, R. J. (M)
Friedman, P. (M)
Friend, P. A. (M)
Frink, F. W. (SM)
Frost, R. B. (M)
Fry, B. L. (SM)
Fujimoto, B. (M)
Fujimoto, J. (M)
Fujimoto, Y. (M)
Fujita, J. M. (M)
Fuller, R. H. (M)
Funderburg, J. D. (SM)
Fusterman, M. (M)
Gabbert, V. N. (A)
Gabler, R. T. (SM)
Gagliardi, R. M. (M)
Galloway, W. J. (M)
Galouskin, B. P. (M)
Gammell, H. C. (A)
Gamson, E. R. (SM)
Gapasin, F. G. (M)
Gasper, C. A. (A)
Gaston, J. L. (M)
Gates, H. P., Jr. (SM)
Gaylord, R. S. (M)
Geddes, R. N. (M)
Geer, W. (SM)
Geiger, A. A. (M)
Geissinger, G. I. (M)
Gelbwaks, N. L. (M)
Gerard, P. L. (M)
Gerhart, R. E. (M)
Gerson, G. (M)
Gertsch, E. P. (SM)
Gertz, J. S. (A)
Gibbs, F. R. (M)
Gibbs, L. C. (A)
Gichtin, A. L. (M)
Gido, J. F. (M)
Gilbert, J. D. (M)
Gillingham, A. D. (A)
Gilman, E. L. (M)
Gimpel, D. J. (M)
Gingerich, J. C. (M)
Gladstone, B. E. (M)
Glass, J. R. (M)
Glassberg, R. (M)
Glassmaker, L. G. (M)
Glazer, S. (M)
Gloor, R. D. (M)
Glover, J. M. (A)
Glunt, J. D. (M)
Goad, R. J. (M)
Goff, R. H. (M)
Golbert, S. A. (M)
Gold, D. (M)
Goldenstern, G. M. (SM)
Goldfus, B. (A)
Goldshine, K. B. (M)
Goldstein, S. (M)
Goodson, B. M. (A)
Goodwin, F. E. (M)
Goodwin, J. W. (M)
Gordon, G. (M)
Gordy, H. M. (M)
Gorman, J. M. (M)
Gossland, S. (A)
Gottler, T. L. (SM)
Gourrich, G. E. (M)
Gozzi, E. J. (M)
Grant, E. W. (M)
Gray, R. C. (A)
Green, B. D. (M)
Green, J. S. (SM)
Greenbaum, M. (M)
Greenberg, L. (M)
Greenberg, R. I. (M)
Gregory, E. M. (M)
Greif, H. D. (M)
Greisz, G. F. (M)
Griest, R. H. (SM)
Griffith, M. H. (M)
Griffith, S. D. (M)
Grignon, L. D. (SM)
Groellinger, H. J. (M)
Grosbaum, E. (M)
Grove, J. L. (M)
Guay, A. J. (M)
Guerrero, E. S. (SM)
Guiness, H. A. (A)
Gunny, E. R. (A)
Guterman, F. H. (M)
Gwynne, G. (M)
Haag, E. J. (SM)
Haberland, E. R. (M)
Habersatter, L. M. (M)
Haeff, A. V. (F)
Hageman, D. H. A. (M)
Hagen, D. H. (M)
Hagerott, R. E. (M)
Hahn, A. C. (M)
Haim, H. J. (M)
Hakans, R. A. (M)
Haladej, M. A. (M)
Hall, K. A. (M)
Hall, T. S. (M)
Hamet, L. N. (M)
Hammer, I. W. (M)
Hammond, N. B. (A)
Handy, B. F., Jr. (M)
Hannum, A. J. (SM)
Hanover, P. N. (M)
Hansen, R. C. (SM)
Hant, W. (M)
Harber, C. D. (M)
Harman, C. G., Jr. (M)
Harpenau, R. L. (M)
Harrison, W. (A)
Hart, R. R. (M)
Hasche, J. C. (A)
Hassel, R. R. (M)
Hatakeda, A. (M)
Hattersley, F. L. (SM)
Hayashida, B. N. (M)
Hayata, T. (M)
Hayman, G. O. (M)
Haymond, H. R. (M)
Haynes, C. L. (A)
Hecht, B. (SM)
Heh, C. P. (M)
Heidbreder, G. R. (M)
Heilfron, J. (M)
Heimiller, R. C. (M)
Heitzman, R. E. (M)
Henderson, F. J. (M)
Henry, J. A. (M)
Hershberger, W. D. (F)
Heskel, J. H. (M)
Hetland, G., Jr. (M)
Higashi, A. K. (M)
Higashi, P. (M)
Higdon, R. V. (SM)
Higuchi, P. K. (M)
Hill, B. E. (A)
Hill, D. M. (M)
Hill, J. C. (SM)
Hilsdale, F. A. (A)
Hindin, M. J. (A)
Hippensteel, M. H. (M)
Hitchcock, D. R. (M)
Hita, H. F., Jr. (M)
Hitt, R. B. (A)
Hitterdal, A. B. (M)
Hixson, R. L. (M)
Hochheiser, J. S. (A)
Hodges, W. J. (M)
Hodgson, R. W. (SM)
Hoffman, H. L. (SM)
Hoffman, L. A. (SM)
Hogue, R. B. (M)
Holcomb, D. R. (SM)
Holdsworth, D. M. (A)
Holliday, I. M. (SM)
Holmen, R. E. (M)
Holmes, F. M., Jr. (M)
Holmes, J. L. (M)
Holt, D. G. (M)
Holt, J. G. (A)
Holtzman, J. M. (M)
Holtzman, J. C. (M)
Holzman, J. (M)
Hom, H. K. (A)
Hon, E. H. G. (M)
Honey, J. F. (SM)
Hook, W. R. (M)
Hopkins, R. C. (M)
Horejsi, R. M. (M)
Horowitz, I. M. (SM)
Horrell, M. W. (SM)
Horvath, J. S. (M)
Hosbach, G. H. (A)
Houghton, H. V., Jr. (SM)
Howard, D. R. (M)
Howard, J. W. (A)
Howden, P. F. (M)
Howell, F. S. (SM)
Howell, H. R. (M)
Hoy, E. C. (M)
Huhn, R. J. (M)
Hultberg, D. E. (M)
Hults, C. M. (M)
Hume, P. D. (M)
Humme, G. W., Jr. (SM)
Hundley, T. C. (M)
Hussain, M. I. (M)
Iannelli, E. (M)
Ikegami, G. S. (M)
Ikegami, L. T. (M)
Imhoff, J. J. (SM)
Ireland, R. O. (M)
Irskens, T. E. (A)
Iseri, V. C. (A)
Ishii, G. M. (M)
Iwamoto, I. (M)
Izzo, A. J. (SM)
Jackman, R. W. (M)
Jackson, B. B. (M)
Jackson, K. R. (SM)
Jacob, D. M. (SM)
Jacobs, J. E. (SM)
Jaffe, J. S. (M)
Jahns, E. R. (SM)
Jamison, J. W., Jr. (M)
Jamison, R. S. (M)
Janeira, A. J. (M)
Jarrett, H. F. (SM)
Jatras, S. J. (M)
Jensen, S. K. (M)
Jepsen, T. L. (M)
Jevons, L. O. (M)
Johanson, E. H. (M)
Johnson, D. L. (M)
Johnson, G. (SM)
Johnson, J. G. (M)
Johnson, J. S. (M)
Johnson, K. K. (M)
Johnson, L. Z. (M)
Johnson, R. E. (M)
Johnson, R. M. W. (SM)
Johnson, T. G. (A)
Jones, D. (A)
Jones, R. M. (A)
Jordan, K. E. (A)
Joseph, D. (M)
Joseph, H. (A)
Joyce, F. J. (M)
Judge, W. J. (M)
June, R. M. (A)
Kadar, N. M. (M)
Kado, R. T. (M)
Kagan, M. F. (SM)
Kamerer, G. C. (M)
Kaneko, G. S. (M)
Kanter, E. (M)
Kapoler, M. O. (SM)
Kapriellan, Z. A. (M)
Karpenko, V. A. (M)
Karplus, W. J. (M)
Karr, P. R. (SM)
Katb, C. H. (M)
Kato, M. M. (M)
Kato, P. S., Jr. (M)
Katz, J. (M)
Katz, S. (M)
Kaufman, B. A. (M)
Kaufman, S. (M)
Kavanaugh, E. V. (M)
Kawahata, B. I. (M)
Kawana, H. Y. (A)
Keast, D. N. (M)
Keever, D. B. (M)
Kellerman, D. (M)
Kelly, B. M. (SM)
Kelly, D. A. (SM)
Kelly, F. G. (SM)
Kelsey, D. L. (A)
Kelso, J. M. (SM)
Kelson, M. L. (M)
Kennedy, C. B. (M)
Kennedy, F. M. (SM)
Kennedy, F. D. (M)
Kennedy, M. E. (F)
Kenrick, A. F. (M)
Kenworthy, E. L. (M)
Kerr, J. S. S. (SM)
Kershner, W. T. (A)
Kibler, P. J. (SM)
Kiernan, E. F. (SM)
Kierulff, C. T. (SM)
Kilchenman, L. U. (A)
Kim, B. (M)
Kimball, M. A. (A)
Kinaga, T. (SM)
King, E. L. (M)
King, E. (M)
King, E. F. (SM)
King, R. E., Jr. (SM)
King, S. W. (M)
Kinsell, W. L. (SM)
Kircher, R. J. (SM)
Kirsch, H. A. (M)
Kirshman, P. (M)
Kishi, F. H. (M)
Kivett, J. A. (M)
Klapper, E. (M)
Klein, F. A. (M)
Klein, H. E. (M)
Klein, R. (SM)
Klein, W. S. (M)
Klempel, A. D. (M)
Klimek, J. C. (M)
Kline, E. S. (SM)
Kline, R. L. (A)
Klinge, W. H. (M)
Knaul, J. E. (M)
Knauss, R. G. (M)
Knell, E. A. (M)
Kobayashi, J. T. (M)
Kobayashi, R. (M)
Kober, B. K. (M)
Kobus, J. P. (M)
Kodera, C. F. (M)
Kohlhousen, C. J. (M)
Koski, L. H. (M)
Kosseff, J. W. (A)
Koukol, J. F. (SM)
Kovach, L. D. (M)
Krafft, W. R. (SM)
Kraus, R. J. (M)
Krause, K. A. (M)
Krausz, A. (SM)
Krawiec, J. C. (M)
Kreismanis, M. V. (M)
Krone, J. (M)
Kros, K. W. J. (M)
Kroy, W. H., Jr. (M)
Kslenski, A. (M)
Kuehl, H. H. (M)
Kuklin, H. S. (A)
Kummer, W. H. (SM)
Kurahashi, D. K. (M)
Kurex, N. B. (M)
Kuretich, J. W. (SM)
Kuzmin, W. R. (SM)
Lacer, D. A. (M)
Lader, L. J. (SM)
Lalande, B. H., Jr. (A)
Lambert, J. D. (M)
Lance, A. L. (M)
Landon, R. B. (M)
Lane, C. A. (M)
Lane, S. D. (M)
Lang, P. A. (M)
Langtry, M. C. (M)
Lark, E. J. (M)
Larks, S. D. (M)
Larson, D. E. (M)
Lash, W. (M)
Latt, H. A. (M)
La Violette, R. F. (A)
Lawlor, R. C. (SM)
Leach, R. E. (M)
Lee, E. K. (M)
Lee, L. K. (F)
Lee, R. L. (M)
Lee, R. M. (M)
Leedy, C. A. (M)
Leeking, A. M. (M)
Lees, A. B. (M)
Le Grand, C. (M)
Lehr, S. N. (SM)
Lehrer, N. H. (M)
Leitch, W. S. (SM)
Leitner, R. G. (SM)
Lem, H. N. (A)
Lemmer, J. E. (M)
Lemon, E. A. (A)
Leonides, C. T. (SM)
Leverton, W. F. (SM)
Levine, L. (SM)
Levine, S. L. (M)
Levinson, R. M. (M)
Le Von, M., Jr. (M)
Levy, L. S. (M)
Levy, P. G. (M)
Lew, L. (M)
Libaw, W. H. (M)
Lichtman, S. W. (SM)
Liddicoat, W. L. (A)
Lieberman, M. D. (M)
Lien, D. A. (A)

Lietzan, A. A. (M)
Lim, H. (M)
Lindell, E. (M)
Lindenberg, S. (M)
Lindsey, L. C. (M)
Lindstrom, G. M. (M)
Lipman, C. E. (M)
Litman, G. G. (M)
Loewenthal, W. (M)
Logan, D. C. (A)
Loof, L. (A)
Looney, B. W. (SM)
Loop, H. L. (M)
Lord, W. P. (M)
Losh, S. J. (M)
Lowell, R. J. (M)
Lowry, J. M. (M)
Loy, Y. S. (M)
Loyet, D. L. (M)
Lucas, A. (A)
Luce, D. W. (M)
Lum, H. K. W. (M)
Lund, W. W. (M)
Luth, P. A., Jr. (M)
Lutz, S. G. (SM)
Lyman, J. (M)
Lyons, L. J. (M)
Maguire, W. W. (M)
Mallison, J. A. (M)
Manderfeld, E. C. (SM)
Mangum, W. T. (A)
Manley, R. W. (SM)
Manner, H. (M)
Manov, F. S. (M)
Mar, W. A. (M)
Margerum, D. L. (SM)
Margol, L. (M)
Margolies, D. L. (M)
Margolis, M. (M)
Margowsky, H. M. (M)
Markowitz, S. (M)
Marks, R. B. (M)
Markson, J. L. (M)
Marshall, F. C. (M)
Marshank, D. N. (A)
Martin, L. B. (M)
Mason, C. W. (SM)
Masuda, H. B. (M)
Mathews, E. (M)
Mathews, W. E. (SM)
Matsubara, G. S. (M)
Matsumoto, T. E. (A)
Mautner, L. (SM)
Mayor, W. G. (A)
Mazur, S. S. (M)
McAllister, J. T. (A)
McCaldin, J. O. (SM)
McCaron, S. I. (M)
McCharles, J. R. (SM)
McClung, R. R. (M)
McCoy, R. E. (SM)
McDaniel, J. R. (M)
McDonald, W. W. (M)
McDonnell, J. D. (M)
McDougall, M. E. (SM)
McGann, L. (M)
McKnight, B. E. (M)
McLaughlin, R. G. (M)
Mead, C. E. (M)
Meckfessel, E. F. (M)
Medina, L. G. (M)
Medow, J. (SM)
Mehrbach, E. (M)
Meier, E. H. (SM)
Meisels, G. (SM)
Meissinger, H. F. (SM)
Melnick, R. A. (M)
Meltzer, S. A. (SM)
Menasco, L. C. (M)
Mendel, J. T. (M)
Merrill, H. M. (M)
Merrill, J. A. (A)
Messner, G. P. (M)
Mettler, R. F. (M)
Meyer, A. W. (SM)
Meyers, R. C. (M)
Michaels, J. D. (M)
Michels, L. S. (M)
Michitsch, W. M. (A)
Micka, E. Z. (M)
Middlebrook, D. G. (M)
Migliaccio, A. (M)
Milby, B. C. (M)
Miller, B. (M)
Miller, B. (M)
Miller, D. L. (SM)
Miller, D. S. (A)
Miller, R. B. (M)
Miller, T. (M)
Miller, W. S. (M)
Miller, W. B. (SM)
Millholton, A. L. (M)
Millstone, S. D. (M)
Milunas, Z. (M)
Mintz, E. (M)
Mirakentz, A. (A)
Misster, C. W. (M)
Mitchell, C. A., II (M)
Mitchell, H. F., Jr. (M)
Mitchell, J. M. (M)
Mitchell, M. B. (M)
Mockbee, R. L. (M)
Moller, J. K. (SM)
Molnar, A. W. (M)
Molnar, L. A. (M)
Monlz, J. J. (M)
Monroe, W. W. (M)
Montero, J. H. (M)
Moore, D. W. (M)
Moore, P. G. (M)
Moore, R. T. (M)
Moorehead, D. L. (M)
Morata, L. P. (M)
Moreno, C. A. (SM)
Morill, D. D. (M)
Morra, R. J. (M)
Morris, W. H. (M)
Morrison, R. (M)
Morrison, S. C. (M)
Morrow, C. T. (M)
Moskalo, V. G. (M)
Moss, F. W. (M)
Moss, J. F. (A)
Moulton, A. B. (M)
Mount, T. E. (A)
Moyer, L. N. (A)
Mueller, G. E. (SM)
Mueller, W. A. (M)
Mueller, W. M. (M)
Munck, E. (M)
Munger, J. C. (M)
Munson, J. E. (SM)
Munushian, J. (M)
Murakami, E. T. (M)
Murakami, P. K. (M)
Murakami, Y. (M)
Murray, R. M. (SM)
Mushin, R. S. (A)
Mutton, J. O. (M)
Myers, K. E. (M)
Nahl, N. E. (M)
Nakano, H. (M)
Nakasone, R. T. (M)
Neal, F. R. (A)
Neblett, J. D. (A)
Nedland, E. H. (A)
Neelands, R. (M)
Nelson, M. (A)
Neshelm, D. A. (M)
Neumark, Z. (M)
Neville, R. C. (M)
Newhoffer, F. L. (A)
Newman, B. R. (M)
Nichols, F. J. (M)
Niebuhr, J. E. (SM)
Nielsen, C. E. (M)
Nihel, T. (A)
Niquette, R. P. (M)
Niquette, R., Jr. (A)
Nomura, K. (M)
Nordstrom, G. J. (SM)
Norman, L. S., Jr. (M)
Norton, J. L. (M)
Norton, R. (A)
Norwood, L. R. (SM)
Norwood, V. T. (SM)
Novest, R. A. (M)
Nourse, R. B. (M)
Novak, J. L. (A)
Nozawa, E. T. (M)
Nunan, J. K. (M)
Nusbaum, R. E. (M)
Nuttall, H. V. (SM)
O'Brian, E. D. (A)
O'Connor, G. J. (M)
Ogawa, K. (M)
Oglesby, W. D. (M)
O'Hara, C. L. (A)
Okafuji, S. (M)
Okamura, S. Y. (M)
Okimoto, J. Y. (M)
Okino, T. Y. (M)
Okubo, G. H. (M)
Oldendorf, W. H. (M)
Oleesky, S. S. (SM)
Olson, M. W. (M)
Olson, N. L. (A)
Olson, R. H. (SM)
Ort, D. L. (A)
Osburne, G. G. (M)
Ostrich, J. T. (M)
Osugi, J. H. (M)
Ota, T. T. (M)
Otani, T. (A)
Otoide, J. K. (A)
Ovitt, M. D. (M)
Owens, A. T. (SM)
Padwa, M. N. (M)
Palevsky, M. (A)
Pape, M. (A)
Parisky, R. N. (A)
Parker, A. T. (M)
Parker, D. K. (M)
Parker, R. O. (M)
Parode, L. C. (SM)
Parsons, P. L. (M)
Pascoe, T. S. (M)
Paskusz, G. F. (M)
Pattison, S. B. (M)
Patton, W. L. (M)
Peay, E. A. (M)
Peek, R. H., Jr. (M)
Penner, H. F. (A)
Perrin, C. A. (M)
Perry, E. D. (M)
Perry, R. H. (M)
Petersen, L. D. (M)
Petrov, G. M. (M)
Pew, J. M. (SM)
Pfiffner, H. J. (M)
Philipson, L. L. (SM)
Phillips, A. H. (M)
Phinizy, R. B. (M)
Pieper, R. P. (SM)
Pilralnen, C. A. (M)
Pinckney, C. B. (M)
Pincus, L. (M)
Pinczower, H. J. (M)
Piper, C. A. (SM)
Pipes, L. A. (F)
Plotkin, S. C. (M)
Poirier, J. P. A. (A)
Pool, C. G. (M)
Porro, E. D. (M)
Post, G. (M)
Potts, D. L. (M)
Price, R. L. (SM)
Prince, A. D. (A)
Priore, K. C. (M)
Pro, S. (A)
Proud, W. H. (M)
Purdum, L. C. (M)
Pyle, J. L. (M)
Quinn, R. F. (M)
Quinn, T. B. (M)
Quirk, R. W. (SM)
Radant, M. E. (M)
Ralls, E. J. (M)
Ramos, A. A. (M)
Randolph, R. C. (M)
Rappaport, R. B. (M)
Rath, E. D. (M)
Rathbun, D. K. (M)
Rau, E. C. (M)
Raymond, J. L. (M)
Raymond, W. R. (M)
Reade, R. B. (M)
Reaser, R. L. (M)
Redding, F. I. (M)
Redding, F. W., Jr. (M)
Redheffer, R. M. (SM)
Redwood, R. C., Jr. (A)
Reece, J. O. (M)
Regel, E. L. (SM)
Rehbein, N. W. (M)
Reichenbach, E. M. (M)
Reichik, M. (M)
Reimer, R. N. (M)
Reiner, O., Jr. (A)
Rescoe, J. M. (SM)
Richards, W. S. (M)
Richardson, D. K. (SM)
Richesson, R. W. (M)
Richie, W. C., Jr. (M)
Rickords, T. J. (M)
Ridinger, H. J., Jr. (M)
Rieser, H. M. (A)
Riewald, R. J. (M)
Rifkind, J. (M)
Riggins, H. R. (M)
Riggs, J. O. (M)
Rittersbacher, J. E. (M)
Roach, W. E. (A)
Robb, E. J. (M)
Roberts, L. D. (M)
Roberts, P. S. (M)
Robertson, G. R. (M)
Robinson, J. A. (M)
Robinson, T. J. B. (M)
Robnett, R. P. (M)
Rodman, N. (M)
Rogers, T. A. (M)
Roscoe, S. N. (SM)
Rose, A. C. (M)
Rose, B. E. (M)
Rose, W. (M)
Rosenstein, A. B. (M)
Rosenthal, R. N. (M)
Rosenthal, W. (M)
Rosman, A. S. (M)
Ross, W. L. (M)
Rotberg, A. S. (M)
Roth, A. R. (M)
Rothe, C. W. (M)
Rothman, D. (M)
Rovell, A. (M)
Rowlands, B. O. (SM)
Royal, E. L. (M)
Rubinstein, R. (A)
Rudin, S. (M)
Ruhman, S. (SM)
Rupp, V. T. (A)
Rusch, W. V. T. (M)
Russell, D. C. (M)
Russell, W. C., Jr. (M)
Russell, W. T. (SM)
Rutishauser, R. W. (M)
Ruttenberg, S. A. (M)
Sachse, M. H. (A)
Sackett, L. C. (M)
Sager, R. D. (M)
St. John, R. P. (M)
Sakai, Y. (M)
Sakamoto, R. Y. (M)
Saltzberg, B. (SM)
Sampson, W. F. (SM)
Samuelson, H. R. (M)
Samulon, H. A. (SM)
Sanders, J. (M)
Sanders, R. (M)
Sanderson, K. W. (M)
Sandoval, R. (M)
Saruwatari, K. R. (M)
Sato, B. T. (M)
Satogami, S. (M)
Satterthwaite, G. M., Jr. (M)
Saturensky, G. (SM)
Savaglan, B. (M)
Savitsky, G. S. (M)
Sawyer, G. E. (M)
Sayano, K. F. (M)
Scapple, R. Y. (SM)
Schaefer, W. C. (A)
Schafer, N. B. (A)
Schaffer, A., Jr. (M)
Schilling, M. O. (M)
Schindler, M. (M)
Schlachter, L. M. (A)
Schlosser, L. H. (M)
Schmid, R. C. (SM)
Schmidt, L. W. (A)
Schnauss, E. R. (M)
Schoendube, H. W. (M)
Schonbrun, L. M. (M)
Schorsch, R. H. (M)
Schotz, F. W. (M)
Schreiber, E. H. (F)
Schuette, K. R. (M)
Schultz, H. R. (M)
Schultz, P. R. (M)
Schulz, P. (A)
Schwartz, A. (A)
Scolfone, R. G. (M)
Scott, C. D. (SM)
Scott, R. G. (M)
Sears, R. E. (M)
Seborg, E. H. (M)
Seelig, L. (M)
Seidman, J. J. (SM)
Seitz, S. S. (M)
Self, J. A. (M)
Sell, W. L. (M)
Selleck, R. S. (M)
Semel, D. (M)
Senn, J. C. (M)
Sensiper, S. (F)
Seolow, S. (M)
Sepmeyer, L. W. (SM)
Seung, P. (A)
Shaboo, J., Jr. (M)
Shallon, S. C. (SM)
Shameson, L. (M)
Shannahan, E. F. (M)
Sharp, B. E. (M)
Sharpton, R. E. (M)
Shaw, C. P. (A)
Shaw, R. G. (M)
Sheets, C. E. (A)
Shein, S. (A)
Shigenaga, W. T. (M)
Shimabukuro, G. T. (M)
Shimizu, K. (M)
Shimizu, T. (M)
Shinoda, K. (M)
Shoemaker, H. M. (A)
Shoop, W. F. (M)
Shore, H. G. (M)
Shoulders, H. D. (M)
Shrum, L. R. (A)
Shufflebarger, J. R. (M)
Shuler, M. H. (M)
Sidio, G. J. (M)
Siegel, R. L. (M)
Sigmon, L. C. (SM)
Signer, R. M. (M)
Sillano, A. R. (M)
Silliman, W. B. (M)
Silven, S. (M)
Silvern, L. C. (M)
Simmons, V. J., Jr. (A)
Simon, A. (SM)
Simon, E. B. (A)
Simpson, W. P. (SM)
Singleton, H. E. (SM)
Singleton, R. L. (M)
Sinn, G. (M)
Sion, E. (M)
Sizemore, L. E. (M)
Skelton, P. (M)
Skoller, M. (SM)
Slee, J. E. (M)
Slogar, J. W. (M)
Smith, A. A. (A)
Smith, C. V. (M)
Smith, D. G. (A)
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Smith, F. H. (M)
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Smith, R. A. (M)
Smith, R. T. (SM)
Smuckler, E. J. (SM)
Snapp, K. M. (A)
Snell, H. R. (M)
Snitzer, T. L. (M)
Snow, V. M. (M)
Snyder, D. L. (M)
Sodaro, J. F. (SM)
Sollars, R. C. (M)
Solley, J. C. (M)
Soltys, G. H. (M)
Somers, F. J. (SM)
Sommer, J. G. (M)
Sorensen, A. A. (M)
Sorenson, E. D. (M)
Sorkness, R. E. (SM)
Spellmire, R. J. (M)
Speltz, S. E. (M)
Sperling, P. (SM)
Sprague, E. L., Jr. (M)
Spriestersbach, R. C. (M)
Spriggs, A. J. (SM)
Sprinz, E. (M)
Stamps, G. M. (M)
Stan, J. (M)
Stankevich, P. A., Jr. (M)
Staudhammer, J. (M)
Stauss, E. G. (M)
Stear, E. B. (A)
Steams, J. R. (A)
Steams, L. D. (A)
Steele, S. L. (SM)
Steenson, B. O. (M)
Steinberg, R. (M)
Steinkolk, R. B. (M)
Stellmacher, D. D. (SM)
Stephenson, R. G. (SM)
Stem, J. M. (M)
Stem, K. (M)
Steward, M. H. (M)
Stockhoff, K. C. H. (M)
Stolke, D. A. (M)
Stokes, L. S. (M)
Stone, A. J. (M)
Stone, D. (M)
Stone, D. (M)
Stone, K. A. (M)
Stork, J. E. (M)
Straus, T. M. (M)
Strawn, G. A. (A)
Strawn, R. S. (M)
Strem, S. E. (M)
Strieby, M. (M)
Stroud, J. C. (A)
Strumwasser, E. (M)
Stumberg, J. W. (M)
Stumman, H. E. (M)
Susal, A. L. (M)
Sussex, G. R. (M)
Sutton, W. R. (M)
Suyematsu, H. T. (M)
Swan, R. L. (M)
Swanson, E. R. (SM)
Swanthe, E. (SM)
Sweet, R. A. (M)
Szerlip, A. (SM)
Taira, W. C. (M)
Tajima, G. K. (SM)
Takahashi, A. Y. (M)
Takahashi, K. (A)
Talbot, J. J. (M)
Tanke, H. F. (SM)
Tansky, R. I. (A)
Tanza, E. L. (M)
Tateoka, H. (M)
Tatsugawa, S. (M)
Taufenbach, L. E. (M)
Taylor, D. J. (M)
Taylor, E. K. (M)
Taylor, J. C. (M)
Teeple, W. H. (A)
Tenold, R. P. (A)
Terris, I. (M)
Teske, J. A. (M)
Theodore, C. (M)
Therrien, H. J. (M)
Thoma, F. J. (M)
Thomas, R. L. (M)
Thompson, G. L. (M)
Thornton, H. L. H. (M)
Timpe, C. T. (M)
Tingley, R. G. (M)
Tinsley, W. E. (M)
Tjaden, L. L. (M)
Tobin, G. C. (A)
Tobolski, J. (M)
Toeppen, M. K. (SM)
Toffler, J. E. (M)
Tomikawa, K. B. (M)
Tomita, H. H. (M)
Tompkins, E. H., Jr. (M)
Tonal, Y. (M)
Tracey, B. P. (M)
Trachinger, R. (M)
Triplett, W. R. (SM)
Troeger, F. R. (M)
Tsuda, R. Y. (A)
Tyson, G. (M)
Udalov, S. (M)
Ulzurrun, E. T. (A)
Uyetani, B. (M)
Valciunas, A. A. (M)
Valentine, D. T. (A)
Valliant, J. G. (M)
Van Curen, V. (M)
Van Delos, P. A. (M)
Vargas, R., Jr. (M)
Veach, C. W. (SM)
Velasco, B. M. (M)
Veneklasen, P. S. (M)
Vesely, D. D. (M)
Vesser, W. C. (M)
Villa, R. (A)
Visotsky, V. M. (A)
Viswanathan, C. R. (M)
Viterbi, A. J. (M)
Vitzelio, R. B. (A)
Vodopia, S. N. (M)
Von Lanken, J. R. (M)
Vorndran, J. W. (SM)
Voss, J. H. (A)
Wakamiya, Y. (M)
Walden, A. G. (M)
Walker, E. S. (M)
Walker, R. E. (M)
Wall, J. E. (A)
Wallace, D. C. (M)
Walley, B. (SM)
Walsh, A. J. (M)
Walthers, G. A. (M)
Ward, R. A. (M)
Ware, P. H. (M)
Warshaw, M. (M)
Watanabe, A. S. (M)
Waterman, H. B. (A)
Wayment, K. D., Jr. (M)
Weber, F. V. (A)
Weglein, R. D. (SM)
Weinberg, L. (F)
Weinberger, H. L. (SM)
Weingarten, R. (M)
Weis, J. P. (M)
Weiss, M. T. (SM)
Weiss, P. H. (SM)
Weiss, W. J., Jr. (M)
Weldon, J. C. (M)
Welge, V. (SM)
Wellner, C. L. (M)
Wells, C. A. (SM)
Welmers, E. T. (SM)
Welsh, N. R. (M)
Wenters, R. L. (SM)
Wersen, D. T. (M)
Werts, L. C. (M)
Westman, J. J. (M)

Weston, T. C., Jr. (A)
Wheelon, A. D. (SM)
Whitcomb, H. W. (M)
White, C. R. (M)
White, W. H. (M)
Whitford, R. K. (M)
Whybark, D. L. (M)
Wieneke, R. G. (M)
Wiggins, E. T. (M)
Wilbur, E. T. (M)
Wilen, A. I. (M)
Wilke, W. E. (M)
Wilkins, J. R. (A)
Willeford, G. E. (M)
Williams, J. W. (M)
Willis, J. (A)
Wilson, A. E. (A)
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Wilson, T. A. (SM)
Wilson, W. M. (M)
Winkler, T. (M)
Winters, B. C. (M)
Winters, M. N. (M)
Winton, H. L. (M)
Wires, G. A. (M)
Witherwax, H. E. (M)
Wittels, J. L. (M)
Witteman, V. D. (M)
Wittig, K. H. (M)
Witty, D. B. (M)
Wolff, A. F. (A)
Wolfny, W. T. (M)
Wolfrich, A. E. (M)
Wong, B. W. C. (A)
Wong, B. K. (M)
Wong, E. S. (A)
Wong, F. (A)
Wong, H. Y. (M)
Wong, W. Y. (M)
Wood, R. W. (M)
Woodcock, E. L. (SM)
Woodson, F. B. (M)
Woster, S. H., Jr. (M)
Wright, D. C. (A)
Wright, P. B. (A)
Wyatt, F. A. (A)
Yabitsu, C. T. (M)
Yadav, K. P. (M)
Yamamoto, K. (M)
Yamamoto, T. W. (M)
Yasuda, J. K. (M)
Yatskin, G. C. (SM)
Yee, W. W. B. (M)
Yim, G. W. (M)
York, J. M. (M)
Yoshida, M. (M)
Young, F. C. Y. (M)
Young, L. S. (M)
Young, R. (A)
Young, W. D. (M)
Yue, G. (M)
Zacharias, R. (M)
Zall, P. M. (A)
Zacolitelli, C. A. (A)
Zeh, R. J. (SM)
Zemanek, J., Jr. (M)
Zilaitis, A. (M)
Zimmerman, F. M. (M)
Zint, K. E. (SM)
Zobelein, E. C. (M)
Zuckerberg, H. (M)
Zukerman, L. G. (SM)
Zweizig, J. R. (M)

Los Banos (SF-7)
Hunt, M. D. (A)

Los Gatos (SF-7)
Benoit, R. E. (A)
Bruce, P. E. (M)
Burns, W. E. (M)
Byrnes, P. J. (M)
Cassidy, B. F. (M)
Craddock, W. O. (M)
Davis, J. H. (M)
Drake, J. M. (M)
Dresbach, G. R. (M)
Fisher, M. B. (M)
Glass, F. W. (M)
Goddard, W. A. (M)
Griffith, R. L. (M)
Heintz, R. M. (F)
Irving, D. W. (M)
Kownacki, S. (SM)
Lincoln, E. T. (A)
Lynn, R. B. (A)
McLaughlin, J. A. (M)
McQuade, E. J. (M)
Moore, S. E. (M)
Olson, R. E. (M)
Orrick, G. E. (M)
Poole, J. R. (A)
St. Clair, H. K. (M)
Schultz, O. T. (SM)
Sluman, A. C. (M)
Spann, R. G. (M)
Stokes, B. C. (M)
Stoner, F. E. (SM)
Sund, H. E. (M)
Vinding, J. P. (SM)
Von Damm, C. A. (M)
Wear, G. L. (A)
Welch, D. I. (M)
Whelchel, W. M. (A)
Wilde, R. B. (M)
Witt, V. R. (SM)

Livermore (SF-EB-7)
Aas, E. A. (SM)
Anderson, J. S. (M)
Bandtel, K. C. (M)
Barham, J. F. (M)
Bostwick, W. E. (M)
Branum, D. R. (SM)
Brown, D. W. (A)
Carstensen, H. K. (M)
Commons, D. W. (A)
Compton, P. D., Jr. (M)
Conant, B. K. (M)
Dean, D. K. (M)
Downing, W. G., Jr. (M)
Eckard, R. D. (M)
Enos, R. C. (M)
Facer, R. F. (M)
Finnigan, R. E. (SM)
Francis, H. D., Jr. (SM)
Franklin, C., Jr. (M)
Fumberg, C. M. (M)
Gregson, D. E. (M)
Greilich, A. L. (M)
Hamm, T., Jr. (M)
Hollingsworth, L. E. (SM)
Hubinger, A. A. (M)
Hymer, R. L. (M)
Iiams, R. K. (M)
Inami, F. K. (SM)
Ingledue, E. F. (M)
Jensen, H. J. (M)
Jones, E. D. (SM)
Kaifer, R. C. (SM)
Kallbjian, R. (SM)
Katz, J. E. (M)
Kinney, K. K. (A)
Krause, O. H. (SM)
Laudeman, J. A. (M)
Leavitt, G. A. (M)
Lindsay, W. F. (M)
Long, W. R. (M)
Longerbeam, G. T. (M)
Loth, B. M. (M)
Lux, P. A. (M)
Mangelsdorf, R. F. (M)
Martin, B. J. (M)
Martinell, R. E. (M)
McFarlane, H. B. (SM)
McMaster, W. J. (A)
Mitchell, K. A. (M)
Molzahn, D. W. (M)
Moore, J. M. (M)
Moyer, D. R. (M)
Nelson, G. G. (M)
Olken, H. (SM)
O'Neal, W. C. (M)
Owren, H. M. (A)
Pafford, W. B. (M)
Pepmueller, A. D. (A)
Peschel, D. J. (M)
Peters, D. C. (M)
Peterson, L. A. (M)
Pettigrew, J. L. (M)
Phelps, P. L., Jr. (M)
Potthoff, C. M. (M)
Price, W. C. (M)
Purcell, W. R. (M)
Ray, W. B., Jr. (M)
Reecer, C. A. (M)
Robinson, J. W. (A)
Rumble, R. P. (M)
Sage, G. E. (M)
Scharff, J. H. (M)
Schreiber, O. W. (M)
Sheridan, E. A. (M)
Short, H. G. (M)
Skinner, F. L. (M)
Skinrood, D. A. (SM)
Smith, V. L. (SM)
Spinella, J. D. (M)
Strahl, G. E. (SM)
Tanner, D. N. (M)
Thomas, S. W. (M)
Tidwell, R. M. (M)
Tockey, R. J. (M)
Walker, H. C. (M)
Werner, R. E. (M)
Whitten, C. L. (SM)
Wright, J. B. (M)

Lynwood (LA-7)
Albon, R., Jr. (M)
Audick, G. C. (A)
Czaja, J. J. (M)
De Vito, R. A. (M)
England, R. E. (M)
Hanley, G. K. (M)
Krogstad, J. K. (A)
Miller, B. C. (M)
Reich, J. E. (M)
Roth, E. L. (M)
Solle, A. J. (A)
Williams, J. D. (M)

Madera (SF-7)
Blau, C. C. (A)
Gamilas, G. (A)

Malibu (LA-7)
Anderson, J. R. (M)
Asendorf, R. H. (M)
Ayers, J. L. (M)
Battey, H. B. (SM)
Bimbaum, G. (SM)
Brewer, A. F. (SM)
Buddenhagen, D. A. (M)
Chatfield, M. B. (SM)
Destabelle, R. (M)
Digby, J. F. (SM)
Dill, J. M. (A)
Dudley, D. R. (M)
Fafarman, A. (M)
Gallagher, H. E. (SM)
Gurske, V. P. (M)
Halter, J. E., Jr. (M)
Hellwarth, R. W. (M)
Hill, C. A. (M)
Hill, C. R. (SM)
Hudspeth, T. (M)
Ivey, L. I. (M)
Kinder, W. J. (M)
King, G. L. (M)
Knechtli, R. C. (M)
Knowles, W. S. (SM)
Koontz, D. E. (M)
Law, R. R. (F)
Lewi, J. (SM)
Lewis, D. E. (M)
Love, C. E. (M)
Morse, J. H. (M)
Moss, G. E. (M)
Murphy, M. G. (SM)
Nevins, J. E., Jr. (SM)
Owens, O. G. (M)
Peirce, T. F. (M)
Plass, S. (SM)
Shifrin, G. A. (M)
Snyder, R. L. (SM)
Van Horne, T. B. (M)
Ward, J. W. (M)
Wilcox, C. H. (M)
Williams, R. R. (A)
Yearsley, W. A. C. A. (M)

Manhattan Beach (LA-7)
Aird, L. D. (M)
Alessi, V. J. (M)
Austin, T. V. (M)
Bailey, G. W. (SM)
Barnett, L. (M)
Beachler, R. R., Jr. (SM)
Bravo, R. J. (M)
Buell, F. D. (M)
Burke, H. W. (M)
Buterbaugh, J. N. (M)
Cahn, C. R. (M)
Clay, J. D. (M)
Clunis, K. (M)
Colby, F. K. (M)
Curtis, C. W. (SM)
Davies, P. M. (SM)
Demery, R. J. (M)
Desjardins, S. E. (SM)
Dobbins, W. E. (M)
Dougherty, P. C. (M)
Downey, E. J., Jr. (M)
Drong, R. W. (M)
Duffin, M. V. (M)
Fountain, J. G. (M)
Frost, F. K. (A)
Frysinger, E. B. (M)
Fuller, J. R. (M)
Funfstuck, H. (M)
Glascock, R. D. (M)
Goldstick, G. H. (M)
Graham, A. C. (M)
Graham, J. D. (M)
Gray, W. W. (M)
Gregory, H. D. (M)
Gustafson, L. A. (M)
Hamilton, W. J. (A)
Harris, J. W. (SM)
Heikkinen, R. R. (M)
Heil, J. F. (M)
Held, G. (M)
Hendricks, J. T. (A)
Henry, H. E. (M)
Hiatt, R. W., Jr. (A)
Holmes, J. S. (M)
Holtz, J. N. (M)
Hulsey, N. H. (M)
Hummel, A. R. (M)
Janis, J. P. (M)
Johnson, C. R. (M)
Johnson, R. M. (M)
Kelly, R. S. (M)
Kenny, P. C. (M)
Kirkland, V. D. (M)
Le Moin, F. M. (M)
Lepper, R. (M)
Loucks, H. D. (M)
Lydick, J. D. (M)
Macurda, C. (A)
McCann, M. J. (SM)
McRoden, W. L. (M)
Moore, J. M. (M)
Morrison, H. E. (A)
Mullins, W. H. (M)
Nooteboom, P. (M)
Norsell, P. E. (M)
Obray, D. C. (A)
Oman, C. N. (M)
Omik, L. L. (M)
Paymar, D. G. (A)
Putter, K. (M)
Redwine, C. H. (M)
Rodgers, R. L. (M)
Rodman, S. B. (M)
Ross, D. H. (M)
Rudich, R. (M)
Ryan, W. R., Jr. (M)
Sevy, J. L. (M)
Siegel, J. C. (M)
Sinclair, J. G., Jr. (SM)
Skehan, B. J. (M)
Smith, W. B. (M)
Souza, L. L. (M)
Sparling, A. J. (M)
Starkey, M. J. (M)
Stern, I. A. (M)
Stodder, D. J. (A)
Stolze, R. M. (M)
Swicegood, K. T. (M)
Tallon, W. J. (A)
Tucker, V. L. (A)
Vandegrift, R. B. (SM)
Vutz, P. (M)
Wagner, R. E. (M)
Washburn, D. M. (M)
Washington, L. P., Jr. (A)
Webb, R. C. (A)
Weston, H. (M)
Whelan, D. E. (SM)
Work, C. F. (M)
Wright, H. B. (A)

Manteca (SAC-7)
Arwine, R. (A)
Fulton, R. (M)

March AFB (LA-OB-7)
Goldman, M. W. (M)
Hutchinson, G. W. (M)

Martinez (SF-EB-7)
Bumpass, R. C. (A)

Mar Vista (LA-7)
Alford, W. H. (A)
Allen, B. G. (A)

Marysville (SAC-7)
Luckock, W. J. (M)
Newland, B. F. (A)

Mather AFB (SAC-7)
Ingram, R. W. (M)
Peterson, F. H. (M)

Maywood (LA-7)
Ganowsky, W. B. (M)
Swanson, R. L. (M)

McClellan AFB (SAC-7)
Friday, R. G. (A)
Gnagy, J. L. (M)
Haines, R. S. (M)
Owensby, G. H. (M)
Samuelson, R. R. (M)

Menlo Park (SF-7)
Achtenhagen, S. H. (M)
Alcorn, C. L. (SM)
Aldous, C. N. (M)
Amara, R. C. (A)
Angell, J. B. (SM)
Ault, C. E. (M)
Ayer, W. E. (SM)
Babcock, D. F. (SM)
Badger, G. M. W. (M)
Baer, J. A. (SM)
Bailey, H. M. (A)
Barnard, G. A., III (SM)
Barnes, C. W., Jr. (SM)
Barnes, R. A. (M)
Baron, M. J. (M)
Bartelink, D. J. (M)
Benedict, D. L. (SM)
Benjaminson, A. (M)
Bennion, J. R. (M)
Berg, M. R. (M)
Blumberg, M. S. (M)
Bourne, C. P. (M)
Bradley, R. E. (M)
Brain, A. E. (SM)
Brandon, E. T. (M)
Briefly, F. A. (M)
Brown, D. H. (SM)
Carnahan, C. W. (F)
Carter, E. F. (F)
Carter, P. S., Jr. (M)
Chellstorp, T. S. (M)
Chope, R. E. (A)
Christensen, D. R. (M)
Christie, T. A., Jr. (SM)
Clarke, L. G. (SM)
Condon, D. C. (M)
Cone, W. D. (SM)
Cox, J. (SM)
Crane, H. D. (SM)
Crumly, C. B. (SM)
Cutler, W. C. (M)
Dalriki, S. (M)
De Liban, R. (M)
Dolkas, C. (A)
Dolphin, L. T., Jr. (M)
Dorr, R. (SM)
Dugan, D. W. (M)
Durfey, G. K. (M)
Dyce, R. B. (M)
Eldredge, K. R. (SM)
Elliott, H. F. (F)
English, W. K. (M)
Fair, B. C., Jr. (M)
Feinstein, L. (M)
Firschein, O. (M)
Fisher, L. L. (M)
Fleig, W. J. (M)
Floyd, W. S., Jr. (A)
Forsen, G. (M)
Frankel, S. (F)
Fujii, W. M. (M)
Fyler, N. F. (M)
Gallant, M. A. (M)
Gano, L. D. (A)
Gardiner, K. W. (M)
Geppert, D. V. (SM)
Gillette, P. R. (SM)
Goldberg, J. (M)
Goldman, I. (SM)
Gould, R. G. (SM)
Grace, A. G. (M)
Grass, J. W. (M)
Greco, N. A. (M)
Gregg, P. E. (M)
Gunn, T. L. (M)
Hall, E. G. (M)
Halpern, W. (M)
Hamilton, R. H. (M)
Hansen, J. F. (M)
Harris, D. B. (F)
Harvey, J. (M)
Hausman, A. H. (M)
Heffner, G. M. (A)
Helmso, B. E. (M)
Hennies, S. R. (M)
Hill, P. W. (M)
Hiramatsu, Y. (M)
Hirotsu, G. S. (M)
Hodges, J. C. (M)
Honey, R. C. (SM)
Horelick, D. (M)
Housholder, D. B. (SM)
Hunter, L. W. (M)
Hunter, S. P. (A)
Iseri, C. H. (A)
Johnson, R. R. (M)
Jones, E. D. (M)
Jones, E. M. T. (SM)
Jung, G. C. (A)
Kaar, J. M. (M)
Kamphoefner, F. J. (SM)
Kautz, W. H. (M)
Kebby, M. H. (M)
Kennedy, H. D. (M)
King, B. D. (M)
King, R. C. (M)
Kingston, R. W. (A)
Kruse, C. J. (M)
Lathrop, R. J. (SM)
Leadabrand, R. L. (SM)
Lewis, J. R. (M)
Lindley, J. P. (SM)
Long, R. A. (M)
Lucke, W. S. (SM)
Luckenbach, R. R. (M)
Lynch, W. M. (M)
MacKenzie, F. J. (M)
Mandelbaum, A. J. (SM)
Mansur, F. (SM)
Marino, J. (A)
Matthael, G. L. (M)
Matthew, T. B. (M)
McCullough, W. R. (M)
McLaughlin, J. (A)
McWhorter, M. M. (A)
Meader, H. W. (A)
Meyer, H. M., Jr. (A)
Miller, A. (M)
Miller, E. M. (A)
Miller, J. W. (A)
Minnick, R. C. (SM)
Molnar, I. (SM)
Monson, J. E. (M)
Moore, E. J. (SM)
Moore, L. (M)
Moore, T. C. (M)
Morita, T. (SM)
Morrin, T. H. (F)
Mosley, R. B. (M)
Mount, R. C. (M)
Muehlner, J. W. (SM)
Mullen, T. R. (M)
Mural, A. I. (M)
Nanevicz, J. E. (A)
Nelson, R. A. (M)
Noe, J. D. (SM)
Notthoff, A. P., Jr. (M)
O'Connell, J. D. (F)
Oleson, S. K. (M)
Patton, W. W. (M)
Paulsen, W. C. (A)
Penning, D. C. (A)
Petrak, J. R. (SM)
Post, E. A. (F)
Powers, E. J., Jr. (M)
Presnell, R. I. (M)
Pressman, G. L. (M)
Priedigkeit, J. H. (SM)
Proctor, E. W., Jr. (SM)
Randall, R. H. (M)
Reyling, G. F. (M)
Rice, P. J., Jr. (SM)
Ridley, F. E. (SM)
Ritter, E. W. (SM)
Robbiano, P. P. (M)
Rockwell, R. G. (SM)
Ropa, R. L. (SM)
Rosen, C. A. (SM)
Rosengreen, A. (M)
Roth, C. H., Jr. (M)
Rothman, H. S. (M)
Ruder, D. J. (M)
Salmon, V. (SM)
Scharfman, W. E. (M)
Schlobohm, J. C. (A)
Segerstrom, R. J. (M)
Shapiro, E. B. (M)
Shepherd, R. A. (M)
Sherwin, J. S. (M)
Silhavy, W. M. (A)
Silverman, A. N. (M)
Skyles, R. W. (M)
Sleeper, G. E., Jr. (SM)
Smith, K. D. (M)
Smith, K. F. (M)
Sphar, C. H. (M)
Spurlock, E. W. (M)
Steele, R. E. (M)
Stoft, P. E. (M)
Stolaroff, M. J. (M)
Stoltz, P. G. (M)
Stratzman, J. H. (M)
Swain, J. R. (M)
Sweeney, H. E. (M)
Tanner, R. L. (SM)
Taylor, W. C. (M)
Thille, R. W. (M)

Thompson, N. P. (A)
Tisue, J. G. (M)
Todd, R. H. (M)
Trumbull, A. F. (A)
Valdes, L. B. (SM)
Vallarino, A. R. (M)
Vane, A. B. (M)
Van Patten, W. D. (SM)
Walker, A. C. (SM)
Wallner, R. A. (M)
Watt, E. M. (A)
Weitbrecht, R. H. (M)
Wemli, J. M. (M)
Whitby, O. (SM)
Wilke, R. R. (SM)
Williams, H. M. (SM)
Willrodt, M. J. (M)
Willson, K. R. (SM)
Wilson, L. H. (M)
Wilson, W. W. (M)
Wing, R. Y. (M)
Winkelman, R. E. (M)
Woodard, J. C. (M)
Worley, O. C. (M)
Worth, G. E. (M)
Wynn, W. H. (A)
Younker, E. L. (M)

Merced (SF-7)
Langan, J. C. (A)
Weiss, S. K. (A)

Midway City (LA-SA-7)
Schenet, W. A. (M)

Millbrae (SF-7)
Berthold, W. L. (M)
Calvert, C. C. (A)
Hershyn, W. (M)
Moore, K. A. (M)
Schulze, C. D. (M)

Mill Valley (SF-7)
Allison, M. W. (A)
Behringer, D. S. (M)
Cerwin, S. S. (SM)
Davidson, J. D. (M)
Feeney, W. G. (M)
Jacobs, H. N. (M)
Kotzum, J. L. (A)
Raudso, R. (M)
Smith, H. H. (M)
Unsworth, R. G. (M)

Milpitas (SF-7)
Burkhart, R. N. (A)
Ericson, E. E. (M)
Faries, A. M. (M)
Oswald, L. I. (M)
Tritton, R. F. (A)
Zobel, F. J., Jr. (M)

Miraleste (LA-7)
Deterville, R. J. (M)
Wattenbarger, R. L. (M)

Mission Hills (LA-SF-7)
Burns, J. J. (M)

Mission San Jose (SF-EB-7)
Hostetter, D. M. (M)
McGee, M. E. (M)

Modesto (SAC-7)
Bates, W. H., Jr. (M)
Chasin, R. G. (M)
Dowler, C. E. (A)
Lynch, C. (M)

Moffett Field (SF-7)
Keene, E. F. (A)

Mojave (CL-7)
Notar, C. A. (M)

Monrovia (LA-P-7)
Ambrose, E. G. (A)
Bell, N. W. (SM)
Brandes, R. A. (M)
Bremner, D. S. (A)
Carney, D. E. (A)
Cary, H. H. (M)
Corliss, C. R. (M)
Crossman, W. W. (M)
Goodman, F. R. (M)
Gray, J. F. (M)
Hawes, R. C. (A)
Keck, L. J. (M)
Lawler, R. H. (M)
Livezey, J. A. (M)
McGill, J. J. (M)
Monroe, J. C. (M)
Perrault, R. E. (M)
Rheinqans, E. A. (M)
Shenk, J. W. (M)
Willey, J. A. (A)

Monta Vista (SF-7)
Cochran, G. R. (M)
Evans, K. R. (M)
Hochman, D. (SM)
Palmer, C. W. (M)

Montclair (LA-OB-7)
Corrons, D. E. (M)
Green, W. J. L. (M)
Grigs, J. W. (M)
Hawes, R. E., Jr. (M)
Henderson, P. W. (M)
Jameson, C. J. (M)
Kutch, D. S. (M)
Lock, R. W. (M)
Montgomery, J. D., Jr. (SM)
Olsen, J. L. (M)

Montebello (LA-7)
Alper, S. M. (M)
Emerson, R. W. (A)
Hale, J. N. (A)
Kuniyuki, R. M. (M)
Nakamura, M. (M)
Sakamoto, R. T. (M)

Monterey (SF-7)
Ackerlind, E. (SM)
Bauer, W. M. (SM)
Chaney, J. G. (SM)
Church, R. (M)
Cooper, J. N. (SM)
Dorf, R. C. (M)
Frey, A. R. (SM)
Giet, G. R. (SM)
Glasgow, R. S. (F)
Gray, C. A. (M)
Hart, R. N., III (M)
Hoisington, D. B. (SM)
Jones, C. M. (M)
Kettlewell, J. (M)
Klamm, C. F., Jr. (M)
Lane, L. O., Jr. (M)
La Patra, J. W. (M)
Lee, E. B. (M)
Marmont, G. H. (M)
Murray, R. P. (M)
Norris, W. E. (M)
Oler, C. B. (SM)
O'Toole, J. B. (M)
Porter, A. A. (M)
Rothauge, C. H. (M)
Sheingold, A. (M)
Smith, W. C. (M)
Strum, R. D. (M)
Thaler, G. J. (M)
Wilcox, M. L. (M)
Wilson, O. B., Jr. (M)

Monterey Park (LA-7)
Bacon, W. L. (A)
Booher, C. F., II (A)
Borden, L. P. (M)
Brown, S. P. (A)
Crippen, C. E. (SM)
Davis, E. F. (M)
Eykholt, A. L. (M)
Fucile, F. B. (M)
Gong, H. (M)
Horiuchi, H. H. (M)
Kasai, G. S. (M)
Kaspin, S. (M)
Kliment, P. (A)
Koo, E. H. (M)
Lee, R. L. (M)
Leff, B. (M)
Lockhart, R. W. (SM)
Miyata, J. J. (SM)
Moon, R. B. (M)
Morrison, R. T. (M)
Moskovitz, I. (M)
Perry, J. T. (M)
Steuer, V. F. (M)
Takeda, A. H. (A)
Teraoawa, R. (M)
Ung, R. (M)
Welcome, W. W. (M)
Wennerberg, G. (SM)
Young, R. L. (SM)

Monte Sereno (SF-7)
Wettstein, J. E. (M)

Montrose (LA-P-7)
Chamberlain, A. T. (M)
Christilaw, J. S. (M)
Fitzgerald R. W. (M)
Jensen, A. K. (M)
Wright, L. W. (M)

Moorpark (LA-B-7)
Anders, B. J. (A)

Moraga (SF-EB-7)
Hyde, W. E., Jr. (M)

Morgan Hill (SF-7)
Flippin, R. B. (A)
Yoshii, H. (A)

Morro Bay (LA-SB-7)
Waltz, K. E. (M)

Mountain View (SF-7)
Aitchison, D. C. (M)
Allen, K. J. (M)
Allen, S. E., Jr. (M)
Allington, R. W. (M)
Amacher, W. E. (M)
Anderson, W. W. (M)
Ardoin, A. P. (M)
Arellano, A. (M)
Arnold, D. T. (M)
Arvidson, E. W. (A)
Augustine, A. F. (SM)
Bahr, R., Jr. (M)
Bahrs, G. S. (M)
Barewald, J. R. (M)
Basham, E. F. (M)
Baumgarth, J. G., II (A)
Bay, T. H. (M)
Beall, R. W. (M)
Beard, C. I. (SM)
Bechtel, B. (A)
Beneteau, P. J. (M)
Bernier, L. E. (M)
Bert, J. E. (A)
Bishoo, D. (M)
Boennighausen, R. A. (M)
Booth, R. E. (M)
Borghi, R. P. (M)
Bourret, R. R. (A)
Bower, K. D. (M)
Brede, D. W. (M)
Brenner, J. W. (M)
Bridoman, A. D., Jr. (M)
Briskin, H. B. (SM)
Broekemeier, A. E. (M)
Byrne, G. C. (SM)
Cantoni, C. W. (M)
Carson, J. W. (M)
Cazanjian, R. S. (M)
Center, G. A. (A)
Chang, H. K. H. (M)
Christensen, B. (M)
Christensen, R. T. (A)
Clark, C. B. (SM)
Clinton, W. R. (M)
Cogshall, P. D. (M)
Cook, P. D. (M)
Cooley, R. E. (M)
Cotterill, M. J. (M)
Cotterman, J. W. (M)
Cross, H. V. (M)
Crowther, T. J. (M)
Curry, D. K. (M)
Danforth, J. A. (M)
Davis, I. F. (M)
Davis, V. L. (M)
Dean, J. F. (M)
De Kimpe, R. A. (M)
Demy, J. C. (M)
Deville, W. W. (M)
Dickson, J. D. (M)
Diessner, O. G. (M)
Dilley, L. E. (M)
Dolan, R. P. (M)
Dore, B. V. (M)
Downey, J. P. (M)
Doyle, W. C. (M)
Earl, H. O. (M)
Efting, H. J. (M)
Ehrmantraut, H. C. (A)
Ellestad, T. G. (M)
Falvey, J. L. (M)
Fanjul, E. L. (M)
Farlow, C. C. (M)
Fiedler, R. A. (M)
Fire, P. (M)
Fishman, H. M. (M)
Flemming, W. A. (M)
Fliss, A. D. (M)
Fonda, R. D. (M)
Fraser, E. C. (M)
Frincke, P. O. (M)
Furukawa, M. (M)
Gaenzle, J. B. (M)
Garner, L. H. (M)
Gavenas, A. R. (M)
Goodwin, V. D. (M)
Graham, R. E. (M)
Grant, R. G. (M)
Gray, D. A. (M)
Gray, E. E. (M)
Grimm, R. A. (SM)
Gugliotta, P. A. (SM)
Haas, I. (M)
Hammond, A. H. (M)
Hansen, R. D. (M)
Hargrove, P. E. (M)
Harley, J. M. (SM)
Harrington, R. D. (M)
Harvey, J. A. (M)
Hawley, L. R. C. (M)
Heinsen, E. A. (M)
Henschke, R. A. (SM)
Hesloo, M. D. (M)
Hobson, R. E. (A)
Hofmeister, L. A. (A)
Holt, G. (M)
Hughes, F. J. (SM)
Hulett, H. R. (A)
Humphries, J. (M)
Hutter, R. G. E. (F)
Isabeau, J. G. (SM)
Israelsen, B. P. (M)
Jacques, C. P. (M)
Jaensch, K. H. (M)
Jansen, J. N. (M)
Jenkins, D. H. (M)
Johnson, G. L. (M)
Johnston, A. M., II (A)
Jones, E. E. (M)
Joste, T. R. (M)
Judy, H. A. (M)
Kaempf, U. (M)
Kane, H. P. (M)
Kanetake, T. T. (M)
Kelch, R. D. (M)
Kellar, W. J. (M)
Kennedy, P. (SM)
Kent, G. R. (A)
Kepley, B. M. (M)
Klein, W. F. (M)
Knapp, R. L. (M)
Kohl, W. H. (F)
Koski, T. H. (M)
Kotzebue, K. L. (M)
Largent, J. R. (M)
Last, J. T. (M)
Laudenschlager, W. (M)
Law, J. M. (A)
Lee, L. H. (M)
Leese, S. S. (M)
Lemson, J. (M)
Lepoff, J. H. (SM)
Lien, E. L. (M)
Lindgren, J. B. (A)
Lindstrom, R. G. (SM)
Lloyd, D. (M)
Long, J. A. (M)
Lothrop, C. F. (M)
Lovik, M. H. (M)
Lucas, R. D. (M)
Maccono, F. J. (SM)
McKenzie, M. H. (M)
Maldonado, C. D. (M)
Maness, D. H. (M)
Maninger, L. L. (M)
Mansur, D. W. (M)
Marchant, C. R. (M)
Marcum, W. F. (M)
Markum, J. A., Jr. (M)
Masters, D. W. (M)
Mathers, G. C. (M)
Matsushige, R. H. (M)
Mayer, R. C., Jr. (A)
McAlister, W. H. (A)
McCrary, D. E. (A)
McGinness, C. C. (M)
McMullin, N. D. (SM)
McMurtry B. J. (M)
Melton, J. F. (M)
Merrill, R. D., Jr. (M)
Miller, D. K. (M)
Minella, M. J., Jr. (A)
Mlodnosky, R. F. (M)
Monnier, R. E. (M)
Montagnon, N. B. (M)
Montgomery, W. C. (M)
Morse, E. W. (M)
Mullins, R. M. (M)
Murphy, J. J. (M)
Myers, G. A. (M)
Needle, J. S. (SM)
Nelson, E. A. (M)
Netoff, T. J. (M)
Neuman, F. (M)
Noon, J. R. (M)
Nord, R. H. (M)
O'Brien, G. A. (M)
O'Neill, J. R. (M)
Orsak, L. E. (M)
Pace, N. M. (M)
Palmer, J. L. (M)
Palmer, R. N. (SM)
Panico, J. J. (M)
Parsons, W. L. (M)
Peavey, W. W. (M)
Penwell, J. R. (M)
Peters, D. W. (M)
Pezintzoglou, E. I. (M)
Pfeiffer, H. F. (M)
Pfost, R. F. (M)
Phillips, R. R. (M)
Pramann, R. F. (M)
Rader, C. D. (M)
Raju, P. S. (M)
Ramsay, W. R. (M)
Randall, K. K. (M)
Reyna, R. C. (M)
Rice, J. E., Jr. (M)
Riley, I. H. (M)
Roberts, C. S. (M)
Robinson, L. A. (M)
Rock, A. L. (M)
Roder, A. (M)
Rossi, F. J. (M)
Rourke, C. R. (M)
Rowe, D. H. (M)
Sambuco, A. J. (M)
Santamaria, S. (M)
Sarouis, R. H. (M)
Saunders, C. L. (M)
Schiffman, B. M. (M)
Schoderbek, J. J. (M)
Schorr, F. W. (M)
Schreiner, R. J. (M)
Schwartz, J. R. (M)
Searing, R. M. (M)
Seymour, R. N. (M)
Shedko, R. J. (M)
Shelton, W. L. (M)
Shipley, D. W. (M)
Siera, M. M. (A)
Smerage, G. H. (M)
Sorensen, A. G. (A)
Soshea, R. W. (M)
Sparks, H. (M)
Sperry, A. B. (M)
Staggens, A. (M)
Stillman, E. H. (M)
Stirling, H. J. (M)
Stone, R. E. (M)
Stonesifer, R. A. (M)
Stringer, L. W. (M)
Strobele, C. H. (M)
Swanson, J. A. (M)
Swartz, B. E. (M)
Sweet, W. L. (M)
Tannes, I. (M)
Tannenbaum, M. (M)
Thompson, R. E. (M)
Thon, W. H. (SM)
Tomlin, W. T. (M)
Torfeh, M. A. (A)
Traver, H. R. (M)
Travis, L. J., Jr. (M)
Trouard, R. L. (M)
Tucker, C., Jr. (M)
Turenchalk, H., Sr. (M)
Utter, D. H. (M)
Van Duzer, V. E. (M)
Van Saun, R. W. (M)
San Tassell, R. D. (M)
Vellequette, M. J. (M)
Vize, J. F. (M)
Wagner, W. K. (M)
Walker, L. F. (M)
Wardwell, R. H., Jr. (M)
Warn, L. O. (M)
Wauchope, S. E., Jr. (M)
Weaver, J. L. (M)
Weber, L. C. (M)
Weindorf, D. R. (M)
Weissberg, E. (M)
Welch, J. D. (M)
Whitney, W. D. (A)
Wickersham, A. F., Jr. (M)
Wiesner, S. (SM)
Wiltol, W. (A)
Wilson, A. L. (M)
Winn, C. B. (M)
Wood, R. A. (A)
Wright, R. B., Jr. (M)
Wunderman, I. (SM)
Young, R. K. (M)

Mount Baldy (LA-OB-7)
Glasgow, H. (M)

Mount Laguna AFS (SD-7)
Kushner, W. J. (M)

Mount Wilson (LA-P-7)
Knight, J. B., Jr. (SM)

Napa (SF-7)
Breit, D. L. (A)
Bruce, C. A. (A)
Mingst, H. C. (SM)
Morgenstern, H. S. (A)

National City (SD-7)
Murtagh, R. J. (M)
Vawter, V. E. (M)
Whitted, H. A. (M)

Nevada City (SAC-7)
Byrne, P. F. (SM)
Hamme, R. D. (M)

Newbury Park (LA-B-7)
Darr, J. E. (M)
Franzen, G. H. D. (A)
Hugle, W. B. (SM)
Kilcoyne, M. K. (M)
Knowles, D. D. (SM)
Looney, J. M., Jr. (M)
Naborawski, J. G. (M)
Shappet, J. J. (A)
Smith, C. H., Jr. (M)
Tribe, A. C., Jr. (A)
Walle, A. C. (A)

Newport Beach (LA-SA-7)
Abbott, R. B. (A)
Ambrose, A. R. (SM)
Andres, R. J. (M)
Arcand, R. T. (M)
Barton, D. C. (M)
Batdorf, S. B. (SM)
Benjamin, R. B. (SM)
Berman, D. C. (M)
Bricken, G. L. (M)
Brown, L. E. (SM)
Brown, S. R. (M)
Brudevold, L. P. (M)
Bunce, J. W. (M)
Cholsser, R. W. (M)
Clavier, P. A. (SM)
Cleveland, W. C., Jr. (SM)
Coco, A. J., Jr. (M)
Cohen, J. (M)
Cole, F. H. (M)
Collins, H. G. (M)
Conn, R. B. (M)
Coogan, J. H. (SM)
Counter, J. M. (M)
Deutsch, J. (SM)
Dillingham, E. (M)
Doyle, W. (SM)
Ducati, A. C. (A)
Duncan, D. B. (SM)
Durio, J. R., Jr. (M)
Eckdahl, D. E. (SM)
Edwards, B. N. (M)
Fa, C. H. (M)
Fordyce, S. W. (M)
Frink, E. P. (M)
Gehlke, D. A. (SM)
Geiger, R. F. (M)
Gerber, W. D. (M)
Gillette, J. S. (M)
Gillmer, A. H. (SM)
Goodman, H. C. (M)
Goodrich, F. N. S. (A)
Gould, E. W. (M)
Gould, R. E. (M)
Greenslade, R. S. (SM)
Hammerslag, J. G. (M)
Hammond, J. G. (SM)
Hanna, L. R. (M)
Helland, J. C. (SM)
Hendershot, T. R. (M)
Herbert, C. (SM)
Heston, J. L. (M)
Heywood, J. E. (SM)
Hilker, H. V. V., Jr. (A)
Hill, D. A. (SM)
Jamieson, J. A. (M)
Jobbins, C. W. (M)
Johnson, R. D. (SM)
Jones, R. L. (SM)
Kelly, P. M. (M)
Larson, H. T. (M)
Le Gette, E. L. (M)
Losee, F. A. (SM)

Louneau, R. F. (M)
Mac Intyre, R. M., (M)
Mangolis, J. (M)
McIlwraith, N. (M)
Meece, J. E. (M)
Mintzer, L. (SM)
Montgomery, D. N. (M)
Mueller, G. J. (SM)
Myer, J. H. (SM)
Nelson, S. H. (M)
Nickell, W. C. (M)
Parkinson, R. W. (SM)
Pyes, N. R. (M)
Pyle, W. I. (M)
Rau, J. M. (M)
Rosenblum, P. (M)
Ross, W. A. (M)
Sarkissian, H. H. (M)
Shedd, I. A. (M)
Simkins, E. D. (M)
Smith, C. H., Jr. (M)
Smith, W. W. (A)
Spadaro, F. G. (M)
Stearns, G. W. (M)
Steele, E. L. (SM)
Steiger, W. (SM)
Sykora, G. E. (A)
Wainscott, D. M. (A)
Waldner, M. (M)
Walters, L. G. (M)
Waters, W. P. (SM)
Weekes, B. B. (M)
Weiss, H. K. (SM)
Welken, R. L. (M)
Wilcox, G. J. (A)
Wilderman, L. F. (M)
Williams, A. B. (M)
Williams, J. E. (A)
Winston, H. (SM)
Zilm, C. F. (M)

Niles (SF-EB-7)
Maxwell, J. A. (M)

Norco (LA-OB-7)
Bogue, P. N. (M)
Heaton, E. C. (SM)
Hinshaw, M. P. (M)
Lozo, K. G. (M)
Plazza, D. J. (M)
Sprawcew, P. T. (A)
Tarver, W. B., Jr. (M)

North Fork (SF-7)
Pearson, D. R. (M)

North Highlands (SAC-7)
Anderson, R. L. (M)
Austin, J. B., Jr. (SM)
Bothwell, D. C. (M)
Dreyer, N. C. (M)
Holmes, C. M. (A)
Lohner, K. E. (A)
Martin, G. W. (M)
McGlynn, C. V. (M)
Ness, R. J. (M)
Schwartz, O. A. (M)
Takacs, S. J. (M)
Tower, C. L. (M)
Whitlatch, A. M., Jr. (M)

North Hollywood (LA-SF-7)
Allison, D. K. (M)
Anderson, J. L. (M)
Anderson, W. E. (M)
Bailey, F. W. (M)
Batsel, C. N., Jr. (M)
Bauman, H. W. (M)
Beaudine, D. M. (M)
Becker, L. E. (M)
Beckert, M. H. (M)
Bookee, J. R. (M)
Braddock, R. C. (M)
Buckles, D. E. (A)
Burkart, E. H., Jr. (A)
Caler, J. W. (A)
Caltan, R. E. (M)
Camp, L. W. (SM)
Campbell, B. K. (A)
Cheney, F. H. (M)
Chester, W. H. (SM)
Clark, G. E. (M)
Cochran, E. D. (M)
Combes, R. M. (SM)
Conway, J. N. (M)
Curtis, J. P. (M)
Daniel, R. L. (SM)
De Young, H. (M)
Dite, W. (M)
Dobson, T. M. (A)
Doyle, E. J. (SM)
Droesch, F. A., III (A)
Erlinger, J. J. (M)
Farnsworth, H. D. (SM)
Fuller, R. E. (A)
Gallop, D. L. (M)
Garbowitz, L. (A)
Gardner, L. B. (SM)
Gilroy, J. W. (M)
Gold, C. H. (M)
Goldsmith, L. T. (M)
Gove, E. L. (SM)
Goyer, R. B. (M)
Grossman, S. J. (A)
Hamilton, R. E. (SM)
Hansen, H. J. (M)
Hansen, R. L. (M)
Hedene, T. H. (SM)
Hempling, N. G. (M)
Henden, J. R. (M)
Hile, J. W. (M)
Holmes, S. J. (M)
Hudson, C. A. (M)
Humphrey, J. F. (M)
Huntsman, H. F. (M)
Jackson, J. A. (M)
Jensen, K. K. (SM)
Kellogg, W. A. (M)
Kleinman, J. M. (M)
Kraus, C. (M)
Kubicek, C. B. (M)
Lagomarsini, G. C. (M)
Laslo, M. Z. (M)
Leonard, N. E. (M)
Levitt, L. (M)
Lorden, J. R. (M)
Loski, R. R. (A)
Marlowe, J. R. (M)
Masters, W. N. (M)
Mather, T. S. (M)
Melvin, W. J. (M)
Metcalf, D. F. (SM)
Miller, D. C. (M)
Molloy, C. T. (SM)
Momjian, E. A. (A)
Montgomery, D. R. (M)
Moore, V. (SM)
Morgan, R. L. (M)
Morrow, J. E. (M)
Neely, N. B. (M)
Newton, W. P. (M)
Oberholtz, L. P. (M)
Oliverio, A. P. (M)
Osborn, T. F. (M)
Parry, H. J. (M)
Plummer, R. E. (SM)
Rabowsky, I. (M)
Riege, C. R. (M)
Rosenblatt, A. (A)
Sauck, G. L. (M)
Schieke, P. F. (M)
Scott, E. H. (M)
Shigemoto, J. M. (M)
Shon, A. (A)
Sogge, R. H. (M)
Sokoloff, H. (M)
Spencer, K. R., Jr. (M)
Sperling, R. D. (A)
Sposili, M. C. (M)
Stalford, W. E. (M)
Steindler, H. K. (M)
Sullivan, J. R. (M)
Sumner, T. B. (M)
Swales, S. (M)
Taylor, E. H. (M)
Taylor, W. V. (M)
Tesler, A. (M)
Thomas, F. M. (M)
Thompson, R. H. (M)
Vega, C. J. (A)
Vodovoz, E. (A)
Warner, D. E. (SM)
Weaver, J. H. (M)
White, A. A. (M)
Whiting, L. (M)
Winkler, J. L. (A)
Wolf, M. B. (M)
Wolman, L. L. (M)
Woolbridge, E. A. (A)
Wright, J. T. (M)
Young, T. V. (M)

North Long Beach (LA-7)
Famolaro, F. A. (M)

North Redondo Beach (LA-7)
Mott, R. H. (M)

Northridge (LA-SF-7)
Adam, K. C. (M)
Allmandinger, E. G. (SM)
Alvine, C. E. (M)
Amdahl, L. D. (M)
Ashley, C. A. (A)
Avrech, N. (M)
Baake, D. W. (M)
Baldwin, M. F., Jr. (M)
Beck, A. B. (A)
Benbrooks, L. A. (M)
Berg, A. M. (M)
Berlin, W. N. (M)
Bidermann, W. R. (M)
Bowling, J. S. (M)
Brian, W. T., Jr. (M)
Brown, D. (M)
Byrne, E. L. (M)
Carl, W. J. (M)
Cassidy, C. J. (M)
Chamberlain, W. S. (M)
Chevron, R. R. (M)
Choleva, H. L. (M)
Christofk, R. R. (SM)
Clement, A. J. F. (M)
Cobb, A. E. (SM)
Colander, R. E. (SM)
Coleman, H. B. (M)
Coler, B. A. (M)
Cornwall, E. A., Jr. (M)
Daniel, D. B. (M)
Daush, A. A., Jr. (M)
Daverio, A. J. (SM)
Defenbach, R. W. (M)
Di Cecio, S. A. (M)
Dickerson, D. H. (M)
Kiehl, R. T. (A)
Dixon, T. P. (M)
Doetz, M. L. (F)
Easley, G. P. (M)
Edling, D. C. (A)
Estes, J. R. (M)
Fisk, J. W. (M)
Fleckles, D. E. (A)
Fortescue, G. H. (A)
Garland, M. D., Jr. (M)
Gordon, M. F. (M)
Greenwood, P. E., Jr. (SM)
Guarrera, J. J. (SM)
Guerre, C. L. (M)
Hadden, T. F. (M)
Hendry, E. F. (M)
Hills, V. E. (M)
Hoverman, W. O. (M)
Hughes, W. R. (SM)
Icenbice, P. J. (SM)
Jackson, B. B. (M)
Jackson, R. D. (M)
Jeter, I. E. (M)
Kehrer, H. R. (M)
Khoury, N. (M)
Klemens, W. P. (SM)
Kline, S. R. (M)
Konkel, A. J., Jr. (M)
Korn, I. I. (M)
Koskela, A. C. (M)
Krause, C. A. (M)
Kriz, K. H. (SM)
Lane, A. B. (M)
La Plant, D. (SM)
Laubenstein, R. A. (M)
Lazarus, A. (M)
Levine, I. H. (SM)
Mann, M. (M)
Marcus, M. G. (A)
Marcy, S. P. (M)
Marsh, K. W. (SM)
Matteson, R. E. (M)
McClary, D. A. (M)
McCormick, W. G. (M)
Mehl, N. R. (M)
Mellott, R. N. (M)
Miller, F. G. (SM)
Murdock, L. C. (SM)
Murry, W. E. (A)
Newberg, I. L. (M)
Newton, C. P. (M)
Norton, F. R. (F)
Nozick, S. (M)
Olsen, V. O. (M)
Olson, A. B. (SM)
Ottinger, D. P., Jr. (M)
Paganelli, A. C. (M)
Paulos, L. B. (M)
Perkins, L. G. (M)
Perry, C. L. (M)
Peterson, E. J. (M)
Phillips, F. R. (M)
Rice, B. G. (M)
Rice, R. E. (M)
Rieman, F. C. (M)
Robertson, R. E. (SM)
Rohrer, G. W. (M)
Rousseau, A. L. (M)
St. Gean, E. (A)
Scarbrough, A. D. (M)
Seelig, G. (SM)
Sherwood, D. M. (SM)
Slor, A. D. (M)
Smith, L. D. (SM)
Thier, P. (M)
Thome, R. L. (M)
Tiso, J. M. (M)
Trapp, R. R. (M)
Tucker, R. E. (M)
Van Vliet, W. H. (A)
Vincent, L. W. (M)
Waxman, M. J. (M)
Weldemann, R. F. (M)
Wessel, H. J. (M)
Wessel, R. E. (M)
Whealy, J. E. (SM)
Whitely, R. L. (M)
Wiggins, C. P. (SM)
Williamson, C. N. (SM)
Woods, W. E. (A)
Wyland, G. P. (SM)
Wynhoff, F. J. (M)
Yarosh, N. P. (SM)
Zimmerman, R. L. (M)

North Tustin (LA-SA-7)
Tomokins, D. N., Jr. (M)

Norton AFB (LA-OB-7)
Lyle, W. R. (M)
Matheson, P. E. (M)
Melton, R. E. (M)

Norwalk (LA-SA-7)
Angel, J. S. (M)
Campbell, D. H. (A)
Colacion, L. (M)
Collier, G. H. (M)
Flesner, H. E. (M)
Greaves, H. L. (A)
Hosoda, J. (A)
Ignatowicz, J. B. (M)
Kalthoff, N. E. (M)
King, W. T. (M)
Kissinger, D. V. (M)
Ligman, J. R. (M)
Martin, T. E. (M)
Mund, M. A. (M)
Roehl, E. R. (M)
Saworotnow, I. P. (M)
Smothers, W. C. (M)
Thompson, J. H. (M)
Thurman, E. J. (M)

Novato (SF-7)
Kimbell, G. D. (A)
Ratsch, H. J. (M)

Oakland (SF-EB-7)
Ame, R. E. (A)
Barale, J. J. (SM)
Black, L. J. (F)
Boyd, W. R. (A)
Breslauer, A. F., Jr. (M)
Broze, R. U. (M)
Cagle, D. S. (M)
Card, D. R. (M)
Chew, B. H. (M)
Chin, C. S. (M)
Crowhurst, W. R. (M)
Cummings, R. W. (M)
Dawes, W. W. (M)
Downey, C. E. (M)
Efstathiou, J. (M)
Ernst, C. G. (M)
Forbes, A. C. (SM)
Gennett, D. F., Jr. (A)
Gilliland, W. D. (M)
Glessner, J. M. (M)
Heine, D. E. (M)
Heine, E. C. (M)
Isakson, S. E. (M)
Jew, K. T. (M)
Kan, G. (A)
Kannelaud, J. (M)
Kenny, J. W. (M)
Lewis, J. D. (M)
Little, C. P. (A)
Louie, P. Y. (M)
Mac Leod, D. A. (M)
Malone, W. C., Jr. (M)
Merkel, C. E. (M)
Mizuno, E. (M)
Murr, W. C. (A)
Olson, S. R. (M)
Park, C. W. (SM)
Paskett, D. K. (M)
Penther, C. J. (SM)
Pigozzi, L. J. (M)
Quarfoot, H. B. (M)
Ripley, J. N., Jr. (M)
Rosenthal, J. A. (M)
Ross, A. (A)
Savant, D. E. (M)
Savelis, A. (M)
Schwemin, A. J. (A)
Smith, H. L. (M)
Starr, L. (M)
Stinson, W. D. (M)
Thunen, G. W. (M)
Turnbull, J. L., Jr. (M)
Vail, G. B. (M)
Van Sickle, G. (A)
Van Winegarden W. J. (M)
Wahlgren, W. W. (SM)
Waldo, F. E. (M)
Watt, R. M., Jr. (SM)
Williams, D. H. (A)
Wixson, R. L. (M)
Wolfe, H. T. (M)
Wong, E. K. (M)
Wong, R. H. (M)
Yoshino, Y. J. (A)

Oak View (LA-B-7)
Blount, G. H. (M)

Oceanside (SD-7)
Kolostyak, J. (M)
Oess, F. G. (M)
Smith, H. M. (SM)
Sutherland, J. J. (SM)
Ulmer, H. W. (SM)

Oildale (LA-7)
Hall, H. R. (M)
Snyder, W. G. (M)

Ojai (LA-B-7)
Kaness, J. R. (M)
Procter, E. N. (SM)

Ontario (LA-OB-7)
Adams, F. L. (M)
Armbuster, K. L. (M)
Avrin, J. S. (M)
Baird, W. H. (M)
Balsley, L. L. (M)
Bessette, A. (M)
Byzs, J. C. (A)
Caringella, P. C. (A)
Cupo, J. D. (M)
Davis, H. H. (M)
De Diemar, J. L. (SM)
De Frenza, A. (M)
Dunlap, L. A. (A)
Flatters, W. F. (M)
Goetz, H. E. J. (M)
Harmon, L. D. (M)
Howland, R. W. (A)
Johnson, H. P. (M)
June, R. H. (M)
La Porte, R. J. (M)
Odekirk, M. D. (SM)
Omiya, R. Y. (M)
Pollock, R. D. (M)
Revenaugh, J. J. (M)
Ritchie, R. W. (M)
Ritter, E. (SM)
Schwenker, R. (M)
Shaw, L. L., Jr. (M)
Thornton, B. R. (A)
Warner, S. D. (A)

Orange (LA-SA-7)
Adams, W. (M)
Bernard, R. H. (M)
Billingsley, S. V. (A)
Bunge, W. R. (A)
Caglia, A. J. (M)
Cowden, L. F. (M)
Diederich, P. A. (M)
Dolezal, R. T. (A)
Eatough, C. D. (M)
Flagg, D. J. (M)
Gardner, F. M. (SM)
Glascock, J. C. (SM)
Glasener, T. W., Jr. (M)
Gluth, N. P. (M)
Goering, I. G. (M)
Greulich, H. J. (A)
Hadler, P. H. (M)
Hallquist, G. W. (M)
Hawkins, E. S. (M)
Hemmila, A. (M)
Homung, J. F. (M)
Howard, W. T. (M)
Janken, S. (A)
Johnson, W. H. (M)
Kovac, J., Jr. (M)
Kulda, R. J. (M)
Lamb, K. D. (M)
Laskin, R. S. (M)
Leskakis, A. J. (M)
Link, W. F. (M)
Ludwig, D. E. (M)
Martin, R. F. (M)
McElveen, K. H. (M)
McNair, R. D. (M)
Nelson, R. A. (M)
Olivares, J. E., Jr. (A)
Olson, C. L. (SM)
Pentecost, E. E. (SM)
Riffle, L. V. (A)
Ross, F. L. (M)
Ross, T. A. (M)
Rousey, W. A. (A)
Scott, W. G. (M)
Seamer, C. W. (M)
Shackleton, J. R. (M)
Spradlin, K. M. (M)
Stemke, E. C. (SM)
Stimson, R. L. (SM)
Sullivan, J. F. (M)
Telgen, T. (M)
Thomson, D. H. (M)
Toeppe, W. J. (M)
Trammell, A. K. (M)
Vigilone, S. S. (M)
Walker, N. L. (M)
Watson, D. E. (M)
Yoder, A. A. (M)

Orangevale (SAC-7)
Lang, C. T. (M)
Petersen, M. C. (M)
Tucker, S. L. (M)
Whitcomb, A. W. (M)

Orinda (SF-EB-7)
Brobeck, W. M. (SM)
Chisholm, H. C. (M)
Dexter, W. L. (SM)
Ezell, F. W. (M)
Farrell, S. R. (M)
Meyer, J. H. (SM)
Upham, F. T. (M)
Wilson, J. R. (F)

Orland (SAC-7)
Evitt, W. B. (A)

Orovilla (SAC-7)
Heyen, D. B. (M)

Oxnard (LA-B-7)
Ackley, R. M. (A)
Barker, A. E. (M)
Benafel, R. C. (SM)
Berninger, B. G. (M)
Bosmalian, C. P. (M)
Bossoletti, J. E. (SM)
Bowen, W. A., Jr. (SM)
Bradford, W. O. (SM)
Branch, W. D. (M)
Burk, J. L. (M)
Cribb, W. W., Jr. (M)
Cuthbert, W. W. (SM)
Dewey, R. E. (M)
Durham, D. C. (M)
Durham, D. J. (M)
Dvoracek, F. H. (M)
Fields, M. H. (M)
Frederick, J. A. (M)
Gage, R. A. (M)
Ginn, J. W. (M)
Gleason, J. L. (M)
Gomez, P. D. (A)
Gregory, R. M. (M)
Haidle, L. L. (M)
Heineman, J. T. (M)
Ishii, F. K. (M)
Ives, E. C. (A)
Jahn, R. C. (M)
Jones, M. S. (M)
Kitabayashi, T. (M)
Leish, J. (M)
Luck, T. P. (M)
Marvin, P. K. (M)
Miller, W. A. (M)
Moore, K. F. (A)
Murray, H. J., Jr. (M)
Neal, F. A. (A)
Neilson, C. C. (M)
Olson, M. H. (M)
O'Ryan, R. L. (SM)
Pichette, R. L. (M)
Pike, B. W. (SM)
Pike, J. M. (M)
Powell, L. H. (M)
Read, L. C. (SM)

Ritz, W. A. (SM)
Robson, A. B., Jr. (M)
Rutter, E. J., Jr. (M)
Sack, V. M. (M)
Sakazaki, Y. (M)
Solferino, T. A. (M)
Soltz, J. E. (M)
Sorden, L. V. (M)
Stone, G. J., Jr. (A)
Tendick, C. B. (SM)
Thomas, B. J. (M)
Toft, P. D. (M)
Vigil, A. E. (M)
Walker, E. L. (M)
Walters, G. E. (A)
Webber, A. F. (M)
Wright, D. B. (M)
Young, J. S. (M)
Ziherl, E. J. (M)

Oxnard Beach (LA-B-7)
Kallmann, G. T. (M)

Pacifica (SF-7)
Mayne, T. F. (M)
Nemirow, D. M. (M)

Pacific Grove (SF-7)
Anderson, R. A. (M)
Mace, J. C. (SM)

Pacific Palisades (LA-7)
Abzug, M. J. (M)
Alberts, W. A. (SM)
Ashby, F. B. (M)
Baker, C. L. (M)
Baker, D. L. (SM)
Beagles, R. (SM)
Bedrosian, E. (SM)
Bekey, I. (M)
Bendick, M. (M)
Berman, H. (SM)
Block, D. E. (M)
Blue, R. M. (M)
Boehmer, H. W. (SM)
Boykin, E. M. (SM)
Brain, M. D. (M)
Braun, T. H. (M)
Bredall, C. H. (SM)
Brigden, J. K. (M)
Burns, F. P. (M)
Carlson, C. G. (SM)
Carroll, C. F., Jr. (SM)
Carver, F. R. (SM)
Cleary, F. W. (M)
Cochran, K. W. (M)
Collup, D. O. (SM)
Curtis, J. S. (M)
Dodge, W. A., Jr. (SM)
Dumas, R. E. (M)
Edmundson, H. P. (SM)
Erdley, H. F. (M)
Esling, R. H. (SM)
Evtuhov, V. (M)
Fenn, W. H. (SM)
Fisher, B. E. (M)
Frasier, P. L. (A)
Friedman, T. B. (SM)
Garber, R. S. (M)
Geanes, Z. K. (M)
Gerlough, D. L. (M)
Giffin, K. A. (SM)
Gola, A. S. (A)
Graves, R. E. (SM)
Greene, G. M. (SM)
Griffiths, R. W. (M)
Halenbeck, A. D. (M)
Hartmann, W. A., Jr. (M)
Hathaway, B. (M)
Herman, E. E. (SM)
Heyne, J. B. (SM)
Ho, E. (M)
Hodin, W. J. (M)
Hollander, F. H. (M)
Hollands, L. C. (SM)
Holmberg, N. A. (M)
Howard, L. W. (SM)
Iams, H. (F)
Jacobson, R. E., Jr. (SM)
John, F. T. (A)
Johnston, J. M. (M)
Jones, L. L. M. (M)
Justice, L. E. (M)
Kahn, B. S. (M)
Kauke, J. R. (SM)
Lang, R. B. (SM)
Levy, M. C. (M)
Long, W. H. (M)
Loretz, N. F. (M)
Mahler, L. H. (SM)
Majane, J. A. (M)
Mallett, J. D. (M)
McCloud, W. W. (M)
Metzelaar, P. N. (M)
Miller, B. F. (F)
Miller, K. M. (SM)
Morland, H. G. (M)
Morris, J. O. (M)
Muchmore, R. B. (SM)
Multari, A. M. (M)
Paddock, O. K. (SM)
Parker, S. E. (SM)
Pealrs, M. H. (SM)
Pelta, E. R. (SM)
Perry, C. S. (SM)
Pitta, G. C. (A)
Reiger, S. H. (SM)
Robbins, P. M. (SM)
Rod, R. L. (SM)
Rodriquez, R. A. (M)
Rosa, G. N. (M)
Rosenberg, J. (M)
Rumbellow, V. G. (M)
Schwab, H. (M)
Segal, R. E. (M)
Smith, O. K. (M)
Spandau, E. P. (SM)
Speer, J. H., Jr. (M)
Steidley, J. W. (SM)
Symonds, R. J. (SM)
Troussoff, G. B. (SM)
Trumpy, J. W. (A)
Tyson, G. A. (A)
Vernon, S. J. (M)
Walktup, L. A. (M)
Weiman, W. W. (M)
Westland, D. A. (M)
Whelan, C. R. (M)
Wilson, D. W. (M)
Wilson, H. H. (M)

Paconima (LA-SF-7)
Brigham, L. R. (M)
Brownstein, G. (SM)
Cleveland, P. (M)
Clintsman, R. B. (M)
Cowart, B. E. (M)
Deitz, J. L. (M)
Dunn, G. R. (M)
Fingerett, J. A. (M)
Franco, M. (M)
Griffith, C. D. (M)
Hertz, R. G. (M)
Howe, G. E. (A)
Johnson, C. W. (M)
Jolles, A. J. (M)
Krulish, R. G. (M)
Mandel, M. (SM)
Morton, P. G. (M)
Reed, D. S. (SM)
Schmidt, D. V. (M)
Skinner, W. L. (M)
Stang, P. F. (SM)
Swarthout, W. M. (SM)
Torbron, J. (M)
Walker, L. M. (M)
Weaks, K. C. (M)
Weiss, L. F. (A)

Palmdale (LA-7)
De Young, C. M. (M)
Elder, C. B. (A)
Hingson, G. D. (A)
Kollar, T. J. (A)
McLarin, M. (M)
Neeley, J. C. (M)
Nestor, J. J. (A)

Palo Alto (SF-7)
Aasted, J. (A)
Abbott, W. R. (SM)
Abraham, W. G. (SM)
Abstein, H. T., Jr. (M)
Acker, A. E. (A)
Adam, S. F. (M)
Adams, C. W. (M)
Addleman, L. A. (M)
Agbulos, E. C. (A)
Ahlgren, W. E. (M)
Aine, H. E. (A)
Albrecht, R. E. (M)
Alderman, J. M. (M)
Allison, D. F. (M)
Altschul, E. R. (M)
Amerio, V. C. (M)
Amsden, L. A. (M)
Andersen, R. A. (M)
Anderson, J. K. (M)
Anderson, R. C. (M)
Anderson, T. C. (M)
Anderson, V. R. (A)
Anderson. W. A. (M)
Andreasen, M. G. (M)
Andrews, R. E. (M)
Archer, W. L. (M)
Arnold, C. A. (M)
Arnold, J. R. (M)
Auld, B. A. (M)
Austin, N. A. (M)
Ayers, W. R. (M)
Aylsworth, R. (M)
Bacon, L. C. (M)
Ballieu, H. L. (M)
Barber, B. L. (M)
Barker, E. E. (M)
Barnett, E. F. (M)
Barnhart, W. (M)
Barrett, J. C. (M)
Barry, F. N. (M)
Bauer, B. (SM)
Bean, R. C. (M)
Beaver, W. L. (M)
Becker, H. J. (A)
Beeson, R. H. (M)
Bell, D. T., Jr. (M)
Bell, R. L. (M)
Benware, R. T. (SM)
Berte, D. W. (M)
Besag, P. L. (M)
Bishop, S. R. (M)
Blachman, N. M. (SM)
Bodenhamer, L. C. (M)
Bodily, L. H. (M)
Boger, H. Z. (M)
Boley, H. A. (M)
Booher, W. R. (M)
Bothun, R. B. (M)
Boudrias, R. A., Jr. (M)
Bowes, J. D. (M)
Boytz, J. R. (M)
Brady, M. M. (M)
Brichta, E. C. (A)
Bridges, J. C. (M)
Brittain, G. H. (SM)
Britton, R. H., Jr. (M)
Brodersen, L. K. (M)
Broner, M. A. (SM)
Brothers, C. F. (M)
Brown, A. S. (F)
Brown, G. G. (M)
Brownlie, R. E. (M)
Burke, R. J. (SM)
Burkhart, L. M. (M)
Burt, R. F. (M)
Busch, A. E. (M)
Calfee, R. W. (M)
Cambell, D. L. (M)
Campbell, J. K. (A)
Campbell, W. E. (M)
Carlson, A. R. (M)
Castro, P. S. (M)
Chan, W. W. (A)
Chang, N-C (M)
Chao, S-C (M)
Chapman, N. W. (M)
Cheney, P. W. (M)
Cherry, D. D. (M)
Chiang, F. C. (M)
Chown, J. B. (M)
Christensen, P. C. (A)
Church, R. K. (M)
Clark, J. J. (M)
Clark, W. A. (A)
Clement, C. J., Jr. (M)
Clifford, D. G. (SM)
Cline, J. F. (SM)
Co, Y. H. (M)
Coale, F. S. (M)
Cochran, D. S. (M)
Coleman, B. H. (M)
Colvin, R. S. (M)
Cone, D. R. (SM)
Conklin, J. L. (M)
Conquest, E. A. (M)
Constable, R. A. (M)
Cook, R. M. (M)
Cooper, R. L. (M)
Cordray, R. E. IM)
Cory, C. W. (A)
Coulter, H. N. (M)
Cromack, J. C. (M)
Cumming, R. C. (SM)
Cuningham, R. E. (A)
Curtis, E. C. (M)
Curtis, E. I. (M)
Cutler, L. S. (M)
Davies, R. S. (SM)
Davis, J. L. (A)
Davis, R. W. (M)
Davis, R. A. (SM)
Daw, E. H. (M)
Dawson, C. H. (SM)
Day, J. P. (M)
De Broekert, J. C. (M)
Debs, R. J. (SM)
Deck, R. O. (M)
De Grasse, R. W. (M)
Dell, H. R. (M)
Delling, H. W. (SM)
Dere, D. J. (M)
Desposito, G. J. (A)
Diesel, T. J. (M)
Dietz, D. P. (M)
Dixon, S. T. (A)
Dobrikin, J. J. (M)
Dollinger, J. G. (M)
Donald, J. C., Jr. (A)
Dorset, D. E. (A)
Downing, J. J. (M)
Drath, D. G. (M)
Duer, S. J. (M)
Davis, J. N. (M)
Duncan, C. E. (M)
Durand, F. B. (M)
Dwight, H. M., Jr. (M)
Dye, R. A. (M)
Edson, W. A. (F)
Eisenberg, M. (A)
Eisler, J. D. (SM)
Eldon, C. A. (M)
Eldred, W. N. (SM)
Eldridge, D. F. (SM)
Evans, W. E., Jr. (SM)
Emanuel, D. A. (M)
Engelbart, D. C. (M)
Engler, H. V. (M)
Engelcke, D. H. (M)
Elspas, B. (M)
Engler, C. G. (M)
Falthorn, N. R. (M)
Falconer, P. (M)
Fank, F. B. (M)
Farley, W. W., III (SM)
Farrand, W. B. (M)
Fawcett, R. G. (SM)
Fein, L. (SM)
Ferguson, J. M. (M)
Ferguson, J. S. (M)
Fetzer, M. J. (M)
Filmer, J. C. (M)
Fink, L. R. (F)
Fischgrund, H. (M)
Fisher, G. (SM)
Fleenor, E. G. (M)
Florant, L. E. (M)
Flowerday, T. W. (M)
Floyd, W. B., Jr. (A)
Flynn, J. E. (A)
Fogle, B. T. (M)
Fong, A. (SM)
Forrer, M. P. (SM)
Foss, R. G. (A)
Fossum, R. R. (M)
Foster, C. P., Jr. (SM)
Foster, J. H. (M)
Fox, J. W. (M)
Foy, R. H. (M)
Frank, L. E. (M)
Franke, R. T. (M)
Fredrick, G. F. (M)
Friedman, S. (M)
Frost, R. D. (M)
Fuller, L. F. (F)
Fuller, R. L. (M)
Fuller, W. D. (SM)
Fulton, F. F., Jr. (M)
Gado, L. G. (M)
Galliant, J. W. (M)
Gamble, J. H. (A)
Gavenman, E. H. (M)
Geiger, R. G. (M)
Gemulla, W. J. (M)
Gessert, E. C., Jr. (M)
Getsinger, W. J. (M)
Gill, W. J. (M)
Gilleo, M. A. (M)
Ginsling, A. A. (M)
Goddard, E. G. (SM)
Goerz, D. J., Jr. (M)
Goldfarb, E. W. (SM)
Grande, V. J. (M)
Granger, J. V. N. (F)
Gray, J. B. (M)
Grigsby, J. L. (SM)
Grinich, V. H. (M)
Guggi, W. B. (A)
Gulick, E. C. (SM)
Guthart, H. (M)
Hackborn, R. A. (M)
Hacking, C. (SM)
Hagn, G. H. (M)
Halverson, H. L. (M)
Hand, B. P. (M)
Hans, W. J. (A)
Happ, W. W. (SM)
Harmon, A. A. (M)
Harper, G. E. (M)
Harris, H. F. (SM)
Hartbaum, H. K. (M)
Hartle, B. M. (M)
Hauser, J. R. (A)
Hayes, R. E. (M)
Hazel, W. C. (M)
Healy, L. D. (M)
Hearn, F. L. (M)
Heckinger, R. G. (M)
Heckler, C. H., Jr. (A)
Helseth, R. S. (M)
Hennings, W. C. (M)
Herbert, R. S. (SM)
Herold, E. W. (F)
Herr, J. R. (M)
Hewlett, W. R. (F)
Hickcox, G. R. (M)
Higby, R. D. (M)
Hightower, W. D. (M)
Hilbers, G. R. (A)
Hillman, J. (M)
Hlavka, L. F. (M)
Holbrook, J. G. (M)
Holbrook, R. O. (SM)
Holden, G. R. (M)
Holland, E. R. (M)
Holmes, W. M. (M)
Hom, H. S. (SM)
Homberg, K. O. (SM)
Hornby, D. A. (M)
Howard, H. T. (M)
Huffman, G. A. (M)
Hughes, J. M. (SM)
Hunton, J. K. (SM)
Hurd, E. C. (M)
Hutt, C. E. (A)
Inthout, H. A. (A)
Jacobus, F. B. (M)
James, B. D. (M)
Jarvis, W. E. (M)
Jaye, W. E. (M)
Jenkins, C. D., Jr. (M)
Jenkins, J. (SM)
Jensen, F. J. (M)
Jensen, R. C. (M)
Jepsen, R. L. (SM)
Johnson, H. R. (SM)
Johnson, R. B. (SM)
Johnston, R. W. (M)
Jones, B. L. (A)
Jones, C. B. (SM)
Jones, J. W. (M)
Joy, Q. H. (M)
Kabell, J. (M)
Kaisel, S. F. (SM)
Kane, J. F. (M)
Kanellakos, D. P. (M)
Karabats, C. (M)
Katsufrakis, J. P. (M)
Kerins, J. H. (M)
Keltel, G. H. (M)
Killam, K. F. (A)
Kluznick, R. P. (M)
Koenig, E. M. (M)
Koning, A. P. (M)
Kortman, C. M. (SM)
Kovalevski, N. N. (M)
Krakauer, S. M. (M)
Krause, R. A. (SM)
Kroemer, H. (M)
Kromer, A. P. (SM)
Kruse, F. W., Jr. (M)
Kuhn, N. J. (M)
Kunkle, J. L. (M)
Langevin, R. Z. (M)
La Porte, C. R. (M)
Larsen, G. J. (M)
Larson, L. G. (M)
Lawrence, G. H. (M)
Lee, I. (M)
Lee, R. J. (A)
Lesnis, A. (A)
Lesnick, R. N. (SM)
Lewis, R. E. (M)
Light, R. H. (A)
Lin, D. (M)
Lincicome, D. C. (M)
Livingstone, R. H. (M)
Lob, C. G. (M)
Lohr, D. (SM)
Lomasney, J. M. (SM)
Lomax, J. B. (M)
Long, M. C. (M)
Loughry, D. C. (M)
Low, P. R. (M)
Lowhurst, H. G. (SM)
Lutzker, L. (SM)
Lynch, H. S. (A)
Lytle, D. N. (M)
Macovski, A. (SM)
Mager, R. F. (M)
Magill, D. T. (M)
Mahurin, C. R. (SM)
Malter, L. (F)
Mangold, R. R. (A)
Mannas, R. G. (M)
Marlon, T. M. (SM)
Markakis, M. J. (M)
Marsh, C. J. (M)
Marshall, N. K. (SM)
Martin, D. W. (M)
Martin, J. A. (M)
Martin, K. L. (A)
Martin, R. L., Jr. (M)
Masching, R. G. (SM)
Masi, J. L. (M)
Maudens, L. C. (M)
Mauldin, C. W. (A)
Mawdsley, D. M. (M)
Mays, A. S. (A)
Mays, C. H. (M)
McAdams, E. E. (M)
McCann, J. E. (M)
McCarthy, S. E. (M)
McClellan, C. E. (SM)
McClintock, R. K. (SM)
McFarland, M. S. (M)
McGehee, W. W. (M)
Metcalf, J. D. (M)
Meyer, B. W. (M)
Milazzo, C., Jr. (M)
Miller, M. R. (M)
Miller, R. E. (SM)
Miller, S. W. (M)
Miller, T. A. (M)
Minich, C. E. (M)
Mohr, H. J. (M)
Mongillo, J. L. (M)
Moore, G. E. (M)
Moore, R. T., Jr. (M)
Moran, J. F. (SM)
Morcott, T. (M)
Moreno, M. R. (M)
Morris, A. J. (SM)
Morris, D. J., Jr. (M)
Morris, R. E. (M)
Morris, R. J. (M)
Moses, A. J. (M)
Moulden, W. W. (M)
Muller, M. W. (SM)
Murphy, R. T. (M)
Murphy, R. E., Jr. (M)
Nelson, F. A. (M)
Nelson, J. N. (M)
Nelson, R. B. (M)
Newcomb, R. W. (M)
Newlon, R. M. (M)
Nichols, A. J., III (M)
Nickel, L. (SM)
Nitz, I. C. (M)
Noyce, R. N. (M)
Nunan, C. S. (SM)
Oberg, E. A. (A)
Ogle, H. M. (SM)
Ohtomo, R. H. (M)
Oka, A. K. (M)
Oliver, B. M. (F)
Olson, H. D. (M)
Olson, V. E. (M)
Otsuka, S. P. (M)
Ottem, I. E. (M)
Owen, S. (M)
Oxner, E. S. (SM)
Pacak, G. M. (A)
Packard, D. (F)
Palmer, D. L. (M)
Palmer, J. K. (M)
Pappas, N. L. (SM)
Parkes, D. A. (M)
Parks, D. G. (M)
Parks, G. S., Jr. (M)
Pearson, P. A. (M)
Pedersen, T. H. (M)
Petersen, G. W. (M)
Peter, R. W. (F)
Peterson, D. G. (M)
Peterson, N. J. (M)
Peterson, W. A. (A)
Pettegrew, J. B. (M)
Pettengill, D. A. (M)
Pfefer, B. L. (SM)
Pillsbury, A. F., Jr. (M)
Plough, C. T., Jr. (M)
Popaduk, G. F. (M)
Porter, N. E. (SM)
Poulter, H. C. (M)
Powers, G. L. (M)
Prickett, R. J. (M)

Prucha, M. J. (M)
Pruefert, H. (M)
Purl, O. T. (SM)
Putz, J. L. (M)
Ramsay, J. D. (M)
Rasmussen, R. C. (M)
Rasmussen, S. B. (M)
Rausch, W. D. (M)
Rawlins, R. E. (SM)
Rector, R. H. (SM)
Redman, D. A. (M)
Reiche, L. P. (M)
Reinhardt, J. C. (M)
Reis, C. S. (M)
Rendall, A. H. (M)
Retherford, R. C. (M)
Reynolds, D. E. (M)
Reynolds, R. J. (M)
Richman, M. A. (M)
Riggen, J. W. (M)
Riley, M. (A)
Riley, R. B. (M)
Roberts, J. M. (SM)
Roberts, L. A. (M)
Robinson, A. L. (SM)
Rockwell, W. S. (M)
Rogers, R. M. (M)
Rolzen, J. (M)
Rolfe, J. J. (M)
Rooney, J. P. (M)
Rorden, L. H. (M)
Rorden, R. J. (M)
Rosenberg, J. M. (SM)
Rosenman, Z. (M)
Rosenthal, H. A. (A)
Roth, I. (M)
Rubenson, J. G. (SM)
Ruddock, K. A. (M)
Ruetz, J. A. (M)
Runge, W. A., Jr. (M)
Russell, E. B., Jr. (M)
Rust, D. C. (A)
Sah, C-T (M)
Sailor, D. E. (M)
Sailor, R. W., Jr. (SM)
St. Clair, M. W. (M)
Samuels, A. H. (M)
Santana, G. R. (M)
Sarda, R. (M)
Saxena, A. N. (M)
Scholz, C. E. (F)
Schonberg, R. G. (SM)
Schreiner, R. W. (M)
Schumoh, D. A. (M)
Schubert, R. A. (M)
Schultz, W. R. (M)
Schulz, R. F. (M)
Schumacher, F. M. (M)
Scoville, J. E. (M)
Seaward, P. E. (SM)
Sedin, J. W. (A)
See, C. J. (A)
Serano, A. M. (SM)
Shapiro, L. (M)
Sharp, E. D. (M)
Shear, H. (M)
Sherrill, P. N. (M)
Shively, J. F. (M)
Sholes, A. E. (SM)
Sibley, C. E. (SM)
Simons, W. S. (M)
Sklar, H. (M)
Slocum, R. L. (M)
Smith, A. R. (M)
Smith, G. A. (SM)
Smith, K. E. (A)
Smith, S. R. (A)
Smith, S. L. (M)
Snyder, W. (M)
Sorensen, H. O. (M)
Sorenson, K. G. (M)
Spangenberg, K. (F)
Spilker, J. J., Jr. (M)
Spragins, J. D., Jr. (M)
Spraker, M. R. (M)
Stack, B. R. (SM)
Stafford, L. E. (M)
Stanley, G. C., Jr. (M)
Stanley, S. M. (M)
Statler, T. W. (M)
Stearns, H. M. (F)
Steenhausen, D. R. (A)
Stelter, E. C. (A)
Stempel, V. M. (M)
Stephenson, J. M. (M)
Sterrett, J. E. (M)
Stevens, J. C. (A)
Stier, R. P. (M)
Stoltz, J. R. (M)
Storer, T. S. (M)
Strassner, R. M. (M)
Strum, P. D. (SM)
Sullivan, J. W. (M)
Sutherland, J. (M)
Swanson, W. E. (M)
Swedlund, L. E. (SM)
Swyryd, M. (M)
Symons, R. S. (M)
Szabo, N. S. (M)
Tallmadge, G. E. (M)
Tanaka, R. I. (M)
Tanner, W. O. (M)
Tatman, R. L. (M)
Tatum, J. G. (M)
Teicher, S. W. (M)
Templeton, L. W. (M)
Thielen, L. R. (M)
Thomas, A. C. (M)
Thomas, S. F. (M)
Thompson, K. L. (M)
Thornahlen, W. H. (M)
Trager, J. L. (M)
Trout, R. C. (M)
Tucker, K. C. (M)
Turner, G. K. (M)
Turner, H. A. (M)
Turner, T. F. (M)
Ullman, P. J. (SM)
Uzu, F. (M)
Usim, W. (M)
Vance, E. F. (M)
Vanderbeek, H. B. (M)
Van De Riet, E. K. (M)
Vanderplaats, N. R. (M)
Van Velzer, V. C. (A)
Vassiliadis, A. (A)
Vea, T. H. (M)
Vehe, R. E. (SM)
Veldhuizen, F. T. (A)
Veltfort, T. E., Jr. (A)
Veselovsky, L. R. (M)
Vickers, M. L. (M)
Vogelzang, J. J. (A)
Vogelzang, W. F. (M)
Vurek, G. G. (M)
Wada, G. (M)
Wagener, W. G. (SM)
Wahrhaftig, W. H. (M)
Wallace, J. M., Jr. (M)
Walter, R. L. (SM)
Waring, G. W. (M)
Washburn, G. W. (M)
Waters, W. E., Jr. (M)
Watson, H. L. (M)
Watson, R. H. (SM)
Watson, W. H. (M)
Weaver, J. N. (M)
Webber, S. E. (F)
Weibel, D. D. (M)
Weinstein, I. J. (M)
Weis, W. G. (M)
Weissenstern, M. (M)
Weissman, I. (M)
Weissman, J. G. (SM)
Welte, R. F. (M)
Whitburn, R. A. (M)
White, F. M., Jr. (M)
Whitehorn, R. M. (SM)
Whitestine, P. W. (M)
Whitson, A. L. (M)
Whittelsey, S. G., Jr. (A)
Wiktol, A. (M)
Wilkens, M. W. (M)
Willett, D. R., Jr. (M)
Wilshusen, F. A. (M)
Wilson, A. M. (M)
Wilson, F. H., III (M)
Wisnlewski, J. H. (M)
Witherspoon, J. T. (M)
Wolf, H. F. (M)
Wolfe, I. R. (SM)
Wolfson, A. S. (M)
Wong, E. C. (M)
Wong, R. B. (M)
Wood, J. F. (A)
Wood, J. R. (M)
Woods, J. (A)
Wright, B. K. (M)
Wye, R. E. (M)
Yadavalli, S. V. (M)
Yocom, W. H. (M)
Yoder, E. R. (M)
Youden, R. H. (A)
Young, L. (SM)
Zeidler, H. M. (M)
Zitelli, L. T. (M)
Zurick, V. J. (M)

Palos Verdes (LA-7)
Cepuch, R. A. (M)
Dulin, G. F. (M)
Rexroat, L. D. (M)

Palos Verdes Estates (LA-7)
Abourezk, W. (M)
Allder, J. R. (M)
Allen, D. K. (M)
Alter, J. E. (M)
Ankerstar, R. H. (M)
Aristei, J. (M)
Armi, E. L. (SM)
Bagi, R. R. (M)
Bar, M. (M)
Barnes, J. G. (M)
Barnett, J. T. (M)
Bartholomew, H. R. (M)
Benjamin, C. R. (M)
Bergman, S. G. (M)
Bobrow, E. N. (M)
Boughton, E. M. (M)
Brewster, R. A. (M)
Burcham, N. P. (M)
Carlson, E. R. (M)
Case, A. P. (M)
Chambers, J. T. (M)
Clark, R. D. (M)
Cool, P. E. (M)
Crickmay, C. J. (M)
Culty, R. A., Jr. (SM)
Daniel, R. E. (M)
Develet, J. A., Jr. (M)
Drake, W. W., Jr. (M)
Flynt, F. V. (A)
Gillean, M. E. (M)
Gleghorn, G. J. (M)
Goodell, E. M. (M)
Gould, E. (A)
Grier, M. B. (SM)
Hannum, D. E. (M)
Hatch, G. M. (M)
Hayes, W. B. (M)
Hebenstreit, W. B. (SM)
Herman, L. K. (M)
Hill, L. W. (M)
Holzer, N. T. (A)
Honor, H. I. (M)
Hubbard, J. W. (M)
Hughes, E. S. (A)
Hull, R. E. (M)
Hummer, J. L. (M)
Isley, C. T., Jr. (A)
Jensen, L. E. (M)
Johnson, L. P. (SM)
Johnson, R. E. (M)
Kaufman, F. H. (M)
Kellner, M. (A)
King, C. F. (M)
Kirkman, R. A. (SM)
Kukel, J. (M)
Laverty, N. P. (M)
Leone, W. C. (M)
Little, T. D. (A)
Loft, R. E. (M)
Lorenz, R. O. (M)
Marrison, W. A. (F)
McAllister, D. R. (SM)
McCoy, R. T. (SM)
McDonald, J. B. (M)
McKenna, Q. C. (SM)
McLaughlin, W. J. (M)
McRae, F. B. (M)
Meader, G. S. (SM)
Mitchell, E. (M)
Moore, C. C., Jr. (A)
Moore, H. E. (SM)
Mortensen, R. E. (M)
Mull, C. L. (M)
Ohst, R. J. (M)
Pastell, D. L. (M)
Peckham, D. D. (M)
Peterson, W. E. (SM)
Pitman, G. R., Jr. (M)
Polzin, E. M. (M)
Riggs, D. D. (SM)
Sachar, H. N. (M)
Sacks, J. M. (M)
Salisbury, D. L. (M)
Savo, T. A. (M)
Schauwecker, H. E. (M)
Scrafford, R. L. (M)
Seaton, A. F. (A)
Shestag, L. N. (M)
Shook, G. R. (M)
Shuey, L. S. (A)
Spanier, B. (M)
Stevens, F., Jr. (SM)
Swiger, J. M. (M)
Thorp, W. E. (SM)
Urban, L. R. (M)
Wagenseil, W. (SM)
Walquist, R. L. (M)
Ward, R. C. (M)
Watkins, G. C., Jr. (M)
Wensley, D. C. (M)
Wieneke, J. R. (SM)
Wilson, W. E. (A)
Wintroub, H. J. (M)
Withers, J. W. (M)
Woodford, J. B., Jr. (SM)
Yengst, W. C. (M)
Zeoli, G. W. (SM)

Panorama City (LA-SF-7)
Bernstein, P. L. (M)
Berri, R. E. (A)
Bule, J. L. (M)
Davis, B. E. (SM)
Flyr, J. G. (A)
Fourr, R. S. (M)
Hall, T. P. (A)
Kleinschmitt, C. J. (A)
Liska, J. (M)
Moore, L. W. (A)
Rosenthal, W. F. (M)
Sperling, I. (M)
Tyler, R. T. (M)

Paramont (LA-SA-7)
Appelman, J. F. (M)
Barrett, W. S. (A)
Cahn, L. (SM)
Child, C. H. (SM)
Ley, E. W. (A)
Noble, J. G. (M)
Pryga, S. A. (M)
Schowengerdt, R. N. (M)
Scott, E. W. (A)

Pasadena (LA-P-7)
Adams, R. J. (M)
Adler, J. A. (A)
Ainsworth, L. G. (M)
Ames, W. S. (M)
Apel, W. C. (M)
Arps, R. B. (M)
Ashby, R. M. (F)
Avizienis, A. A. (M)
Barasch, M. V. (SM)
Barath, F. T. (M)
Bemis, R. C. B. (M)
Bercovitz, N., Jr. (M)
Betzer, W. E. (M)
Beuger, J. C. (M)
Bradley, W., Jr. (M)
Brockman, M. H. (SM)
Brown, D. E. (M)
Brown, P. M. (M)
Burnett, J. H. (SM)
Burns, J. D. (M)
Cady, W. G. (F)
Caldwell, P. G. (SM)
Cancilla, E. (M)
Carter, R. C. (A)
Chafin, R. L. (M)
Chalfin, N. L. (M)
Charpentier, D. E. (M)
Chase, N. C. (M)
Cherniack, A. E. (M)
Choate, R. L. (SM)
Clement, W. G. G. (A)
Coker, F. B. (M)
Collins, D. L. (A)
Cowley, J. P. (M)
Cromleigh, R. G. (A)
Cummings, C. I. (SM)
Curry, W. L. (M)
Curtis, A. F. (M)
Cutting, E. (M)
Darling, H. R., Jr. (M)
David, J. R. (SM)
Davis, D. C. (M)
Davis, W. H. (M)
Dean, W. C. (M)
Dennison, P. R. (M)
Deo, N. (M)
De Vries, D. S., Sr. (M)
De Wolfe, G. C. (M)
Diercks, A. D. (M)
Diamond, R. H. (M)
Dixon, W. J. (M)
Dow, D. G. (M)
Drew, R. H. (M)
Ebertin, M. A. (M)
Eckstein, E. A. (A)
Edwards, C. M. (SM)
Elazar, S. (M)
Ellis, A. T. (M)
Emerling, R. A. (M)
Erdman, D. C. (A)
Emstene, M. P. (M)
Erway, D. D. (M)
Escher, P. H. (M)
Eubanks, F. G. (A)
Fahnestock, R. J. (M)
Fawcett, W. G. (M)
Fleming, L. (SM)
Fling, J. J. (M)
Forrester, A. T. (SM)
Gally, S. K. (M)
Garber, L. F. (M)
Gardner, J. A. (A)
Gates, C. R. (M)
George, N. (SM)
Gerrie, A. L., Jr. (M)
Gilbertson, B. I. (M)
Gillespie, H. R., Jr. (M)
Gilmore, W. F., Jr. (M)
Glein, J. C. (M)
Goldsmith, P. (M)
Gould, R. W. (M)
Gratton, R. E. (M)
Gregory, W. W., Jr. (A)
Griffin, W. G., Jr. (A)
Gruder, J. F. (M)
Haas, J. K. (M)
Hale, C. R. (M)
Hall, B. G. (M)
Hamilton, R. C. (M)
Harden, P. A. (M)
Harker, R. B. (M)
Hartel, C. F., Jr. (M)
Hatchi, S. (M)
Hawn, L. P., Jr. (M)
Henry, I. G. (M)
Herber, J. C. (SM)
Herman, N. H. (M)
Herrick, J. F. (M)
Heyser, R. C. (M)
Higa, W. H. (SM)
Hill, R. E. (M)
Hiraoka, F. A. (M)
Homsy, J. A. (SM)
Hoskins, E. E. (SM)
Hotchkin, E. E. (M)
Howes, E. T. (M)
Humphrey, F. B. (M)
Huth, W. R. (SM)
Jack, R. W. (M)
James, G. C. (M)
Jones, A. H. (M)
Josias, C. S. (M)
Kawano, K. (M)
Kellum, E. E. (M)
Kestler, G. (M)
Kimmel, M. J. (M)
King, R. C. (A)
Knickrehm, A. F. (A)
Knop, M. J. (M)
Koehn, W. A. (M)
Koemer, M. A. (M)
Koemer, T. W. (M)
Kravetz, J. (SM)
Kreuz, W. E. (M)
Krossa, K. D. (M)
Kuhn, H. G. (SM)
Kunzelman, R. C. (M)
Kuta, G. (SM)
Laande, W. O. (M)
Lano, J. A. (A)
Langmuir, R. V. (M)
Lavine, R. (M)
Lawrence, J. F., Jr. (SM)
Lee, D. K. (M)
Le Vier, P. W. (M)
Lewis, W. I. (M)
Liberman, A. G. (M)
Linderman, O. E. (SM)
Lyons, H. (F)
Maass, C. F. (A)
MacGinitie, G. (A)
Marcovitz, M. W. (M)
Marshall, R. (M)
Martel, H. C. (A)
Martin, B. D. (M)
Maserjian, J. (M)
Maure, D. R. (SM)
McCann, G. D. (F)
McClure, L. W. (SM)
McCool, J. M. (M)
McGee, J. F. (SM)
McGuire, C. B. (A)
McLauchlan, J. M. (M)
Mead, C. A. (M)
Meyer, J. F. (M)
Middlebrook, R. D. (SM)
Miller, G. J. (M)
Miyamoto, J. Y. (M)
Moffet, A. T. (M)
Moran, R. B., Jr. (SM)
Morison, R. (M)
Moseley, F. L. (F)
Mott, J. S. (M)
Motta, N. (A)
Mraz, M. R. (M)
Mullin, F. J. (M)
Neff, G. A. (M)
Nicolet, M. A. (M)
Nielsen, D. B. (A)
Otoshi, T. Y. (M)
Owen, R. P. (SM)
Papas, C. H. (M)
Paull, D. L. (M)
Pera, J. E. (A)
Pickering, W. H. (F)
Polk, J. C. (M)
Post, G. E. (M)
Pourtales, J. R. (M)
Powell, R. V. (M)
Pumalya, G. M. (A)
Radhakrishnan, V. (M)
Ranks, J. E. (M)
Reaser, R. L. (SM)
Rechtin, E. (SM)
Reilly, R. R. (M)
Richter, H. L., Jr. (SM)
Riddle, F. M. (SM)
Rieh, H. F. (A)
Rubin, A. M. (M)
Sandefur, K. L. (M)
Sato, H. (M)
Sato, T. (M)
Scaff, D. M. (M)
Scharer, M. E. (M)
Schlines, F. K. (M)
Sefton, W. E. (M)
Selale, R. K. (M)
Selzer, R. H. (M)
Shaffer, P. A., Jr. (M)
Sharp, J. C. (M)
Shaw, R. A. (A)
Sherer, P. N. (M)
Shimabukuro, F. I. (M)
Shultise, Q. M. (M)
Silvertooth, E. W. (M)
Simmons, E., Jr. (M)
Smith, H. A. P. (M)
Sorensen, T. C. (M)
Specht, W. A., Jr. (M)
Stelzried, C. T. (M)
Stevens, D. F. (A)
Stevens, R. A. (A)
Stevens, R. (M)
Stoll, R. F. (M)
Stuart, J. L. (M)
Sugimoto, K. G. (M)
Sydnor, T. E. (M)
Talmo, R. E. (M)
Tampico, J. (SM)
Tiltsworth, R. C. (M)
Toukdarian, R. Z. (SM)
Turner, R. P. (M)
Vail, R. W. (M)
Vaughan, V. Z. (A)
Vemon, F. L., Jr. (M)
Vincent, D. A. A. (M)
Wade, E. P. (M)
Wagner, D. W. (A)
Wagner, H. E. (M)
Waksman, A. (SM)
Wang, C-C (SM)
Warner, A. H. (SM)
Watts, E. W. (M)
Weber, F. W. (M)
Wedel, J. J., Jr. (M)
Weigel, W. G. (SM)
Weiman, I. (SM)
Wilson, G. P. (SM)
Wilson, M. C. (SM)
Wilts, C. H. (M)
Winsor, K. L (M)
Wood, D. O. (SM)
Wright, H. D. (SM)
Zarem, A. M. (F)
Zeman, J. A. (M)

Pebble Beach (SF-7)
Menneken, C. E. (M)
Pfenning, R. A. (M)

Pedro Valley (SF-7)
Muenzer, R. H. (M)

Penryn (SAC-7)
Yoshizuka, R. K. (A)

Petaluma (SF-7)
Boutz, F. E. (M)
Etten, K. W. (M)
Ravenscroft, H. A. (M)

Pico Rivera (LA-SA-7)
Bird, K. D. (A)
Carpenter, D. L. (A)
Crosby, J. (M)
Hansen, E. I. (M)

Rioos, P. F. (M)
Samp, T. A. (M)

Piedmont (SF-EB-7)
Cole, C. H. (M)
Criglar, J. J. (M)
Evans, C. P. (M)
Fleigner, A. F. (M)
Forster, A. G. (M)
Long, J. R. (M)
Mac Mahon, A. E. (SM)
Palmer, D. H. (A)

Pinole (SF-EB-7)
Andresen, J. S. (M)
Sanders, R. B. (M)

Pismo Beach (LA-SB-7)
Fraher, R. J. (A)

Pittsburg (SF-EB-7)
Lesniak, James P. (M)
Stangland, D. E. (A)

Placentia (LA-SA-7)
Davis, T. F. (M)
Kazakevicius, A. H. (A)
Kellogg, J. R. (A)
Napoleon, J. J. (M)

Playa Del Rey (LA-7)
Bainbridge, B. O. (M)
Barhydt, H. (M)
Beckman, J. A. (SM)
Bell, J. E. (M)
Bernuy, J. F. (M)
Beveridge, J. M. (M)
Breeding, C. S. (SM)
Carrier, G. T. (M)
De Wolf, J. L. (M)
Eckelmann, R. R. (M)
Edelman, W. E., Jr. (M)
Emery, W. K. (M)
Erwin, H. P., Jr. (M)
Eshbaugh, R. L. (M)
Exner, W. L. (SM)
Fenton, A. N. (SM)
Fenton, R. N. (M)
Fish, K. L. (A)
Fisher, M. K. (M)
France, R. W. (M)
Freytag, R. C. (M)
Gaul, E. R. (SM)
Gerardi, F. R. (M)
Gillis, D. E. (M)
Hamilton, R. F. (A)
Herin, J. G. (M)
Hillard, W. R. (M)
Holscher, D. J. (SM)
Holtrichter, J. (M)
Johnson, R. P. (SM)
Kanner, R. H. (M)
Keller, W. N. (A)
Kessler, E. P. (M)
Kohlmeyer, R. B. (M)
Levonian, P. V. (M)
Lobb, C. W. (M)
Mackie, W. L. (M)
Martin, R. F. (M)
McConnell, R. W. (M)
McJunkin, F. C. (M)
Mead, D. C. (M)
Miolke, T. F. (M)
Morrow, R. E. (M)
Osterhues, G. D. (M)
Phillips, R. G. (M)
Plummer, R. T. (M)
Rousculp, P. J. (M)
Royal, D. C. (M)
Ruch, E. E. (M)
Scholtz, R. A. (M)
Siegel, W. (M)
Sirvis, G. S. (M)
Strom, R. L. (SM)
Uncapher, K. W. (M)
Walent, P. M. (M)
Weed, H. L. (M)
Witten, E. L. (M)
Wooldridge, E. J. (M)
Wyllie, W. W. (M)
Yellman, T. W. (M)
Ziegler, R. M., Jr. (M)

Pleasant (LA-SF-7)
Sikorsky, E. (A)

Pleasant Hill (SF-EB-7)
Albertson, J. N. (A)
Brasile, W. N. (M)
Davis, R. W. (M)
Hall, R. F. (A)
Markee, C. T. (M)
Nakamura, M. (M)
Nielsen, G. A. (M)
Single, C. H. (M)
Skiff, E. W. (SM)
Voelker, F., III (SM)

Pleasanton (SF-EB-7)
Casterson, R. H. (M)
Curry, C. R. (M)
Helgeson, G. L. (M)
Wharton, C. B. (SM)

Point Arena (SF-7)
Blumberg, M. (A)

Point Mugu (LA-B-7)
Barncastle, L. (M)
Coggins, R. V. (M)
Corvi, J. A. (M)
Enright, D. J. (M)
Fain, W. W. (M)
Isenson, R. S. (M)
Kelhner, J. K. (M)
Meyer, R. L. (M)
Richardson, B. (M)
Schreier, W. J. (M)
Strelow, R. E. (SM)
Toohill, D. L. (M)
Williams, R. G. (M)

Pomona (LA-OB-7)
Allen, G. F. (M)
Allen, J. W. (SM)
Bailey, N. A. (M)
Benson, J. (M)
Berg, L. W. (M)
Black, L. M. (A)
Blackwell, M. B. (M)
Bloom, V. (M)
Bomar, R. L. (M)
Bryla, L. (M)
Bullock, W. W. (M)
Canchola, J. M. (M)
Chambers, J. W., Jr. (M)
Chrystie, H. (M)
Clifford, R. F. (M)
Collins, W. G. (M)
Constant, J. N. (M)
Craig, F. D. (SM)
Davis, O. R. (M)
Domen, S. L. (M)
Donnelly, R. W. (M)
Douglas, I. M. (M)
Drake, W. A. (M)
Dunn, C. E. (M)
Edsinger, L. E. (M)
Egeling, F. W. (M)
Ellis, G. M. (SM)
Elzie, O. G. (M)
Enegren, F. D. (M)
Evendorff, S. (M)
Feather, J. B. (M)
Fiorentino, J. S. (M)
Flanders, A. E. (M)
Flynn, D. T. (M)
Fritz, W. W. (M)
Froessel, C. H. (M)
Gelman, D. S. (A)
Goff, L. O. (SM)
Gottler, R. L. (M)
Gross, A. (M)
Hanson, M. E. (M)
Harrell, F. G. (M)
Harris, H. F. (A)
Harrison, F. H., Jr. (M)
Hasenbeck, H. W. (SM)
Hefling, V. L. (M)
Heumann, R. A. (A)
Hinderaker, L. M. (M)
Hindi, M. (M)
Mino, R. H. (A)
Holst, J. M. (M)
Horne, C. F., Jr. (F)
Hubers, R. J. (M)
Hummence, G. D. (M)
Ivey, R. W. (M)
Jacewicz, E. J. (M)
Jefferies, L. A. (M)
Jingujl, J. M. (M)
Johnston, R. C. (A)
Keith, I. W. (SM)
Kirk, C. N. (M)
Kirton, P. E. (A)
Knight, J. D. (M)
Knudsen, A. R. (M)
Krug, J. L. (A)
Le Coca, V. L. (M)
Lee, H. J. (M)
Le Fevre, C. E. (M)
Linsday, T. H., Jr. (M)
Lubeck, R. V. (M)
Magee, W. A. (M)
Magnenat, R. A. (M)
Marino, L. A., Jr. (A)
Marshall, R. R. (SM)
Martin, G. W. (M)
Matthews, W. C. (A)
Maudal, I. (M)
McDaniel, C. E. (A)
McDermoti, C. H. (M)
McLachlan, G. W., Sr. (M)
Merritt, F. P., Jr. (M)
Mickelson, J. R. (M)
Montcalm, M. T. (A)
Nelson, E. K. (M)
O'Brien, J. C. (SM)
O'Dell, G. M. (SM)
Oxley, S. G. (M)
Patterson, T. C. (SM)
Pemberton, T. (M)
Piller, R. G. (M)
Pizzuti, A. D. (M)
Pool, G. B. (M)
Porter, D. K. (A)
Prickett, C. E. (M)
Ranish, H. (M)
Reeves, J. T. (M)
Sandoval, A. M. (M)
Schapiro, R. (M)
Schumacher, C. M. (M)
Seal, C. E. (M)
Shimada, G. (M)
Shores, M. W. (SM)
Skousen, O. K. (M)
Smith, C. R., Jr. (M)
Smith, L. B. (M)
Smith, R. D. (M)
Sparks, S. L. (M)
Sprague, D. L. (A)
Squires, D. C. (M)
Stephan, A. (M)
Stricht, R. J. (SM)
Stone, R. E. (M)
Strope, R. B. (M)
Sutton, A. A., Jr. (M)
Taylor, C. A., Jr. (M)
Thomas, C. M. (M)
Thorpe, R. W. (SM)
Terakowski, E. A. (M)
Turner, W. L. (M)
Van Deventer, J. A. (M)
Villere, A. C. (SM)
Ward, W. S. (M)
Ware, R. B. (M)
Welby, C. E. (M)
Welling, R. L. (M)
Wellsand, R., Jr. (M)
Wendruck, M. J. (M)
Wessels, P. S. (SM)
Wingard, C. G. (M)
Wink, G. R. (M)
Wolf, H. K. (SM)
Woore, E. H. (M)
Worden, D. W. (SM)
Zeller, H. R. (M)
Zusag, R. J. (M)

Porterville (SF-7)
Margot, A. T. (M)
Poundstone, J. R. (M)

Port Hueneme (LA-B-7)
Allen, P. S. (M)
Bushnell, P. S., Jr. (M)
Cook, D. L. (M)
Douglass, R. E. (M)
Filopin, J. B. (M)
Matter, H. L. (M)
Rich, A. P. (M)
Shroyer, H. M. (A)
Tull, J. D. (A)
Waddell, T. P. (M)
Wheeler, T. J. (M)

Portola (SF-7)
Athey, S. W. (SM)
Batielle, R. B. (M)
Davies, L. E. (SM)
Dawson, P. F. (M)
Larkin, K. T. (SM)
Legge, R. B. (M)
Linvill, W. K. (M)
Milwitt, W. (SM)
Scheuch, D. (SM)
Smaller, P. (M)
Swanson, J. P. (M)
Ter Veen, L. A. G. (SM)

Portuguese Bend (LA-7)
Crawford, H. M. (M)

Poway (SD-7)
Anderson, B. G. (M)
Brant, N. F. (M)
Dershem, E. R. (M)
Emerson, R. M. (M)
Grindle, C. E. (SM)
McFadden, E. R. (M)
Sawicki, M. J. (A)
Winans, G. L. (M)

Quincy (SAC-7)
Moss, R. A. (A)

Ramona (SD-7)
Broome, P. W., Jr. (M)

Rancho Cordova (SAC-7)
Brusie, N. C. (M)
Christman, T. J. (M)
Hajnik, A. T. (A)
Harding, J. R. (M)
Hough, C. R. (M)
Kinnison, F. D., Jr. (M)
Looram, J. J. (A)
White, W. T. (A)

Rancho Santa Fe (SD-7)
Gardner, B. R. (SM)
Gonsett, F. R. (SM)
Haflinger, D. J. (SM)
Herbert, W. J. (M)
Ward, T. C. (A)

Red Bluff (SAC-7)
Boer, P. E. (A)

Redding (SAC-7)
Cooper, J. R. (M)
Hoeflich, A. F. (SM)
Machin, E. K. (A)

Redlands (LA-OB-7)
Brunetti, C. (F)
Crowley, J. J. (SM)
Herman, J. B. (A)
Miller, P. M. (M)
Moore, J. E. (A)

Redondo Beach (LA-7)
Albright, A. R. G. (M)
Barrar, R. B. (M)
Beall, K. C. (SM)
Bettinelli, K. F. (M)
Biddle, J. M. (M)
Blodgett, W. G. (M)
Burton, J. R. (M)
Cokas, G. (SM)
Covington, A. W. (M)
Dale, A. W. (SM)
Davis, C. H. (M)
De Witt, C. M., III (M)
Ducker, P. G. (M)
Flet, O. (SM)
Fontana, J. A. (M)
Freudenstein, W. H. (M)
Gaston, R. N. (M)
Hanst, R. K. (M)
Hildreth, D. E. (M)
Hopkins, C. O. (SM)
Ingram, D. B. (M)
Jolley, N. A. (SM)
King, G. J. (A)
Kirlin, E. V. (M)
Klinger, E. H. (M)
Krakau, W. S. (SM)
Lewison, G. L. (M)
Lundberg, R. L. (M)
Lytle, A. C. (SM)
Martin, D. (SM)
McClellan, L. D. (M)
McKesson, L. J. (SM)
McLeod, M. G. (M)
O'Leary, J. N. (A)
Pasonski, G. E. (M)
Pearce, C. R. (M)
Pinol, D. G. (M)
Pixley, N. S., Jr. (M)
Plummer, R. C. (M)
Pregler, R. A. (M)
Pruden, H. K. (A)
Reddicks, J. E. (M)
Rice, C. E. (M)
Risinger, P. N. (M)
Russell, B. J. (M)
St. John, J. L. (M)
Simpson, C. H. (M)
Smith, J. R. (M)
Smith, W. A. (M)
Stasch, J. E. (M)
Steinhoff, H. W., Jr. (M)
Sussman, R. J. (M)
Tropila, J. F. (M)
Turkheimer, F. M. (M)
Watts, G. J. (A)
Weber, R. I. (M)
Weir, K. O. (M)
Wheeler, P. C. (M)
Williams, F. R. (A)
Winner, R. N. (M)
Wolverton, R. W. (M)
Wyman, R. H., Jr. (M)

Redwood City (SF-7)
Aliff, W. H., Jr. (M)
Allen, D. P. (M)
Anderson, C. E. (M)
Anissimov, B. A. (M)
Apolequist, J. E. (M)
Ashley, A. C. (M)
Baer, M. H. (A)
Barkley, J. W., Jr. (M)
Batten, H. W. (M)
Bean, D. A. (M)
Beaulieu, J. P. (A)
Benz, B. D. (M)
Beyer, D. D. (M)
Bloom, G. (A)
Boboricken, S. (A)
Bollier, J. (A)
Bradford, C. W. (M)
Brockway, R. C. (M)
Brooks, J. E. (M)
Burke, G. G. (A)
Cann, R. W. (M)
Case, K. A. (M)
Cernuti, B. A. (M)
Conti, E. A. (M)
Cheney, C. (A)
Christie, J. W. (M)
Cook, G. V. (M)
Com, J. W. (M)
Covell, D. F. (M)
Digiovanni, J. J. (M)
Dover, J. J. (SM)
Dunne, P. F. (M)
Dyura, E. (A)
Elfving, C. T. (M)
Elliott, H. A. (M)
Ellis, I. M. (M)
English, R. L. (M)
Farlnon, W. B. (SM)
Felix, M. O. (SM)
Fisher, W. C. (SM)
Fletcher, M. W. (M)
Fraser, E. J. (A)
Goodrich, F. M. (A)
Granberry, H. W. (M)
Grant, R. J. (M)
Green, P. S. (M)
Gundy, P. L. (M)
Hall, J. M. (M)
Hansen, L. L. (M)
Hebb, J. W. (M)
Hechtel, J. R. (SM)
Heine, R. A. (M)
Held, H. E. (M)
Hill, L. E. (M)
Hinners, K. J. (M)
Hoch, O. L. (M)
Holtmann, E. H. (A)
Ice, G. E. (M)
Jensen, R. H. (M)
Jones, R. L. (A)
Kaider, H. J. (M)
Kanner, L. (M)
Kanytsky, W. (M)
Kazanjian, H. A. (M)
Keenan, M. C. (M)
Kerver, N. E. (A)
Kietz, E. K. (M)
Kushnick, A. E. (M)
Lacy, P. D. (SM)
Lake, J. R. (M)
Leong, J. K. (M)
Leslie, F. E. (SM)
Leslie, J. M., Jr. (SM)
Liang, M-T (M)
Long, C. R. (M)
Luebke, W. R. (SM)
Markevitch, B. V. (M)
McAlpine, W. N. (M)
Merritt, C. H. (SM)
Morrison, W. L., Jr. (M)
Morwood, R. C. (M)
Murphy, H. E. (M)
Nagy, G. (SM)
Nye, W. H. (M)
Oden, D. E. (M)
Orr, J. E. (M)
Pachynski, A. L. (SM)
Patterson, G. K. (SM)
Paul, P. F. (M)
Petty, G. W. (M)
Phillips, R. M. (M)
Plotnikoff, G. P. (M)
Pokorny, G. E. (A)
Reed, D. E. (M)
Rich, P. L. (M)
Riddell, A. J. (A)
Robertson, W. H., Jr. (A)
Rolly, W. J. (A)
Rudee, E. (M)
Ruttenberg, R. M. (M)
Sackman, R. (A)
Scarborough, H. L. (A)
Schmidt, R. C. (SM)
Selsted, W. T. (F)
Seth, T. I., Jr. (A)
Short, R. A. (M)
Silverstein, P. K. (A)
Skullestad, P. S. (M)
Smaha, N. F. (A)
Song, L. F. (M)
Stahl, R. J. (M)
Stallman, H. E. (M)
Stein, I. (M)
Stewart, J. A. (M)
Stoddard, D. J., Jr. (M)
Stratton, B. L. (M)
Sutton, H. B. (M)
Swisher, C. F. (M)
Tarodaychik, P. (SM)
Thompson, R. E. (M)
Tuck, E. F. (M)
Valles, B. V. (M)
Wallace, P. W. (M)
Walter, C. A., Jr. (M)
Warner, D. B. (M)
Wattenbarger, J. W. (M)
Wheeler, G. M., Jr. (M)
Wilder, T. W., III (M)
Youngstrom, J. R. (M)

Reseda (LA-SF-7)
Abernathy, O. R. (A)
Acker, W. W. (M)
Babcock, R. L. (A)
Ballard, W. E. (M)
Beans, J. B. (M)
Becker, C. Z. (SM)
Blomeyer, L. S. (M)
Briel, L. A. (A)
Brown, R. M. (A)
Buckley, G. F. (A)
Busenkell, C. C. (SM)
Conover, W. V. (M)
Eckeman, R. C. (M)
Elberger, M. (A)
Frank, C. E. (M)
Fujitsubo, W. S. (M)
Gay, L. G. (A)
Gold, R. C. (M)
Goulet, T. A. (M)
Green, R. D. (M)
Grell, L. (M)
Harlan, R. E. (M)
Held, H. (SM)
Henrion, W. S. (A)
Kalatsky, M. W. (M)
Kaplan, A. J. (M)
Kitchen, R. L. (M)
Klemm, H. L. (M)
Lerman, N. (M)
Lester, V. R. (M)
Loll, W. E. (M)
Mackey, R. C. (M)
Maynard, R. C. (M)
Mock, R. E. (M)
Moser, J. L. (M)
Mumma, J. W. (SM)
Niemoller, J. F. (M)
Okonski, C. B. (M)
Paolantonio, A. (M)
Pedersen, F. C. (M)
Peterson, J. A. (M)
Plank, C. (M)
Politi, E. Y. (M)
Politis, S. (M)
Ptaszmik, C. J. (M)
Rittenhouse, G. W. (M)
Schuster, N. J. (M)
Sigal, B. C. (M)
Smith, J. E. (SM)
Sollock, S. G. (M)
Stegelmann, E. J. (SM)
Stevenson, E. (M)
Sundberg, R. A. (M)
Symans, J. H. (A)
Tarr, R. (M)
Taylor, J. L. (M)
Thaler, S. (M)

Thomas, R. L. (M)
Welch, D. K. (M)
Wills, J. D. (M)
Wood, G. R. (M)
Wood, J. R. (M)
Zak, E. T. (A)

Rialto (LA-OB-7)
Quinn, J. S. (M)
Trezek, J. P. (M)

Richmond (SF-EB-7)
Banducci, R. R. (M)
Billiland, M. C. (SM)
Hamilton, E. P. (A)
Hussey, J. L. (SM)
Jensen, R. H. (A)
Krivohlavek, G. M. (M)
Larsh, A. E., Jr. (SM)
Lovell, E. L. (A)
Metz, G. F. (M)
Nelson, O. A. (A)
Neu, F. D. (M)
Nielson, D. E. (M)
Pritchett, W. (SM)
Scheck, J. W. (M)
Scott, N. B. (A)
Thomason, T. H. (A)
Watson, H. M. (M)

Ridgecrest (CL-7)
Bethke, G. M. (M)
Brown, D. (M)
Brown, L. B. (A)
Charlton, R. L. (M)
Crawforth, J. E. (M)
Dorsey, S. E. (M)
Field, W. A. (M)
Fowler, T. C. (M)
Freitag, W. E. (M)
Jenkins, C. E. (M)
Johantgen, J. S. (M)
Kasper, D. P. (A)
Kirman, D. M. (M)
Larsen, C. L. (A)
Madsen, L. L. (M)
Paulsen, A. J. (M)
Schneider, N. J. (M)
Sketters, R. N. (M)
Swedblom, C. E. (A)
Tkachuk, J. J. (M)
Valdivia, S. G. (M)
Walsh, J. E. (M)

Rio Vista (SF-7)
Bird, J. R. (SM)

Rivera (LA-SA-7)
Fuller, C. A. (A)

Riverside (LA-OB-7)
Atchison, F. S. (SM)
Barton, R. W. (SM)
Bauer, R. L. (M)
Bems, K. L. (M)
Beyer, J. J. (M)
Bickford, F. K. (M)
Bishop, B. E. (M)
Blasjo, M. H. (M)
Bluemel, C. R. (M)
Blutman, E. (SM)
Bowser, W. S. (SM)
Bradley, J. (M)
Brown, M. H. (M)
Buchfeller, J. E. (M)
Bullock, D. W. (M)
Byrne, J. F. (F)
Casey, S. D. (M)
Christensen, L. E. (M)
Cling, W. J., Jr. (M)
De Marco, R. J. (A)
Dick, J. O. (M)
Feeney, J. E. (M)
Fletcher, R. C. (M)
Friedmann, E. (M)
Gorbatenko, G. G. (M)
Grycko, S. R. (SM)
Hallc, E. J. (SM)
Heath, P. D. (M)
Heberling, E. D. (SM)
Heywood, N. A. (M)
Hoover, M. C., Jr. (M)
Hornback, C. F. (M)
Jackson, T. B. (SM)
Jemigan, E. D. (SM)
Johns, R. R. (SM)
Johnson, E. J. (M)
Kelley, S. B. (M)
Kinzer, C. E. (M)
Kopulsky, S. (M)
Krilanovich, N. J. (SM)
Lawlor, K. A. (M)
Liebig, V. W. (M)
Lindberg, A. C. (M)
Linquist, C. R. (SM)
Macadam, J. F. (M)
McNaughton, J. F. (M)
Miles, T. P. (M)
Morehouse, G. D. (SM)
Muncy, W. A. (M)
Opheim, L. E. (A)
Parvin, J. A. (M)
Pawley, M. G. (SM)
Powers, A. B. (SM)
Risely, R. E. (M)
Rolle, E. O. (M)
Ryno, G. E. (M)
Schnur, S. T. (M)
Seeley, E. W. (A)
Smith, R. P. (SM)
Taylor, T. T. (M)
Thompson, C. J. (M)
Van Vorhis, J. L. (M)
Waltner, C., Jr. (M)
Warren, K. A. (A)
Waters, D. J. (M)
Wells, R. E. (M)
Whalen, P. K. (M)
Wickett, B. H. (M)
Wills, J. R. (M)
Whitbeck, L. H. (M)
Zimmerman, H. S. (M)

Rocklin (SAC-7)
Brown, V. J. (A)

Rolling Hills (LA-7)
Anderson, M. J. (M)
Angel, A. M. (M)
Bercsi, J. A. (M)
Boland, C. D., Jr. (M)
Borks, M. D. (M)
Broatch, N. L. (M)
Burr, R. L. (M)
Caldwell, J. J., Jr. (SM)
Casey, J. D. (M)
Chambers, G. R. (M)
Collins, W. C. (SM)
Cox, J. A. (M)
Cummins, J. W. (SM)
Dea, D. Y. F. (SM)
Edwards, R. F. (M)
Ellingboe, J. K. (M)
Ellis, T. O. (M)
Finkel, M. (SM)
Geduld, A. (M)
Gilkison, C. A. (M)
Gray, W. H. (M)
Hall, C. A. (A)
Hogan, J. D. (M)
Holland, J. E. (M)
Intagliata, S. J. (M)
Jackson, R. E. (M)
Jakus, L. A. (SM)
Johnson, W. A. (M)
Kazarian, D. G. (M)
King, E. N. (M)
Kluehe, W. (M)
Koehler, F. H. (M)
Ladd, A. W. (M)
Larson, R. L. (M)
Lillenstein, M. (SM)
Lind, H. V. (M)
Lucas, E. D., Jr. (M)
Matson, D. L., Jr. (M)
McCartney, M. A. (A)
McMahon, G. V. (M)
McMahon, M. E. (M)
McNary, B. D. (M)
Meyer, J. C. (M)
Moolenaar, S. (M)
Neat, C. E. (M)
Nelson, C. E. (SM)
Nilsson, B. G. (M)
Oberholtzer, J. M. (M)
Olson, E. R. (M)
Ort, H. (M)
Schnoor, J. E. (M)
Shibuya, Y. (M)
Shulsinger, J. (M)
Smith, H. A. (A)
Stephan, P. W. (M)
Stone, M. M. (M)
Tarot, A. (A)
Trampler, J. H. (M)
Ufe, L. A. (SM)
Venator, T. J. (M)
Walker, V. D. (M)
Wannlund, A. L., Jr. (M)
West, G. P. (M)
Zaremba, J. G. (M)

Rolling Hills Estates (LA-7)
Clapp, R. W. (SM)
Foster, T. J. (SM)
Howard, S. L. (M)
Hughes, R. A. (M)
McClintock, D. G. (M)
Phillips, S. C. (M)
St. John, D. E. (SM)
Trapp, J. A. (SM)
Vail, A. E. (SM)

Rosamond (CL-7)
Thompson, M. L. (A)

Rosemead (LA-P-7)
Ferl, R. H. (A)
Fisher, W. E. (M)
Hornecker, C. W. (M)
Whitehead, E. H. (A)

Roseville (SAC-7)
Bennett, J. B., Jr. (M)
Hughes, F. W. (M)
Reed, J. E. (M)

Rossmoor (LA-7)
Ferguson, G. D. (M)

Running Springs (LA-OB-7)
Sutton, O. D., Jr. (M)

Sacramento (SAC-7)
Altstatt, J. E. (M)
Balms, C. A. (M)
Baker, D. F. (M)
Baker, R. L. (M)
Beckwith, C. (M)
Bennett, R. C. (M)
Berger, E. W. (SM)
Berkley, J. B. (SM)
Berry, E. X. (M)
Blue, K. D. (A)
Bolander, P. E. (M)
Bourget, L. (M)
Breckner, C. N. (M)
Breuer, H. J. (M)
Brower, B. B. (M)
Cannon, D. S. (M)
Cook, R. H., II (M)
Corrigan, B. G. (M)
Crenshaw, H. L. (M)
Crist, L. S. (A)
Dickinson, I. E. (M)
Enzler, A. J. (M)
Farrelle, P. S. (M)
Feller, A. S., Jr. (A)
Field, S. E., Jr. (A)
Garcia, L. W., Jr. (M)
Godfrey, X. W. (M)
Haydis, C., Sr. (M)
Hennige, C. W., III (M)
Hill, W. C. (SM)
Holman, W. F. (M)
Julian, C. E. (M)
Karpisek, W. J. (M)
Kibbey, M. B. (M)
Kidd, L. G. (M)
Klauer, W. R. (M)
Klinke, E. R. (M)
Kobayashi, S. (M)
Koch, W. F. (M)
Kowalczyk, J. R. (M)
Labar, W. R. (M)
Lanzo, F. J. (A)
Lar Rieu, E. A. (SM)
Lee, A. N. (M)
Leecing, R. W. (A)
Liebel, B. W. (M)
Look, A. (M)
Matsueda, J. (M)
Minke, J. F., III (M)
Naschke, E. S. (M)
Nystrom, A. V. (M)
Oates, T. L. (M)
Okada, W. M. (A)
Onniglan, P. K. (SM)
Overstreet, S. M. (M)
Polgar, E. A. (M)
Poucher, R. A., Jr. (M)
Pound, A. W. (M)
Quackenbush, H. H. (M)
Rathke, J. E. (M)
Renard, W. J. (M)
Roberts, E. A., Jr. (A)
Rockey, G. H. (SM)
Rohde, A. O. (M)
Roos, W. B. (SM)
Samuelson, R. D. (M)
Schrader, F. S. (M)
Senf, G. A. (A)
Shapiro, H. L. (M)
Sinkler, C. I. (M)
Smart, M. E. (SM)
Smith, D. E. (M)
Spadoni, A. F. (A)
Sronce, G. S. (M)
Starrez, J. S. (A)
Thompson, R. L. (M)
Tiedeman, C. R. (M)
Townsend, O. W. (M)
Van Den Berg, W. J. (M)
Watson, H. (A)
Watson, J. E. (A)
Webber, E. S. (M)
Williams, H. T. (M)
Wilson, L. I. (A)
Wing, J. (M)
Young, M. E. (A)
Zander, C. E. (A)

Salinas (SF-7)
Albert, J. G. (M)
Horton, J. A. (M)
Johnson, R. M., Jr. (M)
Shepherd, M. J. (M)

San Anselmo (SF-7)
Berryhill, J. L. (M)
Kaufman, J. (SM)
Oberg, V. H. (M)
Thompson, H. K. (M)

San Bernardino (LA-OB-7)
Adamson, L. B. (M)
Dyrr, E. H. (M)
Ewing, G. W. (M)
Foeste, W. E. (SM)
Huddleston, J. C. (M)
Johnson, S. F. (M)
Newman, W. P. (A)
Spurlin, C. E. (M)
Tedesco, J. R. (M)
Winter, W. T. (M)

San Bruno (SF-7)
Carr, E. A. (M)
Crabbe, F. J. (SM)
Czelkowitz, R. F. (M)
Fuller, H. H. (A)
Kavanaugh, J. C. (M)
Leiddigh, W. J. (M)
McDade, J. J., Jr. (A)
Miller, R. J. (M)
Myhre, R. W. (M)
Olmo, W. J., Jr. (A)
Preist, D. H. (SM)
Thompson, O. E. (M)
White, H. A. (M)
San Carlos (SF-7)
Arfin, B. (SM)
Anderson, C. E. (M)
Baker, B. J. (A)
Bernstein, J. L. (M)
Berry, B. H. (A)
Bingham, F. G. (M)
Brakeman, F. E. (A)
Bramhall, F. B. (F)
Bristol, T. R. (SM)
Carter, R. W., Jr. (M)
Carver, V. D. (SM)
Chamberlin, R. H. (SM)
Chin, S. H. H. (M)
Cobb, F. L. (M)
Coe, W. G. (SM)
Combellick, T. A. (SM)
Condie, M. A. (SM)
Cohn, M. L. (M)
Cool, L. R. (M)
Corcoran, J. W. (M)
Cougoule, R. L. (A)
Culbertson, A. F. (SM)
Cummings, K. M. (SM)
Davis, C. C. (A)
Dodd, C. (SM)
Doyka, S. F. (M)
Edens, R. L. (M)
Forgey, J. A. (A)
Foster, H. B. (M)
Fuller, T. D. (M)
Geller, W. (M)
Georgiev, P. V. (M)
Graves, H. F. (SM)
Greene, H. A., Jr. (SM)
Groberg, L. R. (M)
Gross, E. H. (M)
Haegele, R. W. (SM)
Hahn, G. A. (M)
Hesselgrave, D. H. (SM)
Hull, J. F. (SM)
Ingersoll, J. C. (M)
James, B. C. (M)
Johnson, J. B. (A)
Johnson, K. O. (M)
Johnson, L. B. (SM)
Johnstone, F. C. (M)
Jolly, J. A. (SM)
Joseph, W. F. (M)
Kahmann, H. C., Jr. (M)
Knorpp, J. L., Jr. (M)
Kuypers, J. A. (M)
Lagerstrom, R. P. (M)
Lewenstein, H. J. (M)
Loewy, F. A. (M)
Magatagan, R. O. (M)
Maltzer, I. (SM)
McGibbon, G. D. (A)
McLaughlin, J. W. (M)
Meacham, D. D. (M)
Melvin, D. K. (M)
Morse, H. R. (A)
Naugle, J. B., Jr. (M)
Newman, H. L. (M)
Peirce, J. A. (M)
Peterson, E. K. (SM)
Pflieger, R. L. (A)
Pitts, J. E., Jr. (M)
Prommer, A. (A)
Reid, D. W. (M)
Romans, C. (M)
Roney, E. L. (SM)
Rose, R. G. (M)
Ross, A. T. (M)
Savarin, A. (M)
Schussele, J. H. (M)
Smith, W. D. (M)
Star, J. (A)
Struven, W. C. (SM)
Stuart, G. S. (A)
Sutton, G. L. (M)
Swartz, P. C. (M)
Veburg, J. C. (M)
Victorine, G. B. (A)
Wallace, D. C. (M)
Weber, J. H. (SM)
White, R. F. (M)
Winenow, R. E. (M)
Wortman, T. J. (M)
Wyand, D. L. (M)
Zimmerman, H. G. (A)

San Clemente (LA-7)
Casad, T. A. (M)
Derby, R. J. (M)

San Diego (SD-7)
Abbey, K. (SM)
Abel, C. F. (A)
Abshier, D. G. (M)
Adamson, P. (M)
Albert, S. L. (M)
Allen, J. H. (SM)
Allman, D. P. (M)
Altman, D. E. (M)
Anders, J. R. (M)
Anderson, D. L. (M)
Anderson, J. S. (M)
Anderson, V. C. (SM)
Anthony, D. J. (M)
Arnett, W. (SM)
Arnold, W. R. (M)
Augustin, E. P. (M)
Austin, R. W. (M)
Ayer, H. G. (A)
Aylott, A. J. (M)
Babbitz, H. B. (SM)
Bailey, R. E. (M)
Baker, R. L. (M)
Bangert, T. H. (A)
Barley, C. E. (A)
Barnes, H. R. (A)
Barratt, E. C. (M)
Bass, C. J. (A)
Bebak, V. F. (A)
Behrends, P. O. (A)
Bell, E. (M)
Bennett, V. M. (M)
Bentrott, D. W. (A)
Benzel, C. R. (M)
Bergant, G. G. (M)
Bertolino, T. R. (M)
Birkett, B. T. (M)
Bimbaum, M. D. (M)
Bishop, D. E. (M)
Bjornson, W. G., Sr. (SM)
Blair, W. L. (SM)
Bloschies, F. H. (M)
Boakes, W. H. (M)
Bonham, J. R. (A)
Bonine, K. C. (M)
Boudreau, R. J. (M)
Bowers, R. W. (M)
Boyce, W. E., L. (M)
Brackett, R. T. (M)
Bradford, W. R. (M)
Braun, S. (A)
Breeze, J. R. (M)
Brengle, A. S. (M)
Briggs, R. W., II (A)
Brissenden, P. (A)
Brokaw, H. R. (M)
Browder, J. W. (SM)
Brown, F. R. (M)
Brown, W. R. (M)
Burbank, C. J. (SM)
Burgi, C. E. (M)
Burke, A. T. (SM)
Burnett, D. (M)
Burnett, W. L. (M)
Byrnes, F. X. (M)
Campbell, W. D. (M)
Caporaletti, G. A. (M)
Carson, A. C. (M)
Casal, F. G. (A)
Caspers, J. W. (M)
Cawley, J. H., Jr. (A)
Celto, J. E. (M)
Cervenka, A. J. (M)
Chadwick R. F. (A)
Chapin, G. G. (M)
Chasinowitz, G. (M)
Chatelain, M. G. (M)
Chew, K. (M)
Christensen, N. T. (M)
Christensen, R. J. (SM)
Christiansen, E. M. (A)
Cisneros, I. (M)
Clare, E. T. (SM)
Clarke, A. G. (A)
Clarke, G. W. (M)
Cleveland, W. A. (M)
Clough, L. G. (M)
Coleman, G. M. (M)
Collier, R. (M)
Comstock, R. L. (M)
Cordova, F. T. (M)
Corkhill, J. M. (M)
Cornell, D. E. (M)
Covan, L. C. (M)
Cram, C. C. (SM)
Creutz, E. C. (SM)
Crispell, H. L. (SM)
Crocker, W. F. (A)
Crotinger, R. M. (M)
Curl, G. H. (M)
Curtis, G. T. (M)
Culler, M. (SM)
Cyr, K. C. H. (M)
Dameson, L. G., Jr. (M)
Davis, C. M. (M)
Davis, J. T. (M)
Davis, L. L. (M)
Day, S. M. (A)
Deavenport, J. E. (M)
De Haas, D. G. (M)
Dejka, W. J. (M)
Delicath, R. C. (M)
Dellinger, K. A. (A)
De Marco, P. J. (A)
De Mers, E. F. (SM)
Detwiler, J. R. (M)
Dickenman, R. L. (M)
Dickstein, H. D. (SM)
Dillon, T. E. (M)
Dobyne, J. C., Jr. (M)
Doig, J. H. (M)
Donahue, J. (M)
Doyle, J. W. (A)
Driskell, R. O. (M)
Dunning, R. A. (M)
Ebert, R. H. (A)
Ehrlich, C. I. (M)
Elliston, R. O. (M)
Ely, M. D. (M)
Emmerich, L. (M)
Ender, A. (M)
Engh, P. B. (SM)
Entenmann, R. C. (M)
Envall, K. R. (A)
Erickson, P. R. (M)
Erickson, W. L. (M)
Evans, A. R. (M)
Evans, D. S. (M)
Evans, W. O. (M)
Farmer, R. E. L. (M)
Fay, W. J. (M)
Fenler, J. (M)
Finch, J. W. (SM)
Fischer, J. F., Jr. (M)
Fisher, C. R. (M)
Fiske, P. E. (SM)

Fixsen, R. E. (M)
Flint, L. B. (M)
Forsen, H. D. K. (M)
Frech, R. A. (M)
Frederick, J. E. (M)
French, E. P., Jr. (M)
Freres, C. H. (M)
Frimtzis, R. (M)
Frost, J. W. (M)
Fuhrer, D. L. (M)
Funk, R. E. (M)
Gadbois, R. D. (M)
Ganote, M. D. (M)
Garrett, G. K. (M)
Gelernter, A. (M)
Geren, K. E. (M)
Gilbreath, J. A. (M)
Gillette, A. J., Jr. (M)
Girismen, M. F. (M)
Gleason, C. A. (M)
Goddard, W. R., Jr. (M)
Gomez, A. D. (M)
Gorby, J. H. (A)
Gordon, R. A. (SM)
Gottwald, C. H. (M)
Granger, H. (SM)
Greeley, A. C. (M)
Greenstein, J. L. (M)
Gremer, C. E. (M)
Gribble, J. C. (A)
Gross, W. (M)
Grygar, R. A. (M)
Gulbrandsen, F. O. (M)
Guthrie, W. R. (A)
Haak, D. K. (M)
Hale, D. N. (M)
Hall, G. D. (M)
Hall, J. D. (M)
Halonen, C. A. (A)
Hamblen, L. P. (M)
Hambly, M. E. (A)
Hamerman, L. (M)
Hamilton, E. A. (M)
Hangartner, J. E. (M)
Hansen, P. G. (M)
Hansen, W. C. (A)
Harrington, M. W. (M)
Harrington, V. L. (M)
Harris, J. L. (M)
Harris, L. G. (M)
Harrison, J. F. (M)
Hartin, W. J. (A)
Hatchett, C. (SM)
Hatchett, S. E. (SM)
Hauser, H. (SM)
Hauser, J. H. (SM)
Hayth, W. D. (M)
Hedlund, K. W. (M)
Heinshelmer, T. F. (M)
Heldwein, C. (M)
Henkel, R. M. (M)
Herbert, D. E. (M)
Heritage, D. P. (M)
Heritage, J. L. (M)
Hemandez, E. R. (M)
Herz, E. (M)
Hicks, C. N. (M)
Hicks, P. A. (M)
Higgins, V. M. (A)
Hirst, W. B., Jr. (M)
Hitzenhammer, A. D. (SM)
Hively, R. C. (SM)
Hoffman, H. T. (M)
Holcomb, D. E., Jr. (M)
Holly, C. M. (M)
Holman, F. P. (A)
Honea, K. G. (M)
Honer, R. E. (SM)
Hood, I. A. (M)
Hooyen, P. J. (M)
Hope, J. N. (A)
Hopkins, R. U. F. (M)
Hosa, E. (M)
Hughes, L. R. (M)
Hunnicutt, D. W. (M)
Ilstrup, M. E. (M)
Imhoff, R. H. (M)
Ingram, C. J. (M)
Ingram, J. B. (M)
Ivans, W. S., Jr. (SM)
Ivory, J. F. A. (M)
Jackson, R. W., Jr. (M)
Jallu, F. M. (M)
Jespersen, G. K. (M)
Johnson, D. L. (A)
Johnson, G. B. (M)
Johnson, J. F. (M)
Johnston, D. L. (A)
Jones, H. G. (M)
Jones, K. N. (M)
Jonllonis, G. A. (A)
Jugend, J. (M)
Kalbfell, D. C. (SM)
Kaleta, G. J. (M)
Kaolan, M. N. (M)
Karcher, E. R. (SM)
Karel, L. G. (M)
Karnazin, W. R. (M)
Kaspar, E. J. (M)
Keith, L. W. (M)
Kelley, D. R. (M)
Kelley, R. J. (M)
Kemper, W. S. (M)
Kercher, T. C. (M)
Kerr, H. C., Jr. (M)
Kershaw, J. E. (M)
Kershow, W. V. (M)
Kinzel, G. A. (M)
Kirk, J. F. (M)
Kirk, W. (M)
Klee, H. J. (M)
Kluck, J. H. (M)
Knox, R. L. (M)
Kolker, M. (M)
Kuhlmann, V. D. (M)
Kuncls, P. J. (A)
Lalupoa, A. S. (M)
Lakins, B. B. (M)
Lamoreux, J. C. (M)
La Motte, K. E. (M)
Lander, B. (M)
Larkin, R. L. (M)
Larsen, H. L. (M)
La Zelle, L. L. (M)
Lee, J. E. (M)
Lee, R. G. (M)
Lee, W. L. G. (M)
Leffler, R. (M)
Leger, R. M. (SM)
Lessem, M. (M)
Lessley, T. D. (M)
Lestick, A. P. (A)
Levy, E. S. (M)
Lipman, M. A. (M)
Lisak, L. R. (M)
Lively, J. D. (M)
Lodge, C. R. (M)
Loeb, M. (M)
Loque, R. D. (M)
Loque, S. H. (M)
Long, J. V. (M)
Lopez, W. M. (M)
Luebben, R. G. (M)
Lund, T. J. (M)
Lynch, J. A., Jr. (M)
Mainland, R. (M)
Majchrowicz, J. A. (A)
Makinson, R. O. (M)
Manning, C. S. (SM)
Mannheltz, P. E. (SM)
Marsh, C. L. (M)
Marsh, W. H. (M)
Marshall, H. B., Jr. (M)
Martin, F. C., Jr. (M)
Martin, G. E. (SM)
Martin, L. E. (M)
Matsumoto, T. (M)
Maughmer, J. M. (M)
Maynard, J. H. (M)
McAdon, G. B. (M)
McCrary, G. W., Jr. (M)
McDaniel, G. A. (A)
McGehee, C. R. (M)
McKnight, C. L. (M)
McLennan, J. D. (M)
McLennan, R. A. (M)
McManus, R. P. (M)
McNaney, J. T. (SM)
Mealey, G. J. (M)
Medved, D. B. (SM)
Mehner, E. C. (A)
Mertel, H. K. (A)
Migdal, P. (M)
Mildice, J. W. (M)
Miller, C. W. (M)
Miller, G. N. (M)
Millican, F. M. (M)
Mindte, R. T. (M)
Miyoshi, A. M. (M)
Moe, C. R. (SM)
Moebus, L. F. (M)
Moffatt, V. J. (M)
Molesko, N. M. (M)
Molnar, S. (M)
Montalvo, E. (M)
Montgomery, K. L. (M)
Moore, E. J. (M)
Morgan, A. W. (M)
Motl, M. H. (M)
Mulcahy, L. P., Jr. (M)
Mulvey, J. X., Jr. (M)
Murdock, C. E. (M)
Murray, J. H. (M)
Nanos, G. (A)
Nelson, A. W. (M)
Nelson, A. (M)
Nelson, J. A. (M)
Nelson, K. F. (M)
Nelson, P. C. (M)
Newby, R. E. (M)
Newton, A. E. (SM)
Nichols, B. B. (M)
Niderost, C. R. (M)
Nissley, L. E. (M)
Nizyborski, E. S. (M)
Noll, F. R. (M)
Novak, E. K. (M)
Noyes, A. E. (M)
Nuese, C. (M)
Nute, C. H. (M)
O'Day, R. L. (M)
Ogram, R. L. (M)
Olesen, C. E. (M)
Olita, J. A. (M)
Oliver, G. W. (M)
Omiya, C. I. (M)
Ong, A. M. (A)
Onstad, R. C. (M)
Orpin, L. H. (SM)
Orr, W. (A)
Orthel, J. C. (M)
Ott, W. R. (M)
Papels, W. (M)
Paine, S. T. (M)
Parker, A. B. (M)
Parker, B. E. (SM)
Patrick, T. A. (M)
Persons, C. E. (M)
Peterson, C. H. (A)
Peterson, D. M. (M)
Peterson, R. M. (M)
Petit, J. G. (A)
Petitjean, A. E. (A)
Petta, D. C. (M)
Pfender, W. H., Jr. (M)
Phillips, E. T. (M)
Photinos, H. R. (M)
Pine, T. G. (M)
Poe, C. M. (A)
Poehls, V. J. (M)
Pokorny, F. A. (M)
Pollard, W. A. (A)
Porter, J. B. (M)
Prager, R. H. (M)
Prather, A. W. (M)
Prim, D. C. (SM)
Proctor, D. (SM)
Provencher, J. H. (M)
Radja, J. E. (M)
Rathbone, R. R. (A)
Ratte, J. P. G. (A)
Raybum, D. A. (A)
Read, D. B. (M)
Redelings, J. T. (M)
Redington, E. D. (SM)
Redmond, J. G. (M)
Reel, L. S. (M)
Reid, J. G. (M)
Reniker, H. T. (A)
Renteria, R. (M)
Rhamy, J. D. (M)
Rice, G. D. (SM)
Rice, R. D. (M)
Richman, R. L. (M)
Rider, K. B. (A)
Robinson, E. B. (SM)
Rockwood, J. B. (M)
Rodieck, R. H. (M)
Roesser, R. W. (M)
Rogers, J. J. (M)
Rogers, R. M. (M)
Root, D. E. (M)
Rosenbaum, M. (SM)
Roshon, A. H. (M)
Roth, J. R. (M)
Roullard, G. P. (A)
Rush, O. A., Jr. (M)
Russell, J. D. (M)
Saari, E. S. (M)
Sahiran, L. (M)
Salik, C. E. (A)
Salked, E. M., Jr. (M)
Salzberg, R. B. (A)
Samaw, W. J. (M)
Sattro, R. L., Sr. (SM)
Sauber, C. R. (M)
Scarborough, C. S. (A)
Scarborough, R. C. (A)
Schaefer, J. V. V. (M)
Schillinger, R. F. (SM)
Schlesinger, R. J. (M)
Schmidt, F. J. (M)
Schoengarth, M. D. (A)
Schoonover, M. R. (A)
Schrick, D. P. (M)
Schroeder, R. R. (A)
Shafer, D. E. (M)
Shafer, W. A. (A)
Shaffer, L. B. (A)
Shaw, F. W. (M)
Shaw, G. A. D. (M)
Shechet, M. L. (M)
Sherertz, P. C. (M)
Shipley, T. D., Jr. (M)
Schukantz, J. H. (M)
Schwidetzky, W. H. (M)
Scott, J. E., Jr. (M)
Scott, R. J. (M)
Seldman, H. A. (M)
Sekishiro, J. T. (M)
Senterfilt, A. D. (A)
Sessions, M. H. (M)
Sessions, S. H. (M)
Sexton, D. W. (A)
Shootaugh, J. R., Jr. (M)
Short, D. W. (M)
Silberman, R. T. (M)
Simmons, J. M., Jr. (M)
Sinnott, F. T. (M)
Skillman, B. D. (SM)
Skolil, L. L. (SM)
Slaughter, J. B. (M)
Slote, D. M. (SM)
Slysh, P. (M)
Small, B. I. (M)
Smith, J. M., Jr. (M)
Smith, R. (M)
Smothers, L. A. (M)
Snuggs, J. M. (M)
Snyder, D. R. (M)
Snyder, E. O. (M)
Soltesz, E. S. (M)
Somes, G. W. (A)
Spillane, T. F. (M)
Spilmer, B. H. (M)
Squibb, W. F. (M)
Squire, R. W. (M)
Staroste, O. (A)
Stebbins, J. T. (M)
Steiff, D. L. (A)
Steppler, R. V. (M)
Stewart, W. A. (M)
Stoeckert, E. D. (M)
Stokely, R. J. (A)
Story, H. O. (M)
Strobach, F. (M)
Strowig, K. W. (A)
Sturtevant, H. B., Jr. (M)
Sturtevant, R. H. (A)
Swann, E. S. (M)
Swanson, J. O. (A)
Tabler, J. G. (SM)
Tamura, Y. (SM)
Taylor, S. V. (M)
Taylor, W. G. (SM)
Teets, R. M. (M)
Thaanum, O. (M)
Thacker, C. L. (M)
Thatcher, E. W. (SM)
Thiede, E. C. (M)
Thiel, W. H. (M)
Thoman, R. E. (M)
Thomas, H. A. (SM)
Thomoson, W. J. (SM)
Tibbals, L. (M)
Tidwell, G. L. (M)
Tirrell, C. W. (M)
Tomaszewski, C. A. (M)
Tracy, H. H., Jr. (M)
Trader, J. E. (M)
Tricoles, G. P. (M)
Trochanowski, A. J. (M)
Trolese, L. G. (F)
Trotter, B. E. (SM)
Turnage, R. E., Jr. (M)
Ubry, L. E., Jr. (SM)
Underhill, T. T. (SM)
Underwood, W. H. (M)
Undesser, K. (SM)
Uyehara, M. (M)
Van Caster, J. C. (M)
Van Horn, I. H. (M)
Van Meter, E. E. (A)
Varson, W. P. (M)
Vasques, H. A. (M)
Vette, W. J. (M)
Viles, F. L. (M)
Vinkovich, P. G. (A)
Vinnell, L. F. (M)
Voell, R. F. (M)
Volberg, H. W. (M)
Waddell, B. L. (M)
Wade, E. (SM)
Wade, O. (M)
Walker, W. B. (M)
Ward, D. M. (M)
Ward, J. R. (M)
Warzecha, T. D. (M)
Wasserman, P. D. (A)
Watkins, V. D. (M)
Watson, L. E. (A)
Webb, C. A. (M)
Weber, A. P. (A)
Welkle, D. H. (M)
Weinbaum, B. (M)
Weisbrod, S. (M)
Wells, A. T. (A)
Wells, J. (M)
Wen, W. L. (M)
Westerfield, E. C. (M)
Westfall, W. D. (M)
Wetherill, C. A. (SM)
Wexler, H. T. (SM)
Wilde, S. R. (M)
Wileman, R. A. (M)
Wilhelm, C. G. (M)
Wilkins, R. G. (A)
Willard, F. H., III (M)
Willette, E. J. (A)
Williamson, G. H. S. (A)
Wilson, L. A., Jr. (M)
Wilson, W. D. (M)
Winlund, E. S. (M)
Wisdom, A. H. (M)
Witzel, A. B. (M)
Wolfe, G. W. (M)
Wolff, H. G. (M)
Woodfill, W. H. (M)
Woodiwiss, D. E. (A)
Woodward, R. M., Jr. (M)
Worden, H. E. (M)
Writer, P. L. (M)
Wurtz, J. H. (A)
Yeaw, E. K. (M)
Yearley, L. E. (M)
Yonemitsu, M. K. (M)
Young, T. P. (M)
Yunger, L. J. (A)
Zable, W. J. (M)
Zimmerman, J. K. (M)

San Fernando (LA-SF-7)
Axel, S. J. (M)
Bailey, C. C. (M)
Bauer, J. A. (M)
Begley, W. W. (M)
Berglund, A. Q. (M)
Bouquet, F. L., Jr. (M)
Bucher, F. X. (SM)
Clinger, E. C. (A)
De Nicolai, M. B. (M)
Denise, W. J. (M)
Diem, C. W. (M)
Duel, D. M. (M)
Ellis, J. W. (M)
Fuller, C. A. (M)
Graber, R. E. (SM)
Haase, K. (M)
Hunt, J. H. (M)
Laub, R. E. (SM)
Martin, W. R. (SM)
McLaughlin, F. G. (M)
Neal, C. D. (M)
Peterson, R. L. (M)
Peterson, R. W. (M)
Popow, G. L. (M)
Rosenberg, R. E. (M)
Schlenker, J. H. (A)
Smith, L. A. (M)
Starr, I. M. (M)
Toomim, H. (M)
Vincent, R. C. (M)
Warne, V. J. (M)
Wilkening, C. F. (M)

San Francisco (SF-7)
Alcorn, R. C. (A)
Allen, L. W. (SM)
Alvarez, R. (M)
Anmuth, M. (M)
Baldwin, E. V. (M)
Bandes, H. (SM)
Barrow, E. M. (A)
Bechtle, C. G. (M)
Bellit, B. B. (M)
Berk, J. (M)
Bingham, J. A. C. (M)
Black, F. R. (M)
Brinton, R. L. (SM)
Brown, R. L. (A)
Brunn, J. (A)
Buntenbach, R. W. (M)
Cahn, B. L. (M)
Chew, P. F. (M)
Collins, C. C. (M)
Conn, J. A. (A)
Connor, T. J. (M)
Conroy, C. L. (A)
Cooke, L. G. (M)
Cosgrave, S. J. (M)
Danielson, E. G. (M)
Dannenbrink, H. A., Jr. (M)
Davis, T. J., Jr. (A)
Davy, L. H. (M)
Dent, W. U. (M)
Dong, A. S. (M)
Drake, H. B. (M)
Dunlap, H. B. (M)
Durakov, J. S. (A)
Duste, G. H. (M)
Dutoff, D. A. (M)
Edison, E. (SM)
Elam, J. M. (M)
Esh, R. W. (M)
Fong, G. K. (M)
Fong, W. L. (A)
Fong, W. W. (M)
Forrest, W. S. (A)
Froman, J. (SM)
Gabbert, J. J. (M)
Gainey, M. D. (M)
Gallo, F. J. (M)
Gambrell, J. B. (M)
Gee, H. W. (M)
Gerchberg, R. W. (M)
Given, I. (M)
Gunn, L. W. (M)
Haagens, D. (M)
Hallbeck, R. F. (M)
Halloran, A. H. (SM)
Hammett, R. L. (M)
Haus, R. (A)
Hayes, K. V. (A)
Heckert, G. P. (M)
Herbert, T. O. (M)
Hester, L. M. (M)
Hewitt, D. E. (A)
Holloman, C. J. (M)
Holloway, J. (SM)
Howland, R. S. (M)
Jensen, T. A. (M)
Jobson, C. B. (A)
John, E. J. (A)
Johnston, J. G. (A)
Juan, R. A. (M)
Kafafian, J. (M)
Kalb, H. N. (M)
Kaman, N. (M)
Karpenko, L. J. (M)
Kaufman, A. W. (M)
Kelley, T. B. (M)
Killgore, H. S. (M)
Kirchner, A. A. (SM)
Knight, R. H. (M)
Knutsen, H. L., Jr. (M)
Koch, J. F. A. (M)
Kochenderfer, W. E., Jr. (M)
Kramer, J. F. (M)
Kruesi, G. G. (M)
Kunzman, J. (A)
Lamerdin, R. (M)
Landells, J. H. (A)
Lawrence, O. (A)
Lee, D. Y. (M)
Lee, F. F. (M)
Lee, F. B. (M)
Lee, H. Q. (M)
Lee, J. A. (A)
Lee, R. W. (A)
Lee, W. (A)
Letvenko, W. (A)
Lewis, E. L. (A)
Link, B. G. (M)
Little, W. A. (M)
Loughran, G. P. (M)
Low, S. (A)
Luce, R. W. (M)
Luther, G. M. (A)
MacKay, R. S. (SM)
Maddison, F. E. (M)
Mah, B. H. (A)
Mah, J. C. J. (M)
Malone, D. M. (M)
Marshall, E. G. (M)
Marshall, E. L. (M)
Massoglia, F. P. (M)
McBride, W. J., Jr. (SM)
McGrath, R. P. (M)
McGuire, J. P. (M)
Meyer, G. (M)
Myers, J. S. (A)
Nakabe, J. Y. (M)
Nelson, L. O. (M)
Newell, R. R. (A)
Noble, M. I., Jr. (M)

CALIFORNIA

Nyberg, R. A. (A)
Oestreicher, D. L. (M)
Olinger, A. M., Jr. (A)
O'Neil, J. A. (M)
Oriow, A. J. (A)
O'Rourke, J. B. (M)
Pacher, F. A. (A)
Pallas, C. M. (A)
Palmgren, C. F. (M)
Panagos, T. S. (M)
Paull, J. O. (A)
Pawkett, L. E. (M)
Pinkney, J. L. (A)
Polovneff, G. J. (A)
Pon, C. Y. (M)
Poston, T. R. (A)
Potasz, P. J. (A)
Prise, W. J. (SM)
Rakonitz, J. G. (M)
Ralls, J. W. (M)
Rea, P. G. (M)
Reber, L. I. (M)
Romander, H. (SM)
Rutkin, B. B. (M)
Schwalbenberg, J. P. (M)
Schwarzschild, B. (A)
Scrievers, B. J. (A)
Seklemian, R. S. (A)
Serena, J. (A)
Shaman, H. M. (M)
Shepard, S. A. (M)
Shoemaker, J. W. (A)
Shumway, J. L. (M)
Solomon, S. S. (M)
Spillane, L. W. (A)
Stewart, E. H., Jr. (SM)
Stortz, R. A. (M)
Stroganoff, R. P. (M)
Swanson, R. A. (A)
Talbott, D. M. (M)
Taylor, G. J. (A)
Test, A. J. (M)
Thatcher, F. A. (M)
Tong, W. W. (M)
Tourville, G. A. (M)
Tzytovitch, M. A. (A)
Van Gelder, R. B. (M)
Van Scoy, C. P. (A)
Voronoff, G. N. (M)
Ward, S. A. (M)
Whitehead, E. A. (M)
Wholey, C. W. (A)
Williams, N. H. (SM)
Williams, P. A. (M)
Wojcik, B. M. (M)
Wolfe, F. R., Jr. (SM)
Wollenberg, H. A. (M)
Wollin, E. (M)
Wong, D. S. (A)
Wong, E. (A)
Wong, W-K C. (M)
Wong, W. E. (A)
Wood, G. V. (M)
Woolverton, R. B. (F)
Yee, A. W. (A)
Yee, P. (M)
Zipf, A. R. (A)

San Gabriel (LA-P-7)
Agadoni, C. A. (M)
Crosby, J. C. (M)
Distaso, J. R. (M)
Duquette, D. T. (A)
Dyslinger, C. W. (A)
Ebert, R. A. (M)
Franklin, P. G. (M)
French, E. (M)
Hullinger, W. L. (M)
Karsten, J. A. (M)
Lewis, R. B., Jr. (M)
Mason, J. L. (A)
Meyers, R. E. (SM)
Pillant, W. L. (M)
Reenier, N. J. (M)
Ross, I. (M)
Russell, A. W. (SM)
Serviss, C. L. (M)
Smith, R. A. (M)
Tapp, J. G. (SM)
Weaver, C. E. (SM)
Wilkinson, B. L. (M)
York, E., Jr. (M)

Sanger (SF-7)
Neldeffer, C. R. (A)

San Jose (SF-7)
Ackerman, F. G. (M)
Allen, C. L. (M)
Alley, W. D. (A)
Allgaier, J. R. (A)
Anderson, E. P. (SM)
Anderson, E. E. (A)
Anderson, R. A. (M)
Ando, A. (A)
Applegate, B. E. (M)
Armstrong, D. R. (M)
Astrahan, M. M. (SM)
Athens, A. S. (M)
Atkinson, J. H. (M)
Aziz, R. A. (M)
Babcock, C. L. (A)
Bailey, S. H. (A)
Bain, R. A. (M)
Balz, A. (M)
Baker, W. L. (M)
Barlow, B. R. (M)
Barr, G. L. (M)
Bartling, M. H. (A)
Battles, C. R. (M)
Baty, D. L. (M)
Bauman, R. D. (M)
Bean, J. A. (M)
Beck, J. W. (M)
Bell, R. L. (M)
Benedict, L. P. (M)
Benz, W. G. (M)
Bindewald, E. R. (M)
Bixby, L. H., Jr. (M)
Bolton, W. D. (M)
Booth, W. T. (M)
Borgeson, P. W. (M)
Bowen, M. J. (M)
Bradley, J. J. (SM)
Brady, R. L. (M)
Bramley, N. V. (SM)
Bresenham, J. E. (M)
Brewer, D. K. (A)
Brown, C. J. (M)
Brown, C. F. (M)
Brown, J. E. (M)
Brown, R. G. (M)
Buckminster, J. H. (A)
Bueno, I. (M)
Butwell, R. J. (M)
Cain, D. C. (M)
Campagna, J. V. (M)
Caswell, D. A. (SM)
Cesar, L. G. (M)
Chaney, M. E. (M)
Chapton, R. D. (A)
Christensen, W. H. (M)
Christopherson, W. A. (M)
Clark, C. K. (M)
Clark, T. H. (M)
Clark, W. L. (M)
Clauer, C. K. (M)
Clemens, J. K. (M)
Cohen, L. M. (M)
Coogan, E. A. (M)
Cordano, R. D. (M)
Cormier, D. J. R. (M)
Cornell, K. M. (M)
Cortesi, A. A. (M)
Cotterel, E. D. (M)
Couden, D. V. (SM)
Crespo, J. M. (A)
Croad, J. G. (M)
Crossman, G. M. (M)
Cummins, E. L. (M)
Daly, J. J. (M)
Daniels, J. W. (A)
Danielson, D. W. (M)
Darling, R. S. (A)
Davenport, K. R. (M)
Davids, L. H. (M)
Day, J. B. (A)
De Marco, V. J. (M)
Dodd, P. D. (M)
Dougherty, R. L. (M)
Dowling, R. H. (M)
Downham, H. A. (M)
Drake, A. L., Jr. (M)
Draper, J. K. (M)
Duba, L. (A)
Dudley, C. P., Jr. (A)
Eagle, I. D. (M)
Eggers, R. E. (M)
Eldridge, A. J. (M)
Eliezer, D. E. (A)
Engwicht, H. (SM)
Enslow, G. M. (M)
Erickson, G. G. (M)
Estes, S. E. (M)
Faulkner, H. E. (M)
Fine, W. P. (A)
Fisher, F. G. (A)
Fisher, R. C. (M)
Fitterer, C. E. (M)
Fletcher, B. J. (M)
Fowler, W. J. (M)
Franks, R. E. (M)
Fray, L. L. (M)
Frieberg, L. (SM)
Friedman, H. L. (M)
Fuqua, R. R. (M)
Gaffney, J. E., Jr. (M)
Gan, M. (A)
Gandler, B. R. (M)
Geddes, D. A. (M)
Gliever, D. A. (M)
Gliever, J. H. (M)
Goodell, C. E. (SM)
Goodwin, H. R. (A)
Gosswiller, R. D. (M)
Gowdey, M. V. (M)
Grano, N. J. (M)
Gray, K. B. (A)
Griswold, D. W. (M)
Gruwell, P. E. (M)
Hagopian, J. J. (M)
Hall, J. W. (M)
Hamm, P. E. (M)
Hammel, J. P. (M)
Haney, D. W. (M)
Hansen, H. W., Jr. (M)
Hansen, R. W. (M)
Harries, G. V. (M)
Harrison, B. H. (M)
Hart, D. M. (M)
Hasen, J. E. (M)
Hashiguchi, M. (M)
Havens, J. D. (M)
Hayter, W. D. (A)
Hedquist, J. M. (M)
Hefte, C. B. (M)
Heine, J. W. (M)
Helt, J. M. (M)
Helley, R. M. (M)
Helmann, J. V. (M)
High, R. H. (M)
Hoagland, A. S. (SM)
Hodges, P. (M)
Hogin, J. L. (M)
Hollimon, M. H. (M)
Hooner, E. (M)
Housman, B. (M)
Howard, A. B. (A)
Hubbard, D. F. (M)
Hughes, G. E. (M)
Hulme, J. R. (M)
Hummel, K. H., Jr. (A)
Hupfer, D. L. (M)
Hurd, C. C. (M)
Hurlbut, G. N. (M)
Hurley, M. G. (M)
Hurley, R. B. (SM)
Idehara, R. K. (M)
Isberg, C. A. (M)
Jacobs, I. M. (M)
Jacobs, J., Jr. (M)
Jacques, J. O. (M)
Jakstys, V. J. (M)
Jakubowski, M. C. (M)
Jameson, R. J. (M)
Jeffers, R. E. (M)
Jenkins, L. E., Jr. (M)
Jennings, J. E. (SM)
Jesse, E. (M)
Johnson, C. C. (M)
Johnson, W. G. (M)
Johnson, W. J., Jr. (M)
Jones, D. F. (M)
Jones, R. C. (M)
Kenney, R. B. (M)
Kerby, H. R. (M)
Kessel, T. F. (M)
Kibler, L. S. (M)
Kiely, D. J., Jr. (M)
Killen, D. E. (M)
Kimmy, N. W. (M)
Kirtland, J. A. (M)
Klein, E. A. (M)
Klimowski, F., Jr. (SM)
Kornel, O. (SM)
Kuhlman, F. M. (M)
Lally, J. P. (M)
Lambert, T. G. (M)
Lamy, R. C. (M)
Larson, R. C., Jr. (M)
Larson, R. D. (M)
Lawless, F. W. (M)
Lazarus, P. (M)
Lazzarini, R. F. (M)
Lee, W. K. F. (M)
Lewis, P. A. W. (M)
Ligomenides, P. A. (M)
Linden, D. A. (M)
Lindsay, W. N. (M)
Lingafelter, D. P. (M)
Litz, F. A. (SM)
Lockwood, C. A., III (M)
Loeber, N. C. (M)
Lorenz, R., Jr. (M)
Lowman, C. E. (M)
Luhman, E. H. (M)
Mager, W. V. (A)
Magleby, K. B. (M)
Magness, F. M. (M)
Maguire, J. N. (M)
Malaccorto, A. E. (M)
Malaun, W. R. (M)
Mancebo, T. W. (M)
Manchester, Q. F. (M)
Marez, A. D. (M)
Markey, H. G. (A)
Martin, J. B. (M)
Martin, J. A. (M)
Martin, V. C. (SM)
Massey, H. N. (A)
Matsumoto, L. Y. (M)
McClung, D. H. (M)
McCullough, C. E. (M)
McCullough, J. S. (SM)
McEnroe, J. M. (A)
McKeehan, M. B. (M)
McQueeney, K. A. (M)
McReynolds, E. B., Jr. (M)
Meeker, E. W. (M)
Meyer, C. C. (M)
Miller, H. P., III (M)
Miller, J. C. (A)
Mitrofanoff, N. (M)
Mittnacht, A. J. (A)
Moe, C. R. (SM)
Molzahn, V. L. (M)
Mongeon, R. W. (M)
Morgan, L. C. (M)
Morrill, R. A. (M)
Morris, F. B. (M)
Moynahan, G. F., Jr. (SM)
Mundrick, E. L. (M)
Musil, V. P. (M)
Mussell, H. A. (A)
Musson, W. D. (M)
Nakata, C. K. (SM)
Neary, M. R. (A)
Nelson, L. C. (A)
Nelson, K. L. (M)
Nickel, W. (M)
Niedrauer, J. J. (M)
Norby, M. E. (M)
Ogren, V. G. (M)
Okamura, C. Y. (A)
O'Keefe, E. W. (A)
Olson, R. F. (M)
O'Neill, R. J. (A)
Orrick, R. L., Jr. (M)
Palm, R. A. (M)
Pantaja, H. N. (M)
Paulson, J. N. (A)
Peabody, H. L. (M)
Peck, W. E. (M)
Pennington, M. S. (A)
Perkins, C. R. (M)
Perry, L. A. (M)
Pfaff, R. J. (M)
Philips, D. W. (M)
Phillips, C. E. (M)
Phillips, W. J. (M)
Pierce, K. W. (M)
Plini, E. W. (M)
Piper, J. A. (M)
Pope, R. H. (M)
Potter, R. W. (M)
Prather, R. E. (M)
Premo, A. F., Jr. (M)
Publicover, J. V. (A)
Quement, F. J. (M)
Rasmussen, W. R. (M)
Rawson, S. W. (M)
Rearick, H. F. (M)
Redeker, R. G. (M)
Reindel, J. (M)
Reinhardt, P. M. (M)
Reiser, R. R. (M)
Reynolds, W., Jr. (M)
Richmond, C. D. (M)
Riggins, C. C. (M)
Rightmyer, J. M. (M)
Rinsler, L. (M)
Roberts, T. E., Jr. (SM)
Robinson, G. G. (M)
Robinson, W. H. (M)
Rodda, E. N. (M)
Rogers, S. C. (M)
Romans, W. E. (A)
Ross, H. C. (SM)
Roush, G. E. (SM)
Roux, W. L. (M)
Rowe, I. (M)
Ruskin, D. A. (M)
Rutledge, F. L. (A)
Sagara, K. (M)
Sagawa, S. S. (M)
Samario, E. J. (M)
Samoson, J. B. (M)
Sandretto, R. J. (M)
Saylor, R. A. (A)
Scarborough, D. S. (M)
Schellenberg, A. G. (M)
Scherer, E. H. (M)
Schlaepfer, C. E. (M)
Schmidt, W. (A)
Schumacher, R. T. (M)
Sedillo, R. R. (M)
Shadle, L. E. (A)
Shapiro, M. A. (M)
Sheker, E. B. (M)
Shigemoto, F. H. (M)
Shillinburg, T. D. (A)
Shugart, A. F. (SM)
Siegel, F. G. (M)
Smith, P. F. (M)
Smith, R. E. (M)
Sordal, C. D. (M)
Spades, J. F. (M)
Specht, D. F. (M)
Spencer, G. C. (M)
Spencer, P. F. (M)
Spier, C. G. (M)
Steading, T. W., Jr. (M)
Steele, C. W. (M)
Steward, L. B., Jr. (M)
Stock, J. A. (M)
Stone, A. H. (SM)
Stoye, D. A. (M)
Streleski, T. L. (M)
Stringall, W. S. (A)
Stuart, R. R. (M)
Swanson, M. K. (M)
Takata, M. M. (A)
Taraldson, J. H. (A)
Thayer, J. K. (M)
Toensfeldt, H. W. (A)
Toschi, E. A. (M)
Townsend, C. K. (A)
Tralle, G. E. (M)
Treseder, R. C. (M)
Tully, J. F. (M)
Tutt, W. E. (M)
Ujifusa, R. L. (M)
Van Gelder, M. K. (M)
Vendelin, G. D. (M)
Viallet, J. L., Jr. (M)
Vickers, W. H. (M)
Walker, J. H. (SM)
Walker, R. M. (SM)
Walker, R. M. (M)
Wang, P. K. C. (M)
Wasang, C. F. (M)
Watkins, E. L. (SM)
Watson, K. J. (M)
Wengert, R. A. (M)
Wert, R. M. (M)
Westenskow, C. E. (M)
Whitten, M. G. (M)
Widener, M. W. (M)
Willard, D. D. (SM)
Williams, B. W. (M)
Wilshinsky, I. (M)
Wilson, R. E. (M)
Winchell, J. A. (M)
Wise, C. D. (M)
Wise, G. C. (A)
Wohl, R. J. (M)
Wong, P. (A)
Wood, F. B. (M)
Worster, J. R. (M)
Wright, B. (SM)
Yamada, D. A. (M)
Yonejl, M. (A)
Yoskowitz, L. K. (M)
Youngberg, B. E. (M)
Youngberg, W. A. (M)

San Juan Capistrano (LA-SA-7)
Mangus, T. W. (M)

San Leandro (SF-EB-7)
Albrecht, J. F. (A)
Andersen, R. L. (M)
Borrelli, R. N. (M)
Bramham, K. (A)
Parker, D. L. (M)
Salvador, J. G. (M)
Sanders, J. G. (A)

San Lorenzo (SF-EB-7)
Donahue, W. J. (A)
Jacobs, H. L. (A)

San Luis Obispo (LA-SB-7)
Bauer, P. W. (M)
Chaney, N. H. (M)
Hendriks, R. J. (SM)
Herald, C. A. (M)
Klein, C. A. (M)
Landyshev, A. (SM)
Landyshev, I. (A)
Manning, R. E. (M)
Martin, W. W. (A)
Mayhew, L. L. (M)
Neuendorf, C. R. (A)
O'Hara, J. J., Jr. (M)
Radius, C. (SM)
Rotondi, F. J. (M)

San Marcos (SD-7)
Conrad, R. A. (M)

San Marino (LA-P-7)
Baum, D. C. (M)
Baumgartner, W. S. (SM)
Beswick, W. A. (A)
Bucknell, W. H. (M)
Dryden, E. H. (M)
Gauldin, C. B. (M)
Irwin, E. M. (M)
Kent, S. S. (M)
McDonald, J. J. (A)
Metzger, H. W. (M)
Pfeiffer, P. W. (M)
Pfeiffer, W. F. (A)
Pulsipher, L. C. (M)
Sanders, L., Jr. (M)
Sievers, E. S. (M)
Spaulding, C. P. (SM)
Stimson, J. D. (M)
Thatcher, J. W. (SM)
Wright, W. V., Jr. (M)
Zenner, R. E. (SM)

San Martin (SF-7)
Sylvain, E. F. (M)

San Mateo (SF-7)
Andrews, W. F. (M)
Armstrong, P. S. (M)
Barline, F. (M)
Barlow, W. K. (M)
Bartholomew, H. C. (M)
Bauer, F. (M)
Bayless, H. (A)
Belland, E. N. (M)
Bennett, W. S. (SM)
Booker, J. P. (M)
Breymayer, K. E. (SM)
Brownell, H. J. (M)
Cheney, W. J. (M)
Chow, B. (M)
Clark, E. N. (M)
Copeland, T. J. (M)
Diestelhorst, G. A. (A)
Downie, W. A. (M)
Erickson, L. G. (SM)
Ewy, M. D. (M)
Flanley, W. F. (SM)
Garrow, H. J. (SM)
Hansen, H. M. (M)
Hatfield, L. O. (M)
Haylock, F. B. (M)
Heller, R. E. (SM)
Hong, K. G. (M)
Hopper, C. T. (A)
Johnson, R. M. (M)
Jones, H. R. (A)
Kendrew, J. E. (A)
Khvostchinsky, V. (M)
Lee, R. T. (M)
Leonhardt, M. W. (M)
Line, G. D. (M)
Loring, C. M., Jr. (M)
Lott, T. M. (M)
Mackenzie, R. G. (SM)
McIntosh, R. P. (M)
Miller, C. M. (M)
Mizuhara, A. (M)
Odell, W. D. (M)
Oeder, J. E. (M)
Oshima, K. (M)
Rinaudo, R. F. (M)
Sayer, W. H., Jr. (SM)
Snoddy, R. E. (M)
Soderstrum, J. C. (SM)
Sutherland, R. I. (M)
Sutton, R. B. (A)
Tatsukawa, J. Y. (M)
Taylor, E. D. (M)
Taylor, R. A. (M)
Wespiser, H. J. (M)
Wilber, L. E. (A)
Zwelfel, F. A. (M)

San Pablo (SF-EB-7)
Beech, H. J. (M)

San Pedro (LA-7)
Adam, R. P. (SM)
Alcantara, I. W. (M)
Baines, E. L. (M)
Barina, E. J. (M)
Bama, A. (M)
Bogdanovich, L. A. (A)
Bottomley, R. O. (M)
Boyd, B. (M)
Breeskin, S. D. (M)
Brodek, W. J. (M)
Buehner, M. R. (SM)
Clyne, W. E. (SM)
Conant, J. L., Jr. (M)
Dye, R. R. (M)
Gispen, S. J. (M)
Goforth, J. L. (M)
Graves, F. V. (A)
Grove, R. C. (M)
Gustin, J. T. (A)
Hamren, S. D. (A)
Harris, D. B. (M)
Heaverlo, H. D. (A)
Hegedus, G. J. (SM)
Holland, R. J. (A)
Jiu, R. (M)
Kelly, R. D. (M)
Kercher, R. B. (M)
Kind, D. E. (M)
Klein, E. F. (M)
Leavell, M. C. (M)
Lowe, R. R. (SM)
McCord, H. L. (M)
McDaniel, G. A., Jr. (SM)
McWilliams, J. D. (SM)
Menes, H. C. (M)
Moore, M. E. (M)
Neuman, G. O. (M)
Nickerson, H. H. (A)
O'Brien, W. C. (SM)
Oliver, R. B., Jr. (M)
Ransom, D. H. (M)
Rasque, D. E. (M)
Reiss, R. I. (M)
Robinson, J. H., III (SM)
Robinson, N. O., Jr. (M)
Sandoval, K. A. (M)
Schmid, L. H. (M)
Siver, R. D. (A)
Stroud, S. G. (M)
Thomas, D. W. (M)
Thurston, F. C. (M)
Thyrlon, K. (A)
Wagoner, E. V., Jr. (M)
Wershoven, G. A. (M)

San Rafael (SF-7)
Biegel, E. C. (M)
Brown, R. E. (M)
Catania, C. J. (M)
Chankin, H. M. (A)
Fitzroy, D. C. (A)
Hertzog, W. F., Jr. (M)
Marshall, F. M. (M)
Miles, C. W. (M)
Paulson, G. A. (A)
Pearlman, J., Jr. (M)
Schaub, L. E. (A)
Watkinson, J. B. (M)
Wood, E. L. (M)
Yost, D. E. (M)

Santa Ana (LA-SA-7)
Akins, D. W. (M)
Anderson, G. W. (M)
Anderson, S. E. (M)
Arant, G. W. (M)
Arnold, H. J. (SM)
Bailey, K. D. (SM)
Balling, R. A. (M)
Baltz, L. E. (SM)
Baranoff, A. J. (SM)
Barton, H. D. (A)
Benike, H. R. (M)
Bixler, O. C. (SM)
Blair, D. R. (A)
Bonney, R. B. (SM)
Brannian, W. R. (M)
Briggs, J. G. (M)
Brown, C. A. (SM)
Buchanan, R. A. (M)
Capps, J. W. (M)
Carlyle, J. K. (SM)
Cavness, R. L. (A)
Clark, P. S. (M)
Coerver, L. E., Jr. (M)
Comer, F. E. (SM)
Cooke, L. W. (A)
Cooper, A. F. (M)
Cooper, T. W. (M)
Crafts, C. A. (SM)
Cressey, A. E., II (M)
Davis, R. (SM)
De Bolt, A. L. (M)
Demoster, B. (F)
Dored, W. (A)
Edgerton, D., Jr. (M)
Edwards, D. E. (M)
Elliott, M. S. (A)
Emerson, M. R. (M)
Ematinger, C. E. (A)
Evander, H. S. (SM)
Fennessy, P. Q. (M)
Fieger-Kollmann, H. (SM)
Filbert, W. B. (M)
Fitzwater, W., Jr. (M)
Frady, W. E. (M)
Frank, J. L. (A)
Galas, T. A. (SM)
Gangnes, A. V. (SM)
Garrigus, W. E. (SM)
Gaul, T. W. (M)
Giannini, G. M. (SM)
Gipple, H. W. (M)
Gordon, J. F. (SM)
Groce, J. C. (SM)
Grondin, G. F. (SM)
Gudmundsen, R. A. (SM)
Haack, R. W. (M)
Hata, F. T. (M)
Hathaway, J. C. (SM)
Heald, E. T. (SM)
Helper, R. E. (M)
Herkimer, K. W. (A)
Herman, R. W. (M)
Hilliard, J. K. (F)
Hinshaw, R. R. (M)
Holly, R. H. (M)
Holub, A. J. (M)
Hoyt, M. W. (M)
Huggins, V. H. (SM)
Huggins, W. G. (M)
Hunter, R. T. (M)
Jamie, T. W. (SM)
Jenkins, B. C. (A)
Johnsen, D. A. (A)
Kachuck, I. J. (M)
Klein, W. (M)
Klevans, W. L. (M)
Kobetich, E. A. (M)
Koger, G. W. (M)
Koontz, J. J. (M)
Koppel, R. L. (M)
Kraemer, T. F. (M)
Lagoe, J. A. (M)
Lander, R. F. (A)
Lanning, W. C. (M)
Larson, C. C. (SM)
Latta, L. O., Jr. (SM)
Laughlin, J. G., Jr. (SM)
Lee, J. M. (M)
Lenum, L. R. (M)
Levering, C. A. (M)
Lordan, T. G. (M)
Mallinckrodt, A. J. (SM)
Macini, A. R. (M)
Martin, D. L. (M)
Maxson, R. R. (M)
Mayfield, J. D. (M)
McCain, G. (M)
McCandless, J. B. (M)
McGuire, T. B. (A)
McMullin, G. D. (M)
Miley, W. G. (A)
Miller, H. (A)
Mills, R. A. (M)
Moore, M. H. (M)
Morioka, F. K. (A)
Morrison, A. I. (SM)
Motley, D. M. (M)
Moulton, J. A. (M)
Muhle, C. G. (M)
Muranaka, D. M. (A)
Newman, C. (M)
Nishball, J. L. (M)
Noble, J. J. (M)
Noe, L. B. (M)
Nybo, R. C. (M)
Ostrolski, A. B. (M)
Pappas, R. W., Jr. (M)
Perkins, M. G. (A)
Persons, L. D. (M)
Porter, W. R. (M)
Proctor, D. R. (SM)
Prothers, L. T. (M)
Randall, L. B. (A)
Reedy, P. H. (SM)
Roper, M. M. (M)
Ryland, E. E. (A)
Sander, M. H. (M)
Sandhu, M. S. (A)
Schiffelbein, W. L. (M)
Schumann, W. A. (M)
Scullion, G. M. (M)
Secretan, F. (M)
Seeley, E. S. (SM)
Seymour, R. A. (A)
Shannon, J. B. (M)
Shaw, L. B. (M)
Siegrist, R. F. (A)
Sission, R. L. (M)
Skaggs, E. R. (M)
Slaughter, D. W. (M)
Smith, R. E. (M)
Smith, R. R. (SM)
Smith, W. K. (M)
Snyder, R. L. (SM)
Sokol, J. L. (M)
Sorensen, D. L. (M)
Speer, W. S. (A)
Stone, K. A. (M)
Storruste, C. G. (M)
Strong, W. J. (M)
Tackett, W. F. (SM)
Thayer, G. E. (M)
Timothy, K. O. (M)
Triman, E. L. (M)
Tumbull, J. S., Jr. (M)
Vandal, W. L., Jr. (M)
Van Meter, J. L. (SM)
Vincent, G. D. (SM)
Wanlass, C. L. (A)
Warhurst, J. W. (M)
Webb, J. R. (A)
Weber, P. P. (M)
Welderhaft, C. E. (M)
Wheeler, R. W. (A)
Wilcox, J. A. (A)
Witt, A. W. (M)
Wood, W. S. (M)
Yamamoto, Y. (M)
Young, S. (M)
Yutzi, G. N. (M)
Zechiel, W. Z. (M)

Santa Barbara (LA-SB-7)
Abele, R. J. (M)
Asakura, T. (M)
Azari, E. (M)
Azgapetian, V. (SM)
Barravella, J. G. (A)
Barnett, M. L. (M)
Barquist, W. S., Jr. (M)
Bartolini, E. (SM)
Baum, C. C. (SM)
Benton, R. F. (M)
Blinn, W. J. (M)
Bock, M. J. (M)
Boxer, R. (M)
Boyle, S. R. (M)
Bream, H. C. (SM)
Brody, R. H. (M)
Brun, G. E. (M)
Bussett, R. E. (M)
Callan, R. W. (SM)
Chalfant, D. A. (M)
Crane, S. D. (SM)
Cronk, R. E. (M)
Cruse, P. M. (M)
Dawley, R. L. (M)
De Vore, L. T. (F)
Dunn, L. (M)
Ewing, W. J., Jr. (M)
Forster, M. C. (SM)
Gabrielsen, H. R. (M)
Gannaway, R. (SM)
Ginsburg, G. S. (M)
Gleason, M. J. (M)
Gordon, B. E. (M)
Grant, G. R. (M)
Gullatt, S. P., Jr. (M)
Hacke, J. E., Jr. (SM)
Hanst, R. K. (M)
Hanger, W. W. (SM)
Hausz, W. (F)
Haville, D. (M)
Hedges, C. P. (SM)
Hudson, K. (M)
Hummer, R. F. (M)
Humphrey, G. S. (A)
Hutcheon, R. S. (SM)
Iddings, H. G., Jr. (SM)
Ingle, G. F. (M)
Inoue, N. S. (M)
Irwin, C. P. (M)
Janeway, W. F. (M)
Johns, J. F. (M)
Kaar, I. J. (F)
Lansing, J. C., Jr. (M)
Looman, J. R. (M)
Loomis, R. H. (M)
Loverde, L. V. (M)
Luck, A. J. (M)
Lundstrom, J. W. (M)
Maika, C. J. (M)
Maki, G. J. (SM)
Malinowski, L. P. (SM)
Kalstrom, R. D. (M)
Kelley, G. J. (M)
Kelsey, E. L. (A)
Ketcham, A. W. (SM)
Knapp, W. S. (M)
Krzyczkowski, R. (SM)
Kuerschner, H. A. (M)
Kvaas, T. A. (SM)
Matthews, A. R. (SM)
Mattiat, O. E. (SM)
Mescall, J. J. (A)
Morrison, R. G. (M)
Moseley, J. A. (SM)
Myers, J. J. (SM)
Nash, C. C., Jr. (M)
Nelles, M. (M)
Nelson, P. H. (SM)
Nistler, G. C. (M)
Noble, D. S. (SM)
Olmsted, D. T. (SM)
Padgett, E. P., Jr. (M)
Panec, G. A. (SM)
Patchell, J. T. (M)
Peterson, C. E. (A)
Plake, W. C. (M)
Podlesny, R. F. (M)
Porter, R. (M)
Pratt, P. D. (M)
Pressley, J. H. (F)
Price, R. A. (M)
Rahilly, J. P. (M)
Rauch, S. E. (SM)
Raymond, R. C. (F)
Reed, J. C. (M)
Remond, F. X. (M)
Riel, R. W. (M)
Rodimon, C. C. (M)
San Soucie, W. R. (M)
Schropp, D. R. (M)
Schwartz, A. J. (M)
Schwerin, E. B. (SM)
Scott, R. C. (SM)
Sears, J. F. (SM)
Shiers, G. (M)
Sigoloff, S. C. (SM)
Simpson, J. D. (A)
Smith, H. W. (A)
Smith, R. A. (M)
Smith, W. E. (M)
Solomon, P. S. (SM)
Stassinos, J. (M)
Steen, J. E. (M)
Steputis, D. M. (M)
Stoll, C. N. (M)
Sullivan, J. M., Jr. (SM)
Surette, L. T. (M)
Swift, I. H. (M)
Switzer, W. L. (M)
Tanhauser, A. J. (M)
Taylor, D. H. (M)
Taylor, J. M. (M)
Thomsen, P. H. (SM)
Thomsen, R. N. (M)
Thoren, C. A. (M)
Tooroeck, E. R. (SM)
Tornheim, H. (SM)
Urbach, K. (SM)
Villers, D. (M)
Walker, B. G. (M)
Watkins, R. A. (SM)
Weber, H. J. (M)
Weiss, M. (M)
Wildman, A. J. (M)
Williams, R. D. (M)
Witten, A. L. (SM)
Woerner, J. J. (M)
Wolfe, G. M. (SM)
Zopf, D. O. (M)

Santa Clara (SF-7)
Adams, J. C., Jr. (A)
Adams, W. H. (SM)
Adcock, M. B. (M)
Agins, B. R. (M)
Alford, C. H., Jr. (M)
Altermatt, R. B. (M)
Alvarez, E. (M)
Ammon, J. A. (A)
Armann, D. E. (M)
Armstrong, J. E. (M)
Austad, R. W. (M)
Barr, I. (M)
Beach, G. R. (M)
Bean, R. N. (M)
Bench, D. D. (M)
Benn, D. G. (A)
Bennion, J. L. (M)
Bentley, J. H. (M)
Bertuccelli, G. J. (M)
Bird, P. F. (M)
Black, G. A. (M)
Black, S. H. (M)
Blatt, E. L., Jr. (M)
Brebrick, R. J. (M)
Britton, J. W., Jr. (M)
Brown, B. H. (M)
Brown, J. S. (M)
Bryson, J. (M)
Bustamante, H. A. (M)
Caldwell, H. R. (M)
Callahan, A. H. (M)
Cannon, R. A. (M)
Carney, D. A. (M)
Carr, J. W. (M)
Carson, J. A. (M)
Chenoweth, A. G. (M)
Chesley, B. E. (M)
Childs, R. D., III (M)
Combs, D. F. (A)
Conner, C. C. (SM)
Convertino, R. O. (M)
Crosley, B. M. (A)
Dailey, D. G. (M)
Day, R. C. (M)
Dickens, W. D. (M)
Dill, J. J. (M)
Duell, A. W. (M)
Ellis, W. (M)
Estrada, M. S. (M)
Ewing, G. D. (M)
Ferrari, A. D. (M)
Figueira, J. G., Jr. (M)
Fitzpatrick, J. P. (SM)
Fletcher, A. (M)
Fleming, H. B. (M)
Flora, J. (A)
Foote, D. D. (M)
Forget, T. W. (M)
Forster, R. L. (M)
Fortner, W. D. (M)
Fredrick, W. C. (M)
Gaubatz, D. C. (M)
Geason, K. E. (A)
Geiges, K. S. (SM)
Geissler, T. D. (M)
Giddis, A. R. (A)
Gifford, J. T. (M)
Gillen, D. A. (M)
Gluck, J. E. (M)
Goldstein, M. (M)
Gorny, D. S. (M)
Griese, R. H. (A)
Groneter, D. C. (M)
Gross, T. W. (M)
Guthrie, E. E. (M)
Haddad, J. D. (M)
Harding, V. C. (A)
Geim, J. L. (M)
Heisey, D. D. (M)
Henschke, B. F. (M)
Herman, J. C. (M)
Hillesland, C. B. (M)
Hing, K. M. L. (A)
Honore, P. M. (A)
Ingwerson, D. R. (M)
Jackson, C. F. (M)
Jacobsen, G. C. (M)
Jacques, J. P. (M)
Jellison, K. A. (M)
Johnson, D. R. (M)
Johnston, M. H. (A)
Jones, P. B. (M)
Katzman, H. (M)
Kelly, K. O. (M)
Kikoshima, R. T. (M)
Killion, D. G. (M)
Kooyers, G. P. (M)
Kroener, D. F. (M)
La Gasse, S. G. (SM)
Lamberty, B. J. (M)
Leouleu, C. M. (M)
Lewis, F. V. (M)
Lewis, G. E. (M)
Linn, C. W. (M)
Linn, F. S., Jr. (M)
Littler, D. (M)
Lynch, W. L. (M)
Lyon, D. J. (M)
Lyon, D. B. (M)
Magarian, J. D. (M)
Magee, J. J. (M)
Masterson, J. P. (M)
Matthews, D. W. (A)
McCune, E. W. (M)
McPhail, J. H. (M)
McRae, R. C. (M)
Meadowcroft, E. A. (M)
Mendez, I. O. (M)
Miller, S. K. (M)
Moss, J. F. (M)
Negrete, M. R. (M)
Ne Smith, W. W. (M)
Newman, H. L. (SM)
Nye, R. L., Jr. (M)
Oliver, G. I. (M)
Palmer, W. F. (M)
Pea, R. O. (A)
Pershing, P. D. (M)
Peterson, D. A. (M)
Peterson, K. F. (A)
Pickert, C. E. (M)
Poulsen, J. E. (M)
Rich, S. F. (M)
Rierson, J. W. (M)
Riley, R. T. (M)
Rollins, D. F. (M)
Rubert, R. R. (M)
Schultz, D. F. (M)
Scism, W. A. (SM)
Seaman, H. K. (M)
Sepulveda, R. E. (M)
Shew, L. F. (M)
Sierra, H. M. (M)
Spesock, G. J. (M)
Sturdevant, J. T. (M)
Sunberg, V. C. (M)
Swayze, D. W. (M)
Tenney, H. D. (M)
Todd, L. L. (A)
Troetschel, W. O. (M)
Van Ess, J. C. (M)
Verbanec, W. R. (M)
Wechsler, B. (M)
Welch, J. R. (SM)
Welsh, L. E. (M)
Whitten, G. A. (SM)
Yaqi, H. S. (M)
Yates, B. H. (M)

Santa Cruz (SF-7)
Baishiki, S. (M)
Bensen, R. F. (M)
Dunn, J. V. (M)
Goldman, R. E. (M)
Harlan, R. A. (M)
Hubbard, A. L. (SM)
Jackson, C. L. (A)
Janitschke, E. O. (M)
King, J. W. (A)
Mattson, D. F. (SM)
Ohlfs, R. H. (M)
Silvis, R. N. (M)
Slinker, V. B. (M)
Thielen, J. W. (M)
Wilson, D. R. (M)

Santa Fe Springs (LA-SA-7)
Tosspon, A. E. (M)

Santa Maria (LA-SB-7)
Anderson, J. F. (M)
Cheney, A. G. (M)
Childress, J. C., Jr. (A)
Christianson, W. O. (A)
Clapp, G. V., Jr. (M)
Dann, J. A. (M)
Dunham, F. (M)
Elam, O. R., Jr. (M)
Evans, H. B. (M)
Garcia, G. (A)
Graham, D. R. (A)
Greene, J. F. (A)
Hicks, R. D. (M)
Humphrey, R. D. (M)
Kellers, F., III (M)
Kelly, E. J. (M)
Kring, J. D., Jr. (M)
Larson, D. L. (A)
Limond, T. E. (M)
Maurer, R. S. (M)
Michelet, A. H. (M)
Miller, J. C. (M)
Minert, H. D. (M)
Moore, G. H. (M)
Nelson, K. M. (M)
Olokkala, E. E. (M)
Perkins, L. L. (A)
Pierpont, R. W. W. (M)
Pool, L. C. (M)
Rabehl, W. C. (A)
Rhodus, R. D. (M)
Rison, D. M. (A)
Schwartz, A. J. (M)
Shackelford, D. (M)
Smith, C. B. (A)
Snyder, E. C., Jr. (M)

Squire, R. C. (A)
Taylor, L. L., Jr. (A)
Thomson, L. G. (M)
Terzegno, H. W. (A)
Wegmann, G. A. (M)
Wilkie, R. D. (A)
Winant, A. T. (M)

Santa Monica (LA-7)
Alexander, B. H. (SM)
Alexander, M. A. (M)
Allee, R. V. (M)
Allen, D. A. (M)
Anderson, T. G. (M)
Andreasson, R. I. (M)
Armer, P. (M)
Austin, E. W. (A)
Banhagel, E. W. (M)
Beattie, J. M. (M)
Bennett, W. E. (SM)
Bigien, C. (M)
Bilek, R. (M)
Blount, W. A. (M)
Blum, M. (M)
Blumenthal, I. S. (M)
Bower, J. L. (SM)
Brand, D. L. (M)
Breneman, H. M. (M)
Brennan, L. E. (M)
Bryan, G. E. (M)
Burgess, D. W. (M)
Butt, C. (M)
Cadman, A. O. (M)
Campbell, J. T. (M)
Came, J. B. (SM)
Carpenter, L. B. (M)
Chambers, E. S. (M)
Champness, N. A. (SM)
Chart, I. E. (A)
Clark, J. W. (F)
Combs, W. E. (M)
Conklin, J. L. (M)
Cook, M. (M)
Cornog, R. (SM)
Craig, L. J. (M)
Crain, C. M. (F)
Crews, J. D. (M)
Cronin, P. R. (A)
Davie, M. C. (SM)
Davis, N. L., Jr. (M)
De Lucia, V. E. (SM)
De Vaux, J. A. (M)
D'Helly, G. O. (SM)
Dresselhouse, P. H. (M)
Dugan, D. A. (M)
Durleux, C. W. (A)
Eckard, P. E. (A)
Endler, H. M. (M)
Engel, E. (M)
Everest, F. A. (SM)
Field, H. P. (SM)
Filman, N. J. (SM)
Ford, G. M. (M)
Fox, A. J. (M)
Francis, G. A. L. (A)
Gauronskas, P. P. (M)
George, V. L. (M)
Gettinger, J. R. (M)
Glassmeyer, J. M. (M)
Goldberg, P. A. (M)
Goodykoontz, J. R. (SM)
Graves, H. G. (M)
Gumbart, H. E. (M)
Guyer, E. (M)
Heinrich, F. (M)
Helprin, S. E. (M)
Hiebert, A. L. (SM)
Hill, A. J. (M)
Hilliard, J. T. (M)
Hobbs, G. H. (M)
Horl, K. (M)
Hughes, E. L. (M)
Jeffs, C. R., Jr. (M)
Jisa, E. A. (M)
Joe, R. H. (M)
Kalaba, R. (SM)
Karalukas, J. (M)
Kelly, P. A. (A)
Kidd, A. T. (M)
Kinoshita, R. Y. (M)
Kirkwood, R. L. (M)
Klinger, A. (M)
Kraepelien, H. Y. (M)
Krantz, C. H. (SM)
Lakatos, E. (F)
Lane, J. H. (M)
Langmuir, D. B. (SM)
Lavery, W. J., Jr. (M)
Lear, W. P. (SM)
Lee, D. H. (M)
Lemasters, H. G. (M)
Lengyel, B. A. (SM)
Levien, R. E. (M)
Lindholm, C. R. (M)
Linquist, A. A. (M)
Lipps, E. A. (M)
Lopatauskas, J. V. (A)
Lustgarten, M. N. (SM)
Malone, E. P. (M)
Mason, W. J. (M)
McCracken, H. J. (M)
McCumber, W. H., Jr. (M)
McDonough, J. W. (M)
Melara, J. D. (M)
Mercy, A. E. (M)
Milllion, J. W., Jr. (SM)
Molloy, H. R. (M)
Nehama, I. D. (M)
Nolde, G. V. (SM)
Nutten, D. C. (M)
Page, L. F. (M)
Paine, J. A. (A)
Parkin, T. R. (A)
Parkinson, C. B., Jr. (SM)
Pendleton, W. H. (A)
Plew, H. E., Jr. (M)
Priday, J. H. (M)
Pugh, E. L. (M)
Quandt, R. L. (M)
Raiford, J. D. (M)
Rathje, E. (M)
Raymond, J. P. (M)
Rehler, K. M. (M)
Reichert, D. G. (M)
Renaud, H. G. (A)
Reynolds, J. L. (M)
Rheams, C. J. B. (M)
Ridout, G. W. (M)
Robertson, V. H. (M)
Roney, R. K. (M)
Rosen, H. A. (M)
Rosenbaum, J. L. (A)
Rosenberg, H. S. (M)
Rosenberg, M. (M)
Ryder, R. R. (M)
Saeger, W. (M)
Saez, R. G. (M)
Salzer, J. M. (SM)
Scuitto, T. J. (M)
Shahbaz, W. (M)
Shank, C. A. (M)
Skaggs, J. A. (M)
Slivka, L. P. (M)
Snow, W. B. (SM)
Snyder, J. F. (M)
Sohler, J. F. (M)
Soltwedel, E. B. (SM)
Spear, J. R. (M)
Spring, L. K. C. (A)
Stark, H. P. (A)
Stein, L. (M)
Stewart, A. A. (A)
Stewart, W. F. (SM)
Swerling, P. (M)
Tatum, F. A. (M)
Tesdall, D. W. (M)
Thomas, D. H. (M)
Todd, H. J. (M)
Troy, P. (M)
Van Dyke, W. D. (SM)
Vestine, E. H. (SM)
Vickery, B. L. (M)
Vuilleumier, R. F. (M)
Ware, W. H. (SM)
Wehner, R. S. (M)
Weiss, B. S. (M)
Werlin, J. H. (A)
Wheeler, D. D. (M)
Whitaker, J. N. (SM)
White, K. E. (M)
Williams, J. V., Jr. (SM)
Woods, H. D. (M)
Yeater, M. L. (M)
Zapalac, J. J. (M)
Zazulak, R. R. (M)
Zeitlin, S. (A)

Santa Paula (LA-B-7)
Braam, R. M. (M)
Sharp, J. M. (M)
Wasmansdorff, C. (SM)
Wymore, R. H. (M)

Santa Rosa (SF-7)
King, F. N. (M)
Kline, H. A. (M)
Merrill, G. E. (M)
Parker, J. F. (A)

Santa Ynez (LA-SB-7)
Pischel, E. F. (SM)
Shannon, W. W. (M)

Santee (SD-7)
Bernstein, P. P. (SM)
Brown, W. R. (M)
Freedman, S. (SM)
Morgan, L. A. (M)
Olson, L. C. (M)
Tester, W. D. (M)
Tripp, L. E. (M)
Ursin, B. E. (M)

San Ysidro (SD-7)
Byrd, H. F. (A)

Saratoga (SF-7)
Aubry, J. D. (M)
Becker, H. A. (M)
Belleville, L. M. (SM)
Brewer, C. P. (SM)
Brolly, A. H. (SM)
Burger, R. W. (M)
Burns, M. C. (SM)
Buxton, A. J. (SM)
Carlson, B. V. (A)
Chromy, B. J. (M)
Davis, R. G. (M)
Dawson, E. C. (M)
Dinapoli, F. C. (M)
Ferguson, L. N. (A)
Hammack, C. M. (SM)
Hart, A. L. (M)
Hartke, D. C. (M)
Heninger, G. O. (M)
Hemstad, J. A. (M)
Hexem, J. (M)
Hodge, M. H., Jr. (M)
Holmes, W. C. (SM)
Imboden, G. J. (A)
Jones, R. E. (M)
Kurzweil, F., Jr. (M)
Law, L. R. (A)
Marandino, N. J. (M)
Mayerhofer, S. R. (M)
McEuen, A. H. (SM)
Melas, C. M. (SM)
Meyer, W. E. (M)
Moats, R. R. (SM)
Nettesheim, H. P. (SM)
Notz, W. G. (M)
Nylander, R. F. (SM)
Palmer, W. G. (M)
Pease, M. C., III (SM)
Pegg, B. A. (M)
Pepper, J. R. (M)
Ransil, R. J. (M)
Rowley, R. A. (M)
Schaffert, R. M. (SM)
Seader, L. D. (M)
Smith, P. G. (SM)
Test, L. D. (M)
Tripp, R. M. (M)
Tyminski, W. V. (M)
Tyrrell, R. A. (A)

Saugus (LA-7)
Cannon, H. E. (A)

Sausalito (SF-7)
Bonny, M. S. (M)
Dirksen, J. P. (M)
Dudley, A. L. (M)
Perkins, T. J. (M)

Seabastopol (SF-7)
Kohler, R., Jr. (A)
Sherron, R. J., Jr. (M)

Seal Beach (LA-SA-7)
Berard, R. G. (M)
Kett, L. G. (M)
Thatcher, F. F. (M)

Seaside (SF-7)
De Noon, N. L. (A)

Sepulveda (LA-SF-7)
Adamson, W. H. (M)
Ahmann, J. J. (M)
Baker, C. R. (M)
Bellenkes, W. A. (A)
Berger, J. B. (M)
Bloom, R. E. (M)
Bly, S. W. (M)
Bock, E. L. (SM)
Braswell, J.P., III (M)
Brudos, C. D. (M)
Buckley, J. W. (A)
Bull, E. D. (M)
Carpenter, S. L. (M)
Casarow, L., Jr (M)
Catran, J. (M)
Clarke, D. R. (M)
Corey, E. J. (A)
Decuir, L. E. (M)
Edwards, W. P. (M)
Engstrom, R. H. (A)
Gardner, J. M. (SM)
Grimes, W. J. (A)
Heidbrink, M. E. (M)
Heiman, E. F. (M)
Holly, R. (M)
Ingebretsen, E. E. (SM)
Kempf, B. E. (M)
King, E. J. (M)
Lesch, S. (M)
Lords, F. V. (A)
Maki, C. J. (A)
Miller, D. E. (SM)
Montijo, R. E., Jr. (M)
Nesbit, E. E. (SM)
Norby, H. A. (SM)
Nowak, R. F. O. (M)
Palmquist, M. L., Jr. (M)
Patin, O. E. (SM)
Peterson, R. W. (M)
Price, D. S. (M)
Reaver, R. R. (M)
Richard, C. B. (M)
Rumble, W. G. (M)
Schneidewind, N. F. (M)
Speen, G. B. (SM)
Teeter, W. (SM)
Wolf, S. M. (M)

Sharp Park (SF-7)
Vreeland, R. W. (M)

Shell Beach (LA-SB-7)
Elliott, T. R. (M)
Pesek, R. A. (M)

Sherman Oaks (LA-SF-7)
Abbott, J. R. (M)
Ake, T. E. (M)
Allen, F. C. (M)
Amara, D. (SM)
Beekman, R. E. (SM)
Bloomberg, R. A. (M)
Bockwoldt, W. H. (M)
Campbell, E. J. (A)
Childs, H. A. (SM)
Ciral, J. (M)
Clark, D. B. (M)
Dalton, M. M. (M)
Dean, J. P. (M)
Derderian, N. (M)
Deutsch, R. (SM)
Dickinson, H. B. (A)
Falls, E. L., Jr. (A)
Feiloo, J. A. (M)
Ferrel, D. W. (M)
Figoten, M. (M)
Foote, S. H. (M)
Friedland, S. S. (SM)
Garafalo, J. J. (M)
Glasspool, W. T. G. (M)
Halpern, R. L. (SM)
Hautzik, R. M. (SM)
Herget, C. J. (M)
Hirschi, L. (M)
Hooper, B. E. (SM)
Ito, R. A. (M)
Johnson, H. (M)
Jones, B. J. (M)
Joslin, J. D. (M)
Kabuss, N. G. (SM)
Krinsky, S. S. (A)
Lamm, R. A. (SM)
Landman, R. M. (M)
Lawrence, B. J. (SM)
Lebell, D. (M)
Markin, N. (M)
Millet, M. R. (M)
Nyberg, L. V. (A)
Paul G. G. (M)
Penter, J. L. (A)
Poinsot, W. B. (A)
Pugsley, D. W. (F)
Roinik, J. A. (M)
Ross, J. R. (M)
Ross, M. N. (M)
Rove, G. (SM)
Rypinski, C. A., Jr. (M)
Scanlan, J. A. (SM)
Schoenbaum, W. J. (M)
Signorelli, P. R. (A)
Silberberg, R. W. (M)
Silverman, M. (SM)
Slotnick, D. (M)
Smead, H. J. (M)
Spranger, P. B. (A)
Sprong, D. C. (M)
Stander, L. (M)
Star, M. (M)
Suffield, F. G. (SM)
Tabb, T. L. (M)
Wahlstrom, J. W. (M)
Waller, R. W. (M)
Webb, P. S. (M)
Wichmann, T. F. (M)
Wolff, E. H. (SM)
Zuehlke, E. R. (M)

Sierra Madre (LA-P-7)
Burke, H. E., Jr. (SM)
Carpenter, F. C., Jr. (M)
Da Silva, E. G. (M)
Everest, C. E. (M)
Ewing, R. G. (M)
Gale, F. C. (M)
Gilchrist, C. E. (M)
Kelley, J. R. (A)
Oliver, S. M. (M)
Phillips, E. V. (M)
Posthill, B. N. (M)
Reese, E. R. (M)
Reinsch, F. J. (M)
Sharp, R. R. (A)
Siegmeth, A. J. (SM)
Tahl, J. E. (A)
Zeuschner, R. F. (SM)

Simi (LA-B-7)
Black, R. J., Sr. (M)
Crippa, E. R. (M)
Najemik, G. F. (A)
Prehn, G. G. (M)

Solana Beach (SD-7)
Cannon, J. W. (A)
Gibb, R. F. (M)
Held, P. R. (M)
Kuck, B. M. (M)
Reinecke, H., Jr. (M)
Trostrud, A. T., Jr. (M)

Somis (LA-B-7)
Rasnick, B. (M)

Sonoma (SF-7)
Primbsch, J. H. (M)
Stevert, G. F. (M)

Soquel (SF-7)
Wheeler, D. E. (SM)

South Gate (LA-7)
Dickinson, H. (A)
Gauthier, M. K. (A)
Jeffrey, H. S. (M)
Rogers, J. M. (M)
Schaffel, M. M. (M)
Sward, W. O. (M)
Wilgus, D. S. (M)

South Laguna (LA-SA-7)
Mitchell, B. B. (M)

South Palo Alto (SF-7)
Huynen, J. R. (M)

South Pasadena (LA-P-7)
Banta, R. P. (M)
Bartel, W. B. (A)
Bertness, P. N. (A)
Blasier, H. E. (M)
Chaffee, A. W. (A)
Clark, J. R. (M)
Freel, C. L. (A)
Golf, D. L. (M)
Hobart, D. C. (M)
Holmes, W. T. (M)
Houdyshell, H. H. (M)
Kuck, R. G. (SM)
Lindsey, J. B. (A)
Macaluso, F. A. (A)
Newhouse, G. B. (M)
Sell, D. D. (M)
Shapiro, H. (M)
Storer, W. F. (M)
Trzyna, T. S. (A)
Volmerange, H. M. (M)
Ward, E. B. (M)
Whitehouse, H. J. (M)
Wilker, G. A. (M)

South San Francisco (SF-7)
Bowie, R. L. (A)
Garzoli, F. F. (M)
Gazzano, D. J. (M)
Karp, P. W. (M)
Kline, S. H. (A)
Rumble, G. F. (A)
Tripp, A. L. (M)
Tudor, H. (M)

South San Gabriel (LA-P-7)
Fairbanks, A. F. (M)
Gravatt, T. L. (A)
Morrison, R. H. (A)
Street, N. C. (M)

Spring Valley (SD-7)
Bailey, D. G. (M)
Clack, H. W. (A)
Hooper, N. W. (M)
Sperly, B. H. (M)
Smith, H. C. (M)

Stanford (SF-7)
Aasterud, J. P. (M)
Allen, M. A. (M)
Bracewell, R. N. (F)
Braverman, D. J. (M)
Bryan, J. H. (M)
Buss, R. R. (SM)
Carpenter, G. B. (M)
Chin, R. R. (M)
Chodorow, M. (F)
Coates, D. B. (M)
Craig, R. A. (SM)
Crane, M. (M)
Crary, J. H. (M)
Davis, K. S. (M)
Draskin, P. E. (M)
Dunn, D. A. (SM)
Dunn, V. E. (M)
Egan, R. D. (M)
Eldson, J. C. (M)
Epley, D. L. (M)
Eshleman, V. R. (SM)
Flaler, P. A. (M)
Fischler, M. A. (M)
Fontana, J. (M)
Franklin, G. F. (SM)
Ginzton, E. L. (F)
Grace, D. J. (M)
Hapgood, T. Y. (M)
Harker, K. J. (M)
Haman, W. W. (SM)
Harris, D. P. (M)
Helliwell, R. A. (F)
Holmes, C. H. (A)
Huntley, W. H., Jr. (M)
Ivanek, F. (SM)
Jasberg, J. H. (M)
Jeffery, S. (SM)
Karp, A. (SM)
Kincheloe, W. R., Jr. (SM)
Kino, G. S. (A)
Knudson, J. A. (M)
Lebacqz, J. V. (SM)
Lederberg, J. (SM)
Linvill, J. G. (F)
Loew, G. A. (M)
Ludovici, B. F. (M)
Ma, L. N. (M)
Manning, L. A. (SM)
Mantey, J. P. (M)
Martin, L. H. (SM)
Moll, J. L. (M)
Musser, M. H. (M)
Nelson, C. G. (M)
Pantell, R. H. (M)
Petit, J. M. (F)
Pringle, R., Jr. (M)
Rambo, W. R. (F)
Sass, D. J. (M)
Scarlett, R. M. (M)
Seeger, C. L. (A)
Shaw, H. J. (M)
Shoens, C. J. (M)
Sleeman, A. E. (M)
Simpson, J. E. (M)
Sonkin, S. (SM)
Taussig, N. W. (M)
Terman, F. E. (F)
Turner, F. M. (M)
Tuttle, D. F., Jr. (F)
Waterman, A. T., Jr. (SM)
Watkins, D. A. (F)
Widrow, B. (M)
Williams, C. B. (M)
Wilson, P. B. (M)
Winslow, D. K. (SM)

Stanton (LA-SA-7)
Kramer, R. J. (A)
Mielke, J. J. (M)
Sierra, J. G. (M)
Smith, C. L. (A)

Stockton (SAC-7)
Clarke, E. L. (M)
Echandi, J. (M)
Evans, D. D. (A)
Fegan, A. A. (M)
Greene, M. B. (A)
Huff, J. J. (M)
Lazaro, S. A. (A)
Welch, H. E. (M)

Studio City (LA-SF-7)
Fox, M. (M)
Kaebum, L. K. (SM)
Klotz, E. S. (SM)
McAvoy, W. R. (A)
Meyer, R. A. (M)
Moon, R. B. (M)
Nelson, C. S., Jr. (M)
Norwalt, R. H. (A)
Schick, H. G. (M)
Whitaker, H. H., Jr. (A)
Wise, D. O., Jr. (M)

Sunland (LA-SF-7)
Brink, E. W. (M)
Fielding, B. L. (M)
Johnson, R. A. (M)
Kent, R. C. (A)
Kowal, L. J. (A)
Muir, H. M. (A)
Rondou, J. K. (SM)
Saunders, C. F. (A)

Sunnymead (LA-OB-7)
Summers, A. B. (A)

Sunnyvale (SF-7)
Andrews, C. A., Jr. (M)
Arcidiacono, A. (M)
Arens, V. R. (M)
Baker, O. R. (M)
Ballard, J. W. (M)
Barbano, N. (M)
Barnett, R. M. (SM)
Barr, B. C. (M)
Baumgartner, H. E. (M)
Biederka, S. E. (M)
Benson, S. (SM)
Bergfield, W. E. (M)
Bessag, E. T. (A)
Best, F. G. (M)
Blanz, G. K. (M)
Bodnar, E. R. (M)
Bolfard, D. I. (M)
Bougher, W. G. (A)
Boysen, J. A. (M)
Bradski, M. (M)
Brinda, J., Jr. (M)
Brooks, J. (A)
Brown, A. E. (M)
Brown, K. H. (M)
Bryant, P. M. (M)
Buhrman, H. M. (M)
Bumstead, C. R. (M)
Burley, C. H. (M)
Burlingame, L. G. (SM)
Burroughs, J. L. (M)
Caddes, D. E. (M)
Calhan, C. L. (M)
Carne, B. (M)
Carter, M. B. (M)
Case, M. D. (M)
Chalmers, P. H. (M)
Chapman, D. M. (M)
Chieboun, T. P. (M)
Chow, K. T. (M)
Clrimele, E. F. (M)
Clemo, C. B. (M)
Constantinides, J. S. (M)
Contos, P. A. (M)
Cook, G. R. (SM)
Cooper, R. D. (M)
Cornwell, R. C. (SM)
Cottrell, C. J. (A)
Cragun, S. B. (M)
Craine, W. P. (M)
Crandall, K. H., Jr. (M)
Crossman, T. F. (M)
Curphey, D. G. (M)
Curtis, T. J. (M)
Danielson, L. K. (M)
Davies, R. W. (M)
De Lorenzo, R. J. (M)
Demo, B. L. (M)
De Vault, R. L. (M)
Dewees, S. A. (A)
Dickerson, L. W. (M)
Di Giuseppe, A. (M)
Disman, M. (M)
Dworian, R. (A)
Ealliomando, C. M. (M)
Edgemon, C. F. (M)
Endsley, J. P. (A)
Evans, W. S. (M)
Ferrin, K. S. (M)
Fields, R. L. (M)
Fike, G. F. (M)
Finney, D. J. (SM)
Fishman, M. (M)
Fitch, W. T. (M)
Fitzgerald, J. F. (M)
Flanders, R. N. (M)
Flowers, W. P. (M)
Fogard, D. C. (M)
Franklin, L. R. (M)
Freshour, S. G. (M)
Fritchle, F. P. (M)
Frohbach, H. F. (M)
Frosolone, A. (M)
Fullmer, M. D. (M)
Gabrielson, H. C. (M)
Gallagher, J. J. (M)
Gang, R. E. (M)
Garton, A. V. (A)
Gee, W. (A)
George, E. P. (M)
Gibson, J. G. (A)
Gillard, C. W. (M)
Glass, L. L. (A)
Grace, H. F. (M)
Graham, B. (SM)
Granat, W. G. (M)
Green, K. A. (M)
Griffith, C. G. (M)
Grushkin, M. (SM)
Halcomb, J. L. (M)
Hall, T. W. (A)
Hamm, V. M. (M)
Hammond, E. E., Jr. (SM)
Hankel, E. M. (M)
Hansen, Q. M., Jr. (M)
Harbaugh, R. D. (M)
Harden, O. C. (M)
Harper, J. W. (M)
Harris, C. F. (A)
Harris, P. (M)
Hasert, C. (M)
Hedberg, H. E. (M)
Heinzinger, J. P. (M)
Helms, B. F. (M)
Herman, J. J. (M)
Hess, G. (M)
Hibbard, E. R. (SM)
Higgins, D. H. (M)
Hiroa, A. (M)
Hirsch, A. W. (M)
Hodgson, D. J. (M)
Holmes, J. D. (M)
Horowitz, R. B. (A)
Hoving, H. R. (M)
Howe, G. A. (A)
Huggins, R. A. (SM)
Hughes, H. H. (M)
Hughes, L. T. (A)
Humphrey, H. T. (M)
Isaacs, E. A. (M)
Isaacs, R. A. (M)
Isaacson, R. G. (M)
Jackman, C. A. (M)
Jensby, W. G. (M)
Jensen, P. E. T. (M)
Jeske, A. (M)
Johnson, D. E. (M)
Johnston, R. J. (A)
Jones, M. R. (M)
Kanady, B. A. (M)
Katt, D. R. (M)
Kaufmann, J. (M)
Kean, D. W. (SM)
Kearns, R. J. (M)
Kenney, B. D. (A)
Kerwin, W. J. (SM)
Kiessling, R. C. (M)
Kimple, K. M. (M)
King, T. J. (SM)
Kleist, R. A. (M)
Klimberg, J. (M)
Krejci, D. W. (M)
Kroll, W. (M)
Labno, J. J. (A)
Lamb, J. P. (M)
Lang, R. B., Jr. (M)
Lark, J. E. (M)
Lawhorn, R. D. (M)
Lee, F. (M)
Lin, M. Y. W. (M)
Lindberg, H. E. (M)
Linders, T. E. (M)
Long, F. (M)
Lopes, R. R. (A)
Loshbough, P. A. (A)
Loyd, M. L. (M)
Lum, G. C. (M)
Lundstrom, O. C. (M)
Lusk, T. D. (M)
Maddux, J. T. (M)
Madvig, R. M. (M)
Mahon, T. O. M. (M)
Malasky, S. W. (SM)
Marshall, J. A. (M)
Martinson, G. O. (M)
Maurer, C. D. (M)
Mayer, A. (M)
Mazzola, P. C. (M)
McAlpine, G. A. (M)
McKaba, E. (M)
McKeever, B. T. (M)
McKibbin, D. D. (M)
Meader, R. O. (M)
Medlin, J. E. (M)
Meehan, R. D. (A)
Mendoza, A. A. (M)
Mercer, S. L. (M)
Metevia, E. E. (M)
Miller, L. S. (A)
Molecki, T. G. (A)
Monroe, P. P. (A)
Moore, G. O. (SM)
Morgan, L. F. (SM)
Morgan, R. B. (SM)
Moy, M. S. (A)
Mullen, J. F. (M)
Nash, J. P. (SM)
Nassie, J. A. (A)
Nelson, D. B. (M)
Nelson, K. D. (M)
Nilsson, W. P. (M)
Nolan, T. H. (M)
Norris, R. E. (M)
Ohlemacher, R. F. (A)
Olsen, T. H. (M)
Onia, J. (M)
Ottinger, G. L. (M)
Palmer, R. G. (M)
Paulos, P. J. (M)
Paulson, C. R. (M)
Peters, R. L. (M)
Pfeil, R. H. (M)
Pitsenbarger, G. A. (M)
Pitts, K. J. (M)
Postman, M. H. (M)
Pound, A. E. (M)
Powell, R. J. (M)
Prophet, A. M. (M)
Quail, S. E. (M)
Rau, J. H. (M)
Raub, W. E. (A)
Reinhold, W. D. (M)
Reisman, S. J. (M)
Rianda, F. A. (M)
Richards, J. C. (M)
Richards, P. E. (M)
Roberts, C. G. (M)
Roberts, R. W., Jr. (M)
Rogers, R. L. (M)
Romano, V. J. (M)
Root, K. E. (M)
Rosenberg, S. (SM)
Rowley, R. J. (M)
Rudolf, S. (M)
Ruggieri, D. J. (M)
Rule, R. M. (M)
Sackman, D. A. (M)
Schick, H. F. (M)
Schmidt, A. R. (M)
Schneider, R. F. (M)
Schoen, G. G. (M)
Schroeder, G. (M)
Schulthels, H. B., Jr. (SM)
Seeley, E. M. (A)
Seldon, M. (M)
Seppeler, W. C. (M)
Shankle, S. B. (M)
Sheehan, E. R. (A)
Shepherd, J. H., Jr. (M)
Sherman, J. E. (M)
Showen, L. (SM)
Skinner, L. V. (SM)
Smith, D. L. (M)
Smith, H. E. (M)
Smith, J. L. (M)
Smith, R. T. (M)
Stefancik, R. T. (M)
Steiner, F. W. (M)
Stenger, F. J. (M)
Stevenson, D. D. (M)
Stevenson, J. C. (M)
Stewart, R. J. (SM)
Story, V. V. (SM)
Straube, G. F. (M)
Sutton, W. A. (M)
Swanson, C. A. (M)
Sweeley, G. K. (A)
Swiadek, S. F. (SM)
Tahara, G. R. (A)
Tangney, J. F. (M)
Taylor, J. M. (M)
Taylor, N. J. (M)
Ten Zeldam, H. J. (A)
Ter Huen, P. K. (A)
Tetenbaum, S. J. (M)
Thom, J. C. (SM)
Tiemann, R. F. (M)
Trainer, R. F. (M)
Twidwell, D. E. (M)
Van Geen, J. (M)
Voith, W. L. (M)
Walden, L. H. (M)
Waldman, M. D. (M)
Wall, R. A. (SM)
Wallis, D. W. (M)
Watson, W. C. (M)
Weir, R. A. (M)
West, S. F. (M)
Westwood, G. C. (M)
Wetherell, M. L. (M)
Whiteley, R. B. (SM)
Whitten, J. R. (M)
Wielenga, L. J. (M)
Wilkins, W. H. (M)
Williams, W. F. (M)
Wilson, D. L. (M)
Wilson, D. K. (M)
Wolf, D. E. (M)
Wong, H. Y. (M)
Wood, R. A. (A)
Woolsey, W. O. (M)
Wright, F. L. R. (M)
Wurr, J. C. (M)
Yee, D. K. (M)
Yonge, P. K. (M)
Young, H. M. (M)
Zangrando, D. R. (M)
Zechmeister, J. F. (M)

Sun Valley (LA-SF-7)
Barnhart, W. H. (A)
Chmelka, F. A. (M)
Cordon, W. R. (M)
Crystal, D. G. (A)
Davis, J. J. (M)
Dugan, J. J. (M)
Frieburg, H. E. (A)
Glaze, R. H. (A)
Grossman, M. B. (M)
Jacobus, R. L. (M)
Johnson, C. E. (M)
Martin, M. H. (M)
Marygold, G. E. (A)
Moore, W. J. (A)
Stoehr, W. F. (M)
Tate, R. L. (M)
Wells, H. G. (M)

Surfside (LA-SA-7)
Sherman, J. D. (M)
Swanson, H. (M)

Sylmar (LA-SF-7)
Angell, D. H. (M)
Collins, F. C. (M)
Hill, J. E. (M)
Marx, A. F. (M)
McClure, G. E. (M)
Niska, V. E. (A)
Raines, O. E. (A)
Sand, B. (M)
Sanders, I. W., Jr. (A)
White, G. S. (M)
Wilcox, W. G. (M)

Tahoe Valley (SAC-7)
Tucker, M. (M)

Tarzana (LA-SF-7)
Adams, E. S., Jr. (A)
Ambrosio, B. F. (M)
Anderson, H. R. (SM)
Bantle, D. W. (M)
Bartlome, R. D. (M)
Beck, G. R. (SM)
Braverman, R. (M)
Brunner, R. H. (SM)
Butts, L. E. (M)
Chesebro, E. L. (M)
Connor, J. A. (SM)
Dadant, P. M. (M)
Debaun, J. R. (A)
De Lano, R. H. (SM)
Dickinson, G. R. (M)
Enenstein, N. H. (M)
Favors, H. A. (SM)
Gruen, W. J. (F)
Hidy, J. H. (SM)
Kaplan, L. M. (M)
Liu, F. F. (M)
Phister, M., Jr. (M)
Pierson, K. E. (SM)
Porter, J. H. (SM)
Russell, R. M. (SM)
Schmied, W. F., Jr. (M)
Seeberger, L. M. (SM)
Sklar, B. (SM)
Smith, F. E. (M)
Woodbury, E. J. (SM)

Taylorsville (SAC-7)
Wilson, R. P. (A)

Tehachapi (LA-7)
Smith, L. D. (M)

Temple City (LA-P-7)
Hauerwaas, R. V. (M)
Musty, C. V. (M)
Paterson, W. L. (M)
Ross, J. P. (A)
Sessler, D. R. (M)
Snykers, A. B. (M)

Thousand Oaks (LA-B-7)
Beller, E. J. (M)
Boandl, J. S. (M)
Coles, M. J. (M)
Crinklaw, R. H. (M)
Dehm, R. E. (M)
Dickey, D. R. (M)
Engels, L. H. (A)
Fogelberg, A. E., Jr. (SM)
Frost, C. R. (M)
Fulton, A. S. (M)
Halket, D. R. (M)
Hilberg, R. P. (A)
Janzen, J. F. (M)
Koontz, R. H. (M)
McCord, W. M. (SM)
Nelson, R. S., Jr. (M)
Oda, D. J. (SM)
Parsons, J. L. (M)
Poppen, L. W. (M)
Schira, J. C., Jr. (M)
Solis, A. F. (M)
Taylor, J. M. (M)
Vittum, W. M. (M)
Zander, H. D. (A)

Topanga (LA-SF-7)
Bemds, E. L. (M)
Stephenson, H. G., Jr. (A)

Torrance (LA-7)
Anderson, P. E. (M)
Ashford, F. L. (M)
Athan, S. (M)
Austin, R. H. (M)
Ayers, H. W. (M)
Baker, R. E. (M)
Barton, B. H. (M)
Beagle, C. K. (M)
Beck, E. W. (M)
Bell, A. F. (M)
Blackstone, W. G. (M)
Bowlus, M. A. (M)
Brittain, J. F. (M)
Browne, J. D. (M)
Busutill, H. L. (M)
Butts, G. A. (M)
Campbell, R. (M)
Clooton, E. J. (M)
Collins, F. L. (M)
Collins, R. F. (M)
Cooper, P. V. (A)
Cowan, C. F. (M)
Coy, L. H., Jr. (A)
Croyts, H. S. (M)
Daggett, T. W., Jr. (M)
Dain, H. W. (M)
Deckett, M. (M)
Dennis, J. (M)
Dizinno, R. E. (M)
Douglas, D. G. (M)
Egger, A. (A)
Ekberg, J. V. (M)
Elkin, H. S. (M)
Ellis, R. E. (M)
Fachtmann, R. R. (M)
Field, F. W. (M)
Fiske, K. A. (M)
Flower, D. W. (M)
Fogel, R. L. (SM)
French, D. W. (M)
French, H. M. (M)
Freymodsson, J. B. (SM)
Frith, L. O. (M)
Funk, J. D. (M)
Gaar, H. E. (M)
Gablolfsky, H. (M)
Galles, C. E. (M)
Garrison, F. K. (A)
Gibbard, J. R. (M)
Golightly, R. T. (A)
Gottfried, R. E. (M)
Gray, G. C. (M)
Griffiths, F. J. (M)
Grigos, R. W. (M)
Haines, C. S. (M)
Hakala, P. E. (M)
Harmon, W. G. (M)
Harper, R. Z. (M)
Hart, C. W. (M)
Henderson, V. D. (M)
Herlinger, L. F. (A)
Herrst, L. R. (M)
Hewitt, E. W. (M)
Heyning, J. M. (M)
Highwart, J. E. (M)
Hughes, G. L. (M)
Janes, R. (M)
Jicha, A. J. (A)
Johnson, B. F. (M)
Johnston, D. E. (M)
Jones, E. E. (M)
Keach, B. C. (M)
Kendall, R. W. (A)
Kern, W. W. (M)
Kester, W. C. (M)
Kind, D. E. (M)
Kinsman, R. G. (M)
Kirby, R., Jr. (M)
Korpela, T. W. (M)
Kuratani, K. K. (A)
Lakin, H. D. (M)
Lee, D. N. (A)
Lee, H. (M)
Lewis, S. B. (M)
Lichty, J. R. (M)
Lippman, L. (M)
Lisky, F. R. (M)
Low, H. (M)
Lundy, C. (SM)
Martin, D. P. (M)
McCarthy, J. W. (M)
McComb, J. J. (M)
McConnell, R. W. (M)
McCoy, H. L. (M)
McDonald, W. H. (M)
McKeard, R. W. (M)
McRee, R. R. (M)
McWald, F. H. (M)
Mehner, E. W. (A)
Meronek, D. F. (M)
Miyahira, H. Y. (M)
Monroe, F. R. (M)
Moore, J. A. (M)
Moore, T. H. (M)
Neff, E. D. (M)
Nolde, R. C. (M)
Nolte, U. C. (SM)
Norman, F. J. (M)
Nussbaum, O. N. (A)
Oliver, J. R. (M)
Penque, N. J. (M)
Perry, C. L. (M)
Philpot, J. W., Jr. (M)
Reed, A. R. (M)
Rihaczek, A. W. (M)
Rose, T. L. (M)
Rush, P. L. (M)
Saunders, S. R. (M)
Schmid, A. A. (M)
Schmidlin, F. W. (M)
Schwier, J. P. (M)
Seckinger, W. C. (A)
Sharp, J. R. (M)
Shawda, F. E. (A)
Shea, R. S. (M)
Silence, N. C. (M)
Sinnette, J. T., Jr. (M)
Skelton, R., Jr. (M)
Skjervem, K. D. (M)
Smith, N. D. (M)
Snee, F. J. (M)
Spencer, D. J. (M)
Stade, T. D. (M)
Stanlee, R. R. (M)
Steams, W. R. (M)
Stephens, C. W. (M)
Stone, L. M. (SM)
Tatlan, S. (M)
Tatro, R. H. (M)
Thomas, W. M. (A)
Thorensen, R. (M)

CALIFORNIA

Torre, R. C. (A)
Trumbo, D. E. (A)
Uberman, S. (M)
Wardak, H. (M)
West, D. B. (M)
Whistler, C. H. (SM)
Whiteside, W. C. (M)
Wilbur, W. C., Jr. (M)
Williams, G. L. (M)
Williams, J. B., Jr. (M)
Willner, M. J. (M)
Winterstrom, R. L. (M)
Witte, G. E. (M)
Wrench, R. G. (A)
Yates, W. A., Jr. (M)
Young, D. J. (M)

Trabuco Canyon (LA-SA-7)
Leftwich, L. L. (SM)

Tracy (SAC-7)
Albertson, W. R. (A)
Edson, D. J. (M)

Tujunga (LA-SF-7)
Baker, J. D. (M)
Chernof, J., Jr. (M)
Daugherty, D. R. (M)
Gardner, R. J. (M)
Grieo, D. J. (M)
Hickey, P. R. (M)
Lake, R. A. (M)
Louapre, M. E. (M)
Marcy, W. J. (A)
Pitt, G. E. (M)
Ure, G. R. (A)
Walcek, E. J. (M)
Williamson, R. H. (M)
Yamashiro, J. M. (A)
Yochelson, S. (SM)

Turlock (SAC-7)
Petros, J. D. (A)

Tustin (LA-SA-7)
Bacon, R. N. (M)
Berghold, F. M., Jr. (M)
Buland, R. N. (M)
Crawford, V. L. (M)
De Bord, M. J. (SM)
Fjeldsted, N. B. (M)
Grossman, R. (M)
Isaac, K. N. (M)
Jay, H. A. (SM)
Kamsler, W. F. (SM)
Miller, R. D. (M)
Molander, A. B. (M)
Muehldorf, E. I. (M)
Olson, R. D. (M)
Quackenbush, R. E. (M)
Ramsauer, F. J. (A)
Schmidt, R. E. (SM)
Sublett, G. R. (M)
Temple, F. J. (SM)
Umlauf, E. W. (M)
Woods, E. L. (M)

Twenty Nine Palms (LA-OB-7)
Martensen, M. D. (A)
Smith, E. F. (M)

Union City (SF-7)
Kirch, F. L. (M)

Upland (LA-OB-7)
Bailey, C. C. (SM)
Baron, T. M. (M)
Canadeo, G. N. (A)
Clark, D. L. (M)
Hitchcock, R. W. (M)
Keeran, R. V. (SM)
Sampson, P. M. (M)
Soulres, G. A. (M)
Stokes, L. C. (M)
Takenaka, G. (M)
Wedin, A. G. (SM)
Whitcomb, L. A. (M)
Yount, R. J. (M)

Vallejo (SF-7)
Decker, K. M. (M)
Ekstrand, P. A. (SM)
Hano, M. W. (M)
Hanley, R. J. (M)
Kalamaras, G. A. (A)
Lebel, A. E. (A)
Maeshner, E. (M)
Ricketts, D. B. (M)
Traver, J. W. (A)
Upton, J. W., Jr. (M)
Vann, I. M., Jr. (M)

Valley Center (SD-7)
Newburgh, H. (M)

Vandenberg AFB (LA-SB-7)
Bowdish, C. G. (M)
Bower, M. M. (M)
Crabtree, T. H. (M)
Curtis, J. A. (M)
Dale, H. C. (M)
Elverson, V. E. (M)
Fix, O. W. (SM)
Halls, E. J. (A)
Haulbosky, W. B. (A)
Hayden, A. H., Jr. (M)
Herman, R. E., Jr. (M)
Hinderliter, D. E. (M)
Kipper, G. A. (A)
Kuncaitis, S. P. (M)
Lemo, J., Jr. (M)
Luce, R. R. (M)
Madson, G. A. (M)
Meier, V. L. (M)
Moore, E. F. (M)
Morgan, T. A. (M)
Nielson, R. W. (M)
Orrick, T. W. (M)
Reed, R. C. (SM)
Schefonka, E. P. (M)
Stevens, D. J. (M)
Taylor, W. E. (M)
Vanderford, W. H. (A)
Vipralo, W. J. (M)
Wenk, R. L. (A)
Windham, J. A. (M)

Van Nuys (LA-SF-7)
Amstutz, M. F. (M)
Anderson, G. R. (M)
Arndt, L. A. (SM)
Barker, D. W. (M)
Becker, J. T. (M)
Belmont, R. A. (M)
Beltran, R. D. (M)
Bennett, R. G. (M)
Bishoo, G. W. (M)
Blaine, R. F. (A)
Blancher, D. W. (M)
Blumberg, N. (M)
Bonebreak, R. L. (SM)
Boyd, J. C. (A)
Boykin, J. L. (M)
Breiteager, L. G. (M)
Breitwieser, G. F., Jr. (SM)
Brock, P. A. (M)
Brough, J. W. (M)
Brown, B. W. (A)
Caldwell, W. D. (M)
Carmichael, R. L. (M)
Chase, L. R. (M)
Clock, D. P. (M)
Cohen, J. E. (M)
Corwin, M. H. (M)
Curtiss, A. N. (F)
Cutler, S. (M)
Denton, R. F., Jr. (M)
Dinning, J. R. (M)
Dobren, S. (M)
Dolan, J. T. (M)
Ettelson, B. L. (A)
Fanwick, C. (SM)
Farley, E. J. (SM)
Fitting, G. M. (A)
Fives, J. J. (M)
Fritts, R. E. (A)
Gaydos, S. J., Jr. (M)
Gigante, G. A. (M)
Gilbert, H. L. (A)
Gnuse, H. T. (M)
Goldberg, J. J. (M)
Goltz, A. D. (M)
Gottmer, G. W. (M)
Gould, B. R. (M)
Green, A. P. (M)
Gross, L. H. (M)
Hammond, J. R. (A)
Hanes, L. C. (M)
Henrichsen, A. L. (A)
Herter, V. E., Jr. (SM)
Hewitt, G. E. (SM)
Hickman, D. D. (M)
Hinshaw, E. C. (M)
Hirschberg, W. J. (M)
Hirschfield, G. A. (M)
Hish, D. M. (M)
Hollis, E. L. (A)
Hughes, R. L. (A)
Hunt, J. H., Jr. (SM)
Hyden, I. F. (M)
Iko, K. K. (M)
Irwin, B. L. (M)
Ito, M. (M)
Jacobs, L. (M)
Jacobson, S. (M)
Jamieson, H. W. (SM)
Johnson, R. A. (M)
Kahn, F. (SM)
Kaplan, C. (M)
Kavli, F. (M)
Klein, M. L. (SM)
Korson, I. (M)
Krause, W. B. (M)
Lach, W. J. (A)
Lemmen, R. M. (M)
Lesser, R. H. (SM)
Lieber, M. (M)
Locus, S. S. (SM)
Lovick, E., Jr. (SM)
Lucchesi, J. R. (M)
Lueders, L., Jr. (A)
Luz, C. H. (SM)
Lyon, R. E. (A)
Malcolm, L. (SM)
Mallach, L. W. (SM)
Marcellini, R. P. (M)
Margolin, A. R. (SM)
Marshall, N. P. (M)
Mavity, W. C. (M)
McClanahan, R. T. (M)
McClelland, R. L. (M)
Mead, R. C. (M)
Metie, R. J. (M)
Miller, C. E. (SM)
Miller, E. H. (M)
Mitchell, F. H., Jr. (M)
Monderer, B. A. (M)
Mosbrooker, M. L. (M)
Nael, C. A. (M)
Nay, L. R. (M)
Ohrenstein, S. B. (M)
Olsefsky, C. C. (SM)
Palmer, D. R. (M)
Pangborn, H. W. (SM)
Parker, W. H., Jr. (SM)
Pedigo, W. R. (M)
Pongracz-Bortha, E. (M)
Powner, O. D. (M)
Price, J. F. (M)
Radmacher, D. S. (M)
Rea, W. P., Jr. (M)
Reichenbach, H. F. (M)
Rempt, H. F. (SM)
Richards, J. A. K. (SM)
Rogers, M. L. (M)
Rosenman, L. (M)
Roth, A. M. (M)
Rothrock, J. H. (SM)
Savory, W. A. (M)
Schoonheinz, E. J. (SM)
Selditz, N. (M)
Smith, J. C. (M)
Smokler, M. I. (M)
Sparks, C., Jr. (M)
Stegen, R. J. (SM)
Stewart, C. O. (A)
Strassman, S. J. (SM)
Strauss, H. E. (M)
Symons, D. M. (M)
Tabor, E. D. (M)
Tasker, H. G. (SM)
Tasker, R. B. (SM)
Thomas, D. C. (M)
Timineri, A. A. (M)
Topham, J. W. (M)
Trull, D. L. (M)
Tum, R. (M)
Umstattd, R. H. (M)
Uman, B. S. (M)
Valiquette, D. J. (M)
Van Egmond, J. (A)
Van Emden, B. M. (A)
Venn Botts, W. (M)
Walker, P. B. (SM)
Wallick, W. L. (M)
Wasmer, W. F. (A)
Wasney, A. (M)
Watson, J. M. (M)
Watstein, J. I. A. (M)
Weinstein, E. M. (M)
Weller, D. B. (M)
Whitman, K. C. (M)
Wick, O. F. (A)
Willsey, G. C. (M)
Worth, F. L. (M)
Young, T. (M)
Zajec, J. M. (SM)
Zboril, F. R. (SM)
Zimmet, S. J. (M)

Venice (LA-7)
Ahrens, N. P. (M)
Bekey, G. A. (M)
Berk, A. D. (SM)
Burger, H. D. (A)
Cohn, R. M. (M)
Dunn, L. E. (M)
Goltzman, D. (M)
Guldstrand, R. H. (M)
Gurley, J. G. (M)
Howard, G. L. (A)
Jennings, J. B. (M)
Lavery, A. L. (M)
Lee, T. (A)
Noda, M. (M)
Rainville, L. E. (M)
Stafford, P. L. (M)
Stern, G. J. (M)
Straessle, R. C. (M)
Stribling, R. E. (M)
Waymeyer, W. K. (M)

Ventura (LA-B-7)
Arnold, W. F. (M)
Bernhardt, E. C. (M)
Brown, A. M. (SM)
Browning, R. A. (M)
Case, D. M. (M)
Childs, C. W. (M)
Clark, D. B. (M)
Deardorf, D. A. (M)
Dember, A. B. (A)
Dewey, D. C. (M)
Edens, R. J. (M)
Eikelman, J. A., Jr. (M)
Ellison, J. L. (A)
Guyton, C. W. (M)
Hudson, R. (A)
Johnson, L. E. (M)
Jones, B. R. (M)
Kirch, J. H. (A)
Kohr, A. E. (M)
Lange, D. M. (M)
Larey, B. W. (A)
Lash, J. R. (A)
Leiper, J. H. (M)
Lodi, J. J. (A)
Mac Donald, W. L. (M)
Mackay, C. R. (SM)
Mark, R. A. (M)
Markell, J. H. (SM)
Nielson, R. L. (M)
Quan, H. L. (M)
Settle, H. T., Jr. (M)
Shellabarger, J. N. (M)
Skoog, H. A. (M)
Stankovich, D. (M)
Timm, J. D. (A)
Timmerman, H. A. (SM)
Von Breyman, G. E. (M)
Weidemann, H. K. (M)
Ziegler, T. A. (M)
Zoll, D. J. (M)

Vernalis (SAC-7)
Thompson, J. H. (M)

Victorville (LA-OB-7)
Castellucci, A. H. E. (M)
Galyean, M. W. (A)

Visalia (SF-7)
Eklund, M. H. (M)
Hammers, G. A. (A)
Rush, J. M. (M)
Schwartz, H. (SM)
Sheehan, R. P. (M)

Vista (SD-7)
Belntema, C. D. (M)
Bianco, J. D. (M)
Canning, R. G. (M)
Damon, P. P. (SM)
Spangler, R. G. (A)
Stokes, P. B. (M)

Walnut (LA-OB-7)
Ashley, G. W., Jr. (M)

Walnut Creek (SF-EB-7)
Anderson, E. R. (M)
Chase, R. C. (M)
Coakley, T. P. (M)
Corelli, G. J. (M)
Elsken, R. H. (M)
Eukel, W. W. (M)
Graham, R. H. (M)
Hansen, W. L. (M)
Hartwig, E. C. (SM)
Luchter, D. (M)
Mitchell, J. R. (M)
Norris, N. J. (A)
Nygard, J. C. (M)
Pope, J. C. (M)
Saunders, D. A. (M)
Sorenson, G. P. (A)
Van Ness, H. W. (SM)
Westbrook, E. P. (M)

Walnut Park (LA-7)
Gaal, I. G. (M)

Watsonville (SF-7)
Cronin, L. J. (M)
Shannon, R. W. (M)

West Covina (LA-OB-7)
Abramis, D. (M)
Auletti, R. L. (M)
Baker, E. W. (M)
Barr, H. J. (SM)
Bass, J. W. (M)
Bates, C. E. (M)
Bickhart, E. C. (M)
Brown, R. E. (M)
Calkins, W. R. (M)
Callot, S. (A)
Csia, J. Z. (A)
Delaney, H. J. (M)
Feltman, S. W. (M)
Foster, W. H. (SM)
Garcia, G. (M)
Giser, H. W. (A)
Gore, M. R. (M)
Grantham, G. W. (M)
Jacobs, H. M. (M)
Jannen, R. L. (A)
Johnson, H. A. (SM)
Jones, P. D. (SM)
Kemp, G. H. (M)
Kempf, W. F., Jr. (M)
Kirsten, C. C. (M)
Lewis, G. E. (A)
Marston, G. A. (M)
McCormick, G. F. (M)
McCrocklin, R. E. (M)
Ming, D. L. (M)
Nadel, L. (M)
Nestlerode, C. D., Sr. (M)
Nichols, C. A. (SM)
Olson, R. E. (M)
Petraglia, N. E. (A)
Porrazzo, R. J. (SM)
Ross, H. (M)
Samson, J. C. F. (M)
Schneider, A. M. (M)
Shaffer, A. (M)
Shield, R. G., Jr. (M)
Smith, R. W. (M)
Steinback, E. A. (M)
Stokely, R. G. (M)
Swain, L. D. (A)
Taylor, A. D. (A)
Taylor, L. A. (M)
Wagner, W. A. (M)
Walley, W. E. (M)
Wells, M. A. (M)
Williams, A. M. (M)
Winner, R. J. (M)

West Hollywood (LA-7)
Markowski, E. (M)
Pipher, M. D. (M)

West Los Angeles (LA-7)
Akrell, C. A. S. (SM)
Hellmann, C. S. (SM)
Kimura, A. M. (M)
Mizell, M. H. (SM)
Montalbano, G. (M)
Nakatsu, G. Y. (M)
Reed, R. A. (M)
Reiter, A. M. (SM)
Remmes, J. A. (SM)
Sakihara, Y. (M)
Simon, H. S. (M)
Stahl, R. (A)
Wallace, P. R. (M)
Weed, G. E. (M)
Wright, E. C. (M)

West Menlo Park (SF-7)
Wilker, L. B. (M)

Westminster (LA-SA-7)
De Fir, C. C., Jr. (M)
Gribble, W. R. (M)
King, P. D. (M)
Kolb, R. P. (M)
Lindquist, C. A., Jr. (SM)
Malik, O. J. (A)
Ruhl, W. T., Jr. (M)
Smith, N. J. (A)
Umstead, D. L., Jr. (A)
Ware, D. R. (M)
Wilkins, D. R. (M)
Willis, D. B. (M)

Westmorland (SD-7)
Boyer, M. J. (A)

West Sacramento (SAC-7)
Fuller, G. R. (M)
Mahan, R. E. (M)

West Van Nuys (LA-SF-7)
Corbin, G. C. (A)
Kjellburg, R. L. (M)

Whittier (LA-SA-7)
Amendt, L. E. (M)
Anderson, D. B. (M)
Azama, J. T. (M)
Bashore, C. E. (A)
Becker, W. C. (M)
Blaski, M. F. (M)
Bowman, J. Y. (M)
Boyer, R. J. (M)
Breece, R. C. (M)
Burtner, R. K. (M)
Campbell, J. R. (M)
Carroll, W. P. (M)
Chamberlain, D. B. (M)
Cleary, M. P. (M)
Darlington, H. T., Jr. (M)
Davenport, C. M. (A)
Davis, J. S. (M)
Forry, S. H. (M)
Golmis, T. L. (M)
Gondo, T. T. (M)
Gow, K. P. (SM)
Green, R. (M)
Gronlund, R. A. (M)
Hall, C. R. (M)
Harriman, D. E., Jr. (SM)
Hodge, J. (M)
Hodgson, V. R. (A)
Hoffmann, H. J. (M)
Holmes, E. A., III (SM)
Hooper, G. E. (M)
Jackson, M. O. (A)
Jacobs, J. C. (M)
Jennings, B. R. (M)
Kaminski, A. A. (M)
Kleinhofer, B. A. (SM)
Kleppinger, L. H. (SM)
Krueger, D. E. (A)
Laikin, M. (M)
Lanzinger, D. J. (M)
Lent, W. C. (SM)
Lever, J. A. (M)
Lincoln, W. S. (SM)
Lockhart, E. H. (M)
Martin, P. W. (M)
McGaffey, H. F. (M)
McMillin, D. W. (M)
Miller, J. F. (M)
Miner, C. R. (SM)
Moody, R. E. (M)
Moore, C. W. (M)
O'Brien, E. J. (SM)
Ontiveros, P. C. (SM)
Overton, C. B. (M)
Pitkoff, B. L. (A)
Parker, N. F. (A)
Peelle, A. R. (A)
Polder, J. H. (M)
Quinn, J. L., Jr. (M)
Randall, G. M. (A)
Rodia, D. W. (M)
Savant, C. A. (M)
Sawyer, H. F. (M)
Scheets, B. R. (M)
Schleich, W. T. (SM)
Schmidt, F. W. (SM)
Schulz, K. S. (M)
Scott, G. D. (M)
Scott, W. L. (M)
Shutt, S. G. (M)
Smith, J. D. (M)
Steme, K. E. (M)
Sterns, W. G. (M)
Sterrett, J. P. (M)
Tice, A. R. (SM)
Trerise, B. L. (M)
Unkefer, R. C. (M)
Vannucci, R. D. (M)
Vorle, I. N. (M)
Wagner, E., Jr. (M)
White, J. V. (M)
Wood, H. A. (M)

Wunderlich, F. J. (M)
Yetter, W. P. (M)
Zemenick, C. J. (M)
Zoller, C. J. (M)

Willits (SF-7)
Rumfelt, A. (M)

Wilmington (LA-7)
Seko, S. (M)

Winnetka (LA-SF-7)
McAlee, P. (M)

Woodland Hills (LA-SF-7)
Abel, A. O. (M)
Alvarez, E. C. (A)
Anderson, T. J. (SM)
Aroyan, G. F. (M)
Baker, M. L. (M)
Barker, L. H. (SM)
Bass, L. J. (M)
Bendar, J. A. (M)
Blasman, J. (A)
Blatchford, D. (M)
Bocchio, T. R. R. (M)
Boekelheide, A. W. (M)
Bonness, J. (M)
Boucher, R. J. (M)
Broderick, D. L. (M)
Brooks, W. O. (SM)
Bush, L. A. (M)
Carman, J. N. (SM)
Carson, D. G. (M)
Carter, N. H. (A)
Chaiken, L. (M)
Chapman, B. R. (M)
Cornell, J. A. (SM)
Countis, T. J. (SM)
Dau, W. K., Jr. (SM)
Davidson, E. D. (M)
Davidson, S. (M)
Davis, M. R. (M)
De Florio, G. P. (A)
De Zube, L. H. (M)
Drummond, E. J. (M)
Duggan, J. R. (SM)
Edwards, J. N. (M)
Elnsohn, I. A. (M)
Elsner, G. (M)
Elliott, R. S. (SM)
Ellis, D. O. (M)
Ellis, J. W., Jr. (M)
Engel, H. L. (M)
Eslinger, R. L. (M)
Fails, W. A. (M)
Felsman, W. O. (M)
Fiden, W. H. (M)
Fogle, J. A. (M)
Forrest, C. B. (M)
Forster, D. C. (M)
Fortier, R. E. (M)
Fredricks, R. W. (M)
French, R. L. (M)
Gallenson, L. (M)
Ganstwig, M. (SM)
Gerken, G. H. (M)
Gewant, S. (SM)
Gillies, M. A. (M)
Grossman, M. A. (A)
Halloran, R. G. (M)
Hammill, C. W. (M)
Hanish, H. M. (A)
Harrison, J. F. (M)
Harrison, W. H. (M)
Hartman, R. H. (M)
Hasin, S. L. (SM)
Heath, G. F. (M)
Helbig, W. A. (A)
Helms, C. J. (SM)
Hicks, A. R. (M)
Howard, R. A., Jr. (M)
Howard, V. J. (M)
Hudson, R. D., Jr. (SM)
Hutchison, L. D. (M)
Ingersoll, E. R. (SM)
Jacques, G. E. (SM)
Johnson, R. L. (M)
Jones, A. J. (M)
Kanze, A. J. K. (M)
Kaufman, A. B. (M)
Kaufman, E. N. (M)
Kaufman, I. (M)
Khougaz, E. G. (A)
Koda, N. J. (M)
Kouba, J. T. (M)
Kurtz, L. A. (M)
La Fetra, F. E. (M)
Lamb, W. X., Jr. (M)
Lee, J. H. (M)
Lesley, A. M. (M)
Levy, G. F. (SM)
Lewis, R. A., Jr. (M)
Lillibridge, E. H. (M)
Mac Innes, N. A. (M)
Makush, W. S. (M)
Malbrain, J. P. (M)
Mann, D. A. (M)
McKee, W. P., Jr. (M)
McKenzie, J. A. (A)
Mellor, J. R. (A)
Michaels, E. C. (A)
Miller, M. H. (M)
Mitchell, W. C. (M)
Moody, H. L. (M)
Mori, H. (SM)
Nyberg, J. J. (M)
Oltman, H. G., Jr. (SM)
Owens, J. E. (M)
Owens, O. G. (M)
Oyster, D. E. (M)
Payne, G. H. (A)
Perry, R. E. (M)
Perry, W. C. (M)
Peterson, F. V. (M)
Piott, C. J. (M)
Pratt, J. H. (SM)
Quist, R. C. (M)
Ray, B. W. (M)
Red, A. G. (M)
Reilly, P. E. (M)
Ritter, B. S. (SM)
Robbins, B. A. (M)
Rosenberg, A. L., Jr. (SM)
Rosenbloom, A. (M)
Rozas, F. (M)
Ruderman, M. (M)
Rutland, D. F. (A)
Sabaroff, S. (M)
Saltzman, H. (SM)
Schneidermeyer, F. W. (M)
Schoen, S. (M)
Schwartz, I. (M)
Scott, L. W. (M)
Seferian, R. K. (M)
Shaw, A. (M)
Sibillo, R. A. (M)
Silk, N. R. (SM)
Smeltzer, J. C. (M)
Smith, B. N. (A)
Smith, L. J. (M)
Soderholm, L. H. (M)
Sorensen, C. E. (M)
Stanton, G. V. (M)
Staub, D. W. (M)
Steward, R. H. (A)
Stumpf, R. J. (M)
Sturm, W. A. (M)
Summerfield, A. R. (M)
Tetherow, R. C. (M)
Thompson, K. A. (M)
Tidus, D. B. (M)
Tinney, P. (SM)
Udry, J. J. (SM)
Underberger, G. M. (SM)
Urlovic, W. C. (A)
Van Bemmelen, H. M. (M)
Van Groos, J. C. (SM)
Vega, J. C. (A)
Vick-Roy, J. W. (SM)
Walters, R. F. (M)
Wanselow, R. D. (SM)
Weinhouse, N. P. (SM)
Welty, R. M. (M)
Westenhaver, J. L. (M)
Whistler, J. P. (SM)
Wilbraham, L. F. (M)
Williams, F. K. (SM)
Wilson, K. M. (M)
Wilson, R. E. (M)
Wollaeger, L. A. (M)
Woodson, W. L. (M)
Young, R. D. (M)
Zdanowich, C. A. (M)

Woodside (SF-7)
Abramson, N. M. (M)
Bousky, S. (SM)
Bracelni, S. M. (M)
Eddy, J. S. (M)
Eitel, W. W. (F)
Eldridge, A. L. (SM)
Heard, H. G. (M)
Hughes, R. L. (M)
Koogle, J. F. (M)
McAulay, W. H. (M)
Smith, H. W., Jr. (M)
Vartanian, P. H., Jr. (SM)
Villard, O. G., Jr. (F)

Yorba Linda (LA-SA-7)
Clary, W. T., Jr. (SM)
Rose, D. K. (M)
Seckler, P. J. A. (M)
Van Wechel, R. J. (M)

Yuba City (SAC-7)
McNear, J. W. (M)

COLORADO

Akron (DEN-6)
Cooley, H. M. (A)

Arvada (DEN-6)
Garvin, C. W. (A)
Jokiel, J. R. (SM)
Longhart, C. C. (M)
Robertson, A. L. (M)
Sargent, R. E. (A)
Schmidt, A. H. (M)
Spano, A. J. (A)
Whitcomb, J. P. (M)

Aurora (DEN-6)
Anthony, C. A. (M)
Burrell, C. R. (M)
Bywater, D. G. (M)
Davenport, J. O. (M)
Dixon, J. R. (M)
Falkofska, B. L. (M)
Finch, M. D. (M)
Fredricks, I. E. (M)
Friedrich, J. M. (M)
Howard, J. E. (M)
Johnson, W. H. (M)
McNatt, E. J. (M)
Thorne, D. C. (M)

Boulder (DEN-6)
Allred, C. M. (M)
Anderson, L. J. (M)
Andresen, S. G. (M)
Andrews, D. H. (SM)
Auterman, J. L. (M)
Ax, G. G. (M)
Baisley, B. B. (M)
Barclay, C. (A)
Barghausen, A. F., Jr. (A)
Barnes, F. S. (M)
Barsis, A. P. (SM)
Bean, B. R. (A)
Beatty, R. W. (SM)
Behrent, L. F. (M)
Bensema, W. D. (M)
Berry, I. S. (M)
Bowles, K. L. (M)
Branch, L. R. (M)
Breyfogle, L. D., III. (M)
Brown, F. W. (M)
Brown, M. J. (A)
Brunner, R. C. (M)
Bussey, H. E. (SM)
Byrne, W. J. (M)
Calfee, R. F. (M)
Cannon, M. K. (M)
Card, J. B. (M)
Carlin, P. W. (M)
Case, W. E. (M)
Catecora, J. V. (M)
Clewes, T. W. (M)
Cohen, R. S. (M)
Cook, C. C. (M)
Coombs, W. C. (SM)
Coon, R. M. (M)
Cottony, H. V. (SM)
Crichlow, W. Q. (SM)
Croghan, R. D. (M)
Culshaw, W. (SM)
Davies, K. (M)
Davis, T. L. (M)
Decker, M. T. (M)
De Gregorio, J. F. (M)
Doherty, R. H. (SM)
Elwell, L. B. (M)
Emi, J. B. (M)
Estin, A. J. (SM)
Fain, D. L. (M)
Farstad, A. J. (M)
Florman, E. F. (M)
Freudenberg, H. O. (M)
Fuqua, C. E. (M)
Gablehouse, R. H. (M)
Gatterer, L. E. (M)
George, W. D. (SM)
Gierhart, G. D. (M)
Gieseke, G. R. (M)
Goble, R. W. (A)
Goerke, V. H. (M)
Gray, A. M. (M)
Green, J. L. (M)
Greene, F. M. (M)
Guiraud, F. O. (M)
Hamel, R. A. (M)
Harper, J. D., Jr. (M)
Harrington, R. D. (M)
Haydon, G. W. (M)
Heaton, V. E. (SM)
Herbstreit, J. W. (F)
Hess, A. E. (M)
Hubbard, R. W. (M)
Hudson, P. A. (M)
Janes, H. B. (M)
Jean, A. G., Jr. (M)
Jessen, W. E. (A)
Jickling, R. M. (M)
Johnk, C. T. (M)
Johnson, D. S., Jr. (A)
Jones, R. N. (M)
Kindig, N. B. (M)
Klingsbury, B. A. (SM)
Kirby, R. C. (SM)
Kirby, R. S. (SM)
Kirkpatrick, A. W. (A)
Koch, J. W. (M)
Kraus, A. (M)
Krueger, R. E. (M)
Lance, H. W. (SM)
Larsen, E. B. (M)
Larson, R. E. (SM)
Lee, L. E. (M)
Lee, R. H. (A)
Lindsay, J. E., Jr. (M)
Linfield, R. F. (SM)
Longley, A. G. (A)
Maloney, L. J. (M)
Martinez, J. L. (A)
Marvin, C. E. (M)
Maxwell, E. L. (M)
McGavin, R. E. (M)
McQuate, P. L. (M)
Merrill, R. C. (M)
Merrill, R. T. (M)
Miller, L. W., Jr. (M)
Morgan, A. H. (M)
Murahata, S. (M)
Niesen, E. (A)
Norton, K. A. (F)
Ochs, G. R. (M)
Ostrow, S. M. (SM)
Patterson, D. W. (SM)
Phelps, F. P. (SM)
Posakony, G. J. (M)
Powell, R. C. (M)
Rastogi, R. G. (SM)
Rathburn, R. H. (M)
Reed, D. R. (M)
Repstein, R. E. (A)
Rice, P. L. (M)
Richardson, J. M. (SM)
Ried, L., Jr. (M)
Ries, F. X. (M)
Roe, K. C. (M)
Salaman, R. K. (M)
Salaman, R. G., Jr. (M)
Schafer, G. E. (SM)
Schiffmacher, E. R. (M)
Scott, W. W., Jr. (M)
Selby, M. C. (SM)
Sheets, W. R. (M)
Shoaf, J. H. (M)
Simpson, P. A. (M)
Slutz, R. J. (SM)
Smith, E. K., Jr. (SM)
Snider, J. D. (M)
Snyder, L. G. (M)
Snyder, W. F. (SM)
Soracklen, R. K. (A)
Stacey, D. S. (SM)
Stewart, A. C. (SM)
Sugar, G. R. (M)
Sykes, J. A. (M)
Taggart, H. E. (M)
Tary, J. (M)
Trenbath, C. L., Jr. (M)
Turner, W. R. (M)
Twombly, J. C. (M)
Utlaut, W. F. (SM)
Viezbicke, P. P., Jr. (M)
Vogler, L. E. (A)
Walt, J. R. (SM)
Walters, L. C. (SM)
Wassink, H. W. (M)
Waters, D. M. (M)
Watt, A. D. (SM)
Watts, J. M. (M)
Wells, C. V. (M)
Wells, P. I. (M)
Whelan, E. H. (M)
Wicks, P. (SM)
Wilber, R. W. (M)
Wilson, A. C. (M)
Wilson, Q. C. (M)
Wolzlen, E. C. (M)
Woodward, M. W. (SM)
Worcester, W. G. (SM)

Broomfield (DEN-6)
Crandall, C. L. (M)
Kemper, J. A. (M)
Mulligan, M. A. (A)
Nesenbergs, M. (M)
Peterson, S. B. (SM)
Stewart, C. H., II (SM)
Webb, R. C. (F)

Broomfield Heights (DEN-6)
Chesnut, M. G. (A)
Wendt, K. R. (F)

Castle Rock (DEN-6)
Dietz, R. A. (A)

Colorado Springs (D-PP-6)
Adams, E. L. (M)
Behnke, A. O. (SM)
Bittner, B. J. (SM)
Bliss, S. A., Jr. (M)
Boaz, R. O. (SM)
Brethauer, L. G. (M)
Bridges, A. P. (SM)
Carr, B. J. (M)
Chapman, J. M. (M)
Conroy, J. R. (A)
Crecelius, P. H., Jr. (M)
D'Auteuil, R. J. (M)
Donegon, R. E. (M)
Ebersole, L. K. (M)
Fears, C. R. (M)
Gardner, D. K. (M)
Green, L. V. (A)
Hagopian, G. A. (M)
Heartz, L. C. (M)
Hoffman, J. R. (M)
Holmgren, W. A. (M)
Holt, R. A. (A)
Howard, W. G. (M)
Jessup, P. L. (M)
Kay, D. J. (M)
Kuypers, M. W. (M)
Kyer, F. E. (A)
Leahy, T. D. (M)
Linke, K. W. (M)
Mathis, J. B. (SM)
Mooney, R. E. (M)
Paddock, J. L. (A)
Price, H. J. (A)
Quinn, T. J. (A)
Reid, D. A. (SM)
Roberts, R. W. (M)
Russell, J. D. (M)
Rynning, J. L. (M)
Shipman, C. N. (A)
Singer, L. M. (M)
Stroman, C. F. (M)
Victoreen, J. A. (SM)
Wheeler, R. H. (M)
Wilson, L. H. (M)

Denver (DEN-6)
Ackworth, D. L. (M)
Adams, C. K. (M)
Anderson, C. R. (A)
Anderson, W. M. (M)
Bachman, M. N. E. (M)
Bahlay, A. (SM)
Balamonte, F. L. (M)
Barnett, B. E. (M)
Barnett, R. H. (M)
Barr, B. F., Jr. (A)
Bealey, C. F. (A)
Beaver, H. E. (M)
Bills, E. S. (M)
Bishop, H. L., Jr. (M)
Blanchard, R. R. (M)
Blankenship, L. F. (M)
Bowen, R. G. (M)
Bowie, W. S. (SM)
Bromberger-Barnea, B. (A)
Brooks, R. R. (M)
Butts, J. H. (A)
Casehart, M. E. (M)
Carter, F. W. (M)
Cirbo, A. J. (A)
Clark, L. R. (SM)
Cole, A. E., Jr. (M)
Collins, P. B. (A)
Cook, D. J. (M)
Cooper, R. R. (A)
Cotter, J. B. (A)
Cottrell, D. E. (M)
Coutermash, L. E. (A)
Cox, R. W. (A)
Crone, W. R. (M)
Culnan, D. E. (SM)
Darois, P. F. (M)
Davidson, S. (M)
De Penning, D. L. (M)
Detwiler, W. L. (M)
Deutsch, K. T. (M)
Diddens, P. A. (M)
Dillon, J. R. (SM)
Dosch, E. L. (M)
Drury, S. F., Jr. (M)
Dubbert, D. R. (M)
Ducolon, W. T. (M)
Edwards, H. T. (M)
Eichelberger, W. H. (SM)
Farley, J. S., Jr. (M)
Farrell, R. J. (A)
Ferketich, G. (A)
Fillingham, R. A. (A)
Finado, F. H. (M)
Flaharty, C. L. (M)
Fleming, C. W. (A)
Foley, W. V. (SM)
Fraser, D. E. (M)
Garretson, H. W. (M)
Gibson, W. R. (A)
Gilman, E. I. (M)
Goddard, A. A., Jr. (M)
Gould, W. S. (M)
Grace, J. R. (SM)
Gradjelick, T. J. (M)
Grigsby, T. N. (M)
Haigh, W. B. (M)
Hancock, E. C. (M)
Hansen, H. J., Jr. (M)
Hanson, B. B. (M)
Harrell, C. D. (M)
Harrison, J. L. (M)
Hart, W. G., Jr. (M)
Hartzell, W. M. (M)
Hastings, L. E. (SM)
Hedberg, C. A. (SM)
Hedrick, W. M. (M)
Heriqstad, V. (A)
Hewitt, J. G., Jr. (M)
Hindman, R. S. (A)
Honey, F. J. (M)
Houston, J. T., Jr. (M)
Hroch, H. J. (M)
Huffsmith, R. R. (M)
Hurlbut, J. F. (SM)
James, V. N. (SM)
Jerson, S. N. (M)
Johnson, H. S. (M)
Just, G. D. (A)
Kardos, M. (M)
Kay, A. L. (M)
Kennedy, J. E., Jr. (M)
King, R. H. J. (M)
Knight, S. J., Jr. (M)
Koch, R. C. (M)
Kopol, W. J. (SM)
Kyelberg, L. D. (A)
Lanz, R. W. (M)
Leck, D. E. (M)
Leighou, R. O. (M)
Lilley, C. M. (M)
Lover, G. L., Jr. (M)
Lucero, J. C. (M)
Maher, R. A. (SM)
Maitland, L. (A)
Maras, R. G. (M)
Mathis, B. G. (M)
Mavretic, A. (M)
Messler, F. J. (M)
Metzger, D. L. (M)
Mielziner, W. (M)
Moravec, C. T. (A)
Morrissey, T. G. (SM)
Morroni, D. J. (M)
Nelson, R. H., Jr. (M)
Nesbitt, V. R. (M)
Newell, D. R. (M)
Newman, C. A., Jr. (M)
Nold, J. M. (A)
O'Connor, J. J. (A)
Ostwald, L. T. (A)
Pagones, B. (M)
Paige, A. E. (SM)
Palmer, E. B. (M)
Parish, V. L. (M)
Patton, F. T. (M)
Petterson, W. N., Jr. (M)
Phillips, E. M. (M)
Phillips, R. E. (M)
Pieper, G. E. (SM)
Porter, H., Jr. (M)
Posakony, P. R. (M)
Prescott, J. F. (M)
Pyle, J. C. (A)

Rangel, D. K. (A)
Raymond, K. N. (A)
Reitz, W. L. (A)
Reno, H. (M)
Rettenmeyer, P. F. (M)
Rinker, E. A. (M)
Roark, L. A. (M)
Robinson, M. E. (A)
Roble, A. R. (M)
Ruehle, R. A. (M)
Rugg, D. E. (A)
Sahl, G. R. (M)
Schlichtemeier, K. H. (M)
Schnurr, R. H. (M)
Scheer, R. B. (A)
Scott, C. H., Jr. (M)
Seiberlich, J. S. (M)
Shreve, T. S. (M)
Sjostrom, R. W. (M)
Smilley, J. D. (A)
Smith, A. D. (M)
Smith, P. D. (M)
Smith, W. F., Jr. (M)
Speth, D. L. (A)
Steinmetz, S. T. (A)
Storma, M. T. (M)
Stoss, E. G., Jr. (A)
Swanson, R. E. (M)
Tilton, W. O. (M)
Todd, F. J. (M)
Tulloh, C. F. (M)
Turbeville, W. L. (M)
Turnquist, E. R. (M)
Turre, G. J. (M)
Ulibarri, A., Jr. (M)
Vagge, A. A. (M)
Van Allen, J. W. (M)
Venditti, F. P. (M)
Vincent, G. J. (M)
Walter, J. H. (M)
Wand, C. S. (M)
Wathen, J. E. (M)
Watson, G. W. (M)
Watson, J. E. (M)
Watters, E. S. (A)
Weil, W. W. (M)
Williams, A. I., Jr. (M)
Wolsey, D. (A)
Wolff, G. (SM)
Wright, A. (M)
Zamboorie, M. H. (M)

Derby (DEN-6)
Kundel, I. N. (M)

Englewood (DEN-6)
Andrews, H. A. (M)
Bailey, R. W. (M)
Bell, R. D. (M)
Benavides, C. (SM)
Brechwald, R. D. (M)
Cobbs, D. M. (M)
Davis, L. J. (M)
Gishpert, J. F. (M)
Hale, R. A. (M)
Helt, S. L. (A)
Housego, J. W. F. (M)
Hyde, R. A. (A)
Jambor, L. D. (M)
Jones, W. G. (M)
Lahana, P. (M)
Meuer, J. M. (M)
Mueller, A. G. (A)
Osborne, N. A. (M)
Quimet, J. K. (M)
Polhemus, J. T. (M)
Roberts, H. L. (M)
Serr, M. O. (M)
Skeels, H. V. (A)
Thaxton, H. A. (M)
Van Zant, F. N., Jr. (M)
Willis, C. E. (M)

Ent AFB (D-PP-6)
Kofler, E. J. (M)
Kuehn, R. J. (M)
Shaskey, E. N. (M)

Estes Park (DEN-6)
Shideler, E. M. (SM)

Evergreen (DEN-6)
Langer, G. O. (M)
Laub, J. L. (M)
Steiner, K. E. (M)

Fort Carson (D-PP-6)
Marcouiller, R. A. (M)
Symons, F. E. (M)

Fort Collins (DEN-6)
Britton, C. C. (SM)
Budak, A. (M)
Dean, J. E. (M)
Faris, J. J. (M)
Hagen, H. H. (M)

Glenwood Springs (DEN-6)
Baker, B. Z. (A)
Maggard, A. D. (A)

Golden (DEN-6)
Coors, J. (A)
Cowell, P. K. (M)
Fletcher, H. E. (SM)
Gallagher, B. D. (M)
Hoover, D. B. (A)
Miller, T. M. (M)
Plywaski, W. (M)
Visiisel, R. L. (A)

Grand Junction (DEN-6)
Howell, R. G. (SM)
Lawton, K. G. (A)
McCormick, C. E. (A)
Van Houten, R. G. (M)

Greeley (DEN-6)
Cooper, K. H. (A)

Idaho Springs (DEN-6)
Bell, B. G. (M)

Lafayette (DEN-6)
Ellerbruch, D. A. (M)
Haller, F. B. (A)

Lakewood (DEN-6)
Bacher, J. R. (M)
Cook, G. V. O. (M)
Daniels, R. G. (M)
Harris, D. H. (M)
Winters, J. D. (SM)
Woodard, H. L. (A)
Yost, H. T. (A)

Littleton (DEN-6)
Allen, M. A. (M)
Ayre, T. P. (M)
Beckley, T. L. (M)
Bender, E. R. (M)
Bickford, K. F. (A)
Bradshaw, H. B. (M)
Bradt, A. J. (M)
Braunagel, M. V. (M)
Bravo, M. V. (A)
Breggin, A. (M)
Breikss, I. P. (M)
Burton, E. B. (A)
Carty, E. H. (M)
Case, C. W. (M)
Clausen, R. H. (SM)
Cox, K. J. (M)
Craig, J. B. (M)
Dachtler, F. E. (A)
Daggett, C. C. (M)
Danner, R. V. (SM)
Davis, V. M. (SM)
Diamond, A. M. (M)
Dingman, E. H. (M)
Dinzl, R. A. (A)
Dudley, E. M., Jr. (A)
Earles, D. R. (M)
Elam, T. W. (SM)
Eldridge, A. J. (SM)
Englund, R. A. (M)
Evans, R. E. (M)
Foster, F. L. (A)
Girard, L. J. (M)
Glass, C. E. (M)
Glienke, D. P. (A)
Golding, L. N. (M)
Grassia, C. C. (M)
Gyger, C. E. (M)
Hardin, R. H. (M)
Hartel, B. (M)
Hartman, C. E. (M)
Hecksel, W. (M)
Hegi, J. G. (M)
Heyliger, G. E. (M)
Hill, A. L. (A)
Holloway, J. A. (M)
Hradsky, A. (M)
James, D. C. (SM)
Janusz, J. S. (A)
Jensen, H. R. (M)
Johnston, H. H. (M)
Jones, E. R., Jr. (A)
Kaaz, F. W. (M)
Kenny, J. A. (SM)
Kinney, E. L. (M)
Klessig, R. J. (SM)
Kluge, J. E. (M)
Kong, R. S. (A)
Kromer, S. B. (A)
Kupilik, F. M. (M)
Leonard, D. L. (M)
Lewis, H. Z. (M)
Long, C. C. (M)
Longmire, R. C. (M)
Manser, D. E., Jr. (M)
Marizza, D. S. (A)
Masters, M. R. (A)
Maxwell, T. M., Jr. (SM)
McDaniel, R. F. (M)
McGowan, G. F. (M)
Metz, E. W., Jr. (A)
Nash, A. C. (M)
Nelson, J. E. (A)
Nold, F. D. (M)
Olson, G. O. (M)
Oppenheimer, D. S. (SM)
Parish, M. L. (M)
Perrin, B. J. (M)
Phillips, M. R. (M)
Poos, A. E. (M)
Poose, R. F., Jr. (M)
Rawitz, H. (M)
Reber, E. E. (M)
Rice, R. B. (A)
Ringoen, R. M. (SM)
Rizzo, S. J. (A)
Robel, M. C. (M)
Rosine, L. L. (M)
Roth, T. A. (A)
Sappington, H. M. (M)
Schafer, H. G. (M)
Scheele, P. F. (M)
Schneebeck, D. A. (M)
Schoenwetter, H. K. (M)
Seestadt, H. C. (SM)

Shumaker, M. J. (A)
Sladkey, R. J. (M)
Slater, T. L. (M)
Smith, E. F. (M)
Smith, G. H. (M)
Smith, G. W. (SM)
Smith, M. P. (M)
Sprengeler, D. F. (M)
Stewart, S. J. (A)
Stinchcomb, B. G. (A)
Sykes, R. P. (M)
Terbush, H. W. (SM)
Thayne, L. (M)
Throoo, L. L. (M)
Turner, D. E. (M)
Walker, G. A. (A)
Walker, W. R. (M)
Wildman, R. C. (SM)
Wilson, J. F. (M)
Wiseman, S. D. (M)
Wishau, K. J. (M)
Wolfe, C. E. (A)
Wolk, T. E. (M)
Wren, C. A. (M)
Young, G. C. (M)

Longmont (DEN-6)
Grant, W. B. (M)

Loveland (DEN-6)
Anderson, J. L. (M)
Cullen, D. E. (M)
Follmer, G. C. (A)
Kelley, E. K. (SM)

Lowry AFB (DEN-6)
Marcantel, B. (M)

Palisade (DEN-6)
Boardman, J. L. (M)

Phipsburg (DEN-6)
Gorham, D. H. (M)

Pueblo (D-PP-6)
Schealer, R. C. (M)
Sisson, R. L. (M)

Red Wing (DEN-6)
Sanborn, R. H. (M)

Salida (DEN-6)
Stout, J. E. (A)

Sterling (DEN-6)
Marks, K. E. (M)

Trinidad (DEN-6)
Cunico, C. D. (M)

USAF Academy (D-PP-6)
Basham, R. S. (M)
Davis, C. F. (M)
Huston, E. E. (M)
Manlove, W. R. (M)
Quirk, W. J. (M)
Thomson, G. W. (M)

Westminster (DEN-6)
Dougherty, H. F. (M)
Saum, G. H., Jr. (M)
Wells, F. D. (M)

Wheat Ridge (DEN-6)
Boyd, R. K. (M)
Forsman, E. H. (M)
Gleason, G. W. (M)
Haase, A. H. (A)
Marshall, G. B. (M)
Wyatt, D. E. (M)

Whitewater (DEN-6)
Hathaway, C. M. (SM)

CONNECTICUT

Andover (CON-1)
Anson, Y. (M)

Avon (CON-1)
Boehm, A. R., Jr. (M)
Frost, D. F. (M)

Bethany (CON-1)
Sheehan, J. F. (M)

Bethel (CON-F-1)
Gereo, C. V. (M)
Pearlman, L. S. (M)
Shogren, J. (A)
Warner, F. C. (M)

Bloomfield (CON-1)
Gillie, A. C. (M)
Hendrickson, H. S. (M)
Lemer, I. S. (M)
Norkin, H. (M)
Reens, L. H. (M)
Sulman, R. K. (A)
Von Kummer, F. G. (M)
Wasem, E. F., Jr. (M)
Whitney, D. J. (M)

Bridgeport (CON-F-1)
Andrews, J. R. (M)
Autuori, V. A. (M)
Bensen, H. (M)
Dlugos, D. F. (M)
Evans, R. E. (M)
Foner, M. (A)
Hettinger, M. (M)

Hlavacek, A. R. (M)
Klech, C. J. (M)
Kochan, F. L. (M)
Kosowsky, L. H. (M)
Krantz, J. P. (A)
Krok, T. J. (M)
Lapinski, C. S. (A)
Lemkin, H. J. (A)
Makar, R. D. (M)
McKelvey, R. F., Jr. (A)
Mike, J. G. (M)
Mikusky, C. J. (M)
Packer, J. J. (A)
Rosenberg, H. A. (A)
Silverstone, D. M. (M)
Swatt, E. P. (M)
Weller, B. L. (M)
White, B. J., Jr. (M)
Winquist, R. T. (M)
Ziller, M. A. (A)

Bristol (CON-1)
Clark, F. K., Jr. (M)
Coe, D. H. (M)
Dion, W. E. (SM)
Fazio, R. (M)
Kavanaugh, R. J. (M)
Nelson, A. B. (SM)
Piantoni, G. L. (M)
Ptak, E. J. (M)
Scherff, L. S. (M)
Snowdon, A. E. (SM)
Vaughan, E. W. (SM)

Brookfield (CON-F-1)
Gordon, T. M., Jr. (M)
Murch, K. C. (M)
Pedersen, I. C. (SM)
Zeller, D. A., Jr. (M)

Brookfield Center (CON-F-1)
Carter, C. W., Jr. (SM)

Brooklyn (CON-1)
Vroom, E. (SM)

Byram (CON-1)
Gayno, G. P. (A)
Marr, C. F. (A)

Cannondale (CON-F-1)
Podell, A. F. (M)

Canterbury (CON-1)
Stow, R. L. (M)

Canton (CON-1)
Whitney, C. A. (M)

Central Village (CON-1)
Poremba, J. J. (M)

Cheshire (CON-1)
Ely, R. S. (M)
Grebe, A. H. (M)
Hines, J. E., Jr. (A)
Hoffmann, G. O. (M)
Perrins, A. R. (M)
Rhein, G. W. (M)
Thomas, A. R. (A)
Warren, R. E. (M)

Colchester (CON-1)
Butenkoff, G. G. (M)
Harasimowitz, S. (M)

Cos Cob (CON-F-1)
Bukowski, C. P. (M)
Fingerle, W., Jr. (SM)

Danbury (CON-F-1)
Arendt, E. J. (A)
Ashford, C. R. (A)
Boesch, A. H. (A)
Camillo, C. (SM)
Campbell, C. A. (M)
Conceiman, C. W. (M)
Di Paola, R. G. (M)
Geiken, J. A. (A)
Henriques, J. B. (M)
Hyde, R. H. (M)
Johns, N. H. (M)
Kotkowski, J. F. (M)
London, C. (SM)
McLaughlin, G. H. (A)
Meeker, J. W. (A)
Moran, J. H. (M)
Otha, W. R. (M)
Ott, O. J. (M)
Pybum, R. W. (M)
Rothlein, B. J. (SM)
Runyan, R. A. (M)
Schatzle, F. D. (A)
Schmidt, E. (M)

Darien (CON-F-1)
Bowley, R. J. (M)
Bozak, R. T. (SM)
Flower, G., Jr. (A)
Goodnow, A. C. (M)
Hubbard, E. S. (M)
MacGregor, R. R. (M)
Mack, C. L. (M)
McElrath, G. (F)
Moffat, W. H. (SM)
Piacente, J. W. (A)
Smith, P. B. (M)
Townsend, R. (SM)
Tucker, J. F. (SM)

Deep River (CON-1)

Desnoyers, R. W. (M)

Derby (CON-1)
Carman, E. B. (A)
Clark, M. C. (M)

Devon (CON-1)
O'Connell, P. R. (A)

Durham (CON-1)
Schilling, C. R. (M)
Turck, D. S. (M)

East Hampton (CON-1)
Smith, H. A. (M)

East Hartford (CON-1)
Aas, H. G. (M)
Blake, D. G. (M)
Bordogna, A. C. (M)
Capraro, R. R. (M)
De Pietro, R. A. (M)
Elbe, J. H. (M)
Gorton, R. E. (A)
Lewis, E. B. (M)
Mohr, W. L. (A)
Moses, H. J. (M)
Patapas, E. C. (M)
Searle, P. C. (M)
Slesers, J. (M)

East Hartland (CON-1)
Neill, G. W. (M)

East Haven (CON-1)
Blatchley, W. C. (A)
Bogan, S. C. (M)
Evon, J. (M)

East Heaven (CON-F-1)
Anderson, E. J. (M)

East Norwalk (CON-F-1)
Phillips, J. (M)
Warner, E. J. (SM)
Yellin, H. (SM)

Easton (CON-F-1)
Cummings, C. S., II (M)
Koch, R. L. (M)

East Woodstock (CON-1)
Dixon, E. O. (SM)

Elmwood (CON-1)
Marchese, J. H. (M)

Enfield (CON-1)
Carrier, R. R. (A)
McVey, J. H. (A)

Fabyan (CON-1)
Emerson, F. P. (M)
O'Brien, B., Jr. (M)

Fairfield (CON-F-1)
Antonio J. (A)
Bishop, N. (SM)
Bourque, J. J. (M)
Codomo, J. (M)
Coppernoll, R. W. (M)
Dellenbaugh, F. S. (M)
Di Mattia, A. L. (A)
Gilchrist, E. S. (M)
Kaden, G. (M)
Kelliher, D. W. (M)
King, A. M. (M)
Kunz, M. (M)
Mannherz, W. A. (M)
Mistretta, L. J. (M)
Mitchell, W. F. (M)
Parker, C. B. (A)
Roberts, F. W. (SM)
Rust, D. E. (M)
Stern, P. D. (A)
Torras, F. (M)

Forestville (CON-1)
Alcorn, L. V. (A)
Forman, J. (M)
Kasputis, J. (M)

Fort Trumbull (CON-1)
Von Winkle, W. A. (A)

Gales Ferry (CON-1)
Bowes, G. L. (M)
Prysner, W. J. (M)

Georgetown (CON-F-1)
Grossman, F. J. (A)
Lyuta, G. R. (M)
Van Oostendorp, G. H. (M)

Glastonbury (CON-1)
Humphrey, C. D. (M)
Kapuscienski, S. J. (M)
Kemble, T. H. (M)
Speed, D. K. (M)
Taylor, D. S. (M)
Waterman, A. (M)

Glenbrook (CON-F-1)
Gluck, J. (M)
Salkus, S. (M)
Wadhams, S. C. (M)
Zuech, N. O. (M)

Granby (CON-1)
Brockett, R. I. (M)
Rivers, G. D. (M)

White, J. A. (M)

Greens Farms (CON-F-1)
Schmid, C. E. (M)

Greenwich (CON-F-1)
Anderson, W. C. (SM)
Badoyannis, G. M. (M)
Burroughs, G. (M)
Culbertson, E. B. (M)
Fetherolf, J. M. (M)
Haanstra, J. W. (M)
Hemstadt, W. H. (M)
Hollywood, J. M. (F)
Kimes, R. A. (SM)
Koke, W. L. (M)
Mallory, H. R. (SM)
Marchand, N. (SM)
Peterson, E. F. (M)
Stevens, R. E. (A)
Walters, R. J. (M)
Ward, J. S. (A)
Ziegler, G. C. (M)

Groton (CON-1)
Blaisdell, K. L. (SM)
Bowes, H. N. (SM)
Burrus, C. S. (M)
Comiskey, J. M. (M)
Dolan, D. F. (M)
Dugan, D. J. (M)
Ensley, S. B. (A)
Fanelli, F. A. (M)
Holland, J. P. (M)
Latham, W. S. (M)
Leuze, W. F. (M)
Mali, P. (M)
Matthews, C. I. (A)
Mera, S. M. (A)
Miller, K. K. (M)
Miller, R. A. (M)
Moeller, H. J. (A)
Mulieri, L. A. (M)
Pietragallo, A. M. (M)
Rush, D. R. (M)
Stephanz, G. H. (M)

Guilford (CON-1)
Fisher, E. H. (M)
Schoenhard, E. (M)
Utting, G. R. (M)

Hamden (CON-1)
Craig, J. D. (M)
Davidson, R. B. (M)
Doolittle, F. M. (F)
Dunklee, W. F. (M)
Fricker, S. J. (M)
Goclowski, C. F. (M)
Hewitt, C. D. (M)
Keith, K. S. (A)
Lund, W. S. (M)
Lyons, W. J., Jr. (M)
McNamara, F. T. (M)
Mulligan, R. J. (M)
Quackenbush, E. C. (A)
Reich, H. J. (F)
Robarge, R. C. (A)
Smith, R. E. (M)
Stancliff, V. A. (M)
Temple, L. M. (SM)

Hartford (CON-1)
Boak, I. S. (M)
Britton, R. C. (M)
Broderick, H. M., Jr. (M)
Dorschug, H. A. (SM)
Dungan, L. B. (M)
French, E. C. (M)
Golec, E. J. (M)
Jarrett, M. A. (A)
Lescarbeau, R. F. (M)
Mara, F. X. (A)
Piskor, J. (M)
Rabinowitz, C. M. (M)
Roux, V. A. (M)
Roth, W. (M)
Saseen, A. E. (M)
Shor, N. (M)
Smith, H. J. (M)
Sonn, M. (A)
Weissman, D. (A)

Hazardville (CON-1)
Brown, D. C. (M)
Jamoc, E. A. (M)
Kelly, G. E., Jr. (M)
Richardson, H. M. (SM)
Sandelin, M. P. (SM)

Hebron (CON-1)
Marshall, N. K. (A)

Higganum (CON-1)
Brien, C. J. (A)

Huntington (CON-F-1)
Emerson, W. H. (SM)

Kensington (CON-1)
Dickon, A. J. (M)

Kent (CON-1)
Ewald, L. H. (M)

Lebanon (CON-1)
Stocking, M. H. (A)

Ledyard (CON-1)
Dutton, F. L., Sr. (M)

Long Hill (CON-F-1)
Kaiser, A. (M)

Madison (CON-1)
Bassett, J. B. (SM)
Mac Donald, D. H. (A)
Noland, J. H., Jr. (SM)

Manchester (CON-1)
Anton, R. F. (M)
Billmyer, C. M. (M)
Churchill, T. L. (M)
Dean, C. M. (M)
Gocht, R. E. (M)
Hubbard, R. G., Jr. (M)
Nicola, R. N. (M)
Rathbun, W. F. (M)
Russell, A. A., Jr. (M)
Stanek, W. F. (A)
Stoker, W. C. (SM)
Tomaluolo, F. P. (M)
Young, W. H., Jr. (M)

Mansfield Center (CON-1)
Booth, T. L. (M)

Mansfield Depot (CON-1)
Norling, A. E. (A)

Marion (CON-1)
Perkins, R. W. (M)

Meriden (CON-1)
Lavin, H. (M)
Schaefer, R. W. (M)
Winn, E. C., Jr. (M)

Middlebury (CON-1)
Fullilero, R. (A)

Middletown (CON-1)
Boley, F. I. (SM)
Gunter, S. Z. (M)
Heinzmann, J. D. (M)
Snow, C. A., Jr. (M)
Thompson, L. (SM)
Van Dyke, K. S. (F)
Wheeler, R. E. (A)

Milford (CON-1)
Baldwin, A. L., Jr. (M)
Barrett, W. R. (A)
Chatfield, G. F. (A)
Heinold, E. F. (M)
Lyman, H. T. (SM)
Malecki, A. S. (A)
Milo, P. (A)
Mitchell, C. (M)
Purcell, H. F. (A)
Schaefer, W. W. (A)
Sundius, W. H. (M)

Monroe (CON-F-1)
Blodget, D. M., Jr. (M)
Hardy, H. L. (M)
Paterson, D. G. (M)
Tavella, R. P. (A)
Wormser, J. J. (M)

Mount Carmel (CON-1)
Pagano, E. L. (M)

Mystic (CON-1)
Allen, R. S. (M)
Coleman, C. H. (M)
Cunningham, E. S. (A)
Hansen, R. C. (M)
Kirby, T. H. (SM)
Pryor, E. R. (M)
Pryor, W. L., Jr. (SM)
Solodiuk, A. (M)
Wardle, W. F. (M)

Naugatuck (CON-1)
Scranton, W. J. (M)

New Britain (CON-1)
Cyran, E. J. (M)
Kreidler, D. F. (M)
Maino, A. G. (M)
Nachilly, J. L. (M)
Richardson, H. L. (SM)
Schneider, P. S. (M)
Tabor, S. A. (A)
Thesing, R. H. (A)

New Canaan (CON-F-1)
Bancroft, C. (A)
Benedict, T. W. (M)
Black, D. G., Jr. (SM)
Castle, D. H. (SM)
Conron, G. F. (M)
Conron, W. H. (SM)
Couch, W. M., Jr. (M)
Doerschuck, J. (M)
Harris, C. H. (A)
Howells, F. W. (SM)
Johnson, J. K. (F)
Lunghofer, E. P. (M)
Macklem, F. S. (M)
Maple, T. G. (M)
McCarty, J. M. (A)
Mull, H. R. (SM)
Murphy, J. T. (A)
Oen, J. A. (M)
Offenhauser, W. H., Jr. (A)
Sutherland, E. F. (A)
Walker, J. B. (M)
Weeks, J. T. (A)

New Fairfield (CON-F-1)
Castellano, A. J. (M)

New Haven (CON-1)
Aube, G. R. (A)
Bergmann, H. M. (M)
Bradley, K. M. (M)
Brelt, G. (F)
Cannon, J. F. (M)
Carlson, E. F. (M)
Chimitch, J. M. (M)
Conrad, A. G. (SM)
Cunningham, W. J. (M)
Curtis, R. C. (SM)
Daniel, W. E. (A)
Derbablan, G. (M)
Doyle, L. P. (M)
Genera, V. A. (A)
Goldenthal, S. (M)
Greenberg, M. P. (M)
Grew, L. B. (SM)
Izenour, G. C. (M)
Izzo, N. F. (M)
Jacobson, E. R. (M)
Jones, H. W., III (M)
Krauss, H. L. (SM)
Kushner, A. M. (M)
Light, R. J. (M)
Lupoli, P. J. (M)
May, J. C. (SM)
Murray, G. J., Jr. (M)
Ordung, P. F. (F)
Preston, K., Jr. (M)
Pridmore, T. C. (SM)
Reese, J. O., Jr. (M)
Rohloff, H. E. (SM)
Rubin, H. B. (M)
Ruchkin, D. S. (M)
Scher, N. (M)
Schultheiss, P. M. (M)
Shank, R. R. (M)
Shlank, M. E. (A)
Skalnik, J. G. (M)
Sundius, H. W. (SM)
Thomas, L. E., Jr. (M)
Thompson, G. S. (M)
Turner, H. M. (F)
Tustin, W. (M)
Tuteur, F. B. (M)
Usher, T., Jr. (M)
Wan, L. A. (M)
Wessenberg, H. W. (A)
Zweig, F. (M)

Newington (CON-1)
Konczal, F. D. (M)
Lees, J. W. (A)
Lewczyk, E. A. (M)

New London (CON-1)
Adams, W. S. (M)
Andrews, B. H. (M)
Angel, F. F. (A)
Calabrese, J. F. (M)
Cavanaugh, J. P. (M)
Conable, J. H. (M)
Fuglit, R. P. (A)
Fullhlero, E. (A)
Gannon, E. C. (M)
Horton, J. W. (F)
Martz, R. L. (A)
McCracken, R. F. (M)
Merrill, J. (M)
Morrissey, J. N. (M)
Nash, H. E. (SM)
Newlin, T. G. (A)
Phillippi, R. A. (M)
Randolow, J. E. (A)
Shallor, R. T. (M)
Shoham, R. (M)
Sussman, H. (SM)
Turner, R. W. (M)
Tylaska, T. T., II (M)
Woollett, R. S. (SM)

New Milford (CON-1)
Rowley, W. E., Jr. (A)

Newtown (CON-F-1)
Finch, W. G. H. (F)
Henry, E. A. (M)
Kumble, A. S. (M)
Schafer, C. R. (SM)

Niantic (CON-1)
Bishop, H. M. (M)
Brown, L. W. (SM)
Moorehead, E. G. (A)
Orr, J. F. (M)
Saars, W. F. (M)
Sargent, K. J. (M)
Suneja, E. M. (M)
Wilkes, R. C. (M)
Williams, F. J. (M)

Noroton Heights (CON-1)
Horan, J. J. (M)

Northford (CON-1)
Baker, R. R. (A)
McCluskey, D. S. (M)
Stone, F. A. (M)

North Haven (CON-1)
Barker, R. C. (M)
Davidson, D. S. (M)
Valley, R. A. (M)

North Stamford (CON-F-1)
Doolittle, H. D. (M)
Rabin, R. (M)

North Woodbury (CON-1)
Petit, F. W. (M)

Norton (CON-1)
Mason, H. L. (A)

Norwalk (CON-F-1)
Aune, A. E. (A)
Baker, J. W., Jr. (M)
Barca, A. J. (M)
Barr, F. M. (M)
Bastien, R. C. (A)
Bernard, P. (A)
Bertram, J. J. (M)
Brunhart, W. (M)
Brunill, I. M. (M)
Buckley, R. E. (M)
Calvert, T. J. (M)
Carricato, R. H. (M)
Chanzit, L. (M)
Chase, L. S. (A)
Christiansen, H. C. (M)
Close, L. R. (M)
Corson, W. B. (A)
Courchene, L. E., Jr. (M)
Curtiss, R. H. (M)
Deery, P. J. (A)
Dimbach, P. H. (M)
Fisch, R. A. (M)
Flores, I. (SM)
Gettner, D. A. (M)
Goldman, J. (M)
Grab, F. W. (M)
Grimstad, E. J. (A)
Harris, E. R. (M)
Harris, S. C. (M)
Hung, J. W. (M)
Kerr, M. A. (SM)
Kloiber, F. W. (M)
Kudlich, K. H. (M)
Laychak, S. F. (A)
Levy, E., Jr. (M)
Lewinter, S. W. (SM)
Lovelace, R. E. (M)
Lowenstein, M. G. (M)
Mehr, M. H. (M)
Milinowski, A. S. (M)
Miller, T. W. (M)
Mitchell, W. M. (SM)
Moffitt, G. R., Jr. (M)
Muchnick, P. (M)
Nofrey, L. C. (M)
Polak, R. (A)
Poland, W. L. (A)
Preston, F. S. (SM)
Pritkin, L. (A)
Richardson, T. L. (M)
Richmond, I. D. (A)
Rodgers, L. M. (SM)
Rogell, P. S. (M)
Russo, J. J. (A)
Schenkel, F. W. (M)
Scherer, B. L. (M)
Schermer, D. (M)
Shea, J. E. (M)
Shower, E. G. (SM)
Skalski, C. A. (M)
Slaker, F. A. (A)
Smith, P. J. (SM)
Smith-Vaniz, W. R., Jr. (M)
Spiegelman, D. (M)
Steinberg, G. N. (M)
Teller, W. R. (M)
Theall, C. E., Jr. (M)
Trent, R. L. (SM)
Tulgan, S. S. (M)
Vladella, J. W. (A)
Weiss, E. H. (A)
Williamson, R. G. (M)
Wines, W. R. (M)
Yettito, P. R. (A)
Zarkower, B. (A)
Zelesky, F. (M)

Norwich (CON-1)
Henry, W. O. (A)
Keltonic, F. J. (M)
Pascouche, J. M. (M)

Oakdale (CON-1)
Whannel, R. L. (M)

Old Greenwich (CON-F-1)
Aquie, G. J. (M)
Ellsworth, W. C. (SM)
Halloran, V. P. (M)
Harrington, R. H., Jr. (M)
Harris, J. S. (SM)
Janik, C. L. (A)
Lemmon, W. S. (SM)
Lott, A. L. (M)
Murphy, J. L. (SM)
Palmer, J. H. (A)
Pelker, A. S. (M)
Powell, A. E. (A)
Unger, J. W. (M)
Van Vliet, W. G. (A)

Old Lyme (CON-1)
Clark, E. O., Jr. (A)
Dewey, C. P., Jr. (M)
Haglund, B. R. (M)
Webb, H. R. (M)

Old Saybrook (CON-1)
Irlbacher, J. M. (M)
Radom, R. (M)

Orange (CON-1)
Jamison, A. F. (M)

Riccio, L. A. (M)
Sandner, C. A. (SM)
Tamaro, J. C. (A)

Pawcatuck (CON-1)
Crandall, C. P., Jr. (M)

Plainville (CON-1)
Templeman, D. R. (A)

Plantsville (CON-1)
Thayer, D. C. (A)

Poquonnock Bridge (CON-1)
Chapman, R. Y. (M)

Portland (CON-1)
Pulda, A. H. (M)

Putnam (CON-1)
Bernier, E. J. (M)
Bosworth, C. D. (A)
Gilman, D. A. (A)

Quaker Hill (CON-1)
Pallange, E. P. (M)
Scannell, E. H., Jr. (M)
Sentell, F. N. (M)

Redding Ridge (CON-F-1)
Rand, P. S. (SM)

Ridgefield (CON-F-1)
Amundsen, R. C. (M)
Clarke, E. N. (SM)
Corson, B. R. (M)
Danuff, M. L. (A)
De Chambrier, P. (M)
Delany, E. B. (M)
Deutsch, H. (A)
Doll, H. (SM)
Donoqusker, B. (A)
Edighoffer, E. A. (SM)
Erlandson, P. M. (SM)
Farwell, R. P. (M)
Ferre, M. C. (M)
Gill, H. A. (SM)
Grant, M. L. (M)
Heistermann, F. (A)
Heller, J. H. (A)
Hering, K. W. (M)
Higgins, J. N. (A)
Hufnagel, R. E. (M)
McGarry, W. P. (M)
Meier, T. M. (M)
Miller, G. K. (SM)
Morelli, A. N. (M)
Morse, C. P. (A)
Octeau, R. E. (A)
Reploqle, F. S., Jr. (SM)
Rhyins, R. W. (M)
Segesman, F. F. (M)
Semmelink, A. (SM)
Shiff, M. B. (M)
Sixbey, S. R. (M)
Smith, J. S. (M)
Wesley, C. A. (M)
Williams, E. W. (A)

Riverside (CON-F-1)
Burns, R. F. (A)
Didriksen, J. B. (M)
Huckel, O. W., Jr. (A)
Membury, P. J. (M)
Sweet, F. A. (M)

Rockville (CON-1)
Hart, B. E. (M)
Ranosa, F. L. (M)
Schneider, R. W. (M)
Staiger, E. H. (M)
Tulloh, P. R. (M)

Rocky Hill (CON-1)
Autorino, A. D. (M)
Friedman, S. (SM)
Warren, J. A. (M)

Rowayton (CON-F-1)
Cook, J. W. (A)
Snell, P. A. (M)

Roxbury (CON-1)
Drake, F. H. (F)

Sandy Hook (CON-F-1)
Pfund, E. T., Jr. (M)

Scotland (CON-1)
Draudin, R. R. (A)

Seymour (CON-1)
Dana, A. S. (SM)
Fryncko, P. (M)

Shelton (CON-F-1)
Campbell, M. P. (A)
Deiter, P. C. (M)
Harris, W. C. (A)
Paige, W. (M)
Zaskalicky, J. J. (M)

Silvermine (CON-1)
Schellenberg, P. J. (A)

Simsbury (CON-1)
Oakleaf, S. C. (M)
Opie, J. D. (A)
Schulz, H. R. (SM)
Shinn, C. E. (SM)
Somers, B. A. (M)

CONNECTICUT

Wood, R. H. (M)

Southington (CON-1)
Raymond, G. H. (SM)

South Lyme (CON-1)
Romeo, A. A. (M)

South Norwalk (CON-F-1)
Anderson, C. P. (M)
Bartle, N. D., II (M)
Beltz, G. E. (M)
Benson, K. B. (M)
Breyer, J. P. (M)
Cavelos, A. A. (M)
Davis, M. (M)
Helterline, L. L., Jr. (M)
Karg, L. A. (M)
Le Fevre, P. E. (M)
Naiman, L. (M)
Norton, C. A. (SM)
Pressly, C. P., III (M)
Randmer, J. A. (SM)
Relyea, D. P. (M)
Sittner, W. R. (SM)

Southport (CON-F-1)
Armstrong, C. W. (M)
Bachman, W. S. (F)
Chewning, W. H. (A)
Lack, F. R. (F)

South Windham (CON-1)
Taylor, L. L. (A)

South Windsor (CON-1)
Burrell, G. L. (M)

Springdale (CON-F-1)
Best, M., Jr. (M)
Bonacci, E. L. (M)
Botticelli, R. A. (M)
Buegler, R. J. (M)
Lieferson, J. (A)
Lewis, S. M. (M)
Newman, R. W. (M)
Spurck, R. F. (A)
Weden, C. V., Jr. (M)

Stamford (CON-F-1)
Agarwal, R. K. (M)
Allen, S. (A)
Baker, G. W. (M)
Bauer, B. B. (F)
Berry, E. W. (M)
Brown, W. J. (SM)
Buckles, R. A., Jr. (M)
Carroll, W. E. (M)
Castrignano, R. A. (SM)
Chalkind, S. L. (M)
Chou, W. W. (M)
Christensen, J. W. (F)
Comerci, F. A. (SM)
Cranna, N. G. (M)
Croft, G. T. (M)
Dagostino, V. L. (M)
De Jeude, C. P. V. L. (M)
Devaney, R. J. (M)
Dingley, H. L. (A)
Durocher, J. D., Jr. (A)
Eisenbeis, G. W. (M)
Evans, J. (M)
Evans, T. P. (SM)
Falk, T. (M)
Fenton, M. J. (M)
Fitzgerald, W. A. (M)
Flynn, T. F. (M)
Fong, I. J. (M)
Gartner, W. W. (M)
Geiger, R. H. (A)
Geist, H. J. (SM)
Goldberg, A. A. (SM)
Golden, A. (M)
Goldmark, P. C. (F)
Gom, M. (SM)
Greenblum, C. (M)
Greenfield, A. (SM)
Greenwood, I. A., Jr. (M)
Gutterman, A. Z. (M)
Halpern, H. S. (M)
Hannah, M. R. (M)
Heilman, P. M. (A)
Helzman, C. L., Jr. (M)
Hillman, J. K. (M)
Holik, F. J. (M)
Holloway, H. R. (M)
Hyams, H. C. (SM)
Johnson, N. J. (M)
Kantor, A. C. (A)
Kelley, C. R. (SM)
Kerrigan, P. R. (M)
Kiser, J. L. (SM)
Knoll, J. (M)
Koushouris, J. L. (SM)
Kramer, N. H. (SM)
Krauss, B. F. (M)
Krausz, R. (A)
Kronenberg, M. H. (SM)
Kuch, B. L. (M)
Lazecki, S. (M)
Leo, E. (M)
Lillie, M. I. (M)
Mahoney, W. J. (A)
Marchand, B. B. (M)
McCarroll, J. F., Jr. (M)
McKee, J. V., Jr. (A)
Mee, C. D. (SM)
Molday, B. V. (SM)
Moore, J. K. (M)
Murphy, J. P. (A)
Oefinger, H. C. (A)
Ostendorf, B. (M)
O'Toole, B. R. (M)
Paddock, R. B. (M)
Palmquist, E. B. (M)
Plehaty, S. L. (SM)
Quadri, M., Jr. (M)
Quick, H. R. (M)
Ramsa, A. P. (M)
Reitman, J. (M)
Rendell, G. (M)
Ridley, D. W. (A)
Robbins, G. H. (M)
Roggenstein, E. O. (M)
Rosenblatt, P. (M)
Rosenthal, A. S. (M)
Rosett, E. (M)
Rowland, F. C. (M)
Sackler, A. A., (M)
Salzman, C. F., Jr. (M)
Sanders, M. (M)
Schneider, G. (M)
Schneider, P. (M)
Schuller, M. J. (M)
Schwartz, H. E. (M)
Schwarz, F. (M)
Shapiro, J. M. (SM)
Sheehan, D. J., III (M)
Sherman, H. R. (M)
Silver, N. (A)
Singer, E. (M)
Skehan, J. W. (M)
Spirer, H. F. (M)
Spitalny, A. (M)
Staryk, M. (M)
Steinberg, E. B. (SM)
Stem, M. A. (M)
Stocklin, W. A. (SM)
Teichman, S. (M)
Trott, B. S. (SM)
Uphoff, R. L. (SM)
Veremakis, C. (A)
Wachowski, H. P. (M)
Wahlberg, E. C. (SM)
Waly, A. (M)
Weaver, W. B. (M)
Weiner, S. L. (M)
Weiss, M. (M)
Wienski, S. E. (A)
Wilder, M. P. (SM)
Williams, G. C. (A)
Wischnia, H. F. (SM)
Wohl, J. G. (SM)
Wood, Jr. (M)
Yaeger, V. M. (M)
Zlotkowski, A. (SM)
Zukowsky, W. S. (M)

Stonington (CON-1)
Johnston, R. E. (M)
Shackle, K. L. (M)
York, E. P. (A)

Storrs (CON-1)
Boral, W. F. (A)
Haas, V. B., Jr. (SM)
Knapp, C. H. (M)
Knauss, H. P. (M)
Lindorff, D. P. (M)
Lof, J. L. C. (SM)
Lucal, H. M. (M)
Melehy, M. A. (SM)
Northrop, R. B. (M)
Schultz, C. W. (M)
Timoshenko, G. S. (SM)
Torgersen, H. (M)

Stratford (CON-F-1)
Craig, G. F. (SM)
Curley, J. J. (M)
Deamico, J. C. (M)
Deming, R. C. (A)
Detar, D. R. (SM)
Evans, O. L., II (M)
Fox, F. J. (M)
Grant, R. M. (M)
Hamlin, R. W. (A)
Jensen, H. T. (M)
Kenney, D. P. (M)
Keough, E. C. (A)
Kubicko, R. E. (A)
Mancini, D. (M)
Milner, J. J. (A)
Nelson, E. P. (SM)
Olsen, D. C. (M)
Platt, W. G. (A)
Richard, R. L. (A)
Ryckman, W. D., Jr. (M)
Senia, J. W. (M)
Sheppard, B. W. (M)
Simko, R. S. (A)

Suffield (CON-1)
Glassow, F. A. (SM)
Landers, T. P. (M)

Talcottville (CON-1)
Howard, L. L. (M)

Tariffville (CON-1)
Nelson, G. E. (M)
Sluis, M. H. (M)

Terryville (CON-1)
Bycoski, C. T. (M)
Krenicki, J. (M)

Thomaston (CON-1)
Kamens, B. H. (M)
McNeills, J. F. III (M)
Reynolds, A. C., Jr. (M)

Thompsonville (CON-1)
Langdon, D. H. (M)
Lovkay, J., Jr. (M)
Tavidian, E. (M)
Ziegler, I. A. (M)

Tolland (CON-1)
Mongeon, R. J. (M)
Penney, A. W. (M)
Weston, F. B. (M)

Torrington (CON-1)
Gerbi, H. S. (M)
Moltz, A. J. (M)
Toce, F. G. (M)
Wilczenski, A. M. (A)

Trumbull (CON-F-1)
Angel, H. R. (M)
Balogh, J. J., Jr. (M)
Dresser, W. R. (SM)
England, J. W. (A)
Howard, N. S. (A)
Kojalowicz, A. M. (M)
Kurtz, C. J., Jr. (M)
McBrian, J. E. (M)
Schiro, A. J. (A)
Schweitz, E. P. (M)
Simoneau, E. P. (M)
Zahn, E. (M)

Uncasville (CON-1)
Marshall, J. G., Jr. (M)
Torrance, J. H. (M)

Unionville (CON-1)
Kost, B. F. (M)

Vernon (CON-1)
Saich, R. B., Jr. (M)

Walcott (CON-1)
Swain, R. S. (M)

Wallingford (CON-1)
Brazee, J. A. (M)
Davis, R. B., Jr. (M)
Hoff, P. T. (M)
Keel, R. (A)
Landon, R. B. (A)
McKeag, M. F. (M)
Menard, M. E., Jr. (M)
Palmero, A. (M)
Tencza, J. W. (M)
Tuttle, R. W. (M)

Wapping (CON-1)
Davids, W. (A)
Garifo, N. A. (M)
Martin, H. E. (M)
Neel, J. M. (M)

Waterbury (CON-1)
Bender, J. R. (M)
Busby, A. E. (A)
Casey, G. V., Jr. (M)
Chiarella, J. G. (M)
Finelli, P. C. (A)
Garrity, G. E. (A)
Knotowicz, A. E. (M)
Mahler, N. (M)
McLeod, K. A. (A)
Migliaro, B. J. (A)
Pannullo, F. L. (A)
Pesce, W. J. (A)
Pichard, L. A. (SM)
Platt, F. L., Jr. (A)
Somers, D. L. (M)
Staneschi, W. (M)
Walesky, J. W. (M)

Waterford (CON-1)
Cobb, A. D. (M)
Dunn, C. M. (M)
Fessenden, D. E. (M)
Haefner, S. J. (SM)
Hartley, R. R. (M)
Hayes, C. R. (A)
Hazard, W. R. (M)
Henrikson, F. R. (M)
Jellerson, F. R. (M)
Jucksch, W. J. (M)
Klem, A. H. (M)
Olson, R. C. (M)
Stevens, A. M., Jr. (A)
Strelczyk, E. S. (A)
Tutty, J. E. (M)
Weatherlow, H. R. (M)
White, D. M. (M)
Wilms, H. J., Jr. (M)

Watertown (CON-1)
Bryson, R. W. (A)
Heroux, N. M. (A)

Weatogue (CON-1)
Hildebrandt, W. J. (M)

Westbrook (CON-1)
Dixon, R. K. (M)
Wren, W. M. (A)

West Hartford (CON-1)
Anderson, W. M. A. (M)
Bourret, C. J. (M)
Chase, A. E. (A)
Coleman, G. A (M)
De Maria, A. J. (M)
D'Onofrio, A. (M)
Driscoll, J. D. (M)
Esakov, D. A. (M)
Ferla, S. J. (M)
Galin, J. L. (M)
Gilman, H. (M)
Grammer, G. (F)
Handy, F. E. (M)
Harris, D. J. (M)
Hatton, A. T. (A)
Holland, J. H. (M)
Jopson, J. L. (M)
Katz, R. P. (M)
Kern, I. M. (M)
Lalanne, R. L. (A)
Larson, R. P. (M)
Moses, S. (M)
Perkins, W. W. (SM)
Platt, D. R. (SM)
Rich, L. G. (M)
Smith, N. F., Jr. (SM)
Southworth, M. P. (M)
Stanley, P. F. (M)
Suiters, C. W. (A)
Warner, S. E. (SM)
Weber, J. P., Jr. (M)
Weller, R. (SM)
Woodward, R. W. (SM)
Zaslow, J. (M)
Zilberstein, R. M. (M)

West Haven (CON-1)
Corvari, J. (M)
Coxeter, G. W. (M)
Fidler, H. E. (A)
Kricek, J. V. (M)

Weston (CON-1)
Chadwick, H. D. (M)
Chadwick, M. P. (SM)
Georgi, E. A., Jr. (A)
Kruse, J. R., Jr. (M)
Lindsay, C. D. (SM)
Mason, F. G. (M)
Masterson, E. (M)

Westport (CON-F-1)
Brumbaugh, G. M., Jr. (M)
Cassidy, M. E. (M)
Copp, W. C. (M)
Dinsmoor, T. E. (SM)
Ellinger, L. (SM)
Gaffney, F. J. (F)
Goodyear, W. F. (M)
Haggott, J. C. (A)
Hammer, R. P. (A)
Hanson, O. B. (F)
Hierholzer, F. J., Jr. (M)
Honig, A. R. (M)
Ikeda, T. (M)
Jacobi, R. J. (M)
Lapin, S. P. (SM)
Levine, S. (M)
Loda, C. J. (SM)
Rackey, C. A. (SM)
Roshkind, H. (M)
Schoke, J. A. (SM)
Steinhardt, L. (M)
Stone, C. G., Jr. (M)
Swift, W. C. G. (M)
Van Der Veen, H. (M)
Wissinger, A. B. (M)
Wolff, G. (M)
Yanagisawa, S. T. (SM)
Yoder, J. R. (SM)
Zysman, B. (M)

West Redding (CON-F-1)
Baron, A. (M)
Rahal, N. S. (SM)

Wethersfield (CON-1)
Beal, E. W. (M)
Bernard, D. T. (A)
Chaffee, B. A. (M)
Harden, J. R. (A)
Hesse, H. R. (M)
House, L. G. (M)
Kindl, R. O. (M)
Latina, M. S. (M)
Manganelli, F. D., Jr. (M)
Mitchell, J. A. (M)
Paquette, G. A. (M)
Rhodes, P. G. (M)
Santucci, A. H. (M)
Strempfer, W. L. (A)

Wilton (CON-F-1)
Austad, H. (M)
Barrett, E. T. (M)
Bowe, J. J (M)
Clark, J. L. (SM)
Cunniff, J. F. (M)
Dibner, D. (M)
Dupre, H. P. (M)
Erstad, J. (M)
Gabor, W. D. (M)
Hallenbeck, R. A. (M)
Hemstreet, H. S. (SM)
Herrin, C. B. (M)
Hinman, C. D. (M)
Jackson, M. L. (M)
Kay, M. (M)
Levick, H. (M)
Pohl, W. A. (SM)
Riley, A. J. (M)
Schlesinger, E. R. (M)
Sontheimer, C. G. (M)
Stephenson, G. E. (SM)
Wegener, A. F. (M)
White, R. E. (SM)
Wood, A. G. (M)
Windsor (CON-1)
Case, L. R., II (M)
Donovan, R. F. (M)
Hamlin, J. W. (M)
Lawn, F. (M)
Ratcliffe, J. A. (A)
Reale, J., Jr. (M)

Windsor Locks (CON-1)
Gray, N. L. (M)
Kidwell, N. E. (M)
Larkins, A. H. (M)
Makl, F. F. (M)
Myers, W. H. (M)
Staslowski, C. M. (M)
Thornton, J. E. (M)

Wolcott (CON-1)
Boisvert, G. R. (M)
Winchell, A. M. (SM)

Woodbury (CON-1)
Boland, E. J. (SM)
Mandelkorn, R. S. (SM)

DELAWARE

Claymont (PHI-3)
Anderson, L. N. (M)
Da Grosa, V. (A)

Dover (PHI-3)
Davison, C. R. (M)

Frankford (PHI-3)
Scott, J. W. (M)

Georgetown (PHI-3)
Taylor, W. R. (M)

Hockessin (PHI-3)
Morris, J. M. (SM)

Lewes (PHI-3)
Bierwirth, R. A. (M)

Newark (PHI-3)
Albright, C. M., Jr. (M)
Arnold, N. W. (M)
Bolgiano, L. P., Jr. (M)
Crowder, R. S., Jr. (M)
Dell, C. G. (M)
Freeman, L. A. (M)
Gore, W. L. (SM)
Gottschalk, W. M. (M)
Howe, H. V. (M)
Lutz, B. C. (M)
McClure, R. W. (M)
Moore, F. E. (M)
Robinson, D. M. (A)
Van Name, F. W., Jr. (SM)
Vansant, F. T. (M)
Young, M. G. (SM)

New Castle (PHI-3)
Cushing, C. J. (M)
Hampton, L. R. (A)

Wilmington (PHI-3)
Bowyer, K. M. (A)
Carter, E. P. (M)
Conner, H. G. (M)
Cooper, W. D. (M)
Dills, W. L. (M)
Faulhaber, M. E. (M)
Furstein, R. A. (M)
Graebe, R. H. (M)
Hughes, R. M. (A)
Kelly, N. B. (M)
Liddicoat, C. A. (M)
Mandas, J. J. (M)
McDaniel, F. (M)
McMillen, R. L. (SM)
Meyer, G. E. (A)
Noonburg, W. I., Jr. (M)
Owens, J. E. (M)
Panico, R. R. (M)
Paris, R. (A)
Perkins, J. R. (SM)
Petze, C. L., Jr. (SM)
Pritchett, R. L. (M)
Rinehart, B. B. (M)
Seer, H. G. (M)
Sliwkowski, J. J. (M)
Steele, P. V. R., II (M)
Swarter, P. H., Jr. (A)
Swearer, H. F. (M)
Walsh, R. R. (M)
White, J. R. (M)
Williams, T. R. (M)
Yetter, E. W. (M)

DISTRICT OF COLUMBIA

Washington (WDC-3)
Abraham, G. (SM)
Abrams, A. M. (M)
Abromavage, M. M. (M)
Ackerman, C. E. (SM)
Adair, G. P. (F)
Adams, P. R. (M)
Adams, R. (SM)
Adams, R. J. (F)
Addams, W. A. (M)
Adelson, M. B. (M)
Albertson, F. W. (SM)
Alexander, B. (M)
Alexander, J. A., Jr. (M)
Alexander, L. K. (A)
Alfaro, R. J., II (A)
Algor, M. M. (M)
Allen, P. J. (SM)

Allman, F. L. (M)
Alpern, J. C. (M)
Altomare, R. E. (M)
Ament, W. S. (SM)
Amis, C. W. (M)
Anders, F. W. (M)
Anderson, D. J. (SM)
Anderson, L. D. (M)
Anderson, S. R. (M)
Anderson, R. A. (M)
Anderson, R. V. (M)
Anderson, W. R. (A)
Andrew, W. M. (M)
Andrias, J. (M)
Andrus, A. H. (M)
Angulo, C. M. (SM)
Apperson, D. D. (M)
Apuli, J. A. (SM)
Arnett, H. D. (SM)
Astholz, P. T. (SM)
Attmore, R. G. (M)
Awramik, J., Jr. (SM)
Ayer, W. T. (M)
Baetsen, R. H. (M)
Bagg, T. C. (M)
Bain, W. F. (M)
Bajus, J. C. (M)
Baker, J. J. (M)
Ball, N. T. (SM)
Bank, W. J. (M)
Banning, W. C. (M)
Banta, J. H., Jr. (M)
Barlow, G. E. (A)
Bartholomew, C. A. (M)
Bartlett, W. D. (SM)
Bass, C. A. (M)
Bathke, K. D. (A)
Bauer, P. S. (M)
Bearce, L. S. (A)
Beard, R. M. (M)
Beck, H. M. (M)
Beecher, W. C. (M)
Begue, G. P. (M)
Behrens, C. E., Jr. (A)
Behrens, W. V. (M)
Belcher, H. P. (M)
Benjamin, V. E. (M)
Benns, W. E., Jr. (M)
Berg, W. B., Jr. (M)
Bergson, A. H. (SM)
Berilla, D. (M)
Bernstein, R. (M)
Birmingham, H. P. (SM)
Biscomb, L. I., Jr. (M)
Bistrup, J. H. (M)
Black, C. J. (M)
Black, R. R. (SM)
Blake, L. V. (SM)
Boesch, P. W. (SM)
Bohnert, J. I. (F)
Bolt, R. H. (SM)
Booth, R. M., Jr. (M)
Borg, N. C. (A)
Bostick, B. E. (M)
Botu, M. N. (M)
Bourland, L. T. (SM)
Bowden, B. (M)
Bowler, R. W. (A)
Boymel, B. R. (SM)
Bradley, R. R., Jr. (M)
Bradley, W. E. (F)
Brady, F. B. (SM)
Brantley, W. W. (M)
Breen, J. M. (A)
Breetz, L. D. (SM)
Brenner, M. (M)
Brester, W. A. (M)
Bright, R. (SM)
Britt, T. (A)
Broberg, J. B. (A)
Brody, H. I. (M)
Brodzinsky, A. (M)
Brooden, J. W. (SM)
Brown, H. E. (A)
Brown, H. W. (SM)
Brown, R. M. (M)
Brown, T. H. (M)
Bryant, F. B. (M)
Buck, C. U., Jr. (A)
Bullington, E. W. (M)
Bullock, G. M. (M)
Bullock, R. N. (M)
Burke, A. A. (SM)
Burkett, J. A. (M)
Burns, R. O. (SM)
Burrell, R. C. (M)
Burrows, C. R. (F)
Butler, R. F. (M)
Butt, H. R. (M)
Byers, J. N. (A)
Cacciamani, E. R., Jr. (M)
Cahill, C. B. (M)
Callaway, H. D. (M)
Callihan, E. S. (M)
Campagna, J. H. (SM)
Campbell, W. S. (M)
Canal, A. P. (M)
Carnes, W. T., Jr. (SM)
Carpenter, M. B. (M)
Carpenter, R. A. (A)
Carroll, E. R., Jr. (M)
Carter, J. M. (A)
Carter, J. M. (M)
Cauffman, J. A. (M)
Centers, C. D. (M)
Chaconas, N. J. (M)
Chan, W. K. W. (M)
Chandler, C. E. (M)
Chapman, G. H. (M)
Chappuis, C. K. (SM)
Chemikoff, R. (M)
Chi, A. R. (M)
Chu, W. S. F. (M)
Chu, Y. (SM)
Clark, G. L. (M)
Clark, H. L. (M)
Clark, R. J. (M)
Clarke, A. S. (SM)
Clarke, F. H. (SM)
Clasen, S. M. (M)
Cleeton, C. E. (F)
Clement, L. M. (F)
Clements, S. E. (SM)
Coan, R. J. (M)
Coates, R. J. (SM)
Codel, M. (M)
Cohen, L. R. (M)
Colalanni, J. V. (M)
Coleman, J. M. (A)
Colligan, F. S. (A)
Compton, M. E., Jr. (M)
Conrad, G. T., Jr. (M)
Conway, B. B. (M)
Corkill, J. F. (M)
Corrihons, L. J. (M)
Cosby, L. A. (M)
Courtis, R. P. (M)
Cove, M. (M)
Coyle, R. J. (A)
Crabill, P. F., Jr. (A)
Crandall, W. R. (M)
Craven, T. A., M. (F)
Crenca, J. J. (M)
Crenshaw, C. M. (SM)
Creveling, C. J. (SM)
Crickman, C. W. (M)
Croarkin, J. A. (M)
Cubbage, H. D. (M)
Cuellar, O. L. (A)
Culver, R. H. (M)
Cunningham, J. A. (M)
Currier, M. G. (M)
Cushing, R. E. (M)
Dailey, L. D. (A)
Dale, N. H. (A)
Damelin, J. (M)
Daniel, J. H. (M)
Danner, B. L. (M)
Darne, F. R. (M)
Daubenheyer, H. W. (M)
Davies, R. C. (M)
Davis, B. L. (SM)
Davis, E. H. (M)
Davis, G. C. (SM)
Davis, J. J. (M)
Davis, T. M. (F)
Davis, W. L. (M)
Davis, W. J. (A)
Dawson, L. J. (A)
Dawson, L. R. (SM)
Day, H. M. (M)
Decker, K. M. (M)
De Gruchy, D. C. (M)
Deleo, P. T. (M)
Del Giorgio, J. A. (M)
Del Grosso, V. A. (SM)
Dellinger, J. H. (F)
De Milia, J. (M)
Demmerle, A. (M)
Deplan, L. (SM)
Dewire, K. S. (M)
Diamond, E. H. (A)
Diaz, J. (M)
Diels, J. C. (M)
Dietz, A. P. (M)
Difford, L. A. (A)
Dillard, E. L. (A)
Dillon, J. C., Jr. (M)
Di Masso, R. T. (M)
Dines, G. A. (M)
Dinger, H. E. (F)
Dinnick, G. M. (M)
Dix, E. L. (M)
Doby, W. C. (M)
Dodrill, G. E. (SM)
Dohne, C. F. (M)
Donovan, E. J. (M)
Donovan, P. F. (M)
Dorrell, R. E. (SM)
Dorsey, H. G. (F)
Doyle, W. T. (M)
Draper, C. A. (SM)
Dropkin, H. A. (M)
Dub, L. M. (A)
Ducoff, G. (M)
Duncan, F. B. (M)
Duncan, J. R. (M)
Dunn, J. H. (SM)
Dupree, F. F., Jr. (M)
Dupree, J. N. (M)
Du Vall, D. L. (M)
Easton, R. L. (M)
Eatmon, W. G. (A)
Eaton, W. W. (SM)
Edwards, A. J. (M)
Ellerman, K. E. (A)
Elliott, H. H., Jr. (M)
Ellis, B. J. (M)
Ellmann, J. I. (SM)
Emert, G. G. (M)
Ennis, A. G. (M)
Evans, S. (A)
Fahy, E. J. (SM)
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York, H. F. (SM)
Young, L. C. (F)
Young, R. T., Jr. (SM)
Younger, H. C. (M)
Younson, E. J. (M)
Yovits, M. C. (M)
Yunk, G. W. (M)
Zachary, J. D. (M)
Zakowski, L. F. (M)
Zastrow, K. D. (M)
Zavistovich, R. R. (M)
Zeek, R. W. (SM)
Zirm, R. R. (M)
Zung, J. K. (A)

FLORIDA

Apopka (ORL-3)
Bassett, H. L. (M)
Craver, L. W. (M)
Green, R. E., Jr. (M)
Kowalski, R. (A)

Bartow (F-WC-3)
Williams, L. E. (M)

Belleair Beach (F-WC-3)
Andrews, E. F. (M)

Belle Glade (M-PB-3)
Clemans, C. S. (SM)

Boynton Beach (M-PB-3)
Sayre, E. E. (M)

Bradenton (F-WC-3)
Brackmann, W. J. (SM)
Brand, P. M. (SM)
Clemons, T. C., Jr. (A)
Dannals, E. W. (SM)
Hanson, W. R. (A)
Hauber, E. N. (M)
Lampkin, G. F. (M)
Saunders, E. N. (A)
Schnell, F. H. (SM)

Brandon (F-WC-3)
Brodie, W. A. (A)

Brooker (CF-3)
Rhoads, A. S., Jr. (M)

Clearwater (F-WC-3)
Adkisson, W. M. (M)
Ainsworth, F. W. (M)
Andrews, J. E. (M)
Apperson, R. C., Jr. (A)
Atkinson, C. E. (M)
Barrett, A. B. (A)
Billingsley, F. C. (SM)
Bischoff, A. F. H. (SM)
Blakeslee, K. L. (M)
Bozardt, W. R. (A)
Breedlove, R. H. (M)
Broadwell, B. L. (M)
Brown, J., Jr. (M)
Brown, P. F. (M)
Bujnoski, F. J. (M)
Cameron, R. B. (M)
Clark, T. L. (M)
Cleotelis, H. J. (M)
Coble, H. F. (M)
Cozart, A. B. (M)
Cribbs, J. D. (M)
Dale, C. H., Jr. (M)
Daniel, E. L. (M)
Duncan, B. J. (M)
Dyer, J. H. (M)
Eckert, G. F. (A)
Ely, P. C., Jr. (M)
Farina, J. S. (M)
Faulkner, W. L. (M)
Fowler, H. V., Jr. (M)
Free, W. R. (M)
Fribebele, E. J. (M)
Gaillard, H. L. (A)
Grimes, E. S., Jr. (M)
Head, G. M. (M)
Helderman, T. E. (A)
Henning, R. E. (SM)
Humphrey, B. E. (M)
Hunt, H. W. (M)
Inman, T. F. (SM)
Johnson, R. E. (M)
Johnstone, J. F. (M)
Keeler, R. J. (SM)
Littlejohn, C. E. (M)
Meredith, R. P. (M)
Mitchell, E. M. (M)
Morris, C. C. (M)
Newby, M. P. (M)
Pate, G. W., Jr. (M)
Petersen, M. E. (M)
Pippin, J. E. (M)
Requeiro, W. R. (A)
Reid, J. R. (A)
Reynolds, G. E., Jr. (M)
Richard, S. J. (M)
Ryan, J. J. (M)
Savage, B. R. (M)
Schmidt, G. F. (M)
Scott, D. C. (M)
Sewell, W. C. (M)
Shalloway, A. M. (SM)
Shimer, R. B. (M)
Smallwood, W. O. (M)
Smith, C. A. (A)
Smith, R. W. (M)
Southerly, N. D. (M)
Swartz, D. B. (M)
Taft, D. R. (M)
Thomas, M. U. (M)
Tiller, W. H. (M)
Unruh, W. O. (M)
Venaglia, E. J. (SM)
Vergon, T. F. (SM)
Walker, A. H. (M)
Wallace, M. E. (M)
Weaver, L. A. (M)
Wells, J. D. (SM)
Whicker, L. R. (M)
Wilt, R. E. (M)
Wimberly, W. B. (M)
Wright, J. C. (M)
Wyatt, J. C. (M)

Clermont (ORL-3)
Dorsey, J. C. (M)

Cocoa (CF-3)
Bennett, A. O. (A)
Betts, P. H. (SM)
Blasingame, J. J. (M)
Burton, H. L. (M)
Devlit, J. N. (M)
Fairfield, K. G. (M)
Gasparovitch, S. (A)
Geczi, F. E. (M)
Glen, R. (M)
Gladkowski, E. R. (M)
Gotcher, R. W. (M)
Graziadio, S. J. (M)
Heide, R. E. (M)
Johnson, J. A. (M)
Jordan, A. E. (M)
Koch, C. P. (M)
Mattox, C. E. (SM)
Metz, K. E. (M)
Newell, R. A. (M)
Payne, R. E. (SM)
Rehwinkel, J. A., Jr. (M)
Reynolds, R. E. (M)
Robson, R. B., Jr. (M)
Roloff, H. A. (M)
Schnerr, C. B. (M)
Stiefel, K. E. (M)
Summerhays, M. S. (M)
Sweat, R. E. (A)
Terek, A. (A)
Terry, J. F. (M)
Toole, P. C. (SM)
Whittaker, C. A. (M)
Wilson, D. E. (M)
Zimmerman, M. G. (A)

Cocoa Beach (CF-3)
Allen, M. H. (M)
Anderson, J. P. (M)
Baldini, E. A. (M)
Bercovici, H. D. (M)
Borders, C. R. (SM)
Brown, H. H. (M)
Brown, W. R. (M)
Bryant, J. D. (A)
Bush, J. E. (M)
Butler, P. T., Jr. (M)
Carlson, P. D. (M)
Ciaffardini, A. N. (A)
Corte, R. L. (A)
Cox, H. C. (A)
Dulskis, R. (M)
Eckhart, E. P. (M)
Elliott, J. O. (M)
Estes, B. H. (M)
Gamber, F. S. (M)
Gilfillen, L. J. (SM)
Goldberg, G. A. (M)
Gompf, R. H. (M)
Gould, M. J. (SM)
Graham, W. L. (M)
Greer, B. G. (M)
Guelzow, C. W. (A)
Hagner, D. R. (M)
Hart, M. T. (M)
Hartman, R. E. (A)
Hostetter, J. M. (M)
Houston, E. E., Jr. (M)
Howard, J. R. (M)
Howell, R. L. (M)
Jackson, R. H. (M)
Jattuso, A. J. (M)
Lichty, R. G. (A)
MacGregor, W. R. (SM)
Mackey, A. J., Jr. (M)
Maloy, M. S. (M)
McKune, W. J. (M)
McMath, D. C., Jr. (M)
Melgaard, J. L. (SM)
Michelsen, P. W. (M)
Miller, J. S. (M)
Million, T. E. (M)
Mitchell, W. R. (M)
Moline, J. C. (M)
Moore, M. J. (M)
Myers, W. A. (M)
Nichols, D. R. (M)
Noone, J. R. (M)
Orgera, E. G. (M)
Osborn, H. H. (M)
Parker, J. E. (M)
Peterson, R. A. (M)
Pruess, W. C. (M)
Ramsey, R. B. (M)
Reynolds, E. A. (M)
Rokes, N. W. (A)
Rosson, W. W. (A)
Sanders, A. W. (M)
Shaw, L. R. (A)
Stephenson, E. V. (M)
Thoman, C. A. (M)
Tyzenhouse, E. J. (M)
Valluzzi, A. J. (M)
Vaughn, C. (A)
Warner, H. V. (A)
Wever, L. R. (SM)
White, J. R. (M)
Williams, M. M. (M)
Wrisley, J. C. (A)

Coconut Grove (MIA-3)
Rosenson, A. H. (A)

Coral Gables (MIA-3)
Akhurst, D. O. (M)
Birch, R. S., Jr. (M)
Christophel, G. H. (M)
Clarke, V. E. (M)
Craig, P. H. (SM)
Driver, R. E. (M)
Eubanks, J. M. (M)
Graves, H. B. (A)
Haeger, J. R. (M)
Hiser, H. W. (SM)
Lang, L. B. (A)
Macklin, F. R. (M)
Miller, M. A. (SM)
Pacela, A. F. (M)
Pfeiffer, J. F. (M)
Roberts, F. G., Jr. (M)

Dade City (F-WC-3)
Stubbs, J. E. (M)

Daytona Beach (CF-3)
George, E. M. (SM)
La Tour, J., Jr. (M)
Salnker, I. S. (M)

Deerfield Beach (MIA-3)
Fromm, K. N. (M)

De Funiak Springs (NWF-3)
Kramer, A. W. (SM)

Dunedin (F-WC-3)
Appleton, J. W. (M)
Barton, G. R. (SM)
Blincoe, H. P. (M)
Brown, C. J. (M)
Coates, J. R. (M)
Connell, J. W. (M)
Day, W. B. (M)
Dowell, W. B., Jr. (M)
Funke, W. G. (M)
Greenwood, R. E. (M)
Henry, P. P. (M)
Hinchee, A. E. (A)
Karnath, N. A. (M)
Kelly, W. C. (M)
McLaren, D. C. (A)
Pulley, L. A. (M)
Rogers, H. M. (M)
Scalf, J. E. (M)
Stubbs, J. A., Jr. (A)
Wilson, L. K. (M)

Eau Gallie (CF-3)
Allaback, W. (M)
Alvarez, J. (M)
Baker, R. C. (M)
Basim, D. S. (SM)
Beach, A. R. (SM)
Berube, G. H. (A)
Bewerse, R. A. (M)
Bivans, R. W. (M)
Boggs, M. W. (M)

Bollum, C. W., Sr. (SM)
Bond, J. F. (M)
Borum, R. L. (M)
Bradford, G. E. (M)
Brown, W. H. (M)
Butler, A. T. (M)
Cahill, W. J. (M)
Castello, R. C. (M)
Clark, F. J. (SM)
Clarke, R. L. (A)
Cockerham, F. E. (M)
Conerly, P. (M)
Connelly, R. R. (M)
Criddle, W. S. (M)
Cryor, R. B. (A)
De Jonghe, J. J. (M)
De Mars, S. A. (M)
Dibble, H. L. (M)
Dietz, W. R. (M)
Downs, J. W. (SM)
Du Bose, R. L., Jr. (A)
Duryee, J. B. (M)
Dutton, R. E. (M)
Eckenrode, A. H. (SM)
Elsea, R. B. (M)
Gerzine, R. D. (M)
Gleason, T. R. (SM)
Glenn, W. L., Jr. (M)
Green, L. W. (M)
Griffin, A. G., Jr. (M)
Griffith, M. E. (SM)
Grover, D. W. (M)
Haberhem, W. J., Jr. (M)
Hafer, F. L., Jr. (SM)
Harris, B. E., Jr. (M)
Harton, P. L. (M)
Herring, R. W., Jr. (M)
Hicks, W. H., Jr. (M)
Hines, W. S. (SM)
Hlavaty, E. M. (M)
Hormats, M. A. (SM)
Horne, R. C., Jr. (SM)
Houston, B. B. (A)
Hughes, L. L., Jr. (M)
Jimelan, F. (M)
Johnson, R. A. (SM)
Johnson, R. J. (M)
Jonas, A. (M)
Jones, R. B. (M)
Kaeser, J. M. (SM)
Kataiva, F. B. (M)
Knowles, D. M. (M)
Korpal, J. W. (A)
Leach, D. P. (M)
Leggiere, D. D. (M)
Lindemann, N. (A)
Lipoke, B. R. (M)
Lofton, R. P. (A)
Lovejoy, C. A. (M)
Madrid, D. C. (M)
Malloy, W. J. (M)
Martin, B. W. (M)
McCarthy, E. A. (M)
Meredith, G. L. (M)
Mills, L. P. (M)
Mitchell, R. W. (M)
Mock, B. H. (M)
Neil, W. C., Jr. (M)
Nelson, D. M. (M)
Newby, H. D. (M)
Nichols, H. C., Jr. (M)
Nordbusch, J. L. (M)
Patterson, C. W. (M)
Perrot, J. D. (M)
Pickover, H. (M)
Poehler, H. A. (SM)
Powell, L. W. (M)
Price, W. A. (M)
Quanrud, O. G. (M)
Radford, G. E. (M)
Rathbone, W. M. (M)
Rector, C. V. (M)
Reynolds, F. N. (M)
Richardson, E. W. (M)
Robbins, L. S. (M)
Robinson, J. A. (M)
Ross, J. A., Jr. (M)
Roth, A. R. (M)
Rowley, C. S. (M)
Rowley, W. A. (A)
Sakryd, V. (M)
Satterfield, J. M. (M)
Shen, I. (SM)
Shirley, R. C. (M)
Simpson, E. M., Jr. (M)
Sinclaire, L. W. (A)
Smith, A. E. (M)
Smith, A. G. (M)
Smith, C. E. (M)
Smith, E. O. (A)
Spalling, A. G. (SM)
Stallworth, A. W., Jr. (A)
Straits, R. G., Jr. (M)
Sundberg, G. A. (A)
Thomas, D. H. (M)
Thompson, W. W. (A)
Tipping, H. A. (M)
Tracy, J. B. Jr. (M)
Trochesset, H. J. (M)
Tucker, T. L. (A)
Turner, S. D., Jr. (M)
Van Valkenburg, H. M. (A)
Vice, V. W. (SM)
Votava, Y. (M)
Wedekind, D. E. (M)
Weed, A. C., Jr. (M)
Weiss, E. J. (M)
Wesp, I. H. (M)
West, K. A. (SM)
Whicker, G. T. (M)
Williamson, W. L. (M)
Willis, G. W., Jr. (M)
Wooded, K. M. (M)
Wynn, J. B., Jr. (M)
Young, C. H. (M)
Young, L. R. (M)
Young, W. L. (M)
Zyzak, E. E. (M)

Eglin AFB (NWF-3)
Albright, R. E. (M)
Bennett, N. A. (A)
Bredahl, A. (M)
Deer, A. J. (M)
Donahue, D. B. (M)
Flynn, D. P. (M)
Hohman, V. R. (M)
Magrane, J. H. (M)
Meeker, J. I. (M)
Nicholson, G. O. (M)
Royer, W. C. (SM)
Scheible, W. R. (M)
Schofield, D. F. (M)
Shanks, F. B. (M)
Sites, F. J. (M)
Stevens, G. W. (M)
Thomas, R. W. (M)

Englewood (F-WC-3)
Clapp, J. K. (F)

Eustis (ORL-3)
Schwab, W. G. (M)

Fort Lauderdale (MIA-3)
Anderson, C. N. (F)
Bassett, R. E., Jr. (M)
Bleckner, E., Jr. (M)
Britton, E. R. (SM)
Bumstead, J. J. (A)
Clippard, R. W. (M)
Cook, H. A. (M)
Cummings, M. M. (M)
Davies, C. L. (SM)
Dice, W. H. (M)
Evans, C. L. (M)
Gorder, L. O. (A)
Granucci, F. P. (M)
Hanna, C. R. (SM)
Harding, K. P. (M)
Hieronymus, T. G. (SM)
Knight, J. P. (M)
Magee, T. T. (A)
Mazzeo, B. A. (M)
McMillian, L. S., Jr. (M)
Nemetz, R. (A)
Nolte, E. J. (A)
O'Maley, J. B. (SM)
Post, M. D. (A)
Pritchard, W. S. (M)
Richardson, M. S. (M)
Robinson, D. A. (M)
Rogers, M. O. (A)
Ryan, C. M. (SM)
Schmidt, F. G. (A)
Schwartz, H. C. (A)
Stetson, H. T. (M)
Thompson, H. V. (SM)
Wisner, C. V., Jr. (A)

Fort Myers (F-WC-3)
Lynch, A. H. (SM)
Propst, H. R. (A)

Fort Pierce (CF-3)
Goldsborough, P. (SM)

Fort Walton (NWF-3)
Falkenberg, H. R. (M)
Fowler, L. O. (M)
Howard, F. E., Jr. (M)

Fort Walton Beach (NWF-3)
Abney, K. L. (M)
Allen, L. W. (M)
Atkinson, R. L. (M)
Barrow, G. E. (M)
Bloomquist, J. C. (M)
Bogard, J. R. (M)
Butler, F. M., Jr. (M)
Coe, R. B. (M)
Combs, J. W. (M)
Cox, E. R. (M)
Davidson, J. B. (M)
Eddy, H. C. (A)
Ellis, R. J. (M)
Faenza, G. R. (M)
Fernandez, R. A. (A)
Fiorgliou, J. (A)
Galloway, W. C. (SM)
Gamel, W. W. (M)
Genet, A. T. (M)
Gillette, L. D. (A)
Gottchrer, E. R. (M)
Gould, E. E. (M)
Haggren, R. A. (M)
Hammack, J. W. (M)
Hendrix, C. E. (M)
Henry, J. L., Jr. (SM)
Herold, R. R. (M)
Hicks, W. S. (A)
Hufnagle, H. H. (M)
Huntley, K. L. (SM)
Jacob, R. A. (M)
Jones, W. E. (A)
Lane, J. H. (M)
Leach, F. W. (M)
Lecrone, J. G. (M)
Leger, P. P. (A)
Long, C. E., Jr. (M)
Longaker, C. D. L. (M)
Lucas, H. B. (A)
Mefford, C. W. (M)
Metts, L. W. (A)
Perkins, D. L. (A)
Pierce, J. R. (M)
Plaisance, J. J. (M)
Post, R. H. (M)
Pruitt, J. R. (M)
Reierson, V. L. (M)
Reither, S. I. (M)
Reuther, C. R. (M)
Roth, A. Q. (M)
Rotta, E. A. (M)
Schneider, C. R. (A)
Somerset, J. B. (M)
Somerset, R. D. (M)
Sullivan, E. R. (M)
Taylor, D. H. (M)
Teleha, C. K. (M)
Todd, M. A. (M)
Tomlinson, J. R. (M)
Wallace, J. E. (M)
Whitfield, E. W. (M)
Williams, R. J. (SM)
Wilson, C. S. (A)
Wilson, L. L. (M)
Wise, H. G. (M)
Wise, W. L. (M)
Wood, S. P. (M)
Zwaska, J. F. (M)

Freeport (NWF-3)
Stoffel, B. L. (M)

Gainesville (GAI-3)
Akre, R. O. (SM)
Ashley, J. R. (SM)
Bailey, R. L. (M)
Bailey, T. M. (M)
Bean, E. W., Jr. (A)
Bosislo, R. G. (M)
Bryant, F. S., Jr. (M)
Butterfield, L. D. (M)
Chambers, R. P. (M)
Chen, W. H. W. (M)
Cisne, L. E. (M)
Cook, H. A. (A)
Craig, P. H., Jr. (M)
Day, W. R., Jr. (M)
Dickinson, P. C. (M)
Dryden, V. W. (SM)
Eaker, L. C. (M)
Elsenberg, M. F. (M)
Elder, T. A. (SM)
Elfe, T. B. (SM)
Elgerd, O. I. (SM)
Erickson, E. E. (M)
Fisk, H. V. (SM)
Foelaw, R. F. (M)
Forsman, M. E. (SM)
Frerking, H. W. (M)
Fuller, K. H. (M)
Garrott, W. L. (SM)
George, T. S. (SM)
Hagler, T. A. (M)
Hartley, R. H. (M)
Hill, D. G. (M)
Hoag, J. B. (SM)
Julian, T. H., Jr. (M)
Kundel, T. (SM)
Lally, P. M. (SM)
Langston, C. A. (M)
Larsen, M. J. (SM)
Lear, W. E. (SM)
Lowry, J. L. (M)
Mathews, B. E. (M)
McManus, W. K. (M)
Medler, R. (M)
Minkel, M. S. (M)
Montgomery, H. R. (M)
Neidert, J. H. (SM)
Newhall, S., Jr. (M)
Palka, F. M. (M)
Peterson, W. W. (M)
Raczynski, A. T. (M)
Reichert, K. R., Jr. (M)
Renkiewicz, H. F. (M)
Rich, C. E. (SM)
Rosier, N. E. (M)
Russ, D. S. (M)
Schenk, D. D. (M)
Schepman, J. E. (A)
Schindelin, J. W. (M)
Schrader, G. F. (SM)
Schwartz, L. (M)
Schwartz, S. (M)
Searles, C. B. (M)
Seller, N. C. (M)
Shaffer, C. V. (SM)
Sutherland, A. D. (M)
Swearingen, J. D. (M)
Tierney, D. R. (M)
Veronda, C. M. (SM)
Walker, L. W. (A)
Walters, J. H. (M)
Wangler, R. J. (M)
Warner, F. W. (M)
Weil, J. (F)
Westmeyer, J. A. (M)
Whitford, J. R. (M)
Williamson, E. P. (M)
Wing, A. H., Jr. (SM)
Winters, B. C. (A)
Wohlers, M. D. (M)
Yost, N. V. (M)
Zetrouer, W. F., II (M)

Gotha (ORL-3)
Simonds, R. L. (M)

Greenville (GAI-3)
Bailey, J. W. (A)

Gulf Breeze (NWF-3)
Bivans, G. A., Jr. (M)
Crowhurst, D. E. (M)

Gulfport (F-WC-3)
Lindtner, J. (A)

Hialeah (MIA-3)
Fitzgerald, S. L. (M)
Nicholls, R. F. (A)
Sneed, J. O. (M)
Tepper, C. A. (A)

Hollywood (MIA-3)
Durr, A. J. (M)
Fraser, H. B. (A)
Rosencranz, R. (M)
Schneider, H. W. (M)

Indialantic (CF-3)
Bell, L. W., Sr. (M)
Cox, M. L. (SM)
Detweiler, J. E. (A)
Doane, H. J. (M)
Haney, B. M. (M)
Hill, F. E. (SM)
Kearney, R. J. (M)
Kozel, M. S. (A)
Lovitt, O. R. (SM)
Marquis, D. C. (M)
McKee, J. F. (A)
Moore, P. H. (M)
Moran, F. D. (SM)
Murray, R. W., Jr. (M)
Parker, C. W. (M)
Preece, B. P. (M)
Preece, R. G. (M)
Roberts, G. E. (M)
Roland, J. D. (M)
Ross, H. T. (M)
Sawyer, W. R. (M)
Shaw, G. S. (SM)
Singer, J. S. (M)
Sirbola, G. (M)
Swatek, P. W. (A)
Yatauro, P. (A)

Indialantic Heights (CF-3)
Hultberg, R. M. (M)

Indian Harbor Beach (CF-3)
Roth, S. (A)

Indian River City (CF-3)
Boone, K. E. (M)
Herring, H., Jr. (SM)
Jacobus, R. G. (A)
Wilson, H. E. (M)

Indian Rocks Beach (NWF-3)
Fulton, J. C. (M)

Jacksonville (GAI-3)
Acosta, E. (A)
Braswell, R. C. (M)
Clarke, J. W. (M)
Crosby, A. E. (M)
Damm, T. P. (M)
Dandelake, J. (M)
Dawson, O. D. (A)
Ffoulkes, C. E. (M)
Ficke, H. C. (A)
Freeman, S., III (M)
Imes, G. C., III (A)
Martindale, N. B. (A)
McClure, G. F. (M)
Meadow, W. L. (M)
Osmundsen, G. A. (M)
Peebles, N. A. (M)
Richmond, R. E. (A)
Simas, F. O. (M)
Strandberg, P. R. (M)
Tipping, R. S. (M)
Vordermark, E. B. (SM)
Weber, D. C. (M)
Weimer, R. H. (A)
Wilcoxon, L. (A)
Winkriss, G. V. (M)
Youell, D. R. (M)

Jupiter (M-PB-3)
Maxwell, C. D. (A)

Key West (MIA-3)
Anderson, B. G., Jr. (M)
Brooks, J. F. (SM)
Carruth, D. C. (M)
Cook, H. B. (SM)
Dunlap, G. R. (A)
Ervi, W. L., Jr. (M)
Fitch, G. E. (M)
Foley, J. W. B. (M)
Hawk, A. L. (M)
Lenkerd, J. P. (M)
Myers, C. B. (A)
O'Brien, P. A. (M)
Payne, V. E. (M)
Porter, G. D. (M)
Rigsbee, C. M. (M)
Small, D. G. (M)
Swafford, L., Jr. (A)
Trammell, J. K., Jr. (A)
Witt, A. J. B. (M)

Kissimmee (ORL-3)
Hagen, G. D. (M)
Lowe, M. J., Jr. (A)
Wooten, A. D. (A)
Wray, R. A. (A)

Lake City (GAI-3)
Van Iderstine, T. J. (A)

Lakeland (F-WC-3)
Allen, J. G. (SM)
Polskin, L. J. (M)
Vermilya, K. O. (M)

Lake Park (M-PB-3)
Good, L. F. (M)
McAllister, T. R. (M)

Lake Wales (F-WC-3)
Kimbrel, G. M. (M)

Lake Worth (M-PB-3)
Baran, A. S. (M)
Kraft, F. J. (M)
Lamn, J. L. (M)
Larkin, J. P. (M)
Meachem, J. R. (SM)
Wemlund, R. F. (M)
Wood, W. H. (M)

Lantana (M-PB-3)
McWilliams, R. R. (M)
Paslay, L. C. (M)
Wyatt, T. F., Jr. (M)

Largo (F-WC-3)
Abernathy, T. C. (M)
Andrews, R. W. (M)
Arena, F. G. (A)
Benfield, C. W. (SM)
Berry, H. W. (SM)
Christensen, T. W. (M)
Cross, A. W. (A)
Denison, J. W. (A)
Eadie, D. (SM)
Finegan, E. F., Jr. (M)
Fryer, R. B. (M)
Hoover, J. C. (M)
Kuckler, G. C. (M)
Lazarchik, R. E. (M)
Lewis, C. A. (M)
Lewis, H. R. (M)
McLean, J. C. (M)
Messenger, P. R. (A)
Miller, J. H. (F)
Murdock, J. B., Jr. (M)
Nations, C. T. (M)
Perry, W. T., Jr. (M)
Savalli, F. P. (A)
Scheidenheim, R. (M)
Schmidt, A. P. (M)
Shaw, H. S. (F)
Silas, L. W. (M)
Steele, F. E. (M)
Taylor, E. A., Jr. (M)
Weems, N. T., Jr. (M)
Welch, W. E. (M)
Werner, J. R. (M)
Whisennant, P. L. (M)
Wilbur, E. C. (SM)
Williams, H. G. (SM)
Yolken, B. S. (M)

Leesburg (ORL-3)
Ball, I. D. (SM)

Lutz (F-WC-3)
Wallace, S. K. (A)

Lynn Haven (NWF-3)
Adair, B. M. (M)
Mossbacher, R. R. (M)
Wellhoner, J., Jr. (M)
White, P. K. (M)

Mac Dill AFB (F-WC-3)
Briscoe, R. J. (M)
Spontak, J. (M)

Madeira Beach (F-WC-3)
Day, F. R. (SM)
Wenner, R. G. (M)

Maitland (ORL-3)
Albright, E. L. (M)
Baswell, A. C., Jr. (M)
Bayston, T. E. (M)
Browning, R. N. (A)
Conley, D. (M)
Fox, A. R. (A)
Gilbreath, R. E., Jr. (M)
Goldsmith, J. (SM)
Holmes, L. G. (M)
Johnson, R. E. (M)
Linhart, D. J. (M)
McFarren, L. E. (SM)
McGinnis, C. E. (SM)
Mills, R. W. (M)
Murphy, J. T., Jr. (M)
Namey, A. E. (SM)
Payne, R. C. (M)
Riley, C. L., Jr. (M)
Roche, A. O., III (M)
Spiegel, S. S. (M)
Starling, W. H. (M)
Staudt, R. R. (SM)
Stevens, H. (M)
Taglauer, E. R. (M)
Toney, P. A. (M)
Williard, M. W. (M)

Marathon Shores (MIA-3)
Martin, K. H. (SM)

Mary Esther (NWF-3)
Atherly, D. H. (M)
Bennich, E., Jr. (M)

Gwrb, D. F. (M)
Haughton, W. B., II (A)
Lockhart, C. T. (M)
MacDowell, J. E. (M)
McCarthy, D. W. (M)
Morfin, H. W. (M)
Nichols, J. (A)
Purvis, W. K. (A)
Rice, R. G. (M)
Sessions, W. B. (M)
Watson, J. T. (M)

Melbourne (CF-3)
Accevedo, L. E. (M)
Anderson, B. E., Jr. (M)
Baker, R. L. (M)
Barkes, R. L. (M)
Beckwith, J. F. (M)
Bessey, R. C. (A)
Bloomquist, L. A. (M)
Booth, R. Y. (M)
Cauthen, I. L. (M)
Christensen, R. E. (M)
Clark, L. P. (SM)
Clegg, P. H. (A)
Crosby, R. H. (SM)
Crowder, W. R. (M)
Cubbins, T. D., Jr. (M)
Davenport, F. S. (M)
Davis, H. B. O. (M)
Denius, H. R. (SM)
Dickenson, J. P., Jr. (M)
Dodgson, W. W., Jr. (A)
Doughty, S. D. (M)
Eddins, W. T. (M)
Farabee, L. B. (M)
Ferguson, R. E. (M)
Fetner, E. M. (M)
Fifield, F. P. (M)
Fisher, H. F., Jr. (M)
Fleming, J. S. (M)
Fraustro, B. (M)
Friedland, M. S. (SM)
Friedman, R. F. (M)
Gilbert, J. D. (M)
Gourley, C. (A)
Griffin, C. E. (M)
Griffin, F. S. (M)
Harris, L. (M)
Hartley, J. T., Jr. (M)
Hartzog, G. R., Jr. (M)
Haygood, W. D. (M)
Hazel, W. M. (M)
Heimerle, R. K. (M)
Heins, D. E. (M)
Hoegener, C. H. (F)
Holland, R. E. (M)
Holmes, T. G. (M)
Houchin, C. D. (M)
Howard, D. C., Jr. (M)
Hyde, K. C., Jr. (M)
Isbister, E. J. (F)
Jackson, C. H. (M)
Jacobs, A. (M)
Jenkins, H. H., Jr. (M)
Johnson, C. E., Jr. (A)
La Capra, J. (M)
Ledgerwood, F. A. (M)
Leonard, S. E. (SM)
Lewis, F. J. (M)
Mahaffey, R. F. (M)
Mann, M. E., Jr. (A)
Marquand, R. E. (M)
Marsh, E. N. (M)
Martin, J. W. (M)
McLamb, F. D. J. (M)
McQueen, J. E. (M)
McRae, D. D. (M)
Mead, W. L. (M)
Mederos, T. S., Jr. (M)
Merwin, R. L., Jr. (SM)
Meyer, E. G. (SM)
Mixsell, S. A. (M)
Mohre, C. L. (M)
Morrison, H. G. (A)
Murray, R. V. (M)
Murray, R. W., Jr. (SM)
O'Kelley, H. E. (SM)
Osborne, W. H. (A)
Pace, A. J. (M)
Pelchat, G. M. (M)
Pettijohn, R. E. (M)
Pifer, T. D. (M)
Quinlivan, W. F. (M)
Relf, K. E. (M)
Rich, D. F. (M)
Rickard, J. R. (M)
Ritchie, N., Jr. (M)
Rogers, W. M., Jr. (M)
Rudin, M. B. (SM)
Saunders, C. H., Jr. (M)
Scharla-Nielsen, H. (SM)
Searcy, J. H. (M)
Shingler, D. F. (A)
Smith, E. F. (M)
Smith, J. B. (SM)
Smith, J. H. (M)
Soderquist, G. W. (SM)
Stilwell, R. J. (M)
Sullivan, C. T. (M)
Tomlinson, J. W. (M)
Van Atta, J. P. (A)
Voss, R. C. (M)
Walker, R. A. (A)
Webster, J. G. (M)
Welant, M. A., Jr. (M)
Wentzel, M. G. (A)
West, C. F. (M)
Westphal, F. (M)
Wicker, G. E. (M)
Widerquist, V. R. (SM)
Wiener, W. A. (M)
Williams, LaV. E. (SM)
Work, R. A., Jr. (M)
Yancey, J. L. (M)
York, L. M. (M)
Young, F. W. (M)
Young, J. (A)
Young, P. D. (A)

Melbourne Beach (CF-3)
Bell, L. W., Sr. (M)
Dennis, A. R. (M)
Dodson, L. F. (SM)
Drew, R. E. (M)
Fox, R. A. (SM)
Gunschow, D. C. (SM)
Glover, E. B. (M)
Huffman, W. O., Jr. (M)
Kuhar, E. (M)
Shearin, A. M. (M)
Vernon, A. W. (A)
Walker, J. R. (M)
Willis, A. D. (M)

Melrose (GAI-3)
Gano, O. R. (M)

Merritt Island (CF-3)
Carpenter, R. D. (A)
Cooper, W. H. (SM)
Danlher, C. E. (SM)
Diggs, G. C. (A)
Johnson, R. E. (A)
Noda, T. T. (A)
Orzadovec, J. E. (A)
Piccoli, P. E. (M)
Raulins, K. R. (M)
Shupe, P. G. (M)
Stalling, E. W. (M)
Wagner, H. B. (A)

Miami (MIA-3)
Adcock, S. E. (SM)
Bernard, H. F. (M)
Bie, E. W. (M)
Bledsoe, R. E. (M)
Borden, F. W. (M)
Bower, G. E. (M)
Brookfield, R. F. (A)
Bryant, C. S. (A)
Bullock, W. S. (A)
Burkhardt, E. E. (A)
Camus, G. E. (M)
Carter, E. L., Jr. (M)
Chellew, S. R. (A)
Cheng, K. Y. (M)
Cline, W. M. (A)
Crapo, S. T. (M)
Dale, K. N. (A)
Danielsen, D. A. (M)
Danz, R. (M)
Dill, C. L., Jr. (M)
Drexel, A. (M)
Driver, R. E. (M)
Dryden, R. E. (SM)
Edwards, B. E. (M)
Embree, L. O. (M)
Epperson, W. H. (SM)
Francis, J., Jr. (M)
Gordon, L. L. (SM)
Gruenefelder, A. C. (M)
Gussow, S. S. (A)
Hardesty, G. A. (M)
Herrmann, N. P. (M)
Holland, F. S. (A)
Johnson, W. L., Jr. (M)
Jones, T. J. (M)
Jorgensen, O. J. (M)
Kimball, E. W. (SM)
Kinney, W. E. (M)
Knowles, W. A. (A)
Kochendarfer, D. C. (M)
Konter, P. (A)
Kronengold, M. (M)
Larkins, G. L. (M)
Lewis, E. W. (M)
Liedholz, G. A. (M)
Lilly, J. C. (M)
Livingston, I. (M)
Lockwood, E. C. (SM)
Lowenstein, J. M. (A)
Magid, P. (A)
Mangus, G. (A)
Mason, E. C. (A)
McKey, D. B. (SM)
McLeod, B. F. (SM)
Middleton, T. F., Jr. (A)
Mishkoff, S. (M)
Morrison, D. K. (A)
Murphy, W. P., Jr. (SM)
Naim, J. B. (M)
Nelson, W. A. (A)
Nirenberg, A. (M)
Palmer, R. P. (A)
Parsons, E. G. (M)
Pelick, J., Jr. (M)
Penny, J. R., Jr. (A)
Perkinson, J. A. (M)
Pollack, B. H. (M)
Pollack, M. (M)
Ragsdale, R. G., Jr. (M)
Randolph, H. D. (M)
Reid, T. D. (M)
Rich, R. S. (M)
Rider, F. E. (SM)
Rogers, E. R. (M)
Scheffel, A. G. (M)
Seldman, F. (M)
Shamblin, H. D. (M)
Shattuck, J. C. (M)
Shay, J. A. (M)
Sira, M. A., Jr. (A)
Smith, R. L. (M)
Soderlund, C. A. (M)
Spragg, L. A. (M)
Stephens, F. H., Jr. (M)
Summers, C.H. (M)
Ware, P. (SM)
Weber, G. L. (M)
Yeager, H. R. (SM)
Young, P. A. (M)
Zahniser, R. W. (M)

Miami Beach (MIA-3)
Boundy, G. G. (SM)
Crane, W. S. (M)
De Hass, T. M. (A)
Geartner, J. (A)
May, B. M. (A)
Richter, H. L. (A)
Senauke, A. (SM)
Shropshire, A. W. (M)

Miami Shores (MIA-3)
Howard, C. I. (M)
Miessner, B. F. (F)
Shearer, S. L. (A)

Miami Springs (MIA-3)
Cook, C. (A)
Mehrling, H. W. (M)
Murr, V. E. (M)

Micanopy (GAI-3)
Perry, A. D. (A)

Milton (NWF-3)
Allen, D. E. (A)

Monticello (NWF-3)
Groves, C. L. (A)

New Port Richey (F-WC-3)
Trueman, J. A. (M)

New Smyrna Beach (CF-3)
Dinwiddie, E. W. (M)
Kimmell, R. G. (M)

Niceville (NWF-3)
Drake, H. (A)
Grossel, R. L. (M)
Putriment, B. W. (M)

North Miami (MIA-3)
Castle, C. X. (M)
Farwell, R. C. (A)

North Miami Beach (MIA-3)
Rifkin, M. S. (M)

North Palm Beach (M-PB-3)
Adams, V. F., Jr. (M)
Craver, J. N. (M)
Cronin, C. E. (M)
Lahue, P. M. (M)
Leahy, R. A. (M)
Lefka, M. (M)
Lewis, T. F. (A)
Morris, H. N. (SM)
Olowin, L. J. (M)
Rosenbaum, C. R. (M)

Oakland Park (MIA-3)
Sherman, A. G. (M)

Orlando (ORL-3)
Abrams, E., Jr. (A)
Alexander, J. E. (M)
Anderson, E. B. (A)
Anderson, G. F. (M)
Andrews, R. C. (A)
Arbuckle, W. L. (M)
Ashbrook, S. B., Jr. (A)
Ashwell, J. R. (SM)
Augustine, E. F. (A)
Barnett, F. M., Jr. (A)
Barrett, J. W. (SM)
Barwick, K. E. (M)
Bateman, G. H. (SM)
Bauer, J. A. (SM)
Bauer, L. H. (M)
Baxter, C. W. (M)
Beers, W. T. (A)
Bendett, R. M. (M)
Bishoo, R. P. (M)
Blaney, R. H. (A)
Blickman, J. H. (M)
Blumenstein, O. J. (M)
Bobber, R. J. (SM)
Bodin, B. H. (A)
Bolton, S. W. (M)
Boor, S. B. (M)
Botten, D. L. (A)
Bradbury, L. D. (A)
Brett, R. I. (M)
Bridgland, T. F., Jr. (M)
Brigham, R. C. (A)
Browder, L. P. (M)
Brown, J. O. (A)
Brown, L. R. (M)
Buchan, J. F. (M)
Buchanan, D. B. (M)
Butler, W. J. (M)
Byrd, C. W. (M)
Cadiz, E. E. (M)
Camplon, H. H. (M)
Cardwell, L. R. (SM)
Carlson, W. J. (A)
Carr, S. O. (M)
Carter, C. S., Jr. (M)
Cauble, R. A. (M)
Chasteen, J. W., Jr. (SM)
Clark, G. E. (M)
Clifford, R. F. (A)
Clutterham, D. R. (SM)
Cmar, E. J. (M)
Cole, P. J. (M)
Collins, H. P. (A)
Conley, J. W., III (M)
Constantine, D. (M)
Cooper, M. J. (M)
Cooeland, W. O. (M)
Cullis, R. N. (M)
Cullman, F. A. (SM)
Cupp, R. E. (M)
Cutler, M. A. (A)
Darling, R. E. (A)
Davis, D. E. (M)
Day, W. R. (M)
Decino, A. (SM)
Dees, J. W. (M)
Dement, J. F. (M)
Diehl, W. L. (M)
Drescher, L. (M)
Dudley, W. A. (A)
Dugre, M. L. (A)
Duke, J. B., III (M)
Duval, A. N. (M)
Eagle, G. R. (A)
Eddy, W. L. (M)
Eggerton, W. H. (M)
Elston, A. C. (M)
Estrin, S. (M)
Feehrer, M. R. (M)
Finley, J. D. (SM)
Fisher, P. A. (A)
Fisk, N. H. (M)
Ford, H. P., Jr. (M)
Ford, R. E. (SM)
Frazier, R. A. (A)
Garcia, C. M. (M)
Gardner, N. H. (M)
Garrard, J. T. (M)
Godlewski, V. J. (A)
Gover, W. M. (M)
Grace, B. J. (M)
Gray, A. R. (F)
Green, G. M. (M)
Grider, K. V. (M)
Grimes, J. W., Jr. (M)
Gryder, W. L. (M)
Haas, D. L. (M)
Haddock, R. L., Jr. (M)
Haff, M. C. (M)
Hall, G. L. (M)
Hall, I. A. (M)
Hawley, D. T. (SM)
Hazel, H. K. (M)
Heffner, R. W. (A)
Henry, R. F. (A)
Herbeck, A. E. (M)
Herndon, J. W. (SM)
Hickman, D. A. (M)
Hierholzer, E. L. (M)
Hill, G. R. (SM)
Hoefs, E. R. (M)
Hoffart, H. M. (A)
Hoover, K. W. (M)
Horton, W. H. (SM)
Houseman, E. O., Jr. (M)
Hughes, E. A. (SM)
Hughes, M. J. (M)
Husband, E. W. (A)
Isaacson, S. (M)
Jaramillo, J. G. (M)
Johnson, C. W. (M)
Johnson, L. M. (M)
Jones, J. G., Jr. (M)
Kahl, F. A. (SM)
Kaplan, S. M. (SM)
Karkeck, P. (A)
Kaufmann, W. (SM)
Keating, T. J. (M)
Keith, C. E. (SM)
Kent, K. E. (M)
Kirkley, E. L., Jr. (A)
Klaasen, B. J. (M)
Kom, R. A. (A)
Lang, E. E., Jr. (M)
Langpaul, E. A. (M)
Larson, K. T. (SM)
Lemasters, J. N., III (A)
Levy, A. J. (M)
Lewis, R. D. (M)
Longley, R. M., Jr. (M)
Mallison, R. E. (M)
Martl, E. (SM)
Martin, A. F. (A)
Matthews, J. L. (M)
McCall, B. F. (M)
McCanless, C. P. (M)
McCasland, R. S. (M)
McConnell, W. E. (M)
McCraney, J. L. (M)
McDimit, E. L. (M)
McElveen, R. R. (M)
McNice, J. T. (M)
Megla, G. K. (SM)
Mills, L. W. (M)
Minderman, P. A. (M)
Mockus, J. M. (SM)
Moore, R. A. (M)
Moore, T. A. (M)
Morgan, J. C. (A)
Moss, B. B. (A)
Murray, J. S. (M)
Murray, M. P. (M)
Myers, A. C., Jr. (M)
Neville, T. E. (A)
Newberry, V. A. (M)
Nichols, R. C. (M)
Noriega, J. R. (M)
North, C. W. (SM)
Oharek, F. J. (M)
Ott, H. J. (A)
Painter, P., Jr. (SM)
Panzitta, J. (A)
Parrish, C. E. (M)
Patrick, W. S. (SM)
Pennanen, V. W. (M)
Perich, M. (M)
Pevak, F. F. (M)
Philbin, J. A. (A)
Phillips, R. L. (M)
Pohl, J. S. (M)
Radcliffe, A. J., Jr. (M)
Ramer, J. P. (M)
Reed, E. F. (M)
Reel, G. M. (M)
Renwick, R. L. (M)
Riegel, R. E. (A)
Robinson, B. H., Jr. (M)
Rogers, R. W. (M)
Rothar, D. E. (M)
Russell, R. K. (M)
Ruthenberg, W. G. (M)
Sabin, A. S., Jr. (M)
Salz, J. (M)
Santee, B. D. (M)
Sasser, T. (M)
Schleferstin, R. W. (M)
Schisler, C. W. (M)
Schneider, V. A. (M)
Segal, A. A. (M)
Shaw, W. H. (M)
Sheffield, T. W. (M)
Sherill, H. P. (M)
Shreckengost, R. C. (SM)
Smith, E. F., Jr. (M)
Smith, G. S. (SM)
Smith, L. G. (M)
Smythe, R. C. (M)
Snedeker, F. F., Jr. (M)
Snyder, E. W. (M)
Snyder, L. J. (A)
Squires, T. W. (M)
Stadnik, T. J. (A)
Staschke, R. A. (M)
Stateler, D. V. (M)
Steele, W. L. (M)
Stephenson, A. L. (M)
Stembach, S. J. (M)
Stiles, J. E. (M)
Stone, R. E. (M)
Stupp, R. L. (M)
Suganuma, P. K. (A)
Summer, C. F., Jr. (M)
Terry, J. W. (M)
Thompson, W. H. (M)
Tlcen, J. D. (M)
Tighe, M. J. (A)
Tipton, R. W. (M)
Tracy, J. E. (M)
Tripoe, W. D. (M)
Tritt, E. M. (M)
Truex, E. H. (M)
Trotter, J. A. (A)
Tucker, R. W., Jr. (M)
Turner, R. E. (M)
Uzel, F., Jr. (M)
Warshawsky, J. (M)
Weaver, H. R. (M)
Weber, R. L. (SM)
Webster, R. E. (SM)
Weiss, G. H. (M)
Whitt, C. M. (M)
Williams, W. T. (M)
Wilson, G. D. (A)
Wilson, W. A. (M)
Wooldridge, A. L. (SM)
Yarbrough, J. E. (SM)
Yarian, E. L. (A)

Orlando AFB (ORL-3)
Johnson, E. L. (A)

Palatka (GAI-3)
Peterson, T. R. (A)

Palm Bay (CF-3)
Adkins, F. L., Jr. (M)
Dresch, D. A. (M)
Latch, C. R. (M)
MacEwan, A., Jr. (M)
Schum, E. J. (A)
Walsh, J. J. (A)

Palm Beach (M-PB-3)
Kelly, K. C. (M)
Sarbacher, R. I. (SM)

Palm Harbor (F-WC-3)
Bushnell, T. R. (M)
Everitt, B. A. (M)

Panama City (NWF-P-3)
Ault, J. F. (M)
Bennett, D. F. (M)
Bryant, W. E., Jr. (M)
Buffkin, W. R. (M)
Cartwright, C. C. (M)
Clary, B. J. (M)
Cooper, A. T. (M)
Crowell, R. J. (A)
De Coutouly, G. C. (SM)
Galloway, R. T. (M)
Hagemann, J. (SM)
Haulman, C. A. (SM)
Koesy, C. B. (SM)
Lloyd, B. H. (M)
Lowry, R. C. (M)
Marley, S. B. (M)
Mathis, G. P. (M)

McAuliffe, J. J. (M)
Menefee, R. E. (M)
Miller, C. E., Jr. (M)
Moody, J. G. C. (M)
Murphree, F. J., Jr. (M)
Naeseth, M. H. (M)
Penton, H. H. (M)
Rhyne, W. A. (M)
Stafford, J. D. (M)
Steffen, G. P. (M)
Teel, W. A. (M)
Thomas, A. M. (M)
Waltonen, W. W. (M)
Wells, W. E. (M)

Parker (NWF-P-3)
Gilbert, W. N. (M)

Pass-A-Grille Beach (F-WC-3)
Rives, T. C. (F)

Patrick AFB (CF-3)
Abbitt, C. W. (M)
Bailey, C. W., Jr. (A)
Black, R. L. (A)
Brown, R. J., Jr. (A)
Hewett, C. W. (A)
Hoeper, H. B. (A)
Knauf, G. M. (M)
Koclanes, G. P. (M)
Leal, C. V. (A)
Lentz, W. K. (A)
Little, P. R. (M)
Motley, C. H. (M)
Murphree, H. L. (A)
Perkins, F. M., Jr. (A)
Petty, T. D., Jr. (M)
Quotidomine, F. (M)
Radcliffe, F. R. (M)
Richardson, W. A. (M)
Ritter, L. M. (A)
Rorant, J. H. (A)
Rowland, M. O. (M)
Sence, R. L. (A)
Shank, R. B. (M)
Wescott, J. C. (A)
White, W. E. (A)
Wigle, R. V. (M)
Wiss, G. (A)
Zinn, T. B., Jr. (M)

Pensacola (NWF-3)
Dunham, R. E. (M)
Earps, E. W. (A)
Fisher, D. E. (M)
Hinson, W. C. (M)
Moore, B. G., Jr. (A)
Ziel, G. E., Jr. (M)

Pine Castle (ORL-3)
Chin, W. Y. (M)

Pinellas Park (F-WC-3)
Blemacki, H. R. A. (A)
Bryant, J. H. (M)
Ross, R. J. (A)
Spratt, R. E. (M)

Plant City (F-WC-3)
Cockrell, J. H. (A)
Saffos, J. L. (A)

Pompano Beach (MIA-3)
Branson, N. G. (M)
Elwood, A. A. (SM)
Hull, D. R. (F)
Johnson, T. B. (M)
Knowlton, C. R. (M)
Miller, J. M. (F)
Pratt, H. (F)

Port Canaveral (CF-3)
Burns, D. N. (M)
Ellis, G. W. (M)
Goff, H. C. (M)
Grimm, J. H. (A)
Jacoby, M. C. (M)

Port St. Joe (NWF-3)
Grabowski, T. E. (A)

Punta Gorda (F-WC-3)
Roller, E. R. (A)

Redington Beach (F-WC-3)
Ebeling, W. (M)

Riviera Beach (M-PB-3)
Marshall, W. E. (M)
Peralta, B. C. (M)
Whitt, J. W. (M)

Rockledge (CF-3)
Childers, F. M. (A)
Edwards, M. D., Jr. (M)
Horchler, F. W. (M)
Lahr, N. L. (M)
Rawls, O. B. (M)
Smith, V. K. (M)
Whiteside, H. E. (SM)

Safety Harbor (F-WC-3)
Farrar, H. B. (A)
Legg, H. F. (A)

St. Augustine (GAI-3)
Berger, M. (A)
Gupton, H. S., Jr. (A)

St. Petersburg (F-WC-3)
Acker, W. F. (M)
Allison, K. M., Jr. (M)
Arbuckle, C. (M)
Aucremann, R. C. (M)
Back, G. I. (F)
Bare, C. C. (M)
Bartlum, G. C., Jr. (A)
Blachowicz, L. F. (M)
Blain, E. J. (M)
Boulay, R. R. (A)
Brown, D. C. (M)
Campbell, C. D. (SM)
Carlson, K. L. (A)
Carnevale, M. D. (A)
Carnevale, V. D. (M)
Carr, G. W. (SM)
Cobb, J. P. (M)
Codding, W. J. (M)
Colbert, D. C. (M)
Cooper, C. B. (A)
Cornell, J. I. (SM)
Councilman, C. L. (SM)
Curl, R. M. (M)
Davis, J. H. (M)
Davis, M. G. (M)
De Clercque, K. L. (M)
Dingley, E. N., Jr. (F)
Donaldson, M. R. (SM)
Dover, J. H. (A)
Durham, B. H. (M)
Ebenwine, J. A. (A)
Ehrlich, E. (M)
Ellason, M. C. (SM)
Fazlo, F. (A)
Fearing, J. L. (M)
Feldhusen, R. L. (A)
Felton, L. E. (SM)
Findley, L. K. (SM)
French, C. D. (M)
Friebertshauser, R. (M)
Goldberg, H. L. (A)
Goldie, S. P. (M)
Gonzalez, R. E. (M)
Gordon, M. J. (M)
Griesi, R. N. (A)
Guthe, J. M. (M)
Hackert, W., Jr. (A)
Halem, N. (A)
Harris, L. R. (A)
Hassell, J. E. (M)
Hemmer, F. A., Jr. (M)
Herzig, M. E. (M)
Hines, N. M. (M)
Hokkanen, R. N. (M)
Holley, M. V. (M)
Horner, G. F. (M)
Ibison, R. A. (SM)
Jelen, M. J. (SM)
Johnson, B. (M)
Jones, J. P. (M)
Karmen, A. (M)
Kennedy, W. J. (A)
Kimberlin, D. E. (A)
Klein, M. S. (SM)
Kleinfelder, D. S. (M)
Knapp, G. H. (M)
Kraxberger, G. S. (A)
Lawton, G. P. (SM)
Leedham, R. K. (M)
Levine, A. (M)
Lindtner, E. G. (A)
Loudermilch, R. C. (M)
Ludwick, C. A. (A)
Ludwig, J. T. (SM)
Martoccia, F., Jr. (M)
Mensch, J. R. (M)
Munday, T. W. (A)
Myers, R. T. (SM)
Napper, C. J. (A)
Oliver, J. G. (M)
Papariello, P. J. (A)
Paris, H. T. (A)
Parvin, R. H. (SM)
Peacock, W. T., Jr. (A)
Pearson, C. C. (A)
Pelton, E. A. (A)
Pfister, H. J. (A)
Phillips, E. N. (SM)
Phillips, J. E. (M)
Pichal, H. T. (SM)
Polcar, J. L. (M)
Priliaman, D. G. (M)
Saraydar, R. A. (M)
Sawyers, E. R. (A)
Say, L. W., Jr. (A)
Schinabeck, J. R. (M)
Schinski, D. L. (A)
Scott, L. E. (M)
Shipley, G. H., Jr. (M)
Smith, M. P. (M)
Snipes, W. C. (M)
Snyder, H. Z. (SM)
Solle, S. A. (SM)
Stanford, C. E. (M)
Stebbins, R. S. (A)
Steinbrecher, D. H. (M)
Stuart, R. A. (A)
Sullivan, A. W. (SM)
Taylor, J. R. (A)
Thornton, E. F. (M)
Tims, E. F. (SM)
Trapozzano, V. R. (A)
Tuhill, A. F. (A)
Versteeg, D. A. (M)
Vincent, H. B. (SM)
Volsseh, N. H. (M)
Wahlman, J. E. (A)
Wakeford, F. B. (A)
Walker, R. G. (M)
Wells, E. L. (A)
White, E. L. (F)
White, M. B. (A)
Willert, A. F. (M)
Williams, J. B. (SM)
Willing, H. A. (M)
Young, D. B. (M)

St. Petersburg Beach (F-WC-3)
Keeler, C. E. (SM)
Koechel, W. P. (M)
Landry, W. J. (SM)
Rose, L. (M)

Sanford (ORL-3)
Houghton, R. A. (M)
Knight, L. A. (M)
Munday, T. M. (M)
Taylor, J. C. (M)
Thomson, N. W. (M)
Walter, J. M., Jr. (M)

Sarasota (F-WC-3)
Bannister, L. H. (M)
Belkin, M. (M)
Blaine, G. J. (M)
Blair, W. W. (M)
Byrd, C. G. (SM)
Cannon, R. S., Jr. (M)
Crosby, E. L., Jr. (M)
Cumings, R. G. (SM)
Ensall, T. (M)
Fisher, S. (SM)
Glaeser, D. H. (M)
Gore, L. D. (M)
Hazebrook, H. (M)
Holderman, C. C. (M)
Holmes, G. A. (A)
Janda, F. J. (A)
Loper, L. E. (A)
Lyle, W. H. (SM)
Magnin, J. P. (M)
Maresca, T. J. (A)
McCormick, S. T., Jr. (M)
Norton, W. J. (A)
Pantuso, A. J., Jr. (M)
Paxton, R. K. (M)
Peck, W. D. (A)
Petzler, P. R. (M)
Powers, D. M. (M)
Sloughter, G. S. (SM)
Spencer, L. V. (M)
Stewart, T. E., Jr. (A)
Swain, W. H. (M)
Tisdale, G. E. (M)
Uglow, K. M., Jr. (SM)
Utley, D. (F)
Walter, R. J. (A)
Whitehead, C. C., Jr. (M)
Yelverton, C. W. (M)

Shalimar (NWF-3)
Day, J. P. (M)
Howe, J. W. (A)
Lenke, R. H. (M)
Lowe, B. W. (A)
Mantey, W. F. (M)
Null, F. E. (M)
Overton, B. H. (SM)
Pfeiffer, D. A. (M)
Tollerson, J. C. (M)
Von Wegern, F. C. (A)

Sharpes (CF-3)
Malcolm, A. (A)
Olson, R. E. (M)

South Merritt Island (CF-3)
Bass, D. C. (M)

South Miami (MIA-3)
Andres, L. J. (SM)
Green, W. J., Jr. (M)
Keller, J. W., Jr. (SM)

Surfside (MIA-3)
Lurie, E. M. (SM)

Tallahassee (NWF-3)
Carr, L. O. (M)
Clifton, C. L. (M)
Deters, A. A. (A)
Grafe, R. W. (M)
Kromhout, O. M. (M)
Newman, A. W. (SM)
Ragsdale, W. E. (M)
Salfer, R. A. (M)

Tampa (F-WC-3)
Anders, A. W., Jr. (M)
Bailey, D. C. (M)
Begue, E. (M)
Boyd, R. M. (A)
Brice, J. R. (M)
Bryan, A. I. (A)
Chandler, W. G. (M)
Cito, A. V. (M)
D'Arpa, A. G. (M)
Ebelink, J. E. (M)
Hodgson, J. C. (A)
Husbands, C. L. (M)
Jean, R. P. (M)
Klee, P. T. (A)
Luce, J. E. (A)
May, T. W. (A)
McDaniel, C. B. (A)
Metcalfe, W. L. (M)
Miller, M. P. (A)
Mitchell, J. H. (M)
Moore, J. S., Jr. (M)
Moore, W. P. (SM)
Murphy, R. (SM)
Neeb, C. H. (A)
Nores, R. P. (M)
Nott, J. H. (M)
Quinones, D. E. (A)
Raines, R. M. (A)
Randell, R. R. (M)
Rich, J. C. (A)
Rosenzvaig, J. E. (M)
Schnurman, J. D. (M)
Smith, W. E. (M)
Soullace, R. E. (M)
Stoutenburg, A. H. (A)
Studstill, H. F. (A)
Turner, R. D. (A)
Uranga, E. (A)
Ward, W. C. (M)
Wascher, M. A. (M)
Winiree, W. C., Jr. (A)

Tarpon Springs (F-WC-3)
Ball, M. T. (M)
Gaumer, D. C. (M)
Masllek, W. L. (A)

Titusville (CF-3)
Abbott, R. W. (M)
Anderson, R. L. (M)
Blum, F. W. (M)
Brown, W. A. (M)
Crager, J. A. (M)
D'Albora, J. B., Jr. (SM)
Danna, D. (M)
Davidson, H. K. (M)
Davidson, J. K. (M)
Goretsky, L. M. (A)
Grieser, T. J. (M)
Grimm, E. M. (M)
Hedges, F. (M)
Herndon, W. F. (A)
Hickey, J. R. (A)
Jackson, K. J. (M)
Matthews, G. D. (M)
Pritchard, J. R. (A)
Sanders, E. L. (M)
Schenck, A. K. (M)
Siemen, H. A., Sr. (SM)
Stebbins, J. A. (M)
Stroud, A. A. (M)
Towne, S. R. (A)
Weissenbom, H. E. (M)
Welley, R. C. (M)

Treasure Island (F-WC-3)
Dashiell, E. V. (SM)
Soldwedel, H. T. (SM)
Whitley, G. H. (M)

Trenton (GAI-3)
Jordan, J. C. (M)

Tyndall AFB (NWF-P-3)
St. Germain, A. A. (M)

Umatilla (ORL-3)
Vossberg, C. A. (M)

Valparaiso (NWF-3)
Kossler, P. A. (M)
Sapp, E. F., Jr. (M)

Venice (F-WC-3)
Walker, G. W. (M)

Vero Beach (CF-3)
Chorpenlng, C. M. (M)
Paddock, D. G. (M)
Sytten, H. D. (SM)
Van Dyck, A. F. (F)
Wooten, J. R. (M)

Warrington (NWF-3)
Hansen, J. E. (M)

West Hollywood (MIA-3)
Fossler, D. E. (M)

West Miami (MIA-3)
Speirs, G. E. (A)

West Palm Beach (M-PB-3)
Cohen, M. J. (SM)
Cordell, B. R., Jr. (M)
Edleman, V. W. (A)
Ford, M. J. (A)
Gibson, H. C., Jr. (M)
Hall, J. M., Jr. (M)
Holdren, E. H. (M)
Nichol, D. W. (M)
Smith, T. B. (M)

Windermere (ORL-3)
Ketchen, F. W. (M)
Raboy, B. (SM)
Towles, W. B. (SM)

Winter Garden (ORL-3)
Reynolds, L. G. (M)
Yokomoto, R. K. (A)

Winter Haven (F-WC-3)
Craig, L. O. (M)
Potter, F. N. (M)

Winter Park (ORL-3)
Barney, J. M. (SM)
Birge, W. A. (SM)
Boutwell, E. D. (M)
Bowers, R. S. (SM)
Boyles, G. W. (M)
Bradmiller, R. W. (M)
Chioma, L. D. (A)
Cooper, G. (M)
Crowell, L. J. (A)
Cunningham, R. G. (A)
De Pasquale, N. D. (M)
Doolittle, J. H. (SM)
Doroshow, S. R. (SM)
Dryden, A. L. (M)
Ferguson, J. K. (M)
Frutchey, M. P. (M)
Gimon, E. E. (M)
Harrison, P. W. (SM)
Henderson, J. C. (M)
Johnson, R. J. (A)
Karres, G. E. (M)
Le Gare, J. M. (SM)
Lewis, B. L. (SM)
Lyden, J. A., Jr. (M)
Lyerly, E. E. (A)
Marks, W. S., Jr. (F)
Matzinger, J. R. (SM)
Melvin, E. A. (M)
Pickering, T. A. (A)
Pierson, C. D., Jr. (SM)
Raymond, W. D. (M)
Rhodes, D. R. (SM)
Romano, G. F. (M)
Severance, F. D. (M)
Sheppard, J. H., Jr. (SM)
Simmons, C. A. (SM)
Sisson, A. W. (SM)
Stelene, L. H., Jr. (M)
Stringer, K. E. (M)
Titen, H. (M)
Townsend, H. D. (M)
Tribo, B. R. (M)
Underwood, R. N. (SM)
Valkenburg, E. P. (M)
Webber, H. E. (SM)
Williams, A. G. (M)
Wood, R. M., Jr. (SM)

Zephyrhills (CF-3)
Oglesby, T. L. (M)

GEORGIA

Albany (ATL-3)
Freund, K. M. (A)
Goudeau, J. P., Jr. (M)
Harris, J. W., Sr. (A)
Hudson, C. A. J. (A)
McClung, W. C. (M)
Schnittker, F. B. (M)

Alpharetta (ATL-3)
Phillips, R. E. (M)

Athens (ATL-3)
Graham, E., Jr. (M)
Kauffman, R. G. (M)

Atlanta (ATL-3)
Adamson, H. D. (A)
Aderhold, H. J. (M)
Badgett, A. F. (M)
Bailey, R. N. (M)
Bangs, P. C. (M)
Barker, D. E. (M)
Bennett, A. L. (SM)
Berry, J. B., Jr. (M)
Bezaire, W. A. (M)
Bivins, W. P. (M)
Blaine, W. E. (A)
Blakely, C. E. (M)
Bondy, H. A. (M)
Booth, T. S. (M)
Bouffiou, C. L. (M)
Boyd, J. E. (SM)
Bradley, W. H. (M)
Brady, J. W. (M)
Branch, B. S. (M)
Bryant, D. J. (M)
Bull, W. J. (M)
Callaway, W. M., Jr. (A)
Carter, J. V., Jr. (M)
Chastain, J. B. (M)
Chick, E. B. (M)
Chick, R. L. (M)
Clayton, L., Jr. (M)
Cloninger, W. C. (M)
Coker, Q. W. (M)
Corriher, H. A., Jr. (M)
Cozad, J. W. (A)
Craddock, H. C., Jr. (M)
Creel, J. D. (M)
Crowe, W. H. (M)
Dasher, B. J. (F)
Daugherty, C. F. (M)
Dean, H. G., Jr. (M)
Duggan, R. S., Jr. (M)
Ellis, R. L., Jr. (M)
Faris, D. W. (M)
Fattig, W. L. (M)
Fausett, F. (SM)
Fielder, D. C. (SM)
Finn, D. L. (M)
Flynt, E. R. (SM)
Forde, J. W. (M)
Foster, H. O. (M)
Foust, J. J. (A)
Fullbright, H. J., III (A)
Glenn, L. E. (M)
Googe, J. M. (SM)
Hammond, J. L., Jr. (M)
Hawthorne, G. B., Jr. (M)
Hayes, R. D. (M)
Holbrook, R. A. (M)
Holey, J. G. (M)
Hollis, J. S. (M)
Holmes, E. G. (SM)
Horne, D. O. (A)
Hurd, F. K. (M)

Jenkins, S. P., Jr. (M)
Johnson, P., Jr. (A)
Johnson, R. W. (A)
Jones, C. T. (M)
Jones, W. B., Jr. (SM)
Kincaid, J. B., Jr. (M)
King, E. E. (M)
Knight, G. A. (M)
Kooken, M. L. (A)
Kresge, P. A. (M)
Lenoir, S. P., Jr. (M)
Lesser, N. (M)
Lindgren, T. D. (M)
Long, J. T. (M)
Long, M. W. (SM)
Lord, C. R. (M)
McCorvey, A. (M)
McCurley, E. A. (M)
McKinley, H. L. (SM)
Meek, R. E. (M)
Miles, I. M. (M)
Miller, W. B., Jr. (SM)
Minton, R. (M)
Montgomery, B. E. (SM)
Moore, C. G. (M)
Morris, J. S. (M)
Morris, K. G. (M)
Morrissey, D. J. (M)
Opie, A. (SM)
Overcash, F. J. (SM)
Paris, D. T. (M)
Parkins, F. A. (M)
Payne, E. R. (A)
Peacock, W. M. (M)
Penney, A. T. (A)
Pidgeon, R. E., Jr. (M)
Poncinie, D. J. (A)
Prince, M. D. (SM)
Ragsdale, H. W. (SM)
Reid, H. L. (M)
Reynolds, B. G. (A)
Rivers, T. A. (M)
Robinson, G. P., Jr. (SM)
Sessoms, J. G., Jr. (M)
Simonds, F. M., Jr. (A)
Smith, G. H., Jr. (M)
Sparkman, R. W. (M)
Stephenson, J. W. (M)
Strain, C. E. (M)
Su, K. L. (SM)
Sylvester, R. C. (M)
Tallet, J. E. (M)
Teegardin, H. H. (A)
Tooke, R. H. (A)
Turner, C. J., Jr. (M)
Vaughn, C., Jr. (SM)
Walker, W. P. (M)
Wallace, J. M., Jr. (M)
Walsh, J. R., Jr. (M)
Warren, W. B., Jr. (M)
Welsh, J. A. (M)
White, T. M., Jr. (M)
White, W. E. (A)
White, W. H. (M)
Williamson, F. R., Jr. (M)
Witt, S. N., Jr. (SM)
Wood, E. W. (M)

Augusta (CAR-3)
Cook, L. H., Jr. (M)
Cooper, L. D., Jr. (M)
Malmberg, J. E. (M)
O'Brien, J. A. (M)
Pignataro, J. A. (M)
Smith, B. M. (M)
Swink, J. E. (A)
Tarpley, M. W. (M)
Walker, J. E. (M)
White, B. F. (A)
Williamson, W. A. (A)

Blythe (ATL-3)
Galloway, R. E., Sr. (SM)

Bonaire (ATL-3)
Nix, F. E., Jr. (M)

Brunswick (ATL-3)
Smith, J. E. (M)

Carrollton (ATL-3)
Crawford, E. W. (M)

Chamblee (ATL-3)
Carter, R. C. (M)
Duncan, C. L. (SM)
Randall, T. M. (M)

College Park (ATL-3)
Billings, R. H. (M)

Columbus (ATL-3)
Des Portes, C. (M)
Gamble, J. A. (M)
Hogencamp, H. C. (SM)

Covington (ATL-3)
Bowen, J. L. (M)

Cumming (ATL-3)
Borman, A. P. (A)

Dalton (ATL-3)
Andrews, J. S. (A)

Decatur (ATL-3)
Anagnost, A. L. (A)
Berry, G. C. (A)
Fry, J. C. (A)
Gregorie, J. A. (A)
Johnson, R. S. (M)
Johnson, T. F. (M)
Lindsey, E. B., Jr. (M)
Moore, W. H. (M)
Nulph, D. R. (M)
Robertson, D. W. (SM)
Wilson, J. C. (M)

Doraville (ATL-3)
Betz, J. D. (M)
Chupp, E. W. (M)
Currie, C. H. (A)
Goodwin, J. P., Jr. (M)
Harvey, J. (A)
Morgan, T. W., Jr. (M)
Shockley, T. D., Jr. (M)

East Point (ATL-3)
Brewer, R. V. (M)
Hardy, T. L. (A)
Hunt, J. N. (M)

Forest Park (ATL-3)
Clayton, J. F., Jr. (M)
Schmidt, H. H. (M)
Walker, P. D. (A)

Fort Benning (ATL-3)
Boatright, B. C. (M)
Kost, M. (A)

Fort Gordon (S-CAR-3)
Corless, R. L. (M)

Fort Stewart (ATL-3)
Caffey, T. W. H. (M)

Gainesville (ATL-3)
Butenhoff, R. L. (M)

Grovetown (ATL-3)
Johanson, K. A., Jr. (M)

Hapeville (ATL-3)
Almand, A. F. J. (A)

Macon (ATL-3)
Bush, A. M. (M)
Cunningham, O. J. (M)
Farber, E. (M)
Finison, G. W. (M)
Hildreth, H. J. (A)
Reardon, L. J. (M)

Marietta (ATL-3)
Benson, J. W., Jr. (A)
Carman, H. B. (M)
Carter, W. E. (M)
Davis, C. C. (M)
Dunphey, H. B., Jr. (M)
Erwin, E. (SM)
Griffin, C. H., Jr. (M)
Haley, D. C. (A)
Holder, F. P. (SM)
Holliday, F. S. (M)
Levine, R. B. (M)
Mash, J. T., Jr. (A)
McJunkin, W. D. (M)
Mooney, J. A. (M)
Moseley, R. E. (M)
Reed, E. A., Jr. (M)
Stebbins, C. W. (M)
Stiltz, H. L. (M)
Whiffen, M. C. (M)
Wilkinson, L. E. (A)
Wrigley, W. B. (SM)

Palmetto (ATL-3)
Phillips, C. L. (M)

Powder Springs (ATL-3)
Luedtke, A. (M)

Reynolds (ATL-3)
Bond, D. E. (M)

Robbins AFB (ATL-3)
Farley, J. B., Jr. (A)
Venerella, J. A. (M)
Wingfield, J. D. (M)

Rome (ATL-3)
Jones, A. E. (M)
Starr, R. A. L. (M)

Savannah (S-CAR-3)
Bigbie, E. F. (A)
Goodman, K. E. (M)
Hanscom, R. L. (M)
Olson, J., Jr. (A)

Smyrna (ATL-3)
Brown, W. E. (M)
Chatham, J. R. (A)
Gorton, R. M. (M)
Harley, W. N., Jr. (M)
Hurst, H. C. (M)
Reagh, W. L. (M)
Spencer, J. M., Jr. (M)
Weingarten, R. (M)

Summerville (ATL-3)
Stowers, J. S. (M)

Thomasville (ATL-3)
Totman, S. (M)

Tifton (ATL-3)
Dozier, W. A. (M)

Valdosta (ATL-3)
Lineberger, W. F. (M)

Warner Robins (ATL-3)
Kahrs, E. R. (M)
Luttrell, M. R. (A)
Rodenroth, R. D. (M)
Ward, R. C. (M)

West Point (ATL-3)
Strother, F. P. (M)

HAWAII

Hilo (HAW-7)
Allison, R. E. (SM)

Naalehu (HAW-7)
Martin, J. D. (M)
Okuna, T. M. (A)
Surowiec, D. S. (M)

HAWAII KAUAI

Eleele (HAW-7)
Angle, E. E. (M)

Kekaha (HAW-7)
Dykes, W. E. (A)

Kilauea (HAW-7)
Motoyama, R. S. (A)

Lawai (HAW-7)
Morlwaki, D. S. (M)

HAWAII MAUI

Kahului (HAW-7)
Katahara, S. (M)

HAWAII OAHU

Aiea (HAW-7)
Bell, A. E. (M)
Gilliam, A. A. (M)
Kelly, V. (M)
Nishimura, K. K. (A)
Owskey, R. D. (A)
Sisbold, A. P., Jr. (M)

Ewa (HAW-7)
Cornez, A. L. (M)

Ewa Beach (HAW-7)
Graps, A., Jr. (M)
Harger, E. J., Jr. (A)
Kobayashi, H. K. (M)

Fort Shafter (HAW-7)
Gustavus, H. (M)

Haleiwa (HAW-7)
Martin, R. G. (A)
Mende, Y. J. (M)

Honolulu (HAW-7)
Alden, R. M. (M)
Anderson, J. W. (A)
Annable, W. G. (M)
Asato, M. (A)
Atherton, J. B. (M)
Baker, C. A. (M)
Bell, R. E. (M)
Braqassa, E. B. (A)
Bill, G. D. (M)
Bittle, D. F. (M)
Britton, J. R. (SM)
Buice, G. S. (M)
Chang, R. H. M. (M)
Ching, R. T. K. (M)
Cogolinski, J. A. (A)
Dillinger, W. D. (SM)
Dixon, F. C. (A)
Doucette, L. J. (M)
Edwards, N. R. (SM)
Fakoury, E. P. (M)
Fenner, P. R. (A)
Fuchikami, A. H. (A)
Fujimoto, F. S. (A)
Fujimura, T. M. (A)
Gilroy, R. B. (M)
Goo, J. F. S. (M)
Goo, S. H. (M)
Gott, E. (SM)
Grubb, D. L. (M)
Hannah, D. C. (A)
Higa, K. (M)
Hoag, D. S. (M)
Hosokawa, K. (M)
Hughes, G. R. (M)
Ing, J. C. Y. (M)
Izumi, G. Y. (A)
Johnson, W. F. (M)
Kam, B. W. (M)
Kam, P. Y. T. (A)
Kang, Y. O. (M)
Kato, R. S. (A)
Kobold, J. W. (A)
Kommei, B. B. (A)
Krulish, R. C. (A)
Kung, L. (A)
La Porte, B. E. (M)
Larson, L. J. (M)
Leong, A. L. T. (M)
Lewbel, S. H. (M)
Lindemann, E. G. (A)
Lovelace, D. G. (M)
Mercer, I. G. (M)
Metz, N. J. (M)
Miller, R. W. (A)
Miyake, I. (M)
Morrison, A. C. (M)
Murray, J. D., Jr. (M)
Murray, J. M. (A)
Najita, K. (M)
Nakamura, D. S. (M)
Neifert, K. G. (A)
Oderthal, L. H. (M)
Ozaki, G. K. (M)
Pang, D. L. (M)
Partridge, R. E. (SM)
Piety, G. (M)
Pires, M. D. (A)
Ponsness, R. D. (M)
Quin, K. H. (M)
Sanders, J. R. (A)
Shibata, A. M. (A)
Short, R. C. (M)
Stagner, G. H. (M)
Street, C. (A)
Suzuki, C. K. (A)
Tamura, L. T. (A)
Vaughan, V. (M)
Warren, H. E. (M)
Waterman, R. D. (A)
Wheaton, L. H. (A)
Wong, C. H. L. (M)
Yasaka, E. K. (A)
Yoshimori, H. E. (M)
Young, M. F. (M)
Yuen, C. M. F. (M)

Kailua (HAW-7)
Brenessel, A. (M)
Chow, A. V. (M)
Clark, G. W. (SM)
Dashiell, D. H. (M)
Lee, R. T. S. (A)
Lane, H. (A)
Mangold, J. F. (M)
Meyer, E. E. (M)
Michell, A., Jr. (M)
Morgan, W. R., Jr. (A)
Oder, H. W. (M)
Roberts, T. H. (A)
Rotolo, N. V. (M)
Selvaggio, V. F. (A)
Shak, H. K. Y. (A)
Spiller, J. H., Jr. (M)
Springel, M. (M)
Van Sickle, G., Jr. (A)
Vitum, M. S. (SM)

Kaneohe (HAW-7)
Andrews, F. D. (A)
Evanson, G. L. (A)
Schoen, E. C. (A)
Tanigawa, N. F. (M)
Turner, H. E. (M)

Pearl City (HAW-7)
Maertz, W. A. (M)
Osumi, S. Y. (M)

Pearl Harbor (HAW-7)
Mason, F. L. (SM)

Wahiawa (HAW-7)
Hahn, G.K. P. (A)
Janda, E. G. (A)
McMenamin, S. B. (M)

Waianae (HAW-7)
Chun, R. H. C. (M)
Flores, H. (SM)
Hooper, W. O. (A)

IDAHO

Arco (SLC-7)
Pope, B. K. (M)

Blackfoot (SLC-7)
Bowser, D. E. (M)
Dye, F. C. (M)

Boise (SLC-7)
Barry, R. W. (M)
Beadles, R. V. (M)
Betebenner, G. W. (M)
Oberbillig, D. D. (M)
Sternling, A. J. (M)

Idaho Falls (SLC-7)
Anderson, S. D. (M)
Barry, J. E. (M)
Brockett, G. F. (M)
Collins, H. E. (M)
Copyak, R. L. (M)
Criddle, C. B. (M)
Graham, I. H. (M)
Hansen, H. R. (M)
Hyndman, R. W., Jr. (M)
Little, R. I. (M)
McCollom, K. A. (SM)
Meichle, F. A. (M)
Purcell, R. B. (M)
Thompson, J. B. (A)

Lewiston (SEA-7)
Olin, R. W. (M)

Malad (SLC-7)
Jones, H. P. (M)

Moscow (SEA-7)
Barak, W. S., Jr. (M)
Beattie, L. A. (M)
Maxwell, L. M. (M)
McKean, G. A. (M)

Mount Home (SLC-7)
Burnette, W. D. C. (A)

Pocatello (SLC-7)
Cox, J. W. (M)
Wilson, T. J. (A)

Rexburg (SLC-7)
Davenport, L. H. (M)

Rockford Bay (SEA-7)
Webb, H. J. (M)

Twin Falls (SLC-7)
Foss, M. L. (M)
Oberbillig, D. D., Jr. (A)
Welch, P. L. (A)

Weiser (SLC-7)
Miller, E. C. (M)

ILLINOIS

Addison (CHI-5)
Batlin, J. W. (M)
Krause, E. H. (M)
Roberts, E. L. (M)
Schranz, R. J. (M)
Walker, D. L. (M)

Algonquin (CHI-5)
Peterson, W. G. (SM)

Alton (SL-6)
Day, R. T., Jr. (M)
Ulrich, D. P. (A)
Wilken, H. W. (SM)

Antioch (CHI-5)
Balsamello, J. (A)
Pechousek, T. W. (A)

Argonne (CHI-5)
Abdelaziz, M. E. (M)
Anderson, T. T. (M)
Baker, S. I. (M)
Brar, S. S. (M)
Connor, D. W. (M)
Larsen, R. N. (M)
Praeg, W. F. (M)
Wilde, R. A. (M)

Arlington Heights (CHI-5)
Babcock, L. V. (M)
Bez, R. O. (M)
Coblenz, A. (SM)
Gerlach, A. A. (SM)
Hampel, W. J. (M)
Kahanic, F. P. (M)
Koeritz, K. W. (M)
Kopp, C. J. (M)
Kroes, D. P. (M)
McInnis, R. D. (M)
Morgan, J. E. (A)
Naeher, W. F. (A)
Novak, B. R. (A)
Patterson, W. S. (M)
Raef, A. J. (A)
Remley, H. L. (M)
Revor, R. J. (M)
Stout, E. R. (M)
Thalls, W. (A)
Wegwert, J. (M)
Weirich, E. M. (SM)
Weltin, O. K. (SM)
Wray, P. G. (M)

Atlanta (CHI-5)
Speciale, J. S. (A)

Aurora (CHI-5)
Cruz, R. (M)
Du Pau, W. R. (M)
Gramley, W. D. (M)
Lamb, C. (M)
Schultz, R. J. (M)
Ziegler, A. A. (A)

Barrington (CHI-5)
Adler, W. A. (A)
Aram, N. W. (M)
Craigue, A. (A)
Gelzer, J. R. (M)
Koci, J. C. (A)
Krumhardt, C. (A)
Landeck, J. H. (M)
McNabb, L. A. (SM)
Nearing, F. G. (M)
Provart, R. (M)
Ryan, R. J. (SM)
Stroh, W. J. (SM)

Bartlett (CHI-5)
Booth, S. F. (SM)
Irelan, H. F. (M)
Tappan, P. W. (M)

Batavia (CHI-5)
Cunningham, J. A. (A)
Livingston, E. V. (M)
Slekman, W. J., Jr. (A)

Belleville (SL-6)
Burton, F. E. (A)
Ford, J. D. (A)
Huck, R. H. (M)
Klingler, R. R. (M)
Kunkel, W. E. (A)
Martin, W. G. (M)
Mercer, W. T. (A)
Mueller, T. E. (M)
Nance, M. E. (A)
Nance, W. F. (M)

Nevenner, R. J. (A)
Pfister, R. C. (M)
Reiniger, R. A. (A)
Rideout, H. A. (M)
Scharringhausen, R. L. (M)
Stewart, J. H. (A)
Warren, W. E. (M)

Bellwood (CHI-5)
Baltezore, R. C. (M)
Bergstrom, C. R. (A)
Castor, R. W. (M)
Chilpala, E. J. (A)
Glander, H. H. (M)
Kuchuris, G. F. (A)
Lafferty, V. C. (M)
Marik, E. (A)
Minarcik, G. P. (M)
Molzahn, H. W. (M)
Thompson, J. P. (A)
Vokoun, R. C. (A)
Walker, D. B., Jr. (M)
Welshar, W. J. (M)

Benld (CHI-5)
Bertorello, T. A. (M)

Bensenville (CHI-5)
Bernstein, J. M. (M)
Druz, W. S. (SM)
Hilton, F. L. (SM)
Houghton, M. E. (A)
Hynes, E. A. (SM)
Martin, B. F. (A)
Ozarka, R. J. (A)
Saudinaitis, E. (A)
Seaman, D. L. (M)
Sullivan, E. F. (M)
Swanson, C. W. (A)
Uhl, M. H. (M)
Whiting, R. F. (SM)

Berkeley (CHI-5)
Bratschun, R. C. (M)
Drobish, R. W. (A)
Eckmann, L. G. (M)

Berwyn (CHI-5)
Annett, M. C. (A)
Biss, M. W. (A)
Cernak, C. W. (M)
Fanta, F. A., Jr. (M)
Froberg, W. E. (M)
Glozer, A., Jr. (A)
Hughes, E. C. (M)
Jarrette, V. (SM)
Knox, C. M. (M)
Kovar, G. F. (M)
Mares, G. J. (M)
Mrazek, W. F. (M)
Overzet, J. K. (M)
Prentiss, J. G. (SM)
Russ, W. E. (M)
Schuetz, C. R. (A)
Sindelar, C. J. (M)
Sumoski, A. W. (SM)
Towler, G. S. (A)
Van Der Molen, J. F. (M)
Vlach, G. (A)
Zboran, L. (M)

Bloomingdale (CHI-5)
Knechtel, R. E. (M)
McLaughlin, R. C. (M)

Bloomington (CHI-5)
Moulic, W. E., Jr. (M)
Schweikert, W. R. (M)

Blue Island (CHI-5)
Damm, G. J. (A)
Engelland, G. C. (A)
Lamcha, F. J. (A)
Lawler, J. A. (M)

Broadview (CHI-5)
Armstrong, J. B. (A)
Becker, R. C. (M)
De Both, R. F. (M)
Devine, M. L. (M)
Gago, W. J. (M)
Gray, R. O. (SM)
Heerdt, R. J. (M)
Rous, W. H. (A)
Sladek, N. J. (M)
Soria, R. M. (F)
Van Cura, E. J., Jr. (A)
Wood, R. D. (M)

Brookfield (CHI-5)
Buu, M. (M)
Holpuch, D. J. (M)
Koller, F. R. (M)
Lesko, L. W. (M)
McCarthy, T. D., Jr. (M)
Miller, J. O. (A)
Ruther, H. E. (M)
Specht, C. D. (M)
Vitous, J. P. (M)
Vose, L. N. (M)
Vuchetich, J. B. (A)

Calumet City (CHI-5)
Mahala, J. A. (M)
Oprisko, A. F. (A)

Carbondale (SL-6)
Crosby, H. A. (M)
Dixon, W. E. (SM)

Carpentersville (CHI-5)
Caprio, G. L. (A)
McCay, J. T. (A)
McGann, W. E. (M)
Pelletier, A. (A)
Ross, K. B. (M)
Spiro, S. J. (M)

Carterville (CHI-5)
Muir, J. F. (A)

Cary (CHI-5)
Grengo, W. M. (M)

Champaign (CHI-5)
Albright, W. G. (SM)
Allen, C. R. (M)
Atwood, L. W. (M)
Babcock, M. L. (M)
Bliss, R. W. (M)
Brearley, H. C., Jr. (M)
Buenger, G. L. (M)
Chen, F. C. (M)
Coleman, P. D. (M)
Crow, R. K. (M)
Cummings, R. L. (M)
Deschamps, G. A. (F)
Divilbiss, J. L. (M)
Ernst, E. W. (SM)
Grosvenor, H. D. (M)
Hanson, E. E. (M)
Hardy, R. M. (M)
Harlan, J. R. (M)
Hayden, E. C. (M)
Helzer, K. W. (M)
Hodges, R. R., Jr. (M)
Hotchkiss, S. E. (M)
Leichner, G. H. (M)
Lo, Y-T. (M)
Mayes, P. E. (M)
McClelland, O. L. (M)
Meagher, R. E. (M)
Melman, M. (M)
Myers, R. L. (M)
Nezl, J. P., II (M)
Nelson, G. L. (M)
Patton, W. T. (M)
Peek, L. J. (M)
Pisterzi, M. J. (M)
Reichelt, R. C. (M)
Skaperdas, D. O. (M)
Smith, R. S. (M)
Stalcup, R. E. (M)
Wainscott, J. M. (M)
West, R. L. (SM)
Winton, H. J. (M)

Chicago (CHI-5)
Abegg, G. R. (A)
Addison, W. G. (M)
Adducci, A. J. (A)
Adler, R. (F)
Ahring, F. E. (A)
Aichholzer, R. A. (M)
Aito, I. (M)
Akimoto, W. M. (M)
Aklinski, M. J. (A)
Alessio, S. A. (A)
Allibone, F. L. (M)
Alspaugh, K. E. (A)
Ambos, C. (M)
Anagnost, J. T. (SM)
Anderson, D. L. (M)
Anderson, R. H. (M)
Anderson, R. S. (A)
Anderson, R. T. (M)
Anderson, T. W., Jr. (M)
Anderson, V. S. (M)
Andresen, K. W. (M)
Andris, P. (M)
Anton, A. J. (A)
Apfelbaum, J. G. (M)
Arendt, J. R., Jr. (A)
Argall, G. J. (M)
Argoudelis, E. (M)
Argy, T. W. (M)
Arkin, D. M. (M)
Arndt, R. J. (M)
Arnold, P. W. (M)
Arnow, C. L. (M)
Aronson, H. A. (M)
Arseneau, R. E. (M)
Ashenhurst, R. L. (M)
Attard, A. E. (M)
Aulbach, C. E. (A)
Azukas, D. C. (M)
Baker, F. C. (A)
Baker, H. G. (M)
Baloun, R. J. (A)
Bansch, F. G. (M)
Barto, J. P. (SM)
Bass, S. (M)
Bauer, A. S. (M)
Beck, R. R. (M)
Becker, H. W. (M)
Becker, W. R. (M)
Beebe, C. W. (M)
Beier, L. W. (M)
Bell, I. I. (M)
Berg, A. A. (M)
Bergen, H. A. (M)
Berger, J. (SM)
Bernard, B. (A)
Bernat, L. (M)
Betz, R. F. (A)
Beveridge, D. M. (A)
Bialek, S. T. (M)
Biberman, L. M. (SM)
Billie, R. L. (A)
Bilsens, G. (M)
Bird, E. H. (A)
Bjerre, P. (M)
Blahna, C. (SM)
Blinoff, W., Jr. (A)
Blivice, S. L. (M)
Blomberg, R. C. (A)
Bloomenthal, S. (SM)
Blum, A. S. (M)
Bluzat, C. R. (A)
Borgstrom, J. H. (M)
Borkovitz, H. S. (M)
Borovik, D. I. (M)
Bory, R. A. (M)
Bott, H. A. (M)
Boyd, G. M. (M)
Boyll, L. O. (A)
Bracha, M. F. (M)
Branscome, E. O. (A)
Brietze, F. (M)
Brock, W. R. (M)
Brown, J. S. (SM)
Brown, L. E. (M)
Brugliera, V. G. (M)
Buban, J. E. (M)
Buchholz, F. G. (M)
Buchner, R. E. (M)
Buckley, J. R. (M)
Burmeister, M. A. (M)
Butchke, H. A. (M)
Callis, T. J. (A)
Canell, G. P. (A)
Carlson, G. I. (M)
Carlson, R. D. (M)
Carter, R. (A)
Cassettari, F. (M)
Ceretta, B. J. (A)
Chalmers, E. D. (M)
Chandler, J. F. (SM)
Cherskov, J. S. (A)
Chittenden, G. W. (M)
Chiu, P. (M)
Chodash, E. M. (M)
Chorney, G. I. (A)
Christensen, R. T. (M)
Churlin, E. (A)
Cinelli, G., Jr. (M)
Claras, C. W. (M)
Clardy, L. (M)
Clark, F. J., Jr. (M)
Clark, R. A., Jr. (M)
Cleveland, V. K. (A)
Cody, R. W. (A)
Coglianese, C. J. (A)
Cohen, M. S. (M)
Cohen, T. A. (SM)
Cohn, C. M. (A)
Cohn, G. I. (SM)
Cohn, S. I. (SM)
Colby, R. J. (A)
Contos, P. G. (M)
Conti, A. (A)
Cook, R. H. (M)
Copeland, P. L. (M)
Cord, J. H. (M)
Correia, F., Jr. (M)
Coulter, G. W. (M)
Crites, A. B. (A)
Crossley, R. C. (M)
Csorba, E. P. (M)
Cummings, D. J. (A)
Cunliffe, P. R., Jr. (M)
Dabkowski, J., Jr. (M)
Dalling, J. L. (M)
Dalletos, S. A. (A)
Daniels, H. B. (A)
Davidson, P. (A)
Day, A. (A)
Dean, G. R. (A)
Dean, N. J. (SM)
De Ball, L. M. (A)
Decho, K. R. (M)
De Cicco, J. (M)
De Haan, J. (A)
DeMaree, F. E. (SM)
De Matoff, M. B. (M)
Deutsch, K. J. (A)
Desmares, P. C. J. (M)
Develkis, J. G. (A)
De Verter, W. G. (A)
Dezettel, L. M. (A)
Dirsa, E. F. (M)
Djordjevic, M. Z. (M)
Doland, G. D. (M)
Dowd, J. J. (A)
Draus, A. R. (M)
Drexler, M. D. (M)
Drozt, P. (A)
Du May, E. C. (A)
Duncan, C. W. (M)
Duncan, L. J. (A)
Dupuis, J. J. (M)
Ebel, D. G. (A)
Ebstein, B. (M)
Edwards, G. L. (A)
Elden, R. H. (A)
Eisenberg, H. (M)
Elam, J. G. (M)
Ellett, A. (SM)
Ellison, R. M. (M)
Elsner, R. F. (M)
Eltoroth, M. J. (SM)
Eness, O. M. (M)
Engel, J. E. (M)
Engelbrecht, L. R. (M)
Epstein, M. (M)
Eul, E. A., Jr. (M)
Even, J. C., Jr. (M)
Everitt, B. W. (M)
Fabsits, E. J., Jr. (A)
Fahrholz, D. D. (A)
Fallucco, C. V. (A)
Faraone, J. N. (M)
Feldman, J. R. (M)
Ferris, W. T. (M)
Fetterman, D. M., (M)
Fields, T. (SM)
Filio, M. (A)
Filios, R. P. (A)
Finlay, G. E. (A)
Fischer, A. J. (A)
Fix, W. G. (M)
Flannery, E. J. (M)
Flesher, G. T. (M)
Flocken, L. H. (SM)
Fluskey, C. J. (M)
Foecking, D. A. (M)
Foley, R. R. (M)
Fonte, G. (M)
Foss, H. (A)
Foster, G. E. (M)
Fotiadi, N. T. (A)
Fox, R. D. (A)
Frank, D. H. (M)
Frank, E. J. (M)
Franklin, C. W. (M)
Franklin, W. S. (SM)
Frantzis, P. D. (M)
Freeman, R. L. (SM)
Freeman, R. W. (A)
Fryberger, D. (M)
Frye, J. W. (A)
Fujimoto, J. J. (A)
Gallagher, C. A. (M)
Gallagher, F. H. (A)
Galluppi, A. J. (M)
Gamache, L. J. (SM)
Gardberg, J. (M)
Garner, D. L. (A)
Gassner, F. (A)
Gayes, F. J. (M)
Geisel, T. (A)
Geisler, C. D. (M)
Genovese, A. N. (A)
Gens, H. J. (M)
Gentry, K. B., Jr. (M)
Gentry, K. M. (SM)
Gerber, H. L. (M)
Germain, J. (SM)
Gerontzos, J. P. (A)
Gershon, J. J. (SM)
Gerson, I. V. (M)
Gertz, R. L. (A)
Giacchetti, A. D. (M)
Glentzer, K. V. (SM)
Glomb, J. D. (M)
Goldberg, M. E. (M)
Goldman, H. J. (A)
Goldstein, M. (M)
Goldsworthy, W. T. (A)
Golko, J. (M)
Gordon, E. S. (SM)
Gore, E. M. (M)
Gozner, S. N., Jr. (M)
Graeber, R. S., Jr. (M)
Gray, D. (M)
Gray, J. L. (M)
Green, D. G. (M)
Greenebaum, E. N., Jr. (A)
Greenspan, P. (SM)
Greenstein, L. J. (M)
Greenstein, M. (A)
Grimme, H. J. (M)
Groll, R. A. (A)
Gross, J. F. (A)
Gross, R. R. (A)
Grosse, K. E. (A)
Grossman, W. S. (A)
Gudmundson, R. R. (A)
Guzzey, J. E. (M)
Haas, E. H. (M)
Haas, Z. A. (A)
Hagey, W. C. (SM)
Halinton, H. (M)
Halligan, W. J. (M)
Hammond, W. H., III (A)
Hamre, H. G. (M)
Hanan, J. P. (A)
Haney, J. A. (A)
Hanik, P. (M)
Hankin, R. B. (A)
Hansen, P. J. (M)
Hansen, W. H. (M)
Hanus, G. M. (M)
Hardy, H. C. (F)
Harrigan, G. S. (SM)
Harris, E. F. (M)
Haslett, J. W. (M)
Hassler, E. B. (SM)
Hay, E. (A)
Hayes, H. D. (SM)
Heermans, C. J. (M)
Hendriks, G. (M)
Henkle, H. H. (A)
Henning, F. B., Jr. (A)
Heponer, D. R. (M)
Hercher, F. J. (A)
Herman, R. N. (M)
Hess, W. I. (M)
Hessler, W. G. (M)
Higgins, P. W. (A)
Himmelstein, S. (M)
Hirshwa, D. S. (A)
Hjermstad, H. (M)
Hodge, B. (M)
Hofmann, R. E. (M)
Hogelee, M. A. (M)
Holbach, R. R. (M)
Holpuch, C. J. (M)
Holubow, H. (M)
Hom, L. H. (SM)
House, B. T. (M)
Huff, J. F., Jr. (M)
Hughes, H. K. (M)
Huitema, R. L. (M)
Hull, C. E. (M)
Hull, H. L. (SM)
Hummel, W. M. (A)
Hunt, G. J. (M)
Hupert, J. J. (SM)
Hutson, D. E. (M)
Imerson, H. E. (A)
Inda, J. A. (A)
Indra, J. J. (A)
Ingram, C. (A)
Jacob, F. N. (SM)
Jacobi, G. T. (SM)
Jacobsen, I. (A)
Jacobsohn, D. H. (M)
Jacobson, L. (M)
Jakubowski, R. A. (M)
Janowiak, R. M. (M)
Jantsch, R. W. (M)
Jaunisks, K. P. (M)
Jenkinson, G. H. (M)
Jennings, J. J., Jr. (M)
Jensen, K. A. (A)
Jeschke, D. R. (M)
Johnsen, N. B. (M)
Johnson, E. H. (SM)
Johnson, G. A. (M)
Johnstone, W. E. (M)
Jones, T. L. (M)
Jonic, B. B. (M)
Joy, W. F. (M)
Juchnevicius, V. H. (M)
Jung, F. T. (A)
Juodikis, P. (M)
Jurewicz, R. E. (M)
Kahn, B. (A)
Kahn, L. (M)
Kalbreier, W. C. (A)
Kale, G. W. (A)
Kantner, H. H. (M)
Kapoun, R. (M)
Karklys, J. (M)
Karpinski, E. W. (A)
Kazel, S. (A)
Keller, W. P. (A)
Kelly, E. P., Jr. (M)
Kelso, A. F. (A)
Kennedy, J. A. (M)
Kennedy, J. P. (SM)
Kenney, M. W. (SM)
Kerney, W. E. (A)
Kiefer, J. C. (SM)
Kietzer, J. E. (M)
Kiheri, A. (M)
Kilburn, A. B. (M)
Kilcoyne, T. F. (M)
Kim, D. (M)
Kimbell, R. G. (M)
Kingwill, H. S., Jr. (A)
Kirchner, L. P. (A)
Kirvaitis, K. (M)
Klees, W. B. (M)
Klein, M. (A)
Kloza, P. J. (M)
Klyce, B. H. (SM)
Knackstedt, G. (M)
Knuth, G. E. (A)
Koda, A. J. (A)
Koerner, F. A. (SM)
Kohn, E. B. (M)
Kohn, M. I. (A)
Kolbe, R. J. (A)
Konidaris, P. (M)
Kotter, A. S. (A)
Kowitz, A. E. (SM)
Kowols, G. J. (M)
Koziik, J. F. (M)
Kraitsik, N. I. (M)
Krakora, J. J., Jr. (SM)
Krc, P. S. (M)
Krefft, H. H. (M)
Kreight, T. M. (A)
Kries, J. T. (M)
Kroll, J. B. (M)
Krstansky, J. J. (M)
Krstanski, J. S. (A)
Krueger, R. M. (SM)
Kruse, H. J., Sr. (A)
Kubly, K. E. (M)
Kuhr, K. F. (A)
Kuhse, B. G. (M)
Kulosa, A., Jr. (A)
Kurinsky, J. S. (M)
Kvitek, G. L. (A)
Lagges, P. N., Jr. (M)
Lamons, R. P. (SM)
Laney, B. H. (M)
Lange, J. R. (M)
Larson, R. J. (M)
Leach, J. F. (M)
Leahy, P. J. (M)
Leatherman, J. E. (A)
Lee, D. K. K. (M)
Leedy, H. A. (F)
Lees, G. R. (A)
Leitich, A. J. (M)
Lencioni, C. C., Jr. (M)
Lenz, C. E. (SM)
Leonard, J. C. (M)
Leong, S. L. (M)
Leong, S. P. (M)
Leonhardt, J. D. (M)
Leponis, A. E. (M)
Leu, T. W. (M)
Levine, J. M. (A)
Lewin, N. L. (M)
Lewis, R. A. (A)
Lewis, W. A. (SM)
Liberman, A. (SM)
Liepold, R. B. (M)
Linder, K. C. (M)

Linell, C. S. (A)
Liu, Y. Y. (A)
Liubinskas, J., Jr. (M)
Lotsoff, S. N. (M)
Louie, L. M. (M)
Low, I. H. (SM)
Lucas, R. A. (A)
Lund, V. M. (M)
Magnuson, C. R. (M)
Malone, P. P. (M)
Manos, G. P. (M)
Mansfield, R. (M)
Margala, A. J. (M)
Marinakos, L. C. (M)
Markunas, R. S. (M)
Marquedant, R. J. (M)
Marren, B. T. (M)
Marsland, H. W. (A)
Marszalek, H. L. (M)
Martin, C. B. (SM)
Martin, W. S. (M)
Martinez, H. M. (M)
Marx, A. C. (M)
Massey, W. A. (M)
Masters, E. W. (SM)
Mateja, E. V. (A)
Matthews, L. E. (M)
Matzek, L. T. (SM)
May, R. L. (A)
McCall, T. C. (A)
McCarrell, S. G. (M)
McDonnell, J. P. (A)
Mc Dougall, D. S. (M)
McManus, J. E. (M)
Mc Norton, S. L. (A)
Medeiros, J. C. (M)
Meehan, E. L. (A)
Mengers, P. E. (M)
Messinger, H. P. (M)
Meyers, F. (A)
Mikos, E. J. (M)
Miller, C. G. (M)
Miller, C. H. (M)
Miller, E. L. (M)
Miller, L. K. (A)
Mills, G. G. (M)
Minneste, V., Jr. (M)
Miska, J. K. (M)
Mitchell, F. R. (M)
Mitchell, J. F. (SM)
Mitchell, L. W. (M)
Mitnick, S. (M)
Mittelmann, E. (F)
Miyasaki, J. K. (M)
Molyneaux, R. J. (A)
Moon, R. J. (SM)
Moran, J. P. (A)
Morgan, G. M. (M)
Morris, L. P. (M)
Morrison, R. E. (M)
Moynihan, J. F. (M)
Mueller, E. L. (M)
Mueller, F. L. (M)
Mueller, R. W. (M)
Murray, W. R. (M)
Murre, R. W. (A)
Musal, H. M. (M)
Nagata, H. T. (M)
Nail, J. J. (SM)
Nasereddin, T. S. (M)
Natkevicius, F. (M)
Nawracaj, E. P. (A)
Nawracaj, J. J. (A)
Neben, H. M. (SM)
Nelson, S. W. (SM)
Ness, W. H. (M)
Newman, J. E. (M)
Nickel, D. F. (M)
Niederman, B. (SM)
Nierman, L. G. (M)
Niklas, W. F. (M)
Niman, G. J. (M)
Noskowicz, T. S. (M)
Novak, J. F. (SM)
Novak, P. D. (M)
Oboq, L. F. (M)
O'Brien, E. (M)
O'Donnell, J. P. (M)
Oeste, R. A. (M)
O'Grady, J. J. (M)
Ohn, T. (M)
Oldfield, R. L. (M)
Olshan, S. (M)
Ore, G. A. (M)
Orr, B. B. (A)
Orvedahl, W. (M)
Ose, R. C. (A)
Ostrand, K. T. (A)
Oulmet, F. A. (M)
Page, L. W. (A)
Parchin, N. J. (M)
Padva, P. D. (A)
Palm. H. A., Jr. (M)
Panicali, N. (M)
Pankos, J. F. (M)
Pantalone, W. N. (M)
Park, G., Jr. (M)
Parkinson, J. A. (M)
Pawlak, R. M. (A)
Pawlus, J. (M)
Peach, L. C. (A)
Pearce, G. R. (M)
Pearl, B. (M)
Pedersen, R. V. (M)
Pelsker, R. F. (M)
Penman, S. (M)
Peter, D. (M)
Petersen, R. E. (A)
Peterson, C. D. (M)
Peterson, J. W. (M)
Peterson, R. W. (M)
Peth, R. (M)
Petranek, J. A. (M)
Pfaff, E. R. (SM)
Pfister, R. A. (M)
Phinney, T. W. (A)
Pinkowski, D. S. (M)
Pinnell, R. M. (A)
Pipes, C. P. (A)
Pirnat, F. J. (M)
Plame, S., Jr. (SM)
Pilce, G. W. (M)
Podlusky, M. V. (SM)
Pohl, R. G. (SM)
Popp, J. V. (M)
Poppy, D. J. (M)
Posen, L. M. (M)
Powell, C. S. (M)
Powers, G. L. (A)
Prince, R. T. (M)
Pryst. T. S. (SM)
Pshaenich, A. L. (M)
Puidak, H. (M)
Quateman, M. H. (SM)
Quinn, J. A. (A)
Quinn, J. L. (M)
Race, R. T. (A)
Radich, M. F. (M)
Radtke, J. F. (A)
Rafaels, U. (M)
Ramirez, L. (A)
Randolph, G. C. (A)
Rapshys, W. (M)
Rasins, W. L. (A)
Ratliff, C. D., Jr. (A)
Ratiray, A. I. (M)
Reichart, E. C. (M)
Reiling, G. E. (M)
Rennick, J. L. (SM)
Reszka, A. (M)
Ribner, M. (M)
Rice, P. (A)
Richter, F. A. (M)
Riddel, O. A. (M)
Rieger, W. H. (M)
Rini, J. S. (M)
Risky, F. A. (M)
Robinson, D. E. (A)
Rocca, C. J. (M)
Rodriguez, A. E. (M)
Rohel, G. Z. (M)
Romanchick, M. (M)
Ronning, H. (A)
Roschke, E. M. (SM)
Rose, L. L. (A)
Ross, E. H. (SM)
Rossi, C. V. (M)
Roy, M. R. (A)
Roszkowski, G. J. (A)
Rotter, A. (M)
Rounsaville, G. D. (M)
Rowe, T. L. (SM)
Ruby, E. S., Jr. (M)
Rusnak, M. (M)
Russell, B. J. (M)
Ruzic, N. P. (SM)
Ruzzler, J. A. (A)
Ryan, L. J. (SM)
Ryan, M. J. (A)
Rychtytzkyj, G. G. (A)
Rymas, S. J. (A)
Sabel, C. L. (A)
Sadzak, R. (A)
Salfro, Y. L. (M)
Sagami, D. B. (A)
Sakamoto, M. (M)
Saltzberg, T. (M)
Sances, A., Jr. (A)
Sangren, G. E. (SM)
Saunders, H. O., Jr. (M)
Scarpelli, N. F. (M)
Scherer, P. J. (A)
Schleicher, G. P. (SM)
Schlesinger, W. A. (M)
Schlueter, A. W. (SM)
Schmidt, W. E. (M)
Scholz, L. C. (SM)
Schrot, E. H. (SM)
Shuck, R. P. (M)
Schultz, P. D. (M)
Schulz, R. (A)
Schulz, R. B. (M)
Schur, R. C. (M)
Schurak, K. M (M)
Schwartz, J. (M)
Schwartz, P. S., II (A)
Schwartz, S. L. (M)
Sclaky, A. M. (M)
Sclurba, J. L. (M)
Scott, W. S. (M)
Seehawer, J. E. (M)
Semmer, J. W. (M)
Setton, H. A. (M)
Shallcross, G. P. (M)
Shapira, F. M. (M)
Shaver, J. M., Jr. (M)
Shonerock, R. C. (M)
Shulman, A. (M)
Sledare, R. J. (A)
Slenkiewicz, S. V. (M)
Siff, A. W. (A)
Sigborn, T. W. (A)
Sigrist, R. D. (M)
Silberbach, R. O. (M)
Silberg, S. (M)
Sinclair, D. C. (A)
Sivin, L. (A)
Skolnick, J. H. (M)
Skowron, A. J. (A)
Slugodzki, L. K. (M)
Slusser, W. S. (A)
Smandra, S., Jr. (M)
Smith, E. E. (A)
Smith, H. E. (M)
Smith, J. W. (A)
Smith, S. B. (SM)
Smits, W. J. (M)
Smoots, C. W., Jr. (M)
Snyder, O. P., Jr. (A)
Solomon, J. L. (SM)
Soma, R. (M)
Sorkin, A. (A)
Soufal, F. H. (A)
Spano, A. (A)
Spaulding, R. W. (A)
Spisak, G. C. (M)
Splitt, F. G., Jr. (SM)
Stanula, W. F. (A)
Staral, R. (A)
Stein, H. S. (M)
Steinbach, H. D. (M)
Steinberg, E. E. (A)
Steinman, D. J. (A)
Stem, M. (M)
Stettler, C. O. (M)
Stemm, R. E. (M)
Stiebel, R. (M)
Stimpfl, E. J. (A)
Stone, C. H. (SM)
Stone, N. (M)
Suson, I. (M)
Sussman, M. (A)
Suzuki, E. (A)
Suzuki, T. (M)
Swab, C. S. (M)
Swan, L. L. (A)
Swanson, W. G. (A)
Swinyard, W. O. (F)
Switzenberg, E. A. F. (M)
Sydejko, J. F. (A)
Szegho, C. S. (F)
Tado, S. T. (A)
Tanner, D. J. (A)
Taylor, E. H. (SM)
Thomas, G. E. (M)
Thompson, A. R. (M)
Thompson, J. E. (M)
Thompson, O. I. (SM)
Timmings, G. H. (SM)
Tlapa, J. A. (M)
Todd, S. R. (SM)
Tong, F. F. (M)
Toy, T. G. (A)
Trapper, R. P. (A)
Treasure, E. J., Jr. (M)
Trittenbach, J. M. (SM)
Troller, T. F. (M)
Tsai, S. (M)
Ulaszek, J. J., Jr. (A)
Uyeda, M. M. (M)
Vaccaro, A. C. (M)
Valassis, J. G. (M)
Valcik, L. (A)
Vance, G. (A)
Van Peer, N. J. (M)
Van Zeeland, W. A. (M)
Vemill, H. J. (A)
Virva, J. J. (M)
Viskanta, V. Z. (M)
Vitt, R. J. (A)
Voight, C. L. (A)
Volpi, D. O. (M)
Vrzan, S. J. (A)
Waka'bayashi, G. J. (M)
Wallene, G. (M)
Wallin, G. (M)
Walls, D. L. (A)
Walovich, J. J. (M)
Wanninger, A. M. (M)
Warmann, R. C. (M)
Warnke, G. F. (M)
Warren, C. S. (M)
Waska, W. E. (M)
Waterfall, F. E. (SM)
Watkins, D. M. (A)
Watson, L. E. (A)
Webb, E. M. (A)
Webero, K. H. (M)
Weil, R. B. (M)
Weinberg, H. J. (A)
Weisberg, A. M. (A)
Weise, D. (M)
Weisenburger, F. M. (M)
Weiss, P. A. (M)
Weissman, R. M. (SM)
Wendell, D. F. (M)
Wendt, J. A. (M)
Weninger, F. L. (M)
Weres, S. (A)
Wessling, R. (M)
Westerlund, C. T. (M)
Western, C. (A)
Weygandt, P. A. (M)
Weyrich, R. N. (M)
Whitaker, W. A. (M)
White, L. E. (A)
White, R. J. (M)
Whiteman, R. A. (SM)
Whitmer, M. H. (M)
Whitmore, R. C. (A)
Wickline, B. D. (M)
Widugiris, W., Jr. (M)
Wiecherlog, U. F. (A)
Wieczorek, A. B. (M)
Wiedro, S. B. (A)
Wiesner, E. P. (M)
Wiley, C. M. (A)
Williams, R. O. (M)
Willis, H. D. (A)
Wilocki, R. L. (M)
Winter, G. L. (M)
Winter, N. L. (M)
Winters, H. M. (M)
Wirsing, H. L. (M)
Wisnowski, W. C. (M)
Wlassow, S. (M)
Wolken, I. I. (M)
Wollack, N. J. (M)
Wood, C. E. (M)
Wood, T. F. (M)
Woods, A. A. (M)
Worban, R. A. (A)
Wozniak, R. R. (A)
Wrzepski, J. E. (M)
Wyckoff, P. H. (M)
Yazombek, F. W. (M)
Yello, J. F. (M)
Yuen, P. C. (M)
Zalda, W. L. (A)
Zalter, R. (A)
Zaremba, R. E. (M)
Zelasko, W. E. (M)
Zellner, F. L., Jr. (M)
Zimmerman, D. A. (A)
Zitkus, A. J. (A)
Zucker, H. (M)
Zuehls, E. J. (A)

Chicago Heights (CHI-5)
Halverson, S. L. (SM)

Cicero (CHI-5)
Atkinson, J. E. (M)
Bielsik, F. J. (M)
Borowski, R. E. (A)
Brander, R. (M)
Cech, E. J. (M)
Gritton, R. D. (A)
Herling, D. L. (M)
Jucius, S. W. (M)
Lidinsky, W. P. (M)
McNamee, R. J. (M)
Padgett, W. J. (M)
Pochay, M. V. (A)
Slad, G. F. (A)
Stecca, A. J. (SM)
Swoboda, C. A. (A)
Tsimbidis, J. J. (M)
Wein, F. (A)

Clarendon Hill (CHI-5)
Casey, P. J. (A)
Dawson, J. W. (M)
Dowding, F. G. (M)
Hargis, R. N. (M)
Klapperich, A. J. (M)
Knox, J. G. (M)
Marks, M. (SM)
Sayles, H. L. (A)
Valihora, S. M. (A)

Coal City (CHI-5)
Dix, F. W. (A)

Collinsville (SL-6)
Nochta, R. G. (M)
Roschke, T. H., Jr. (M)
Soboska, H. J. (A)
Weber, J. E. (M)

Crystal Lake (CHI-5)
Falk, B. (A)
Hawkins, B. C. (M)
Olson, G. A. (M)
Renskers, J. O. (SM)
Smith, G. B. (A)
Van De Houten, R. S. (M)
Weber, L. J. (SM)
Wells, J. G. (M)

Danville (CHI-5)
Booth, R. C. (M)
Thiede, P. W. (M)
White, W. J. (A)

Decatur (CHI-5)
Ablalter, H. F. (SM)
Cochran, M. R. (A)
Cupp, E. W. (M)
Dikinis, D. V. (M)
Faler, P. E. (M)
Hays, S. E. (M)
Iantorno, C. F. (M)
Koch, E. N. (M)
Koenig, H. G. (A)
Lanzara, E. M. (M)
Lolacono, J. V. (M)
Miller, R. L. (M)
Nelson, I. W. (SM)
Petrie, A. F. (M)
Puca, Q. J. (M)
Quinn, W. M., Jr. (SM)
Sarikas, R. H. (M)
Stark, J. A. (M)
Williams, C. J. (M)

Deerfield (CHI-5)
Barrett, A. M., Jr. (M)
Ehlers, M. W. (A)
Haas, W. F. (A)
Le Brun, D. E. (SM)
Mirkin, M. (M)
O'Neal, C. D. (M)
Petzing, E. W. (M)
Phillips, W. E. (M)
Sadler, B. L. (M)
Schlote, R. H. (M)
Thompson, J. P. (A)
Wemess, H. G. (A)

De Kalb (CHI-5)
Andersen, C. W. (SM)
Ritland, R. B. (M)
Tsao, P. Y. S. (M)

Des Plaines (CHI-5)
Adams, E. C. (M)
Bates, W. J. (M)
Bendell, C. B. (M)
Boyd, D. M., Jr. (SM)
Bushman, S. F. (M)
Carr, R. W. (A)
Carver, R. L. (M)
Casterline, B. (M)
Collins, F. V. (SM)
Crampton, G. W. (M)
Dahlem, R. K. (A)
Doering, J. H., Jr. (A)
Dorrell, R. F. (M)
Floge, E. E. (M)
Gifford, G. D. (A)
Githens, T. A. (SM)
Godawski, T. J. (A)
Hanen, R. K. (M)
Henrich, C. A. (A)
Herick, D. J. (M)
Himebrook, F. C. (M)
Kratochvil, R. A. (A)
Krizanosky, A. (A)
Langstaff, R. H. (M)
Lassila, A. A. (A)
Lauffenburger, H. A. (M)
Lenox, W. S. (M)
Loughran, R. H. (A)
Maginot, J. J., Jr. (M)
Maine, C. P. (A)
Makinson, G. E. (M)
Maywald, D. W. (M)
McDonald, W. H. (M)
Meyers, K. W. (M)
Mitchell, T. E. (A)
Naslund, R. S. (M)
Nemec, E. F., Jr. (M)
Padgitt, K. W. (M)
Paluka, C. F. (SM)
Payne, R. A. (M)
Purkis, R. E. (M)
Rathbun, E. R., Jr. (M)
Riley, C. R. (M)
Selven, E. R. (M)
Slack, M. J. (M)
Stanonis, A. F. (M)
Steele, A. J. (M)
Stephenson, G. B. (M)
Sundt, E. V. (SM)
Swanson, C. R. (M)
Utter, R. A. (A)
Von Fredersdorff, G.C. (SM)
Walding, E. C. (M)
Weinberg, M. (A)
Wojciuch, F. R. (A)
Zimbler, F. B. (M)

Divernon (CHI-5)
Dozier, W. H. (A)

Dixon (CR-5)
Albright, L. E. (A)

Dolton (CHI-5)
Jezewski, J. E. (M)
Wajda, J. P. (M)

Downers Grove (CHI-5)
Bateman, L. A. (A)
Bremigan, R. O. (M)
Brookshier, W. K. (M)
Carr, F. L. (M)
Courchene, H. B. (SM)
Daniels, R. E. (M)
Elarde, V. D. (SM)
Fitzsimmons, W. L. (A)
Frauens, W. R. (A)
Harder, R. B. (M)
Hess, D. C. (M)
Johnson, A. R. (A)
Kampf, H. A. (SM)
Kikta, D. D. (A)
Lane, C. R. (SM)
McDonell, W. J. (SM)
Miller, E. A. (SM)
Paul, J. M. (M)
Peckhart, M. A. (M)
Sawyer, C. E. (M)
Sleth, H. P. (A)
Van Keulen, A. J. (M)

Dwight (CHI-5)
Seabert, F. (A)

East Dubuque (CHI-5)
Walsh, W. J. (M)

East St. Louis (SL-6)
Barnard, G. E. (M)
Czekanski, D. S. (M)
Mutchek, J. H. (A)
Poston, H. J. (A)
Sirtak, R. V. (M)
Wise, H. G. (SM)

Elgin (CHI-5)
Brandes, W. M., Jr. (M)
Crago, P. H. (M)
Kercher, M. K. (A)
Knowles, H. S. (F)
Lang, G. W. (M)
Mitchell, R. M. (A)
Schimpf, R. G. (M)
Tackenberg, C. H. (M)
Votava, J. M. (A)
Walters, P. M. (M)

Elizabeth (CHI-5)
Eustice, R. W. (M)

Elk Grove (CHI-5)
McDonald, D. C. (SM)

Elk Grove Village (CHI-5)
Bartimes, G. F. (M)
Flaherty, J. J. (M)
Fullerton, W. T. (M)
Haffner, J. W. (M)
Hrbek, G. W. (M)
Knoblock, G. C. (A)
Linn, L. L. (M)
Pavlik, T. J. (M)
Robb, H. E., Jr. (M)
Snick, J. A. (M)
Teslik, J. A. (M)

Elmhurst (CHI-5)
Alexander, N. P. (M)
Anderson, W. J. (A)
Bajars, E. (A)
Balhorn, D. W. (A)
Beck, V. R. (SM)
Beier, M. G. (SM)
Belville, J. R. (M)
Berg, H. (M)
Carroll, J. J. (M)
Chelgren, A. E. (SM)
Cox, B. D. (M)
Davis, J. (SM)
De Parry, T. (M)
De Shong, J. A., Jr. (SM)
De Vries, A. J. (M)
Foot, N. J. (M)
Gooch, M. W. (M)
Gurtz, V. J. (M)
Hassel, K. E. (SM)
Haines, D. G. (SM)
Huston, P. D. (M)
Irwin, H. H. (SM)
Janas, S., Jr. (M)
Johnston, R. H. (M)
Keranen, E. W. (M)
Kocsis, L. L. (M)
Kutschke, E. F. (A)
Liepelt, E. (M)
Liston, K. L. (A)
MacCullough, T. B. (A)
McGee, C. G. (M)
Mingle, R. F. (A)
Nettifee, G. R. (M)
Orme, D. T. (A)
Poel, L. R. (M)
Probeck, C. (SM)
Ramler, W. J. (M)
Rogers, C. H. (SM)
Ronzheimer, S. P. (SM)
Rupp, H. R. (M)
Schultz, C. J. (M)
Shea, G. J. (SM)
Smith, L. L., Jr. (M)
Steiner, G. F. (M)
Stonevic, V. R. (M)
Troxel, R. E. (A)
Tegmeyer, J. R. (A)
Van Berkum, P. A. (M)
Vogt, A. L. (M)
Weber, V. F. (M)
Wellestat, C. E. (M)
Williams, J. T. (M)
Winemiller, H. R. (M)
Wray, W. C. (SM)

Elmwood Park (CHI-5)
Balsamello, J. (M)
Casper, R. (M)
Clark, D. K. (M)
D'Orio, A. F. (SM)
Fitch, W. M., Jr. (M)
Griffith, F. W. II (SM)
Lindeman, R. J. (M)
Pakan, J. J. (M)
Wilson, M. J. (M)
Wolf, A. (A)
Woronowicz, E. M. (M)

Evanston (CHI-5)
Aagaard, J. S. (SM)
Arnt, A. M. (A)
Beam, R. E. (F)
Bennett, R. E. (M)
Blanchard, M. A. (M)
Bowman, J. R. (SM)
Brauer, H. H. (SM)
Brodwin, M. E. (M)
Brown, A. C. L. (M)
Brown, R. D. (M)
Brumbaugh, R. T. (SM)
Buckley, J. K. (A)
Cederberg, R. D. (M)
Coulon, N., Jr. (M)
Davis, D. B. (A)
Demos, G. T. (M)
Dulmage, H. D. (M)
Epan, A. (M)
Endo, C. M. (A)
Fox, M. N. (M)
Frerichs, R. (SM)
Friedman, I. B. (M)
Gage, D. S. (M)
Garbarino, H. L. (SM)
Goldstein, F. (M)
Goodrich, E. W. (A)
Gottfried, P. (SM)
Gregory, E. C. (SM)
Haase, J. A. (M)
Handy, R. M. (M)
Haselwood, D. E. (M)
Hoecker, M. (M)
Hollander, A. (M)
Itoh, M. (SM)
Jacobs, J. E. (M)
Jenness, R. R. (SM)
Jones, R. W. (SM)
Kalman, J. (M)
Kao, L. (M)
Levine, M. B. (M)
Lyday, R. O., Jr. (M)
MacDonald, W. F. (M)
Maltby, A. I. (A)
Markin, J. (SM)
Maxon, E. K. (M)
Meyer, A. (A)
Miller, R. B. (M)
Moffitt, L. R. (M)
Moore, H. E. (M)
Murphy, G. J. (M)
Orner, R. J. (M)
Paradise, M. E. (SM)
Park, D. B. (M)
Pinz, G. J. (M)
Potter, J. D. (A)
Priselkin, C. (M)
Rabin, E. E. (M)
Reichenbach, R. K. (M)
Rollefson, K. E. (SM)
Rozsaine, P. J. (A)
Rubenstein, A. H. (A)
Rutkowski, C. (A)
Saberson, C. J. (A)
Schmidt, E. M. (M)
Schmidt, G. W. (M)
Sherman, M. (M)
Shevick, P. (M)
Shure, S. N. (M)
Sobel, R. L. (M)
Stauverman, R. J. (A)
Sugarman, M. L., Jr. (SM)
Thacher, L. A. (A)
Toth, W. S. (M)
Tyler, L. A. (M)
Vanjepmond, H. K. (A)
Van Ness, J. E. (SM)
Volz, R. A. (M)
Yau, S. (M)
Ziegler, G. E. (SM)

Evergreen Park (CHI-5)
De Normandie, J. B. (A)
Hirsch, A. (M)
Kostyal, S. P. (M)
Lux, G. R. (M)

Fairbury (CHI-5)
Ellers, C. G. (M)

Flossmoor (CHI-5)
Caywood, T. E. (M)

Forest Park (CHI-5)
Campbell, D. C. (M)
Fasick, R. C. (SM)
Harkins, J. J. (M)
Holman, W. J. (A)
Ilfland, C. A. (A)
Kemery, R. W. (M)
Pallissard, J. W. (A)

Fox Lake (CHI-5)
Pettingill, M. E. (A)

Franklin Park (CHI-5)
Baum, R. E. (M)
Brewster, F. C. (SM)
Horn, K. H. (A)
Huddleston, H. L. (M)
Janci, S. J. (M)
Johnson, J. H. (M)
Leysath, W. Q. (M)
Lucas, D. T. (M)
Reale, E. P. (M)
St. Clair, R. P. (A)
Schmidt, E. M. (M)
Schoeneck, W. H. (A)
Williams, J. J. (M)

Freeport (CHI-5)
Coleman, J. J. (M)
Ebert, F. C. (M)
Greene, K. D. (A)
Harrington, J. (M)
Lincoln, J. K. (A)
O'Connell, G. (M)
Smith, W. (M)

Geneva (CHI-5)
Clarke, R. E. (M)
Gruen, H. E. (SM)
Junkins, A. H. (M)
Marsh, R. E. (SM)
Robbins, R. W. (SM)
Soderquist, R. K. (M)
Voorhis, W. B. (SM)
Winston, R. H. (SM)

Genoa (CHI-5)
Wylie, J. R. (A)

Gillespie (CHI-5)
Arden, H. G. (M)

Glencoe (CHI-5)
Brown, J. E. (F)
Camras, M. (F)
Ferry, J., Jr. (A)
Heuer, C. H. (M)
Kurland, J. J. (A)
Miller, H. N. (M)
Spiegel, G. W. (M)
Thomoson, C. W. N. (SM)
Whitman, M. R. (A)

Glen Ellyn (CHI-5)
Bristol, S. M. (M)
Christensen, A. (SM)
Conrad, C. G. (M)
Davis, R. H. (M)
Dyer, R. A. (M)
Harris, B. J. (M)
Kidd, W. E. (SM)
Krieg, B. E. (M)
Lysaught, T. F. (M)
Mohler, R. D. (M)
Pozdol, A. J. (M)
Rebeschini, I. C. (M)
Rees, W. L. (M)
Shelton, E. D. (M)
Shoebridge, R. C. (M)
Tingley, E. M., Jr. (M)
Whiteside, J. R. (A)
Woolsey, R. J. (M)

Glenview (CHI-5)
Aronson, A. B. (M)
Blyth, R. A. (M)
Carlson, R. D. (M)
Carroll, P. F. (M)
Casiotti, R. J. (A)
Davis, G. L. (A)
Dunn, W. L. (F)
Fender, F. G. (A)
Flan, A. (M)
Fulenwider, J. E. (M)
Gjertsen, E. J. (A)
Goss, C. G. (M)
Gough, G. L. (M)
Gross, E. J. (M)
Hayes, W. R. (M)
How, F. B. (A)
Iversen, R. L. (M)
Jorgensen, C. M. (SM)
Kelley, W. A. (SM)
Leslie, W. G. (M)
Levin, H. (M)
Maonuski, H. (SM)
Masek, J. R. (A)
McFarland, R. B. (M)
Mosak, J. L. (M)
Petersen, R. P. (SM)
Schroeder, J. J., Jr. (M)
Schultz, W. A. (M)
Siwy, D. J. (M)
Slayton, R. D. (SM)
Tempka, J. A. (M)
Turek, C. W. (M)
Unger, E. E. (M)

Godfrey (SL-6)
Boedy, D. D. (M)
Groshans, H. H. (SM)

Golf (CHI-5)
Boyajian, J. A. (SM)

Granite City (SL-6)
Metcalf, W. L., Jr. (M)
Mitchell, F. T. (SM)
Pender, P. S., Sr. (SM)
West, R. L. (M)
Wilson, D. P. (M)
Wood, H. C. (A)

Grayslake (CHI-5)
Perkins, H. T. (M)

Great Lakes (CHI-5)
Bernard, W. B. (SM)
Brooking, C. P. (M)
Donnelly, J. F. (M)
Fischer, D. W. (M)
Hudson, C. A. (A)
Kasouf, G. (A)
Woodruff, W. W. (A)

Gurnee (CHI-5)
Smith, W. E., Jr. (A)

Harvey (CHI-5)
Swain, A. T. (M)

Havanna (CHI-5)
Carroll, J. C. (M)
Layton, D. H. (M)

Hazel Crest (CHI-5)
Berry, R. F. (A)
Brown, W. H. (A)
Evans, P. E. (M)
Krueger, G. B. (M)
Swenson, R. A. (A)
Wolf, G. L. (M)

Henry (CHI-5)
Foster, R. L. (A)
Rowe, T. E. (A)

Hickory Hills (CHI-5)
Blanden, H. E. (A)

Highland Park (CHI-5)
Arnolt, A. K. (A)
Cherry, W. L., Jr. (M)
Durkee, C. E. (SM)
Firestone, W. L. (SM)
Hart, J. W. (M)
Hoffman, R. S. (M)
Kiver, M. S. (SM)
Pepperberg, L. E. (SM)
Real, P. (M)
Rockwood, C. H. (M)
Rose, J. K. (M)
Schover, D. S. (SM)
Schwalm, W. A. (SM)
Weil, G. M. (M)
Wertwijn, G. (SM)
White, E. S. (SM)
Wolff, J. R. (M)

Highwood (CHI-5)
Grotti, R. D. (A)

Hillside (CHI-5)
Anderson, R. L. (M)
Bennett, L. W. (M)
Biba, R. J. (A)
Huisjen, A. J. (M)
Munn, R. J. (A)

Hinsdale (CHI-5)
Brazda, J. C. (M)
Clark, J. M. (SM)
Disney, V. H. (SM)
Giessner, F. W. (M)
Howell, E. R., Jr. (A)
Hummel, J. P. (M)
Jackson, A. S. (M)
Laughlin, J. L. (A)
MacDonald, A. A. (SM)
Neely, O. P. (A)
Perkins, E. S. (SM)
Wesselman, E. (M)
White, J. V. (M)

Hollywood (CHI-5)
Poll, V. M. (A)

Homewood (CHI-5)
Bickel, R. C. (SM)
Bielenin, A. (A)
Koeppen, W. J., Jr. (M)

Hoooeston (CHI-5)
Chorney, P. L. (M)

Ingleside (CHI-5)
Reese, K. E. (M)

Itasca (CHI-5)
Van Anrooy, P. H. (M)

Joliet (CHI-5)
Aschenbrenner, R. A. (M)
Maren, F. A. (A)
Novy, J. F. (SM)
Rowell, J. H. (M)
Schwerha, J. A. (M)
Shuba, J. P. (M)

Kewanee (CHI-5)
Jakobsons, A. (A)
Watts, C. A. (M)

La Grange (CHI-5)
Allen, H. E. (SM)
Bos, R. A. (A)
Collins, E. A. (M)
Gelb, R. L. (M)
Gellatly, J. S. (SM)
Giese, B. D. (M)
Gray, G. E. (SM)
Hohmann, C. R. (M)
Hupp, C. E. (M)
Keefe, J. T. (M)
Kikta, J. (A)
Knouf, R. J. (SM)
Leichliter, C. V. (M)
Lubin, M. (M)
Maier, R. H. (SM)
Medill, J. W. (M)
Miller, J. M. (SM)
Parker, R. J. (M)
Schulz, E. H. (F)
Snelling, E. A. (SM)
Standley, R. D. (M)
Steiner, G. B. (M)
Stephens, R. L. (A)
Unroe, J. L. (A)

La Grange Park (CHI-5)
Abraham, J. (M)
Anderson, C. J. (M)
Bouska, J. F. (M)
Chambers, H. L. (M)
Frihart, H. N. (M)
Hajek, A. F. (M)
Kash, R. M. (M)
Kundrotas, A. P. (M)
Massey, J. (A)
May, F. D. (M)
Orwin, R. J. (M)
Read, R. A., Jr. (M)
Vogele, F. C. (M)
Wehrle, R. (A)
Wolff, R. A., Jr. (M)
Wolff, R. L. (M)

Lake Bluff (CHI-5)
Kramer, A. W. (M)
La Rose, A. P. (M)

Lake Forest (CHI-5)
Byrne, W. C., Jr. (M)
Faulks, H. R. (M)
Galitz, R. J. (A)
Peugh, W. E. (M)

Lake Villa (CHI-5)
Homer, W. F. (M)
Ruck, R. C. (M)
Weiss, J., Jr. (A)

Lake Zurich (CHI-5)
Alton, A. H. (M)
Freiheit, H. H. (A)
Ives, R. D. (SM)
Krueger, E. P. (A)

Lansing (CHI-5)
Wells, J. F. (M)

La Salle (CHI-5)
Piletic, K. A. (A)

Lawrence (EO-5)
Shaffer, B. J. (M)

Lemont (CHI-5)
Lovoff, A. (SM)
Richards, H. K. (M)
Rockwood, C. C. (A)

Lenzburg (SL-6)
Krause, H. J. (A)

Le Roy (CHI-5)
Buchanan, G. J. (M)

Libertyville (CHI-5)
Bottorff, P. A. (M)
Bruna, R. F. (M)
English, W. C. (M)
Reickert, E. A. (M)
Samelson, L. R. (A)
Wartchow, A. R. (M)

Lincolnwood (CHI-5)
Bigelow, J. F. (SM)
Dervishian, E. (M)
Feingold, H. (M)
Goldfus, S. M. (SM)
Herst, R. J. (SM)
Kaluzna, I. J. (M)
Roberts, E. A. (SM)
Waterman, H. C. (M)

Lisle (CHI-5)
Clark, J. S. (M)
Frigerio, N. A. (M)
McMahon, D. W. (A)
Prokes, P. H. (M)
Yeoman, S. J. (A)

Lockport (CHI-5)
Gorecki, G. S. (A)
Scott, D. A. (A)
Szegda, A. (M)

Lombard (CHI-5)
Addy, J. R. (M)
Anderson, E. W. (M)
Barths, S. J. (A)
Borchardt, R. L. (M)
Caldwell, J., Jr. (SM)
Coryell, R. L. (A)
Curtis, R. H. (M)
Dunbar, E. A. (A)
Espe, R. H. (M)
Fyler, G. W. (SM)
Grisanti, J. L. (A)
Hotchkiss, C. S. (M)
Jackson, W. C. (SM)
Johnson, J. A. (M)
Laub, R. W. (A)
Lopez, J. L. (M)
Martino, L. J. (M)
Mattingly, L. J. (A)
Novy, C. A. (M)
Orszula, N. R. (SM)
Pomon, J. D. (M)
Smith, A. P. (M)
Tschannen, R. F. (SM)
Williams, J. M. (M)
Williams, P. B. (SM)
Witt, C. E. (M)

London Mills (CHI-5)
Benson, L. G. (A)

Loves Park (CHI-5)
Eksten, D. G. (M)

Lovington (CHI-5)
Harrison, R. L. (M)

Lyons, (CHI-5)
Polich, W. J. (M)

Macon (CHI-5)
Fathauer, G. H. (SM)

Manteno (CHI-5)
Demmer, L. T. (M)

Marengo (CHI-5)
Arnold, R. M. (M)
Carroll, R. H. (A)
Lewis, H. A. (M)
Parnell, R. A. (M)

Marion (SL-6)
Levesque, J. J. (A)

Marissa (SL-6)
Church, C. J. (M)

Markham (CHI-5)
Mayoros, W. A. (A)

Matteson (CHI-5)
Feehery, J. T. (A)

Maywood (CHI-5)
Bliss, G. B. (SM)
Crouch, C. A. (M)
Del Camp, S. M. (F)
Forst, P. P., Jr. (M)
Hall, H. R. (A)
Komm, P. M. (M)
Laube, W. C., Jr. (M)

ILLINOIS

Lee, C. (M)
Little, T. P. (M)
Mages, L. J. (M)
Prine, D. W. (M)
Quinlivan, J. J. (M)
Richards, H. F. (A)
Rohret, P. J. (M)
Russell, W. D. (M)

McHenry (CHI-5)
Longley, J. K. (A)
Palmer, F. J. (M)
Schaeffer, C. J. (A)

Medinah (CHI-5)
Currier, J. B. (M)

Melrose Park (CHI-5)
Bachhuber, R. A. (M)
Backman, K. E. H. (SM)
Bell, R. W. (M)
Carr, J. E., Jr. (M)
Cohoon, R. L. (M)
Early, J. M. (A)
Halliwell, B. J. (M)
Hesser, C. B (M)
Jaster, D. R. (A)
Kowalik, R. F. (M)
Maza, G. M. (M)
Moulton, H. A. (A)
Murphy, W. A. (M)
Nelson, R. A. (A)
Nemcek, G. M. (A)
Owen, G. E., Jr. (M)
Pactow, H. O. (A)
Ravanesi, R. M. (M)
Rutka, E. P. (M)
Schwager, A. C. (M)

Mendota (CHI-5)
Barr, B. J. (A)

Midlothian (CHI-5)
Roland, E. T. (M)

Modesto (CHI-5)
Launer, W. H. (M)

Mokena (CHI-5)
Book, E. G. (SM)

Moline (CR-5)
Oppenheimer, E. P. (M)
Parkhurst, J. E. (A)
Steffes, R. M. (A)

Monee (CHI-5)
Turner, J., Jr. (M)

Monticello (CHI-5)
Henebry, W. M. (M)

Morris (CHI-5)
Peterson, A. M. (A)

Morrison (CHI-5)
Horvath, C. (M)
Van Osdol, R. L. (M)

Morton Grove (CHI-5)
Ackerman, N. A. (M)
Affrunti, A. J. (SM)
Beneke, E. H. (M)
Brown, W. G. (SM)
Cohn, J. (M)
Cololan, J. (A)
Dennis, R. J. (M)
Duvall, T. E. (A)
Frank, R. B. (M)
Franke, J. L. (SM)
Gallagher, J. A. (SM)
Hanberg, S. M. (M)
Hodara, H. (SM)
Kite, M. N. (M)
Lange, W. W. (M)
Michel, W. A. (M)
Neukuckatz, A. (A)
Neumark, J. (A)
Norris, P. C. (SM)
Rahnert, R. G. (A)
Siegelman, A. (SM)
Simon, J. L. (M)
Smithana, D. R. (M)
Sokolov, J. (A)
Stastny, G. F. (SM)
Struck, D. E. (M)
Trowbridge, F. (A)
Witikop, C. F. (M)
Wolter, F. A. (M)

Mount Olive (CHI-5)
Strien, G. W. (M)

Mount Prospect (CHI-5)
Bastian, E. (M)
Berg, H. O. (A)
Bemin, V. M. (M)
Bryner, D. B. (M)
Buetow, R. C. (M)
Bull, R. W. (SM)
Carlson, D. V. (M)
Cromer, E. G. (M)
Czeroski, W. P., Jr. (M)
Denecke, W. C. (M)
Dorosh, M. (A)
Goldstein, R. (M)
Gunter, L., Jr. (SM)
Hoppe, P. P., Jr. (M)
Huber, R. H. (M)
Johnson, J. T. (M)
Mac Askill, R. B., Jr. (SM)
Medal, R. J. (M)
Meixner, E. J. (M)
Mokate, G. M. (M)
Nerwin, H. N., Jr. (M)
Ralph, J. T. (M)
Rufener, R. E. (A)
Schumacher, J. H. (SM)
Shemanske, R. (M)
Stecker, J. W. (A)
Wallace, H. S. (M)

Mundelein (CHI-5)
Chudd, R. G. (M)
Fritts, J. D. (A)
Mitchell, C. A. (M)
Nation, J. E. (A)
Nienaber, F., Jr. (M)
Pacholke, F. (SM)

Naperville (CHI-5)
Bowman, B. J. (M)
Fancher, J. R. (M)
Hayworth, D. F. (SM)
Nelson, R. E. (M)
Nider, M. E. (M)

Nauvoo (CHI-5)
Smith, H. D. (M)

New Lenox (CHI-5)
Johanson, E. W. (M)
Whalen, J. F. (M)

Niles (CHI-5)
Bell, K. R. (M)
Berg, S. (M)
Borman, W. M. (M)
Brugliera, F. J. (SM)
Brumbach, J. F. (M)
Costello, L. B. (M)
Del Vento, J. M. (SM)
Feiss, C. L. (M)
Felder, L. A. (A)
Greenway, R. J. (SM)
Kahover, C. R. (A)
Kirschner, J. G. (M)
Merrifield, L. A. (M)
Mountz, J. M. (M)
Przybyszewski, A. W. (M)
Pulles, J. H. (SM)
Schwarzenbach, E. E. (M)
Van Alstyne, D. E. (M)
Ward, R. W. (M)
Yahalom, J. Y. (M)

Normal (CHI-5)
Cox, C. L. (M)
Ewald, E. R. (M)
Johnston, J. L. (M)
Wilcox, S. R. (A)

Norridge (CHI-5)
Blohm, R. W. (A)
Casey, E. A. (A)
Gehmlich, A. P. (A)
Korch, L. (M)
Lakowski, F. (M)
Petrovick, M. L. (M)

North Aurora (CHI-5)
McIlvaine, O. T. (M)

Northbrook (CHI-5)
Conway, P. W. (M)
Dustman, H. C. (M)
Hill, C. F. (A)
Montgomery, W. M. (M)
Najork, J. (M)
Parke, S. A. (M)
Pivan, D. B. (SM)
Poolsil, J. F. (M)
Schenker, B. (M)
Steel, F. R., Jr. (A)
Waller, E. E. (M)

North Chicago (CHI-5)
Unitis, E. R. (A)
Weibley, J. E. (A)
Weirich, H. P. (A)

Northfield (CHI-5)
Clark, R. V. (M)
Green, L. F. (A)
Hechler, V., IV. (M)
Larson, W. L. (SM)
Stahl, W. D. (M)

North Lake City (CHI-5)
Ayers, J. W. (M)
Cawthon, E. F. (M)
Clark, D. E. (SM)
Dimmer, R. P. (SM)
Dolhar, J. L. (M)
Fetzner, R. W. (M)
Lane, M. E. (A)
Reese, F. D. (M)
Rekiere, B. J. (M)
Romano, S. S. (A)
Suloway, N. S. (A)
Volge, R. C. (M)

North Riverside (CHI-5)
Sklom, G. M. (A)

Oak Forest (CHI-5)
Gyurko, J. E. (M)

Oaklawn (CHI-5)
Blevins, E. L. (A)
Corcoran, V. J. (M)
Goedeke, R. C. (M)
Hansen, L. H. (M)
Jann, E. G. (M)
Jeffery, L. O. (M)
Kasper, F. S. (M)
Martin, R. B. (A)
O'Donnell, D. J. (A)
Scharding, R. M. (M)
Thomas, C. B. (M)

Oak Park (CHI-5)
Armstrong, M. M. (M)
Beal, J. L. (M)
Beitz, R. E. (SM)
Benzuly, H. J. (SM)
Blumer, G. M. (M)
Bryan, R. H. (M)
Chang, G. I. (M)
Chapman, R. H. (M)
Cotsworth, A., III (SM)
Crotty, R. E., Jr. (M)
Delzell, R. P. (M)
Duffy, E. J. (M)
Dunlap, J. F. (M)
Fockens, P. (M)
Fricke, L. C. (M)
Garriques, R. D. (M)
Gates, C. J. (A)
Glarrizzo, F. C. (M)
Gillette, R. F. (M)
Graziano, V. (SM)
Hansen, A. G., Jr. (M)
Hartley, R. L. (M)
Henson, M. L. (M)
Huenemann, R. G. (M)
Ihde, W. M. (M)
Jeffery, T. H. (M)
Lamin, L. (M)
Le Baron, T. (M)
Lee, R. E. (M)
Marsh, W. F. (A)
Martin, J. W., Jr. (M)
May, H. E. (SM)
McGrail, J. G. (A)
McManamon, P. M. (M)
Mednieks, Z. (M)
Mehaffey, W. R. (SM)
Morawetz, F. (M)
Nemeth, W. E. (M)
Nissen, D. O. (M)
Nitschke, W. J. (M)
Oddsson, I. G. (A)
Paharia, R. K. (M)
Peterson, R. M. (M)
Powell, J. M. (M)
Redfield, S. I. (A)
Reed, J. H. (M)
Ryde, R. M. (M)
Schaeckenbach, G. L. (M)
Sinclair, J. C. (M)
Sinninger, D. V. (SM)
Smith, P. L. (A)
Sprunger, R. W. (M)
Staunton, J. J. J. (SM)
Thompson, D. H. (M)
Van Scoyoc, J. N. (SM)
Virnani, B. D. (SM)
Walford, R. B. (M)
Yoder, R. S. (SM)
Zender, R. G. (SM)

O'Fallon (SL-6)
Horenkamp, K. F. (M)

Orland Park (CHI-5)
Caimes, W. E. (SM)
Cox, C. R. (SM)
Findling, M. J. (M)
Green, R. E. (SM)
Morrison, P. (M)
Proctor, D. E. (A)
Stevens, L. G. (M)
Stroik, R. G. (A)
Weil, E. A. (A)
Woodbury, H. L. (SM)
Yang, R. F. H. (SM)

Ottawa (CHI-5)
Smith, T. E. (A)

Palatine (CHI-5)
Beischel, J. R. (A)
Currey, C. H. (M)
Curtiss, G. R. (M)
Eadie, H. S. (SM)
Frick, D. F. (M)
Kohout, R. J. (A)
Maurer, J. S. (A)
Medek, J. D. (M)
Powers, J. S. (M)
Schreiner, L. W. (SM)
Thompson, R. T. (M)
Wood, R. E. (SM)
Zimmerman, J. (M)
Zobel, G. C. (A)

Palos Heights (CHI-5)
Brown, M. H. (A)
Du Chatellier, R. (M)
Nabel, H. E. (A)
Sommeria, M. R. (A)

Palos Park (CHI-5)
Lloyd, W. P. (M)

Park Forest (CHI-5)
Baxter, J. T. (A)
Bond, M. E. (M)
Clements, L. D. (M)
Fahmey, R. L. (M)
Fakiis, J. J. (A)
Hartman, R. B., II (M)
Montoya, J. R. (A)
Schutt, V. L. (M)
Schwartz, E. S. (M)
Vogt, A. R. (A)

Park Ridge (CHI-5)
Boe, R. E. (A)
Boesen, G. F. (M)
Bridges, J. E. (SM)
Brown, W. (M)
Case, R. L. (A)
Clark, J. T. (SM)
Cooke, K. R. (A)
Cortright, R. D. (M)
Crow, R. P. (M)
De Cola, R. (F)
Edwards, F. W. (M)
Erwood, J. (SM)
Farley, J. E. (M)
Farnsworth, G. W. (M)
Figlewicz, R. C. (A)
Griffith, B. G. (SM)
Hooper, W. D. (M)
Johnson, H. A. (A)
Krueger, W. F. (M)
Kusack, W. P. (A)
Luttgens, H. C. (SM)
Malinowski, S. (M)
McClelland, W. B. (M)
Miller, W. T., Jr. (A)
Mroz, M. (SM)
Much, C. H. (M)
Mueller, A. J. (M)
Parmet, B. S. (SM)
Passow, E. B. (SM)
Penninger, R. B. (M)
Perry, J. T. (M)
Powers, R. A. (M)
Reukauf, D. C. (M)
Schorum, S. W. (M)
Schumacher, H. W. (A)
Shaw, J. R. (A)
Silver, J. F. (M)
Smith, P. S. (SM)
Stenerson, C. K. (M)
Thrun, A. G. (M)
Van Bosse, J. G. (M)
Weber, E. W. (M)
Williams, K. S. (M)
Wiszowaty, C. B. (M)
Witte, R. (M)

Pecatonica (CHI-5)
Van Antwerp, M. C. (M)

Peoria (CHI-5)
Costa, P. J. (SM)
Ferre, G. E. (M)
Franzen, L. H. (M)
Gonzales, R. L. (M)
Murphy, J. B. (M)
Pyle, G. A. (M)
Reeder, R. A. (M)
Stewart, T. L. (M)
Stickling, J. E. (M)
Weinberg, P. (M)

Perkin (CHI-5)
Miller, W. B. (A)

Philo (CHI-5)
Hohn, F. E. (M)

Plainfield (CHI-5)
Hartong, H. H. (M)

Plainville (CHI-5)
Kabrick, W. J. (SM)

Plano (CHI-5)
Beetham, R. B. (M)

Prospect Heights (CHI-5)
Bergman, E. J. (A)
Carlson, E. V. (SM)
Jackson, J. J. (A)
Kongable, L. S. (M)
Krempel, F. M. (SM)
Lace, M. A. (M)
Stanton, G. L. (SM)
Wiecek, E. J. (M)
Young, L. A. (M)

Quincy (CHI-5)
Armstrong, T. D. (M)
Bush, R. S. (SM)
Butcher, J. H. (A)
Clarke, C. V., Jr. (M)
Hackbarth, H. R. (M)
Hartman, R. E. (M)
Hossom, M. (A)
Hoyt, W. A. (M)
Jochem, N. L. (SM)
Mallory, G. L. (M)
Roling, J. T. (M)
Smith, J. W. (SM)
Stratman, H. G. (M)
Weibler, C. T. (SM)
Wilder, E. J. (A)

Rantoul (CHI-5)
Herzfeld, D. V. (M)
Peterson, E. L. (M)
Woodward, R. M. (M)

Riverdale (CHI-5)
Gregory, F. X. (M)

River Forest (CHI-5)
Devale, D. P. (M)
D'Orio, P. A. (SM)
Schultz, A. A. (M)
Tamiya, Y. (A)

River Grove (CHI-5)
Green, L. H. (A)
Hilbert, F. H. (M)
Rice, J. S. (M)

Riverside (CHI-5)
Ashby, A. T. (M)
Bard, R. E. (SM)
Brooks, R. D. (SM)
Cihak, W. E. (A)
Hajek, R. J. (M)
Kean, W. F. (SM)

Robinson (SL-6)
Moore, R. W. (A)

Rochester (CHI-5)
Kessler, W. D. (M)

Rockford (CHI-5)
Appelgren, J. W. (A)
Arensdorf, N. H. (A)
Armstrong, J. E. (A)
Bowie, D. L. (M)
Bullen, C. V. (M)
Bulliet, L. J. (A)
Conrad, R. S. (SM)
Downing, W. D. (A)
Falk, W. R. (M)
Hand, C. A. (M)
Johnson, T. W. (M)
Kyburz, U. L. (M)
Marcolini, V. H. (M)
Moffatt, J. E. (A)
Nosley, C. C. (M)
O'Neal, W. O. (M)
Peck, R. E. (M)
Peterson, C. G. (M)
Reed, S. D. (A)
Steiner, J. E. (M)
Tveit, T. J. (M)
Voss, J. R. (M)
Welherman, R. J. (M)
Woolums, L. L. (A)

Rock Island (CR-5)
Elliott, H. R. (M)
Scott, A. R. (A)
Sinnett, R. J. (SM)

Rolling Meadows (CHI-5)
Bonnell, D. W. (M)
Dunn, J. R. (M)
Lentner, K. J. (M)
Panec, D. O. (M)
Rueckel, H. E. (M)
Vogeler, R. B. (M)
White, J. F., Jr. (M)
Wiencek, Z. (M)
Wikstrom, D. E. (M)

Roselle (CHI-5)
Callahan, B. E. (M)
Cappels, J. L. (SM)
Chovanec, E. S. (A)
Fuglestad, K. R. (M)
Goncharoff, N. (M)
Goodrich, P. D. (M)
Gorton, L. W. (M)
Quade, A. G., Jr. (M)
Roenitz, R. K. (M)
Sager, R. L. (A)
Vuglar, R. C. (M)

Round Lake (CHI-5)
Meuer, A. (M)

Roxana (SL-6)
McSherry, J. H. (A)

St. Charles (CHI-5)
Block, A. F. (M)
Caldwell, C. L. (M)
Chodl, C., Jr. (M)
Harker, L. E. (M)
Prescott, F. H., Jr. (M)
Scent, R. H. (M)
Small, G. L. (M)
Supitilov, M. C. (SM)
Wohlert, A. M. (M)
Wolhowe, M. V. (M)

St. Joseph (CHI-5)
Kirkwood, B. D. (M)

Sandwich (CHI-5)
Bird, W. L. (A)
Hough, B. B. (M)

Savoy (CHI-5)
Wood, W. W. (M)

Schiller Park (CHI-5)
Offner, F. (SM)

Scott AFB (SL-6)
Coward, R. W. (M)
Joiner, E. R. (M)
Kovar, M. M. (SM)
Pratt, J. D. (M)

Shirley (CHI-5)
Alley, R. P. (M)

Silvis (CR-5)
Ingwersen, J. T. (M)

Skokie (CHI-5)
Aberer, J. C. (M)
Adams, R. A. (SM)
Adler, H. J. (SM)
Arenberg, K. M. (M)
Axelrod, L. R. (M)
Balikov, M. H. (M)
Barton, H. O. (M)
Beck, J. H. (M)
Byrnes, W. P. (M)
Carlson, D. A. (A)
Carter, R. W. (A)
Chesrow, A. F., Jr. (A)
Chulsky, I. (M)
Cooper, M. (M)
Cozzens, W. B. (SM)
Cudahy, M. J. (M)
Czuj, W. J. (M)
Ditthardt, A. R. (M)
Everett, J. E. (M)
Fahey, A. P. (M)
Flower, W. (M)
Franklin, H. B. (M)
Fruth, H. F. (SM)
Goleas, E. J. (A)
Gordon, D. (A)
Hansen, T. A. (SM)
Hemstreet, D. C. (A)
Jurians, G. F. (A)
Kaminsky, L. M. (M)
Lense, H. E. (SM)
Levine, W. E. (M)
Loizzo, V. J. (M)
Madden, J. J. (M)
Michals, R. A. (M)
Moskow, H. J. (M)
Moss, J. I. (A)
Moyer, R. S. (A)
Mullen, R. L. (A)
Osborn, R. L. (SM)
Pawlowski, F. L. (A)
Pichler, R. H. (A)
Powers, S. J. (M)
Royston, M. F. (SM)
Rzeczkowski, J. (M)
Schneider, L. L. (M)
Smith, J. (A)
Steinberg, P. S. (M)
Stiefel, P. (M)
Sussman, M. (M)
Tarantur, S. (M)
Thomas, R. G. (M)
Toback, P. L. (M)
Wayne, H. A. (SM)
Weisz, W. J. (SM)
Wickstrom, S. T. (M)
Wigginton, R. J. (A)
With, J. C. (M)
Wolfman, H. L. (M)
Woods, H. (A)
Wright, F. R. (A)
Yefsky, S. A. (M)

South Beloit (CHI-5)
Nuber, S. E. (A)
Ripple, L. C. (M)

Sparta (SL-6)
Gordon, B. R. (A)
Huss, J. W. (M)

Springfield (CHI-5)
Augustson, R. D. (M)
Boesdorfer, R. H. (A)
Bowers, T. N. (M)
Carr, H. E. (A)
Choncholas, J. J. (M)
Daughton, J. W. (M)
Hem, R. J. (A)
Johnson, M. C. (M)
Leach, E. A. (SM)
Margetis, W. R. (M)
Oram, D. K. (M)
Owens, D. A. (A)
Pline, R. A. (M)
Podolsky, J. L. (M)
Schultze, G. H. (M)
Siebert, J. A. (M)
Stock, B. L. (M)
Sudkamp, R. F. (A)
Unglaub, R. K. (M)
Vesper, M. C. (A)
Wilson, H. C. (M)
Wylie, R. R. (SM)
Zilis, G. S. (M)

Sterling (CHI-5)
Drane, R. L. (M)

Strasburg (CHI-5)
Risser, F. G. (A)

Streator (CHI-5)
Bryan, A. R. (A)
Coverick, J. M. (A)
Gotch, J. K. (A)
Healy, A. M. (A)

Stronghurst (CHI-5)
Avery, E. R. (A)

Summit (CHI-5)
Berberek, W. J. (M)
Centanni, J. D. (M)

Taylorville (CHI-5)
Smith, W. D. (A)

Tinley Park (CHI-5)
Lucchesi, O. J. (M)
Wesley, C. H. (M)

Urbana (CHI-5)
Anner, G. E. (SM)
Auth, L. V., Jr. (M)
Bailey, A. D. (SM)
Batcher, K. E. (M)
Bauman, P. A. (M)
Blostein, M. L. (M)
Brown, R. M. (M)
Burtness, R. W. (SM)
Cho, A. Y. H. (M)
Crane, R. B. (M)
Crothers, M. H. (SM)
Cruz, J. B., Jr. (M)
Davidson, R. A. (M)
Diamond, D. M. (M)
Dimond, J. (M)
Dougal, A. A. (M)
Dyson, J. D. (M)
Everitt, W. L. (F)
Fett, G. H. (F)
Fry, W. J. (M)
Gaddy, O. L. (M)
Goldstein, L. (F)
Gooch, J. D. (M)
Gourishankar, V. (M)
Guckel, H. (M)
Hakimi, S. L. (M)
Hakki, B. W. (M)
Hendricks, C. D., Jr. (M)
Hogan, J. J. (M)
Holshouser, D. F. (M)
Hudson, P. K. (SM)
Jensen, R. S. (M)
Jones, E. C., Jr. (A)
Jordan, E. C. (F)
Kami, S. (M)
Kawcyn, R. A. (M)
Kenyon, R. J. (M)
King, T. A., Jr. (M)
Knoebel, H. W. (A)
Kopplin, J. O. (M)
Krone, H. V. (M)
Kuo, B. C. I. (M)
Lichtenberger, W. W. (M)
Lofgren, L. E. (M)
Mast, P. E. (M)
Mayeda, W. (M)
McGee, W. F. (M)
McVay, M. S. (SM)
Miller, W. E. (SM)
Mittra, R. (M)
Muerle, J. L. (M)
Murrell, T. A. (M)
Penhollow, J. O. (M)
Perkins, W. R. (M)
Poppelbaum, W. J. (A)
Ray, S. R. (M)
Ricketts, L. W. (M)
Rose, K. (M)
Sandquist, J. W. (A)
Schwarzlose, P. F. (SM)
Seib, K. L. (M)
Shivley, R. R. (M)
Sirkis, M. D. (M)
Spencer, J. D. (M)
Steier, W. H. (M)
Stone, A. P. (M)
Strain, R. J. (M)
Swartwout, R. E. (SM)
Swenson, G. W., Jr. (SM)
Sydnor, R. L. (M)
Syn, W. M. (M)
Tennery, V. J. (M)
Troedon, R. L. (M)
Tykociner, J. T. (SM)
Van Valkenburg, M. E. (SM)
Voth, B. W. (M)
Webb, H. D. (SM)
Westlund, C. D. (SM)
Yeh, K. C. (M)

Villa Park (CHI-5)
Bennett, T. H. (M)
Byers, D. M. (M)
Dedinas, D. A. (M)
De Rose, R. A. (M)
Erdmann, D. P. (M)
Fackenthal, D. F. (A)
Fernandez, D. T. (A)
Fletcher, E. J. (M)
Gorbunoff, A. (SM)
Johnston, G. C. (M)
Layhe, R. F. (M)
Mathews, C. A., Jr. (M)
Norberg, L. R. (M)
Rice, V. K., Jr. (M)
Rypkema, J. N. (SM)
Sebastian, R. W. (A)
Sparf, W. H. (M)
Steck, A. F., Jr. (M)
Todd, A. C. (SM)
Zaruba, E. J. (SM)

Virginia (CHI-5)
Petefish, W. M., Jr. (M)

Washington (CHI-5)
Johnson, W. M. (A)
Overley, J. P. (A)
Planck, R. M. (M)

Wauconda (CHI-5)
Anderson, R. V. (M)

Waukegan (CHI-5)
Anderson, C. A. (M)
Bentivegna, J. T. (A)
Brown, J. M. (M)
Jensen, G. (M)
Kimmel, N. (A)
King, J. P. (M)
Krasovec, A. C. (A)
Thiel, W. (A)
Woods, G. C. (A)

Waverly (CHI-5)
Mieher, R. L. (M)

Westchester (CHI-5)
Binkis, A. M. (M)
Douglas, R. P. (M)
Floyd, E. C. (SM)
Frankart, W. F. (M)
Gabriel, R. R. (M)
Glyptis, N. (A)
Gollhardt, R. W. (M)
Klakow, A. R. (A)
Kutrumanes, C. P. (M)
Pecina, R. J. (M)
Potocki, E. A. (M)
Scott, F. E. (A)
Stones, A. E. (M)

West Chicago (CHI-5)
Hummel, H. J. (M)
Jahns, K. V. (M)
Kaplan, M. L. (M)
Root, M. L. (M)
Rullman, E. E., Jr. (A)
Scandora, A. E. (A)

Western Springs (CHI-5)
Bracken, J. F. (M)
Dondanville, R. V. (SM)
Hungerford, N. C. (A)
Kramer, K. (SM)
Scheidorf, M. W. (F)
Swanson, B. E. (M)
Turke, B. A. (M)
Valach, C. F. (M)
Wemecke, H. W. (A)

West Frankfort (CHI-5)
Vlahos, P. G. (A)

West Melrose Park (CHI-5)
Dietz, L. A. (A)

Westmont (CHI-5)
Jendrzejczyk, J. A. (A)

Wheaton (CHI-5)
Batts, R. L. (SM)
Calobrisi, P. (A)
Duncan, D. C. (M)
Emaus, J. L. (SM)
Frank, C. W. (M)
Gaskins, S. M. (M)
Hannaker, C. W. (SM)
Hausten, D. R. (A)
Hoekje, J. W. (M)
Jensen, R. E. (M)
Jepson, M. R. (M)
Joyner, A. A. (SM)
Klem, R. F. (SM)
Matthews, G. D. (M)
Mayberry, B. T. (A)
Nelson, W. H. (M)
Parker, N. W. (A)
Pugh, N. R. (M)
Pye, H. C. (M)
Quist, I. G. (M)
Richelieu, C. C. (M)
Rohrer, C., Jr. (M)
Savage, L. E. (M)
Smith, R. H., Jr. (M)
Squires, E. G. (M)
Thompson, D. C. (M)
Upton, E. C., Jr. (M)
Van Slych, W. S. (SM)
Venema, H. J. (SM)
Ward, A. G. (SM)
Willyard, C. H. (A)

Wheeling (CHI-5)
Higgs, J. A. (M)
Naber, J. S. (M)

Wildwood (CHI-5)
Jarvis, G. R. (M)

Wilmette (CHI-5)
Bell, J. F. (SM)
Bercaw, O. M., Jr. (M)
Bosshart, R. F. (M)
Canning, T. B. (A)
Cutlip, S. B. (M)
Freeman, W. H. (M)
Havel, V. A., Jr. (M)
Johntz, T. E., Jr. (A)
Karlin, R. A. (M)
Keller, E. A. (F)
Kline, L. M., Jr. (SM)
MacLean, N. W. (M)
McJohnston, C. A. (M)
Nicholls, W. C. (M)
Papier, J. H. (M)
Pionkowski, E. F. (M)
Schnell, W. J. (SM)
Smith, E. L. (M)
Sorsen, S. L. (A)
Stott, H. G. (A)
Thomas, L. R. (M)
Warshawsky, J. (M)
Wexler, J. S. (SM)

Winfield (CHI-5)
Roberts, B. W. (M)
Teske, H. O. (M)

Winnetka (CHI-5)
Berglund, A. O., Jr. (M)
Carlson, G. R. (A)
Carter, H. A. (A)
Jarvis, K. W. (F)

Winthrop Harbor (CHI-5)
McDowell, J. L. (M)

Wonder Lake (CHI-5)
Thompson, A. C. (M)

Wood Dale (CHI-5)
Colbert, J. R. (M)
Gardner, R. O. (M)
Maldak, A. M. (M)
Schwagart, W. H. (M)

Woodstock (CHI-5)
Kiclak, C. J. (A)

Yates City (CHI-5)
Rector, L. V. (M)

INDIANA

Anderson (IND-5)
Brock, E. W. (SM)
Carothers, F. S., Jr. (M)
Gardner, R. A. (A)
Holt, D. L. (M)
Liston, W. S. (M)
Merritt, D. E. (A)
Rath, G. A. (M)
Ruff, D. O. (M)
Scesney, S. P. (M)
Sensing, W. J. (M)
Snowden, J. L. (M)
Soeller, A. L., Jr. (M)

Angola (FT-W-5)
Hanson, L. G. (M)
Southern, C. D. (A)
Westenhaver, M. E. (A)
Worden, L. E. (A)

Arcadia (IND-5)
Nightenhelser, K. W. (M)

Auburn (FT-W-5)
Capen, G. A. (M)

Aurora (CIN-4)
Achatz, R. V. (M)

Batesville (CIN-4)
Gruenloh, G. J. (A)

Beech Grove (IND-5)
Van Osdol, J. E. (M)

Bloomington (IND-5)
Bahr, W. B. (M)
Chambers, M. W. (A)
Dixon, L. W. (SM)
Finley, R. W. (M)
Gribben, J. C., Jr. (A)
Hackemeyer, R. F. (A)
Kreops, J. E., Jr. (SM)
Langley, H. M. (M)
McKinnis, L. V., Jr. (M)
Presti, B. (M)
Siddons, G. F. (SM)
Svanascini, A. L. (SM)
Tarzian, S. (SM)
Winfield, W. S. (M)

Bluffton (FT-W-5)
Zeps, H. (A)

Brownsburg (IND-5)
Plasters, G. T. (A)

Brownstown (IND-5)
Rees, H. L. (M)

Campbellsburg (LOU-5)
Phipps, P. E. (M)

Chesterfield (IND-5)
Nisewander, E. L. (M)
Zickel, T. A. (M)

Chesterton (CHI-5)
O'Connor, R. W. (A)
Olson, E. H. (A)

Columbia City (FT-W-5)
Montague, L. L. (M)

Columbus (IND-5)
Erdman, B. K. (M)
Harden, R. D. (A)
Keller, L. P. (M)
Silva, A. D., Jr. (M)
Stambaugh, D. W. (M)

Crown Point (CHI-5)
Haag, K. E. (A)
Skoog, R. E. (M)
Spangler, R. (A)

Danville (IND-5)
Behymer, D. E. (M)
Miller, W. E. (A)

East Chicago (CHI-5)
Nesbitt, E. P. (A)
Olt, R. D. (M)
East Gary (CHI-5)
Mundell, E. H. (A)

Elkhart (SB-M-5)
Best, J. G. (A)
Budd, W. H. (M)
Carr, K. J. (M)
Daily, A. M. (M)
Doty, J. S. (M)
Faber, W. M., Sr. (M)
Gaddle, G. E. (M)
Houck, H., Jr. (A)
Kent, E. L. (SM)
Kieffer, G. H., Jr. (M)
Klinger, J. E. (A)
Krauss, S. L. (M)
La Blanc, R. A. (M)
Lewis, D. C. (M)
Lindahl, H. C. (M)
McCormick, J. E. (M)
McDonald, L. J. (M)
Moore, C. C. (M)
Osburn, C. M. (M)
Roberts, M. W. (M)
Slagal, R. P. (M)
Smith, R. A. (A)
Turner, B. S. (M)
Vaksvik, A. J. (M)

Etna Green (SB-M-5)
Stackhouse B. L. (A)

Evansville (EO-5)
Caraway, J. B. (SM)
Casler, M. S. (M)
Dulford, R. T. (SM)
Fifer, J. J. (M)
Flackbert, W. D. (M)
Gehres, F. A. (SM)
Greeson, J. H. (A)
Hatfield, P. E. (M)
Hennel, J. R. (M)
Herendeen, O. V. (A)
Jardine, J. W. (M)
Kappes, A. V. (A)
Koehler, R. L. (M)
Koonce, C. W. (M)
Krueger, O. H. (A)
Major, J. R. (M)
Manner, R. J. (M)
Miles, K. G. (M)
Quirk, J. A. (A)
Schoene, R. L. (SM)
Schoeny, E. P. (A)
Stoltz, G. F. (M)
Williams, W. A. (SM)
Wintermeimer, C. G. (M)

Fort Wayne (FT-W-5)
Aksamit, M. W. (M)
Artman, R. L. (M)
Atwill, W. D. (M)
Bardonner, W. J., Jr. (M)
Beach, H. W. (M)
Beaulieu, B. A. (A)
Belanger, D. S. (A)
Bergstedt, R. G. (M)
Borkowski, J. A. (A)
Breseghini, B. L. (M)
Cain, R. F. (M)
Casteel, B. G. (M)
Clements, L. E. (M)
Close, E. F. (M)
Coatney, A. E. (M)
Coles, D. K. (SM)
Collins, G. E. (SM)
Cronkwright, R. E. (M)
Curl, C. W. (A)
Dean, W. A. (A)
Decker, S. M. (M)
Di Loreto, C. D. (M)
Dreisbach, R. H. (M)
Emery, R. C. (A)
Farnsworth, P. T. (F)
Feustel, E. A. (A)
File, R. D. (M)
Fisher, D. E. (A)
Fisher, L. R. (M)
Folks, R. C. (A)
Fong, S. G. (SM)
Franchi, A. J. (A)
Freimann, F. (SM)
Gamble, M. E. (SM)
Garrett, L. A. (M)
Geones, G. P. (M)
Giffin, G. S. (M)
Goetz, P. W. (M)
Gotschall, W. O. (M)
Gough, L. E. (SM)
Grant, R. L. (SM)
Guthrie, F. W. (M)
Hagan, W. K. (SM)
Hardwick, C. L. (SM)
Harmer, R. L. (M)
Harris, A. S. (M)
Harwood, F. E. (M)
Hedeen, F. D. (A)
Hendryx, W. B. (M)
Hertzog, W. K. (M)
Hessler, J., Jr. (SM)
Hine, S. H. (A)
Hoffman, R. F. (M)
Holloway, T. D. (M)
Horowitz, M. (SM)
Houser, N. W. (M)
Howe, D. R. (M)
Humphries, R. G. (M)
Jacobson, A. J. (M)
Jensen, C. W. (M)
Jimenez, G. L. (M)
Johnson, L. (M)

INDIANA

Jones, R. B. (M)
Jung, D. H. (A)
Kaat, S. L. (M)
Kaplan, R. (M)
Keller, V. L. (M)
Kendall, P. E. (SM)
Kennedy, P. R. (A)
Kilite, O. (M)
King, R. J. (M)
Knauer, P. E. (M)
Koenig, E. W. (M)
Kuifel, L. A. (M)
Kuzma, P., Jr. (A)
La Fevre, L. M. (M)
Lawburgh, R. H. (M)
Lohin, R. A. (M)
Lovegren, P. B. (M)
Major, T. (M)
Manion, J. L., Jr. (M)
Manning, G. C., Jr. (A)
Martin, D. W. (SM)
Mason, C. F. (SM)
Mast, P. L. (M)
Mayle, A. T., Jr. (SM)
Mayle, L. F. (SM)
McFadden, J. H. (M)
McGregor, R. B. (M)
Meadows, H. R. (M)
Mensing, D. J. (M)
Michnay, D. F. (M)
Miller, R. W. (M)
Mount, E. V. (M)
Munlz, R. (SM)
Murphy, L. W. (M)
Nank, W. A. (SM)
O'Connor, R. A. (M)
Pantazin, T. (M)
Pepa, B. B. (A)
Pinter, P. J. (M)
Plait, A. O. (SM)
Regis, L. J. (M)
Reiher, D. C. (M)
Reiter, K. J. (M)
Rexroad, R. A. (A)
Rice, W. D. (M)
Richards, C. A. (M)
Richards, G. A. (M)
Richeson, W. E. (M)
Robertson, G. D. (SM)
Robrock, B. K. (M)
Rodgers, P. D. (M)
Rogers, M. A. (M)
Roy, W. R. (M)
Russell, R. S. (M)
Rust, M. F. (M)
Sabo, J. (M)
Salinger, H. W. G. (F)
Sanders, R. W. (SM)
Schneider, G. F. (M)
Schuop, G. A., Jr. (SM)
Seiy, M. E. (SM)
Sharo, J. W. (SM)
Shaw, R. A. (M)
Shelton, G. B. (M)
Silvey, J. O. (SM)
Sinish, R. D. (SM)
Slick, E. P. (M)
Southern, P. D. (M)
Stein, E. F. (M)
Stewart, C. W. (M)
Stewart, H. G. (M)
Stoakes, W. L. (M)
Summers, T. F. (A)
Swanson, E. S. (M)
Teetor, T. S. (A)
Theurer, D. L. (M)
Thompson, J. L. (A)
Tieszen, D. J. (M)
Toohig, M. F. (M)
Torgrim, W. J. (M)
Torzym, N. T. (M)
Trainer, F. E. (M)
Trimarchi, J. (M)
Trudell, L. F. (M)
Turner, C. R. (M)
Valentine, F. C. (M)
Viterisi, D. P. (A)
Von Berg, D. W. (M)
Wallace, C. E., Jr. (M)
Weaver, E. A. (A)
Webster, S. K. (M)
White, E. A. (SM)
Wibel, D. (A)
Williams, W. J., Jr. (M)
Wolfgang, L. G. (M)
Yoce, J. R. (M)
Zbacnik, E. V. (M)
Zins, W. A. (M)

Franklin (IND-5)
Reuss, R. E. (M)

Galveston (IND-5)
Buehler, E. R. (A)
Mittower, A. R. (A)

Gary (CHI-5)
Borrowman, J. H. (M)
Buccicone, V. S. (M)
Cinkus, F. (M)
Donahey, H. E. (A)
Flacable, P. (A)
Groberg, L. E. (A)
Ireland, R. P. (M)
Manor, J. L. (M)
Ratkay, S. (A)
Shirk, K. C. (M)
Theodore, J. A. (A)

Goshen (SB-M-5)
Corporon, R. P. (M)
Harrison, E. F. (A)

Grabill (FT-W-5)
Cleven, R. D. (M)
Meisch, R. A. (A)
Phillips, T. H. (M)

Granger (SB-M-5)
Rach, R. D. (A)

Greenwood (IND-5)
Marshall, C. L. (M)
Sisson, R. L. (M)

Griffith (CHI-5)
Vereb, A. J. (A)

Hagerstown (CIN-4)
Culy, G. E. (M)
Vanderbilt, V. C., Jr. (SM)

Hammond (CHI-5)
Janik, J. L. (M)

Hobart (CHI-5)
Loggie, T. W. (A)
Severson, M. L. (A)

Hudson (FT-W-5)
Tressler, J. B. (M)

Huntertown (FT-W-5)
Carpenter D. L. (M)
Ordas, A. F. (M)

Huntington (FT-W-5)
Fisher, C. C. (SM)
Kaufman, A. R. (M)
Smart, R. E. (A)
Terry, C. B. (M)

Indianapolis (IND-5)
Adams, R. L. (SM)
Adell, A. L. (M)
Alden, E. E. (M)
Aldred, E. D. (M)
Anderson, E. I. (F)
Andrews, D. R. (M)
Annus, L. E. (A)
Arbuckle, R. D. (M)
Arfman, R. W. (M)
Arvin, M. J. (SM)
Axmann, G. F. (M)
Barrelle, R. J. (M)
Bartlett, P. G. (SM)
Begeman, R. H. (M)
Bell, D. L. (A)
Bennett, W. H. (M)
Berller, J. C., Jr. (M)
Berntsen, W. H. (M)
Bough, J. N. (A)
Braunlin, R. J. (M)
Brockway, R. M. (M)
Brodrick, L. G. (M)
Burley, F. E. (SM)
Butts, C. B. (A)
Campbell, E. A. (M)
Carpenter, M. M., Jr. (M)
Carroll, J. J. (M)
Carson, H. E. (SM)
Carter, C. O. (A)
Carter, G. W. (SM)
Carter, H. A. (A)
Chittick, K. A. (F)
Chorpening, R. B. (M)
Chupnish, W. H. (M)
Cobb, L. J. (M)
Craghead, C. C. (M)
Cruthers, R. F. (M)
David, C. E. (M)
Davidson, J. J. (M)
Davis, C. B. (M)
De Assumocao, J. M. (A)
De Moss, J. F. (M)
De Voe, L. M. (M)
De Voe, S. E. (M)
Dhoope, J. R. (M)
Drilling, N. G. (M)
Duke, A. D. (M)
Dumbacher, J. (M)
Erickson, D. W. (M)
Ervin, E. E. (M)
Evans, A. G. (M)
Everhart, C. W. (M)
Fapp, W. H. (M)
Felts, R. C. (A)
Fitch, H. E. (A)
Fitch, T. L. (M)
Forsee, G. B. (M)
Forssander, P. H. (M)
Fraser, G. R. (SM)
French, A. B. (M)
Fulroth, W. H. (M)
Gary, A. H. (M)
Gelinas, R. (M)
Givan, D. E. (M)
Gonthier, R. R. (M)
Goodier, G. N. (M)
Graham, R. C. (M)
Gresham, S., Jr. (SM)
Hand, J. E. (M)
Harden, J. G. (SM)
Harrington, J. C. (M)
Hayden, G. H. (M)
Hemofling, J. T., Jr. (A)
Henschen, L. G. (M)
Hermelng, G. C., Jr. (SM)
Hipskind, G. S. (M)
Holland, H. A. (A)
Hostetler, W. E. (M)

Hoyt, C. W. (SM)
Hromada, J. C. (SM)
Huetten, C. (SM)
Huxtable, C. K. (SM)
Johannessohn, N. A. (M)
Jones, R. D. (M)
Kades, S. L. (M)
Kalinchuk, W. (M)
Kennedy, W. H. (M)
Kevill, J. F. (M)
Kirkwood, L. R. (SM)
Knipp, C. W. (M)
Koeppe, E. P. (A)
Kovalcik, E. (M)
Kraft, R. W. (M)
Lanning, W. E. (M)
Lewis, R. J. (SM)
Macnabb, V. C. (M)
Magiera, L. E. (A)
Manning, W. L. (SM)
Marasco, F. A. (M)
Martin, W. B. (A)
Maxwell, J. W. (SM)
McCabe, P. G. (M)
McMinn, E. R. (M)
Melbert, W. M., Jr. (M)
Mogle, R. E. (M)
Montoya, E., Jr. (SM)
Morone, J. P. Jr., (SM)
Moyer, R. C. (SM)
Nelson, J. B. (A)
Obenland, D. K. (M)
Obert, M. J. (SM)
Olsen, R. C. (A)
Oltmann, M. L. (M)
Owen, D. W. (M)
Pamish, L. J. (M)
Peden, J. E. (A)
Peterson, R. P. (M)
Phillips, R. M. (M)
Purdy, R. E. (M)
Purgett, L. J. (SM)
Reager, A. M. (M)
Resener, B. J. (M)
Roys, H. E. (F)
Sauerteig, F. H. (M)
Schager, R. J. (M)
Schlenker, M. C. (M)
Schmitt, D. L. (M)
Schoch, H. B. (M)
Schoep, V. R. (M)
Schramer, K. (A)
Schuette, R. K. (M)
Schultz, A. J. (SM)
Schulz, E. A. (A)
Shupe, C. D. (M)
Skinner, G. M. (M)
Slater, I. M. (SM)
Spencer, R. L. (M)
Spooner, W. A. (M)
Stafford, W. C. (M)
Stark, J., Jr. (M)
Stembel, J. E. (M)
Stone, F. B. (SM)
Stone, H. R. (A)
Stuart, D. M. (SM)
Stuhlbarg, S. M. (SM)
Sukup, J. P. (M)
Sweany, L. P. (M)
Tague, B D. (SM)
Thomas, J. G. (A)
Thomas, L. P. (SM)
Thorn, W. D. (M)
Trappen, W. G. (M)
Tudor, E. C. (M)
Tulauskas, L. (SM)
Tumbaugh, C. C. (M)
Tyler, R. D. (M)
Vanderheyden, J. J. (M)
Vangelakos, C. (M)
Vaughn, D. C. (M)
Viere, A. J. (M)
Walker, C. M. (M)
Walker, R. S. (M)
Ward, J. E. (M)
Welsh, L. F. (M)
Wentworth, H. B. (A)
Whitaker, R. O. (M)
Widrikis, I. (A)
Wildt, R. E., Jr. (M)
Wilson, D. (SM)
Wisner, H. L. (SM)
Wolff, H. R. (SM)
Wolter, L. R. (A)
Wood, D. E. (M)
Wulfekuhl, R. J. (M)
Wuster, W. L. (A)
Ytze, S. T. (A)
Zimmerman, J. D. (A)

Jeffersonville (LOU-5)
Horlander, F. J. (M)

Jonesboro (IND-5)
Konrad, R. J. (M)

Kokomo (IND-5)
Adams, J. C. (M)
Allison, P. E. (M)
Anderson, A. L. (M)
Atkinson, J. R. (M)
Bevington, J. R. (M)
Bickel, S. O. (M)
Blossey, C. W. (M)
Brandon, W. S. (M)
Brinkerhoff, D. E. (M)
Brown, L. E. (A)
Brown, R. B. (M)
Burkhardt, P. E. (M)
Byse, R. J. (M)
Calabro, J. E. (M)

Cannon, G. E. (M)
Carlson, E. C. (A)
Carr, W. J. (M)
Caruana, P. A. (A)
Chassin, C. A. (M)
Clapp, L. A. (M)
Cory, C. D., Jr. (M)
Cory, N. L. (A)
Craig, E. L. (A)
Donohoe, F. J., Jr. (M)
Doversberger, K. W. (M)
Elbeck, A. C. (M)
Engle, D. E. (A)
Fort, G. B. (M)
Gerhardt, B. J. (M)
Guyton, J. H. (M)
Harmon, C. A. (M)
Heckert, W. F. (M)
Hein, P. H. (M)
Held, M. L. (M)
Jaumot, F. E., Jr. (SM)
Jenkins, R. L. (M)
Khan, F. R. (A)
Knollinski, R. E. (M)
Knutson, C. J. (A)
Laitinen, L. K. (M)
Letsinger, W. C. (M)
Manahan, M. J. (SM)
Martin, D. W. (M)
McCaughan, H. M. (A)
Miller, R. F. (M)
Nellans, K. L. (M)
Nolff, W. (M)
Paskell, E. (A)
Prewitt, T. A. (M)
Pyle, H. (M)
Reed, R. E. (A)
Rittmann, A. D. (SM)
Ruoprecht, E. G. (M)
Schaffner, J. S. (SM)
Schwarz, B. A. (F)
Shearer, J. E. (A)
Siefken, R. M. (M)
Snead, J. R. (A)
Stahl, K. L. (M)
Stelzi, H. M. (M)
Stutzman, E. (M)
Swisshelm, J. T. (M)
Thomas, J. W. (M)
Tulledge, C. D. (M)
Vahle, R. W. (M)
Vogt, K. S. (M)
Votava, C. J. (M)
Wagner, R. F. (M)
Weber, J. W. (M)
Worthen, J. H. (M)
Wright, H. E. (M)

Lafayette (IND-5)
Adams, W. L. (M)
Detraz, O. R. (M)
Evans, C. M. (M)
Evans, H. R. (M)
Friedlaender, F. J. (M)
Fu, K. (M)
Gibson, J. E. (M)
Groves, C. R. (M)
Haisey, M. R. (M)
Hancock, J. (M)
Jordan, H. G. (M)
Kamal, A. K. (SM)
Kline, R. M. (M)
Kohr, R. H. (M)
Kozin, C. H. (M)
Landgrebe, D. (M)
Rekastus, Z. V. (M)
Robertson, R. L. (A)
Sabbagh, E. M. (SM)
Samuels, J. C. (M)
Schultz, F. V. (SM)
Seo, H. (M)
Sheppard, E. M. (M)
Silva, L. F. (M)
Siskind, R. P. (SM)
Stanley, P. E. (M)
Tou, J. (SM)
Wade, W. D. (SM)
Walter, E. R. (A)

La Porte (SM-M-5)
Evancich, E. (M)

Lawrence (IND-5)
May, C. W. (M)

Lawrenceburg (CIN-4)
Runyan, R. E. (M)

Logansport (IND-5)
Harrell, D. H. (M)
Munson, A. L. (A)

Marion (IND-5)
Ballard, D. C. (SM)
Benway, R. E. (M)
Ransom, D. J. (M)
Regnault, J. H., Jr. (A)

Martinsville (IND-5)
Johnson, D. E. (M)

Michigan City (SB-M-5)
Alinsky, J. W. (SM)
Bloss, R. P. (M)
Cook, R. W. (M)
Frame, W. W. (A)
Groendyke, R. W. (M)
Hilbun, J. M. (M)
Horvath, J. W. (A)
Johnson, R. H. (M)
Kam, R. D. (M)
Kolster, W. K. (A)

Lee, W. (A)
Livingstone, J. K. (M)
Middleton, J. A. (M)
Rado, J. A. (SM)
Spangler, S. T. (SM)
Tober, R. D. (A)
Wenzinger, C. J., Jr. (M)
Williams, D. A. (M)

Mishawaka (SB-M-5)
Armstrong, C. N. (M)
Bigelow, A. F. (M)
Blong, V. J. (M)
Cooney, J. J. (M)
Cunningham, D. L. (M)
Denning, E. L. (A)
Eberlein, C. W. (M)
Floetker, L. E. (M)
Henker, J. W. (M)
Howell, L. D. (A)
Janosik, J. R. (M)
Kaiser, R. P. (M)
Koch, W. J. (A)
Lawrence, W. G. (M)
Lemanski, A. B. (M)
Lind, R. A. (M)
Lottes, J. J. (M)
Martin, J. B. (M)
McGuire, H. E. (M)
Miller, A. E. (A)
Neff, D. L. (A)
Omberg, A. C. (SM)
Patten, R. B. (A)
Paulsen, H. A. (M)
Paulson, E. E. (M)
Pilcher, R. M. (M)
Pless, L. C. (M)
Schmiedeler, F. J., Jr. (M)
Solies, P. D. (M)
Sprouse, P. J. (M)
Vogtmann, H. W. (M)
Walenga, J., Jr. (M)
Whiffen, R. E. (SM)

Mooresville (IND-5)
Fenimore, G. E. (SM)
Frederick, A. E. (M)

Muncie (IND-5)
Burton, D. A. (A)
Hayes, M. E. (A)
Hoffman, H. H. (M)
Springer, G. P. (A)

Munster (CHI-5)
Miner, J. H. (M)
Roedel, J. (M)
Sane, J. M. (A)

New Albany (LOU-5)
Hawkins, J. G. (M)
Kelley, W. J. (A)
Robinson, S. C. (M)

New Augusta (IND-5)
Cross, K. R. (A)

New Castle (IND-5)
Rummel, H. D. (A)

New Haven (FT-W-5)
Allen, R. E. (M)
Bennett, E. Y., Jr. (M)
Bryant, W. D. (M)
Buckley, J. E. (M)
Guichard, R. S. (M)
Hallmark, C. E. (SM)
Koppin, A. A. (M)
McNary, R. C. (A)
Murphy, F. J. (M)

Notre Dame (SB-M-5)
Coomes, E. A. (SM)
Daly, R. T., Jr. (M)
Ellithorn, H. E. (SM)
Evers, A. J. (M)
Foecke, H. A. (A)
Henry, E. W. (M)
Hodes, I. (M)
Liu, R. (M)
Morgan, D. R. (M)
Morine, L. A. (M)
Saletta, G. F. (M)
Stauder, L. F. (M)

Odon (EO-5)
Blevins, L. G. (M)
Polz, R. W. (M)

Orestes (IND-5)
Gilliam, D. W. (A)

Osceola (SB-M-5)
Cox, P. G. (SM)
Eger, W. W. (A)
Ludwig, A. R. (M)
Moulton, G. E. (M)

Pendleton (IND-5)
Scudder, E. I. (M)

Peru (IND-5)
See, W. E. (A)

Plainfield (IND-5)
Brown, W. K. (M)
Council, W. A. (M)
Lightburne, D. N. (A)
Mason, D. E. (M)
Oldham, L. P. (M)
Smith, D. R. (M)

Poseyville (EO-5)
Stilwell, E. P. (A)

Princeton (EO-5)
Havill, C. N. (M)
Smith, Z. R. (M)

Richmond (CIN-4)
Congdon, K. P. (M)
Maddox, R. D. (M)
McDonald, R. H. (A)
Rea, R. C. (M)
Whittenberger, J. S. (M)
Young, K. W. (A)

Roanoke (FT-W-5)
Yoder, L. E. (M)

Russiaville (IND-5)
Fred, J. A. (M)

St. Meinrad (EO-5)
Ringeman, O. E. (M)

Sheridan (IND-5)
Anderson, T. V. (A)
Neal, S. M. (M)

South Bend (SB-M-5)
Arthur, A. A. (M)
Austin, M. E. (M)
Baugh, R. G. (M)
Beazell, H. L. (M)
Beehler, L. A. (M)
Bowersox, F. L. (M)
Bunker, B. D. (A)
Colten, J. L. (SM)
Cox, R. G. (M)
Cramer, G. T., Jr. (M)
Dager, W. A. (M)
De Jonge, E. H. (M)
De Ruyck, A. R. (M)
Durbin, H. M. (M)
Elliott, D. R. (M)
Erfman, J. D. (M)
Falco, M. F. (SM)
Feaster, J. A. (M)
Fimer, J. F. (M)
Frosch, R. A. (M)
Grant, J. H. (M)
Haigh, R. B. (M)
Heller, D. M. (SM)
Hoffman, C. H. (SM)
Hollis, R. H. (M)
Husung, D. L. (M)
Jacks, J. T. (M)
Jaffe, B. (M)
Jones, P. W. (M)
Kempf, K. R. (M)
Kepner, P. E. (M)
Kindt, N. O. (M)
Klimek, T. F. (M)
Kunz, W. J., Jr. (SM)
Lininger, T. C. (M)
Link, A. G. (M)
Mansfield, K. I. (M)
Marz, P. A. (M)
Masteller, B. L. (M)
McWhorter, W. F. (M)
Metsker, W. E. (SM)
Miller, R. D. (M)
Modesitt, M. B. (M)
Mossman, R. B. (SM)
Mueller, A. A. (M)
Nymberg, R. J., Jr. (M)
O'Neil, A. R. (M)
Patterson, J. M. (A)
Pauwels, K. G. (A)
Quigley, A. J. (M)
Radebaugh, B. W. (M)
Root, R. E. (M)
Rushing, W. A. (M)
Shaffer, C. W., Jr. (A)
Soleta, G. S. (M)
Stiling, T. O. (M)
Stouffer, R. C. (M)
Svorec, R. S. (A)
Ullery, E. L. (M)
Weiler, G. (M)
Weissert, R. K. (M)
Winkler, M. A. (SM)
Wissink, M. G. (M)
Witsken, C. H. (M)
Woelfle, R. M. (M)
Zimlich, D. C. (M)

Speedway (IND-5)
Hook, G. E. (M)
Schnell, S. A. (A)
Wacker, K. F. (A)

Sulphur (EO-5)
Frakes, S. E. (A)

Tell City (EO-5)
Churchill, P. K. (SM)
Hammond, R. F. (SM)

Terre Haute (IND-5)
Gaskins, G. L. (M)
Moench, H. A. (SM)
Phipps, G. W. (M)
Rogers, C. C. (M)

Union City (IND-5)
Resor, J. D. (M)

Valparaiso (CHI-5)
Bullis, E. E. (A)
Gast, D. A. (A)
Gray, M. F. (A)

Hershman, A. L. (M)
Luecke, E. J. (M)
McCasland, G. R. (A)
Oldham, K. W. (M)
Patton, R. C. (A)
Shewan, W. (M)
Tindall, E. K., Jr. (A)
Toeger, M. R. (M)
Vocke, M. C. (M)

Wabash (IND-5)
Thurlow, M. P. (M)

Waldron (IND-5)
Miller, D. C. (SM)

Washington (EO-5)
Creager, B. H. (M)

Waterloo (FT-W-5)
Hamman, H. L. (A)

West Lafayette (IND-5)
Beck, C. A. (A)
Bergen, S. F. (S)
Bolle, D. M. (M)
Chang, Y. E. (M)
Cohen, B. C. (M)
Cooper, G. R. (M)
Czaranata, A. H. (M)
Dumin, D. J. (M)
Eccles, W. J. (M)
El-Abiad, A. H. (M)
George, R. H. (SM)
Grant, M. P. (M)
Happell, G. E. (SM)
Hayt, W. H., Jr. (SM)
Helm, H. J. (SM)
Hendal, J. F. (M)
Hesselberth, W. M. (M)
Hiatt, H. E. (M)
Hughes, G. W. (M)
Johnson, S., Jr. (M)
Joseph, P. D. (M)
Kemmerly, J. E. (M)
King, L. T. (M)
Levine, M. W. (M)
Looresti, P. V. (M)
Machol, R. E. (SM)
Merchant, R. C. (M)
Ogborn, L. L. (M)
Pitt, P. E. (A)
Raible, R. H. (M)
Riesz, W. H. (M)
Schwarzlander, H. (M)
Sims, S. D. (M)
Stanchak, A. (M)
Thomoson, H. W., Jr. (M)
Totty, R. E. (M)

Whiting (CHI-5)
Grenchik, T. J. (M)
Torzewski, D. F. (M)

Winchester (IND-5)
Beynon, D. J. (M)

Winslow (EO-5)
Vaughan, J. D. (A)

Wolcottville (FT-W-5)
Hayworth, R. G. (A)

Woodburn (FT-W-5)
Bertsche, G. (M)

Zionsville (IND-5)
Woodruff, A. E. (M)

IOWA

Amana (CR-5)
Zimmerman, P. A. (A)

Ames (CR-5)
Ablin, H. L. (M)
Anderson, P. M. (SM)
Boast, W. B. (M)
Bolie, V. W. (M)
Bowen, D. W. (M)
Brown, R. G. (M)
Camp, R. C. (M)
Cassell, W. L. (SM)
Cowan, C. D. (M)
Feisel, L. D. (M)
Goss, J. E. (M)
Griffin, J. E. (M)
Haglund, R. E. (M)
Hale, H. W. (SM)
Hermann, P. J. (SM)
Holland, G. E. (M)
Hootman, J. (M)
Hoversten, E. V. (M)
Loupee, B. J. (M)
Mattson, R. H. (M)
McMechan, J. D. (M)
Pohm, A. V. (M)
Read, A. A. (M)
Sander, W. B. (M)
Stewart, R. M., Jr. (M)
Thovson, D. K. (M)
Town, G. R. (F)
Triska, C. J. (M)
Ulstad, M. S. (M)
Vitols, V. A. (M)
Zingg, R. J. (M)

Ankeny (CR-5)
Johnston, D. H., Jr. (M)

Bettendorf (CR-5)
Arvidson, P. G. (M)
Campbell, D. B. (M)
Sergeant, J. V. (M)

Burlington (CR-B-5)
Allen, J. W. (M)
Applegate, J. A. (SM)
Bogart, P. M. (M)
Bos, L. W. (M)
Burham, F. P. (M)
Cherryholmes, C. D. (M)
Clark, H. L. (M)
Eck, E. J. (M)
Ehret, F. W. (A)
Etz, C. S. (M)
Everett, T. D. (M)
Funkhouser, J. R. (A)
Healey, N. B. (M)
Hemmie, D. L. (A)
Keser, P. D. (M)
McGlasham, K. W. (M)
Moyers, W. D. (M)
Mullin, M. L. (M)
Taylor, D. L. (M)
Teaxler, D. V. (M)
Wilcox, R. A. (M)
Winegard, J. R. (M)

Cedar Rapids (CR-5)
Abrams, H. T. (A)
Anderson, A. E. (SM)
Anderson, J. E. (M)
Anderson, K. R. (M)
Anderson, M. V. (M)
Anderson, W. G. (M)
Andrade, E. A. (SM)
Andrews, E. J., Jr. (M)
Amway, A. C. (M)
Arens, R. P. (M)
Armstrong, M. E. (M)
Ayers, D. C. (M)
Babillus, J. (SM)
Ball, J. K. (M)
Barritt, P. F. (M)
Beamer, C. M. (M)
Bellville, W. H. (SM)
Benning, G. L. (A)
Berry, D. G. (M)
Binger, K. B. (SM)
Bishop, G. E. (M)
Born, A. S. (SM)
Bowles, C. H., Jr. (M)
Bradford, F. H. (A)
Brega, L. D. (A)
Britton, R. W. (SM)
Broadhead, S. L., Jr. (SM)
Brobst, J. D. (M)
Brower, H. P. (M)
Brown, H. R. (M)
Brown, K. L. (M)
Brown, S. E. (A)
Bruce, R. A. (M)
Bruene, W. D. (F)
Burdick, L. R. (M)
Buroker, G. E. (M)
Burton, R. E. (M)
Cahalan, J. L. (M)
Caquelin, M. W. (SM)
Carroll, R. G. (M)
Carter, J. T., Jr. (M)
Castleberry, D. E. (M)
Cattol, R. L. (SM)
Chadima, G. E., Jr. (M)
Christensen, A. A. (M)
Climie, B. R. (M)
Collins, A. A. (F)
Combellick, J. D. (M)
Conrad, E. R. (M)
Cope, W. F. (M)
Cory, T. S. (M)
Coulliard, L. W. (SM)
Cox, R. T. (SM)
Craft, L. M. (SM)
Craiglow, R. L. (M)
Cramer, R. L. (M)
Cribbs, R. D. (M)
Cummings, F. M. (M)
Curley, R. E. (A)
Dalton, J. L. (SM)
Delong, V. R. (SM)
De Vries, H. G. (M)
Dietrich, F. J. (M)
Doldge, F. G. (M)
Donaldson, R. V. (M)
Drabelle, J. M., Jr. (M)
Duff, R. E., Jr. (M)
Duncan, J. W. (SM)
Duncan, J. O. (M)
Dunn, R. S (SM)
Durell, C. R. (M)
Edinger, D. L. (M)
Eggert, C. F., Jr. (M)
Elliott, W. S. (SM)
Engholm, K. J. (M)
England, L. C. (A)
Erickson, G. A. (A)
Essig, R. D. (SM)
Fedde, C. D. (M)
Finger, P. R. (M)
Fletcher, K. L. (SM)
Flint, R. L. (M)
Fredrickson, D. L. (M)
Frerking, M. E. (M)
Frey, H. B. (M)
Friedrichs, J. P. (M)
Fritze, E. H. (SM)
Fuller, R. C. (M)
Funston, S. S. (M)
Gallagher, D. C. (M)
Gallagher, R. B. (A)
Gaskill, H. V. (SM)
Gates, R. S. (M)
Gerks, I. H. (F)
Getzin, N. R. (M)
Giacoletto, J. P. (SM)
Glandon, A. E. (M)
Glynn, L. A. (M)
Goetz, J. L. (SM)
Graham, N. L. (M)
Graves, W. H. (M)
Green, D. H. (A)
Greenlee, J. A. (A)
Greenwell, R. E. (M)
Grimm, D. K. (M)
Griswold, W. R. (M)
Haahr, D. K. (SM)
Habeger, E. A. (M)
Haines, G. L. (M)
Hamann, J. R. (M)
Hamilton, A. R. (SM)
Hamilton, R. D. (M)
Hamstra, C. J. (M)
Hancock, J. R. (A)
Hanon, D. L. (M)
Hanson, R. W. (M)
Harts, W. G. (M)
Hattendorf, E. R. (M)
Haworth, J. C. (M)
Heath, J. W. (M)
Hedgcock, W. T., Jr. (M)
Hemesath, N. B. (M)
Hepker, C. C. (M)
Herzog, W. E. (M)
Hleb, E. A. (M)
Hlevela, R. J. (M)
Hixenbaugh, G. P. (M)
Hlavaty, L. F. (M)
Hodgin, D. M., Jr. (SM)
Hograbe, H. J. (A)
Hoque, N. E. (SM)
Holec, V. P. (M)
Hombeck, S. J. (M)
Hoskinson, M. F. (M)
Howorth, D. L. (M)
Hubbard, M. R. (SM)
Hudek, V. R. (SM)
Hungerford, L. D. (M)
Hykes, G. R. (M)
Innis, J. P. (M)
Jaycox, R. L. (M)
Johnson, D. E. (M)
Johnson, F. W. (M)
Johnson, L. E. (A)
Johnson, T. K. (M)
Joy, H. H. (M)
Kennedy, J. M., Jr. (M)
Kennedy, W. A. (M)
Kidman, R. D. (M)
Kintzel, C. K. (M)
Kirkpatrick, C. H. (M)
Klehfoth, W. G. (M)
Koos, R. K. (M)
Kopernik, H. M. (A)
Kopf, H. A. (M)
Kopp, R. W. (M)
Kratzer, J. G. (M)
Krebs, D. W. (M)
Kuriger, W. L. (M)
Laubengayer, W. C. (M)
Lerwick, R. R. (M)
Lieske, E. W. (M)
Loos, D. E. (M)
Ludvigson, M. T. (SM)
Lulken, D. G. (M)
Maire, M. S. (M)
Malik, N. R. (M)
March, G. W. (M)
Marshall, F. C., Jr. (M)
Martin, E. L. (SM)
Martin, J. A. (M)
Martz, F. W. (A)
Mason, W. A. (M)
Matzek, M. W. (M)
Mayer, P. A. (M)
Mc Connell, T. E. (SM)
Mc Creary, R. L. (SM)
McDaniel, I. V. (M)
McElroy, J. C. (SM)
McGraw, R. C. (M)
McInerney, J. F. (M)
McKinley, P. A. (SM)
McLaughlin, R. A. (M)
McLin, F. D. (M)
McMichael, R. W. (M)
Meier, J. C. (M)
Merritt, J. R. (M)
Messersmith, R. T. (M)
Metcalf, C. E. (M)
Meyer, A. W. (M)
Meyer, D. H. (SM)
Meyer, R. J. (M)
Mills, J. L. (M)
Minerva, V. P. (M)
Mollman, W. G. (M)
Moody, J. M. (M)
Morgan, D. J. (M)
Morrison, S. M. (SM)
Mortimore, R. L. (M)
Mortimore, T. N. (M)
Moseman, P. (A)
Most, N. S. (M)
Murphy, R. D. (M)
Myers, G. G. (M)
Nelson, J. H. (M)
Nielson, J. (M)
Nieuwsma, H. J. (M)
Nims, J. K. (A)
O'Brien, E. L., Jr. (M)
Odell, R. L. (M)
Olson, R. L. (SM)
Oppedahl, C. A. (M)
Ore, F. R. (M)
Pappenfus, E. (SM)
Parker, R. H. (M)
Paul, V. L. (M)
Perkins, A. (M)
Perry, V. G. (M)
Phlegar, C. L., Jr. (M)
Pickering, R. F. (M)
Pierce, R. J. (SM)
Polashek, E. J. (A)
Rathlen, K. R. (M)
Rector, J. D. (SM)
Rennekamp, E. E. (M)
Rexroad, W. D. (M)
Rexroat, W. E., Jr. (M)
Ringland, J. F. (A)
Rockwell, C. A. (M)
Roe, K. B. (M)
Rogers, A. A. (M)
Rogers, P. H. (M)
Ruth, P. D. (M)
Rutledge, J. N. (M)
Salmon, R. F. (M)
Schuster, D. H. (M)
Schuster, H. E. (M)
Scott, A. J. (M)
Secor, A. (M)
Sellers, G. W. (SM)
Senti, E. C. (SM)
Skar, R. C. (M)
Smisloff, J. (M)
Smith, H. D. (M)
Snyder, R. E. (M)
Stambaugh, E. D. (A)
Stanphill, J. R. (A)
Stephens, R. A. (M)
Stevens, D. R. (M)
Stockwell, G. M. (A)
Stover, H. A. (M)
Strathman, L. R. (M)
Stubbe, R. G. (M)
Sudduth, J. F. (M)
Swanson, R. A. (M)
Swinton, S. Q. (A)
Taylor, R. C. (A)
Thompson, P. (M)
Thorp, H. R. (M)
Thran, D. P. (M)
Thulrer, J. M. (A)
Titus, C. K. (M)
Tollefson, R. D. (SM)
Toof, P. A. (M)
Truesdell, R. M. (M)
Turner, J. F. (A)
Tweedt, O. C. (A)
Ulvik, R. L. (M)
Vander-Hamm, R. L. (M)
Van Englehoven, C. A. (M)
Van Gilder, T. W. (A)
Vanous, J. A. (SM)
Vaughn, K. E. (SM)
Vick, E. K. (SM)
Vrbik, J. (A)
Wainwright, L. F. (M)
Wales, G. A. (M)
Waller, H. F. (M)
Weber, D. W. (SM)
Wells, V. A. (M)
Westcot, J. L. (SM)
Western, R. E. (M)
White, R. C. (M)
Wilkerson, J. L. (M)
Wilson, J. A. (M)
Wilson, M. F. (SM)
Windus, W. A. (M)
Winters, R. K. (A)
Wolfe, R. T. (M)
Woodward, C. W. (M)
Wright, K. F. (M)
Wulfsberg, A. H. (SM)
Wulfsberg, P. G. (SM)
Zinkus, J. V. (A)

Center Point (CR-5)
Marston, R. J. (M)

Clarinda (CR-5)
Kelley, J. M. (A)

Council Bluffs (OM-L-5)
Davidson, S. (M)
Fuller, G. L. (M)
Meyermann, G. W. (M)
Otis, J. C. (A)
Petersen, W. P. (A)
Rose, R. F. (A)
Smith, R. L. (A)

Danville (CR-5)
Anderson, D. A. (A)
Harris, D. L. (A)

Davenport (CR-5)
Andrews, L. W. (M)
Handel, N. E. (M)
Hayes, C. W. (M)
Hendrickson, H. T. (M)
Lenker, P. E. (A)
Lewis, R. W. (M)
Petersen, V. L. (M)
Pfannenstiel, D. A. (A)
Pollman, L. F. (A)
Walker, G. R. (M)

Delmar (CR-5)
Jurgensen, V. L. (A)

Des Moines (CR-5)
Carmosino, M. J. (M)
Coleman, F. C. (A)
Dowell, R. J. (M)
Eastman, J. W. (M)

Foster, J. Y. (A)
Harris, V. M. (A)
Houvenagle, T. L. (M)
Loyet, P. A. (SM)
Maney, R. P. (M)
Potts, R. (M)
Quentin, C. F. (M)
Ritsler, H. D. (M)
Roney, L. M. (M)
Sellen, D. E. (M)
Sharp, R. R. (A)
Shepard, A. R. (M)
Stauffer, R. E. (M)
Tennant, O. A. (M)

Dubuque (CR-5)
Hingtgen, D. N. (M)
Lightcap, W. J. (M)

Fort Dodge (CR-5)
Fisher, B. (M)
Tunwall, C. S. (A)

Fort Madison (CR-5)
Seadler, S. E. (A)

Grinnell (CR-5)
Denny, W. B. (M)

Hiawatha (CR-5)
Bell, A. J. (M)
Edeker, D. W. (M)
Forrest, R. L. (M)
Griffin, N. J. (M)
Johnson, L. D. (M)
Myhre, P. K. (SM)
Olson, D. E. (M)
Wilkerson, J. L. (M)

Independence (CR-5)
Blank, W. A. (M)

Iowa City (CR-5)
Alton, E. D. (M)
Alwin, V. C. (A)
Curtis, J. F. (A)
Edberg, R. A. (M)
Giblin, T. E. (M)
Hunter, T. A. (F)
Kelly, R. W. (M)
Leiting, M. C. (A)
Lockwood, W. H. (A)
McMillin, J. V. (M)
McNally, R. L. (M)
Melloh, A. W. (SM)
Menzer, C. H. (SM)
Nelson, G. D. (M)
Newell, D. E. (M)
Small, A. M., Jr. (M)
Thissell, J. D. (M)
Van Allen, J. A. (F)
Ware, L. A. (SM)
Wood, D. L. (M)

Le Claire (CR-5)
Keefe, J. W. (A)

Luana (CR-5)
Landt, H. L. (A)

Manleton (CR-5)
Larson, R. L. (M)

Marion (CR-5)
Acker, J. R. (M)
Adelson, J. W. (M)
Amfahr, W. U. (M)
Apple, F. M. (M)
Baldwin, L. G. (M)
Bartelt, D. E. (M)
Bergemann, G. T. (M)
Berkovec, J. W. (M)
Breed, W. M. (A)
Burkepile, J. M. (M)
Burnham, R. E. (A)
Cain, R. J. (M)
Canfield, R. E. (M)
Carney, C. S. (M)
Chihak, P. P. (M)
Coady, L. B. (M)
Damm, F. (SM)
Daruis, A. A. (M)
Davison, W. W. (M)
Dawson, R. J. (M)
Dawson, S. L. (M)
Day, W. E. (M)
Diedich, J. J. (M)
Eichenberger, D. L. (M)
Ericksen, P. N. (M)
Fankhauser, J. E. (SM)
Fenwick, R. C. (M)
Follensbee, W. M. (M)
Frye, E. O. (SM)
Gjertson, R. D. (M)
Hanson, H. L. (A)
Hart, R. W. (M)
Herreld, H. R. (M)
Hirsch, H. D. (M)
Hodge, R. M. (A)
Hotchkiss, J. H. (A)
Hudock, E. (SM)
Iliff, W. R. (M)
Jackson, H. E., Jr. (M)
Jessen, M. F. (M)
Johnson, A. F. (M)
Kinley, K. S. (M)
Krogh, R. S. (M)
Lehman, H. W. (SM)
Leverington, R. D. (M)
Ljungwe, A. L. (M)
Magor, L. A. (M)
Majerus, J. B. (M)
Mamer, G. R. (SM)
Mayer, A. F. (M)
McCune, H. K. (M)
McManis, D. L. (M)
McNeil, J. F. (M)
Michael, H. G. (M)
Miller, J. R. (M)
Moorhead, P. E. (M)
Newhouse, V. L. (M)
Peterson, D. L. (A)
Pool, R. H. (M)
Read, E. F. (M)
Robinson, F. A., Jr. (A)
Rodes, W. D. (SM)
Rooks, H. B. (M)
Runyan, W. G. (M)
Schmidt, G. E. (A)
Schoon, W. C. (M)
Schultz, E. L. (M)
Schwandt, W. (A)
Searl, E. P. (M)
Simpson, R. L. (A)
Smith, D. A. (A)
Smith, M. S. (SM)
Sorensgeler, J. H. (M)
Strebe, A. C., Jr. (A)
Svien, A. J. (SM)
Tuthill, E. G. (M)
Tyrell, L. A. (M)
Van Tilbury, J. D. (SM)
Walrath, H. D. (M)
Winter, L. E. (M)
Wise. R. S. (M)

Marshalltown (CR-5)
Christensen, P. M. (M)
Freese, F. R. (M)

Mason City (CR-5)
Sawyer, R. E. (SM)

Mitchellville (CR-5)
Kampman, J. L. (M)
Melloh, C. I. (M)

Mount Vernon (CR-5)
Hartong, G. S. (M)

Muscatine (CR-5)
Havercamp, R. P. (M)
Lister, E. C. (M)

Oelwein (CR-5)
McGinnis, S. E. (M)
Sawvelle, E. V. (M)

Osage (CR-5)
Seeber, J. W. (A)

Oskaloosa (CR-5)
Northfield, W. E. (M)

Ottosen (CR-5)
Johnson, E. T. (M)

Sioux City (OM-L-5)
Bramel, E. F. (M)
Call, G. R. (A)
Edgerton, J. F. (M)
Lasensky, M. M. (M)
Love, K. E. (A)
Ryba, F. J. (A)
Scott, L. D. (A)
Smith, A. H. (M)

Solon (CR-5)
Chansky, W. C. (A)

Spencer (CR-5)
Tuttle, R. F. (A)

Toddville (CR-5)
Dicken, H. K. (M)
Friederichs, J. W. (M)
Johnson, G. J. (M)
Vance, A. G. (M)

Walker (CR-5)
Bearce, E. J. (A)
Yeoman, D. C. (A)

Waterloo (CR-5)
Tink, E. M. (M)

West Branch (CR-5)
Stuckfen, R. A. (M)

West Burlington (CR-B-5)
Collins, J. H. (M)
Hunt, J. C. (M)
Kruse, E. A. (M)
Moehn, P. S. (M)
Stephens, L. L. (M)
Wunnenberg, H. V. (A)

West Des Moines (CR-5)
Luther, R. E. (A)

KANSAS

Abilene (WIC-6)
Gay, G. L. (A)

Augusta (WIC-6)
Kohman, E. J. (M)

Belle Plaine (WIC-6)
Shore, A. L. (M)

Bethel (KC-6)
Andrews, L. G. (A)
Barnes, O. C. (M)
Willet, J. C. (M)

Boicourt (KC-6)
Witcher, J. F. (M)

Clay Center (WIC-6)
Liby, D. B. (A)

Clifton (KC-6)
Hall, J. B. (M)

Concordia (WIC-6)
Wilson, W. D. (M)

Derby (WIC-6)
Burnett, J. W. (M)
Edwards, R. R. (M)
Hickey, L. F. (A)
Knowlton, R. F. (M)
Long, F. C., Jr. (M)
Schneider, C. S. (M)

Emporia (WIC-6)
Swift, H. G. (M)

Erie (WIC-6)
Grillot, R. E. (M)

Fort Leavenworth (KC-6)
Friend, H. C. (SM)
Holcombe, W H., Jr. (M)
Knapp, T. W., Jr. (M)
Pankowski, B. J. (M)

Fort Riley (WIC-6)
Spintman, D. A. (M)

Gardner (KC-6)
Gault, W. E. (M)
Gay, W. D. (M)
Reed, D. M. (M)

Hays (WIC-6)
Chapman, D. C. (M)
O'Loughlin, J. B. (M)

Haysville (WIC-6)
Boyer, D. W. (A)
Cochran, J. J. (M)
Loman, J. W. (M)
Rhoten, C. J. (M)

Hiawatha (KC-6)
Legler, H. E. (A)

Hutchinson (WIC-6)
Cook, K. H. (M)
Kopels, I. (A)
Schwertfeger, A. W. (A)

Independence (WIC-6)
Benton, W. J. (M)
Stedman, J. D. (A)
Swearingen, H. L. (M)
Thornton, J. A. (M)

Junction City (WIC-6)
Gentges, F. H. (A)

Kansas City (KC-6)
Carlson, M. A. (A)
Davies, J. I. (A)
Fischer, E. (M)
Fisher, G. F. (M)
Hoover, W. C. (A)
Jones, G. R. (M)
Klee, G. W. (A)
McClain, E. E. (A)
Molby, L. H. (M)
Pusch, J. H. (A)
Richards, A. (A)
Wilson, D. R. (A)

Lawrence (KC-6)
Butler, K. J., Jr. (M)
Ellermeier, R. D. (M)
Frye, G. J. (M)
Garels, G. E. (M)
Habayeb, A. R. (M)
Hill, R. D. (M)
Irani, K. B. (SM)
Lansdown, W. D. (M)
Nahman, N. S. (SM)
Pippert, R. F. (M)
Rigas, H. B. (M)
Robb, D. D. (M)
Rummer, D. I. (M)
Shackelford, R. B. (A)
Unz, H. (SM)
Warfield, J. N. (SM)

Leavenworth (KC-6)
Vanderstaay, T. F., Jr. (A)

Leawood (KC-6)
Ellis, T. H. (A)
Glass, A. H. (M)
Hearson, L. T. (SM)
Heyde, H. C. (M)
Kling, J. J. (SM)
Lanford, L. D. (M)
Mathews, V. M., Jr. (SM)
Ohlendorf, W. T. (A)
Rode, J. J. (M)
Somers, R. M. (F)
Tomcak, J. F. (M)
Vasen, G. (A)
Williamson, C. R. (M)

Lenexa (KC-6)
McGowan, C. W. (A)
Wade, M. E. (M)

Liberal (WIC-6)
Voorhels, T. E. (A)
Williams, F. G. (M)

Manhattan (KC-6)
Bell, J. W. (M)
Buatte, L. A., Jr. (A)
Cottom, M. C. (SM)
Halliak, C. A. (M)
Hegler, B. E. (M)
Ho, J. P. L. (M)
Kerchner, R. M. (SM)
Roggendorff, D. D. (M)
Ward, J. E., Jr. (SM)
Wirtz, L. A. (M)

McPherson (KC-6)
Hedquist, T. G. (M)

Merriam (KC-6)
Fayman, D. L. (M)
King, E. J., Jr. (SM)
Walter, G. W. (M)
Weinmeister, D. D. (M)

Mission (KC-6)
Ayres, R. C. (SM)
Broders, E. L. (A)
Gleissner, B. F. (A)
Grey, T. G. (SM)
Guenther, C. H. (M)
Guthrie, J. E. (M)
Miller, H. G. (SM)
Omer, C. L. (SM)
Robb, L. S. (M)
Sayles, D. L. (M)
Wearth, A. W. (M)

Morrowville (KC-6)
Woods, D. C. (A)

Mulvane (WIC-6)
Hink, K. G. (M)
Lancaster, W. W. (A)
Persels, D. M. (A)
Ruppe, K. E. (M)

Olathe (KC-6)
Fielder, A. R. (M)
Inman, W. D. (M)
Spleker, D. A. (A)

Overland Park (KC-6)
Betros, L. A. (M)
Corgan, W. G. (M)
Dalton, R. C. (M)
Fetter, R. W. (SM)
Files, C. O. (M)
Gipple, C. A. (M)
Hyer, F. K. (M)
James, R. T. (M)
Kaine, A. A., Jr. (M)
Kimbrel, T. F. (M)
Lembke, J. R. (M)
Mayse, R. L. (M)
Patrick, D. J. (A)
Peppel, T. R. (A)
Rauch, E. L. (M)
Shirley, J. N. (M)
Shotwell, D. M. (M)
Shue, R. W. (M)
Smith, D. M. (A)
Stearns, C. F. (A)
Thornton, L. E. (A)
Thorpe, H. G. (M)
Wagner, F. R. (M)

Parsons (WIC-6)
Tierney, P. V. (M)

Pittsburg (KC-6)
Nuckolls, R. G. (SM)

Prairie Village (KC-6)
Babbit, E. B. (M)
Belshe, R. D. (M)
Benzon, C. G. (M)
Chester, W. G. (M)
Chinn, F. T. (M)
Clarke, R. L. (M)
Crawford, R. A. (M)
Garmon, W. F. (M)
Hadley, J. F. (M)
Hax, D. H. (SM)
Hoefer, J. J. (M)
Hoffman, G. R. (M)
Inderwiesen, F. H., Jr. (SM)
Johnson, D. E. (A)
Jones, C. L. (A)
Kroencke, E. A., Jr. (M)
Lane, J. W. (SM)
Lawrence, A. P. (A)
Love, B. E. (M)
Martin, R. L. (SM)
Marx, T. L. (M)
Meadows, K. E. (M)
Miller, C. V. (M)
Nigg, D. J. (M)
Petersen, G. B. (A)
Rolfert, C. R. (M)
Sommerville, D. I. (M)
Templin, J. (M)
Tyler, S. R. (SM)
Van Zant, R. R. (M)

Pratt (WIC-6)
Strain, R. A. (A)
Temaat, J. A. (A)
Pretty Prairie (WIC-6)
Brown, T. L. (M)

St. Mary's (KC-6)
Manning, J. L. (M)

Salina (WIC-6)
Baer, M. T. (M)
Black, H. L. (M)
Marts, M. P. (M)
Przybylski, R. W. (A)
Smith, S. O. (M)
Stucky, N. P. (M)
Svarczkopf, G. J. (A)
Wilson, R. E. (M)

Shawnee (KC-6)
Goll, W. E. (M)
Jaedicke, E. R. (M)
Wilson, P. H. (A)

Shawnee Mission (KC-6)
Bland, F. K. (M)
Cooper, J. R. (A)
Kring, C. I. (M)
Samuelson, D. S. (M)
Schofield, R. J. (M)
Thomson, C. E. (M)
Williams, R. P. (M)

Topeka (KC-6)
Adams, O. E. (M)
Brown, E. B. (M)
Carriger, J. R. (A)
Costelow, J. A. (A)
Everett, E. H. (M)
Frazee, J. W. (M)
Grantham, R. B. (M)
Heitlinger, L. J. J. (M)
Henderson, D. A. (M)
Joy, I. L. (A)
Mannell, L. H. (M)
Miller, G. E. (M)
Parks, K. W. (A)
Radsliff, J. L. (M)
Smith, D. L. (M)
Watts, E. B. (A)

Valley Center (WIC-6)
Cord, C. E. (A)
Depew, H. H. (A)

Wakarusa (KC-6)
Wakeen, G. J. (M)

Wichita (WIC-6)
Aksamit, E. M. (M)
Allen, D. R. (M)
Allen, L. S. (M)
Andrews, B. (M)
Ayres, W. R. (SM)
Barclay, W. R. (M)
Baresch, E. M. (M)
Bereman, E. W. (A)
Bilodeau, R. L. (M)
Briant, B. B. (M)
Briggs, L. B. (M)
Briles, W. H. (M)
Brown, J. W. D. (M)
Brumley, G. (M)
Burris, P. M. (M)
Cartlar, G. L. (M)
Carver, T. W. (M)
Damaskos, N. J. (M)
Dankel, O. L. (M)
Davis, H. C. (A)
Day, W. R. (M)
Dunlap, M. E. (M)
Eldridge, C. D. (M)
Evans, C. R. (M)
Evans, J. D. (M)
Flowerday, W. L. (M)
Flucard, W. B. (M)
Francis, J. W. (M)
Gandy, W. H., Jr. (A)
Gerlach, P. D. (M)
Grohen, G. L. (M)
Haas, H. P. (A)
Harper, C. W. (M)
Harper, J. M. (M)
Harris, G. E. (A)
Hay, R. E. (A)
Heggy, C. E. (M)
Hinshaw, V. G. (A)
Hitchcock, H. L. (A)
Hsieh, H. (M)
Huggins, K. H. (M)
Hutchison, D. P. (M)
Johnson, V. N. (M)
Johnson, W. R. (M)
Keene, A. W., Jr. (M)
Kellerman, R. A. (M)
Kinnaman, R. L. (A)
Klatt, W. K. (M)
Kosfeld, W. H. (M)
Kraus, D. R. (A)
Lampl, M. B. (A)
Leighton, C. P. (M)
Little, H. H., Jr. (A)
Livingston, W. D. (M)
Louie, W. G. (M)
Lundgren, P. L. (M)
Mauer, N. A., Jr. (M)
Mauldin, H. W., Jr. (M)
McAlearney, P. H. (M)
McAninch, C. H. (M)
McDonald, F. W. (M)
Mc Dougal, J. R. (M)
Mecke, R. M. (M)
Munson, R. D. (M)
Murray, W. A. (M)

Newby, H. H. (M)
Nicholson, J. A. (M)
Oakes, J. W. (M)
Patterson, D. L. (M)
Peck, R. D. (M)
Piper, E. (M)
Prestwood, T. A. (M)
Rea, C. M. (M)
Rogers, K. O. (M)
Rogers, L. W. (A)
Rogge, D. S. (M)
Roseberry, B. E. (M)
Schowalter, D. E. (M)
Schrag, R. L. (M)
Shattuck, D. L. (M)
Sheppard, G. E. (SM)
Soldier, W. D. (M)
States, D. M. (A)
Stephens, G. B. (A)
Tejeda, J. L. (M)
Thiel, J. E. (M)
Thomson, G. O. (M)
Warren, J. D. (M)
Wencel, M. L. (M)
Wilkins, J. A. (M)
Williams, D. G. (M)
Wilson, J. L. (M)
Ziegelbein, G. K. (M)
Zobrist, G. W. (M)

KENTUCKY

Bellevue (CIN-4)
Rohrer, R. S. (M)

Bowling Green (LOU-5)
Goodwin, A. N. (A)
Gott, A. M. (A)
Hendrick, R. J. (M)

Brookside (LOU-5)
Whitfield, J. E., Jr. (A)

Cold Spring (CIN-4)
Simon, L. W. (M)

Columbia (LOU-5)
Owens, L. M. (M)

Covington (CIN-4)
Hughes, J. B. (M)
Munch, W., Jr. (M)
Smith, A. W. (M)

Cumberland (LOU-5)
Cornett, R. (A)

Dawson Springs (EO-5)
Bell, M. R. (M)

Elkton (EO-5)
Phillips, P. W. (A)

Erlanger (CIN-4)
Herzog, L. R. (A)

Fern Creek (LOU-5)
Henson, C. E. (M)
Tiska, C. C. (M)

Fordsville (EO-5)
Matthews, W. V. (A)

Fort Campbell (EO-5)
Braun, P. A. (M)
Buchleitner, J. R. (M)

Fort Knox (LOU-5)
Martin, J. J. (A)
Winkenberger, H. P. (A)
Yeats, J., Jr. (M)

Fort Thomas (CIN-4)
Fischler, P. E. (M)
Fowler, N. B. (SM)
Herlinger, J. W. (M)
Sims, T. W. (A)
Stratman, J. W. (M)
Werrmann, C. A. (A)

Franklin (LOU-5)
Wakefield, F. H. (A)

Glasgow (LOU-5)
Sadler, C. C. (A)

Henderson (EO-5)
Johns, W. D. (M)

Independence (CIN-4)
McGraw, H. E. (M)

Jeffersontown (LOU-5)
Harper, D. N. (M)
Hewitt, L. G. (M)
Lyle, I. W., Jr. (M)

Lexington (LOU-5)
Albanes, N. J. (M)
Allison, N. B. (M)
Beattie, H. S. (SM)
Campbell, H. G. (M)
Cates, J. A. (M)
Curry, J. W. (M)
Daily, H. J. (M)
Day, J. C. (M)
Ebaugh, D. P. (M)
Fackler, C. M., Jr. (M)
Gaines, D. E. (M)
Goldsberry, P. E. (M)
Hallmark, T. M. (M)
Harbour, W. P., Jr. (M)
Heard, R. S. (M)
Helt, S. (M)
Hickerson, J. E. (M)
Hobgood, G. W., Jr. (M)
Jones, R. K. (M)
Kooplus, O. G. (M)
Lahr, R. J. (M)
Lasseter, T. A. (M)
Locklar, H. C. (M)
McDonald, W. L. (M)
Musto, T. L. (M)
Perkins, N. K. (A)
Pray, E. B. (M)
Rogers, F. L., Jr. (M)
Ross, B. (SM)
Sprott, C. N. (M)
Thompson, B. G. (M)
Thompson, R. L. (M)
Trotter, J. E. (M)
Turner, O. G. (M)
Wayman, R. L. (M)
West, L. E. (M)
Wilford, R. O., III (M)
Wu, P. (M)
Young, J. A. (M)
Yount, W. R. (A)

Louisville (LOU-5)
Blue, T. F., Jr. (M)
Burckle, J. C. (M)
Covert, J. L. (M)
Davis, R. H. (M)
Fife, S. T. (SM)
Fitzmayer, L. H. (M)
Gates, S. H. (A)
Hase, W. F., Jr. (A)
Hornung, S. A. (A)
Johnson, R. (A)
Kelly, C. W., III (M)
Koller, O., Jr. (M)
Marven, E. L., Sr. (M)
Maynard, A. F. (SM)
McAfee, C. S. (A)
Morrison, W. J. (M)
Neher, B. (M)
Nevitt, R. G. (M)
Probst, M. C. (M)
Ryan, W. J. (M)
Scales, H. S. (A)
Scheer, D. J. (M)
Seaton, W. R. (A)
Smith, H. T. (M)
Sweets, F. M. (M)
Towner, O. W. (F)
Von Behren, W. P. (SM)
Wyman, J. R. (M)

Marion (EO-5)
Grass, C. A. (M)

Middlesboro (LOU-5)
Folsom, F. L., Jr. (A)

Middletown (LOU-5)
Williams, L. A. (M)

Newport (CIN-4)
Fields, G. S. (M)

Owensboro (EO-5)
Albrecht, C. E. (SM)
Barron, J. L. (M)
Barrows, W. A. (M)
Bertke, H. J. (M)
Boeckman, J. F. (M)
Bond, E. G. (M)
Bowles, L. T., Jr. (SM)
Boxx, J. P. (M)
Bristow, S. C. (SM)
Brooks, G. W. (A)
Bryant, J. A. (A)
Campbell, J. D., Jr. (M)
Carl, W. L. (M)
Carter, F. M. (A)
Carter, M. G. (SM)
Cirul, J. W. (M)
Conner, F. L. (A)
Coomes, P. S. (M)
Cullen, W. F. (M)
Daniels, I. D. (A)
Davis, E. L. (SM)
Davis, L. B. (SM)
Dillon, L. C. (M)
Dorris, R. M. (A)
Doss, J. D. (A)
Edwards, M. W. (SM)
Ellis, L. C. (M)
Fitts, S. M. (SM)
Freeman, H. H. (M)
Graves, M. B. (M)
Greenwood, W. F. (M)
Groves, S. K. (SM)
Haase, A. P. (SM)
Hamilton, M. W. (M)
Hayes, F. L. (M)
Hooker, J. M. (M)
Hopper, C., Jr. (SM)
Horne, O. P. (A)
Horton, C. E. (SM)
Hubbs, C. P. (M)
Hughes, Robert M. (SM)
Jackson, C., Jr. (M)
Jackson, J. E. (M)
Johnson, K. D. (SM)
Jolly, P. L. (M)
Jolly, S. A. (SM)
Jordan, J. D. (M)
Kimker, W. P., Jr. (M)
Kruse, A. L. (M)
Lammers, D. E. (M)
Lattin, W. J. (M)
Le Clear, M. W. (SM)
Lemaster, S. W. (M)
Lemaster, W. H. (M)
Madole, J. F. (SM)
Maginn, L. E. (M)
Martin, J. E. (M)
McCool, C. D. (SM)
McKinnis, C. E. (SM)
Meyer, R. H. (M)
Mickey, D. D., Jr. (SM)
Millis, W. T. (SM)
Moe, R. E. (F)
Moore, G. E. (M)
Mullersman, F. H. (M)
Mumford, L. G. (M)
Oakes, W. S. (M)
Owen, L. D. (M)
Pennoyer, R. T. (SM)
Quirk, J. B. (SM)
Reynolds, C. L. (SM)
Rickerson, W. B. (M)
Robb, J. H. (A)
Roberts, L. E., Jr. (M)
Rush, J. W. (SM)
Russell, M. W. (M)
Seader, W. R. (M)
Shipley, W. U. (M)
Smith, H. D., Jr. (M)
Snyder, F. R. (M)
Somerville, J. R., Jr. (M)
Stephens, J. F. (SM)
Stephenson, E. L. (SM)
Taylor, C. L. (SM)
Trautwein, J. W. (M)
Tucker, J. G. (M)
Vincent, C. (M)
Waddle, W. D. (M)
Walker, R. J. (M)
Ware, C. M. (M)
White, R. G. (M)
Wilson, C. B. (M)
Wilson, E. D. (M)
Wink, J. B. (M)
Wolford, D. R. (A)
Wood, G. C. (M)
Wood, R. W., Jr. (M)

Paris (LOU-5)
Miller, L. W. (A)

Pleasure Ridge Park (LOU-5)
Comstock, M. O. (M)

Radcliff (LOU-5)
Bradley, S. R. (M)

Salvisa (LOU-5)
Gritton, D. M. (M)

Simpsonville (LOU-5)
Miller, M. L., Jr. (M)

Somerset (LOU-5)
Thompson, B. G. (A)

South Fort Mitchell (CIN-4)
Merrell, C. H. (SM)
Middendorf, J. P. (M)
Reynolds, D. J. (M)
Schipper, R. J. (M)
Wayne, W. C., Jr. (M)

Stanley (EO-5)
Jackson, S. G. (M)

Utica (EO-5)
Rice, H. A. (M)

LOUISIANA

Alexandria (NO-6)
Phillon, N. (M)

Arabi (NO-6)
Pechon, A. J. (A)

Barksdale AFB (SHR-6)
Asendorf, J. A. (M)
Buckelew, W. F., Jr. (M)
Elchak, J., Jr. (M)
Hansen, R. P. (A)
Tansel, D. C. (M)

Bastrop (ND-6)
Green, W. M., Jr. (M)
Overmeyer, J. B., Jr. (M)

Baton Rouge (NO-6)
Campos, L. F. (M)
Crawford, R. M. (M)
Cusachs, L. C. (M)
Guindy, M. R., Jr. (M)
Haas, G. M. (M)
Heinrichs, R. M. (A)
Levy, C. D. (M)
Mayeux, R. (M)
McGowan, I. C. (M)
McLean, L. V. (SM)
Mobley, R. C. (A)
Nethken, R. T. (M)
Owen, W. E. (M)
Perry, G. H. (M)
Stanfield, R. B. (A)

Bossier City (SHR-6)
Carmichael, H. C. (A)
Culling, E. J. (M)
Wagner, F. D., Jr. (M)
Chalmette (NO-6)
Often, C. G. (A)

De Quincy (B-PA-6)
Shackelford, L. R. (A)

Houma (NO-6)
Hathaway, W. E. (A)
Peddicord, D. J. (M)

Jennings (B-PA-6)
Bailey, C. L. (A)

Lacombe (NO-6)
Rust, J. J. (A)

Lafayette (NO-6)
Boudreaux, F. J. (SM)
Prejean, J. C. (M)
Young, R. L. (M)

Lake Charles (B-PA-6)
Burkett, A. C. (M)
Carmouche, C. L. (M)
Chapman, R. G. (M)
Dreyer, R. F. E. (A)
Emerson, R. L. (A)
Howell, W. W. (A)
Moses, E. C. (A)
Senneville, L. O. (M)
Sudymont, W. A. (M)
Sullivan, R. D. (A)
Thomas, H. F., Jr. (A)
Vincent, R. S. (M)
Warner, R. D. (A)
White, R. A. (A)

Larose (NO-6)
Brady, J. A., Sr. (A)

Mangham (NO-6)
Duncan, H. P. (M)

Metairie (NO-6)
Adkins, J. M. (M)
Chigoy, W. A. (M)
Dobbs, M. G. (SM)
Harris, G. J. (A)
Hulteen, C. K. (A)
Kirkley, D. E., Jr. (M)
O'Donnell, C. F. (M)
Pedneau, W. F. (M)
Ritchey, L. C., Jr. (A)
Schiele, E. A. (A)
Tony, E. (M)

Monroe (SHR-6)
Boyd, R. L. (M)

Natchitoches (SHR-6)
Bailey, B. H., Jr. (M)

New Iberia (NO-6)
Braquet, L. J., Jr. (M)
Cannliff, J. H. (A)

New Orleans (NO-6)
Allen, G. (SM)
Ashe, H. B. (M)
Becker, H. C. (M)
Bloom, J. D., Jr. (SM)
Bordenave, L. R. (A)
Bullock, J. C. (M)
Clarkson, H. E., Jr. (M)
Coleman, J. L. (M)
Cronvich, J. A. (SM)
Dowe, R. J. (SM)
Dureau, L. D. (M)
Du Treil, L. J. N. (SM)
Duvoisin, P. F. (A)
Fahmeier, M. L. (M)
Freeland, W. T. (M)
Freiberger, H. A. (M)
Gadsden, C. P. (A)
Gaston, M. H. (M)
Goldstein, M. (M)
Hammett, R. B. (M)
Hart, W. S. (M)
Heymann, H. (A)
Jensen, C. N. (A)
Jesclard, G. P. (M)
Landry, A. P. (M)
Landry, N. R. (M)
Lehde, P. E. (F)
Lodato, J. S. (M)
Malm, J. F. (M)
Martin, G. I. (SM)
Mayoral, G. A. (SM)
Meyers, R. D. (M)
Morris, J. C. (M)
Norris, C. H. (M)
O'Donnell, C. F. (M)
Otto, J. L. (M)
Pace, W. H., Jr. (M)
Peirce, G. H. (M)
Picou, W. E. (M)
Reid, P. Z., Jr. (M)
Reinhard, V. (M)
Riddle, L. G. (SM)
Robertson, J. L., Sr. (M)
Roussel, G. A. (M)
Rozelle, H. G. (M)
St. Romain, J. B. (M)
Scheffler, F. A. (M)
Smith, C. D. (SM)
Smith, E. S. (M)
Spencer, J. C. (SM)
Sperry, C. J., Jr. (SM)
Talbot, W. S. (A)
Tunis, I. L. (M)
Woods, T. D. (M)
Wulff, F. A., III (M)
Yacich, P. J. (M)

Ruston (SHR-6)
Johnson, D. L. (SM)
Johnson, M. R., Jr. (SM)
Steere, R. M. (SM)
Tarbution, J. S. (SM)

Shreveport (SHR-6)
Amaitis, E. J. (A)
Austin, J. G. (M)
Bains, R. W. (SM)
Barton, M. C., Jr. (A)
Bauler, E. K. (A)
Beard, E. M. (A)
Craig, W. H. (M)
Friedman, H. G. (A)
Garrett, E. D. (A)
Gordon, E. (M)
Herring, J. J., III (M)
Hitt, J. E. (A)
Holobaugh, V. J. (M)
Hurley, L. (SM)
Komacker, J. M. (M)
Long, F. V. (SM)
McFarlane, J. S. (M)
Maddox, C. H. (SM)
Mathias, R. J. (M)
Mezzio, C. R. (A)
Nuttall, E. D. (SM)
Nuttall, J. E. (M)
Payne, R. C. (M)
Porter, H. R. (M)
Randolph, A. M. (SM)
Scott, C. R. (M)
Strickland, E. C. (M)
Williams, L. T. (M)
Wilson, C. R. (M)
Womack, F. L. (A)
Woodard, T. A. (M)

Slidell (NO-6)
Bowen, L. M. (A)

Sulphur (B-PA-6)
Mc Namara, J. E. (M)

West Monroe (SHR-6)
Grantham, J. M. (M)
Steele, R. M. (M)

MAINE

Augusta (BOS-1)
Parker, R. H. (M)

Bangor (BOS-1)
Alexander, A. M. (A)
Creamer, W. J. (SM)
Haaland, G. A. (M)
Libbey, W. M. (M)
Oppenheim, J. B. (M)
Schneider, H., Jr. (M)

Bath (BOS-1)
Collins, R. E. (M)

Bridgton (BOS-1)
Beaureguard, W. G. (M)

Brunswick (BOS-1)
Lacharite, P. H. (A)
Little, N. C. (M)
Vieraitis, R. J. (M)

Calais (BOS-1)
Reynolds, J. C. (M)

Camden (BOS-1)
Tibbetts, G. C. (M)

Cape Elizabeth (BOS-1)
Gray, L. E., Jr. (M)

Caribou (BOS-1)
Horyczka, J. (M)

Cutler (BOS-1)
Pierce, R. M. (SM)
Weldon, J. F. (M)

Eastport (BOS-1)
Lyon, G. H., II (A)

Freeport (BOS-1)
Hall, R. T. (M)

Gorham (BOS-1)
Chandler, V. H. (SM)
Trueworthy, G. G. (A)

Hampden Highlands (BOS-1)
Young, D. B. (M)

Harrison (BOS-1)
Carlson, A. W. (M)

Kennebunk (BOS-1)
Kotlewski, J. P. (M)

Kittery (BOS-1)
Schilling, R. E. (M)

Lewiston (BOS-1)
Bowers, G. (A)

Lincolnville (BOS-1)
Plaisted, R. C. (M)

Lisbon Falls (BOS-1)

MAINE

Porter, G. D. (A)

Loring AFB (BOS-1)
Correia, B. A. (A)
De Veaux, E. C. (M)
Wold, D. C. (A)

Moody (BOS-1)
Cunningham, T. R. (A)

Mount Vernon (BOS-1)
Ford, W. W. (M)

New Gloucester (BOS-1)
Brackett, M. (A)

Oakland (BOS-1)
Affel, H. A. (F)

Ocean Park (BOS-1)
Cole, L. S. (M)

Orono (BOS-1)
Bowles, L. W. (M)
Brown, C. M. (M)
Mac Farland, H. T. (A)

Portland (BOS-1)
Brewer, L. F. (SM)
Chandler, J. (M)
Hodgkins, R. W. (SM)
Kozineski, W. (M)
Ogg, R. D. (M)
Pettis, F. J., Jr. (M)

Randolph (BOS-1)
Newell, G. R. (A)

Raymond (BOS-1)
Flore, R. E. (M)
Marshall, J. R. (M)
Shively, E. H. (M)

Rockport (BOS-1)
Drisko, B. B. (M)

Saco (BOS-1)
Libby, J. L. (M)

Sanford (BOS-1)
Neal, R. A. (M)

Sebago Lake (BOS-1)
Browning, G. H. (F)

South Thomaston (BOS-1)
Makinen, D. A. (M)

South Windsor (BOS-1)
Macomber, W. J. (M)

Union (BOS-1)
Clark, G. L. (A)
Whitney, L. E. (M)

Unity (BOS-1)
Lowell, C. F. (A)

Waldoboro (BOS-1)
Cooney, J. R. (M)

Wells (BOS-1)
Chick, R. W. (M)

Woodland (BOS-1)
Henry, W. L. (M)

Yarmouth (BOS-1)
Brown, C. R. (M)

MARYLAND

Aberdeen (BAL-3)
Byrod, R. B. (M)
Frank, K. (M)
Frasher, M. M. (M)
Hallman, J. I. (M)
Hodge, A. H. (M)
Hunsicker, J. E. (M)
Kemo, D. D. (M)
Leeder, J. (M)
Long, P. C., Jr. (M)
Stoller, M. D. (M)
Stone, E. H., Jr. (M)
Terashi, T. (M)
Wolfe, C. W. (M)
Wright, E. T., Jr. (M)
Wrublewski, M. (M)
Zancanata, H. W. (M)

Abingdon (BAL-3)
Calahan, D. A. (M)

Accokeek (BAL-3)
Harris, F. H. (M)
Hayden, L. O. (M)
Rabb, J. W. (M)
Rendler, N. J. (M)
Thornhill, A. F. (M)

Adelphi (W-DC-3)
Bodley, P. C. (M)
Braun, L. A. (M)
Bruner, W. G. (M)
Campbell, L. E. (M)
Carr, F. P., Jr. (M)
Cirincione, G. V. (M)
Dement, D. K. (M)
Hott, R. D. (M)
Hudson, L. B. (M)
Hutchinson, E. M. (M)
Knodle, R. L. (M)
Lalos, S. C. (M)
Linton, F. T. (M)
May, W., Jr. (A)
McGraw, H. (M)
Pan, P. M. (M)
Pecar, J. A. (M)
Pedler, W. F. (M)
Poe, W. R. (M)
Powers, E. W. (SM)
Ringenbach, M. E. (M)
Roberts, G. L., Jr. (M)
St. Clair, J. M. (M)
Salzberg, I. M. (M)
Stead, N. A. (A)
Stogsdill, M. R. (M)
Thacker, J. U. (M)
Thomas, E. (M)
Weeks, W. A., Jr. (M)
Weinbach, W. M., Jr. (M)
Wood, C. R., Jr. (M)

Annapolis (BAL-3)
Baker, R. A. (A)
Bly, T. S. (M)
Bremer, J., Jr. (A)
Carr, R. W. (M)
Carter, W. G. (A)
Clark, T. H. (F)
Currier, J. L., Jr. (M)
Daley, J. L. (M)
Dalrymple, H. C. (M)
Day, J. T., Jr. (M)
Dick, D. N. (M)
Dickey, J. L. (M)
Dziedzic, W. T. (M)
Eberhardt, F. J. (M)
Feik, R. L. (SM)
Franks, R. K. (M)
Goodhue, W. W. (M)
Greenwell, R. F. (M)
Hemmick, K. S. (M)
Johnson, N. C. M., Jr. (A)
Kirsten, B. (SM)
Leydorf, G. E. (M)
Lindow, I. L. (M)
Maling, H. F., Jr. (M)
Maxwell, D. (M)
Meenahan, W. J. (M)
Patterson, C. L. (M)
Poston, M. H. (M)
Ray, H. B. (SM)
Sabbagh, H. A. (M)
Schuttig, L. A. (SM)
Seymour, C. P. (M)
Spalding, F. F. (M)
Winter, C. W., Jr. (M)
Wylde, R. J. (SM)

Arbutus (BAL-3)
Truske, T. N. (M)

Army Chemical Center (BAL-3)
Chalcraft, J. C. (A)

Arnold (BAL-3)
Grabinski, R. J. (M)
Grant, D. L. (M)
Gregory, L. W. (SM)
Humiston, H. A. (SM)
Parnell, W. S. (M)
Scarbro, R. L. (M)
Soink, P. G. (M)
Steel, R. S., Jr. (M)
Vierling, H. D. (M)
Weaver, T. S. (M)

Bainbridge (BAL-3)
Stricklin, E. B. (A)

Baldwin (BAL-3)
Church, G. W. (SM)
Clabom, K. D. (M)
Frome, M. K. (M)
Wentworth, F. L. (M)
Wolsey, L. G. (M)

Baltimore (BAL-3)
Abel, A. E. (SM)
Abell, C. S., III (M)
Albright, J. D. (M)
Aldwinckle, J. G. V. (M)
Alexander, R. B. (SM)
Allen, J. E. (M)
Allen, R. J. (M)
Alpert, I. S. (M)
Amato, W. P. (M)
Ames, S. A. (M)
Andersen, A. (M)
Apraham an, J. (A)
Armstrong, J. E., Jr. (M)
Ashmead, H. E. (SM)
Asplen, P. L., Jr. (M)
Ausfresser, H. D. (M)
Aviles, H. N. (A)
Aycock, H. T., III (M)
Bachman, B. E. (M)
Bachmann, J. F. (SM)
Bacon, F. C. (M)
Bacque, C. D. (M)
Balda, E. (M)
Bailey, R. T. (M)
Baker, R. H. (M)
Ballentine, R. (A)
Bamberger, J. E. (A)
Barnes, W. L. (M)
Basil, I. T. (M)
Bataskov, P. (M)
Bath, C. C. (SM)
Bauer, H. A. (M)
Baughman, O. A. (M)
Becker, C. H. (M)
Becker, J. A. (SM)
Beckman, N. W. (M)
Beecher, G. L. (A)
Behm, G. T. (M)
Bell, J. L., Jr. (A)
Bender, W. W. (SM)
Benfield, D. G. (M)
Bennett, R. D. (F)
Bernstein, J. (SM)
Berry, A. E. (M)
Betsh, K. W. (SM)
Betts, D. C. (M)
Bickart, T. A. (M)
Billie, A. C., Jr. (A)
Billin, W. V. (A)
Bissler, D. F. (M)
Blackwell, J. T. (M)
Blasbalg, H. (SM)
Blinchikoff, H. J. (M)
Bloom, L. (M)
Bloomer, T. M. (SM)
Blotzer, W. L. (A)
Blum, K. L. (M)
Booher, C. R. (M)
Borrello, R. P. (M)
Boule, G. A. (M)
Bourget, J. A. (M)
Bowman, D. P. (M)
Boykin, J. R. (SM)
Brasseaux, G. J. (M)
Brenner, L. C. (M)
Briggs, M. R. (F)
Brown, D. (M)
Browning, J. B., Jr. (M)
Bucciero, J. (M)
Buck, J. R. (M)
Buhlman, C. O. (M)
Bullock, W. C. (SM)
Burel, T. G. (M)
Burn, J. M., Jr. (M)
Burr, J. K., III (A)
Caldwell, E. E. (SM)
Callis, C. R. (M)
Cantor, H. J. (A)
Caporin, E. A. (M)
Carlson, J. W. (M)
Carroll, T. J. (SM)
Carter, C. E., Jr. (M)
Carter, J. C. G. (SM)
Cavey, R. R. (M)
Cepol, J. (M)
Chamberlin, R. S. (M)
Cheney, E. A. (M)
Chipman, J. R. (A)
Christianson, C. L. (M)
Clark, J. O. (M)
Clark, L. J., Jr. (M)
Claus, O. R., Jr. (A)
Cleaves, W. E. (SM)
Clifford, R. W. (M)
Cloninger, W. C. (M)
Clotworthy, J. H. (M)
Cochran, G. C. (M)
Cohen, A. (M)
Cohen, H. A. (M)
Cohen, J. (M)
Coldiron, O. G., Jr. (M)
Cole, E. B., Jr. (SM)
Cole, R. C. (M)
Collins, A. D. (M)
Colpoys, G. T. (M)
Comer, J. L. (M)
Conley, P. (SM)
Content, E. J. (SM)
Conyers, W. T. (M)
Cook, W. S. (M)
Covington, M. B., Jr. (M)
Crew, J. B., Jr. (M)
Cromer, O. M. (M)
Crotty, W. J., Jr. (M)
Crutchfield, R. C., Jr. (M)
Csepely, J. A. (SM)
Cull, D. E. (M)
Cummings, A. J. (M)
Dailing, C. J. (M)
Dalmas, J. E. (M)
Dalton, D. A. (M)
Damghajian, H. R. (M)
Dantzig, H. P. (SM)
David, R. F. (M)
Davies, E. R. (A)
Davis, J. W. (M)
Davis, R. E., Jr. (M)
Dax, P. R. (SM)
Defrancesco, H. F. (M)
Delse, L. F. (M)
Denburg, D. L. (M)
Deneen, R. J., Jr. (M)
Der, C. F. (M)
Desl, G. R. (M)
De Socio, G. (SM)
De Wald, C. G. (M)
De Wolfe, J. L. (M)
Dickens, L. E. (M)
Dimitriou, G. (M)
Donovan, W. H. (M)
Donsbach, W. R. (SM)
Doss, H. C. (M)
Dozier, J. W. (A)
Dreisbach, B. J. (M)
Dremning, J. W. (M)
Dubrowsky, L. (M)
Dunbar, S. D. (M)
Dunn, J. E. (M)
Eckels, A. E. (M)
Edmiston, W. H. (M)
Edwards, R. L., Jr. (M)
Egger, C. P. (M)
Ehringer, R. J. (SM)
Eikenberg, A. F. (M)
Elseman, W. F. (M)
Ekstrom, J. L. (M)
Ellert, C. A. (M)
Epstein, J. M. (M)
Evans, A. L. (M)
Evans, R. F. (M)
Evans, R. E. (M)
Fainberg, J. (M)
Fallon, G. P. (SM)
Farkas, I. (A)
Farkas, J. (M)
Farmer, W. C., Jr. (A)
Farrell, T. W. (M)
Fawcett, J. M. (M)
Fellerman, K. D. (M)
Fenichel, I. (M)
Ferg, A. P. (M)
Ferris, H. (M)
Fialkowski, F. A. (M)
Findley, W. B., Jr. (M)
Fine, C. E. (M)
Finke, R. S. (M)
Finlayson, J. A. (M)
Fischbach, J. T. (A)
Fischer, P. P. (M)
Fitch, E. S. (A)
Fitta, E. R. (M)
Fitzhugh, H. S., II (M)
Flaherty, J. M. (M)
Fleishman, S. R. (M)
Flickinger, C. D. (A)
Flink, T. O. (M)
Floam, J. S. (A)
Foerster, R. P. (M)
Foley, T. P. (A)
Fox, R. C. (M)
Francis, J. W. (M)
Frankenfield, C. C. (M)
French, W. E., Jr. (M)
Friedmann, D. C. (M)
Fruge, F. J. (M)
Furrow, M., Jr. (M)
Gage, D. D. (SM)
Galante, E. T. (M)
Galloway, J. V. (M)
Galway, W. G. (M)
Garbutt, H. E. (M)
General, J. (SM)
Gensler, P. L. (M)
Gessner, U. (A)
Gilbert, G. B., Jr. (M)
Giller, M. (M)
Gilmore, C. D. (M)
Gilmore, D. B. (M)
Giordano, J. R. (M)
Gisriel, J. W., Jr. (A)
Giuliano, M. N. (M)
Glaser, E. M. (M)
Glover, C. C. (M)
Glucksman, R. M. (SM)
Goeller, R. E. (M)
Goff, J. D. (M)
Goodloe, R. R. (M)
Goodman, S. N. (M)
Gore, W. C. (SM)
Gowland, W. H. (M)
Graf, H., Jr. (M)
Greenslit, C. L. (SM)
Griffiths, W. W., Jr. (M)
Grimes, J. J. (M)
Gunter, F. B. (SM)
Hack, J. (A)
Hagan, F. R., Jr. (A)
Hagelgans, E., Jr. (M)
Hahn, W. E., Jr. (M)
Haischer, D. H. (A)
Hall, A. C. (F)
Hall, O. C. (M)
Hall, R. J. (M)
Haller, E. J. (A)
Hamburger, F., Jr. (F)
Hamburger, T. (M)
Hamby, J. O. (M)
Hankey, R. L. (M)
Hanley, N. B. (M)
Hanna, R. E. (M)
Hanna, W. J. (M)
Harcarufka, J. F. (M)
Harper, J. T. (M)
Harper, M. J. (M)
Harris, J. F. (SM)
Harrison, W. E., Jr. (M)
Hartka, J. J. (M)
Hartley, H. F., Jr. (SM)
Hauf, J. C., III (A)
Hayden, H. P. (M)
Hayden, L. E. (M)
Haynes, F. B. (SM)
Heck, J. R. (SM)
Helmbach, D. P. (M)
Helland, A. R. (M)
Helme, G. H. (M)
Hemphill, A. (M)
Henderson, J. G. (A)
Henderson, R. J. (SM)
Hennessey, J. E. (M)
Henry, R. M., Jr. (M)
Hill, D. E. (M)
Hirsch, B. S. (M)
Hitt, M. L. (M)
Hoddinott, E. V. (M)
Hodges, F. P. (M)
Hodnett, J. F., Jr. (M)
Hoge, H. H. (M)
Hollman, J. H. (M)
Holman, J. G. (M)
Holzgang, W. F. (M)
Hooper, E. H. (M)
Hoos, W. R. (M)
Hoots, L. C. (M)
Horsman, J. O. (A)
Hotz, M. (M)
Houston, G. P., III (SM)
Houston, J. A. (SM)
Huckins, C. E. (M)
Huether, C. W. (M)
Huggins, W. H. (F)
Hunt, V. R. (SM)
Hunt, W. W. (M)
Huskin, J. T. (M)
Ichniowski, F. C. (M)
Inman, A. D. (A)
Israel, W. D. (M)
Jackson, S. H. (M)
Jacomini, O. J. (M)
Janyska, W. F. (A)
Jenkins, J. L. (M)
Jenks, J. C. (M)
Jensen, A. S. (SM)
Jensen, P. A. (M)
Jett, E. K. (F)
Johnson, J. A. (A)
Johnson, M. P. (M)
Johnson, W. A. (M)
Johnson, W. J., Jr. (A)
Jones, B. R. (M)
Jones, J. H. (M)
Jones, J. G. (M)
Jones, M. L. (SM)
Jones, O. J., Jr. (SM)
Jones, W. S. (M)
Kalman, R. E. (M)
Kammerman, P. E. (A)
Kampmeyer, R. A. (M)
Kams, L. W. (M)
Kasowski, S. E. (M)
Katz, L. (SM)
Katz, R. E. (SM)
Kauffman, J. F. (M)
Kawalek, A. M. (A)
Keary, H. F. (M)
Keepers, T. G. (A)
Kegel, A. G. (SM)
Keidan, D. B. (M)
Kelly, L. J., III (A)
Kelly, R. J. (M)
Kempf, R. A. (M)
Kenneally, W. J. (M)
Kenny, B. C. (M)
Kern, W. J. (M)
Kernan, P. (SM)
Kerr, D. W. (M)
Kerr, D. E. (M)
Kershner, R. H. (SM)
Kiley, W. H., Jr. (M)
Kilgore, G. R. (F)
King, J. H., Jr. (M)
Kinn, T. P. (F)
Kircher, C. J. (M)
Kitces, S. (M)
Klein, G. L. (SM)
Klein, S. A. (M)
Kline, C. R. (M)
Kline, M. D. (M)
Knight, R. M. (M)
Knochel, J. J. (M)
Kogan, A. J. (M)
Konigsberg, R. L. (M)
Kott, M. A. (M)
Kovalchek, W. A. (M)
Kovasznay, L. S. G. (SM)
Kowalski, E. W. (M)
Kramp, J. J. (M)
Kratz, G. L. (M)
Kraybill, M. E., Jr. (M)
Kreutzberg, J., Jr. (M)
Krick, J. B. (M)
Krowl, G. W. (M)
Krushinski, W. (A)
Kudo, F. M. (M)
Kumm, W. H. (M)
Kunstadt, G. H. (SM)
La Bree, C. T. (M)
Laing, J. T. (M)
Lamb, W. G. (M)
Lanzkron, R. W. (M)
Lau, C. B. (A)
Lauderdale, L. K. (M)
Laufer, E. A. (M)
Laut, S. (A)
La Vean, G. E. (M)
Lawler, W. T. (M)
Laws, J. D. (M)
Lawson, E. J. (SM)
Leahy, F. N. (A)
Lee, G. A. (A)
Lee, F. G. (M)
Lee, M. (M)
Lefkowitz, P. (M)
Letsch, W. L. (M)
Levine, R. J. (M)
Levine, S. (SM)
Lewinski, D. J. (M)
Lieske, R. W. (M)
Limansky, I. (SM)
Lindemann, H. B. (M)
Linder, H. S. (M)
Linder, R. A. (M)
Linsenbardt, A. E. (M)
Lisbin, D. M. (M)
Little, D. G. (F)
Lomax, S. E. (SM)
Lonsuemare, R. N., Jr. (M)
Lord, P. H. (M)
Lory, H. J. (M)
Lowney, S. W. (A)
Lubbert, G. L. (M)
Luckey, R. F. (A)
Lynch, D. S. (SM)
Mac Kenzie, J. E. (SM)
Mackes, D. V. (M)

Mackey, J. R. (M)
Mackey, W. M. (A)
MacLeod, M. E. (A)
Mahoney, D. F. (M)
Malloy, J. J. (M)
Malone, B. M. (M)
Mann, W. C. (M)
Marchese, J. F. (M)
Marella, A. B. (M)
Margolin, P. (SM)
Mariany, L. J. (M)
Markham, A. S. (SM)
Marshak, B. (M)
Marshall, J. F. (M)
Marshall, P. J., Jr. (M)
Martel, R. J. (M)
Martin, G. H. (M)
Martinelli, A. A. (M)
Mason, I. J. (M)
Masters, H. M. (M)
Mauro, E. A. (A)
Maxwell, D. J. (M)
Maxwell, R. F., Jr. (SM)
May, H. A. (M)
Mayer, R. H. (M)
McClure, C. B., Jr. (M)
McCombe, D. H. (M)
McMullen, C. G. (SM)
McNally, H. R., Jr. (A)
McPherson, L. G. (M)
Mealey, R. M. (A)
Menchey, C. R. (M)
Meron, L. F. (M)
Merrow, D. W. (M)
Messner, R. W. (M)
Mester, J. C. (M)
Meyerson, M. (SM)
Michel, A. (M)
Mikuckis, J. S. (A)
Millar, R. I., Jr. (M)
Miller, I. M. (M)
Millman, M. (M)
Misey, J. J. (M)
Mitchell, B. C. (A)
Mitchell, R. T. (M)
Mohr, G. A., Jr. (M)
Molz, K. F. (SM)
Momberger, J. F. (M)
Moore, D. D., Jr. (M)
Moore, W. H. IV. (M)
Moorehead, H. R. (M)
Moose, C. R. (M)
Morris, E. W. (M)
Morris, V. B., Jr. (SM)
Mosher, R. A. (M)
Mott, O. B. (M)
Mueller, E. J. (M)
Mueller, R. R. (M)
Mulling, L. C. (M)
Mullins, F. G., Jr. (SM)
Mullis, J. W. (M)
Murray, J. B. (M)
Mutch, J. J. (M)
Nale, L. J. (M)
Natchipolsky, M. (M)
Naughton, D. J. (M)
Nelson, S. B. (M)
Newcomb, W. H., Jr. (A)
Newton, C. E., Jr. (M)
Nichols, S. C. (M)
Nickels, H. L., III (M)
Nims, A. A., Jr. (SM)
Nolen, J. C. (M)
Nopper, C. G. (A)
Norolan, E. H. (A)
Norris, R. N. (A)
Norris, V. L. (A)
Nusseat, G. A. (M)
O'Berry, W. A. (M)
O'Donnell, R. J. (SM)
Offermann, F. B. (M)
Ogg, F. C., Jr. (SM)
Ogland, J. W. (SM)
Olson, A. M. (M)
Olson, W. R. (M)
O'Neill, L. A. (M)
Opdycke, G. L. (M)
Orr, R. V. (M)
Osborne, E. F. (M)
Ottobre, L. G. (M)
Palmer, J. E. (M)
Palmer, W. D. (M)
Papanicolaou, N. M. (M)
Park, A. R. (M)
Parks, H. L. (M)
Parks, R. L. (M)
Parr, J. W. (M)
Parrish, W. F. (SM)
Parsley, H. W., Jr. (M)
Paskalakis, L. G. (M)
Patterson, W. W. (M)
Peacock, D. R. (M)
Pearce, J. M. (SM)
Pecci, A. C. (M)
Perrotti, E. J. (M)
Peters, H. J. (M)
Peterson, R. E. (M)
Phillips, B. E. (SM)
Pipkin, J. E. (M)
Pipkin, R. F. X. (M)
Plante, K. L. (M)
Podraza, G. V. (M)
Poehler, T. O. (M)
Polinsky, A. L. (M)
Porter, W. E. (M)
Potter, D. R. (M)
Pridgen, W. L. (M)
Pritchard, H. T. (M)
Puckett, H. R., Jr. (M)
Pula, T. J. (SM)
Pulford, W. M. (M)
Pulitano, F. J. (M)
Querido, H. B. (M)
Quigley, W. W. (M)
Raab, J. S. (M)
Rainal, A. J. (M)
Ralston, G. (SM)
Rambo, S. I. (SM)
Ramey, E. H., Jr. (A)
Randall, J. I. (M)
Ransom, J. R. (M)
Rasch, C. F., Jr. (A)
Raudsep, I. G. (M)
Raynes, H. D. (M)
Rebsch, D. L. (M)
Restivo, F. S. (M)
Reynolds, A. T., Jr. (M)
Rhodes, W. H. (SM)
Richard, R. H. (SM)
Richardson, W. R. (M)
Riley, R. M. (M)
Riley, R. N. (M)
Roden, M. E. (M)
Rodgers, J. C. (M)
Roedel, S. (M)
Rogers, M. (M)
Rohner, A. J. (M)
Roscoe, B. J. (M)
Rosenbaum, E. (M)
Rosenblatt, H. (SM)
Rosenzweig, S. (M)
Roulston, N., Jr. (M)
Roush, R. G. (SM)
Royce, H. W. (M)
Rudd, H. C., Jr. (M)
Ruehl, G. C., Jr. (M)
Rupe, J. W. (M)
Rutstein, H. S. (A)
Rutter, F. J. (SM)
Ryan, C. C. (M)
Ryan, K. C. (M)
Rybicki, R. J. (M)
Sachs, H. A. (M)
Sacks, L. H. (M)
Safren, H. G. (M)
Salcedo, R. V. (M)
Sammons, F. L. (M)
Sample, D. R. (A)
Sanders, P. R. (M)
Sandorf, R. E. (M)
Sanford, G. A. (M)
Sanford, R. W. (M)
Sanner, G. E. (M)
Sargent, C. R. (M)
Sarles, M. D. (M)
Sarratt, E. R. (M)
Sarris, R. A. (A)
Schattke, C. H. (M)
Scheiner, C. P. (M)
Scheuman, E. E. (SM)
Schillo, T. B. (SM)
Schuler, T. F. (M)
Schulkin, M. (SM)
Schullery, E. D. (A)
Schulmeyer, R. M. (M)
Schutz, H. (SM)
Scott, C. E. (M)
Scott, D. H. (SM)
Scott, D. M. (M)
Scott, J. K. (M)
Sears, R. W., Jr. (M)
Selton, H. B., Jr. (M)
Seidl, R. H. (A)
Seman, A. E., Jr. (M)
Shagam, E. M. (M)
Shannon, H. H. (M)
Shapiro, G. (M)
Shawker, C. H. (M)
Shellkopf, R. E. (A)
Shepard, R. H. (A)
Shepherd, J. H., Jr. (M)
Shirey, D. C. (M)
Shoenberger, G. C. (M)
Showalter, G. L. (M)
Silas, F. R., Jr. (M)
Silaurusaitis, A. (M)
Silchelstiel, B. A. (SM)
Sleband, M. P. (M)
Sleron, E. M. (M)
Silva, F. A. (M)
Silver, P. W. (M)
Simpson, L. L. (A)
Sims, D. S. (SM)
Singleton, J. W., Jr. (M)
Sinsky, A. I. (M)
Slattery, J. J. (F)
Sluss, W. C., Jr. (M)
Smith, E. L., Jr. (M)
Smith, E. G., Jr. (M)
Smith, H. B. (M)
Smith, J. W. (M)
Smith, R. J. (M)
Smoot, W. L. (M)
Smythe, D. S. (A)
Snyder, P. O. (M)
Soltey, J. D. (M)
Solomon, D. E. (M)
Solov, E. G. (M)
Sones, W. K. (M)
Soroka, B. (M)
Spencer, P. H. (M)
Spicer, W. T. (M)
Staley, L. K. (M)
Steckel, T. G., Jr. (M)
Steele, N. D., Jr. (M)
Steele, R. C. (M)
Stefan, R. S. (M)
Stefanik, T. M. (M)
Stein, L. E. (M)
Steinweg, D. H. (M)
Stout, G. P. (SM)
Strickler, J. D. (M)
Strull, G. (M)
Stull, K. S., Jr. (M)
Sturgill, C. L. (M)
Sukhia, D. E. (M)
Sullins, T. R. (M)
Suska, J. T., Jr. (M)
Sussman, S. M. (M)
Swift, D. W. (M)
Tabisz, S. C. (SM)
Tank, L. E. (SM)
Taragin, S. (M)
Tashjian, D. R. (SM)
Tates, R. (M)
Taylor, J. S. (M)
Taylor, M. (M)
Tepper, T. (M)
Thomas, A. G. (A)
Thomas, J. F. (M)
Thompson, E. H. (M)
Thompson, F. J. (A)
Thompson, J. E. (M)
Tice, D. P. (M)
Tickler, E. M. (A)
Timmel, F. G. (SM)
Tindall, V. R. (M)
Tischler, M. (M)
Tisdale, S. E. (A)
Todes, R. S. (M)
Tolston, R. B. (A)
Tomey, T. B. (M)
Torelli, G. D. (A)
Tossell, A. R. (M)
Trinter, V. E. (SM)
Tunell, J. C. (M)
Turner, J. W. (M)
Tuttle, L. (M)
Tylor, H. L. (SM)
Ulrick, W. J. (M)
Urbanski, E. T. (M)
Van Leer, S. S. (A)
Vavrina, T. G. (M)
Vezzle, C. E. (A)
Vester, B. H., Jr. (SM)
Voot, G. L. (M)
Vore, M. P. (M)
Wagner, J. L. (M)
Walch, R. C., Jr. (M)
Walder, J. (M)
Walker, B. F. (M)
Walker, J. C., Jr. (A)
Wall, J. G., Jr. (A)
Wallace, H. E. (M)
Walls, A. B. (SM)
Wasserman, F. N. (A)
Waters, R. H. (M)
Watson, J. G. (M)
Wayt, H. J. (M)
Webb, G. N. (M)
Weber, D. J. (M)
Webster, D. R. (M)
Weinberg, N. L. (A)
Weitz, M. R. (M)
Weldon, J. W. (M)
Wells, R. H. (A)
Wenig, J. (M)
Wentz, J. L. (M)
West, E. B. (M)
Wester, J. G. (M)
Wexler, M. P. (M)
Whalen, A. A. (M)
Whalen, J. J. (M)
Wharton, H. R. (M)
Wheeler, M. S. (SM)
Whitcomb, M. F. (A)
White, B. (A)
Whitney, A. (SM)
Wigle, T. A. (M)
Wilkinson, R. J. (M)
Willard, D. U. (A)
Willey, R. E. (M)
Williams, A. D. (A)
Williams, R. L. (M)
Wilner, J. T. (SM)
Windom, E. L. (M)
Wise, R. J. (M)
Wolf, F. H. (M)
Wolfe, B. (M)
Wolfe, R. E. (M)
Wolpert, M. L. (M)
Woodard, W. W. (SM)
Wootton, H. Z. (M)
Woopman, G. H. (M)
Worrell, E. A. (M)
Worth, P. A. (M)
Wyble, J. J. (M)
Yaffe, T. H. (SM)
Yakunkovic, R. S. (M)
Yelch, V. B. (A)
Youngberg, D. A. (M)
Younkins, G. D. (A)
Zamovta, J. A. (M)
Zimmerman, S. E. (M)
Zukauskas, P. J. (A)
Zweler, I. (M)

Bel Air (BAL-3)
Bryant, W. L. (M)
Davis, J. M., Sr. (M)
Delaney, R. P. (M)
Hanks, H. C., Jr. (SM)
Harris, H. N. (M)
Kvarda, J. C. (M)
O'Connor, W. A., Jr. (M)
Sander, W. E. (M)

Beltsville (W-DC-3)
Akerley, J. F. (M)
Beyer, G. L., Jr. (M)
Biggerstaff, W. F. (M)
Butler, P. (M)
Conn, J. R. (M)
Dew, N. R. (A)
Doong, H. (M)
Dyer, J. W. (M)
Fritkin, G. A. (M)
Grace, E. H., Jr. (M)
Headrick, J. M. (M)
Klischer, G. A. (M)
Lines, S. R. (M)
Pal, S. M. (M)
Pynn, G. W. (M)
Sommerkamp, C. H. (A)
Starbuck, F. (M)
Tsao, T. K. (A)

Berwyn Heights (W-DC-3)
Pincus, R. (M)
Schroeder, K. F. (M)
Walton, W. W. (M)

Bethesda (W-DC-3)
Affelder, C. (SM)
Ahern, C. R. (M)
Andelson, R. P. (A)
Andrews, W. J. (SM)
Apolenis, C. J. (M)
Apstein, M. (F)
Arsem, C. (M)
Astin, A. V. (F)
Baluta, R. E. (M)
Batten, J. C., Jr. (M)
Baxter, J. L. (M)
Beaumariage, D. C. (M)
Becker, C. H. (M)
Beckham, C. L. (SM)
Bedford, P. L. (M)
Binstock, L. (M)
Bloom, R. A. (M)
Bode, G. F. (M)
Boese, W. C. (SM)
Bowman, R. L. (SM)
Brown, J. R. (M)
Burke, M. L. (M)
Bush, G. P. (SM)
Cahn, L. (M)
Camann, R. F. (A)
Cannon, R. E., Jr. (M)
Carley, W. S. (SM)
Carpenter, R. J. (M)
Clark, J. M. (M)
Cochran, L. D. (SM)
Coffey, N. F. (M)
Cohen, M. H. (M)
Coite, R. C. (M)
Cooke, W. S. (M)
Cormack, J. G. (M)
Cowgill, D. E. (SM)
Curtis, H. W. (M)
De Court, H. F. (SM)
Diehl, L. G. (A)
Distad, M. F. (SM)
Dittbemer, D. L. (M)
Dougherty, J. G., Jr. (M)
Drews, W. A. (M)
Dufour, G. L. (M)
Dunn, W. F. (M)
Edwards, N. P. (M)
Elbourn, R. D. (M)
Farley, J. J. (M)
Fey, H. F. (M)
Finch, J. B. (M)
Finnegan, F. J. (SM)
Fischer, J. R. (M)
Frank, W. F. (A)
Franta, A. L. (M)
French, J. C. (M)
Friedman, D. C. (M)
Frommer, P. L. (M)
Garrard, R. F. (M)
Gerharz, R. J. (SM)
Gerlach, H. W. A. (SM)
Gerwin, H. L. (SM)
Goumas, N. P. (M)
Grant, C. R. (SM)
Grantham, R. E. (SM)
Grimm, R. E. (M)
Guarino, P. A. (SM)
Hamlin, J. E. (M)
Hardy, N. (M)
Harron, R. J. (M)
Hartz, J. E. (SM)
Hedrich, A. L. (SM)
Held, J. C. (M)
Heller, G. G. (M)
Henry, J. H. (M)
Hoff, R. S. (SM)
Hurley, H. C. (M)
Jackson, W. E. (F)
Jenkins, K. A. (M)
Jodon, F. R. (M)
Johnston, R. W. (SM)
Kaiser, J., Jr. (SM)
Kambouris, G. N. (M)
Keery, W. J. (M)
Kindurys, S. (A)
Kirsch, R. A. (M)
Kirshner, J. M. (A)
Klima, W. M. (M)
Krahe, L. R. (SM)
Landis, P. E. (SM)
Lanier, H. F. (SM)
Liss, F. T. (M)
Mac Nair, E. A. (A)
Mahaffey, G. N. (M)
Mann, D. O. (SM)
Martin, R. R. (SM)
May, J. P. (M)
Mazziotti, F. (M)
McBimey, H. R. (M)
McDowell, W. E. (M)
Mc Fall, R. W. (SM)
McIntyre, W. B. (M)
McReynolds, O. J. (SM)
Meade, K. R. (M)
Meissner, P. (M)
Messenheimer, A. D. (M)
Mickey, L. (SM)
Millbranth, D. R. (A)
Miller, J. W. (SM)
Mischler, R. G. (M)
Moore, J. W. (SM)
Moran, W. R. (M)
Morris, A. D. (M)
Moss, E. C. (M)
Murphy, R. E. (A)
Nigro, J. P. (M)
Noble, F. W. (SM)
O'Brien, V. T. (M)
Osbom, M. E. (A)
Palmer, E. F. (A)
Parkhurst, R. A. (M)
Pearce, H. U. (A)
Pearlman, J. (M)
Pepper, W. H. (M)
Peselnick, L. (M)
Phillio, R. J. (M)
Portmann, P. A. (M)
Premo, D. A. (M)
Queen, J. L. (M)
Ream, D. L. (A)
Richards, A. P. (SM)
Ridenour, W. S. (A)
Riggle, G. C. (SM)
Roddy, V. S. (M)
Rosenberg, A. C. (M)
Rudigler, J. J., Jr. (M)
Russell, G. M. (M)
Rutz, E. M. (SM)
Saline, L. E. (SM)
Saunders, W. K. (M)
Savage, J. W. (M)
Sawitz, P. H. (M)
Schroeder, E. N. (SM)
Selfridge, J. J. (M)
Settersten, R. A. (M)
Seymour, G. B. (M)
Shapiro, S. (M)
Shaull, J. M. (SM)
Sherrick, D. C. (M)
Shirley, J. R. (SM)
Sliter, J. (M)
Skinner, J. A. (SM)
Smith, K. A. H. (M)
Sommer, H. (M)
Sommer, J. G., Jr. (M)
Stewart, J. L. (M)
Stinchfield, J. M. (SM)
Stoller, M. J. (M)
Stone, J. L. (M)
Stowe, R. W. (A)
Sutton, J. C., II (M)
Tai, J. Y. (M)
Taylor, P. E., Jr. (M)
Thomas, T. L. (A)
Thompson, R. H. (A)
Timm, R. S. (SM)
Tompkins, J. E. (M)
Tripp, A. E. (A)
Trippel, W. G. (A)
Troutman, J. E. (M)
Trumo, B. C. (A)
Vanaman, F. P. (A)
Walters, C. S. (M)
Walters, L. R. (M)
Wane, R. S. (A)
Webb, A. L. (M)
Weigel, R. L. (M)
Weinschel, B. O. (SM)
Weiss, H. R. (M)
Wheeler, L. B. (M)
White, D. R. J. (SM)
White, J. J. (A)
Wibbe, J. L. (M)
Williams, D. (SM)
Wilson, C. A. (M)
Wilson, C. B. (SM)
Wilson, L. M. (M)
Winick, A. B. (M)
Wolbarsht, M. L. (M)
Wolfand, D. (M)
Wright, W. E. (A)
Yost, W. E., Jr. (SM)

Bladensburg (W-DC-3)
Burr, P. T. (M)
Kuzminsky, I. (M)
Scobey, J. E., Jr. (A)

Bowie (W-DC-3)
Nowick, W. (M)
Robertson, R. E. (A)
Skaggs, G. A. (M)

Brookeville (W-DC-3)
Femiano, D. J. (M)
Lundquist, G. A. (M)
Roberts, G. T. (M)

Brooklandville (BAL-3)
Lankford, N. B. (M)

Bryans Road (W-DC-3)
Meers, B. Z., Jr. (M)

Burtonsville (W-DC-3)
Claypool, W. S. (M)
Collins, L. F. (M)
Hart, A. C. (M)
Herbert, L. G. (M)
Klebler, J. W. (M)
Peterson, R. E. (M)
Pickering, R. W. (M)
Tynan, W. A. (M)
Waltz, W. R. (M)

Cambridge (BAL-3)
Heisler, W. D. (A)
Holck, D. H. (M)

Catonsville (BAL-3)
Arakelian, G. P. (M)
Baker, R. M. (SM)
Behler, R. J. (SM)
Boenning, C. B. (SM)
Booth, J. D. (SM)
Bower, J. R. (M)
Bush, A. G., Jr. (M)
Calhoon, C. D., Sr. (M)
Chapin, E. W. (SM)
Cole, D. P. (A)
Craig, M. E. (M)
Des Lauriers, E. L. (A)
Farkas, E. C. (M)
Francis, J. P. (M)
Getz, W. W. (A)
Henry, J. L. (M)
Hoffman, H. C., Jr. (SM)
Johnson, H. W. (M)
Jordon, S. A., Jr. (SM)
Kinsman, W. D. (M)
Lambert, H. R. (M)
Lisiecki, M. (A)
Maitern, J. (M)
Nickerson, P. E. (M)
Nobles, C. E. (SM)
Raven, R. S. (SM)
Singel, J. B. (SM)
Sprague, C. H. (M)
Taylor, C. J. (M)
Whatley, E. C., Jr. (SM)
Wood, E. F. (M)

Chesapeake Beach (BAL-3)
Grosvenor, A. C. (SM)

Cheverly (W-DC-3)
Beegle, D. H. (SM)
Clark, J. G. (M)
Davis, R. E. (M)
Franks, H. J., Jr. (M)
Gill, A. B. (A)
Gipe, R. C. (A)
Grayson, R. R. (M)
Lemanski, T. J. (M)
Muller, R. M. (M)
Patton, T. N., Jr. (M)
Pipp, R. M. (M)
Rashkodoff, N. M. (M)
Sly, R. D. (M)
Smith, C. V. L. (SM)
Sprinkle, M. C. (M)
Upton, C. R. (M)
Waldo, G. V. (M)
Whitney, F. G. (M)
Young, C. E. (M)

Chevy Chase (W-DC-3)
Ainsworth, E. F. (A)
Alexander, S. N. (F)
Bay, Z. L. (SM)
Belford, K. R. (A)
Blumberg, M. (M)
Brenner, D. J. (M)
Caldwell, C. M. (SM)
Caporale, P. (SM)
Carter, H. J. (SM)
Caswell, G. L. (SM)
Clapper, H. T. (A)
Conlon, J. M. (M)
Crago, R. P. (SM)
Edwards, W. J., Jr. (M)
Felker, E. A. (M)
Frederick, G. E. (SM)
Gordon, D. I. (SM)
Hall, L. L. (M)
Herson, J. L. (M)
Hutchins, W. R. (SM)
Ikelman, G. J. (A)
Jervis, E. R. (SM)
Kelley, G. W., Jr. (M)
Larsen, P. J. (SM)
Little, J. L. (M)
Lokerson, D. T. (M)
Lokerson, D. C. (A)
McKay, R. L. (SM)
McKenna, J. R. (A)
McPherson, R. G. (M)
Morey, F. C. (M)
Morse, M. S. (SM)
Neal, P. L. (SM)
Ohlsson, A. (A)
Reggia, F. (SM)
Rittman, W. R. (M)
Rockwell, P. (SM)
Salto, S. (M)
Schlegelmilch, R. O. (SM)
Shaw, J. S. (A)
Stewart, R. B. (SM)
Tellman, H. A. (SM)
Titus, D. C. (M)
Voyles, J. E. (SM)
Way, S. H. (M)
Weaver, C. B., Jr. (M)
Whitman, J. A. (M)
Witcomb, E. F. (SM)
Williams, S. B. (F)
Young, E. W. (A)

Chillum (W-DC-3)
Epstein, A. M. (SM)
Marcotte, P. G. (M)
Turner, W. R. (M)
Wilson, R. R., Jr. (A)

Church Hill (BAL-3)
Milne, J. W. (M)

Clarksville (BAL-3)
Bush, G. B. (M)
Ellis, R. T., Jr. (M)
Howard, K. M., Jr. (M)
Johnson, J. L. (SM)
Koudelka, H. A. (M)

Clinton (W-DC-3)
Conner, L. M. (M)
Dressler, J. W. (M)
Hortman, J. D. (M)
Kennedy, C. A., Jr. (M)
Mills, R. L. (A)
Rasmussen, A. R. (M)

Cockeysville (BAL-3)
Chandler, C. E. (M)
Clapsaddle, A. B. (M)
Flagg, D. G. (M)
Hammond, J. W. (M)
Healey, D. J., III (M)
Hurley, W. A. (M)
Jackson, E. L., Jr. (M)
McComas, A. D., Jr. (SM)
Sartorio, D. R. (M)
Uncapher, E., Jr. (A)
Weidner, E. J. (M)
Wells, R. W. (SM)

College Park (W-DC-3)
Anderson, N. S. (M)
Barton, R. (M)
Birch, J. N. (M)
Boyd, J. E. (A)
Buescher, R. H. (SM)
Carlson, D. J. (M)
Cooley, J. E. (M)
Corcoran, G. F. (F)
Davis, H., III (M)
Dunbar, A. S. (SM)
Gandy, C. L. (M)
Ginnings, R. M. (M)
Hahn, W. R., Jr. (M)
Haynes, J. M. (A)
Henderson, S. L. (M)
Hudgins, J. I., Jr. (M)
Irvin, R. G. (M)
Johnston, R. E., Jr. (M)
Jones, H. C. (SM)
Katzin, M. (F)
Koch, C. F. (M)
Lepper, W. E. (M)
Lewis, J. K. (SM)
Mack, W. F. (M)
Man, E. M., Jr. (M)
Marshall, F. S., Jr. (M)
Masek, R. C. (SM)
Mitchell, T. A., Jr. (A)
Morgan, R. (M)
Munson, F. E. (A)
Paden, D. R. (M)
Payne, E. B. (SM)
Pittard, G. S., Jr. (M)
Price, H. W., Jr. (M)
Ray, K. V. (A)
Reed, H. R. (F)
Rickerson, D. M. (SM)
Roberts, W. G. (M)
Rose, G. C. (M)
Rutelli, J. P. (SM)
Rybon, J. C. (M)
Smith, C. J. (M)
Thompson, D. G. (SM)
Thomsen, C. M. (A)
Tippett, J. T. (M)
Turnbull, H. A. (SM)
Weber, J. (F)
Woolhiser, W. E. (M)
Wyman, F. E. (M)

Crisfield (BAL-3)
Lawson, W. M., Jr. (M)

Crownsville (BAL-3)
Brown, T. A. (A)
Germain, R. C. (M)
Martin, G. E. (M)
Rawle, J., III (A)
Willner, W. H. (A)

Cumberland (PIT-4)
Duckworth, J. J. (M)
Hedrick, K. M. (M)
Reissig, G. W. (M)
Starr, J. E. (M)
Stern, H. (SM)

Damascus (W-DC-3)
Freiermuth, W. L. (SM)
Tuckerman, R. G. (M)

Derwood (W-DC-3)
Raser, E. J. (M)
Stokes, R. G. (SM)

Dickerson (W-DC-3)
Wuertenberg, W. E. (A)

District Heights (W-DC-3)
Lauman, E. O. (M)

Dundalk (BAL-3)
Montague, W. P. (SM)

Easton (BAL-3)
Estelle, W. E. (M)
Wightman, P. E. (M)

East Riverdale (W-DC-3)
Hockensmith, R. P. (M)
Owen, E. A. (SM)
Retsky, H. (A)

Edgewater (BAL-3)
Fox, L. F., Sr. (A)
Jones, H. H., Jr. (A)
Matthews, R. E. (M)
Mild, L. M. (M)
Rosenberry, W. W. (SM)
Rubis, C. J. (M)
Sneider, R. R. (A)

Edgewood (BAL-3)
Eichman, M. E. (M)

Edmonston (W-DC-3)
Cannon, R. A. (M)

Elkridge (BAL-3)
Bean, L. M. (M)

Ellerton (W-DC-3)
Alexander, F. C. (SM)

Ellicott City (BAL-3)
Ao Rhys, T. L. (M)
Balthis, D. L. (M)
Barlow, A. D. (M)
Birochak, E. (M)
Brady, C. L. (SM)
Crocker, G. M., Jr. (M)
Duff, J. S. (A)
Dullinger, A. G., Jr. (A)
Fegely, W. D. (M)
Fischer, F. W. (SM)
Fisher, S. G. (M)
Frattali, F. A. V. (M)
Frazier, R. M., Jr. (M)
Froggatt, J. W., Jr. (M)
Grauling, C. H., Jr. (M)
Griffith, B. H., Jr. (SM)
Henry, F. E. (M)
Hiscox, H. C. (M)
Hogue, G. E. (M)
Hutchinson, J. O. (M)
Jacob, M. I. (SM)
Jaffe, A. P. (M)
Jones, L. S. (M)
Kimball, L. L. (M)
Lees, R. E. (M)
Leister, R. E. (SM)
Mabry, F. S. (SM)
Marshall, F. B. (SM)
McAdie, C. H. (M)
McDonough, J. T. (M)
Mederer, J. (M)
Meier, W. M. (M)
Mongold, G. E., Jr. (M)
Mortimer, T. S. (M)
Poff, J. K. (M)
Reis, H. J. (M)
Richter, J. J. (M)
Sima, R. L. (M)
Siperko, C. M. (M)
Stansell, T. A., Jr. (M)
Tharp, N. B. (SM)
Ulman, L. J. (M)
Valenzuela, G. R. (M)
Wehr, K. C. (M)
Windley, W. D. (M)
Yost, H. J. (M)
Ziegler, R. E. (M)

Essex (BAL-3)
Melgar, M. (M)

Ferndale (BAL-3)
Bell, J. E. (M)

Forest Hill (BAL-3)
Barthel, D. R. (M)

Fort Holabird (BAL-3)
Curtis, R. E. (M)

Fort Meade (BAL-3)
Abernethy, R. B. (M)
Barton, J. H. (M)
Blackham, D. K. (M)
Boone, J. V. (M)
Buchanan, J. W. (M)
Burgess, A. G. (M)
Campaigne, H. H. (M)
Chesarek, D. J. (M)
Halsted, A. S. (M)
Kunkle, A. J. (M)
Leonard, H. Q., Jr. (M)
Polkinghorn, R. W. (M)
Puthoff, H. E. (M)
Ragonese, L. J. (M)
Reich, R. G. (M)
Simonoff, J. (M)
Weech, H. A. (M)

Fort Ritchie (BAL-3)
Torf, A. S. (M)

Frederick (W-DC-3)
Alexander, N. E. (SM)
Beecher, D. W. (M)
Brimer, C. F. (A)
Daugherty, E. J. (M)
Hankey, L. L. (M)
Kolsrud, E. R. (M)
Lockwood, E. H. (SM)
Martin, J. T. (M)
Miller, L. F. (A)
Price, O. I., Jr. (M)
Roughan, J. V. (M)
Shaw, N. C. (M)
Staley, I. B. (M)
Thompson, R. C. (M)
White, J. A. (M)
Wise, H. J. (SM)
Young, E. D. (M)

Fullerton (BAL-3)
Andrews, W. R. (M)
Friesser, J. M. (M)
Murphy, R. E. (M)

Fulton (BAL-3)
Rooney, W. R. (SM)

Gaithersburg (W-DC-3)
Hombeck, W. D. (A)
Johnson, R. N. (M)
White, J. W. (M)
Youden, W. W. (M)

Gambrills (BAL-3)
McDermond, D. K. (A)
Schaub, B. H. (SM)

Garrett Park (W-DC-3)
Aylor, R. P., Jr. (M)
Bigelow, H. L., Jr. (M)

Germantown (W-DC-3)
Murad, R. V. (M)

Gibson Island (BAL-3)
Bond, C. C., Jr. (M)

Glenarm (BAL-3)
Brownell, D. C. (M)
Cordry, B. L. (SM)
Hershfield, S. (SM)
Manson, P. S. (M)
McInnay, J. C. (M)
Smith, D. W. (SM)
Stutevant, C. E. (SM)
Wilkie, R. R. (M)
Wood, L. E. (M)

Glen Burnie (BAL-3)
Abel, P. F. (M)
Andreatta, J. H. (M)
Arnett, O. (A)
Arnold, D. E. (M)
Baker, H. M. (A)
Bevan, W. R. (M)
Bickel, C. A. (M)
Boan, B. H. (A)
Bolt, C. A., Jr. (M)
Boykin, C. R. (M)
Brannon, D. L. (M)
Brown, E. A. (M)
Burr, W. E. (M)
Castruccio, P. A. (SM)
Caudill, L. O. (M)
Clany, M. C. (M)
Cooke, D. C. (M)
Crossen, M. W. (M)
Demougeot, G. M. (A)
Dieren, L. L. (M)
Donaldson, R. W., Jr. (M)
Drigders, B. H. (A)
Dunn, J. E. (M)
Eckstein, G. (SM)
Ewanus, W. (SM)
Faber, J. P. (M)
Flemming, K. F. (M)
Fowlie, R. M. (M)
Franks, W. R. (M)
Gentry, J. E. (M)
Goulden, D. E. (M)
Hale, L. N. (M)
Hamburger, J. (M)
Hedgecock, D. M. (M)
Henschel, A. (M)
Hill, I. T. (M)
Hockett, S. H., Jr. (M)
Holbrook, M. R. (M)
Hutchinson, F. W. (M)
Jentilet, A. (M)
Jones, E. (M)
Kirchmier, T. M. (M)
Koether, G. H., Jr. (M)
Leslie, J. P. (M)
Lewis, T. S. (M)
Mackey, J. F. (M)
Manles, L. H. (M)
Marble, T. F. (M)
McBride, J. F. (A)
McCormick, T. C. (M)
Meanler, M. B. (A)
Milewski, V. J. (A)
Miller, D. E. (A)
Montague, D. I. (A)
Musk, H. A. (M)
Parris, W. J. (M)
Pitts, F. T. (M)
Popodi, A. E. (SM)
Range, M. A. (M)
Raymond, W. F. (M)
Reise, R. E. (M)
Riggs, H. K. (M)
Rosenborough, J. G. (M)
Rue, T. O. (M)
Schultz, J. E. (A)
Sorrell, P. A. (M)
Sullivan, J. D. (M)
Sundry, J. L. (M)
Svensson, E. L. (A)
Tanzyus, D. F. (M)
Todaro, R. C. (M)
Tomlinson, C. C. (SM)
Tribble, H. L. (M)
Tuznik, R. H. (M)
Walker, B. J. (M)
Wallace, G. R. (M)
Walsh, D. W. (M)
White, J. E. (M)
Willats, R. W. (M)

Glen Burnie Park (BAL-3)
Devlin, R. P. (M)
Stebbins, W. J. (M)

Greenbelt (W-DC-3)
Aven, W. C. (A)
Fleming, H. D. (M)
Gallo, W. A., Jr. (A)
Hanyok, A. (A)
Hunt, D. W. (M)
Hymowitz, E. W. (M)
Jones, G. R. (M)
Klehn, G. (M)
Lynch, T. J. (M)
Lyons, H. J. (M)
Mazur, D. G. (SM)
Richards, W. G. (M)
Sera, F. (M)
Spencer, T. K. (M)
Staley, D. C. (M)
Thatcher, C. W. (M)
Wanbaugh, W. C. (M)
Wuemser, E. (M)
Zanin, B. P. (M)

Hagerstown (W-DC-3)
Clements, C. W. (SM)
Fuller, B. K. (M)
Hess, R. E. (A)
Marlow, W. C., Jr. (M)
Maycock, J. C. (M)
McIntire, G. W. (A)
Reynolds, A. J. (M)
Schick, L. M. (M)
Smith, D. A. (M)
Tegeler, M. C., Jr. (A)

Halethorpe (BAL-3)
Krauth, I. A., Jr. (M)

Hampstead (BAL-3)
Sullenger, J. E., Jr. (M)

Hanover (BAL-3)
Granger, W. E. (M)
Strong, J. L. (A)
Uzunoglu, V. (M)
Zverev, A. I. (SM)

Havre De Grace (BAL-3)
Duncan, L. E. (M)
Klair, G. R. (M)
Richard, V. W. (M)
Weik, M. H., Jr. (M)

Highland (BAL-3)
Iribe, P. (A)
Marlow, D. R. (M)

Hillandale (W-DC-3)
Richards, R. A. (M)

Hillcrest Heights (W-DC-3)
Beatrez, R. (A)

Hyattsville (W-DC-3)
Bartlett, R. C. (M)
Becker, C. M. (A)
Blum, H. E. (A)
Boenning, W. R. (M)
Bogora, G. F. (M)
Bounds, J. R. (M)
Burns, J. C. (A)
Burroughs, W. C. (A)
Cancro, C. A. (M)
Carpenter, H. E., Jr. (M)
Chadwell, W. L. (M)
Chase, R. H. (M)
Chernikoff, H. (M)
Clark, M. C. (M)
Cohen, C. L. (M)
Conley, R. E. (M)
Cooper, H. W., III (SM)
Cullen, J. K., Jr. (M)
Didra, W. E. (A)
Dod, L. R. (M)
Dowd, J. F. (A)
Evans, W. H. (M)
Flaherty, J. B., Jr. (M)
Flanagan, J. D. (M)
Florescu, S. G. (A)
Franklin, S. B. (M)
Gager, F. M. (SM)
Gallahger, P. R. (M)
Garner, W. E. (M)
Geraci, P. C. (A)
Gouge, J. R., Jr. (M)
Gray, J. C., Jr. (M)
Greenwald, S. (M)
Greeves, J. J. (A)
Grim, R. R. (M)
Harless, R. E. (M)
Hartwick, H. (M)
Hepfer, J. W. (M)
Hicks, H. H. (M)
Higgins, R. E. (M)
Hoffman, B. F. (M)
Hogan, G. D. (M)
Holden, S. E. (A)
Holmes, R. G. (M)
Hooper, W. P. (M)
Houser, H. R. (M)
Izard, C. B. (M)
Jones, J. J. (A)

Kain, J. (M)
Keller, T. B., Jr. (A)
Kiemer, F. A. (M)
Kretchmar, P. R. (M)
Kulikowski, E. F. (SM)
Lane, T. B., Jr. (M)
Lantz, P. A. (SM)
Leibfried, T. F., Jr. (A)
Levin, W. S. (M)
Looney, C. H., Jr. (SM)
Mays, G. W. (M)
Molnar, A. J. (M)
Moltrup, G. R. (M)
Morse, W. R. (SM)
Oelke, P. O. (M)
Orr, G. M. (M)
Palmasani, D. R. (M)
Pamphilon, L. E. (SM)
Park, J. R. (M)
Peavey, B. (M)
Pendleton, T. A. (M)
Pike, W. N. (M)
Pomerantz, M. (M)
Popowsky, W. J. (M)
Potts, R. B. (M)
Proudfoot, G. D. (M)
Rayburn, R. A. (M)
Reich, B. W. (M)
Reid, H. M. (M)
Reuss, M. L., Jr. (M)
Rippingsale, J. B. (M)
Rivera, E. R. (M)
Robinson, C. H. (M)
Rogal, S. J. (A)
Ryan, D. C., Jr. (A)
Sennewald, P. F. (M)
Shawe, M. E. (M)
Shrader, J. R. (M)
Siahatgar, S. (A)
Starobin, A. F. (M)
Stuntz, J. W. (M)
Summers, C. R. (M)
Sumpter, E. J. (A)
Svanholm, J. K. V. (SM)
Thwaites, D. F. (M)
Tolliver, J. S. (M)
Valyou, A. J. (A)
Vorburn, F. O. (M)
Wang, J. C. H. (M)
White, C. D., Jr. (M)
White, J. W. (A)
Wilson, J. P. A. (M)
Wood, W. H. (M)
Yaplee, B. S. (M)
Yelcich, G. T. (M)

Hydes (BAL-3)
Bliss, W. R. (M)

Indian Head (W-DC-3)
Henderson, J. E. (M)
Ryon, J. C. (M)
Squire, R. K. (M)

Jessups (BAL-3)
Evans, G. E. (M)
Fouts, J. W. (M)
Hutchinson, C. C. (A)
Wiesner, J. C. (M)

Joppa (BAL-3)
Marcroft, H. C. (SM)
Smith, H. E. (M)

Kensington (W-DC-3)
Abernathy, J. C. (A)
Alldredge, L. R. (M)
Anderson, W. H. (M)
Becker, W. E., Jr. (M)
Bell, W. S. (M)
Buckberg, M. L. (M)
Carlson, F. P. (M)
Carpenter, R. C. (M)
Clair, J. H. E., Jr. (M)
Coopersman, J. I. (M)
Connell, R. S. (M)
Dallatore, E. J. (M)
Davis, J. J. (A)
Doring, R. C. (A)
Edward, C. E. H. (A)
Eisner, H. (M)
Fairall, M. C., Jr. (M)
Gaston, G. I. (M)
Gonick, J. G. (M)
Hekimian, N. C. (M)
Hess, J. C., III (M)
Hiltz, F. F. (M)
Horton, B. M. (M)
Jones, D. L. (M)
Joseph, H. M. (SM)
Kaiser, J. A., Jr. (M)
Kaiser, Q. C. (M)
Klein, J. (A)
Knox, A. A. (M)
Landau, R. M. (M)
Laug, O. B. (M)
Lee, P. H. (SM)
Lilly, R. G. (M)
Mac Quivey, D. R. (M)
McGee, K. (SM)
Meadows, L. A. (SM)
Michelsen, P. F. (M)
Miller, F. B. (M)
Mitoma, E. Y. (SM)
Morse, A. O. (M)
Norton, M. H. (M)
O'Niel, T. J. (M)
Ostaff, W. A. (SM)
Palmer, L. C. (M)
Peters, M. W. (M)
Petric, G. W., III (SM)
Pierce, W. L. (M)
Porreca, G. (M)
Radabaugh, E. L. (M)
Riblet, H. B. (SM)
Ridgely, N. R., Jr. (M)
Rosenberg, R. S. (M)
Sann, K. H. (SM)
Segal, B. R. (M)
Sheppard, I. J. (M)
Spinks, A. W. (M)
Spriggs, J. O. (M)
Swan, N. C. (A)
Utrecht, F. W. (A)
Webster, E. M. (F)
West, E. B. (M)
Wetmore, G. C. (M)
Whipple, L. G. (A)
Woodside, G. E., Jr. (M)
Wright, E. A. (M)
Yaffee, P. (SM)

Kingsville (BAL-3)
Frazier, R. V. (M)
Pullen, K. A., Jr. (SM)

Landover (W-DC-3)
Bradley, J. W. (M)
Limberis, W. R. (M)
Rowe, J. J. (M)
Sencenbaugh, D. W. (M)

Landover Hills (W-DC-3)
Peters, P. E. (M)

Langley Park (W-DC-3)
Ryals, J. W. (A)

Lanham (W-DC-3)
Andrick, C. A. (A)
Costolo, C. L., Jr. (A)
Dalle Mura, P. H. (M)
Hengen, J. G., Jr. (M)
Henry, V. F. (M)
Lyon, E., III (M)
Patti, V. C. (A)
Pickett, W. S. (A)
Pielmeier, G. R. (M)
Stine, E. V. (M)
Utt, C. J. (A)
Van Lunen, R. D. (M)
Wilson, E. B. (M)

Lanham Park (W-DC-3)
Skinkle, G. W. (A)

Lansdowne (BAL-3)
Travers, J. F., Jr. (M)

La Plata (W-DC-3)
Keith, F. R., Jr. (M)
Richardson, K. C. (M)

La Vale (PIT-4)
Grimes, D. W. (A)
Herman, R. M. (M)
Rutherford, C. H. (M)

Lexington Park (W-DC-3)
Bartels, W. S. (SM)
Browne, J. E. (M)
Browne, W. M. (SM)
Greco, S. V. (A)
Hookins, P. L. (M)
Jenkins, D. A. (M)
Norkus, B. S. (M)

Long Green (BAL-3)
Houck, D. J. (M)

Laurel (W-DC-3)
Bell, H. P. (A)
Beydler, W. W. (M)
Blanchard, M. K. (M)
Christiansen, R. M. (M)
Craig, A. G. (M)
Darnall, W. H., III (M)
Deck, P. E. (M)
Duff, T. O. (M)
Duffy, D. J. (A)
Gallaway, E. N. (M)
Gustafson, C. E. (A)
Linsey, G. D. (M)
May, C. (M)
McCartney, W. B. (M)
Meares, C. W. (A)
Mobley, M. C. (M)
Nagrant, J., Jr. (M)
Parsons, P. H. (M)
Roberts, W. K. (M)
Romaine, W. R. (M)
Schreyer, S. D. (M)
Shinn, E. N. (A)
Straughn, J. B. (M)
Taggart, J. L. (M)
Van Loon, K. (M)
Walker, R. B. (M)
Zunich, M. (A)

Linthicum (BAL-3)
Coulter, E. L. (M)
Crosby, G. E. (M)
Hrybyk, W. L. (M)
Hufme, H. D. (M)
Kuehn, H. S. (SM)
McCarty, J. W. (M)
Pless, R. L. (M)
Quade, T. E. (M)
Porter, H. D. (A)
Ramsay, J. H. (M)
Rustad, L. W. (M)
Shore, S. E. (A)
Turlington, T. R. (A)

Linthicum Heights (BAL-3)
Baltz, C. K. (M)
Blas, G. H., Jr. (M)
Cichanowicz, H. J. (M)
Collins, Z. L. (SM)
Cumley, R. L. (M)
De Andrade, W. C. (M)
Dyer, E. F. (M)
Easson, C. S. (A)
Eastland, F. M. (M)
Garrett, C. L. (M)
Goetz, L. P. (SM)
Heyser, L. S. (M)
Hughes, T. R. (M)
Lee, R. (F)
Lungo, A. J. (M)
Mims, J. H. (M)
Newhouse, P. D. (M)
Nix, W. R. (M)
Plath, R. H. (M)
Rogers, C. H. (M)
Rossi, A. D. (M)
Skillman, W. A. (M)
Tellier, J. (M)
Wolf, J. E. (M)
Wolf, S. (M)
Zrubek, W. E. (M)

Lutherville (BAL-3)
Albin, F. I. (M)
Allison, D. M., Jr. (SM)
Biddlecomb, R. W. (M)
Brower, G. H. (SM)
Brown, J. B. (M)
Carpenter, J. W. (M)
Carpenter, L. B. (M)
Colvin, R. (M)
Cryer, W. C. (SM)
Cunningham, F. J. (M)
Eby, J. T. (M)
Freeland, A. F. (SM)
Grandinetti, A. F. (M)
Hart, E. D. (SM)
Hayes, E. G. (M)
Hom, W. R. (M)
Howard, B. F., Jr. (M)
Hultberg, C. A. (SM)
Jackson, J. H. (M)
Knox, P. C. (SM)
Kochevar, H. J. (M)
Noll, R. E. (M)
Oster, E. W., Jr. (M)
Phillips, W. D. (M)
Ralston, W. P. (M)
Rausa, G. J. (M)
Reed, W. L., Jr. (M)
Roberts, C. O., Jr. (M)
Roberts, H. D. (A)
Scanga, W. A. (SM)
Senger, F. A. (M)
Steinitz, R. J. (M)
Stulac, R. J. (M)
Tewksbury, J. M. (M)
Toll, H. D. (M)
Washburn, H. H. (M)
Weems, C. M., Jr. (M)

Mayo (BAL-3)
Williams, W. S. (M)

Meade Heights (BAL-3)
Duncan, J. F. (M)

Mechanicsville (W-DC-3)
Sakran, F. C., Jr. (M)

Middle River (BAL-3)
Pumer, R. C. (A)

Millersville (BAL-3)
Dempsey, M. E. (M)

Mitchellville (W-DC-3)
Jones, E. L. (M)

Monkton (BAL-3)
Flanagan, E. R. (M)

Mount Airy (BAL-3)
Nikirk, H. S. (M)

Mount Rainier (W-DC-3)
Arndt, R. C. (M)
Bishop, F. W. (M)
Cacciano, D. L. (M)
Deegan, E. T. (M)
Greenhouse, L. (M)
Hurley, C. N. (A)
Riley, M. E. (A)
Sheltelman, H. D. (M)

Mount Savage (PIT-4)
Keene, D. E. (M)

North Chevy Chase (W-DC-3)
Conant, W. W. (A)
Redler, W. M. (SM)

North Linthicum (BAL-3)
Albright, R. K. (A)
Axelby, G. S. (F)
Butala, E. F. (M)
Hamer, E. G. (SM)
Houston, D. R. (M)
Mack, K. M. (M)
Pape, R. B. (M)
Shadle, G. E. (M)
Temple, J. M. (SM)

North Severna Park (BAL-3)
Bartram, J. F. (SM)
Christie, C. J. (SM)

Odenton (BAL-3)
Perko, E. M. (M)
Weisman, J. (M)

Olney (W-DC-3)
Johnson, H. A. (SM)
Mader, L. W. (A)

Owings Mills (BAL-3)
Buehler, G. V. (M)
Carter, A. J., Jr. (A)
Foster, J. W. S., Jr. (A)
Karpa, P. (A)
Luchi, R. D. (M)
Weingarten, M. (SM)
Wilson, C. L. (A)

Oxford (BAL-3)
Kouzoulas, G. W. (A)

Oxon Hill (W-DC-4)
Ahearn, J. L., Jr. (SM)
Plimpton, R. J. (M)
White, W. A. (M)

Parkton (BAL-3)
Wheatley, T. H. (M)

Pasadena (BAL-3)
Baldeuf, W. A., Jr. (M)
Chastant, L. J. (M)
Myers, J. A. (A)
Renwick, W. H., Jr. (M)
Shepherd, S. G., Jr. (A)

Patuxent River (W-DC-3)
Huff, M. S. (M)
Lamm, L. M. (A)
Morey, K. G. (M)
Ottensmeyer, R. M. (M)

Phoenix (BAL-3)
Ackerman, W. W. (A)
Bennighof, R. H. (SM)
Brach, J. P., Jr. (M)
Cook, A. R. (A)
Davis, R. J. (SM)
Gambrill, R. D. (M)
Heyck, H. D. (M)
Johnson, P. S. (M)
MacGregor, N. (A)
Munson, L. A. (M)
Randall, M. W. (M)

Pikesville (BAL-3)
Barrack, C. M. (SM)
Feitler, J. (M)
Fleishman, L. S. (M)
Gilbert, E. M. (M)
Jacobson, J. M. (SM)
Kasinoff, H. A. (M)
Krause, S. R. (A)
Kravetz, H. T. (M)
Marie, C. S. (M)
Rosenthal, R. E. (A)
Schrank, H. E. (SM)
Wright, R. E. (M)

Piney Point (W-DC-3)
Hollingsworth, W. H. (M)

Pocomoke City (BAL-3)
Montz, W. F. (A)

Point of Rocks (W-DC-3)
Loucks, I. H. (SM)

Pomfret (W-DC-3)
Wald, B. (SM)

Potomac (W-BC-3)
Ostermann, L. G. (M)

Potomac Heights (W-DC-3)
Bissett, E. B. (M)

Prince Frederick (BAL-3)
King, B. (A)

Randallstown (BAL-3)
Broady, S. N. (SM)
Burns, J. E. (M)
Dokas, J., Jr. (M)
Henry, G. L. (M)
Lennard, J. K. (M)
Mayhew, J. A., Jr. (M)
Mordecai, M. J. (M)
Moskowitz, C. (M)
Robinson, J. M. (A)
Savage, A. J. (M)

Rawlings (PIT-4)
Bjerke, O. H. (M)

Reisterstown (BAL-3)
Borisky, A., Jr. (M)
Duncan, R. S. (A)
Franchell, W. R. (M)
Georgallis, P. C. (M)
Huss, E. H. (M)
Lacis, J. G. (M)
Thomas, C. Y. (M)
Webb, W. R. (M)

Relay (BAL-3)
Reynolds, D. W. (M)

Riderwood (BAL-3)
Ellen, S. T. (M)
Girard, P. A. (M)
Pruitt, A. F. (M)

Riverdale (W-DC-3)
Costanza, F. V. (M)
Farthing, W. H. (M)
Freeman, J. E. (M)
Hargraves, J. F. (M)
MacDougall, S. S. (M)
Pritchard, J. C. (M)
Raffel, J. M. (M)
Ruggiero, J. J. (M)
Smith, J. C., Jr. (A)
Sorensen, G. L. (M)
Stewart, W. R. (M)
Sturdevant, W. H. (M)
Wagner, R. B. (M)
Withrow, W. E. (M)

Rockville (W-DC-3)
Achard, F. H., Jr. (M)
Ameth, A. P., Jr. (SM)
Aucremanne, M. J. (M)
Austin, J. H. (M)
Bacon, E. J. (SM)
Bandler, M. L. (A)
Barnard, G. L. (A)
Barr, R. M., Jr. (M)
Barylaski, M. W. (M)
Beck, W. L. (M)
Becker, D. E. (M)
Bedford, J. S. (M)
Benjamin, R. P. (A)
Biser, M. H. (SM)
Bowman, J. E. (A)
Brodie, A. H. (M)
Bruns, H. B. (M)
Brush, J. W. (M)
Burnside, E. D. (M)
Campbell, J. B. (M)
Cohen, G. S. (M)
Cole, W. M., Jr. (M)
Copeland, A. L. (M)
Corbett, P. I., Jr. (M)
Crew, B. L. (M)
Cushing, V. J. (SM)
Deely, B. M., Jr. (M)
Dellasanta, O. (M)
Dowski, J. J. (M)
Dozier, J. J., Jr. (A)
Eisenberg, R. M. (M)
Elam, F. E. (M)
Ellersick, F. W. (M)
Elleton, C. C., Jr. (M)
Fear, J. L. (M)
Fetridge, P. V. S. (A)
Filipowsky, R. (F)
Fitzgerald, R. T. (M)
Franklin, L. V., Jr. (M)
Frizzell, O. E. (M)
Gammill, R. A., Jr. (M)
Gardenhour, A. J., Jr. (M)
Garver, F. V. (M)
Gilliland, H. W. (A)
Gleason, R. J. (SM)
Haltiwanger, J. C. (A)
Hanna, C. C. (M)
Hansmann, A. C. (M)
Hardin, C. D. (SM)
Harris, E. M. (A)
Hazlett, W. T. (M)
Heilprin, L. B. (M)
Hillstrom, W. B. (M)
Hoffman, L. (M)
Hulfish, W. S. (M)
Hunt, R. W. (M)
Insley, R., Jr. (A)
Jones, R. E. (M)
Jones, R. H., Jr. (M)
Keeler, R. E. (M)
Kelley, J. R. (M)
Kendall, F. H., Jr. (M)
Kennedy, H. J. (M)
Kenney, W. D. (M)
Kingsbury, J. L. (M)
Klamm, G. E. (M)
Knight, D. E. (M)
Kough, B. L. (M)
Laine, R. D. (M)
Lang, E. T. (M)
Larson, R. C. (M)
Lehman, J. E. (M)
Littlefield, J. T. (A)
Locke, R. R. (M)
Marsden, C. P., Jr. (M)
Martin, G. (SM)
Martin, M. L. (M)
McCall, T. D. (M)
McGolrick, J. E. (M)
McShulskis, J. E. (M)
Miles, R. J. (M)
Mills, J. H., Jr. (M)
Morison, C. T. (A)
Noelcke, C. L., Jr. (SM)
Norris, R. F. (M)
Oldani, C. M. (M)
Olewine, W. P. (M)
Paradis, R. J. (M)
Parkison, E. R. (A)
Peavey, R. D. (M)
Pedlow, L. M. (M)
Poor, V. D. (M)
Rapalus, H. W. (M)
Roccati, A. J. (A)
Rolfe, R. G. (M)
Ross, D. C. (SM)
Ruffino, L. V. (M)
Salerno, J. (SM)
Sampson, M. R. (M)
Scott, C. W. (M)

MARYLAND

Simis, R. L. (M)
Sledge, O. D. (SM)
Sorger, G. U. (M)
Sterling, F. M. (M)
Sulzer, P. G. (F)
Swanekamp, J. E. (M)
Swanson, E. E. (M)
Udelson, B. J. (SM)
Van Allen, L. N. (M)
Veraa, C. F. (M)
Viers, F., Jr. (A)
Wagner, T. C. G. (M)
Walker, H. C. (M)
Washburne, J. R., Jr. (M)
Watkins, C. F. (M)
Watkins, P. L. (M)
Welker, R. A. (M)
West, H. R. (SM)
Whitlock, M. B., Jr. (A)
Whybrew, J. W. (M)
Williams, W. K. (M)
Winkler, S. (SM)
Wochholz, H. F. (M)
Zitzmann, F. R. (M)

Ruxton (BAL-3)
Drayner, A. H. (SM)
Fell, T. T. (M)
Martin, A. C. (M)

St. Marys City (W-DC-3)
Merson, K. L. (M)

St. Michaels (BAL-3)
Berry, J. R. (M)
Lewis, G. (F)

Salisbury (BAL-3)
Gillis, C. L. (M)
Holloway, F. L. (A)
Isear, J. A. (M)
Thomas, L. A. (M)

Seabrook (W-DC-3)
De Mattia, H. J., Jr. (M)
Dixon, T. O. (SM)
Ellis, D. G. (A)
Frame, R. H. (A)
Norman, H. A. (M)
Pate, J. D. (M)
Peltzer, K. E. (M)
Quenstedt, R. E. (M)
Roman, J. (M)
Skaggs, J. W. (A)
Van Allen, R. L. (M)

Seat Pleasant (W-DC-3)
Whitfield, W. D. (M)

Severn (BAL-3)
Burdett, G. L. (M)
Burnett, H. G. (M)
Heitman, E. H., Jr. (A)

Severna Park (BAL-3)
Aasen, M. D. (M)
Adams, L. C. (M)
Baugh, C. W., Jr. (M)
Bauman, R. E. (A)
Bellman, B. M. (M)
Bone, G. D., Jr. (M)
Burger, R. M. (M)
Butler, H. J. (M)
Chapman, R. W. (M)
Coleman, S. D., Jr. (M)
Dehm, G. E. (M)
Field, G. C. (M)
Finklepearl, I. M. (M)
Frame, T. E. (M)
Friedel, J. E., Jr. (A)
Gedance, A. R. (M)
Gray, M. G. (M)
Hastings, M. S. (SM)
Hayes, M. E. (SM)
Heckman, E. H. (M)
Hetrich, G. R. (M)
Hoffman, C. P. (M)
Horn, R. E. (M)
Huddleston, F. J. (SM)
Jeffcoat, C. D. (SM)
Jones, H. H. (M)
Jones, W. N. (SM)
Koenig, P. E. (SM)
Lawton, H. D. (M)
Le Febre, D. C. (A)
Lietzau, K. E. (M)
Lynn, G. E. (SM)
Mathieu, R. E. (M)
McConnell, V. (A)
McKechnie, J. S. (SM)
McNally, F. C., Jr. (M)
Miller, C. J. (SM)
Mooney, A. H., Jr. (SM)
Mooney, M., Jr. (A)
Moore, R. A. (M)
Munro, J. R. (M)
Myers, F. S., Jr. (M)
Parody, C. L. (M)
Pearson, J. L. (A)
Praeger, W. C. (M)
Roeder, J. R. (M)
Schmidt, R. J. (M)
Schubert, C. J., Jr. (M)
Shafer, M. W. (SM)
Teasdale, A. R., Jr. (SM)
Thompson, J. E. (M)
Valenta, M., F. (SM)
Van Duzer, K. W., Jr. (M)
Van Horn, J. H. (M)
Volz, P. E. (SM)
Washburn, F. L., Jr. (M)
Wasson, H. M. (M)
Whitehouse, F. E. (A)
Wilbur, J. W. (M)
Winter, G. W. (SM)
Wood, K. E. (M)
Young, A. F. (M)

Shadyside (BAL-3)
Barnes, L. L. (A)
Wickman, M. (M)

Silver Spring (W-DC-3)
Abramovich, M. N. (SM)
Adams, T. E. (M)
Addams, C. S. (A)
Albanese, P. (A)
Alde, R. O. (M)
Allen, U. L., Jr. (M)
Andersen, S. F., Jr. (M)
Anderson, H. W. (SM)
Anderson, H. C. (M)
Anikis, G. P. (M)
Anspacher, W. B. (SM)
Applebaum, A. (M)
Ashour, G. B. (A)
Austin, H. R. (M)
Baechler, D. O. (M)
Bailey, A. W. (A)
Balderston, J. M. (M)
Baldini, B. P. (M)
Barley, J. R. (A)
Barnard, E. H. (M)
Barse, G. R. (M)
Bassett, R. S. (M)
Baughn, C. E. (M)
Beach, E. H. (M)
Beaulieu, A. J. (A)
Beck, E. A. (M)
Beckham, J. M. (M)
Bellmore, M. (M)
Bengston, P. S. (M)
Berliner, J. (SM)
Bernard, R. L. (M)
Bernstein, B. (M)
Bianco, D. R. (SM)
Biosca, L. F. (M)
Blackburn, C. A. (M)
Blair, C. R. (SM)
Blankenship, A. C. (M)
Blevins, H. R. (M)
Blumberg, W. J. (M)
Bonwit, K. S. (M)
Bonwit, S. E. (M)
Bowman, H. A. (M)
Boyle, D. R. (M)
Braun, C. M. (SM)
Bricout, P. A. (SM)
Brimberg, M. M. (SM)
Brincka, L. J. (M)
Brooks, J. W. (M)
Brown, C. W. (SM)
Brownstein, H. (SM)
Bryan, S. (SM)
Buckingham, S. A. (M)
Buckley, R. D. (A)
Burt, J. M. (A)
Byer, D. L. (M)
Caggiano, V. J. (M)
Calhoon, T. G. (M)
Cannady, P. F. (A)
Cantor, J. M. (M)
Carruth, D. E. (M)
Casson, W. H. (M)
Chambre, C. S. (M)
Chandler, H. G. (M)
Channell, E. C. (M)
Chapin, H. E. (M)
Cheston, T. C. (SM)
Chu, K. T. (M)
Chwastyk, A. M. (M)
Clark, J. F. (SM)
Clifton, R. B. (M)
Cohen, J. (M)
Coleman, T. W. (M)
Collins, J. R. (M)
Collins, J. (M)
Cook, F. W. (M)
Cooley, R. W. (M)
Cooper, H. W. (SM)
Cosman, A. (M)
Costrell, L. (SM)
Cote, A. J., Jr. (M)
Cotts, A. C. (SM)
Crabill, W. B. (A)
Craig, P. M., Jr. (M)
Crews, C. W. (M)
Crisafulli, D. M. (M)
Crone, J. L. (SM)
Culleis, J. W. (M)
Cummings, K. C. (M)
Davies, J. M. (M)
Davis, G. W. (M)
Dean, F. A. (M)
Deitz, J. (SM)
De Luca, L. A. (A)
Demaree, G. A. (M)
Diambra, H. M. (A)
Dipoell, R. E., Jr. (M)
Dobbins, B. D. (M)
Doyle, J. M. (A)
Dudeney, P. N. (M)
Duey, J. W. (A)
Dunkelman, L. (A)
Dunn, J. (M)
Durkovic, J. E. (SM)
Du Teil, R. Z. (M)
Dye, R. E. (M)
Early, D. M. (A)
Eisen, H. A. (M)
Elder, B. M. (M)
Emch, G. F. (A)
Esheman, P. W. (M)
Evans, T. R. (M)
Ewing, J. H. (M)
Fairhurst, N. T. (M)
Fence, H. B. (A)
Fink, C. (M)
Finkel, A. (M)
Finneran, R. J. (M)
Fischer, E. H. (M)
Fischer, W. (A)
Fischman, M. (M)
Fisher, C. A. (M)
Fisher, E. M. (M)
Fitzgerald, J. P. (M)
Flato, M. (M)
Flyer, I. N. (SM)
Foulkrod, H. J., Jr. (M)
Freeburger, B. P. (A)
Freeman, J. J. (SM)
Friedman, G. E. (M)
Friedman, S. N. (M)
Fullen, W. E. (M)
Fund, S. R. (SM)
Gadbois, G. A. (M)
Garberson, J. R. (A)
Gaynor, N. (M)
Geist, J. C. (SM)
Gibson, H. T. (M)
Gibson, R. D. (M)
Gilbert, J. N. (SM)
Giles, J. W. (SM)
Glassco, P. B. (SM)
Glorioso, A. R. (M)
Godman, R. W., Jr. (M)
Goldberg, H. (F)
Goldfarb, B. J. (SM)
Goldstein, G. D. (M)
Gordon, S. H. (M)
Gonzalos, R. E. (M)
Gould, W. I., Jr. (M)
Gray, W. M. (M)
Greene, C. R., Jr. (M)
Greenhouse, S. C. (M)
Gridley, C. J. (M)
Groff, W. M. (M)
Guida, J. A. (SM)
Guier, W. H. (SM)
Gunshinan, T. B. (M)
Hacker, P. S. (M)
Halev, I. (SM)
Halvorsen, H. W. (A)
Hamblen, J. W. (M)
Hanel, R. A. (A)
Hardy, A. O. (A)
Harrison, C. W. (M)
Harrison, C. J. (SM)
Harrison, H. (SM)
Heller, A. (M)
Hermach, F. L. (M)
Hesse, G. L. (SM)
Hibbard, W. D., Jr. (M)
Hickley, T. J. (SM)
Hickok, C. H. (A)
Hillmer, R. P. (A)
Hirschel, L. R. (M)
Hoadley, J. C. (SM)
Hoffman, C. W. (M)
Hogan, D. L. (SM)
Hollis, J. L. (SM)
Holt, A. W. (M)
Holzer, W. H. (M)
Hoover, E. T. (M)
Hoover, H. M. (M)
Hopkins, J. R. (M)
Hosea, M. E. (M)
Hothem, R. K. (M)
Huber, C. E. (M)
Hug, E. H. (M)
Hunker, W. (M)
Hurlburt, E. H. (SM)
Inscoe, R. A. (M)
Jackson, E. H., Jr. (M)
Jacobs, G. (SM)
James, J. L. (M)
Jaques, C. M. (A)
Jesurun, M. M. (M)
Jewell, J. J. (M)
Johannessen, H. R. (M)
Johnson, H. A. (SM)
Johnston, T. F. (M)
Josephson, G. C. (M)
Joslow, J. (M)
Justice, R. J. (M)
Kahlenberg, A. H. (A)
Kanter, J. I. (M)
Karl, C. R. (M)
Karo, M. A. (SM)
Katz, I. (SM)
Keating, T., Jr. (M)
Keenan, R. J. (A)
Kelton, G. (SM)
Kimball, J. J., Jr. (M)
King, C. L. (M)
King, R. G. (M)
King, W. P. (SM)
Kirkland, G. I. (M)
Klein, B. (M)
Klein, M. H. (M)
Klink, G., Jr. (A)
Knowles, R. B. (M)
Koutsandreas, J. D. (M)
Kraus, D. G. (M)
Kraus, R. W. (M)
Krebs, W. N. (M)
Kreis, A. L. (M)
Kreithen, A. (SM)
Kreitzer, H. M. (M)
Kronstadt, N. (M)
Krupen, P. (SM)
Kuck, J. H. (SM)
Kurtzman, S. P. (M)
Larney, J. L. (M)
Latson, F. W. (M)
Laughlin, C. R., Jr. (M)
Leaf, W. B. (M)
Lebowitz, P. H. (A)
Ledley, R. S. (M)
Lee, F. N. (A)
Lee, J. D. (M)
Lefkowitz, H. (M)
Leibowitz, R. C. (M)
Leitma, G. (A)
Lenz, H. G. (A)
Leonard, F. M. (M)
Leslie, C. B. (M)
Le Tellier, J. M. (M)
Levin, A. (A)
Levine, G. (M)
Levine, S. (SM)
Levy, I. J. (M)
Liben, W. (SM)
Liberman, R. A. (M)
Lichtenstein, M. I. (M)
Logan, J. J. (SM)
Looney, H. C. (M)
Louk, G. V. (A)
Love, R. G. (M)
Ludwig, G. H. (M)
Luke, G. W., Jr. (M)
Lun, M. J. (M)
Machlin, A. (M)
Mack, S. J. (A)
Mackenzie, C. M. (M)
Mallin, J. A. (M)
Malloy, J. H. (M)
Maloney, R. S. (M)
Mansberg, G. C. (M)
Marchese, R. (A)
Marsh, D. S. (M)
Marshburn, C. E. (SM)
Massey, A. P. (SM)
Mawhood, S. A. (M)
May, G. L. (M)
McCarrell, R. H. (M)
McCarthy, L. J., Jr. (M)
McDonald, L. W. (A)
McDuffie, G. E., Jr. (M)
McIntyre, J. W. (M)
McKeel, P. D. (SM)
McLaurin, T. S. (A)
Meltzer, A. C. (M)
Merchant, W. J. (SM)
Messera, J. R. (M)
Miller, T. H. (SM)
Mitchell, F. O. (M)
Moldow, B. D. (M)
Molland, W. N. (M)
Montgomery, J. D. (M)
Morris, C. S. (M)
Moser, E. B. (A)
Moye, C. L. (SM)
Mullendore, R. E. (M)
Munson, H. B. (SM)
Munson, J. C. (SM)
Myrick, J. C. (M)
Nagy, A. W. (SM)
Nalley, W. M. (M)
Nathanson, F. E. (M)
Neeland, F. (M)
Neills, R. E. (M)
Neugebauer, W. J. (M)
Newman, N. (A)
Niner, W. G. (M)
Nisson, C. J. (M)
Noble, H. L. (A)
Norvell, J. B. (M)
Nucci, E. J. (SM)
Oakes, J. B. (M)
Ober, H. E. (SM)
Olin, I. D. (M)
Oliver, M. E. (M)
Otto, W. C., Jr. (M)
Owen, H. W. (M)
Page, C. H. (F)
Palasky, E. C. (M)
Parker, M. J. (SM)
Parks, J. N. (A)
Paul, A. W. (M)
Pear, C. B., Jr. (SM)
Perlitte, J. L. (M)
Perry, D. W. (A)
Pfeiffer, W. A. (M)
Phelps, R. W. (M)
Pieck, H. (M)
Pinckernell, H. (M)
Pincus, S. (M)
Plotkin, G. N. (M)
Pollow, C. H. (M)
Poritzky, S. B. (M)
Poswiatowski, W. C., III. (A)
Preisman, A. (F)
Prentiss, S. R. (M)
Prihar, Z. (SM)
Proudley, R. E. (A)
Prugh, T. A. (SM)
Pryor, C. N. (M)
Pugh, M. E. (M)
Puorro, T. A. (M)
Puro, W. O. (SM)
Quaklinbush, D. N. (A)
Quick, G. R. (M)
Randolph, J. P., Jr. (SM)
Rappaport, G. (F)
Rattner, S. (SM)
Ray, H. A., Jr. (SM)
Reagen, E. J. (M)
Redden, M. S., Jr. (M)
Reed, H. Z. (M)
Regnier, R. C. (A)
Rice, L. W. (M)
Robertson, T. M. (SM)
Robinson, R. O. (SM)
Rochelle, R. W. (M)
Rogers, A. L. (A)
Rolinski, A. J. (M)
Rosen, S. B. (M)
Rosenhaft, M. (A)
Ross, J. A. (A)
Ross, R. R. (M)
Rotkin, I. (SM)
Rowland, R. W. (M)
Rozanski, R. R. A. (M)
Rueger, L. J. (SM)
Sanders, H. C. (A)
Sanker, B. (M)
Sasse, J. (M)
Schmidt, B. H. (M)
Schneider, S. S. (SM)
Schoen, S. J. (M)
Schreiber, M. A. (SM)
Schroeder, A. J. (A)
Schuchard, E. A. (M)
Schuhardt, W. F. (M)
Schulman, J. R. (M)
Scilllian, G. L. (SM)
Scott, J. (M)
Scott, R. J. (SM)
Seaton, J. W. (M)
Segal, R. L. (M)
Shelby, P. F. (A)
Shade, K. E. (A)
Shapiro, G. (F)
Shaw, H. F. (M)
Sheppard, T. W. (M)
Shuck, L. G., II. (A)
Silver, S. H. (M)
Silverman, H. M. (M)
Silverman, S. (SM)
Silverstein, A. (M)
Simmons, G. C. (M)
Simms, A. (A)
Simon, A. (M)
Simons, D. E. (SM)
Sloan, R. F. (M)
Small, H. (M)
Smith, C. B. (M)
Smith, D. D. (SM)
Smith, J. V. (A)
Smith, L. G., Jr. (M)
Smith, R. A. (M)
Smith, W. J. (M)
Smollett, R. J. (M)
Smyth, R. A. (M)
Snow, C. E. (M)
Snyder, S. S. (SM)
Soler, A. (M)
Solow, M. (M)
Soroko, S. R. (M)
Sparks, M. M. (A)
Sparks, R. A. (M)
Spencer, N. W. (SM)
Spenser, C. W. (M)
Spetner, L. M. (SM)
Spicer, W. H., Jr. (M)
Spool, J. (M)
Staake, D. B. (SM)
Stamell, R. A. (A)
Stanton, O. J. (SM)
Stein, M. (M)
Stelter, L. R. (M)
Stott, W. T. (M)
Strasser, T. J. (M)
Street, H. W. L. (A)
Sullivan, J. J. (M)
Tate, R. T. (M)
Taylor, R. E. (SM)
Taylor, W. O. (M)
Terrell, R. L. (M)
Thews, R. F. (M)
Thompson, J. A. (M)
Thompson, R. E. (A)
Thompson, T. (M)
Toense, E. R. (A)
Toense, R. A., Jr. (M)
Torpy, D. J. (M)
Toth, E. (F)
Treoldes, A. C. (SM)
Unkenholz, W. C. (M)
Upchurch, L. M., Jr. (M)
Van Brunt, F. (M)
Vann, W. L. (M)
Varhus, H. H. (M)
Vest, S. E. (M)
Vilas, E. T. (M)
Vislocky, J. (M)
Vouch, S. D. (M)
Wainwright, R. A. (M)
Wales, R. O. (M)
Walsh, G. W. (M)
Walters, F. M., III. (M)
Walters, L. R., Jr. (M)
Warburton, C. F., Jr. (M)
Warren, S. M. (M)
Watson, R. D. (SM)
Wears, L. R. (A)
Webster, K. R. (M)
Welchbrod, J. (SM)
Weinstein, M. S. (M)
Weiser, S. (A)
Weitzel, R. L. (M)
Westerfield, E. E. (M)
Wetmore, G. B. (M)
Wheelock, R. H. (M)
White, A. C. (M)
White, N. (SM)
White, P. E. P. (M)
Whiting, D. F., Jr. (A)
Willard, J. M. (M)
Williams, E. M. (SM)
Williams, V. L. (M)
Williams, W. E., Jr. (SM)
Willis, F., Jr. (SM)
Wilson, F. C. (A)

Witow, M. I. (M)
Witte, J. J. (M)
Wolff, J. J., Jr. (M)
Woodhull, J. H. (M)
Worsley, C. C. (A)
Worsley, G. (SM)
Wyman, R. C. (M)
Yates, W. A. (SM)
Yeager, J. (M)
Yost, C. F. (M)
Young, J. D. (SM)

Simpsonville (BAL-3)
Bartlett, O. H., Jr. (M)
Fadden, B. J. (M)
Morris, G. T. (M)
Rhue, R. M. (M)
Worden, H. W. (M)

Sparks (BAL-3)
Macnichol, E. F., Jr. (M)

Spencerville (W-DC-3)
Smith, W. L. (SM)

Springfield (W-DC-3)
Doyle, E. M. (M)

Suitland (W-DC-3)
Chapdelaine, A. J. (A)
Jemielity, H. F. (M)
McKee, W. S., Jr. (M)
Veurink, W. J. (M)

Temple Hills (W-DC-3)
McClannan, Q. B. (M)

Timonium (BAL-3)
Baker, D. A. (M)
Barbour, C. W., Jr. (SM)
Barnett, M. L. (M)
Beste, F. J., Jr. (M)
Brockway, A. L., Jr. (M)
Brown, W. R., Jr. (M)
Christensen, H. (M)
Cohn, M. (M)
Colvin, J. W. (M)
Davison, F. A. (M)
Dawson, S. R. (SM)
Diersing, C. B., Jr. (M)
Duquet, E. A. (M)
Faber, D. C. (M)
Franz, W. J. (M)
Fuller, W. C., Jr. (M)
Garrison, C. P., Jr. (M)
Gay, G. S. (SM)
Green, N. (M)
Greenhouse, H. M. (M)
Hatcher, J. H. (M)
Henck, E. D. (M)
Hendershot, J. H. (M)
Hoffmanner, G. H. (M)
Jensen, J. (M)
Jones, W. R. (A)
Jory, W. H. (M)
Karpinski, A. L. (M)
King, D. D. (F)
Lee, R. A. (M)
Levatich, J. L. (M)
MacGlashan, D. W. (M)
Madren, P. L., Jr. (M)
Martin, J. W. (M)
Maurer, D. S. (M)
McClay, W. C. (M)
Mills, L. R., Jr. (M)
Mitchell, D. L. (A)
Monaco, M. (M)
Neel, L. L. (M)
Neuberth, J. G. (M)
Novak, A. J. W. (M)
Packard, R. F. (M)
Parr, E. D. (M)
Petrou, N. V. (SM)
Redifer, J. L. (M)
Rice, C. I. (SM)
Roode, R. J. (A)
Schaefer, R. A. (M)
Scherbarth, R. A. (M)
Shelor, E. G., Jr. (M)
Skolnik, M. I. (SM)
Smeltzer, R. F. (A)
Spencer, R. C. (F)
Stauffer, R. L. (M)
Strickroth, G. J. (SM)
Vanderlipp, R. R. (M)
Visher, W. A. (SM)
Waters, W. M. (M)
Watkins, M. C. (M)
Wedel, J. O., Jr. (A)
Wiltse, J. C., Jr. (SM)
Zahalka, L. B. (SM)
Zutkoff, A. I. (M)

Towson (BAL-3)
Andrews, C. L. (M)
Barclay, A. S. (M)
Barnes, A. E. (M)
Barnhill, R. B. (M)
Barrans, D. R. (M)
Bauer, R. J. (M)
Beachler, L. W. (M)
Best, J. H. (SM)
Betsill, H. E. (M)
Bittman, L. R. (M)
Boundy, G. C. (A)
Brugger, R. D. (M)
Bulik, C. (M)
Campbell, W. O. (SM)
Chiarenza, P. P. (M)
Chrisman, D. W. (SM)
Clark, M. C. (M)
Clevenger, G. W. (M)
Conklin, W. S. (M)
Cope, R. W. (M)
Cosby, J. R. (M)
Darnall, E. B. (M)
Davis, L. W. (M)
Eaton, T. T. (SM)
Edwards, R. B. (M)
Esher, J. R., Jr. (SM)
Fales, D., III (M)
Gebhardt, R. C. (M)
Geist, J. F. (M)
Gibson, R. L. (A)
Graffis, L. F. (SM)
Gruenberger, H. S. (M)
Hall, H. S. (M)
Hammel, A. E. (M)
Hammond, J. W. (SM)
Hatfield, G. I. (M)
Hauck, V. D. (SM)
Hawley, J. V. (M)
Henthorn, J. E. (SM)
Hoffman, P. A. (SM)
Hollis, T. W., Jr. (M)
Houck, J. W. (A)
Houck, J. W., Jr. (A)
Hulce, R. L. (M)
Ishman, N. H. (M)
Johnson, C. M. (SM)
Johnson, G. N. (M)
Jones, W. M. (A)
Kaltenbacher, D. M. (M)
Killion, R. H. (SM)
Kirner, E. O. (SM)
Kittel, R. P. (SM)
Kwiatkowski, S. W. (A)
Lancioni, P. (M)
Laning, W. A. (M)
Larkins, E. B. (M)
Lillibridge, J. R., Jr. (M)
Lindenthal, M. W. (A)
Manry, E. W., Jr. (M)
McDade, J. G. (A)
McEntyre, D. E. (M)
Meador, A. B., Jr. (M)
Miller, L. A. (M)
Misenheimer, J. E. (M)
Monroe, K. E. (M)
O'Meara, W. J. (M)
Petersen, D. R. (SM)
Phalen, F. W. (M)
Pickens, R. A. (M)
Piper, M. H. (M)
Pratt, A. (SM)
Purinton, H. G. (M)
Randolph, G. W. (M)
Riggs, R. N. (SM)
Robinson, D. C. (M)
Ruth, J. K. (M)
Ryman, H. G. (M)
Scheiner, S. R. (SM)
Schell, E. L., Jr. (M)
Schunemann, C. F. (SM)
Seach, R. L. (M)
Shapena, J. L., Jr. (M)
Shepherd, R. T. (M)
Shuppert, G. W. (M)
Silbert, W. C. (M)
Sinclair, A. L., III (M)
Slavin, M. (M)
Soares, S. (M)
Stephenson, J. O. (M)
Stiddard, H. R. (A)
Sudia, A. T. (M)
Swartz, J. A. (M)
Talaat, M. E. (A)
Taylor, J. H. (SM)
Thomas, C. E., Jr. (M)
Thomas, R. K. (SM)
Tribble, K. E. (M)
Vana, C. J. (M)
Vergara, W. C. (SM)
Vinson, R. R. (M)
Wagner, C. (M)
Walter, G. M. (SM)
Watson, T. E. (M)
Weaver, R. C., Jr. (M)
White, G. R. (SM)
Whitney, M. E. (SM)
Wilkinson, R. L. (A)
Wulff, L. H. (A)
Yates, L. R. (M)

University Park (W-DC-3)
Burke, J. K. (M)
Coker, R. H. (M)
Hartnett, L. M. (M)
Prival, H. G. (M)

Valley Lee (W-DC-3)
Gardner, J. C. (M)

Walkersville (W-DC-3)
Carstensen, E. L. (SM)

Washington Grove (W-DC-3)
Howard, R. G. (M)

West Hyattsville (W-DC-3)
Almquist, J. F. (A)
Berman, M. (M)
Bitz, E. A. (M)
Elakman, H. (M)
Ferrara, A. A. (A)
Fink, W. G. (M)
Haydon, R. E. (SM)
Headrick, W. C. (M)
Johnson, P. T. (M)
Kessler, S. (M)
Khu, E. B. C. (M)
La Pointe, J. C. (SM)
Larson, J. V. (M)
Lefkov, S. (SM)
Mah, T. F. (A)
Marzetta, L. A. (M)
Mitchell, G. S. (M)
Queen, W. E. (M)
Quiolev, C. E. (M)
Sacks, J. (SM)
Stegeda, C. A. (M)
Wolff, E. A. (M)
Zemoolich, B. A. (M)

Westminster (BAL-3)
Holmes, T. R. (A)
Lang, A. L. (A)
Morgan, R. H. (M)

West Severna Park (BAL-3)
Cowan, K. D. (A)
Heazel, V. M., Jr. (M)
Milberger, W. E. (M)
Pincoffs, P. H. (M)
Ragot, R. L. (M)

Wheaton (W-DC-3)
Brewer, J. T. (M)
Cook, T. B. (M)
Cottrell, J. E., Jr. (M)
Doctor, N. J. (M)
Elbell, T. K. (A)
Fowlkes, J. C. (M)
Frederick, C. L., Jr. (A)
Gragnani, O. J. (M)
Grine, J. G. (M)
Hruby, M. M. (M)
Huber, R. C. (M)
La Fever, R. C. (A)
Leokowski, M. J. (A)
Luff, F. T. (M)
Marks, M. M. (SM)
Malcan, J. F. (A)
Moseley, J. C., Jr. (M)
Patton, R. E. (M)
Petes, J. (M)
Snow, R. F. (A)
Thomoson, D. M. (M)
Van Hoesen, R. W. (A)

White Hall (BAL-3)
Rakoske, D. T. (M)

White Marsh (BAL-3)
Francis, J. P. (A)
Schultz, R. L. (A)
Wintle, M. R., Jr. (M)

Williamsport (W-DC-3)
Britner, R. O., Jr. (M)

MASSACHUSETTS

Abington (BOS-1)
Macnell, J. D. (A)
Murphy, P. V. (M)
Pihl, G. E. (SM)

Acton (BOS-1)
Casey, R. F. (A)
Herskovitz, S. B. (M)
Matheson, A. I. (M)
Meldrum, L. W. (A)
Micelli, A. R. (M)
Moritz, C. (M)
Nuttall, A. H. (M)
Packard, L. E. (F)
Searle, R. W. (A)
Sletten, C. J. (M)
Smith, B., Jr. (SM)
Walsh, W. P. (M)
Warriner, B. (SM)
Williams, R. F. (M)
Young, B. L. (M)

Adams (WM-1)
Kordana, E. A. (M)
Lee, L. T. (A)
Starsiak, R. S. (A)
Zabawa, E. P. (A)

Agawam (BOS-1)
Metcalf, W. C. (M)

Allston (BOS-1)
Allen, D. F. (M)
Beck, L. A. (M)
Curtiss, W. P. (M)
Finkelstein, A. B. (M)
Gordon, E. N. (M)
Hayes, C. J. (A)
Johnson, A. J. (A)
Schwartz, C. J. (M)
Webb, E. L., Jr. (A)

Amesbury (B-MV-1)
Hambleton, P. N. (SM)
Richardson, R. J. (M)

Amherst (WM-1)
Agarwal, P. D. (SM)
Herchenroder, H. (M)
Laestadius, J. E. (M)
Langford, J. W., Jr. (M)

Andover (B-MV-1)
Buck, R. E. (M)
Clark, O. (SM)
De Bolt, H. E. (M)
Demrow, R. I. (M)
Denault, D. R. (M)
Elowe, E. N. (M)
Fadden, J. J. (M)
Finley, A. D. (M)
Fruendt, H. H. W. (SM)
Garfield, D. R. (SM)
Gearin, J. H. (M)
Gregory, N. (M)
Harley, J. B. (SM)
Heislein, J. T. (M)
Hensel, W. G. (SM)
Jordan, D. R. (M)
Kent, R. L. (M)
King, R. T. (A)
King, R. A. (M)
Koch, A. A. (M)
McMillan, J. D. (M)
McParland, F. H. (A)
Merritt, L. P. (M)
Michelini, R. D. (M)
Monks, G. G., Jr. (A)
Nichols, R. R. (A)
O'Donnell, G. H. R. (M)
Packard, L. F. (A)
Pardovich, J. T. (M)
Pelc, J. D. (M)
Poulin, D. J. (M)
Renick, R. C. (SM)
Roch, M. E. (M)
Roediger, F. E. (SM)
Salvo, R. A. (M)
Springall, T. L. (M)
Swain, R. G. (M)
Terranova, D. S. (M)
Turner, V. D. (M)
White, E. F. (A)
White, J. R. (SM)
Williams, R. P. (M)
Wilson, R. S. (M)
Word, J. A. (SM)
Yeiter, M. R. (M)

Arlington (BOS-1)
Abell, G. R. (M)
Aries, B., Jr. (M)
Argue, B. R. (M)
Astulfi, S. O. (A)
Babcock, J. H. (M)
Bacchialoni, F. L. (M)
Bachman, W. S., Jr. (M)
Barrie, T. H. (M)
Bartell, W. W. (M)
Bartz, C. T. (M)
Ben-or, Y. (M)
Bogart, R. M. (M)
Bunck, W. P. (M)
Campbell, D. J. (A)
Carr, R. C. (A)
Castelli, J. P. (M)
Cauchon, F. B. (M)
Chang, S. H. (SM)
Chisholm, V. T. (M)
Clarke, J. M. (M)
Cole, B. R. (M)
Collins, W. E. (M)
Constantine, G., Jr. (M)
Cosman, B. J. (M)
Cox, G. C. (M)
Danehy, R. T. (M)
Davidson, G. A. (M)
Davis, J. S. (M)
Delaney, W. P. (M)
De Lisle, J. E. (M)
Dibiase, V. L. (M)
Elbert, J. D. (M)
Erwin, R. L., Jr. (M)
Farnstrom, D. D. (A)
Forgie, J. W. (M)
Fujimoto, G. M. (M)
Gano, J. J. (SM)
Glinka, L. R. (M)
Graham, E. A., Jr. (M)
Graham, J. W. (M)
Gronberg, F. T. (M)
Gustaff, A. J. (M)
Hagen, K. E. (M)
Haire, P. F. (M)
Hansen, J. T. (M)
Harmer, J. D. (SM)
Hathaway, F. R., Jr. (A)
Hawkins, R. S. (M)
Heier, L. D. (M)
Hinds, J. F. (M)
Hinds, W. C., Jr. (M)
Hofmann, E. J. (A)
Hofstetter, E. M. (M)
Hunt, J. A. (M)
Jacobs, I. M. (M)
Jarvis, A. B. (M)
Jude, R. L. (A)
Kelly, J. A. (M)
Kenweis, N. P. (SM)
Kiesling, P. W., Jr. (M)
Knight, H. M. (M)
Kyropoulos, L. (M)
Laughlin, M. J. (M)
Lin, C. (M)
Long, W. H. (M)
Magee, H. (M)
McCabe, H. P. (M)
McCann, J. F. (A)
McFarlane, R. A. (M)
Mills, A. L., Jr. (M)
Morman, K. F. (M)
Myers, E. N. (M)
Panosian, A. H. (M)
Pasho, L. I. (M)
Perry, K. E. (A)
Peterson, D. G. (M)
Pierce, J. A. (F)
Pine, E. (SM)
Plotts, E. L. (SM)
Ploussios, G. (M)
Pothier, R. J. (M)
Regnier, L. A. (M)
Sabo, J. D. (M)
Sanchez, A. A. (M)
Sauber, J. W. (SM)
Schoenberger, W. J. (SM)
Schwepoe, F. C. (M)
Segelstrom, C. V., Jr. (A)
Shannon, J. R. (A)
Shenk, E. K. (M)
Sheridan, W. F. (A)
Sklar, J. R. (M)
Soron, H. I. (M)
Stephenson, L. (M)
Sulahian, H. S. (M)
Sussenguth, E. H., Jr. (M)
Sylvia, T. R. (M)
Tassinari, S. P. (M)
Theiss, C. M. (M)
Tilton, C. S. (SM)
Trunfio, A. P. (M)
Von Recklinghausen, D. R. (SM)
Wagner, C. A. (M)
Warren, R. M. (A)
Watson, P. C. (M)
White, W. L. (M)
Woodin, E. A. (A)
Zantos, N. G. (M)

Arlington Heights (BOS-1)
Lamson, H. W. (F)

Ashby (BOS-1)
Coleman, D. L., Jr. (M)
Dallin, E. B. (SM)

Ashland (BOS-1)
Beck, L. C. (A)
Buiting, F. P. (M)
Clark, L. F., Jr. (M)
Cook, W. J. (M)
Deluski, E. F. (M)
Dickens, S. S. (M)
Feather, J. E. (M)
Greene, P. B. (M)
McConville, W. B. (A)
Mercer, C. D., Jr (M)
Micheli, A. P. (A)
Pathe, J. F. (SM)
Prager, M. (M)
Russett, J. T. (SM)
Sonnabend, J. S. (M)
Spellos, J. S., Jr. (M)
Temple, A. H. (M)
Weiss, E. A. (M)

Attleboro (BOS-1)
Athanas, D. (M)
Boulanger, H. J. (M)
Flanagan, C. D. (M)
Hemminger, D. H. (M)
Logan, C. A. (M)
Obenhaus, R. E. (M)
Puleston, R. B. (A)
Vetter, E. O. (M)

Attleboro Falls (BOS-1)
Gillespie, R. J. (M)

Auburn (BOS-1)
Beschle, R. G. (M)
La Brie, R. H. (M)

Auburndale (BOS-1)
Finneran, W. J. (M)
Freudberg, R. L. (M)
Harper, S. D. (SM)
Holst, W. F. (M)
Ingalls, R. P. (M)
Janis, P. (SM)
McSheffrey, R. P. (M)
Merrill, B. (M)
Munroe, W. T. (M)
Okurowski, F. A. (M)
Ryan, C. E. (M)
Talambiras, R. P. (M)

Avon (BOS-1)
Hourihan, A. M. (M)
Ronis, W. J. (M)

Babson Park (BOS-1)
Riblet, H. J. (F)
Vacha, F. (M)

Ballardvale (B-MV-1)
Bolger, A. E. (A)
Zink, A. J., Jr. (SM)

Becket (WM-1)
Uhlig, E. R. (SM)

Bedford (BOS-1)
Adair, R. P., Jr. (M)
Alexander, R. M. (M)
Altenbach, R. K. (M)
Anderson, E. E. (M)
Andrews, C. P., Jr. (M)
Angus, R. B., Jr. (SM)
Arsenault, J. R. (M)
Ashenfelter, T. E. (M)
Baillie, A. J. (M)
Baker, A. L. (M)
Baker, R. H. (M)
Band, H. E. (SM)
Barker, H. R., Jr. (M)
Barrett, R. M. (M)
Beaublen, D. J. (M)
Bennett, G. E. (M)
Bishop, W. B. (M)

Black, M. D. (M)
Blum, H. (SM)
Brindley, W. E. (M)
Brooks, R. O. (M)
Brown, D. M. (M)
Brown, J. B. (M)
Brown, J. H. (M)
Brown, R. B., III (M)
Buck, D. B. (M)
Burbo, J. H. (M)
Campbell, B. D. (M)
Cantafio, L. J. (A)
Carty, W. J. (M)
Cazen, E. B. (M)

Carpenter, R. D. (M)
Carr, K. L. (M)
Claflin, R. E., Jr. (M)
Clark, E. W. (A)
Congdon, W. H. (SM)
Connors, T. L. (M)
Covington, W. O. (M)
Crandell, P. A. (SM)
Despathy, R. G. (M)
Devine, F. J. (M)
Donovan, C. (M)
Drew, D. B. (A)
Duncan, R. D. P. (M)
Dym, H. (M)
Earsy, R. M. (M)
Edson, W. F., Jr. (M)
Edwards, P. G. (F)
Emrick, B. S. (M)
Fabijan, F. M. (A)
Fajkowski, S. J. (M)
Fernald, R. A. (M)
Ferri, A. J., Jr. (M)
Fischer, H. L. (M)
Fisher, J. E. (A)
Fricks, R. E. (M)
Friedman, M. (M)
Gentuso, E. J. (M)
Gianino, P. D. (M)
Gicca, F. A. (M)
Gilmore, J. T., Jr. (M)
Gindsberg, J. (SM)
Goldberg, S. H. (M)
Green, E. H. (M)
Halligan, C. W. (SM)
Hammond, G. H. (SM)
Hanks, E. C., Jr. (M)
Harrington, C. F., Jr. (M)
Harvey, W. M., Jr. (M)
Harwood, A. (M)
Hawes, A. R. (SM)
Healy, B. H. (A)
Heart, F. E. (M)
Heckscher, J. L. (M)
Heroet, R. M. (M)
Hicks, W. J. (M)
Hinckley, K. M. (M)
Holtzman, I. D. (M)
Ingrao, H. C. (M)
Jeffery, L. R. (A)
Johnson, J. D. (M)
Johnson, P. C. (M)
Jones, G. C. (M)
Jones, H. E., Jr. (M)
Jurgielewicz, S. S. (A)
Kimball, J. A. (M)
Klein, G. A. (M)
Klobuchar, J. A. (M)
Konkle, K. H. (M)
Kramer, A. T. (M)
Krijnen, T. M. G. (M)
Leonard, F. J. (M)
Liske, D. W. (M)
Lovell, R. W. (M)
Lyon, H. A. (M)
Maier, G. H. (A)
Manasse, R. (M)
Mark, R. B. (A)
Marshall, R. C. (M)
Mayer, R. P. (M)
McCurley, E. P. (M)
McGowan, J. E. (M)
McMurtrie, D. L. (SM)
Morgan, T. J. (M)
Morin, J. O. (M)
Mudgett, W. L. (M)
Muller, E. S., Jr. (M)
Nagy, F., Jr. (M)
Neuman, D. D. (M)
Nixon, D. S., Jr. (M)
Oliverio, A. D. (M)
Orange, A. S. (M)
Owen, P. H. (M)
Passera, A. L. (M)
Perkins, J. F., Jr. (M)
Perry, B. A. (SM)
Plunk, T. E. (M)
Pomponi, S. J. (M)
Popolo, J. V. (M)
Procunier, R. W. (M)
Pulliam, S. B. (M)
Rand, J. C. (A)
Rasmussen, J. E. (M)
Raymond, H. G. (M)
Rey, T. J. (SM)
Rising, H. K. (M)
Rizzi, W. J. (M)
Robinson, M. P., Jr. (M)
Rodman, A. K. (M)
Rolff, R. K. (A)
Romano, A. (A)
Russell, C. C. (M)
Sauer, H. S. (M)
Schenk, P. J. (SM)
Sebasky, G. M. (M)
Selser, E. C. (M)
Sen, H. K. (SM)

Shapiro, M. L. (M)
Sherburne, A. E. (M)
Stevens, W. E. (M)
Smith, C. L. (SM)
Smith, W. C. (M)
Sonnenblick, P. (M)
Spiegel, J. (M)
Stees, H. S., Jr. (A)
Stevens, R. T. (SM)
Swanson, D. W. (M)
Sykes, C. A. (M)
Tetley, W. H. (M)
Thomson, W. M. (M)
Thornton, D. P. (M)
Thresher, W. E. (M)
Tkacz, A. (M)
Vail, W. A. (M)
Vance, W. H., Jr. (M)
Van Horn, J. W. (M)
Varley, H. W. (M)
Videberg, J. I. (SM)
Vitkus, P. L. (M)
Ward, J. H. R., III (A)
Warner, E. R. R. (M)
White, J. F. (M)
Wilkes, H. A. (M)
Wong, M. S. (SM)
Woodruff, M. W. (M)
Wulfsberg, K. N. (M)

Belmont (BOS-1)
Adler, E. (M)
Albert, B. (M)
Barry, J. G. (SM)
Bartlett, R. P. (M)
Bjork, A. P. (M)
Bolinder, E. F. (SM)
Brown, E. W., Jr. (M)
Brown, R. M. (M)
Cairns, J. J., Jr. (M)
Chan, M. C. H. (M)
Chatterton, E., Jr. (M)
Cox, W. W. (M)
Crosby, R. C. (M)
Cullington, E. H. (M)
Davidson, D. (M)
Deuitch, D. E. (M)
Dolbear, B. L. (SM)
Dudley, B. (SM)
Freed, C. (M)
Gianoukos, W. A. (M)
Gram, H. R., Jr. (M)
Gray, H. L. (A)
Hamburgen, A. (M)
Handy, R. A. (M)
Helgesson, A. L. (M)
Hellenbrand, C. M. (M)
Hildebrand, J. G., Jr. (M)
Hobbs, J. D. (SM)
Hunt, F. V. (F)
Jacob, F. (M)
Kellogg, W. C. (M)
Klein, J. A. (M)
Klemperer, H. (A)
Kohler, H. M. (M)
Kondi, S. E. (M)
Lamond, P. R. (M)
Lawson, J. S., Jr. (SM)
L'Ecuyer, J. J. (A)
Levison, W. H. (M)
Looney, W. P. (A)
Lovenstein, A. J. (SM)
Macrakis, M. S. (A)
Mercer, W. R. (SM)
Morton, L., Jr. (M)
Navipour, W. A. (M)
Nesline, F. W., Jr. (M)
O'Day, M. D. (M)
Peters, A. T. (A)
Randa, G. C. (M)
Reed, J. (SM)
Reintjes, J. F. (SM)
Restaino, A. D. (M)
Richardson, A. S. (M)
Richmond, M. R. (M)
Rines, R. H. (SM)
Ringer, M. (M)
Robinson, J. (M)
Rubin, D. K. (M)
Saulnier, J. E. (M)
Saunders, A. C. W. (M)
Seaver, W. H. (M)
Sheldon, D. L. (M)
Smith, F. P. (M)
Stein, J. (A)
Stephenson, B. W. (A)
Stevens, K. N. (M)
Taber, R. N. (M)
Taft, W. C. (M)
Toman, K. (M)
Travia, J. S. (M)
Wagner, R. W. (M)
Woodward, R. H. (M)

Berkshire (WM-1)
Lord, R. W. (M)

Berlin (BOS-1)
Krackhardt, R. H. (A)

Bernardston (WM-1)
Cairns, H. E. (M)

Beverly (B-MV-1)
Barton, L. F. (M)
Biggs, O. H. (M)
Broderick, D. C. (M)
Brown, N. J. (M)
Buset, K. (M)
Camenzind, H. R. (M)
Carbrey, E. J., Jr. (M)

Caskin, D. D. (A)
Dillaby, E. F. (SM)
Dodds, W. (F)
Drew, L. C. (M)
Finneault, W. I. (M)
Foss, D. W. (M)
Galluzzi, N. P. (M)
Ghen, W. R. (M)
Godfrey, W. R. (M)
Gsteiger, K. E. (M)
Hangstefer, J. B. (M)
Juhola, C. (SM)
Kraeuter, L. D. (M)
Krinsky, B. D. (M)
Lesch, F. A. (M)
McCarthy, H. J. (SM)
Norwood, R. D. (M)
O'Brien, C. A. (M)
Peckover, P. A. (M)
Perron, R. R. (M)
Pierce, D. H. (M)
Ploss, A. G. (M)
Prescott, G. A. (A)
Preston, A. C. (M)
Rudenberg, H. G. (SM)
Safran, L. (M)

Billerica (BOS-1)
Auger, E. P. (M)
Chamley, E. (A)
Dion, A. (M)
Dixon, L. H., Jr. (M)
Higgins, W. T. (M)
Hogan, W. D. (M)
Murray, R. B. (M)
Nickless, H. C. (A)
Norviel, H. D. (SM)
Ochs, L. E. (M)
Slenker, S. (M)
Wagner, P. E. (A)
Wells, C. R., Jr. (SM)
Williamson, R. S. (M)

Bolton (BOS-1)
Mechlin, R. N. (M)
Slade, C. B. (M)
Wilson, H. M. (SM)

Boston (BOS-1)
Albersheim, W. J. (F)
Alexander, C. S., Jr. (M)
Alford, A. (F)
Allen, T. E. (SM)
Anastos, E. G. J. (M)
Anns, A. C. (M)
Bailey, R. B. (A)
Baird, H. S. (A)
Ball, G. F. (M)
Bardfield, M. L. (M)
Barre, S. A. (M)
Baruch, A. L. (M)
Bean, W. S. (M)
Belvin, F. (M)
Berg, N. E. (M)
Berman, J. (M)
Blanchard, B. E. (M)
Blitz, D. (M)
Bordewieck, R. W. (A)
Bosler, R. B. (A)
Brettler, B. J. (M)
Byck, D. M. (M)
Capobianco, R. A. (M)
Carpenter, R. O'B. (M)
Chandler, C. H. (SM)
Chopra, A. (A)
Christian, J. W., Jr. (M)
Christo, V. S. (A)
Daponte, K. J. (A)
Darsch, C. G., Jr. (M)
Dewing, J. B. (A)
De Wolf, N. (M)
Diamond, B. L. (M)
Didriksen, C. H., Jr. (A)
Doane, R. C. (A)
Doesschate, W. J., Jr. (M)
Doman, D. B. (M)
Dougherty, J. D. (A)
Dunn, A. G. (M)
Eaton, L. G. (M)
Edelstein, M. M. (M)
Edie, J. L. (M)
Erlman, W. M. (M)
Essigmann, M. W. (SM)
Evans, R. R. (M)
Fenter, W. S. (A)
Fernandez, L. E. (A)
Filippi, C. A. (M)
Finke, H. A. (M)
Friedman, M. S. (A)
Furth, D. R. (A)
George, G. F. (M)
Germeshausen, K. J. (SM)
Gibbon, H. T. (M)
Goldberg, H. B. (M)
Goldsmith, B. P. (M)
Grabka, G. J. (M)
Green, B. (M)
Greenberg, E. L. (M)
Grossimon, H. P. (M)
Grumman, G. S. (A)
Gunders, E. (M)
Guterman, S. S. (SM)
Haberstroh, A. (SM)
Hagopian, N. D. (M)
Hall, A. H. (M)
Hallenstein, N. A. (M)
Hamilton, S. R. (M)
Hetherington, J. S. (M)
Hleken, C. (M)
Hillier, J. A., III (A)

Hinchey, F. A. (M)
Hobson, J. E. (F)
Horlick, P. H. (M)
Hughes, A. M. (M)
Indreko, O. (M)
Jako, G. J. (A)
Johnson, C. I. (M)
Jones, R. E. (SM)
Jorrens, P. P. (M)
Kain, R. Y. (M)
Kaminski, W. A. (M)
Kantor, G. (M)
Kaszynski, E. A. (M)
Kearsley, W. A. (M)
Kelner, R. C. (A)
Kerk, C. T. (M)
Kim, Y. S. (M)
Klein, R. D. (M)
Kliman, G. B. (M)
Kostecki, W. (M)
Ladd, R. E. (M)
Lambropoulos, D. (M)
Landers, R. L. (A)
Lee, S. W. (M)
Levine, A. I. (A)
Levine, S. A. (A)
Lewis, G. A. (M)
Li, H. Y. (A)
Litman, A. (M)
Littleboy, H. S. (SM)
Loewenthal, M. (M)
Lutz, M. W. (M)
Maguire, H. T. (A)
Malm, R. F. (M)
Mark, D. H. (A)
McKendree, J. D. (M)
Meltzer, M. I. (M)
Metro, A. C. (M)
Moizeau, C. J. (A)
Montemayor, J. U. (M)
Morgan, M. M. (A)
Mukherjee, S. (M)
Murachver, J. (M)
Murphy, J. A. (M)
Myers, J. M. (M)
Nay, J. N. (M)
Nortman, J. J. (M)
Offner, M. M. Y. (M)
O'Keefe, B. J. (SM)
Palmer, R. T. (M)
Perron, R. T. (M)
Pfund, C. E. (M)
Phinney, S. E. (A)
Poppert, P. E. (M)
Poveda, H. (A)
Price, C. H., Jr. (M)
Ramler, D. A. (A)
Randall, D. S. (A)
Resker, R. C. (M)
Rhodes, J. S. (M)
Richmond, J. R. (A)
Rigby, S. (M)
Rines, D. (M)
Rivers, R. A. (M)
Roberts, L. W. (SM)
Roche, C. E. (M)
Russell, J. B. (M)
Schenck, J. (M)
Schindler, J. A. (A)
Schochet, J. R. (A)
Schwartz, S. (SM)
Scott, R. E. (M)
Seltz, J. J. (A)
Seville, A. R. (M)
Shoreman, A. (M)
Shortell, A. V., Jr. (M)
Siegel, R. C. (M)
Smith, A. D. (M)
Smith, T. B. (M)
Soule, W. J. (M)
Stack, E. J. (A)
Stone, S. G. (A)
Stuart, R. D. (SM)
Stubelis, S. J. (M)
Toperzer, R. S. (M)
Troxel, D. E. (M)
Verzuh, F. M. (M)
Wagner, P. S. (M)
Wayne, G. H. (SM)
Weingarten, J. (M)
Wilson, G. M. (A)
Winn, H. L. (M)
Winston, A. W. (M)
Woodward, C. E. (M)
Wozencraft, J. M. (SM)
Yee, W. F. (M)
Zeldes, P. (M)
Zicko, C. (M)
Zraket, C. A. (SM)

Boxford (BOS-1)
Anderson, A. F. (M)
Fulton, R. O. (M)
Gagnon, R. L. (M)
Kuczun, C. G. (M)

Boylston (BOS-1)
Lavallee, L. R. (M)

Bradford (BOS-1)
Apitz, J. M. (A)

Braintree (BOS-1)
Brennan, J. E. (M)
Fey, W. R. (M)
Gorsuch, W. F. (M)
Hollstein, C. P., Jr. (M)
Loomis, G. L. (SM)
Murphy, A. L. (M)
Myrbeck, E. R. (SM)

St. Andre, G. O. (M)
Tsao, C. K. H. (M)

Brant Rock (BOS-1)
Downing, J. T. (M)

Bridgewater (BOS-1)
Mouradian, K. W. (A)
Wilber, L. C. (M)

Brighton (BOS-1)
Baker, H. R. (M)
Ballantine, J. H. (M)
Berger, H. A. (M)
Brandt, P. W. (M)
Chen, W. W. (A)
Cohen, J. J. (M)
Culhane, L. G. (M)
Demeo, R. P. (M)
Desmond, W. C., Jr. (M)
Forys, E. L. (M)
Globus, L. A. (M)
Hanopol, L. (M)
Hayes, J. F. (M)
Huggan, A. J. (M)
Kahn, W. M. (M)
Kaufman, L. J. (M)
Laffert, D. A. (M)
Larkin, J. D. (M)
Lebo, J. S. (M)
Lee, R. C. (M)
Leonard, T. V. (A)
MacDonald, F. D. (A)
Malizia, J. P. (M)
Margolin, M. C. (M)
Martin, F. H. (M)
Montanari, R. E. (M)
Moskowitz, F. (SM)
Romano, D. S. (SM)
Ron, A. (M)
Rotman, W. (M)
Samaras, C. A. (A)
Schwartz, R. J. (M)
Seligman, R. I. (M)
Sikoryak, W. J. (A)
Talley, W. K. (M)
Walton, G. (A)
Willis, P. A. (M)
Yu, K. N. (M)
Yurt, X. (M)

Brighton Center (BOS-1)
Kuyper, D. M. (M)

Brockton (BOS-1)
Brown, D. L. (M)
Bryant, R. L. (M)
Capozzi, A. J. (A)
Casey, A. A., Jr. (M)
Craig, A. G., Jr. (M)
Ewell, R. M., Jr. (A)
Fortier, O. V. (M)
James, P. G., Jr. (A)
Kurpis, G. P. (M)
Loughlin, B. J. (A)
Mazeiko, C. K. (M)
Price, C. W. (A)
Rousseau, A. J. (M)
Rubin, H. L. (A)
Shuck, T. L. (M)
Swanson, H. A. (M)
Uses, E. P. (M)
Ward, A. G. (M)
Wentzell, H. B. (M)

Brookline (BOS-1)
Ackerman, R. L., Jr. (M)
Andreassen, L. A. (A)
Anfenger, E. (M)
Baron, R. C. (M)
Bloom, J. H. (M)
Bow, B. H. (M)
Bromberg, N. S. (M)
Campbell, R. B., Jr. (M)
Chernikoff, L. (M)
Cohler, E. U. (SM)
Crystal, M. I. (M)
Doctor, D. E. (A)
Donnelly, R. S. (M)
Engel, A. (M)
Friedman, B. L. (M)
Grisoff, S. F. (A)
Hodgkins, D. H. (M)
Holt, R. A. (A)
Irons, F. H. (M)
Kaplan, B. J. (M)
Kaufman, L. (M)
King, J. G. (M)
Kline, D. C. (M)
Knoll, A. L. (M)
Kodis, R. D. (SM)
Lachmann, G. E. G. (M)
Larsson, R. W. (M)
Lewis, T. W. (M)
Lichtblau, N. S. (A)
Margolin, J. (M)
Margullus, H. (M)
Martin, S. J. (M)
Max, S. M. (M)
McKinnon, P. J. (M)
Mezei, J. E. (M)
Miller, A. (SM)
Miller, H. E. (M)
Mozek, G. J. (M)
Neuburger, A. (M)
Neumann, H. D. (M)
Parks, J. T. (M)
Peluso, D. J. (A)
Polayes, M. B. (A)
Proman, J. N. (A)

Reichner, A. J. (M)
Rush, M. (M)
Schwartz, J. A. (M)
Segel, H. P. (A)
Seifert, N. A. (A)
Shapiro, A. R. (M)
Shotz, N. E. (M)
Silver, R. (M)
Smith, M. K. (A)
Talmon, E. (M)
Thaler, H. A. (M)
Webber, A. L. (M)
Weiner, D. D. (M)
Weiner, M. M. (M)
Weiss, H. (M)
Young, P. T. K. (A)

Burlington (BOS-1)
Allen, J. L. (M)
Barreto, J. M. (SM)
Bellare, D. (SM)
Beust, W. (M)
Biamonte, R. L. (M)
Boudreau, J. M. (M)
Brenner, B. A. (M)
Brown, C. J. (M)
Buritz, R. S. (SM)
Carruthers, C. W. (M)
Chambers, W. C. (M)
Clougherty, J. F. (M)
Collins, J. A. (M)
Collins, R. B., Jr. (M)
Cook, C. G. (M)
Corrigan, J. P. (M)
Crabb, J. R. (A)
Cushman, G. F. (M)
Czerwonka, H. V. (A)
Damon, R. W. (SM)
Dantas, C. E. (M)
Dion, D. F. (A)
Driscoll, J. J. (A)
Eiane, B. (A)
Ellis, W. R. (M)
Favaloro, C. J. (M)
Fuller, R. L. (M)
Genett, W. F. (A)
Gerrig, E. (A)
Gibson, R. E. (M)
Gilden, M. (M)
Gill, M. S. (A)
Gould, L. (SM)
Graham, J. S. (M)
Granger, C. E. (M)
Harris, F. S. (SM)
Harris, R. G. (M)
Hearn, K. F., Jr. (M)
Hettich, R. E. (M)
Hines, M. E. (SM)
Hopkins, C. H. (A)
Jenny, J. W. (M)
Jolly, J. B. (M)
Kerins, D. J. (M)
Kidd, J. W. (A)
Lally, R. D. (M)
Lavin, H. D. (M)
Lind, J. N. (M)
Lund, R. W. (A)
MacKenzie, K. R. (M)
Mairson, T. (M)
Manglapane, R. (M)
Marino, P. F. (M)
Martin, T. H. (M)
McCarthy, J. G. (M)
McDonough, J. C. (M)
Megow, W. F. (A)
Meredith, M. (M)
Morrison, C. D. (M)
Munson, W. B. (M)
Myers, O. C., Jr. (M)
Neidorf, E. (M)
Nelson, R. A. (M)
Nevins, J. L., Jr. (M)
Nickerson, D. E. (A)
Ortmann, M. W. (M)
Pareseau, P. H. (M)
Peterson, D. E. (M)
Preston, J. L. (M)
Rajasekhar, P. S. (M)
Rasmanis, E. (A)
Reece, D. L. (A)
Rowe, A. J. (M)
Rudolph, H. W., Jr. (M)
St. John, G. E. (SM)
Sandholm, R. G. (M)
Schmidt, W. G., Jr. (M)
Schorr, M. G. (SM)
Scotney, J. H. (M)
Sferrino, V. J. (M)
Shea, P. J. (M)
Silva, C. C., Jr. (M)
Sinclair, R. R. (A)
Skinner, E. E. (SM)
Smiley, B. E. (A)
Smith, W. A., Jr. (SM)
Smyth, R. R. (SM)
Sorli, G. B. (M)
Stopek, S. (M)
Telch, W. W. (SM)
Terrell, J. H., Jr. (M)
Thomassen, N. E. (M)
Uhlir, A., Jr. (SM)
Urbanetti, J. J. (A)
Wade, G. (SM)
Walker, G. H. (M)
Weiss, J. A. (SM)
Werner, C. P. (M)
Whitney, R. E. (M)
Winfield, D. H. (M)
Winslow, N. E. (M)

Buzzards Bay (BOS-1)
Anderson, R. W. (A)
Colasurdo, J. (M)

Byfield (B-MV-1)
Henderson, G. R. (M)
Purinton, R. L. (A)

Cambridge (BOS-1)
Adams, G. J. (SM)
Adler, R. B. (F)
Advani, G. T. (M)
Aiken, H. H. (F)
Allard, H. K., Jr. (A)
Allison, R. F. (M)
Alonso, R. L. (M)
Altschuler, S. (M)
Amstutz, S. R. (M)
Anderson, A. H. (M)
Apsokardos, E. (A)
Arthurs, E. (M)
Bahnsen, R. J. (M)
Ball, J. H. (M)
Baruch, J. J. (M)
Batchelder, J. (F)
Beinhocker, G. D. (M)
Belezos, N. G. (M)
Benders, D. R. (M)
Benfield, A. E. (SM)
Bennett, J. L. (M)
Bers, A. (M)
Bertolini, A. (M)
Bliss, J. C. (M)
Block, M. J. (M)
Blodgett, J. A. (M)
Bloembergen, N. (SM)
Blood, B. E. (A)
Bose, A. G. (M)
Bowles, E. L. (F)
Bradshaw, S. (M)
Bramson, M. (M)
Brandt, W. E. (M)
Broniwitz, L. E. (M)
Brown, G. S. (F)
Brown, L. D. (M)
Broxmeyer, C. (M)
Bruce, R. A. (M)
Burdine, B. H. (M)
Burt, W. F. (SM)
Calingaert, P. (M)
Campbell, R. L. (SM)
Carpenter, C. H. (M)
Cathou, P. (M)
Chaffee, E. L. (F)
Christensen, R. A. (M)
Clapp, R. E. (M)
Coffey, C. S. (M)
Cogdell, J. R. (M)
Cohen, M. L. (M)
Cole, A. D. (M)
Comstock, D. F., Jr. (M)
Congleton, W. L. (M)
Cooper, P. W. (M)
Cooper, R. S. (M)
Corey, B. W. (A)
Defandorf, J. P. (M)
De Felice, F. J., Jr. (M)
De Marco, V. R. (M)
Dennis, J. B. (M)
Deutsch, T. F. (M)
Dietrich, C. W. (M)
Dittman, P. E. (M)
Dobbins, R. W. (A)
Donato, G. R. (M)
Donovan, A. C. (M)
Downing, J. L. (M)
Downing, R. E. (M)
Draper, C. S. (F)
Duda, R. O. (M)
Eastham, M. (F)
Ebert, P. M. (M)
Eden, M. (M)
Edgerton, H. E. (F)
Elias, P. (F)
Elkind, J. I. (M)
Epstein, H. D. (M)
Even, S. (M)
Fallows, E. M. (A)
Fano, R. M. (F)
Farnsworth, E. P. V. (SM)
Feinstein, N. B. (M)
Field, M. D. (M)
Fitzgerald, J. J. (SM)
Gaposchkin, E. M. (M)
Gayron, G. S. (M)
Glueck, A. R. (M)
Goldstein, M. H., Jr. (M)
Goldstein, S. (M)
Gordon, B. M. (M)
Grande, D. I. (A)
Gray, D. A. (M)
Gray, P. E. (M)
Gray, T. S. (SM)
Grayzel, A. I. (M)
Green, A. I. (M)
Greene, D. (A)
Greenough, H. V., Jr. (M)
Grim, W. M., Jr. (M)
Grossi, M. D. (M)
Guillemin, E. A. (F)
Hagan, T. G. (M)
Hamilton, D. H., Jr. (A)
Hanley, L. D. (M)
Haring, D. R. (M)
Harney, P. J. (M)
Harris, S. M. (M)
Hathaway, G. M. (A)
Haus, H. A. (SM)
Hause, A. D. (M)
Hazen, H. L. (SM)

Heller, P. N. (M)
Hickman, R. W. (F)
Hill, A. G. (F)
Hills, F. B. (M)
Hollisian, H. C. (A)
Hom, R. N. G. (M)
Hopkins, A. L. (M)
Horley, A. L. (M)
Howard, R. A. (M)
Huibonhoa, R. (M)
Humphrey, W. M. (M)
Janak, J. F. (M)
Jokinen, R. A. (M)
Jones, M. A. (M)
Jordan, K. L., Jr. (M)
Kalnins, M. (A)
Katz, L. (SM)
Kay, A. F. (M)
Kennedy, J. R. (M)
Kerwin, E. M., Jr. (SM)
Kessler, J. A. (SM)
King, R. W. P. (F)
Kinner, H. R. (M)
Klepper, D. L. (M)
Knight, G., Jr. (M)
Kohlenberg, A. (SM)
Koso, D. A. (M)
Kramer, J. D. R., Jr. (M)
Krasny, L. M. (M)
Kruse, K. W. (M)
Kusko, A. (SM)
Kyhl, R. L. (M)
Lasse, T. D. (A)
Lahti, A. W. (M)
Langberg, E. (M)
Larsen, J. (SM)
Laynor, J. E. (M)
Leavy, P. M., Jr. (M)
Lee, Y. W. (F)
Lees, S. (M)
Leonhard, J. (M)
Lerner, R. M. (SM)
Levin, M. J. (M)
Li, Y. T. (SM)
Lincoln, A. J. (M)
Lovell, B. W. (M)
Lyman, F., Jr. (M)
Lyon, J. F. (M)
MacDonald, J. S. (M)
Mack, R. B. (A)
Maling, G. C., Jr. (A)
Malme, C. I., Jr. (M)
Malone, W. R. (M)
Manganaro, E. S. (M)
Manning, V. R. (M)
Margolin, B. (M)
Marill, T. M. (M)
Martin, C. T., Jr. (M)
Matz, C. H. (SM)
Maurer, H. E. (M)
McCulloch, W. S. (SM)
McGowan, E. A. (M)
McWhorter, A. L. (M)
Menzel, D. H. (SM)
Michaelis, M. (SM)
Miles, P. A. (M)
Mimno, H. R. (F)
Minsky, M. L. (M)
Moo, C. A. (M)
Mooers, C. N. (M)
Morgan, J. S. C. (M)
Narendra, K. S. (M)
Nawrocky, R. J. (M)
Neumann, L. (M)
Noone, G. (A)
North, D. K. (A)
Nottingham, W. B. (F)
Nowiszewski, C. C. (M)
Oettinger, A. G. (M)
Olsson, E. A. (M)
Owens, R. H., Jr. (A)
Page, O. D. (SM)
Pandiscio, A. A. (M)
Parris, A. C. (M)
Parsons, G. C. (M)
Pastan, H. L. (M)
Paynter, H. M. (SM)
Peake, W. T. (M)
Pinckney, R. P. (M)
Plourde, H. S. (M)
Pomplun, S. D. (M)
Powers, D. A. (M)
Prasad, S. (M)
Pugh, A. L., III (M)
Puotinen, D. A. (M)
Rafuse, R. P. (M)
Randell, T. C. (M)
Rathe, E. J. (M)
Reed, R. R. (M)
Remillard, W. J. (M)
Richmond, H. B. (F)
Robichaud, A. W. (M)
Robinson, C. C. (M)
Robinson, K. W. (M)
Roehrig, J. R. (SM)
Ronat, E. E. (M)
Rosenblith, W. A. (SM)
Rothrock, R. B. (M)
Royal, D. C. (M)
Russell, L. (A)
Salerno, J. (M)
Salton, G. (M)
Salwen, H. C. (M)
Sarles, F. W., Jr. (M)
Schmitt, H. J. (SM)
Scott, A. C. (M)
Searcy, J. E. (M)
Sears, H. E., Jr. (M)
Shapiro, L. D. (M)
Sharenson, S. (M)

Shefer, J. O. (M)
Sheridan, T. B. (M)
Siebert, W. M. (M)
Sklar, S. J. (M)
Sloan, G. H. (M)
Smally, E. D. (A)
Smullin, L. D. (F)
Solomonoff, R. J. (M)
Soohoo, R. F. (SM)
Spencer, R. H. (M)
Spiers, H. T. (A)
Spinrad, R. J. (M)
Spitzer, E. (M)
Sponsler, J. W. (A)
Stark, L. (SM)
Stata, R. S. (M)
Stevens, H. C. (M)
Strandberg, M. W. P. (F)
Stratton, J. A. (F)
Sudduth, W. B. (M)
Susskind, A. K. (M)
Sutro, L. L. (M)
Swain, L. R., Jr. (M)
Thomas, W. L. (A)
Townes, C. H. (SM)
Trainham, H., Jr. (M)
Tucker, C. E. (SM)
Tucker, J. A. (M)
Turner, A. S. (M)
Valley, G. E., Jr. (F)
Vander Velde, W. E. (M)
Van Meter, D. (SM)
Verbeek, L. A. M. (M)
Ward, J. E. (M)
Wasserman, R. (M)
Weill, G. G. (SM)
Weinstein, A. (M)
Wernikoff, R. E. (M)
Westphal, W. B. (M)
White, D. C. (SM)
White, S. A. (A)
Wiener, F. M. (SM)
Wiesner, J. B. (F)
Willenbrock, F. K. (SM)
Williams, F. E. (M)
Wissmann, H. B. (M)
Woodson, H. H. (M)
Wright, W. D. (SM)
Young, F. M. (SM)
Youtz, P. (M)
Whiteside, H. (M)
Wildes, K. L. (SM)
Zacharias, J. R. (SM)
Zanes, G. (M)
Zetterberg, T. W. (A)

Canton (BOS-1)
Blumenthal, S. P. (A)
Buckley, E. F. (SM)
Burr, G. S. (M)
Cahill, T. C. (A)
Callahan, R. J. (M)
Cuming, W. R. (M)
Dorian, J. M. (M)
Dunleavey, F. S. (M)
Gronroos, E. (A)
Keller, A. L. (M)
Kelley, F. (M)
Kohnle, A. P., Jr. (M)
Schunk, H. F. (M)
Slawsby, N. (M)
Volk, M. C. (A)

Cape Cod (BOS-1)
Meissner, F. N. (M)

Carlisle (BOS-1)
Berube, J. L. (M)
Brennan, D. G. (SM)
Davis, J. C. (M)
Gallagher, R. D. (M)
Haque, W. M., Jr. (M)
Kelley, F. L. (A)
Kent, A. J. (A)
Libby, W. B. (M)
Nielsen, R. S. (A)
Palmer, W. F. (SM)
Parke, N. G., III (M)
Rifkin, M. (M)
Root, W. L. (SM)
Schumacher, W. A. (SM)
Torrey, B. M. (SM)
Toth, W. E. (M)

Carver (BOS-1)
Heleen, D. E. (A)

Centerville (BOS-1)
Thomas, R., Jr. (M)

Charlestown (BOS-1)
Chin, T. (A)
Gibbons, J. F. (M)

Charlton (BOS-1)
Gunter, R. C., Jr. (SM)

Chartley (BOS-1)
Halle, M. J. (M)

Chatham (BOS-1)
Cook, J. H. (SM)

Chelmsford (B-MV-1)
Ajello, E. M. (M)
Beauchamp, A. J. (SM)
Breen, P. T. (M)
Brooking, B. M. E. (M)
Cetaruk, W. K. (A)
Chutchian, Z. S. (M)

Clark, H. K. (M)
Craft, A. M. (M)
Drury, W. H. (M)
Duffey, W. B. (M)
Dunne, T. P. (M)
Einfalt, J. R. (M)
Everleigh, C. A. (M)
Franks, T. A. (M)
Galat, E. J. (M)
Hassett, F. C. (M)
Jones, C. M. (M)
Kahan, S. D. (A)
Kerr, S. A. (M)
Larson, R. P. (M)
Longchamp, W. F. (M)
Lund, W. E. (A)
Manahan, J. F. (M)
Manty, W. A. (SM)
Marcotte, A. G. (A)
Martin, R. A. (M)
McCluskey, J. L. (M)
McCormack, T. L. (M)
McKersie, A. D. (M)
McLaughlin, J. R. (M)
Mellen, W. R. (M)
Michitson, P. A. (M)
Micol, R. L. (M)
Mohr, M. C. (M)
Olson, R. E. (SM)
Smithson, G. (SM)
Stangler, D. M. (M)
Strom, J. A. (SM)
Turner, T. D. (M)
Van Benthem, B. (M)
Vilcans, J. (M)
Wade, C. E. (SM)

Chelsea (BOS-1)
Barooshian, C. T. (M)
Fishman, D. S. (A)
Gallan, R. M. (A)
McCarthy, B. D. (M)
Rosen, S. (M)
Scudney, B. V. (M)
Sokolove, M. G. (M)

Cheshire (WM-1)
Boehm, W. C., Jr. (A)
Leonard, S. C. (SM)

Chestnut Hill (BOS-1)
Bezuszka, S. J. (M)
Cooper, G. (SM)
Dachert, F. (M)
De Mambro, J. A. (A)
Frank, W. T. (M)
Gansler, J. S. (M)
Golembe, S. N. (M)
Gould, L. (M)
MacGregor, W. (M)
McFarlan, R. L. (F)
O'Neil, R. E., Jr. (M)
Prisant, M. B. (M)
Rosenberg, A. E. (A)
Sheehan, J. A. (M)
Strimling, W. E. (M)
Zieper, S. M. (M)

Chicopee (WM-1)
O'Connell, F. P. (M)
Zdeb, S. E. (M)

Chicopee Falls (WM-1)
Amata, J. F., Jr. (M)
Sussman, D. B. (M)

Clinton (BOS-1)
Jaros, W. F., Jr. (M)

Cochituate (BOS-1)
Bean, O. E. (M)
Benoit, G. F. (M)
Billig, L. S. (SM)
Brill, T. (SM)
Brown, K. E. (M)
Corcoran, J. R., Jr. (A)
Donner, J. B. (SM)
Falgen, I. M. (SM)
Higgins, W. F. (SM)
Johnson, S. L. (M)
Krasnick, B. (M)
Kurth, H. H. (SM)
Locher, J. P., III. (M)
Lucas, E. J. (M)
Marcley, W. E. (M)
McCarthy, W. A. (M)
Plumb, D. R. (M)
Sharaf, H. M. (M)
Taylor, H. P. (M)
Wilkinson, C. W. (M)

Cohasset (BOS-1)
Ainslie, H. W., Jr. (M)
Barrie, C. E. (M)
Massa, E. A. (SM)
Palmiter, R. B. (SM)
Volkers, W. K. (SM)

Concord (BOS-1)
Anderson, H. E. (M)
Bailey, D. L. (M)
Blemson, G. A. (M)
Blacksmith, P., Jr. (M)
Bosch, F. M. (M)
Burley, R. M. (A)
Buxton, E. T., Jr. (M)
Cayouette, R. L. (A)
Chapman, D. J. (M)
Chappell, R. G. (M)
Chu, G. Y. (M)
Connelly, M. E. (M)

Cortl, E. (M)
Cottle, H. O. (A)
Craig, J. W., Jr. (M)
Daniels, R. (A)
Davenport, W. B., Jr. (F)
Deas, J. M. (M)
Dolan, R. P., Jr. (M)
Doran, R. W. (M)
Doty, A. (M)
Edelberg, S. (M)
Ehrenfried, A. D. (SM)
Enticknap, R. G. (SM)
Fitzmorris, M. J., Jr. (M)
Forrester, J. W. (F)
Gaffney, J. (M)
Gunn, K. C. C. (M)
Harper, R. (M)
Heuchling, T. P. (SM)
Hirsch, J. V. (M)
Hollingsworth, L. M. (SM)
Holtje, M. C. (SM)
Kelly, J. D. (M)
Kilham, L. F., Jr. (SM)
Krishner, H. J. (M)
Kline, J. (SM)
Lambert, S. A. (A)
Levine, J. L. (M)
Logemann, H., Jr. (SM)
Lush, M. J. (M)
Macdonald, W. S. (M)
Mack, R. A. (M)
Marsh, H. S. (M)
Martin, L. H. (SM)
McCouch, G. P. (SM)
Middleton, D. (F)
Murray, J. L. (A)
Newman, P. (SM)
Noyes, A., Jr. (SM)
Nucefora, M. A. (M)
Patterson, R. F., Jr. (M)
Penfield, H. (M)
Picardi, J. E. (M)
Reem, G. M., II. (M)
Roberts, S. P. (M)
Rolando, P. A. (M)
Ruze, J. (SM)
Schuh, A. G. (A)
Seamans, J. O. (M)
Slade, M. G. (M)
Smith, R. L. (M)
Snay, R. J. (M)
Stevens, J. W. (M)
Stuart, R. W. (M)
Sullivan, D. L. (M)
Temme, D. H. (M)
Tuttle, W. N. (F)
Tyler, V. M., II. (M)
Ursch, R. R. (M)
Vance, P. R. (M)
Walen, R. S. (M)
Walker, J. R. (M)
Watt, C. W., Jr. (SM)
Westcott, V. C. (M)
Wiegand, R. F. (M)
Wingate, S. A. (M)
Zorzy, J. (M)

Dalton (WM-1)
Allen, J. J. (M)
Ford, W. W., Jr. (M)
Green, E. E. (A)
Long, J. H. (M)
Nault, R. O. (M)
Schuler, R. L. (M)
Stitt, T. D. (M)
Van Patten, R. A. (M)
Van Sickler, E. P. (A)

Danvers (B-MV-1)
Andrews, R. W. (A)
Bevitt, W. D. (M)
Bimle, B. A. (M)
Brandt, I. L. (M)
Caldwell, W. G. (SM)
Carter, G. E., Jr. (M)
Chernyshov, V. N. (M)
Cotter, W. L. (A)
Cummings, J. R. (M)
Delacy, E. M., F. (M)
Dibiase, A. F. (M)
Dinsmore, C. H. (M)
Dirks, L. H. (M)
Dominick, F. J. (M)
Farmer, J. W. (SM)
Ferris, P. A. (M)
Frohock, W. S. (M)
Gibson, R. E. (M)
Hecht, B. P. (M)
Hull, J. A. (A)
Kern, R. H. (M)
Koen, F. T. (M)
Kowalski, R. M. (M)
Record, F. A. (M)
Snyder, M. A. (A)
Sokolov, D. A. (M)
Straney, K. O. (M)
Weinburg, E. F. (A)
Wroblewski, T. (SM)
Yee, T. G. (M)
Zack, A. (A)

Dedham (BOS-1)
Floiz, W. J. (M)
Gould, L. J., Jr. (M)
Hastings, T. M., Jr. (SM)
Kearns, T. M. (M)
Levesque, P. J. (M)
McManus, F. J. (M)
Nackley, J. F., Jr. (M)
Rubin, S. (M)
Spadoni, E. R. (A)
Tahan, E. N. (SM)
Zorio, L. F. (M)

Dennis (BOS-1)
Zopatti, R. C. (M)

Dorchester (BOS-1)
Broderick, R. T. (A)
Calnan, C. M. (M)
Colombo, C. M. (M)
Cudmore, A. F. (M)
Czechowski, E. W. (M)
Devine, W. L. (A)
Donato, P. A. (M)
Feibel, S. J. (A)
Fermental, D. W. (M)
Glazer, A. (M)
Goranson, W. R. (A)
Gray, E. L. (A)
Hadjiyannis, S. S. (M)
Hanford, W. J. (M)
Joyce, C. F. (A)
Kalakowsky, C. B. (M)
Kamenski, S. A. (A)
Meister, M. (A)
Mikulec, T. E. (M)
Morris, J. P. (A)
Nenortas, K. (M)
Prokop, A. A. (A)
Renner, G. W. (M)
Shear, H. (A)
Tessari, V. P. (M)
Tursky, B. (A)
Waggett, J. A. (M)
Wartski, H. (M)
Waterman, C. I. (M)

Dover (BOS-1)
Jefferies, K. D. (M)
Melancon, L. (M)
Olivier, R. M. R. (M)

Dudley (BOS-1)
Swana, M. R. (A)

Duxbury (BOS-1)
Chapin, G. H., Jr. (A)

East Boston (BOS-1)
Bemis, L. W. (M)
Canobianco, A. A. (M)
Cunha, J. A. (A)
D'Entremont, A. O., Jr. (M)
Nardo, F. K. (A)
Welling, A. J. (M)

East Braintree (BOS-1)
Bixby, W. L. (M)

East Brookfield (BOS-1)
Houlihan, R. P. (M)

East Hampton (WM-1)
Mesh, T. J. (SM)

East Longmeadow (WM-1)
Paris, D. A. (M)

East Lynn (BOS-1)
Kazules, A. J. (M)

East Natick (BOS-1)
Ewen, H. I. (SM)
Owen, J. Q. (M)
Palester, J. (SM)

East Pepperill (BOS-1)
Clough, J. F. (A)

East Walpole (BOS-1)
Ackerman, S. (M)
Masse, D. J. (M)
Miller, R. D. (A)
Russell, O. F., Jr. (A)

East Weymouth (BOS-1)
Fulton, L. G. (M)
McLaughlin, A. J. (M)

Egypt (BOS-1)
De Napoli, A. C. (SM)
Frank, L. G. (M)
Versoy, I. R., Jr. (M)

Everett (BOS-1)
Bertolami, L. J. (M)
Covino, R. J. (M)
Gantt, E. D. (M)
Klewicz, F. A. (M)
Massaro, R. P. (M)
Mento, D. B. (A)
Murphy, T. F. (A)
Newell, B. C. (A)

Fairhaven (BOS-1)
Bailey, W. M. (F)
Holstius, C. W. (A)
Martin, E. J. (A)
Robinson, W. M. (SM)

Fairview (WM-1)
Brigham, J. C. (M)

Fall River (BOS-1)
Buchan, R. (A)
Buckley, A. E., Jr. (A)
Desilets, D. J. (M)
Horvitz, S. (A)
Migneault, R. G. (M)
Ryan, J. E. (A)

Falmouth (BOS-1)
Clancy, J. E. (M)
Jayson, E. L. (M)
Johnston, A. T. (M)
Le Roy, R. C. (M)
Lewis, W. E. (M)
Mielke, E. S. (A)

Fayville (BOS-1)
Dunnet, W. J. (M)
Pouliot, L. J. (A)

Feeding Hills (WM-1)
Call, S. S. (A)

Fitchburg (BOS-1)
Arthur, G. M. (M)
Kirsch, I. H. (A)
Lundberg, R. E. (M)
Moran, J. M. (SM)
Snyder, D. C. (M)

Fort Devens (BOS-1)
Zeitlin, G. M. (M)

Foxboro (BOS-1)
Bendiksen, K. M. (A)
Bristol, E. H. (M)
Gansenberg, V. G. (M)
Rawlins, C. C. (A)
Sturgeon, S. S. (M)
Terrell, G. C. (M)
Wells, C. H. (A)

Framingham (BOS-1)
Abdun-Nabi, Z. (M)
Abrams, S. M. (M)
Appleman, M. A. (M)
Archambault, R. E. (M)
Atkinson, F. G. (M)
Aubert, J. L. (A)
Aykanian, A. A. (M)
Bartlett, D. D. (M)
Beals, E. H. (M)
Bloedorn, A. R. (M)
Bond, E. E. (SM)
Bothwell, T. P. (M)
Breitbord, J. L. (M)
Brown, R. R. (M)
Brundage, E. J. (M)
Clough, R. H. (A)
Clymas, G. (A)
Daly, R. H. (M)
Dean, F. R. (M)
Denman, J. G. (M)
Diamond, M. (A)
Dinman, S. B. (M)
Dushman, A. (M)
Eakman, S. L. (M)
Earl, R. J. (M)
Fangmann, G. (A)
Feehan, J. E. (M)
Fimlaid, E. D., Jr. (M)
Fischer, R. W. (M)
Fitzgerald, B. P. (M)
Flanagan, F. M. (M)
Floridia, M. S. (M)
Forgione, E. A. (M)
Fradette, D. M. (M)
Garber, T. A. (M)
Gilmore, A. R. (M)
Ginsberg, I. (A)
Goldman, D. J. (M)
Goldman, R. F. (M)
Goldstein, D. S. (M)
Greenfield, S. E. (M)
Greenwood, J. R. (A)
Gutwill, L. A. (M)
Hamilton, W. H. (M)
Hawley, E. B. (M)
Hettinger, S. (M)
Hoffer, J. M. (M)
Hoogaslan, H. (M)
Horton, W. P. (M)
Irish, F. E., Jr. (M)
Jacobs, M. (SM)
Jamieson, J. B., Jr. (SM)
Janos, W. A. (M)
Johnson, A. B. (M)
Kallin, R. L. (A)
Kapteyn, P. (A)
Kass, S. (M)
Kates, R. (M)
King, J. C. (A)
Kinne, C. B. (M)
Kopeloff, B. G. (M)
Kross, V. (M)
Lacey, N. F. (M)
Lemack, A. G. (M)
Lewis, W. P. (M)
Luklanov, R. E. (M)
MacDougall, J. S. (M)
Mailhot, P. J. (M)
Manahan, G. F. (M)
Marcus, G. H. (M)
McMurtray, H. W. (A)
Mercurio, J. F., Jr. (M)
Meretsky, P. L. (M)
Michelson, M. (SM)
Miller, M. M. (M)
Morey, R. F. (M)
Nathan, P. M. (M)
Nearman, G. M. (M)
Nordquist, P. J. (M)
O'Gorman, J. B. (SM)
Paget, F. W. (M)
Palughi, J. F., Jr. (A)
Patton, J. E. (M)
Peterman, J. H. (M)
Postema, G. B. (M)
Price, B. F. (M)
Randles, W. C. (M)
Remington, R. C. (M)
Rocheleau, G. S. (M)
Rosen, L. (SM)
Rubinovitz, J. I. (SM)
Salzberg, E. (A)
Sawyer, D. S. (A)
Scott, P. R., Jr. (M)
Scyocurka, S. (A)
Senecal, T. P. (M)
Servetnick, J. (M)
Sherman, D. (M)
Smith, J. G. (M)
Spirl, G. J. (M)
Stephens, J. L. (A)
Strasilla, U. J. (M)
Szymczak, R. S. (A)
Taylor, C. B., III (M)
Tenenholtz, R. (M)
Thompson, K. B. (A)
Tober, H. (M)
Traub, A. C. (M)
Ungvary, R. L. (M)
Vandervelden, C. G. (M)
Walbridge, C. E. (M)
Wendt, R. F. (M)
Witt, R. P. (M)
Wychorski, H. J. (M)
Yalen, S. (M)
Youkstetter, F. (M)
Young, J. D., Jr. (M)
Zusman, A. G. (M)
Zwerling, M. (M)

Framingham Center (BOS-1)
Charasz, J. G. (M)
Danforth, W. C., Jr. (A)
Driscoll, W. C. (SM)
Gerdes, J. W. (M)
Gilman, C. (M)
Hadfield, B. M. (SM)
Hurlbut, W. A. (A)
Iffland, J. J. (SM)
Kelcher, A. E., Jr. (M)
Rubin, M. S. (A)
Schwartz, E. R. (M)
Veith, W. (SM)

Franklin (BOS-1)
Brennan, A. T. (A)
Deerfield, A. J. (A)

Georgetown (B-MV-1)
Gammie, J. (M)
Petraitis, A. J. (M)

Gleasondale (BOS-1)
Harley, R. W. (M)

Gloucester (B-MV-1)
De Witt, J. S. (M)
Donovan, L. J. (M)
Hammond, J. H., Jr. (F)
Ktistes, P. J. (M)
Landry, D. H. (M)
Moore, A. S. (A)
Poole, J. F. (A)
Purington, E. S. (SM)
Short, J. A., Jr. (M)

Granby (WM-1)
Pape, A. E. (M)

Greenbush (BOS-1)
Brooks, G. W. (M)

Greenwood (BOS-1)
Wheeler, D. R. (M)

Groton (BOS-1)
Abbott, W. G. (M)
Graves, C. C., Jr. (M)
Owen, R. W. (M)
Pineo, V. C. (M)
Thibeau, C. E. (A)
Ward, R. W. (A)
Woodsum, S. P. (M)
Young, K. A. (SM)

Groveland (B-MV-1)
Bradley, H. L. (M)

Hamilton (B-MV-1)
Bolse, E. B. (A)
Cugliari, N. (M)
Gysan, R. L. (M)
Hagan, R. A. (M)
Hammann, R. K. (M)
Nichols, H. F., Jr. (A)
Street, E. L. (M)

Hanover (BOS-1)
Barkley, H. B., Jr. (M)
Fowler, A. K. (M)
Jacobson, R. E. (M)

Hanover Center (BOS-1)
Burgoyne, C. L. (M)
Hyland, R. C. (A)
Mead, E. S. (A)

Harvard (BOS-1)
Burton, G. L. (M)
Goldstein, S. J., Jr. (M)
Hammett, T. F. (M)
Hynes, R. T. (M)
Lee, R. F. (M)
Quimby, K. S., Jr. (A)
Schramm, M. W., Jr. (M)
Strang, D. B. (SM)
Zimmer, J. T. (M)

Haverhill (B-MV-1)
Atwood, D. J., Jr. (M)
Feldman, E. J. (SM)
George, J. O. (M)
Halloran, T. F. (A)
Jaskelevicus, S. A. (M)
Krawiec, J. P. (M)
Santarelli, M. J. (M)
Shepherd, D. C. (A)
Tucci, R. R. (M)
Wilson, W. W., Jr. (SM)

Hawthorne (BOS-1)
Nichols, N. P. (M)

Haydenville (WM-1)
Curtis, L. F. (SM)

Hingham (BOS-1)
Broster, G. S. (M)
Cary, T. R., Jr. (M)
Corbett, K. M. (A)
Cralgie, S. M. (SM)
Fox, J. A., Jr. (M)
Lewis, R. W. (M)
Mapes, T. J. (M)
Massa, F. (F)
Moore, C. (M)
Pinel, A. F. (A)
Pratt, F. (M)
Sims, B. C. (M)
Vander Wolk, W. W., Jr. (M)

Holbrook (BOS-1)
Stone, I. M. (M)
Swift, W. H., Jr. (M)
Wisneski, W. F. (M)
Worobey, E. (M)

Holden (BOS-1)
Andreasen, I. (M)
Bedard, L. S. (M)
Dahlquist, R. H. (A)
Wise, D. P. (SM)

Holliston (BOS-1)
Boucher, G. F. (M)
Bowers, D. M. (M)
Crooke, A. W. (A)
Foster, H. (M)
Gordon, R. R. (SM)
Gronosky, C. F. (M)
Hermann, M. E. A. (M)
Hilliard, H. C., Jr. (M)
La Shomb, S. D. (A)
Miller, M. S. (M)
Peters, J. D., Jr. (A)
Sharpe, D. (A)
Thomas, H. J., Jr. (A)
Valpey, R. S., Jr. (M)
Wands, W. J. (M)
Wyckoff, R. L. (M)

Holyoke (WM-1)
Hampson, F. W. (A)
Junkins, C. E., Jr. (A)
King, F. H. (M)
Kreeb, K. R. (A)
Marek, L. W. (A)
Marek, M. B. (A)
Paszko, H. A. (A)
Wernick, H. (M)

Hopedale (BOS-1)
Sample, R. F. (M)
Tinkham, M. E. (A)

Hopkinton (BOS-1)
Brooks, R. A. (M)
Dilg, G. C. (M)
Eck, C. F. (M)
Fraleigh, R. V. (M)
Johnson, A. F. (M)
Moylan, J. D. (M)

Hudson (BOS-1)
Burdick, G. E. (M)
Cleary, R. W. (A)
Dobrowolski, E. P. (A)
Pauplis, L. M. (M)

Hyannis (BOS-1)
Leonovich, J. H. (M)

Hyde Park (BOS-1)
Barrett, J. F. (M)
Burke, W. T. (M)
Di Marzio, A. W. (M)
McCoy, F. J. (M)
Paris, D. C. (M)
Piccirilli, A. T. (M)
Vickerson, A. H. (A)

Ipswich (B-MV-1)
Baker, J. R., Jr. (M)
Coggins, D. I. (M)
MacDonald, J. G. (A)
Mavroides, W. G. (M)
Plaisted, A. H. (A)
Rice, D. H. (M)
Schreuer, W. (SM)
Sweetser, L. R. (M)

Islington (BOS-1)
Hedlund, D. A. (M)
Saltmarsh, H. J. (A)

Jamaica Plain (BOS-1)
Arenberg, D. L. (M)
Kooteros, G. B. (A)
Lynch, R. H. (A)
Pengeroth, P. P. (A)
Roal, W. F. (M)
Skroders, V. (A)
Tsacoyeanes, C. W. (M)
Vadala, C. J. (A)
Vasmanis, M. A. (M)

Kingston (BOS-1)
Roy, A. G., Jr. (M)

Lakeville (BOS-1)
Hancock, J. D. (M)

Lanesboro (WM-1)
Jones, W. W. (M)
Mackson, D. J. (M)

Lawrence (B-MV-1)
Ameen, S. J. (M)
Augeri, J. J. (M)
Blanchette, C. F. (M)
Callahan, J. F. (M)
Chakmanian, J. A. (A)
Comeau, E. A. (A)
Dusault, A. J. (M)
Farley, D. P. (M)
Frink, R. D. (A)
Hanley, J. J. (M)
Hart, L. A. (M)
Kauders, E. (A)
Kidwell, E. W., Jr. (A)
Labbe, L. P. (M)
Landry, R. P. (A)
Lenihan, D. T. (A)
Levingston, H. H. (M)
Maccarone, G. (M)
Mercer, B. H. (A)
Nasser, G. J., Jr. (M)
Pappas, J. (M)
Sarcione, F. N. (M)
Sedivec, D. F. (A)
White, W., Jr. (A)
Zampelli, A. J. (A)

Lee (W-M-1)
Bogusch, R. L. (M)
Fain, R. A. (M)
Klos, E. R. (M)

Leicester (BOS-1)
Day, L. R. (M)

Lenox (WM-1)
De Tolly, G. E. B. (A)
Fairbisch, I. J. (M)
Fleischer, K. M. (M)
Harthorne, J. L. (M)
McCoy, D. J. (M)
Sears, C. B. (M)
Stang, J. L. (M)
Vreeland, J. B. (M)

Lenox Dale (WM-1)
Vantine, C. K. (M)

Leominster (BOS-1)
Goldstein, K. S. (M)
Gottlieb, D. C. (M)
Nimee, W. R. (M)
Schrmack, J. J. (A)

Lexington (BOS-1)
Abel, W. G. (M)
Abraham, L. G., Jr. (A)
Adams, L. P. (SM)
Aldrich, F. W., Jr. (M)
Allen, T. J., Jr. (M)
Appleman, C. B. (SM)
Arden, D. N. (M)
Arnold, K. F. (SM)
Atchison, J. H., Jr. (M)
Axelbank, M. (M)
Barabush, A. (M)
Barck, P. E. (M)
Barker, D. B. (M)
Barnes, R. B. (A)
Bartee, T. C. (M)
Bean, R. H. (M)
Becker, N. (M)
Benkley, F. G., Jr. (M)
Bennett, K. (M)
Berg, R. S. (M)
Blake, C. (M)
Blanchard, R. L. (SM)
Blatt, H. (A)
Bliamptis, E. E. (M)
Block, A. V. (M)
Bosinoff, I. (M)
Bougas, A. C. (M)
Bragar, P. (M)
Bramley, F. A. (M)
Briana, A. M. (M)
Brick, D. B. (SM)
Brown, C. J. (M)
Buckvar, B. (M)
Budd, A. E. (M)
Burgess, L. M. (M)
Burwen, R. S. (SM)
Button, K. J. (SM)
Byers, W. F. (M)
Cantwell, T. (M)
Carr, C. E. (M)
Chao, S. K. (M)
Chute, D. H. (M)
Clark, A. (M)
Clark, D. L. (M)
Clark, J. F. (M)
Clark, W. A., Jr. (A)
Coburn, W. K. (SM)
Cohen, M. S. (M)
Cohen, S. H. (M)
Colbourne, R. H. (SM)
Colby, G. V., Jr. (M)
Collias, H. C. (M)
Crane, J. D., Jr. (M)
Crowther, T. S. (M)
Currier, J. R., Jr. (M)
Curry, G. R. (M)
Dagett, N. L. (M)
Dalrymple, G. F. (M)
Dearborn, F. K. (M)
Demetrick, J. S. (SM)
Densler, J. P. (M)
Dentler, C. E. (M)
Dinozzi, A. D. (M)
Domenichini, C. P. (SM)
Drouilhet, P. R., Jr. (M)
Drubin, M. (M)
Dulchinos, J. (M)
Dumanian, J. A. (M)
Eisenstadt, B. M. (M)
Elliott, W. G. (M)
Faflick, C. E. (A)
Falor, O. K. (M)
Farley, B. G. (M)
Farr, C. W. (A)
Feehan, J. D. (M)
Feuerstein, E. (M)
Fonorolf, B. (M)
Foundas, G. J. (M)
Fowle, E. N. (M)
Fox, H. M. (M)
Frankovich, J. M. (M)
Frantz, G. R. (SM)
Frazer, J. F. (M)
Freeman, L. D. (M)
Freimer, M. L. (M)
Friedman, A. L. (M)
Fritsch, P. C. (M)
Galejs, J. (M)
Galvin, A. A. (M)
Gardner, W. L. (SM)
Garr, D. E. (SM)
Glara, E. J., Jr. (M)
Gibbs, M. M. (M)
Glick, A. L. (M)
Globe, S. (SM)
Godwin, C. J., Jr. (M)
Godwin, R. G. (M)
Goldberg, H. (M)
Goldberg, S. (M)
Goldstein, I. (M)
Gottesman, E. (M)
Guditz, E. A. (M)
Guppy, J. W., Jr. (M)
Guy, D. V. (M)
Hadley, F. P. (M)
Hall, B. A. (M)
Hall, W. M. (SM)
Halpern, J. (M)
Hanley, J. E. (M)
Hannon, R. J. (SM)
Harcher, A. J. (M)
Hardy, J. W. (SM)
Haroules, G. G. (M)
Harrington, J. V. (SM)
Harris, J. N. (M)
Hartel, R. (M)
Hauser, W. H. (M)
Hawthorne, E. I. (SM)
Hay, N. (A)
Hazel, F. P., Jr. (M)
Heath, H. F., Jr. (M)
Hefni, I. (M)
Heiligmann, F. R. (A)
Hill, A. P. (M)
Holman, W. E. (M)
Horowitz, S. (M)
Huang, C. (SM)
Hubbard, M. M. (SM)
Huffman, D. A. (M)
Hufton, C. D. (A)
Humey, P. A., Jr. (M)
Hyde, G. M. (M)
Israel, D. R. (SM)
Jackman, W. L. (M)
Jackson, W. D. (SM)
James, J. C. (M)
Jenkinson, J. V. (A)
Jervis, E. W., Jr. (SM)
Johnston, R. C. (M)
Jones, E. D., Jr. (M)
Kang, K. J. (M)
Karsh, H. (M)
Keeping, K. J. (M)
Kelly, D. H. (M)
Kendall, R. (SM)
Key, E. L. (M)
Kilbourn, W. A. (M)
Kingston, R. H. (SM)
Kinnard, K. F. (M)
Knubbe, H. (M)
Koffman, H. J. (M)
Kostrlza, J. A. (M)
Kramo, K. M. (M)
Kriegsman, B. A. (M)
Kuhn, B. G. (M)
Kushner, H. J. (M)
Labitt, M. (M)
Labonte, R. C. (M)
Lambert, J. R. (M)
Lane, J. F., Jr. (M)
Lehr, C. G. (SM)
Lemnios, W. Z. (SM)
Lemer, H. A. (M)
Levi, C. A. (M)
Lewis, G. S. (A)
Lloyd, D. D. (M)
Locke, R. V., Jr. (A)
Lowenschuss, O. (SM)
Luscher, R. W. (A)
Lyon, W. W. (A)
Maartmann-Moe, R. (M)
MacDonald, D. A. (M)
Mack, C. L., Jr. (M)
Malouin, J. A. (M)
Masters, G. E. (M)
Max, J. (M)
McConnell, S. G. (A)
McCue, J. J. G. (SM)
McCully, G. R. (M)
McGinn, J. F. (M)
McLeod, W. W., Jr. (M)
Melanson, W. A. (M)
Mikulski, J. J. (A)
Miller, S. J. (M)
Minot, O. N. (M)
Mitchell, D. A. (M)
Mitchell, J. L. (M)
Morelli, A. (M)
Mowatt, A. Q. (M)
Mullen, J. P. (M)
Myers, W. D. (M)
Naka, F. R. (SM)
Nelson, E. A. A. (A)
Nichols, B. E. (M)
Nilssen, R. H. (M)
Nordahl, J. G. (M)
Northrop, P. A. (M)
Nugent, W. R. (M)
Olson, F. A. (M)
O'Neil, S. J. (M)
Oseochuk, J. M. (M)
Paananen, R. A. (A)
Packard, R. H. (M)
Papian, W. N. (SM)
Parker, A. C. (M)
Pascalar, H. G. (M)
Paton, C. D. (M)
Petroph, A. (M)
Phillips, J. H. (M)
Pierce, J. N. (M)
Pilkington, E. J. (M)
Plemenos, F. A. (M)
Plumridge, R. F. (M)
Pollins, P. (M)
Prasinos, N. (M)
Prescott, R. S. (M)
Price, R. (SM)
Pullis, F. D. (A)
Purinton, R. M. (SM)
Quist, T. M. (M)
Radford, W. H. (F)
Raffel, J. I. (M)
Rath, G. J. (A)
Rauscher, H. C. (A)
Rediker, R. H. (SM)
Reiffen, B. (M)
Retelle, J. P. (M)
Rich, D. A. (M)
Richards, P. I. (A)
Rickert, D. F. (M)
Rigby, R. T. (M)
Ring, W. F. (M)
Roberts, W. (M)
Roberts, W. L. (SM)
Roche, J. F. (M)
Rollins, J. A. (M)
Rosato, F. J. (SM)
Ruckstuhl, C. E., Jr. (M)
Santelmann, W. F., Jr. (M)
Scharlman, H. (M)
Schreiber, W. F. (M)
Schwartz, R. (M)
Seed, R. G. (M)
Sen, W. J. (SM)
Shelfman, F. I. (M)
Sheldon, E. J., Jr. (M)
Sherman, H. (SM)
Silverman, E. (M)
Simmons, W. B. (A)
Slade, H. L. (M)
Smith, D. A. (SM)
Sokal, N. O. (SM)
Sokol, G. M. (SM)
Sovaiko, F. M. (M)
Sproul, R. W. (M)
Starr, E. A. (M)
Steinmetz, C. M. (M)
Storm, M. L. (A)
Sussman, J. P. (M)
Tanner, W. E. (M)
Terkanian, H. (M)
Thomas, J. (M)
Tillman, J. E. (A)
Towle, D. M. (M)
Uskavitch, C. W. (M)
Vanderburgh, A., Jr. (M)
Vasileff, H. D. (SM)
Walter, C. M. (M)
Walther-Dunn, W. (SM)
Weatherbee, W. H. (M)
Webster, A. L. (A)
Weiss, H. G. (SM)
Weiss, W. R., Jr. (M)
Welch, D. P. (SM)
Wells, W. I. (M)
Whitney, D. B. (M)
Willey, F. G. (M)
Williams, S. B. (SM)
Wilson, L. S. (A)
Wilson, P. B., Jr. (M)
Wolf, S. M. (A)
Wolfe, R. (M)
Wong, G. W. (SM)
Woodward, J. H. (SM)
Yakutis, A. J. (M)
Yewell, P. G. (SM)
Zieman, H. E. (M)
Zucker, F. J. (M)

Lincoln (BOS-1)
Atchley, D. W., Jr. (M)
Caswell, J. R. (M)
Champeny, J. C. (M)
Edmonds, D. S., Jr. (M)
Fraser, R. M. (SM)
Fullerton, A. L., Jr. (SM)
Kennedy, F. (SM)
Long, L. B. (M)
Scott, H. H. (F)
Wang, A. (SM)

Littleton (BOS-1)
Chu, L. J. (F)
Curran, G. B. (M)
Enquist, S. T. (M)
Gallagher, P. N. (M)
Girouard, M. R. (M)
Hollis, C. C. (M)
Houghton, R. W. (M)
Janes, C. W. (SM)
Klein, L. (M)
Mayer, D. F. (M)
McElroy, T. R. (M)
Meyers, D. E. (M)
Nixon, N. E. (M)
Paquette, N. A. (M)
Root, H. G. (M)
Stockebrand, T. C. (A)
Wall, R. B. (M)

Littleton Common (BOS-1)
Cooper, J. B. (M)
Gailitis, V. B. (A)

Longmeadow (WM-1)
Bassett, E. D. (M)
Cohen, M. (M)
Dorshimer, R. C. (M)
Gostyn, E. (M)
Houck, S. C. (M)
Lutz, L. E. (M)
Wellman, P. H., Jr. (M)

Lowell (B-MV-1)
Aslanian, A. (M)
Cadran, L. R. (M)
Depolito, M. J. (A)
Dukakis, S. G. (M)
Johnson, B. H. (A)
Karas, N. V. (M)
Kirwin, G. J. (M)
Mathela, C. R. (M)
Michaels, A. G. (M)
Minnins, C. R. (SM)
Nicoll, P. A. (M)
Rivet, T. J. (A)
Salvador, R. L. (A)
Staples, L. E. (M)
Zygadlo, F. (M)

Ludlow (WM-1)
Mallon, J. A. (A)
Prescott, C. W. (A)

Lunenburg (BOS-1)
Bertram, M. E. (M)

Lynn (BOS-1)
Apootian, G. (A)
Andrews, H. J. (A)
Baldwin, T. H. (M)
Barnes, D. J. (M)
Cotter, J. J. (SM)
Cuozzo, D. (M)
Deradourian, C. (A)
Eklund, A. M. (M)
Goon, A. (M)
Haggis, J. C. (A)
Keenan, J. H., Jr. (A)
Michaud, R. W. (M)
Thistle, L. J. (M)

Lynnfield (BOS-1)
Carroll, F. E. (M)
Corcoran, B. W. (A)
Cronburg, C. I., Jr. (M)
Gray, D. J. (M)
Jackson, E. J. (SM)
Kremheller, W. G. (M)
Lapham, E. G. (SM)
Powell, R. F. (M)
Quayle, G. (M)
Rich, E. S. (SM)
Zimmermann, H. J. (SM)

Lynnfield Center (BOS-1)
Alberts, H. C. (M)
Benkus, P. D. (M)
Brown, O. C., Jr. (M)
Clapp, C. W. (M)
Crocker, W. S. (M)
Gates, A. F. (M)
Hunter, W. H. (M)
Hurley, D. F. (A)
Lavier, E. C. (M)
Nettleton, E. L. (M)
Perkins, K. C. (M)
Schmidt, R. A. (M)
Trenholme, W. M. (SM)

Magnolia (B-MV-1)
Jacobs, M. G. (M)
Kuffer, K. P. (M)
Martin, J. E. (M)
Swanson, G. W. (A)

Malden (BOS-1)
Alberts, H. C. (M)
Broshus, N. J. (A)
Brown, W. G., Jr. (M)
Buckley, J. P. (M)
Cutler, C. I. (M)
Demanian, M. (M)
Durante, A. C. (M)
Fast, S. (SM)
Fenton, L. F. (SM)
Frusztajer, B. B. (M)
Goss, E. (M)
Greenberg, S. A. (M)
Gurman, B. S. (M)
Harris, H. (A)
Holley, H. E. (M)
Linell, A. E. (A)
Lydiard, C. E. (A)
Lyon, R. E. (M)
Morgenstern, O. L. (M)
O'Brien, A. E., Jr. (M)
Orenberg, A. (M)
Osman, M. H. (M)
Ricupero, P. C. (M)
Rogers, R. G. (M)
Shear, L. (M)
Shelton, C. H. (M)
Sitomer, J. L. (M)
Sloan, E. L., Jr. (M)
Sotironoulos, A. (M)
Tenner, M. (M)
Thompson, R. H. (M)
Tortorella, A. (A)
Tritter, L. (M)
Weiner, E. D. (A)
Williams, E. E. (M)

Manchester (B-MV-1)
Falconer, S. (M)
Martz, W. B. (M)
McCorison, P. B. (M)
Peters, R. A. (A)
Taft, E. A., Jr. (A)
Wolfe, R. W. (M)

Manomet (BOS-1)
Martin, R. N. (M)

Mansfield (BOS-1)
Leon, B. J. (M)
Sabin, E. A. (M)

Marblehead (BOS-1)
Bach, R. E., Jr. (M)
Cartledge, L. (M)
Chun, H. H. (M)
Grant, E. F. (SM)
Harvey, N. L. (F)
Irwin, T. D., Jr. (M)
Johnson, S. L. (A)
Kilham, R. F. (SM)
Mills, E. D. (M)
Stromeyer, C. F. (M)
Weber, W. W. (M)

Marion (BOS-1)
Ayer, W. H. (M)
Bacon, F. S., Jr. (SM)
Coutu, A. J. (M)
Francis, S. A. (M)
MacLean, W. F., Jr. (M)
Smiley, E. L. (M)

Marlboro (BOS-1)
Bendel, S., Jr. (SM)
Bosselaers, R. J. (M)
Boudelais, R. J. (M)
Boyle, D. A. (M)
Brule, J. J. (M)
Bunker, W. M. (M)
Caldicott, J. K. (M)
Castellani, A. E. (M)
Clark, F. E. (M)
Danis, P. H. (M)
Davidson, F. T. (M)
Doane, D. A. (M)
Fay, F. H. (M)
Guy, S. A. (M)
Hinton, E. S. (M)
MacDonald, C. A. (M)
Osborne, W. B. (M)
Richer, P. J. (A)

Mattapan (BOS-1)
Arabian, J. H. (M)
Barlas, J. P. (M)
Breen, M. R. (M)
Collett, A. F. (M)
Ellis, B. C. (M)
Fertig, K. (M)
Frackiewicz, B. (M)
Hannon, J. J. (A)
Millen, S. G. (A)
Noah, A. S. (A)
Shnidman, D. A. (M)
Siegal, E. F. (M)
Tobey, H. M. (M)

Mattapoisett (BOS-1)
Anselmo, A. B. (A)
Collins, J. L. (SM)
Steigerwald, R. M. (M)

Maynard (BOS-1)
Best, R. L. (M)
Billups, R. R. (M)
Borish, M. L. (M)
Chanell, H. F. (M)
Clayton, J., Jr. (M)
De Turris, J. M. (M)

Dworshak, F. G. (M)
Dyett, E. G., Jr. (M)
Hanson, J. T. (M)
Janvrin, W. A., Jr. (SM)
O'Hare, W. S. (M)
Olsen, K. H. (M)
Pomier, V. H. (SM)
Priest, W. G. (M)
Teoste, R. (M)
Walsh, J. J. (M)

Medfield (BOS-1)
De Clue, J. L. (M)
Di Lorenzo, B. A. (M)
Hurd, P. A. (M)
Jacobs, C. E., Jr. (M)
Jewell, R. L., Jr. (M)
Landers, J. J. (M)
Meader, P. W. (M)
Reardon, A. P. (M)
Priestley, D. M. (M)
Spencer, G. R. (M)
Tetreault, N. E. (M)
Vanslette, R. A. (M)
Westbom, A. C., Jr. (SM)

Medford (BOS-1)
Belinski, A. M. (A)
Carter, S. P. (M)
Catarese, R. A. (A)
Cudmore, J. G. (M)
De Rosa, R. J. (M)
Covine, M. A. (M)
Fiorello, F. A. (M)
Haver, J. J. (M)
Hobbs, C. F. (SM)
Holmy, J. C. (M)
Howell, A. H. (SM)
Kinzinger, W. C. (M)
Lofgren, F. W. (SM)
Menzies, R. W. (A)
Murphy, J. A. (M)
O'Neil, S. J. (M)
Parker, R. R. (M)
Pike, A. L. (M)
Planchet, R. P. (M)
Puopolo, A. J. (M)
Rago, K. A. (M)
Rosen, G. (M)
Russell, A. D. (M)
Schell, A. C. (M)
Stevens, W. J. (SM)
Twombly, B. D. (M)
White, D. H. (M)

Medway (BOS-1)
Docherty, E. E. (A)

Melrose (BOS-1)
Baonali, J. J., Jr. (SM)
Bera, R. (M)
Christenson, E. C. (A)
Davy, S. J. (SM)
Decker, F. R. (M)
Gardiol, F. (M)
Goldberg, S. D. (A)
Gradijan, J. R. (M)
Greene, R. D. (M)
Handrich, D. D. (A)
Harrington, E. W. (M)
Houlding, N. (SM)
Jenkins, R. J. (A)
Johnson, P. A. (M)
Klane, C. H. (M)
Kotowski, J. P. (M)
Lewis, E. W. (A)
Mac Dowell, R. F. (M)
Manser, D. (A)
Manton, J. C. (M)
McGeoch, C. R., Jr. (M)
Meader, R. B. (M)
Morgenstern, J. C. (A)
Morton, G. E. (A)
Mrose, J. E. (M)
Rogers, W. S. (A)
Rowell, W. G. (M)
Schurgin, S. M. (M)
Wong, W. G. (M)
Young, N. H. (A)

Melrose Highlands (BOS-1)
Braden, R. S. (A)

Methuen (B-MV-1)
Baron, R. N. (M)
Beaulieu, E. L. (A)
Bellis, W. E. (M)
Callahan, C. A. (M)
Chontoian, P. (SM)
Glodfelter, W. K. (M)
Guillette, R. A. (M)
Hall, J. K. (M)
Kugelman, F. (M)
Masiello, L. D. (M)
Ryan, J. W., Jr. (A)
Savoie, E. J. (M)
Simoes, C. R. (A)
Woodburn, E. S., Jr. (M)

Middleton (B-MV-1)
Hayden, P. C. (A)

Milford (BOS-1)
Kurlansky, S. (A)

Millbury (BOS-1)
Davis, R. F. (M)

Millis (BOS-1)
Biagiotti, R. J. (M)
Healy, T. J., Jr. (M)
Mav, F. G. (A)
Minicucci, R. P. (M)
Watson, W. H. (M)
Yarbrough, S. L. (SM)

Milton (BOS-1)
Arnold, C. E. (M)
Baker, B. H. (M)
Bradshaw, D. B. (M)
Curry, W. C. (M)
Day, W. J. (M)
Emery, R. A. (M)
Gerber, A. (M)
Jeffries, D. (SM)
Menadier, P. T. (A)
Metcalfe, I. J. (M)
Mullen, J. A. (SM)
O'Connell, J. J., Jr. (M)
Oplinger, J. C. (M)
Scheffler, E. C. (M)
Shnitzler, R. K. (M)
Spitz, H. S. (A)
Stemick, S. H. (M)
Wernick, D. H. (A)
Wilkie, L. E. (A)

Minot (BOS-1)
Mongeau, R. A. (M)

Nabnasset (BOS-1)
Rhodes, J. F. (A)
Russell, E. D. (M)

Nantucket (BOS-1)
Brown, H. W. (M)
Whitehouse, F. E. (M)

Natick (BOS-1)
Balekdjian, K. (M)
Batcheller, A. (SM)
Blaisdell, A. A. (M)
Bram, J. M. (M)
Brosnahan, R. E., Jr. (M)
Brunl, D. J. (M)
Cashen, J. F. (M)
Chapin, J. W. (M)
Cheney, J. F. (M)
Child, J. W. (M)
Christopher, N. S. (A)
Clay, B. R. (SM)
Coelliss, F. B. (A)
Devane, M. E. (M)
Driscoll, J. F. (M)
Driscoll, V. (M)
Fenzel, F. A. (M)
Frenlere, J. J. (A)
Gastaldo, V. (M)
Geler, L. W. (SM)
Greim, R. W. (A)
Hamilton, R. L. (M)
Harden, C. M. (M)
Hurd, A. (M)
Hilliard, I. W. (SM)
James, F. E. (M)
Jones, W. C., Jr. (M)
Kamens, B. R. (SM)
Kane, G. (M)
Kessel, B. (M)
Kidd, M. C. (SM)
King, C. M. (M)
Kobel, T. A. (M)
Korenberg, S. (SM)
Kotsatis, C. J. (A)
Lee, R. A. (M)
Levin, M. H. (SM)
Lockhart, H. H. (M)
Long, F. (M)
Long, R. G. (M)
Luftman, A. S. (M)
Lyford, J. C. (A)
Malloy, T. J., Jr. (A)
Malpass, D., Jr. (M)
Marston, G. H. (M)
McLean, A. S. (A)
Meyer, M. A. (M)
Nye, J. H. (M)
Perilli, R. R. (M)
Porter, A. D. (M)
Repella, N. (SM)
Roberts, H. G. (M)
Rosenthal, M. L. (M)
Rubin, R. (M)
Saad, T. S. (SM)
Savell, R. E. (M)
Searle, W. A., Jr. (A)
Shedd, E. F., Jr. (M)
Sheppard, L. E. (M)
Sobel, H. S. (M)
Stifter, F. J. (M)
Swanson, S. C. (M)
Tippe, S. (M)
Treiber, R. (M)
Washington, L., Jr. (M)
Weiss, B. J. (M)
Whigham, T. J. (M)
Whitcraft, W. A., Jr. (SM)
White, D. J. (M)
White, M. M. (M)
Wilde, R. E. (A)
Yelsey, A. (A)
Zens, R. G. (M)

Needham (BOS-1)
Adams, H. E. (A)
Alden, J. M. (A)
Alessi, P. A. (M)
Alpert, E. (M)
Ayoub, M. A. (M)
Baker, D. E. (A)
Baldwin, P. K. (SM)
Bello, P. A. (M)
Bullard, A. H., Jr. (M)
Bussell, N. H. (M)
Cook, J. C. (M)
Craig, R. B. (M)
Cross, H. H. (SM)
Dawson, W. F. (M)
De Miglio, F. J. (M)
Dench, E. C. (SM)
Digan, T. E. (M)
Dinowitz, E. E. (M)
Duffy, M. P. (SM)
Eckhardt, D. L. (SM)
Freeman, S., Jr. (M)
Goldberg, O. D. (SM)
Grabiec, J. J. (M)
Hadge, E. (M)
Handly, E. J. (M)
Harper, J. D. (A)
Henry, J. M. (M)
Hill, D. G. (M)
Hosterman, C. W. (M)
Hurd, W. H. (M)
Hyde, J. L. (M)
Jablonski, R. W. (M)
Kadet, J. (SM)
Keane, L. M. (M)
Keay, D. M. (M)
Kinne, C. B. (M)
Landall, L. B. (M)
Landman, L. (M)
Lang, K. T. (M)
Larson, G. C. (SM)
Leiner, F. C. (A)
Mahoney, T. F. (M)
McManus, R. O. (M)
Medrick, R. (M)
Miller, O. W. (M)
Morris, I. L. (M)
Muller, G. W. (M)
Nelson, C. (M)
Newman, D. J. (M)
Parker, M. S. (M)
Paulson, R. C. (M)
Pratt, R. E. (M)
Pyle, E. L. (M)
Rattman, W. J. (M)
Riceman, E. A. (M)
Ross, C. H. (M)
Rote, W. A. (SM)
Rymsha, A. F. (M)
Sargent, H. P., Jr. (A)
Smith, H. J. (M)
Stacy, J. E. (SM)
Stern, M. M. (M)
Taylor, R. W. (M)
Tiffany, G. B. (M)
Turner, J. L. (SM)
Ullman, H. A. (M)
Walker, L. G. (SM)
Weeton, W. E. (A)
Whipple, R. L. (M)
Williams, G. C. (M)
Wolfe, J. A. (M)
Wolfson, A. H. (SM)
Wyke, A. A. (M)
Zeise, F. F. (A)

Needham Heights (BOS-1)
Arthur, R. J. (A)
Brodhead, W. M. (M)
Cowperthwait, F. N., Jr. (A)
Crocker, D. C. (A)
Crowley, D. J., Jr. (M)
Dolan, F. J. (M)
Fuller, H. W. (M)
Futran, S. M. (M)
Gitelman, E. (M)
Harris, H. C., Jr. (M)
Heenan, N. I. (SM)
Jones, H. E. (M)
Joseph, D. F. (M)
Labitu, B. H. (M)
Lambert, H. T. (M)
Lazuk, A. V. (SM)
MacNeil, G. E. (A)
Nolan, W. (A)
Pucel, R. A. (M)
Sherry, M. E. (M)
Stanney, W. J. (M)
Works, A. R. (M)
Zettler, R. A. (M)

New Bedford (BOS-1)
Burbank, R. W., Jr. (A)
Cabral, C. A., Jr. (M)
Cate, A. E. (M)
Collins, E. D. (A)
Da Cruz, A. M. (M)
Dahl, H. (A)
Gonsalves, L. M. (M)
Hodgkins, C. E. (M)
Klemm, G. H. (M)
Marshall, J. D. (A)
Peirce, C. C. (M)
Picard, H. E. (M)
Pickett, J. H. (M)

Newbury (B-MV-1)
Christiansen, D. (SM)
Wright, M. E., III (M)

Newburyport (BOS-1)
Andrews, A. H. (M)
Hodge, T. P. (M)
Lynch, R. E. (M)
O'Keefe, J. D. (M)
Todd, E. P., Jr. (M)

Newton (BOS-1)
Aarons, J. (M)
Altshuler, E. E. (M)
Arnold, W. F. (M)
Aronow, S. (M)
Austin, C. S. (M)
Beedle, R. H. (M)
Blitzer, S. D. (SM)
Brockington, H. R. (M)
Buckley, D. J. (M)
Carey, W. M., Jr. (M)
Cerier, M. M. (M)
Cho, Y. (M)
Coolidge, C. A., Jr. (M)
Cox, D. M. (M)
Crist, A. H. (M)
Dal Corobbo, B. V. (M)
Dean, W. B. (A)
Eachus, J. J. (SM)
Eriksen, W. T. (SM)
Escude, J. C. (M)
Fennison, O. A. (A)
Flanagan, J. E. (M)
Golahny, Y. (M)
Gold, N. (M)
Gruber, S. (M)
Gutman, A. S. (A)
Hafer, T. W. (M)
Hagman, H. B. (SM)
Heaton, M. W. (A)
Hertz, D. (M)
Herzberg, R. F. (M)
Heyda, K. C. (M)
Higgins, J. E. (M)
Hobbs, F. W. (A)
Kincaid, M. M. (SM)
Kraemer, J. H. (M)
Kruj, J. F. (M)
Lagnado, I. (M)
Lourie, N. M. (M)
Madeson, A. H. (M)
Malone, M. H. (A)
McCormack, R. L. (SM)
Medoff, J. L. (A)
Novick, L. R. (M)
Parodi, H. A. (M)
Pote, A. J. (F)
Reeves, J. H. (M)
Rockwood, A. C. (F)
Rubin, M. D. (M)
St. George, P. W. (M)
Schiffman, M. M. (M)
Sheingold, D. H. (M)
Stacey, C. M. (M)
Sturdy, R. H. (A)
Stutsman, P. W. (M)
Terakawa, K. H. (A)
Welti, G. R. (M)
Wright, R. E. (M)

Newton Center (BOS-1)
Bloom, L. J. (M)
Brawley, H. E., Jr. (M)
Burke, A. W. (M)
Cudlitz, S. (M)
De Lollis, E. A. (SM)
Heasly, C. C., Jr. (M)
Hersh, A. L. (M)
Hill, D. C. (M)
Ingber, L. K. (M)
Kellner, R. L. (M)
Kosowsky, D. I. (M)
Krim, N. B. (M)
Linsky, A. B. (M)
Lippincott, S. (M)
Low, W. C. (M)
Mandell, A. (SM)
Plaisance, S. F. (M)
Ramsey, W. H. (M)
Riceman, S. (M)
Robinson, S. (A)
Rothstein, J. (SM)
Saret, J. (M)
Sear, H. (A)
Segal, S. (M)
Smith, M. D. (M)
Stein, S. (SM)
Tafapolsky, B. (M)
Woo, W. D. (SM)

Newton Highlands (BOS-1)
Alberts, A. R. (A)
Balmuth, N. (M)
Bates, B. (M)
Boehme, R. M. (M)
Chesler, D. A. (M)
Dorfman, J. (M)
Fallows, R. S. (M)
Friree, F. L. (M)
Leonard, R. R. (M)
McNamara, T. J. (M)
Miller, M. (M)
Osman, M. S. (M)
Porter, W. J., Jr. (M)
Ramamoorthy, C. V. (M)
Sawzer, P. B. (M)
Sciegienny, J. (M)
Spitz, M. E. (M)
Ward, W. W. (M)
Wise, N. (M)
Wolfson, J. A. (M)
Yamins, H. G. (M)

Newton Lower Falls (BOS-1)
Grossman, M. C. (M)
Mork, R. P. (M)

Newton Upper Falls (BOS-1)
Dokken, G. O. (M)
Macdonald, C. J. (A)
Smith, L. C. (SM)

Newtonville (BOS-1)
Adams, R. E. (M)
Blanton, H. E. (SM)
Broadbridge, R. E. (M)
Elliot, R. R. (M)
Fratkin, B. (M)
Goldberg, W. L. (A)
Hayes, C. J. (A)
Merchant, J. (M)
Moore, G. M., Jr. (M)
O'Hara, F. J. (M)
Oszy, A. J. (M)
Roossin, N. (M)
Sheingold, L. S. (SM)
Smith, D. C. (M)
Woodward, C. A. (A)

Norfolk (BOS-1)
Gibson, C. W. (A)
Leverone, A. A. (M)
Reed, W. L. (M)
Rhodes, B. S. (M)
Wilson, S. J. (A)

North Abington (BOS-1)
Domis, J. C. (A)
Stucke, E. A. (A)

North Adams (WM-1)
Aimi, B. R. (M)
Allison, W. M. (SM)
Brafman, H. E. (M)
Caruccio, F. (M)
Church, S. E. (M)
Cushman, N. (SM)
Devey, G. B. (M)
Dorst, S. (M)
Goodell, E. G. (M)
Henry, A. L. (M)
Hooks, A. K. (M)
Lamoureaux, R. A., Jr. (A)
Lazier, W. A. (M)
Leavitt, J. D. (M)
Lehovec, K. (F)
Mulford, J. E. (M)
Novacek, W. G. (M)
Purpura, E. (A)
Raina, K. A. (M)
Robinson, P. (M)
Slobodskoy, A. (M)
Sprague, J. L. (M)
Sprague, R. C. (SM)
Tiezzi, A. A. (SM)
Tremblay, G. V. (M)
Tyler, R. H. (A)
Wellcome, F. L., Jr. (M)

Northampton (WM-1)
Combie, A. A. (A)
Egan, A. C. (A)
King, A. D. (M)

North Andover (B-MV-1)
Anderson, R. E. (M)
Anderson, V. H. (A)
Banton, W. E. (SM)
Berger, U. S. (SM)
Bowman, J. W. (M)
Carroll, G. L. (A)
Coleman, S. B. (SM)
Custer, C. J. (M)
Eberhart, E. K. (SM)
Friis, R. W. (SM)
Graham, R. S. (SM)
Greene, P. J. (M)
Griffiths, H. D. (M)
Hallenbeck, F. J. (SM)
Hollins, C. G. (M)
Kerwien, A. E. (SM)
King, F. H. (M)
Koerner, L. F. (M)
Leavitt, C. I. (A)
Monell, F. B. (SM)
Owens, C. D. (SM)
Penick, D. B. (SM)
Perkins, E. H. (SM)
Pomeroy, A. F. (SM)
Powers, R. E. (M)
Pustarfi, H. S., Jr. (A)
Raymond, D. H. (M)
Ronne, J. S. (M)
Sagaser, D. D. (M)
Sanders, R. W. (M)
Sandsmark, P. I. (M)
Simmonds, T. H., Jr. (M)
Simon, H. (M)
Smith, R. S. (M)
Somers, L. (M)
Stansel, F. R. (SM)
Sykes, R. A. (F)
Taylor, E. R. (M)
Terranova, A. P. (A)
Thompson, T. W. (M)
Thulin, C. W. (SM)
Topor, F. S. (M)
Wells, H. G., Jr. (M)
Williams, O. L. (M)
Woodmansee, B. S. (SM)
Yaeger, R. E. (M)
Yeutter, C. S. (M)
Young, W. J. (M)

North Attleboro (BOS-1)
Bliss, B. J. (A)
Scanlon, W. C. (M)

North Beverly (BOS-1)
Briggs, R. S. (M)

North Billerica (BOS-1)
Alpenin, N. E. (M)
Callahan, B. J., Jr. (M)
Jeans, R. W. (A)

Northboro (BOS-1)
Molloy, K. H. (M)
O'Brien, H. F. (A)

Northbridge (BOS-1)
Swidrak, T. C. (M)

North Chelmsford (B-MV-1)
De Vita, A. J. (M)
Pocs, K. K. (M)
Prue, H. W. (A)
Seay, W. B. (M)

North Dartmouth (BOS-1)
De Matos, H. V. (M)
Simmons, F. A. (M)
Walder, R. (M)

North Eastham (BOS-1)
Philbrick, E. L., Jr. (A)

North Easton (BOS-1)
Ames, D. (M)
Anderson, A. L. (M)
Danahy, E. L. (A)
Dudley, T. C. (M)
Govela, J. F. (A)

North Egemont (WM-1)
Christman, I. H. (A)

North Natick (BOS-1)
Getter, C. M. (M)
Randolph, R. V. (M)

North Quincy (BOS-1)
Fassino, E. G. (M)

North Reading (B-MV-1)
Donnelly, F. E., Jr. (M)
Harkless, L. B. (M)
Karels, L. E. (M)
Knight, T. G. (SM)
Manoly, A. E. (M)
Meekins, M. C. (M)
Millen, J. (M)
Pratt, H. J., Jr. (M)
Rex, F. J., Jr. (M)
Ross, T. C. (M)
Van De Stadt, W. (M)

North Scituate (BOS-1)
Creaser, C. W., Jr. (M)
Rowland, H. J. (SM)
Sheridan, W. R. (M)

North Truro (BOS-1)
Smarr, G. D. (A)

North Westport (BOS-1)
Cardozo, D. J. (M)

North Weymouth (BOS-1)
Bandini, A. L. (M)
Battista, V. J. (M)

North Wilmington (BOS-1)
Bloom, M. I. (M)
Bryn, S. L. (A)
Duffy, J. F. (M)
Gallo, L. F. (M)
Gunning, F. A. (A)
Halloran, T. W. (M)
Kritter, E. L. (M)
Montgomery, J. L. (SM)
Zalno, A. L. (A)

North Woburn (BOS-1)
Goldberg, W. P. (M)

Norton (BOS-1)
Potts, D. L. (M)

Norwell (BOS-1)
Cann, J. D. (A)
Dawson, J. W. (F)
Halford, J. H., Jr. (M)
Harris, C. C. (SM)
Hills, W. L. (M)
Howes, B. S. (M)
Maglathlin, R. N. (SM)
Zambuto, D. A. (M)

Norwood (BOS-1)
Arnstein, P. B. (M)
Baker, J. L. (M)
Bazzy, W. (M)
Burns, H. S. (M)
Carrara, R. T. (M)
Close, H. N. (A)
Cronan, P. H. (M)
Cunningham, T. E. (M)
Erb, D. R. (M)
Fitzgerald, T. J., Jr. (M)
Glynn, J. J. (M)
Jedrychowski, J. L. (SM)
Johnson, H. A. (M)
Kleps, E. W. (A)
Larsen, R. L. (M)
Lawlor, J. A. (M)
Martinson, R. M. (M)
Monahen, A. M. (M)
Nejame, S., Jr. (M)
O'Connor, J. C. (M)
Primpas, L. V. (M)
Race, H. C. (M)
Sall, I. (M)
Smith, R. D. (SM)
Stalller, J. J. (SM)
Stone, I. C. (M)
Susi, A. F. (M)
Teele, J. H. (M)
Thaxter, J. H., Jr. (M)
Trask, D. B. (M)
Tucker, J. E., Jr. (M)

Nutting Lake (BOS-1)
Bacon, R. R. (M)

Orange (BOS-1)
Mellon, R. E. P. (M)

Orleans (BOS-1)
Long, J. B., Jr. (M)

Otis (WM-1)
Santos, P. J. (M)

Otis AFB (BOS-1)
Craig, W. H., Jr. (M)
Forbes, D. F. (M)
Smithpeter, C. H. (M)

Paxton (BOS-1)
Alexander, D. C. (SM)
Hirvi, H. E. (M)
Stannard, G. E. (M)

Peabody (B-MV-1)
Allen, R. A. (M)
Callely, J. A., Jr. (A)
Cherwek, R. A. (M)
Cohen, T. J. (M)
Collins, P. J. (M)
Coulthard, J. J. (M)
Dodge, R. B. (A)
Giuffrida, J. (M)
Grayton, R. F. (M)
Horlick, A. M. (A)
Lapointe, J. A. (M)
Madore, R. J. (M)
Maguire, W. M. (SM)
O'Brient, E. J., Jr. (M)
Pinkstaff, J. R. (M)
Senges, W. (M)
Shapiro, I. (A)
Shapiro, J. M. (M)
Sowyrda, J., Jr. (M)
Stem, A. J. (M)

Pepperell (BOS-1)
Stromsted, E. A. (M)
Wood, R. (SM)

Pittsfield (WM-1)
Ackerson, R. D. (M)
Allender, C. W. (M)
Billetter, R. A. (M)
Bogdan, A. (M)
Borgese, A. J. (SM)
Bress, E. (M)
Cabaniss, E. H. (SM)
Canfield, E. B. (M)
Capek, S. J. (M)
Casteel, M. R. (M)
Chertok, S. L. (M)
Ciaschini, W. (M)
Cohen, R. S. (M)
Conover, W. B. (M)
Corman, D. (M)
Crawford, C. (M)
Degenhardt, R. M. (M)
Draper, O. L. (M)
Druschel, W. H. (M)
Egan, W. E. (M)
Forman, A. H., Jr. (SM)
Fox, E. D. (M)
Gammell, D. L. (A)
George, C. H. (M)
Gibson, C. T. (M)
Gnacek, W. J. (M)
Green, W. W. (SM)
Hammack, T. G. (M)
Hanlon, J. E., Jr. (M)
Hannabach, J. (M)
Hardy, E. R. (A)
Harris, L. B. (M)
Hemmes, R. T. (M)
Henry, R. J. (M)
Henry, T. J. (M)
Holtz, E. F. (M)
Hucko, H. (M)
Laurent, J. A., Jr. (M)
Loucks, W. J. (A)
Luoma, R. A. (M)
Mackey, E. F. (M)
Mayer, R. C. (M)
McFadyen, R. J. (M)
Miles, R. J. (A)
Minden, G. N. (M)
Mollerstuen, R. B. (M)
Musbach, M. W. (M)
Neff, J. W. (M)
Neubert, W. E. (M)
Newsham, C. D. (M)
Patch, R. J. (M)
Peterson, G. R. (SM)
Pierce, J. L. (M)
Podolsky, L. (F)
Price, J. C. (M)
Rabins, L. (M)
Reynolds, W. J. (M)
Richardson, P. J. (M)
Samsel, R. W. (M)
Shepard, B. R. (SM)
Shupe, R. H. (M)
Sienklewicz, H. S. (A)
Silver, G. L. (M)
Smeester, R. C. (M)
Spencer, T. C. (M)
Taniguwa, G. (M)
Tanner, E. G. (M)
Thibodeau, L. E. (M)
Tichenor, W. B. (M)
Trowill, J. L., Jr. (M)
Valda, S. J. (M)
Wakefield, W. F. (M)
Wheeley, E. A. (M)
Wiley, R. J. (M)
Wright, W. D. (M)

Plainville (BOS-1)
Negus, L. E. (M)

Quincy (BOS-1)
Brown, R. S. K. (A)
Burak, M. (M)
Della Lucca, L. E. (M)
Dewey, W. P. (A)
Fox, R. M. (A)
Grass, A. M. (M)
Grass, R. W. (M)
Kelleher, R. B., Jr. (M)
Kramer, R. (M)
Langeller, G. P. (M)
McAuley, J. A. (M)
Miller, G. F. (M)
Obreza, W. S. (A)
Osgood, R. C. (M)
Pennypacker, J. C. (M)
Scolamiero, D. M. (M)
Spencer, G. R. (M)
Woodley, G. V. (M)

Randolph (BOS-1)
Bartell, A. D. (A)
Hatch, R. C. (M)
Heaton, L. B. (A)
Kaiser, J. A. (A)
Klabis, R. A. (M)
Ludwig, D. R. (M)
Mann, A. M. (M)
Pasciuto, R. D. (M)
Rice, K. L. (A)
Roeber, F. W. (M)
Spector, I. (M)
Wolf, S. H. (A)

Reading (BOS-1)
Aitken, W. M. (M)
Alter, R. S. (M)
Baranofsky, J. J. (M)
Blottman, J. B., Jr. (M)
Brown, W. T. (A)
Butcher, S., Jr. (M)
Caywood, R. W. (SM)
Collins, R. M. (M)
Congdon, P. A. (A)
Dratch, J. E. (A)
Dvarero, J., Jr. (M)
Ellis, C. E., Jr. (M)
Emero, R. F. (M)
Fasciano, E. R. (A)
Freeman, R. I. (A)
Gates, E. K. (M)
Girlunas, J. J. (M)
Grande, G. C. (M)
Guy, H. D. (SM)
Johansen, D. E. (M)
Loesch, B. (M)
Morrison, D. A. (M)
Murray, N. H. (M)
Nichols, R. P. (A)
O'Brien, J. A. (SM)
Parsons, R. L. (M)
Pleasance, C. L. (M)
Rienzo, J. J., Jr. (M)
Robbins, L. W. (A)
Rosenthal, R. E. (M)
Sallet, A. P. (M)
Smith, W. R. (M)
Spongberg, R. C. (M)
Taylor, N. H. (SM)
Vant, L. M. (SM)
Welnroth, S. A. (M)
White, L. C. (M)
Wood, A. F. (M)
Zerfas, G. J. (A)
Zitzow, H. P. (M)

Revere (BOS-1)
Carrabes, M. J. (M)
Freedman, I. M. (M)
Harwood, E. (A)
Leyden, F. V. (A)
Mastromarino, J. A. (A)
Romano, L. P. (M)
Siegel, M. (M)
Sofia, A. J. (M)
Tranfaglia, T. E. (A)
Vecchia, E. F. (A)

Rockland (BOS-1)
Conley, F. M. (M)
Kaupp, D. R. (M)
Linney, F. J., Jr. (A)
Masison, C. J., Jr. (M)
Westhaver, R. O. (M)

Rockport (B-MV-1)
Betts, M. D. (M)
Johnson, L. F., Jr. (M)
Wendell, E. N. (F)

Rostindale (BOS-1)
Amante, J. J. (M)
Bisson, R. A. (A)
Catalano, A. L. (M)
Di Giorgio, J. A. (M)
Goodway, J. T. (M)
Murray, J. P. (A)
Pamagian, H. R. (A)
Saunders, J. H. (M)
Schuster, E. C. (A)
Wallace, P. J., Jr. (M)

Rowley (B-MV-1)
Jackson, A. R. (M)
McKinley, J. J. (A)
Potts, T. J., Jr. (SM)

Roxbury (BOS-1)
Goldman, H. N. (A)
Magnani, B. J. (A)
Marcellus, B. (M)
Metten, W. H. (M)
Pengeroh, I. E. (M)
Quantarone, G. A. (A)
Roch, B. (M)
Samuels, F. A. (M)
Taylor, G. H. (M)
Tomass, J. (A)
Walker, R. M. (SM)
Zisl, W. Z. (A)

Sagamore (BOS-1)
Lince, D. L. (M)

Salem (B-MV-1)
Borden, R. A. (A)
Bourque, K. E. (M)
Carter, L. J. (M)
Cosine, G. E. (A)
Jacavanco, D. J. (M)
Jackson, W. E. (M)
Jensen, V. C. (A)
Olbrych, J. E. (M)
Palnville, L. P. (A)
Rolstein, J. (M)
Shrader, D. J. (M)
Smerczynski, J. E. (M)
Wiederhold, P. R. (A)

Salisbury (B-MV-1)
Gholson, A. H. (M)

Sandwich (BOS-1)
McCoy, J. F. (M)

Saugus (BOS-1)
Atkins, E. R. (A)
Bailey, A. D. (M)
Bradbury, R. A. (M)
Cummings, W. C. (M)
Cunningham, J. E. (M)
Katis, C. W. (A)
Marie, C. G. (A)
Morley, R. A. (M)
Moulton, W. D. (M)
Williams, A. R. (M)

Saxonville (BOS-1)
Baker, T. E., Jr. (M)
Beling, T. E. (A)
Breslow, D. H. (A)
Brody, G. H. (M)
Brunelly, J. J., Jr. (M)
Carter, L. W. (M)
Crossley, W. P. (M)
Engman, G. E. (M)
Feldman, C. L. (M)
Floyd, W. B. (M)
Glasby, P. A. (M)
Goldman, E. M. (M)
Gorman, R. K. (M)
Hersey, O. H. (M)
Hevesh, A. H. (SM)
Hilar, E. P. (M)
Hosmer, B. E. (M)
Keen, D. R. (M)
Kokidko, A. (M)
Levy, M. R. (M)
Libenson, L. H. (A)
Mannette, R. T. (M)
Ponte, A. G. (M)
Riegelhaupt, N. H. (M)
Rubin, L. S. (M)
Sebestyen, G. S. (M)
Spergel, P. (M)
Stearns, J. W. (M)
Sullivan, L. T. (M)
Tittebaum, B. M. (M)
Waltzer, B. (M)

Seekonk (BOS-1)
Blake, D. L. (M)
Landesberg, M. M. (M)

Sharon (BOS-1)
Bartlett, E. R. (M)
Bresnick, H. L. (M)
Carey, J. S. (A)
Clements, W. S. (M)
Cushman, R. W. (A)
Ellins, V. (M)
Goldresen, J. J. (M)
Laschever, N. L. (SM)
Lerner, H. E. (A)
Press, M. (SM)
Rochefort, J. S. (SM)
Rosenthal, M. H. (A)
Sallen, M. J. (M)
Wefald, K. O. (M)

Sherborn (BOS-1)
Hiller, E. R. (M)
Rockwell, C. F. (M)
Saunders, W. F. (A)

Shrewsbury (BOS-1)
Cowan, B. (M)
Harrington, E. W. (A)

Somerset (BOS-1)
Ironfield, R., Jr. (M)

Somerville (BOS-1)
Bradley, C. L. (M)
Cheverie, H. J., Jr. (A)
Clark, R. A. (M)
Fante, R. L. (M)
Fitzgerald, W. D. (M)
Gaudet, F. G. (M)
Giddings, O. M. (M)
Giusti, A. (A)
Goldstein, A. G. (M)
Kostas, P. D. (M)
Marshall, W. (A)
Matthewson, A. (M)
McNamara, W. E. (A)
McQuaid, P. A. (M)
Noonan, J. T. (A)
Pantazelos, P. C. (M)
Paze, P. T. (M)
Pennington, F. J., Jr. (A)
Phillips, D. R. (M)
Siegel, F. (M)
Simmons, A. J. (SM)
Solomon, A. N. (A)
Spignese, E. E. (M)
Thomas, K. J. (M)
Vaccaro, P. (M)
Ventura, R. A. (A)
Vigoh, M. (A)
Zullo, W. J. (M)

South Acton (BOS-1)
Boole, R. A. (M)
Davenport, J. E. (M)
Fadiman, J. R. (M)
Ferguson, J. B. (M)
Gerhardt, R. H. (M)
Harris, M. R. (M)
Hendrie, T. C. (M)
Hennemeyer, R. M. (M)
Hopkins, C. (SM)
Jewitt, H. S. (SM)
Kehoe, A. V. (M)
MacMullen, A., Jr. (M)
McCalmont, A. M. (A)
Pickering, R. L. (M)
Wallace, J. L. (M)
Whittle, H. P. (M)
Wishner, R. P. (M)

Southampton (WM-1)
Sholl, H. A. (M)

Southboro (BOS-1)
Borghetti, J. C. (A)
Dobson, A. M. (A)
Jolicoeur, R. A. (M)
Parish, H. A. (M)

South Boston (BOS-1)
Hunter, R. A., Jr. (A)
Karossa, R. (M)
Stevens, E. F. (M)
Swirbalus, R. A. (M)
Zikas, A. J. (M)

South Braintree (BOS-1)
Chaff, A. N. (A)
Goodwin, R. C. (M)
Hess, R. L. (A)
Hirtle, A. C. (M)

Southbridge (BOS-1)
Bergmann, S. M. (M)
Chace, H. E. (A)
Tillyer, E. D. (SM)
Wells, J. M. (SM)

South Chatham (BOS-1)
O'Day, A. C. (A)

South Dartmouth (BOS-1)
Cadema, J. B. (A)
Davis, S. L. (SM)
Fitzsimmons, T. J. (M)
Golenpaul, C. (A)
Grinnell, P. S., Jr. (A)
Mancino, V. J. (M)
Underwood, J. S. (A)

South Egremont (WM-1)
Borg, W. N. (M)

South Hamilton (BOS-1)
Carr, E. G. (M)
Hamlin, W. O. (A)
Peek, S. C. (SM)
Rowlands, E. R. (M)
Ryan, H. G. (SM)
Wiggin, W. R. (M)
Wolfskill, J. R. (SM)

South Hingham (BOS-1)
Bird, W. S. (A)

South Lancaster (BOS-1)
Maurer, W. M. (M)

South Lincoln (BOS-1)
Bridge, H. P. (M)
Brown, D. R. (M)
Faran, J. J., Jr. (SM)
Finke, H. E. J. (M)
Gibbs, N. E. (M)
Gross, T. A. O. (M)
Hellman, M. H. (M)
Row, R. V. (A)
Shansky, D. (M)
Smulowicz, B. (SM)
Stevens, F. R. (M)

South Sudbury (BOS-1)
Blanchard, J. M. (M)
Bobroff, D. L. (M)
Caldwell, R. J. (SM)
Cohen, H. I. (M)
Dix, T. S., Jr. (SM)
Duncan, K. W. (M)
Grenemeier, H. J. (A)
Haworth, L. D. (M)
Johnson, R. N. (M)
McAleer, H. T. (M)
Ostroff, E. D. (M)
Warner, G. L. (M)
Waters, R. A. (SM)

South Weymouth (BOS-1)
Brown, C. S. (M)
Cook, W. M. (M)
Coughlin, J. J. (A)
Frazar, E. P. (A)
Gustafson, R. W. (M)
Hill, H. F. (M)
Matteson, D. W. (M)
McMonagle, D. B. (M)
Stefanowicz, S. S. (A)

Springfield (WM-1)
Andrews, W. J. (A)
Bookman, R. E. (SM)
Bushey, R. A. (M)
Cameron, J. A. (M)
Cushinu, T. F. (M)
Fratar, F. J. (M)
Glista, E. M. (M)
Huntoon, V. J. (A)
Hyfantis, J. F. (M)
Kearns, R. F. (M)
Kitty, F. J. (M)
Laliberte, E. J. (M)
Lockwood, L. W. (M)
Lyman, J. R. (A)
McComb, R. P. (A)
Penk, C. (A)
Preston, R. J. (M)
Salmond, D. A. (A)
Townsend, G. R. (M)

Stoneham (BOS-1)
Anderegg, J. S. (M)
Bassett, J. D. (SM)
Bird, G. L., Jr. (A)
Boyd, H. R. (SM)
Burke, N. W. (M)
Cayer, R. E. (M)
De Agazio, E., Jr. (M)
Devoe, D. B. (M)
Farkas, A. I. (A)
Feist, W. M. (M)
Halchak, J. R. (M)
Herrera, J. C. (M)
Jamgochian, E. (SM)
Johnson, E. P., Jr. (M)
Krahn, H. J. (M)
Lucy, R. F. (M)
Norlund, B. (M)
Perry, B. D. (M)
Riska, G. G. (M)
Rojak, F. A. (M)
Stone, M. L. (M)
Williams, J. J. (M)

Stoughton (BOS-1)
Bennett, H. W. (SM)
Gluda, H. W. (M)
Litchfield, P. O. (A)
McDonnell, J. Q. (M)
McGarvey, J. P. (A)
Nichols, R. F. (M)
Ostis, J. N. (M)
Rolt, G. H., Jr. (A)
Ross, B. F., Jr. (M)
Scripture, F. R. (SM)

Stow (BOS-1)
Carbary, E. M. (M)
Caswell, C. F. (M)
Corzine, R. H. (A)
Gulney, R. J. (A)
Kundert, W. R. (M)
Mong, R. C. (M)
Olson, K. H. (M)
Skidmore, D. (M)

Sturbridge (BOS-1)
Beguin, F. P. (SM)

Sudbury (BOS-1)
Anderson, W. R. (M)
Armstrong, D. G. (M)
Amum, M. (M)
Babigian, A. A. (M)
Bahlkow, A. P. (M)
Beaudette, C. G. (M)
Bell, J. W. (SM)
Black, P. B. (SM)
Borts, R. B. (SM)
Bradley, G. O. (M)
Breesman, R. N. (M)
Burgarella, J. P. (M)
Burke, E. J. (M)
Byington, R. E. (M)
Chase, D. G. (M)
Coullard, J. B. (SM)
Crocker, C. F. (M)
Cron, A. C. (M)
Dahlstrom, R. D. (M)
Distler, R. C. (M)
Earnshaw, W. A. (M)
Edwards, L. C. (M)
Ellinthorpe, A. W. (M)
Emerson, W. P. (A)
Falkowitz, M. (M)
Ferguson, H. B. (M)
Fraim, E. G. (M)
Gillespie, N. R. (SM)
Griffin, W. J. (M)
Hall, P. R. (M)
Hallett, J. L., Jr. (M)
Hamm, G. M. (SM)
Hand, S. E. (SM)
Hathaway, S. W. (SM)
Kahler, R. C. (M)
Kalisky, A. (M)
Kaliszewski, T. (M)
Keith, W. W. (M)
Kibbler, T. H. (A)
Kile, R. L. (M)
Kirshner, D. R. (SM)
Kozloff, J. (M)
Laforge, L. H., Jr. (SM)
Lambert, J. C. (A)
LLoyd, J. W. F. (M)
Lupton, F. A., Jr. (A)
Mackin, R. N., III. (M)
Mac Millan, A. J. (M)
Martinengo, R. D. (M)
Mazzarese, N. J. (M)
McCarthy, D. J. (M)
McCullough, J. H. (A)
Morrison, L. H. (SM)
Moyer, J. W. (SM)
Mundo, C. J., Jr. (SM)
Partridge, G. R. (M)
Petrishen, J. (M)
Plum, L. W. (M)
Rawlinson, P. E. (M)
Reach, R. W., Jr. (SM)
Reichard, R. W. (M)
Ricciardi, F. (M)
Saraglow, C. (M)
Savoy, R. P. (M)
Semon, W. L. (SM)
Sherman, D. A. (M)
Silberg, P. A. (SM)
Sims, J. C., Jr. (SM)
Smith, A. H., Jr. (M)
Smith, L. R. (M)
Stauffer, F. K. (M)
Steudel, F. (M)
Stralton, J. C. (M)
Thomas, E. K. (M)
Thomas, H. H. (SM)
Throckmorton, K. L. (M)
Towle, W. C. (M)
Wachowski, H. M. (SM)
Waldman, A. (M)
Ward, R. L. (M)
Wargo, J. J. (M)
Watson, J. C., Jr. (M)
Wellock, R. R. (M)
Whelpton, J. P. (M)
Willey, J. C. (M)

Sunderland (WM-1)
Garbiel, R. L. (M)

Sutton (BOS-1)
Tuttle, H. W., III. (A)

Swampscott (BOS-1)
Abel, F. (M)
Berman, I. (SM)
Crane, J. J. (M)
Creighton, J. E. (A)
Flerstan, S. A. (M)
Ludlam, W. A. (M)
Manna, E. E. (M)
Miasnick, J. D. (M)
Quint, A. S. (M)
Strongylos, M. L. (A)
Williamson, R. J. (M)

Taunton (BOS-1)
Snell, C. R., Jr. (A)
Wengal, S. G. (M)

Tewksbury (B-MV-1)
Acosta, J. J. (A)
Ball, J. A. (M)
Brent, P. (A)
Bjork, L. W. (M)
Cohen, A. (SM)
Goldstein, A. L. (M)
Gregg, B. (M)
Kelleher, J. J., Jr. (M)
McCabe, W. J. (A)
McCarthy, J. D. (A)
Weaver, C. E. (A)
Wholey, L. T. (A)

Topsfield (B-MV-1)
Armstrong, J. H. (M)
Gage, G. H., Jr. (M)
Goddard, C. T. (SM)
Harrington, E. C. (M)
Heaton, R. G. (M)
Jansen, J. J. (M)
Kirchmaier, T. W. (M)
Lape, P. B. (M)
Matarazzo, T., Jr. (A)
McCoubrey, A. O. (SM)
McKenney, G. M., Jr. (M)
Norton, C. A. (M)
Spearin, F. W., Jr. (M)
Veerkamp, L. J. (M)
Waldron, K. A. (M)
Wilder, J. E. (M)
Wimpy, E. K. (SM)

Townsend (B-MV-1)
Morey, P. E. F. (M)

Tyngsboro (B-MV-1)
Du Bois, W. E. (M)
Landry, L. H. (M)
Spindell, F. A. (SM)

Uxbridge (BOS-1)
Tancrell, R. H. (M)
Wisnowski, F. B. (M)

Waban (BOS-1)
Altman, J. L. (M)
Antman, M. A. (SM)
Apelbaum, J. H. (M)
Belkin, A. (A)
Bero, A. L. (A)
Berman, G. M. (M)
Berner, A. S. (M)
Ellis, R. H. (M)
Hall, R. E. (M)
Knapp, G. P. (SM)
McDade, H. J. (A)
Mofenson, J. (SM)
Parisi, F. E. (M)
Platt, H. J. (SM)
Rosato, D. V. (SM)
Salzer, E. (M)
Scotch, N. (A)
Sonnenfeldt, R. W. (SM)
Spencer, P. L. (F)
Storer, R. V. (M)
Ward, A. E. (SM)

Wakefield (BOS-1)
Amsterdam, R. E. (M)
Baker, W. F. (M)
Bianco, J. F. (SM)
Blackie, J. C. (M)
Burnett, E. F. (A)
Caiani, A. (M)
Camubba, E. R. (A)
Cicciarella, C. (M)
Clark, N. F. (M)
Cook, O. L. (SM)
Gallagher, P. (A)
Gardella, C. E. (M)
Gheorghiu, P. (M)
Gross, M. (M)
Haas, E. W. (M)
Heft, E. J. (M)
Hirshberg, L. H. (A)
Howe, S. E. (M)
Jackson, G. E. (M)
Jacobs, R. (M)
Jennings, H. F. (A)
Johnnen, C. F. (M)
Kapadia, B. R. (M)
Koss, N. A. (SM)
Lasch, K. B. (M)
Lowry, R. W. (M)
Lynch, E. E. (SM)
Manzini, G. A. (M)
Navon, D. H. (M)
Pawlowski, B. J. (SM)
Peet, A. R. (A)
Peters, S. J. (M)
Pruvenok, A. J., Jr. (M)
Reid, E. (M)
Rosenbaum, R. N. (M)
Saffir, O. S. (M)
Slusher, W. E. (M)
Snell, C. T. (M)
Somerset, S. J. (M)
Sorbye, K. E. (M)
Stein, H. (SM)
Surel, E. G. (M)
Ussallis, J. S. (A)
Verdooren, H. W. (M)
Whittaker, H. F., Jr. (M)
Winsor, D. L. (M)

Waloole (BOS-1)
Aho, A. W. (M)
Brown, G. J. (M)
Daly, J. M. (M)
Davis, W. F. (A)
Esthimer, W. F. (M)
Fischer, R. P. (M)
Hart, W. H. (M)
Lord, J. S. (A)
Paterson, R. F. (M)
Ryan, W. J. (M)
Soderstrom, R. E. (M)

Waltham (BOS-1)
Allen, R. R. (M)
Applegate, C. E. (SM)
Aron, N. (SM)
Arslan, H. (M)
Bennett, R. K. (M)
Berkstresser, R. W. (M)
Bixby, B. S. (A)
Black, G. (A)
Blundell, L. B. (M)
Boatwright, J. T., Jr. (M)
Boole, W. N. (M)
Booth, A. E. (M)
Beth, W. A. (M)
Brady, J. P., Jr. (SM)
Brown, D. F. (M)
Brunton, D. A. (A)
Callahan, T. T. (A)
Charles, R. E. (SM)
Chemosky, E. J. (M)
Chittenden, K. M. (M)
Colten, B. (SM)
Conover, J. C. (M)
Cooperstein, M. (M)
Cononiti, S. C. (SM)
Crosby, R. E. (M)
Crosthwait, J. L. (M)
Da Mocogno, N. G. (M)
Dayton, D. L. (M)
Delano, A. B. (M)
Devereux, J. G. (A)
Diermann, J. P. (M)
Dombrowski, G. E. (M)
Dube, J. J. A. (A)
Dukat, F. M. (SM)
Dunbar, E. E. (M)
Dunlap, W. C., Jr. (F)
Edgar, R. H. (M)
Edge, T. R. (M)
Englund, E. T. (A)
Esposito, R. (M)
Etkind, I. J. (M)
Faulkner, W. H., Jr. (SM)
Feinberg, I. (M)
Findeis, W. J. (M)
Fine, N. M. (M)
Flad, F. R. (M)
Forderhase, R. S. (M)
Foster, R. P. (A)
Frachtman, H. E. (M)
Gagnon, W. J. (M)
Gibson, S. K. (M)
Gildea, H. (M)
Gillen, R. M. (A)
Gostenholer, C. (M)
Gould, J. J. (A)
Grace, J. W. (M)
Grace, P. A. (M)
Granger, E. A. (M)
Greene, A. H. (M)
Grund, J. B. (SM)
Haines, J. G. (M)
Hall, H. S. (SM)
Hamant, D. (M)
Hannon, S. (SM)
Haselton, E. F. (M)
Heineck, A. W. (M)
Hines, P. P. (A)
Hoar, G. W. (M)
Hobby, J. L. (A)
Hosbjor, A. (M)
Hubbell, R. L. (M)
Huntley, W. F. (M)
Jacobs, R. M. (M)
Jones, R. V., Jr. (M)
Jones, W. T., Jr. (M)
Joyal, M. W. (M)
Kaplan, P. D. (M)
Kellson, J. (SM)
Kelly, T. J. (M)
Kersey, J. L., Jr. (M)
Khouri, D. E. (A)
Knight, M. C. (M)
Koskinen, G. K. (M)
Langmuir, D. B. (A)
Lavine, J. M. (SM)
Lester, D. R. (M)
Lyon, E. F. (M)
MacGregor, D. F. (A)
MacMaster, G. H. (A)
Maher, C. E. (M)
Manley, H. J. (A)
Martel, C. W. (SM)
Melanson, F. J. (M)
Milano, U. (M)
Moakler, E. J. (M)
Morley, H. B. (M)
Murray, P. C. (M)
Navarro, R. C. (M)
Naylor, T. K. (M)
Neider, F. V. (M)
Nelson, R. E. (M)
Newman, S. M. (M)
O'Brien, D. G. (M)
Parkinson, G. B. (A)
Pearson, A. L. (M)
Peters, C. J. (M)
Pick, G. G. (M)
Poldolan, J. C. (M)
Pollack, D. (SM)
Powers, K. T. (A)
Princlotta, M. A. (M)
Quinn, E. J. (M)
Raemer, H. R. (SM)
Ratts, B. H. (SM)
Rea, W. W. (SM)
Reed, R. D. (M)
Regan, W. T. (A)
Reifel, H. (M)
Rex, R. A., Jr. (M)
Ricard, A. J. (M)
Riogert, H. R. (M)
Rittenburg, S. E. (M)
Rodgers, F. A. (M)
Rogers, T. F. (SM)
Rosenberg, A. J. (M)
Rottenberg, M. J. (SM)
Russo, J. R. (M)
Saharian, A. (M)
Sallen, R. P. (M)
Saltzberg, W. (M)
Santa, M. M. (M)
Santangelo, J. (SM)
Saunders, N. B. (SM)
Schantz, J. D. (SM)
Schiavone, F. J. (M)
Schiff, G. W. (M)
Schrimof, H. W. (A)
Schwartz, R. T. (M)
Schwarzkoof, D. B. (M)
Sedik, J. J. (M)
Sharrow, A. H. (M)
Shaw, G. J. (M)
Shepherd, F. D., Jr. (M)
Shiels, P. B. (A)
Silverstein, M. F. (M)
Slomski, J. J. (M)
Soltes, A. S. (M)
Sookikian, V. (M)
Spiliotis, P. J. (A)
Steen, J. R. (F)
Stickley, C. M. (M)
Stockman, H. (SM)
Stoddard, J. C. (M)
Stoddart, H. F. (M)
Stone, H. S. (M)
Storer, J. E. (SM)
Strassberg, D. D. (M)
Sullivan, D. J. (M)
Sullivan, D. R. (M)
Tang, A. Y. C. (A)
Taylor, F. S., III (M)
Taylor, K. A. (M)
True, W. A. (SM)
Vacca, R. H. (SM)
Vafiades, B. C. (M)
Vielehr, J. E. (M)
Vitka, J. A., Jr. (M)
Wall, A. (A)
Ward, H. R. (M)
Warschauer, D. M. (SM)
Welchman, W. G. (SM)
Welts, J. (M)
Wiedenbauer, G. J. (M)
Wilson, E. F. (SM)
Young, R. M. (A)
Zeender, R. J. (SM)
Zettler, W. R. (M)
Zimmer, W. (M)
Zinchuk, M. (M)

Wauwolt (BOS-1)
Hess, F. R. (A)

Watertown (BOS-1)
Anderson, P. B. (A)
Avakian, A. (M)
Averill, R. J. (M)
Bahlana, L. C. (M)
Bales, R. C. (M)
Baranowski, S. P. (M)
Barnes, R. P., Jr. (M)
Bussgang, J. J. (SM)
Brooks, P. R., Jr. (M)
Capralos, J. (A)
Chacran, J. J. (M)
De Shon, H. C. (M)
Doornebos, H. A. (M)
Eberly, J. F. (M)
Epstein, D. J. (M)
Fekete, R. (M)
Field, R. F. (F)
Fulton, D. A. (A)
Giallongo, S. J. (A)
Gillis, J. E. (M)
Ginns, H. (M)
Haase, K. H. (M)
Harrison, R. J. (SM)
Hart, J. C. (M)
Havstad, J. W. (M)
Hood, L. F. (M)
Jones, J. J. (M)
Kahalan, C. H. (M)
Kane, J. J. (A)
Kaplan, L. A. (M)
Kasparian, G. D., Jr. (M)
Kasparian, K. D. (A)
Kearns, J. E. (M)
Kee, R. C. (M)
Lambert, T. A. (M)
Lawler, E. L. (M)
Lazaridis, P. J. (M)
Lechner, R. J. (A)
Lenhardt, L. J. (M)
Levy, J. E. (M)
Lorant, C. R. (M)
Lowenstein, H. L. (M)
Mackowiak, J. K. (M)
Mallumian, L. (A)
Massey, J. L. (M)
McLaughlin, R. J. (M)
Mulock, L. E. (M)
Newcomb, R. E. (M)
Olson, R. E. (A)
Pearlman, A. R. (M)
Perloff, G. (M)
Pettersen, R. J. (M)
Quinn, W. T., Jr. (M)
Read, V. H. (A)
Riley, W. E. (A)
Robinson, M. P. (M)
Roche, T. E., Jr. (M)
Samson, E. W. (SM)
Schnall, E. (M)
Siegler, H. B. (A)
Smith, B. H. (M)
Sutton, D. R. (M)
Teager, H. M. (M)
Tierney, J. (M)
Tritter, A. L. (M)
Wang, S. C. (M)
White, D. P. (M)
Whitehouse, T. S. (M)
Willim, D. K. (M)
Wilson, R. D. (SM)
Withers, W. C., Jr. (M)

Waverly (BOS-1)
Daly, W. G., Jr. (M)
Kocher, D. G. (M)

Wayland (BOS-1)
Allen, D. C. (A)
Alstad, N. J. (M)
Anderson, F. J. (SM)
Ballou, E. T. (M)
Barker, H. J. (M)
Bittel, M. M. (SM)
Black, K. C. (F)
Boland, J. N. (M)
Bolus, J. J. (M)
Casanave, C. L. (M)
Conard, R. W. (A)
Davis, L., Jr. (SM)
Dyne, J. H. (A)
Fahringer, G. S. (A)
Faller, D. M. (M)
Ferrante, D. (M)
Ferrar, C. M. (M)
Fine, R. S. (SM)
Fye, D. L. (M)
Galbraith, J. S. (M)
Gardner, H. A. (SM)
Gillespie, C. N. (M)
Gray, H. L., Jr. (M)
Groolnsky, H. L. (M)
Harris, A. H. (A)
Hart, G. H., Jr. (M)
Hodgkinson, W. S. (M)
Hough, H. O. (M)
Huyck, W. J., Jr. (M)
Jenks, F. A. (SM)
Jordan, C. E. (M)
Karp, D. (M)
Kather, N. (M)
Leake, B. W. (M)
Leney, H. G. (M)
Letaw, H., Jr. (SM)
Lowery, W. E. (SM)
Mac Dowell, K. M. (M)
Mathews, K. C. (M)
Mathis, G. (M)
McNally, I. L. (SM)
Merrill, J. R. (SM)
Michaelis, H. P. (M)
Neumann, A. J. (M)
Ohman, J. (SM)
Parkinson, B. W. (M)
Phillips, T. L. (M)
Pike, R. W. (M)
Pontecorvo, P. J. (SM)
Predergast, W. R. (M)
Proctor, H. E., Jr. (M)
Raduzlner, D. M. (M)
Rider, D. V. (M)
Rinney, E. T. (SM)
Rogers, R. C. (M)
Rose, J. E. (M)
Sacra, G. H. (M)
Saylor, W. R. (SM)
Schneider, E. G. (SM)
Smith, H. L. (M)
Somers, O. H. (M)
Soorlan, D. A. (SM)
Stevens, R. L. (A)
Stewart, R. F. (A)
Tandy, P. C. (M)
Thornton, R. D. (M)
Trotter, G. C. (M)
Turchinetz, J. (M)
Unger, R. M. (SM)
Walling, G. P. (SM)
White, A. D. (M)
Whitham, G. E. (A)
Windsor, R. B. (SM)

Webster (BOS-1)
Jolda, J. M. (M)
Lanman, T. W. (A)
Szczepanski, J. R. (M)

Wellesley (BOS-1)
Banks, D. S. (M)
Barrett, B. W. (M)
Baumann, A. (M)
Berger, R. (M)
Bodendorf, B. B. (A)
Bowen, R. A. (A)
Brainerd, H. B. (SM)
Bristol, H.B. (M)
Buckbee, J. A. (M)
Camp, W. W. (M)
Charow, W. J. (M)
Crosby, R. L. (SM)
Dolansky, L. O. (SM)
Frelich, P. D. (A)
French, R. F. (SM)
Hajko, H. J. (M)
Harris, D. S. (M)
Hart, H. M. (SM)
Hartley, M. S. (SM)
Hattery, W. V. (M)
Johnson, R. J. (M)
Macklin, T. G. (M)
McDowell, L. S. (SM)
McKinley, W. D. (M)
Murphy, W. M., Jr. (M)
Neuman, G. J. (M)
Newton, G. C., Jr. (M)
Noyes, B. I. (M)
O'Donnell, A. J., Jr. (SM)
Osborne, J. M. (SM)
Palmer, P. J. (M)
Pease, W. M. (SM)
Plouffe, R. H. (M)
Pote, W. J. (M)
Randall, J. E. (M)
Reed, W. O. (M)
Rehrig, E. S. (M)
Salvatore, J. (M)
Schroeder, R. L. (A)
Seifert, W. W. (SM)
Sparacino, R. R. (M)
Stewart, S. W. (M)
Sutherland, C. M. (M)
Terry, R. W. (M)
Thomson, E. C. (M)
Tucker, N. (A)
Weil, T. A. (M)
Weis, J. L. (M)

Wellesley Hills (BOS-1)
Blasdel, F. G., Jr. (M)
Cestari, V. M. (M)
Chaffee, R. E. (SM)
Cowan, S. D. (M)
Eager, M. (SM)
Farley, J. M. (M)
Fernald, O. H. (SM)
Galagan, S. (SM)
Gregory, J. C. (SM)
Harris, D. H. (M)
Harvey, J. C., Jr. (M)
Hatton, W. L. (M)
Heick, B. K. (M)
Hinckley, G. A. (A)
Kalkman, E. C. (M)
Kline, F. S. (M)
Kriz, J. (A)
Leland, R. M. (A)
Porter, H. J. (M)
Reddan, E. D. (M)
Ricardi, L. J. (M)
Seely, P. E. (A)
Ulrich, V. K. (SM)
Voutselas, T. (M)
Walsh, J. E. (M)
Weeks, P. T. (F)
Williams, J. B., Jr. (M)

Wenham (BOS-1)
Alexander, H. C. (M)
Carter, G. W. (M)
Schafer, E. W. (SM)

West Acton (BOS-1)
Alcaide, H. D. (A)
Armstrong, G. R. (M)
Attridge, C. C. (M)
Bibbins, L. L. (M)
Breadwell, H. S. (M)
Brunton, R. H., III (A)
Brzezinski, W. H. (A)
Bunting, J. H. (M)
Campbell, R. T. (M)
Copeland, R. C. (M)
Craig, G. A. (M)
Cuikay, R. S. (M)
Day, A. C. (M)
Eadie, J. P., II (M)
Fischer, R. F. (M)
Fordon, W. A. (M)
Forrest, J. W. (A)
Grosse, P. C. (SM)
Guba, R. F. (M)
Heyner, F. R. (A)
Hodgdon, H. W. (M)
Ivanov, A. (M)
Killian, J. D. (M)
Lawton, D. C. (M)
Newcombe, D. A. (M)
Oliver, D. S. (M)
Palmer, F. H. (M)
Panetta, A. R. (M)
Pensyl, J. F. (M)
Perry, J. P. (M)
Petrucci, S. J. (M)
Randig, G. W. (M)
Richter, E. (M)
Shiber, H. G. (M)
Shuppert, C. (M)
Sims, J. R. (SM)
Skilling, J. K. (M)
Smith, P. C. (SM)
Stewart, A. K. (M)
Theroux, L. N. (SM)
Vervoort, R. (M)
Winters, R. E. (M)

Westboro (BOS-1)
Allen, R. W. (M)
Pierson, R. L. (M)
Quick, J. H. (SM)

West Boxford (B-MV-1)
Degan, J. J. (M)
Rennick, R. C. (M)

West Bridgewater (BOS-1)
Nelson, F. W. (A)

West Concord (BOS-1)
Alsen, C. W. (M)
Ausin, H. A. (M)
Basch, M. W. (M)
Bergstad, P. A. (SM)
Berthel, F. W. (A)
Bousquet, A. G. (SM)
Burke, C. T. (F)
Cady, C. A. (SM)
Chilouras, C. G. (M)
Clayton, J. M. (SM)
Clevoland, A. W. (M)
Dawes, H. H. (M)
De Blois, S. W. (M)
Dippolito, P. W. (M)
Eames, A. M., Jr. (M)
Easton, I. G. (F)
Frank, R. W. (SM)
Fulks, R. G. (M)
Gilman, M. A. (M)
Gray, J. C. (M)
Gross, E. E., Jr. (SM)
Hall, H. P. (M)
Hatch, R. M., Jr. (M)
Hersh, J. F. (M)
Johnson, G. O. (M)
Karplus, E. (F)
Krason, H. C. (M)
Lahanas, C. J. (SM)
Leballister, D. C. (A)
Lewis, F. D. (SM)
Littlejohn, H. C. (M)
Macalka, M. P. J. (M)
McElroy, P. K. (F)
Miller, C. E. (M)
Murphy, C. F. (M)
Nelson, R. R. (M)
O'Connor, C. (M)
Painter, H. O., Jr. (M)
Peterson, A. P. G. (F)
Peterson, R. K. (M)
Petricoks, J. (M)
Pfaffmann, J. (M)
Pilkington, D. W., (M)
Richmond, R. B. (SM)
Romaine, G. E. (M)
Rudenas, R. J. (M)
Sebring, P. B. (M)
Sinclair, D. B. (F)
Smith, M. T. (SM)
Sonderman, R. A. (SM)
Thiessen, A. E. (SM)
Thurston, W. R. (SM)
Van Veen, F. T. (M)
Webb, H. A. J. (M)
Webster, W. G. (SM)
Wentworth, A. M. (A)
Woodward, C. A., Jr. (SM)
Woodward, Jr., C. A. (SM)
Worthen, C. E. (SM)
Zawada, F. A. (M)

West Falmouth (BOS-1)
Bierman, C. W. (A)

Westfield (WM-1)
Fournier, H. N. (M)
Rachals, R. (M)

Westford (BOS-1)
Cann, A. J. (M)
Carlson, R. H. (M)
Chace, W. G. (SM)
Hixson, G. D., III (M)
Hoover, H. H., Jr. (A)

West Granville (WM-1)
Hodsdon, J. S. (M)

West Groton (BOS-1)
Bissell, G. H. (M)

West Lynn (BOS-1)
White, A. (A)

West Medford (BOS-1)
Cook, A. S. (M)
Knapp, G. (M)
Lanclani, D. A. (SM)

Westminster (BOS-1)
Nesman, E. F. (M)
Neunherz, R. K. (M)
White, D. A. (M)

West Natick (BOS-1)
Sessions, A. E. N. (SM)

West Newbury (B-MV-1)
Fidler, R. R. (M)

West Newton (BOS-1)
D'Argento, F. R. (M)
De Bettencourt, J. (F)
Dertinger, E. F. (M)
Elkan, J. (M)
Freedman, N. (SM)
Halder, G. W. (M)
Hergenrother, R. C. (F)
Jones, W. J. (SM)
Kaufman, D. L. (M)
Little, E. P. (M)
Manning, C. J. (A)
McDonald, T. L. (M)
Myers, H. L. (M)
Nersesian, R. W. (A)
Pekin, H. T. (SM)
Peyser, P. (A)
Plumley, C. (M)
Rieders, A. T. (M)
Rizzi, P. A. (SM)
Schlager, K. J. (SM)
Smith, J. E. (F)
Teixeira, N. A. (M)
Wilcox, R. B. (M)
Wright, B. D. (M)

Weston (BOS-1)
Abate, A. (M)
Baghdady, E. J. (M)
Bark, A. (M)
Bickford, W. J. (M)
Bowness, C. (M)
Brown, W. C. (F)
Burt, W. G., Jr. (M)
Crowley, A. H. (M)
Dewey, O. L. (M)
Eames, R. D. (M)
Eddy, F. N. (A)
Erickson, P. W. (SM)
Everett, R. R. (SM)
Fellows, G. E. (SM)
Finison, H. J. (M)
Freedman, J. (SM)
Gallager, R. G. (M)
Green, P. E., Jr. (SM)
Gross, F. A. (M)
Hammond, C. R. (M)
Havinga, J. C. (M)
Hebditch, E. A. (M)
Holt, R. B. (SM)
Hunt, D. G. (M)
Jayne, A. W. (M)
Jones, R. N. (A)
Kelly, T. J. (M)
Kendall, D. E. (M)
Marks, E. H. (M)
Morrow, W. E. (M)
Olander, W. O. (M)
Phillips, W. E., Jr. (SM)
Pughe, E. W., Jr. (M)
Ryland, B. G. (M)
Searle, C. L. (M)
Simons, J. C., Jr. (SM)
Stoffel, F. T. (M)
Thomas, J. E., Jr. (SM)
Underhill, B. B. (SM)
Wilcox, J. F. (M)

Westover (WM-1)
Myers, G. J. (M)

Westover AFB (WM-1)
Cranshaw, R. J., Jr. (M)
Longino, D. R., Jr. (A)

West Peabody (B-MV-1)
Chin, B. M. (M)
Doblja, R. J. (M)
Goldberg, D. (A)
Grant, J., Jr. (A)
Lessin, I. (M)
Porter, R. A. (M)
Simon, E. (M)
Simons, S. C. (M)
Watson, R. H. (M)
White, C. E. (SM)

West Roxbury (BOS-1)
Benson, D. G. (M)
Bonica, J. S. (M)
Bonney, R. W. (A)
Claflin, D. B. (M)
Doyle, F. A. (M)
Dwross, C. J. (M)
Fay, S. (M)
Funke, R. W. (M)
Haddad, S. G. (M)
Sacon, L. D. (M)
Sevlan, E. A. (M)
Theodore, M. J. (SM)
Thomas, J. E. (M)
Van Schelt, R. A. (M)

West Somerville (BOS-1)
Amann, L. H. (A)

West Springfield (WM-1)
Burnett, K. H. (M)
Donovan, J. J. (M)
Salame, G. (M)
Shank, K. E. (M)
Shehan, J. J. (A)
Smith, R. D. (M)

West Townsend (BOS-1)
Manseau, H. L. (M)

Westwood (BOS-1)
Abrahamsen, F. H. (M)
Arildsen, M. J. (M)
Arlin, M. N. (SM)
Burke, J. J. (M)
Cowan, W. M. (M)
Farr, H. K. (SM)
Gravel, J. J. (M)
Harris, W. T. (SM)
Hildebrant, D. M. (A)
Keenan, R. F. (M)
La Mantia, N. E. (A)
Peirce, S. D. (SM)
Peterson, K. W. (M)
Sadowski, J. J. (M)
Smith, L. W. (M)
Spears, M. F. (SM)
Svatoti, A. R. (M)
Talanian, W. B. (A)
Thomas, A. S. (A)
Ward, A. A. (M)
Wiren, J. (M)

Weymouth (BOS-1)
Enemark, R. B. (M)
Hughes, J. W. (A)
Karalian, E. (A)
Lang, C. (M)
Spencer, F. J. (M)
Tufts, W. M. (A)

Whitinsville (BOS-1)
Gilmore, H. L. (M)

Whitman (BOS-1)
Simmons, E. C. (M)
Wilbraham (WM-1)
Dewey, C. S. (M)
Webber, F. G. (SM)

Williamstown (WM-1)
Curry, J. R. (M)
Fischer, W. (M)
Johansson, E. W. (M)
Laman, D. R. (A)
Lull, R. E. (M)
Lussier, R. J. (M)
Ness, O. A. (M)
Peck, D. B. (M)
Reid, R. A., Jr. (M)
Rice, H. L. (M)
Rosen, B. P. (M)
Rowland, W. H. (A)
Scarborough, F. S. (A)
Schimmel, J., III (M)
Seacord, J. M. (M)
Stabler, H. P. (SM)
Teillon, F. V. (M)
Warriner, R. R. (SM)
White, J. A. (M)
Wurzel, L. H. (M)

Willimansett (WM-1)
Nell, E. C. (M)

Wilmington (B-MV-1)
Anderson, J. E. (A)
Connolly, G. E. (M)
Di Rocco, J. V. (M)
Ellsworth, E. A., Jr. (A)
Ferry, W. K. (M)
Hartwell, H. G. (M)
Herrick, T. A., Jr. (M)
Hooper, W. G., Jr. (M)
Hovnanian, H. P. (SM)
Lesnik, M. I. (M)
Lynnworth, L. C. (M)
McCard, H. K. (M)
Merenda, F. S. (M)
Miller, D. C. (M)
Myers, W. D. (M)
Page, H. M. (A)
Rich, G. H. (M)
Rose, E. P. (A)
Schweiger, R. N. (SM)
Strickholm, G. E. (M)
Sullivan, M. M. (M)
Vourgourakis, E. J. (M)

Winchester (BOS-1)
Babakian, J. (M)
Barrett, T. B. (M)
Bassett, O. E. (SM)
Bates, R. H. T. (M)
Beranek, L. L. (F)
Blakely, J. R. (SM)
Blanchard, J. T. (M)
Brown, C. B. (M)
Clifton, C. M. (A)
Corderman, C. L. (SM)
Costantino, A. V. (M)
Cronburg, W. E. (M)
De Young, J. A. (SM)
Dietrich, E. J. (M)
Durape, A. H. (M)
Edwards, B. H. (M)
Frey, H. B., Jr. (M)
Fritch, D. J. (SM)
Glendon, R. E. (M)
Grenzebach, R. J. (M)
Hanson, P. R. (M)
Hilgedick, W. C. (SM)
Hilliker, R. E. (SM)
Hingston, A. J. (M)
Holdam, J. V., Jr. (SM)
Hottel, H. C., Jr. (M)
Hovannesian, A. S. (M)
Ivers, J. H. (SM)
Jackson, W. E. (M)
Jenkins, R. S., Jr. (M)
Kelbley, L. W. (M)
Lamontagne, R. S. (SM)
Leach, H. H. (M)
Leslie, M. B. (M)
Mackenzie, M. V. (M)
Mainberger, W. A. (SM)
Marino, D. J. (M)
McFarlane, D. J. (SM)
McVicar, K. E. (M)
Memishian, J. (M)
Metzger, K. J. (M)
Morgenthaler, F. R. (M)
O'Connor, R. J. (M)
Osgood, R. M. (SM)
Parks, F. B. (SM)
Phaneuf, C. A. (M)
Purrington, R. L. (M)
Redmond, J. G. (M)
Redpath, D. C. (M)
Robinson, T. B. (SM)
Rotast, N. L. (M)
Rubin, L. G. (SM)
Schlener, J. E. (A)
Schroeder, R. K. (M)
Segerstrom, C. A., Jr. (SM)
Shannon, C. E. (F)
Stevens, C. A. (SM)
Tunnicliffe, W. W. (M)
Unger, D. M. (M)
Weeks, N. E. (SM)

Winthrop (BOS-1)
Cohen, S. (M)
Diaz, L. V. (A)
Goldman, H. A. (M)
Harrington, W. L. (A)
Krantz, M. J. (M)
Malbor, H. A. (A)

MASSACHUSETTS

McDonald, F. J. (A)
Musi, A. J. (A)
Nardone, L. J. (M)
Newton, D. J. (M)
Pappas, G. (M)
Spang, D. A. (M)

Woburn (BOS-1)
Bayliss, R. E. (M)
Bettencourt, J. P. (M)
Bower, F. H. (SM)
Brown, H. E. (A)
Cardillo, A. (M)
Chrusciel, M. R. (M)
Cox, H. N. (M)
Gallagher, E. F. (M)
Gupta, M. P. (M)
Jeffrey, R. F. (M)
Jellison, F. A. (M)
Johnson, E. G. (M)
Katz, L. (SM)
Kolp, J. S. (M)
La Page, B. F. (A)
Leland, H. L. (M)
McMakin, W. B. (M)
Mead, D. C. (SM)
Mello, G. M. (M)
Merrill, R. B. (M)
Mollica, A. J. (M)
Mott-Smith, J. C. (M)
O'Connor, L. J. (M)
Patrakis, J. (M)
Pietenpol, W. J. (SM)
Popp, F. G. (M)
Ray, G. H., Jr. (M)
Rice, J. F. (M)
Ross, R. M. (M)
Shaw, G. B. (SM)
Turpiss, W. W. (M)
Ulm, E. H. (M)
Ward, R. L. (M)

Wollaston (BOS-1)
Armstrong, C. S. (M)
Carpenter, D. P. (M)
Di Loreto, A. A. (A)
Edmonston, A. S. (M)
Ruther, D. M. (M)
Sullivan, J. D. (M)
Vancura, R. A. (M)

Woods Hole (BOS-1)
Fraser, J. G. (M)
Hervey, J. P. (M)

Worcester (BOS-1)
Anderson, R. M. (A)
Bronwell, A. B. (F)
Browning, E. A. (M)
Caloccia, E. M. (M)
Connolly, J. (M)
Didio, R. E. (A)
Edinburg, M. W. (A)
Engelsted, J. (M)
Eteson, D. C. (M)
Forsberg, C. A. (M)
Gershman, G. L. (A)
Grogan, W. R. (SM)
Hoogasian, L. (M)
Howe, D. W., Jr. (M)
Howes, D. E. (M)
Karazia, R. J. (M)
Kasper, J. P., Jr. (M)
Kaye, J. S. (M)
Kearney, E. P. (M)
Lloyd, A. L. (M)
Manna, W. M. (M)
Manoog, J. C. (M)
Milias, E. (M)
Morgan, T. H. (SM)
Mullo, M. P. (M)
Newell, H. H. (SM)
Newman, H. C. (A)
Richardson, G. A. (SM)
Riordan, W. J. (A)
Smith, A. J. (A)
Spellman, D. R. (A)
Wadsworth, W. B. (M)
Wolniewicz, R. S. (A)
Wright, M. W. (M)

Wrentham (BOS-1)
Moody, J. A. (M)

MICHIGAN

Adrian (DET-4)
Rosenstein, M. D. (M)

Algonac (DET-4)
Withrow, W. L. (M)

Allegan (W-MIC-4)
Borsi, P. N. (M)

Allen Park (DET-4)
Bailey, K. V. (SM)
Bledsoe, J. A. (A)
Tosh, W. M. (M)

Alma (DET-4)
Schwartz, H. (A)
Smith, R. P. (A)
Stacy, C. W. (M)

Ann Arbor (DET-4)
Adams, D. K. (M)
Amdursky, M. E. (A)
Arquette, L. K., Jr. (M)
Attarian, R. V. (M)
Attwood, S. S. (F)
Auperle, E. M. (M)
Azary, Z. P. (M)
Bair, M. E. (M)
Barcus, R. (M)
Barnes, D. E. (M)
Bartman, F. L. (M)
Barton, B. F. (M)
Bates, R. D. (A)
Becher, W. D. (M)
Beechler, D. J. (M)
Benson, B. C. (M)
Beutler, F. J. (M)
Bleds, S. J. (A)
Blignall, K. E. (M)
Bishop, D. J. (M)
Blythe, R. (M)
Boers, J. E. (M)
Boggess, R. L. (M)
Boucher, A. L. (M)
Boyd, J. D. (M)
Boyd, J. A. (SM)
Bozolan, M. (M)
Briggs, J. S. (M)
Briggs, R. H. (M)
Brock, F. V. (M)
Browder, J. E. (M)
Brown, H. A. (SM)
Brown, J. (SM)
Brown, R. K. (M)
Brown, V. R. (M)
Brown, W. M. (M)
Burns, J. A. (M)
Butler, T. W., Jr. (M)
Buxton, C. E. (M)
Buzzard, R. D. (M)
Carlsen, R. A. (A)
Carroll, A. B. (M)
Carson, R. D. (M)
Casto, W. V., Jr. (M)
Chaney, L. W. (M)
Chu, C. (SM)
Clayton, J. F. (SM)
Cohen, G. S. (M)
Cohn, A. L. (M)
Collard, R. S. (M)
Collins, A. B. (M)
Cook, D. W. (M)
Cooley, P. (M)
Curran, R. J. (M)
Cutrona, L. J. (SM)
Danos, L. A., Jr. (M)
De Hart, W. R. (M)
De Voll, R. L. (SM)
Deyo, A. E. (M)
Donnelly, M. E. (M)
Dow, W. G. (F)
Dute, J. C. (M)
Dye, J. E. (M)
Early, C. D., Jr. (M)
Early, H. C. (SM)
Earshen, J. J. (M)
Ebert, D. H. (M)
Eschelbach, R. E. (M)
Estry, H. W. (M)
Exley, L. (M)
Faram, H. D. (M)
Farris, H. W. (M)
Fensler, W. E. (M)
Ferris, C. C. (M)
Fite, D. W. (M)
Finch, B. G. (M)
Fithian, D. H. (M)
Frisiani, A. L. (A)
Garner, H. L. (M)
Gaskill, R. A. (M)
Gilbert, E. G. (M)
Gilbert, E. O. (M)
Golding, E. I. (M)
Graham, R. R. (M)
Grant, E. C. (A)
Greenwood, D. T. (M)
Grimes, D. M. (M)
Groves, W. E. (SM)
Gunderman, R. J. (SM)
Hackenberger, R. B. (M)
Hacker, H., Jr. (M)
Haddad, G. I. (M)
Haddock, D. E. (M)
Haddock, F. T. (M)
Hall, G. O. (M)
Hamilton, R. E., Jr. (M)
Hammerslag, C. F. (M)
Hanne, J. R. (M)
Harger, R. O. (M)
Harmon, S. T. (M)
Harrison, M. A. (M)
Hawkins, W. G. (SM)
Heerema, C. E. (M)
Hellwarth, G. A. (M)
Henry, E. E. (M)
Hiatt, R. E. (SM)
Hicks, C. S. (M)
Hocking, C. S. (M)
Hok, G. (F)
Holland, L. N. (F)
Homic, S. G. (M)
Horvath, J. J. (M)
Horvath, W. J. (SM)
Howe, R. M. (M)
Hoyt, E. M. (M)
Hucke, H. M. (SM)
Jahnke, C. E. (M)
Johansen, E. L. (M)
Johnston, R. W. (M)
Kahne, L. (A)
Kazda, L. F. (M)
Kennedy, J. D. (M)
Kent, C. E. (M)
Kerr, W. (SM)
Kimball, J. A. (M)
Kimel, H. W. (M)
Kley, R. R. (M)
Klingler, D. E. (SM)
Konrad, G. T. (M)
Kovac, R. E. (M)
Kucera, G. D. (M)
Kulper, J. W. (M)
Kundu, M. R. (SM)
Larson, R. W. (M)
Larson, R. W. (M)
Lazarus, D. H. (M)
Lewis, D. C. (M)
Ley, B. J. (M)
Liang, D. Y. (M)
Lillie, R. E. A. (M)
Lindahl, C. E. (M)
Lindsay, W. J. (M)
Loughry, B. W., Jr. (M)
Low, F. J. (A)
Lyon, J. A. M. (SM)
Macnee, A. B. (SM)
Majeske, D. D. (M)
Malila, W. A. (M)
Marshall, R. E. (M)
Martin, E. A. (M)
Mason, D. R. (M)
Maurer, J. C. (M)
McMahon, E. L. (M)
McMillan, S. H. (A)
McMullen, C. W. (M)
McNabb, J. W. (M)
McPherson, R. R. (M)
McQuerry, W. H. (SM)
Mehta, M. K. (M)
Miller, M. H. (M)
Miller, R. E. (M)
Morakis, J. C. (M)
Morita, Y. (M)
Morton, A. W. (A)
Mouzon, J. C. (SM)
Moy, L. L. (M)
Mullison, J. L. (A)
Muscella, D. J. (M)
Nakagawa, N. (A)
Navarro, S. O. (M)
Naylor, A. W. (M)
Netherwood, D. B. (SM)
Nichols, A. D. (M)
Nolte, L. W. (M)
Oakamoto, H. K. (M)
Obenchain, I. R., Jr. (SM)
Ohlsson, R. L. (M)
Otte, A. (M)
Ormsby, R. D. (M)
Orr, L. W. (M)
Oswald, R. A. (M)
Pantek, H. R. (M)
Paul, L. E. (M)
Pavela, H. W. (M)
Peltzer, R. G. (M)
Pennington, A. J. (M)
Peretz, B. (M)
Peterson, G. E. (SM)
Phillips, L. D. (M)
Ploughman, T. L. (M)
Politis, D. T. (M)
Pollard, W. J. (M)
Pool, M. H. (A)
Porcello, L. J. (M)
Porter, W. A. (M)
Potter, W. H. (M)
Pressel, P. I. (M)
Provine, D. J. (M)
Rauch, L. L. (F)
Raymond, J. A. (M)
Raymond, W. W. (M)
Reiher, H. F. (M)
Relyea, J. R. (M)
Remley, F. M., Jr. (M)
Rhodes, H. T. (M)
Richards, D. B. (M)
Ristenbatt, M. P. (M)
Ristow, H. E. (SM)
Roberts, G. A. (M)
Robinson, G. H. (M)
Robinson, J. O. (SM)
Robinson, R. C. (M)
Rollin, R. A., Jr. (M)
Rothschild, D. R. (M)
Rowe, J. E. (M)
Sattinger, I. J. (SM)
Schaefer, E. J. (M)
Schlenker, K. C. (SM)
Schook, L. L. (M)
Schulte, H. F., Jr. (M)
Schutz, G. C. (SM)
Schwarm, E. G. (SM)
Scott, G. C. (M)
Scott, N. R. (SM)
Sellers, E. E. (SM)
Sengupta, D. L. (M)
Shadle, P. W. (SM)
Sharpe, C. B. (SM)
Siegel, K. M. (SM)
Simms, R. J. (M)
Smith, B. A. (M)
Smith, N. (F)
Smith, W. (M)
Snell, J. F. (M)
Sondeen, P. (M)
Speers, D. F. (M)
Soulre, J. S. (M)
Stapleton, G. F. (M)
Starzec, F. J. (M)
Stout, M. B. (SM)
Talen, J. L. (M)
Tanner, W. P., Jr. (SM)
Taras, S. M. (M)
Theofil, D. V. (M)
Tieman, C. R. (SM)
Tucker, C. K. (M)
Umpleby, K. F. (SM)
Upatnieks, J. (M)
Vander Kool, L. R. (M)
Varone, R. A. (SM)
Venia, R. J. (M)
Wadhwa, R. P. (M)
Wallace, V. L. (M)
Webber, R. C. (M)
Weil, H. (M)
Williams, L. D. (A)
Wren, A. W., Jr. (M)
Yeh, C. (SM)
Zlotzeff, E. M. (M)
Zimmer, J. (M)

Auburn (DET-4)
Engelhardt, L. J. (M)

Augusta (W-MIC-4)
Saunders, E. R., Jr. (M)

Barbeau (MIL-5)
Buchanan, A. B. (SM)

Battle Creek (W-MIC-4)
Bisko, T. (A)
Brossok, W. C. (M)
Brown, H. M. (M)
Burton, E. T. (SM)
Dewey, C. E., Jr. (M)
Hailsman, L. C. (M)
Kubicz, A. P. (M)
Schley, D. R. (M)
Sulla, V. F. (SM)
Summerford, D. C. (SM)
Vennix, J. C. (A)

Bay City (DET-4)
Erbel, D. H. (A)
Malzahn, D. F. (A)
Matko, J. W. (M)
Woody, F. (A)

Belleville (DET-4)
Alward, J. L. (M)
Kranz, H. E. (SM)

Benton Harbor (SB-M-5)
Martz, A. F., Jr. (SM)
Rankin, J. A. (SM)
Tippett, H. H. (A)

Berkley (DET-4)
Blumenberg, A. (M)
Broecker, K. M. (A)
Elias, L. W. (A)
Faris, W. R. (M)
Nixon, J. D. (M)
Norling, R. L. (M)
Norris, W. J. (M)

Big Rapids (W-MIC-4)
Pozniak, J. H. (A)
Zimmerman, G. E. (A)

Birmingham (DET-4)
Arnili, R. W. (A)
Baird, G. A. (M)
Bockemuehl, R. R. (SM)
Burge, F. L. (M)
Canty, E. T. (M)
Chapa, J. (A)
Chapin, W. R. (SM)
Chapman, F. W. (SM)
Erhart, D. L. (M)
Fisher, M. R. Jr., (M)
Hawley, G. H. (M)
Holmes, W. E. (M)
Horton, M. C. (M)
Hutchinson, R. W. (M)
Kreglow, G. L. (M)
Larime, L. H. (SM)
Leydorf, G. F. (SM)
Lovcik, D. J. (M)
McDonnell, W. F. (M)
McGillem, C. D. (M)
McGregor, A. D. (M)
Michaels, C. L. (SM)
Mika, H. S. (SM)
Morrow, R. A. (M)
Olson, D. R. (M)
Ragsdale, W. H. (M)
Retko, E. (M)
Roggenbuck, R. A. (SM)
Sanderson, A. G. (M)
Scherba, M. B. (SM)
Schuhring, N. W. (M)
Slover, W. L. (A)
Somerville, A. (M)
Walker, J. R. (A)
Webster, R. D. (A)
Weller, E. F. Jr., (SM)
Werth, J. J. (SM)
Whiteside, A. E. (M)

Bloomfield Hills (DET-4)
Fahringer, W. H. (A)
McKenney, H. F. (SM)
Morgan, H. K. (F)
Webb, R. S. (M)

Brighton (DET-4)
McIver, N. E. (M)
Buchanan (SB-M-5)
Beaverson, W. A. (M)
Burroughs, L. R. (A)
Hagey, L. P. (M)
Kelly, J. R. (A)
Mosier, H. F. (M)
Tomcik, D. J. (M)

Cannonsburg (W-MIC-4)
Hart, W. N. (A)

Charlotte (W-MIC-4)
Moehring, W. D. (M)
Rypstra, B. Jr., (M)

Clawson (DET-4)
Dougherty, R. H. (M)
Quin, W. J. (M)

Clio (DET-4)
Hart, R. V. (M)

Coldwater (FT-W-5)
Munn, E. H. Jr., (M)

Comstock Park (W-MIC-4)
Jones, H. E. (M)

Dearborn (DET-4)
Anger, L. E. (M)
Becker, F. C. (M)
Boltz, H. A. (SM)
Boyer, W. D. (M)
Burr, H. (M)
Calladine, G. T. (M)
Chall, L. E., Jr. (M)
Chiarenza, J. B. (M)
Davis, F. R. (M)
De Maria, F. C. (M)
Doyle, W. J. (M)
Emery, R. R. (M)
Ference, M., Jr. (F)
Hannigan, P. M. (M)
Hicks, E. P. (M)
Hogle, R. C. (M)
Homiak, R. L. (M)
Huber, P. (M)
Ioannou, J. T. (M)
Jensen, W. H. (M)
Jozefczyk, J. (M)
Lien, C. E. (M)
Newell, C. J. (M)
Olson, R. G. (M)
Popklewicz, F. (A)
Pressede, D. J. (M)
Quane, E. (A)
Rogaczewski, J. S. (M)
Salgeon, N. D. (M)
Sather, R. O. (SM)
Sims, R. C. (M)
Stoner, M. J. (A)
Stretanski, P. A. (A)
Van Kirk, D. J. (A)
Ward, D. B. (A)
Williams, C. E. (M)

Detroit (Det-4)
Ahern, C. J. (M)
Allmiich, N. (M)
Allman, R. L. (M)
Almas, S. L. (M)
Amber, P. S. (M)
Asuncion, J. F. (M)
Atems, E. (M)
Ax, A. F. (M)
Barich, T. J. (M)
Beaugrand, R. K. (A)
Blett, E. B. (M)
Bolling, G. D. (M)
Bradburn, J. R. (SM)
Brainard, R. R. (A)
Brede, E. F. (M)
Brosch, H. T. (A)
Brown, F. L. (M)
Browne, J. F. X., Jr. (A)
Bryant, J. H. (SM)
Buchanan, L. R. (M)
Burkitt, G. C. (M)
Butchart, R. D. (A)
Butcher, J. H. (M)
Cannon, R. C. (M)
Carr, A. E. (M)
Caschera, J. (M)
Cheney, M. K. (M)
Childers, R. F. (M)
Chow, H. (M)
Chute, G. M. (SM)
Cindric, G. T. (SM)
Clark, E. H. (A)
Conroy, K. S. (M)
Cook, W. N. (A)
Coombs, S. H. (M)
Cotton, R. J. (SM)
Craig, H. I. (M)
Currie, J. H. (M)
Dambrauskas, V. (M)
Da Roza, F. G. (M)
Datwyler, W. F. (M)
Denstaedt, E. C. (SM)
De Tar, J. B. (M)
Dickerhoof, R. M. (M)
Diem, C. W. (M)
Dixon, J. K. (A)
Donelson, L. E. (M)
Donovan, R. (M)
Drane, H. (M)
Dubois, R. C. (M)
Earl, K. C. (M)
Egger, R. J. (M)
Estes, D. J. (A)
Estes, H. H. (M)

Fontaine, A. P. (SM)
Forgacs, R. L. (M)
Forsythe, E. H. (M)
Foulke, J. A. (M)
Franklin, R. M. (M)
Friedenthal, A. (M)
Garellis, C. (A)
Gaswoda, D. F. (M)
Girard, S. S., Jr. (A)
Goldstone, G. H. (A)
Gould, E. P. (M)
Grayson, J. H. (M)
Haboian, P. (A)
Harokopus, W. P. (M)
Hartz, F. M. (M)
Hayosh, T. D. (M)
Hein, D. W. (M)
Henegar, H. B. (M)
Hess, H. M. (SM)
Hill, F. E. (M)
Holman, J. E. (A)
Houston, C. D. Jr., (M)
Howard, L. R. (M)
Johnson, J. S. (SM)
Johnson, K. E. (A)
Johnson, S. M. (A)
Kamm, V. C. (M)
Kellerman, K. F. (SM)
King, L. E. (M)
Kocher, C. F. (SM)
Koch, W. E. (F)
Kossuth, A. K. (M)
Kotoucek, W. R. (M)
Kryzaniwsky, M. (M)
Kubala, A. M. (M)
Lawrence, S. C. (M)
Lax, B. (A)
Le Fevre, H. P. (M)
Leonati, G. E., Jr. (A)
Lesinsky, F. (M)
Lippmann, S. A. (M)
Lipski, D. B. (M)
Lohan, F. J. (M)
Loridas, N. G. (M)
Lovalenti, S. (M)
Love, E. J. (SM)
Luzer, H. J. (M)
Macewka, N. (M)
Madgett, W. H. (A)
Marshall, A. R. (M)
Matare, H. F. (SM)
Mathamel, F. A. (M)
McCarthy, J. T. (M)
McCartin, L. M. (A)
McDonald, L. R. (M)
McFatridge, J. E. (M)
Melchior, A. D. (A)
Milek, H. (M)
Millett, L. F. (M)
Mills, J. M. (M)
Minck, R. W. (M)
Miwa, G. Y. (A)
Monroe, R. E. (M)
Moose, W. A. (A)
Morgan, J. J. (M)
Nagy, J. R. (M)
Nite, J. (A)
Monte, G. M. (M)
Noren, R. G. (A)
Nugent, J. A. (A)
Nutter, H. G. (A)
Nutter, M. J. (M)
O'Brien, D. J. (M)
O'Neal, R. D. (F)
Osborne, R. L. (M)
Payne, D. V. (M)
Pecar, A. J. (A)
Peifer, A. G. (M)
Penhollow, H. A. (M)
Perona, P. J. (A)
Pollard, B. W. (SM)
Pomish, I. E. (M)
Poppe, P. A. (M)
Rahlsburg, J. M. (M)
Reiss, N. D. (M)
Renkiewicz, R. (M)
Robb, D. E. (SM)
Ross, H. G. (A)
Ross, P. A. (M)
Rothfuss, J. C. (A)
Roush, F. H. (M)
Rowe, F. W. (M)
Rubin, B. Z. (M)
Runkle, E. G., Jr. (M)
Ryan, G. E. (M)
Rykala, T. P. (A)
Rymarz, L. E. (M)
Scanlan, R. J. (M)
Schmeisser, K. R. (SM)
Scott, D. P. (M)
Scott, L. F. (M)
Sefcik, M. J. (M)
Selling, T. V. (SM)
Shockley, L. A. (A)
Sink, R. L. (F)
Smale, P. V. (M)
Snoblen, J. J. (A)
Sobolak, S. J. (M)
Soldan, E. W. (M)
Stein, M. O. (M)
Sterling, S. (M)
Stewart, J. A. (SM)
Stiebel, A. (M)
Stocker, D. V. (M)
Strickland, J. L. (M)
Sullivan, D. (M)
Sutherland, C. L. (A)
Szewczyk, Z. I. (M)
Teppo, W. H. (M)
Tevlin, R. J. (M)
Thomas, G. J. (M)
Travis, I. (F)
Tressell, C. P. (M)
Turner, B. H. (M)
Turnquist, D. W. (M)
Van Den Ende, H. (M)
Van Der Cook, D. R. (M)
Vatcher, B. A. (A)
Wagner, D. L. (M)
Walt, W. H. (M)
Walker, S. H. (M)
Walther, K. (M)
Webb, A. E. (A)
Webber, H. C. (A)
Weisand, J. B. (A)
Williams, R. M. (A)
Williams, W. B. (SM)
Winters, C. S. (A)
Wojclak, J. A. (M)
Wolber, W. G. (M)
Wong, A. (M)
Yakas, J. (M)
Zawada, D. F. (M)
Zebrowski, M. S. (A)
Zettel, D. A. (M)
Zichichi, A. W. (M)

Dexter (DET-4)
Strand, J. (M)

Drayton Plains (DET-4)
Bellairs, G. H. (M)
Clark, R. K. (M)
Lima, E. J. T. (M)

East Detroit (DET-4)
Boyda, M. C. (A)
Brewster, R. F. (M)
Kordos, R. W. (M)
Stricker, I. J. (M)
Wodtke, W. H. (A)

East Lansing (DET-4)
Baccus, I. B. (SM)
Brown, D. P. (M)
Dalson, G. T. (A)
Ebert, I. O. (SM)
Evans, R. J. (M)
Giacoletto, L. J. (F)
Hemmye, J. H. (A)
Hiedemann, E. A. (SM)
Keeney, M. G. (M)
Keith, L. J. (M)
Kim, C. K. (M)
Kitore, A. J. (M)
Koenig, H. E. (M)
Perfitt, T. E. (M)
Reed, M. B. (F)
Reid, R. J. (M)
Ryder, J. D. (F)
Seymour, R. (M)
Shuda, D. G. (M)
Smith, A. E. (M)
Streib, W. J. (M)
Tokad, Y. (A)
Von Tersch, L. W. (SM)
Weeg, G. P. (M)
Wilcox, L. C. (M)
Wolfa, M. L. (M)

East Tawas (DET-4)
Michael, L. E. (A)
Plannkuche, T. E. (M)

Edmore (W-MIC-4)
Marquis, A. (M)

Erie (DET-4)
Bushroe, G. A. (A)

Farmington (DET-4)
Brown, L. R. (A)
Brumm, G. A. (M)
Hartford, T. W. (M)
Hoge, R. R. (M)
Karwas, F. C. (M)
Niehaus, D. J. (M)
Schafer, R. H. (M)
Thomsen, T. R. (A)
Ward, W. L. (M)
Zelenka, J. S. (M)

Ferndale (DET-4)
Amman, E. A. (A)
Gardner, D. C. (M)
Ludwig, C. J. (A)
Murphy, J. S. (M)
Saleno, A. A. (M)

Flint (DET-4)
Anderson, H. J. (M)
Bouwer, E. J. (M)
Carter, R. E. (M)
Colosi, A. (A)
Common, C. A. (A)
Driver, J. P. (M)
Ferguson, D. R. (A)
Grimm, R. A. (M)
Hagedorn, P. W. (M)
Halcin, V. T. (M)
Hoop, R. E. (M)
Johnson, H. G. (M)
Jones, M. N. (M)
McBride, W. J. (M)
Morris, K. R. (A)
Parker, W. J. (M)
Petrick, T. J. (A)
Price, L. G. (A)

Flushing (DET-4)
Clark, P. R. (A)
Garstecke, D. (M)

Franklin (DET-4)
Doty, A. C., Jr. (A)

Fraser (DET-4)
Costello, R. E. (M)
Hoehn, A. M. (M)

Garden City (DET-4)
Brown, G. R. (M)
Donald, D. K. (M)
Kuzara, S. W. (M)
Moore, K. A. (M)

Grand Blanc (DET-4)
Guth, R. U. (A)

Grand Haven (W-MIC-4)
Moore, C. R. (A)

Grand Rapids (W-MIC-4)
Baatz, A. C. (M)
Barfuss, J. D. (M)
Berg, R. C. (A)
Brown, C. S. (M)
Davey, D. F. (M)
Davis, R. L. (M)
Detweiler, D. C. (A)
Fischer, E. W. (A)
Gaydos, G. J. (M)
Gorton, E. D. (M)
Kenoyer, H. W. (M)
Luscombe, J. P. (M)
Miller, J. J., Jr. (M)
Mort, V. A. (M)
Racy, R. A. (M)
Riddle, R. V. (M)
Robison, C. F. (M)
Schulte, C. W. (M)
Scott, H. R. (M)
Stevens, R. R. (SM)
Sullivan, W. J. (A)
Thompson, J. P. (M)
Van Dyke, C. H. (M)
Van Oort, G. W. (A)
Veeneman, J. G. (M)
Volce, C. C. (M)
Waldner, R. G. (M)

Grass Lake (DET-4)
James, F. M. (M)

Greenville (W-MIC-4)
Laughlin, G. R. (A)

Grosse Pointe (DET-4)
Mac Kenzie, E. P. (A)

Grosse Pointe Farms (DET-4)
Book E. (A)
Kahle, F. L. (A)
Smale, V. E. (A)

Grosse Pointe Park (DET-4)
Griffith, A. T. (A)
Tarpinian, H. D. (A)
Welch, A. F. (SM)

Grosse Pointe Woods (DET-4)
Dacken, L. L. (M)
Delmege, A. H. (M)
Haigh, J. B. (A)
Hamman, P. E. (A)
Irwin, S. N. (M)
Sullivan, R. P. (M)

Gwinn (MIL-5)
Walker, W. A., Jr. (M)

Harper Woods (DET-4)
Ensley, C., Jr. (A)

Haslett (DET-4)
Hedges, H. G. (M)

Hastings (W-MIC-4)
Blood, D. W. (M)
Branch, R. (M)

Hemlock (DET-4)
Currin, C. G. (M)

Hillsdale (DET-4)
Zaiser, J. E. (A)

Holland (W-MIC-4)
Tysse, H. L. (M)

Houghton (MIL-5)
Clark, J. R. (SM)
Jones, R. J. (SM)
Klein, H. R. (M)
Lind, M. S. (M)
McMillin, K. M. (M)
Oswald, J. A. (M)
Soper, J. A. (M)

Hudsonville (W-MIC-4)
De Witt, I. J. (A)

Huntington Woods (DET-4)
Conrath, L. R. (SM)
Van Dusen, H. J. (M)
Wilton, V. A. (M)

Inkster (DET-4)
Le Baron, G. M. (M)

Jackson (DET-4)
Arasim, J., Jr. (A)
Baker, F. J. (A)
Brooks, H. A. (A)
Bush, C. H., Jr. (A)
De La Cova, P. V. (SM)
Devereaux, R. N. (M)
Evensen, A. J. (M)
Hungerford, R. S. (M)
King, R. C. (M)
Longman, E. R. (M)
Podlewski, R. S. (A)
Probert, D. C. (M)
Sikora, J. A. (A)
Stewart, J. A. (M)
Troup, E. O. (M)
Westrate, M. C. (M)
Wilson, E. F. (SM)
Zieger, C. H. (M)

Kalamazoo (W-MIC-4)
Alway, C. D. (M)
Barnes, D. A. (A)
Burke, R. H. (M)
Fetzer, J. E. (SM)
Kelly, D. E. (M)
Lee, C. E. (A)
Marburger, W. G. (M)
Morse, F. L. (M)
Van Campen, F. M. (SM)
Woods, O. R. (M)

Kincheloe AFB (MIL-5)
Gayer, G. A. (M)

Kingsford (MIL-5)
Phillips, W. J. (M)

Kingston (DET-4)
Ruggles, C. B. (A)

Lansing (DET-4)
Bennett, C. T. (A)
Brooke, C. E. (A)
Graham, J. M. (M)
Hewitt, J. E. (A)
Kateley, J., Jr. (M)
Kruger, V. (A)
Pennington, R. B. (M)
Richard, C. L. (M)
Sevic, R. A. (M)
Taylor, L. C. (A)
Whitacre, J. W. (A)
Winters, L. C. (A)

Leslie (DET-4)
Stansfield, S. J. (M)

Lincoln Park (DET-4)
Merlino, E., Jr. (M)
Scott, R. E. (M)

Livonia (DET-4)
Bandoian, P. (A)
Barsamian, A. S. (A)
Davies, D. C. (M)
Hall, R. J. (M)
Heim, K. E. (M)
Humphreys, D. M. (A)
Kozlara, E. H. (M)
Lohrenz, M. H. (M)
Michaels, P. A. (M)
Nay, H. T., Jr. (M)
Porter, C., Jr. (A)
Rutsey, J. P. (M)
Stout, C. D. (M)
Sullivan, J. E. (M)
Taplin, L. B. (M)
Taylor, C. I. (M)
Thomas, T. R. (M)
Trottier, B. J. (A)
Veit, N. J. (M)
Waltz, F. M. (M)
Weiss, M. (A)
Winner, D. H. (M)

Ludington (W-MIC-4)
Bond, J. M. (M)
Petters, J. F. (A)
Plank, R. A. (A)
Rasmussen, R. (A)
Shipman, L. E. (M)

Madison Heights (DET-4)
Clements, H. R. (A)
Dexter, R. C. (M)
Heberlein, D. G. (A)
Risko, F. D. (M)
Thomas, T. (A)
Tuksal, M. A. (M)

Marquette (MIL-5)
Jackson, W. G. (M)
Marr, G. P. (M)
McKee, J. W. (M)

Marshall (W-MIC-4)
Brownell, G. T. (SM)

Melvindale (DET-4)
Ziniuk, M. A. (M)

Midland (DET-4)
Adler, S. E. (M)
Anderson, K. R. (M)
Bauss, H. H. (A)
Csaky, E. (M)
Earleywine, E. (M)
Kauppi, D. K. (M)

Milan (DET-4)
Todd, R. H. (M)

Milford (DET-4)
Cheal, J. (M)
Gundersen, R. E. (A)
Nichols, G. B. (M)
Paclocek, L. J. (M)
Sink, W. C. (A)
Stark, M. K. (M)
Talaski, C. E. (M)

Mio (DET-4)
Craig, A. D. (A)

Moline (W-MIC-4)
McFarland, T. O. (A)

Mount Clemens (DET-4)
Bonin, D. (M)
Brunais, E. G. (M)
Burrows, R. M., Jr. (M)
Child, R. W. (M)
Christman, C. J. (M)
Donovan, M. A., Jr. (M)
Hayes, T. P. (M)
Hunter, J. S., Jr. (A)
MacMillan, R. C. (M)
Membery, A. H. (A)
Miller, C. E. (M)
Morrison, D. O. (SM)

Muskegon (W-MIC-4)
Castenholz, F. E. (SM)
Czemiak, J. L. (A)
Hammer, R. V. (M)
Johnson, E. P., Jr. (A)
McElyea, W. W. (M)
Medendorp, N. K. (A)
Riekels, H. E. (A)
Saums, H. L. (A)
Schecter, C. W., Sr. (M)

Muskegon Heights (W-MIC-4)
Mau, J. C. (M)
Tsaggaris, J. N. (M)

Negaunee (MIL-5)
Rutherford, J. W. (A)

New Boston (DET-4)
Niswonger, B., Jr. (A)

Niles (SB-M-5)
Baldwin, B. J. (M)
Cusick, D. H. (M)
Hawes, A. W. (M)
Kaminsky, V. J. (A)
Kennedy, R. L. (A)
Miller, J. M., Jr. (SM)
Ramsey, R. C. (M)

North Adams (DET-4)
Wisner, D. A. (M)

North Muskegon (W-MIC-4)
De Vries, D. H. (M)

Northport (W-MIC-4)
Probst, D. R. (M)

North Street (DET-4)
Wood, E. E. (M)

Northville (DET-4)
Chadwick, R. T. (M)
Pawlowski, R. (M)
Thomas, B. M. (A)
Young, A. E. (SM)

Oak Park (DET-4)
Antoniou, M. I. (M)
Burr, J. A. (M)
Farrah, H. R. (M)
Howard, W. D. (A)
Lampcov, J. (M)
Le Barre, S. D. (M)
Ledbetter, D. R. (A)
Leland, R. D. (M)
Nichols, A. G. (M)
Piedad, F. S. (A)
Rosen, P. J. (M)
Schmid, F. L. (M)
Sperber, W. (M)
Warnick, A. (M)
Zimmerman, W. A. (M)

Orchard Lane (DET-4)
De Long, R. B. (M)

Owosso (DET-4)
Morden, R. E. (M)

Petoskey (W-MIC-4)
Horniman, N. L. (M)
Vargo, R. J. (A)

Pleasant Ridge (DET-4)
Burns, T. S. (M)
Mackenzie, W. G. (A)
Swan, W. O., Jr. (M)

Plymouth (DET-4)
Armstrong, R. H. (M)
Bartek, R. J. (M)
Baumpartner, W. H. (M)
Chappell, W. M. (M)
Filkins, L. D. (M)
Griggs, J. O., Jr. (M)
Nelson, D. F. (M)
Noffz, H. C. (M)
Proehl, A. B. (M)
Smith, E. H. (M)

MICHIGAN

Sterner, F. L. (M)

Pontiac (DET-4)
Baker, E. E., Jr. (M)
De Haan, R. F. (M)
Drumheller, O. L. (M)
Kattush, I. E. (A)
McCall, W. A. (M)
Sanders, W. J. (A)
Spacek, C. G. (M)
Wilcox, L. L. (M)

Portland (W-MIC-4)
Hutchinson, D. R. (A)

Presque Isle (DET-4)
Wesser, C., Jr. (A)

Ravenna (W-MIC-4)
Korson, A. W. (A)

River Rouge (DET-4)
Shepley, L. (A)

Rives Junction (DET-4)
Monroe, D. G. (M)

Rochester (DET-4)
Allured, R. B. (SM)
Collier, A. F. (M)
Hart, D. E. (M)
Jouppi, A. (A)
Kubiak, T. H. (A)
Ostrander, L. V., Jr. (M)
Oxford, C. J., Jr. (M)
Ranke, E. K. (M)
Shott, A. J. (M)
Upton, G. S. (M)

Rogers City (DET-4)
Nauts, D. F. (M)

Romeo (DET-4)
Krog, E. G. (M)
Smith, A. M. (M)

Roscommon (DET-4)
Klemetti, R. O. (A)

Roseville (DET-4)
Bartell, V. T. (M)
Cumeralto, Q. C. (M)
Eddy, D. S. (M)
Kott, K. G. (M)
Meltvedt, H. (M)
Straughen, G. A. (A)

Royal Oak (DET-4)
Allwine, H. S. (A)
Ansorge, H. W. (M)
Badger, A. H. (A)
Barber, L. E. (SM)
Beck, E. R. (A)
Boyd, D. R. (A)
Chiavarini, E. W. (M)
Dearth, G. E. (M)
Fischer, D. A. (A)
Fowler, R. L. (M)
Goodman, P. C. (M)
Hanysz, E. A. (M)
Johnson, A. C. (M)
Johnson, E. C., Jr. (SM)
Kassler, R. (M)
Kubota, J. (M)
Lukawski, E. L. (M)
Miller, B. P. (M)
Morrison, D. R. (M)
Neu, J. D. (A)
Nolan, J. F. (A)
Patrick, J. L. (M)
Perry, A. R. (M)
Phillips, L. E. (M)
Reinhold, H. W. (M)
Robinson, D. F. (M)
Robinson, R. P. (A)
Savitt, D. A. (M)
Schlorff, R. F. (M)
Schooley, M. H. (M)
Sprague, W. L. (M)
Stelzer, D. L. (M)
Stoltz, W. S. (M)
Troll, W. C. (A)
Walker, J. C. (M)
Wilmot, W. R. (M)
Wood, A. (A)

Saginaw (DET-4)
Chesney, W. C. (M)
Curtindale, E. G. (M)
Loucks, J. W. (A)
McKittrick, T. R. (M)
Thomas, M. W. (M)
Wagenseller, G. W. (A)
Woods, R. A. (M)

St. Charles (DET-4)
Weigold, F. P. (M)

St. Clair Shores (DET-4)
Adkins, H. T. (SM)
Barnes, H. R. (M)
Brauning, T. W. (M)
De Baker, J. L. (M)
Fisher, P. A. (M)
Higgins, N. S. (A)
Salomone, S. M. (M)
Stevens, J. E. (M)
Walker, E. L. (M)
Weagel, K. D. (A)

St. Joseph (SB-M-5)
Fieblich, E. C. (SM)
Moore, D. G. (SM)
Myers, G. H. (M)
Phillips, G. D. (SM)
Ramer, J. S. (M)
Wennerberg, A. L. (M)

Saline (DET-4)
Brace, L. H. (A)
Lawrence, W. H. (M)

Sault Ste. Marie (MIL-5)
Edwards, J. T. (M)
Lewis, J. O. (A)
McPherson, R. T. (M)

Selfridge AFB (DET-4)
Allison, C. H. (A)
Fertig, J. C., Jr. (A)
Hilty, D. C. (M)

Southfield (DET-4)
Andrews, G. B. (M)
Chapelle, W. E. (M)
Erickson, E. A. (A)
Fisk, R. H. (M)
Fryfogle, J. D. (A)
Johnson, M. C. (M)
Krulikoski, S. J., Jr. (M)
Longnecker, E. P. (SM)
Matherly, C. W. (M)
McKelvie, J. L. (M)
Miller, R. C. (M)
Millman, J. S. (M)
Patton, H. W. (SM)
Peace, G. M. (M)
Rosselot, G. A. (M)
Rothfusz, R. W. (M)
Runkel, W. E. (M)
Schlachter, H. J. (A)
Stinson, R. C. (M)
Warnke, U. J. C. (M)
Wilson, R. A. (M)

Southgate (DET-4)
Yost, J., Jr. (M)

South Lyon (DET-4)
Adams, A. T. (M)

Stevensville (SB-M-5)
Freathy, R. E. (A)
Gardner, E. E. (M)
Hammond, R. J. (M)
Robertson, C. A. (M)

Taylor (DET-4)
Liskiewicz, W. T. (M)
Zacharopoulos, G. (A)

Temperance (DET-4)
Kohler, R. D. (M)

Three Rivers (SB-M-5)
Fife, G. E., Jr. (M)
Perkins, M. L. (M)

Traverse City (W-MIC-4)
Biederman, L. M. (M)
Hoogesteger, J. R. (M)

Trenton (DET-4)
Dolsen, J. A. (M)
Mills, G. L. (A)
Thornton, C. H. (A)

Troy (DET-4)
Bergstrom, J. W. (SM)
Lindberg, E. E. (A)
Spain, R. F. (M)

Union Lake (DET-4)
Smith, L. G., Jr. (A)

Utica (DET-4)
Buckler, R. A. (A)
Calabro, A. D. (M)
Fream, R. V. (M)
Payne, G. J. (M)
Swartz, E. E. (SM)

Walled Lake (DET-4)
Hart, A. D. (M)
Weldman, J. S. (A)

Warren (DET-4)
Burley, H. A. (M)
Craig, J. P. (M)
Friedman, D. (M)
Gioia, A. J. (M)
Golembiewski, A. J. (A)
Hafstad, L. R. (F)
Heinrich, B. F. (M)
Holiak, A. F. (A)
Joyce, J. D. (M)
Kelly, J. J. (M)
Kudela, A. F. (M)
Malafouris, T. (A)
Marshall, J. (M)
McKee, J. M. (M)
Nance, D. K. (A)
Rees, D. W. (M)
Schwartz, R. E. (M)
Shirer, H. W. (A)
Tomsos, S. F. (A)
Vuylsteke, A. A. (SM)
Walton, E. D. (M)
Zukowski, J. A. (M)

Wayne (DET-4)
Haddad, M. T. (M)
Jankowski, J., Jr. (M)
Mann, D. W. (M)
Schmalzriedt, T. T. (A)
Tackett, R. W. (M)

Wellston (DET-4)
Thunder, L. C. (M)

West Detroit (DET-4)
Jones, T. N. (A)

Whitmore Lake (DET-4)
Podewils, N. R. (A)
Williams, R. O. (SM)

Williamston (DET-4)
Bappert, C. F. (M)

Wyandotte (DET-4)
Bradley, R. W. (M)
Moore, J. B. (M)

Ypsilanti (DET-4)
Amble, H. A., Jr. (M)
Augustus, L. M. (M)
Birdsall, T. G. (M)
Blikken, W. A. (SM)
Breymaier, R. W. (M)
Crane, R. B. (SM)
Douglas, W. J. (M)
Findlay, J. A. (M)
Harding, W. G. (M)
Hoagbin, J. E. (M)
King, L. G. (A)
Kroll, R. T. (A)
Lanning, H. E. (M)
Larrowe, B. T. (M)
Larue, J. J. (M)
Lauder, J. A. (M)
Lawson, A. C., Jr. (A)
Liepa, L. V. (M)
Linn, D. L. (A)
Liskow, C. L. (M)
MacDonald, C. L. (M)
Maes, R. E., Jr. (M)
Mast, J. G. (M)
Morsfield, A. W. (M)
Neau, O. T. (M)
Oates, H. W. (M)
O'Neill, J. E. (M)
Paprocki, C. R. (M)
Place, R. F. (A)
Rudolph, J. W. (A)
Rupert, G. F. (M)
Sherman, H. W. (M)
Stewart, M. J. (A)
Van Valkenburg, E. S. (SM)
Weinert, B. R. (M)
Wheatley, W. A. (M)
Wooley, G. J. (M)

MINNESOTA

Anoka (TC-5)
Hornsby, J., Jr. (M)
Longfellow, R. C. (SM)

Bloomington (TC-5)
Bones, G. W. (M)
Martin, A. L., Jr. (M)
Meyer, B. L. (M)

Brooklyn Center (TC-5)
Gordon, R. E. (M)

Cedar (TC-5)
Creasor, P. H. (A)

Chandler (TC-5)
Chambers, R. L. (M)

Circle Pines (TC-5)
Lind, A. L. (M)

Clinton (TC-5)
Weinman, A. L. (A)

Columbia Heights (TC-5)
Baker, G., Jr. (A)

Coon Rapids (TC-5)
Evert, D. R. (M)
Jahn, D. S. (M)
Kittridge, C. E. (M)
Luke, L. A. (M)
Smersh, C. K., Jr. (A)
Watson, F. J. (M)

Duluth (TC-5)
Affeldt, W. A. (A)
Cook, M. D. (M)
Dettmar, R. A. (A)
Gergen, J. L. (M)
Koester, J. C. (A)
Kuhn, F. H. (M)
Lillenthal, H. R. (M)
Stromberg, R. L. (A)

Edina (TC-5)
Kuhlmey, E. S. (M)

Excelsior (TC-5)
Headla, D. R. (M)
Johnson, L. E. (M)
Pappas, P. E. (SM)

Faribault (TC-5)
Folsom, D. E. (M)
Schmidtke, H. D. (A)

Fergus Falls (TC-5)
Nesting, J. W. (M)

Forest Lake (TC-5)
Bolenbaugh, J. E. (M)

Fridley (TC-5)
Chenette, E. R. (M)

Glen Lake (TC-5)
Biltz, F. J. (M)

Grand Rapids (TC-5)
Erickson, E. A. (M)

Halstad (TC-5)
Anderson, J. D. (M)

Hastings (TC-5)
Karpen, R. L. (M)

Hendrum (TC-5)
Brattland, H. A. (M)

Hibbing (TC-5)
Raihala, W. L. (M)

Hopkins (TC-5)
Aske, V. H. (M)
Bearinger, V. W. (M)
Blakemore, J. S. (SM)
Bonstrom, D. B. (M)
Bostrom, D. E. (A)
Carpenter, R. K. (M)
Chandler, R. D. (M)
Donaldson, J. G. (M)
Johnson, R. G. (M)
Larsen, F. J. (SM)
Larson, R. B. (M)
Lee, C. B. (M)
Maloney, P. G. (M)
Motchenbacher, C. D. (M)
Nichols, R. F. (M)
Norman, J. C. (M)
Nussbaum, A. (A)
Palmer, D. R. (M)
Pearson, M. R. (M)
Schulz, R. H. (M)
Stuetzer, O. M. (SM)
Trent, J. E. (M)

Isle (TC-5)
Scherf, A. L. (M)

Lake Elmo (TC-5)
Kirvida, L. (M)

Lakeville (TC-5)
Casey, T. J. (M)

Little Falls (TC-5)
Copa, R. J. (M)

Little Marais (TC-5)
Van Doren, A. H. (M)

Mankato (TC-5)
Lease, L. R. (M)

Maple Plain (TC-5)
Lindelin, K. R. (M)

Marine on St. Croix (TC-5)
Nelson, H. E. (M)

Marshall (TC-5)
Ahmann, R. M. (M)

Minneapolis (TC-5)
Ackmann, J. J. (M)
Adams, G. E. (SM)
Ahonen, R. G. (M)
Alderson, R. C. (M)
Alterman, F. J. (M)
Andersen, G. A. (M)
Anderson, D. E. (M)
Anderson, D. E. (M)
Anderson, E. J. (M)
Anderson, E. M. (A)
Anderson, G. G. (M)
Anderson, G. P. (M)
Anderson, L. I. (M)
Anderson, L. T. (M)
Anderson, P. M. (M)
Anderson, R. E. (M)
Andrews, F. A. (SM)
Andrs, W. L. (M)
Arkell, F. J., Jr. (M)
Arnold, D. E. (M)
Baeten, W. A. (A)
Baker, H. E. (M)
Bakken, E. E. (M)
Baldwin, J. M. (SM)
Baller, H. (SM)
Barrett, R. O. (M)
Barron, C. L. (M)
Benz, D. E. (M)
Berg, N. E. (A)
Bergan, K. N. (SM)
Blixt, R. P. (M)
Blizzard, C. R. (M)
Boatman, L. R. (M)
Boll, H. J. (M)
Bolmgren, L. N. (M)
Bonestroo, K. G. (M)
Bonrud, L. O. (M)
Borth, J. W. (M)
Bowdon, E. K. (M)
Branstad, D. H. (M)
Brekhus, E. H. (A)
Bukosky, J. R. (A)
Burrell, W. P. (M)
Buss, J. L. (M)
Butz, A. R. (M)
Callen, M. W. (M)
Cartwright, P. A. (M)
Casale, C. T., II (M)
Chamolin, K. S. (M)
Chen, D. (M)
Christensen, V. E. (A)
Christian, H. K. (M)
Clark, N., Jr. (M)
Coffin, W. R. (M)
Cohen, A. (SM)
Cray, S. R. (M)
Croze, M. W. (M)
Currier, R. G. (M)
Davis, W. W. (M)
Debbins, D. J. (M)
De Blauw, M. J. (M)
Disser, C. J. (M)
Dittes, R. E. (M)
Donahue, C. D. (A)
Fay, T. E. (M)
Featherstone, R. P. (M)
Field, B. W. (A)
Findley, L. D. (M)
Fink, J. S. (M)
Fink, J. W. (M)
Flaskerud, K. A. (A)
Flom, K. L. (M)
Flumerfelt, R. L. (A)
Fosseene, J. J. (M)
Foster, J. H. (SM)
Frase, S. H. (M)
Frazier, H. N. (M)
Fullerton, P. L. (M)
Funkhouser, R. E., Jr. (M)
Gaughran, G. W. (M)
Geiger, W. D. (M)
Gise, F. G., Jr. (A)
Grabowski, J. H. (M)
Grady, T. J. (M)
Granberg, M. L. (M)
Grashorn, G. N. (M)
Grayson, G. (M)
Green, F. M. (M)
Green, S. S. (M)
Gridley, D. H. (M)
Griffin, R. E. (M)
Griffith, E. S. (M)
Grindheim, E. A. (M)
Gross, W. S. (M)
Gustafson, H. A. (M)
Gutman, D. C. (M)
Guttmann, H. E. (M)
Hanfors, N. R. (M)
Halland, L. J. (A)
Hamel, G. E. (A)
Hansen, G. F. (A)
Harding, E. W. (M)
Harrington, D. C. (M)
Harvey, P. O. (M)
Hass, E. G. (A)
Hawkinson, M. F. (M)
Haxby, B. V. (M)
Headen, A. V. (M)
Heer, W. G. (M)
Heiser, R. K. (M)
Helmen, V. R. (A)
Hemer, W. W. (M)
Herrlin, J. M. (M)
Hill, B. M. (A)
Hill, E. L. (SM)
Hille, L. S. (M)
Hinz, D. I. (SM)
Hird, F. S. (SM)
Hogan, J. W. (SM)
Hogie, W. I. (M)
Holte, J. E. (M)
Horan, T. W. (A)
House, E. A. (M)
Howell, P. N. (M)
Hron, R. L. (M)
Hutton, W. I. (SM)
Ieleja, L. (M)
Ingvaldsen, R. E. (A)
Jacobs, J. F. (M)
Johnson, C. E., Jr. (SM)
Johnson, G. H. (M)
Johnson, K. R. (M)
Johnson, R. E. (M)
Josephs, H. C. (M)
Kaiser, M. R. (M)
Kalb, R. M. (SM)
Kanda, A. F. (M)
Kelar, J. (SM)
Kelen, E. A. (M)
Keller, H. L. (M)
Kellough, S. H. (M)
Kennedy, E. J. (M)
Kershaw, J. A. (M)
Kerske, J. F. (M)
Kiene, R. C. (M)
Kile, F. O., Jr. (M)
Kinnen, E. (SM)
Kinsman, R. B. (M)
Kleason, D. B. (M)
Kline, F. W., Jr. (SM)
Kosters, A. J. (M)
Krantz, K. B. (A)
Krieg, A. R. (A)
Kubicek, W. G. (M)
Kuhns, R. C. (M)
Kuklock, E. N. (M)
Lambert, R. F. (M)

Lanolie, L. O. (M)
Lasarsky, S. G. (M)
Lawler, R. A. (A)
Lehnert, W. E. (M)
Leland, T. P. (M)
Leum, N. O. (M)
Lindemann, W. W. (M)
Lisowski, J. R. (M)
Lockwood, R. L. (M)
Lode, T. (M)
Lucke, K. A. (M)
Lundahl, W. N. (M)
Lundquist, P. P. (M)
Lundstrom, D. E. (M)
Lundy, P. E. (M)
Maki, C. E. (M)
Malcolm, D. H. (M)
Manke, J. A. (M)
Markusen, D. L. (M)
Marshall, J. F. (M)
Martin, R. T. (M)
Matthys, R. J. (A)
Matzke, A. F. (M)
McCabe, F. C. (M)
Mc Cann, R. E. (M)
McElroy, W. J. (M)
McGinnis, W. J. (M)
McHale, M. J. (M)
McNeff, W. I. (M)
Medved, F. (M)
Mellon, G. E. (A)
Metcalfe, T. H. (M)
Meyer, R. F. (M)
Miller, F. V. (M)
Millunzi, P. T. (M)
Mittelstadt, D. R. (M)
Moe, W. B. (M)
Moore, A. R. (M)
Morrish, A. H. (SM)
Muckenhim, O. W. (SM)
Nelson, E. J. (M)
Nelson, R. H. (M)
Nelson, W. G. (M)
Newman, M. M. (M)
Newman, T. F. (M)
Nielsen, R. E. (M)
Nino, J. H. (M)
Nordloef, A. E. (M)
Nordstrom, J. E. (A)
Novovich, S. (M)
O'Brien, H. G. (A)
Olson, K. A. (M)
Olson, R. C. (M)
Onsager, H. F. (M)
Orenstein, E. D. (M)
Ostberg, E. H. (M)
Ott, J. T. (A)
Park, G. L. (M)
Park, J. H., Jr. (M)
Paurus, N. W. (M)
Pence, C. J. (M)
Perchshyn, E. S. (M)
Person, C. B. (SM)
Persson, E. K. (M)
Peterson, C. W. (M)
Peterson, L. E. (M)
Phillpps, L. E. (SM)
Pidcock, R. E. (M)
Pierce, W. R. (A)
Poole, J. A. (M)
Premack, J. (M)
Pribble, J. D. (M)
Priebe, N. F. (M)
Prince, J. P. (M)
Prom, G. J. (M)
Pruett, R. C. (M)
Quam, L. R. (M)
Quinn, R. D. (M)
Raney, W. P. (M)
Rebne, H. K. (M)
Recksiedler, A. L. (M)
Reed, M. W. (M)
Reinke, J. A. (M)
Reinke, R. F. (M)
Renk, B. J. (M)
Reuyl, J. S. (M)
Richardson, R. G. (A)
Rickett, R. J. (M)
Riggle, C. M. (M)
Rodgers, D. L. (M)
Rohner, T. G. (A)
Ruetz, L. (M)
Runkle, L. D. (M)
Sandve, P. L. (A)
Saprasa, A. G. (M)
Sater, J. C. (M)
Schaumberg, W. H. (M)
Schindler, R. P. (M)
Schmidt, W. M. (M)
Schmitt, O. H. (F)
Schoenherr, H. W. (M)
Scholz, R. M. (M)
Schott, O. A. (M)
Schuck, O. H. (F)
Schulz, D. G. (M)
Schulz, S. W. (M)
Schwartz, L. (M)
Sells, H. A. (M)
Selm, H. N. (M)
Sell, R. L. (SM)
Senders, J. W. (SM)
Senstad, P. D. (M)
Shabatura, D. P. (M)
Shepherd, W. G. (F)
Sheppard, H. F., Jr. (M)
Sherman, J. M. (SM)
Shifflet, G. W., Jr. (M)
Shoquist, M. C. (M)
Slawacek, H. A., Jr. (M)
Sindermann, R. J. (A)
Smith, A. J., Jr. (M)
Snyder, R. V. (M)
Soller, T. M. (M)
Solomon, R. M. (M)
Spar, J. E. (M)
Spencer, W. H. (M)
Sprecher, N. D. (M)
Stanga, D. W. (M)
Staubus, J. W. (M)
Steele, T. S. (M)
Stone, N. T. (M)
Storm, J. F. (M)
Stover, R. F. (M)
Strand, H. D. (M)
Stryker, E. M., Jr. (M)
Swanlund, G. D. (M)
Swanson, L. F. (M)
Talarczyk, A. R. (A)
Thomas, N. L. (M)
Thompson, V. L. (A)
Thorgrimson, G. N. (M)
Thuras, R. D. (M)
T'Kach, H. V. (M)
Tobias, P. R. (M)
Tobin, R. D., Jr. (M)
Toth, D. H. (M)
Trimmer, J. P. (M)
Tsui, Y. T. (A)
Valo, H. L. (A)
Van Der Ziel, A. (F)
Vitebsky, J. H. (M)
Vogel, J. P. (M)
Waldenmayer, D. W. (M)
Warhol, N. (M)
Warren, R. E. (M)
Weber, R. G. (M)
Welmer, G. K. (M)
Welmer, P. J. (M)
Wellnitz, A. G. (M)
Werner, W. (M)
Weyrauch, H. E. (M)
Wickman, C. R. (M)
Wicks, A. A. (M)
Wier, E. J., Jr. (M)
Williams, G. I. (M)
Wilson, J. S. (M)
Wilson, W. R. (M)
Wirth, M. T. (M)
Wolf, P. I. (A)
Woll, L. J. (M)
Zeese, J. A. (M)
Zimmer, E. D. (M)
Zimmerman, A. J. (M)
Zirkle, R. E., Jr. (M)
Zmeskal, A. (SM)

Moorhead (TC-5)
Peterson, D. E. (M)

Mount Iron (TC-5)
Chase, P. W. (M)

New Brighton (TC-5)
Bromander, G. C. (M)
Bulleyment, K. J. (M)
Clark, G. H. (M)
Graves, G. L. (M)
Halverson, R. P. (M)
Kasprzak, T. L. (M)
Olsen, M. R. (M)
Palo, A. M. (M)
Petersen, J. F. (M)
Stenstrom, A. J. (M)

New Ulm (TC-5)
Lindemann, P. T. (A)

Northfield (TC-5)
Jensen, M. C. (M)
Rossing, T. D. (SM)

North St. Paul (TC-5)
Coop, R. D. (M)
Erpelding, K. T. (M)
Hill, J. L. (M)

Osseo (TC-5)
Schiebe, F. R. (M)

Princeton (TC-5)
Sanford, D. C. (M)

Ranier (TC-5)
Monahan, G. W. (A)

Red Wing (TC-5)
Jelatis, D. G. (M)
Lee, G. M. (M)

Richfield (TC-5)
Barbour, R. E. (M)
Diger, J. E. (A)
Doherty, R. P. (M)
Vint, J. L. (A)
Winget, W. F. (M)

Robbinsdale (TC-5)
Hartig, H. E. (F)

Rochester (TC-5)
Anderson, J. A. (M)
Brown, L. M. (M)
Cain, J. C. (A)
Casanova, W. J. (M)
Cross, R. W. (A)
Edgington, G. E. (M)
Fjelsted, R. P. (M)
Floyd, R. A., Jr. (M)
Hansen, R. J. (M)
Isaacson, J. (M)
Jacobsen, H. J. (M)
Jenkins, K. W. (M)
Jones, R. E. (SM)
Leonard, P. F. (M)
McCarthy, C. E. (SM)
Runge, M. R. (M)
Sanders, J. J. (M)
Shaw, D. G. (M)
Solem, L. D. (M)
Stoltenberg, K. D. (A)
Tenley, R. A. (M)
Zandall, R. R. (A)

Rosemount (TC-5)
Chiswell, E. (M)
Geronime, R. L. (A)

Sacred Heart (TC-5)
Frank, A. (A)

St. Cloud (TC-5)
Larson, H. B. (A)

St. Louis Park (TC-5)
Lantto, E. S. (M)
Miller, C. B. (A)
Sivertsen, O. M. (M)

St. Paul (TC-5)
Alman, J. (M)
Alton, J. M. (M)
Anderson, S. E. (M)
Arndt, R. B. (SM)
Ashbaugh, J. P. (M)
Ause, P. J. (M)
Austin, C. L. (A)
Baldy, G. A. (M)
Bargen, D. W. (M)
Barnes, J. C. (SM)
Bartlett, V. W. (M)
Baumann, G. M. (M)
Beck, V. W. (M)
Beckler, H. E. (M)
Beisel, J. W. (M)
Beltz, C. A. (M)
Benassi, D. A. (M)
Block, E. J. (M)
Bookin, M. L. (M)
Brackett, C. R. (M)
Bratschi, R. W. (M)
Bronkala, H. J. (A)
Brown, J. L. (M)
Buchanan, K. J. (M)
Buesseler, M. L. (A)
Campbell, H. S. (M)
Chapek, H. T. (M)
Christgau, M. A. (M)
Christofferson, A., Jr. (M)
Cieslicki, J. J. (A)
Coil, N. B. (SM)
Compton, C. G. (M)
Converse, W. J. (A)
Coon, R. R. (M)
Cooper, C. E. (M)
Deeb, E. P. (M)
Deeter, C. R. (M)
De Vir, J. F. (A)
Donohoo, D. J. (M)
Donohoo, J. A. (M)
Donohoo, R. D. (M)
Dostal, R. J. (M)
Dubbel, W. C. (M)
Duncan, D., Jr. (M)
Eckberg, L. D. (M)
Edam, D. M. (M)
Eddy, C. W. (M)
Edblund, A. J. (M)
Elliit, D. E. (M)
Erickson, R. S. (M)
Erickson, V. M. (M)
Eulberg, R. J. (SM)
Evans, R. J. (M)
Foreman, J. J. (M)
Frykman, R. W. (M)
Fullwiler, F. K. (M)
Gadler, S. J. (SM)
Gille, W. H. (SM)
Gist, W. W. (M)
Glewwe, C. W. (M)
Gunderson, D. C. (M)
Gustafson, T. L. (M)
Hamilton, H. E. (M)
Hannah, C. B. (M)
Hanson, G. N. (M)
Hardenbergh, G. A. (A)
Harkins, W. J. (A)
Harrington, D. A. (M)
Hartmann, R. W. (M)
Hendry, A. J. (M)
Herzfeld, V. E. (M)
Higgins, J. T. (A)
Hildyard, V. G. (A)
Hill, B. F. (M)
Hinderaker, P. D. (M)
Hoglund, K. M. (M)
Holdaway, D. R. (M)
Horst, R. L. (M)
Hovde, M. A. (M)
Jallen, G. A. (M)
Jensen, W. (M)
Jestice, A. L. (A)
Johnson, B. A. (M)
Johnson, C. A. (M)
Kahnke, J. (M)
Kaplan, A. (M)
Kaszynski, A. Z. (M)
Keating, D. J. (M)
Keel, B. G. (M)
Kegel, R. A. (M)
Kelsey, J. R. (A)
Kidder, H. F. (M)
Kimlinger, J. A. (M)
Kirby, J. F. (M)
Kissling, R. T. (A)
Kmoch, N. J. (M)
Knoblauch, A., Jr. (M)
Knox, W. B. (M)
Kogl, L. (M)
Kolbert, D. E. (M)
Kolling, J. A. (M)
Krauser, J. L. (M)
Krieger, E. L. (M)
Kucera, F. M. (M)
Kukuk, H. S. (M)
Kuller, L. (M)
Larson, J. A. (A)
Larson, P. S. (M)
Liepa, A. (M)
Linsley, S. E. (M)
Lubinski, L. D. (M)
Luken, R. J. (M)
Macaulay, M. (M)
Macomber, G. R. (M)
Maki, T. R. (M)
Malone, R. J. (M)
Marble, J. E. (M)
Marks, H. L. (A)
Mayo, P. M. (M)
Maze, R. O. (M)
McBride, D. A. (M)
McDonald, R. E. (M)
McGowan, R. F. (M)
McLane, R. C. (M)
McNaughton, R. J. (M)
Meddaugh, S. A. (M)
Mellus, F. G. (M)
Merritt, J. S., Jr. (M)
Meyer, D. M., Jr. (M)
Mielke, J. E. (M)
Miller, L. B. (A)
Moe, J. L. (M)
Moe, O. D. (M)
Moe, W. J. (M)
Moen, J. W. (M)
Moerke, R. W. (M)
Mulholland, K. H. (M)
Mullaney, F. C. (SM)
Murray, D. A. (M)
Navoichick, C. (M)
Neese, J. L. (M)
Nellis, W. M. (M)
Neuman, W. C. (M)
Neumann, W. J. (M)
Nicholas, J. C. (SM)
Nieters, A. B. (A)
Nolan, W. B. (M)
Oines, D. A. (M)
Olseen, E. E. (A)
Oman, R. M. (M)
Osofsky, H. (M)
Overas, R. E. (M)
Overdier, D. F. (M)
Pallas, C. E. (M)
Parseghian, B. I. (M)
Pearson, R. P. (A)
Peterson, C. K. (M)
Peterson, N. C. (M)
Petrowski, N. J. (M)
Pierce, A. J. (M)
Powell, F. T. (A)
Raabe, H. P. (SM)
Raisanen, W. R. (M)
Roberts, J. O. (A)
Robertson, M. A. (M)
Robinson, C. J. (M)
Rodriguez, P. (M)
Rolfs, J. R. (M)
Rowan, T. D., Jr. (M)
Rowe, D. T. (M)
Rowland, C. A., Jr. (M)
Sabine, L. E. (M)
Sackett, W. T., Jr. (M)
Sanders, R. M. (M)
Sandstrom, D. L. (M)
Schluter, P. H., Jr. (M)
Schultz, R. G. (M)
Shekels, H. D. (SM)
Skaar, I. G. (M)
Smythe, G. R. (M)
Somermeyer, H. F. (M)
Stahmann, J. R. (M)
Strand, D. M. (M)
Strom, R. A. (M)
Tufte, R. C. (M)
Tumquist, R. D. (M)
Volk, H. M. (M)
Von Behren, R. A. (M)
Weismanel, W. E. (M)
Wells, W. S. (M)
Weschler, W. A. (M)
Wesslund, R. E. (M)
Whitmore, P. G. (M)
Wiles, J. K. (M)
Wiley, B. (M)
Wilson, D. L. (M)
Wise, H. D. (M)
Wychor, W. (M)
Yeager, R. L. (M)
Yost, R. H. (SM)
Youngquist, R. J. (M)
Zelenka, H. B. (A)
Zuercher, D. H. (A)

St. Paul Park (TC-5)
Christman, R. D. (M)
Gehring, R. D. (M)
Haeuszer, F. A. (M)
Khambata, A. J. (A)

Savage (TC-5)
Carlson, R. A. (SM)

MISSISSIPPI

South St. Paul (TC-5)
Bos, R. E. (M)
McCumber, R. D. (M)
Wiedman, R. E. (M)

Stillwater (TC-5)
Gannett, A. C. (A)
Talle, C. A. (M)

Wadena (TC-5)
Schmieding, G. R. (M)

Waseca (TC-5)
Hager, F. M., Jr. (SM)
Johnson, E. F. (M)
Kozan, F. J. (A)

Wayzata (TC-5)
Ketchum, J. R. (M)
Larson, V. D. (M)
Lelvis, G. C. (M)
Mogen, D. C. (M)
Mooers, H. T. (SM)
Neveaux, R. J. (M)
Wagner, F. C. (M)
Young, S. B. (M)

West St. Paul (TC-5)
Engelhardt, R. R. (A)
Nordby, D. H. (M)
Valentine, A. G. (M)

White Bear Lake (TC-5)
Crampton, W. M. (M)
Edstrom, C. A. (A)
Enyeart, T. L. (A)
Hawley, C. L., Jr. (M)
Mayer, W. N. (M)
Morse, D. C., Jr. (M)
Wesman, C. (M)

Winona (TC-5)
Chisholm, R. G. (SM)

MISSISSIPPI

Aberdeen (HUN-3)
Rantz, R. R. (A)

Biloxi (NO-6)
Ballow, J. C. (A)
Binns, D. A. (M)
Boritz, S. L. (A)
Curran, J. D. (A)
Dunn, W. R. (M)
Ellmer, P. J. (M)
Ewing, S. E. (A)
Ezzell, K. M. (A)
Floyd, L. T. (M)
Guild, R. F. (A)
Haasen, R. F. (A)
Howland, G. H. (M)
Jackson, L. J. (M)
Johnson, P. B. (M)
La Grange, D. J. (A)
Lockley, S. G. (A)
Luckett, C. D. (A)
Schauer, N. W. (M)
Tinsler, H. C. (A)
Van Loon, R. M. (M)
Walborn, G. S. (SM)
Wallenmeyer, R. L. (A)

Brookhaven (NO-6)
Sellars, R. L. (A)

Cleveland (HUN-M-3)
Nail, W. L., Jr. (M)

Corinth (HUN-M-3)
Holman, H. E. (M)
Proop, R. R. (M)
Watts, D. E. (M)

Crystal Springs (NO-6)
Spohrer, R. F. (M)

Ellisville (NO-6)
Gagnon, R. A. (M)

Greenville (HUN-3)
Marchesini, J. C. (A)

Greenwood (HUN-3)
Johnson, H., Jr. (M)

Gulfport (NO-6)
Ishee, R. G. (A)
Moffitt, J. M. (A)
Rebenstorff, C. A. (M)
Swantz, F. W. (SM)
Wallis, J. C. (M)

Hattiesburg (NO-6)
Holloway, J. L. (M)

Holly Springs (HUN-M-3)
Lollar, H. C. (M)
Vizzier, B. A. (M)

Jackson (NO-6)
Courtenay, J. A. (SM)
Cuthbert, C. (M)
Gaby, E. D., Jr. (M)
Hogue, D. C. (M)
Jones, D. W. (A)
Lowery, L. D. (M)
Mills, R. H. (M)
Modlin, C. J. (M)
Stowell, N. J. (M)

MISSISSIPPI

Suttle, A. D., Jr. (SM)
Taylor, D. (M)
Walters, R. J. (A)

Keesler AFB (NO-6)
Agnew, D. L. (A)
Norman, R. L. (A)
Passmore, D. A. (A)
Polk, I. D. (M)

Laurel (NO-6)
Bowers, D. E. (M)
Keith, R. M., Jr. (A)

Long Beach (NO-6)
McFeeters, J. R. (M)

Louisville (HUN-3)
Whitmire, L. W. (M)

McComb (NO-6)
Brady, P. D. (M)

Mississippi City (NO-6)
Cloutier, F. L. (M)
McNamara, R. C. (A)
Rasche, D. O. (M)

Pascagoula (NO-6)
Harrison, R. L. (M)
Murphree, W. H. (M)
Scurlock, J. T. (M)

Pass Christian (NO-6)
Helwick, E. A. (A)

Satillo (HUN-M-3)
Peach, S. E. (M)

Starkville (HUN-3)
Guyton, R. D. (SM)
Matthews, G. A. (M)

State College (HUN-3)
Barrett, C. R. (M)
Bouchillon, J. D. (A)
Brown, D. E. (M)
Fitzgerald, D. F. (M)
Gross, E. E., Jr. (M)
Hill, L. J. (M)
McCown, H. H. (A)
McDaniel, W. L., Jr. (M)
McKee, J. C., Jr. (SM)
Rogers, D. B. (M)
Simrall, H. C. (SM)
Woods, H. G. (M)

Steens (HUN-3)
Stewart, D. E. (M)

Tupelo (HUN-M-3)
Green, J. D. (M)

Union (HUN-3)
West, T. H. (M)

University (HUN-M-3)
Cullen, A. B., Jr. (A)
Herring, R. A., Jr. (SM)

Vicksburg (NO-6)
Hanes, F. P. (M)

Water Valley (HUN-3)
Green, E. T., Jr. (M)

Wesson (NO-6)
Youngquist, D. (M)

Woodville (NO-6)
Nowell, J. T. (M)

MISSOURI

Affton (SL-6)
Abkemeier, L. R. (M)
Nurre, H. H., Jr. (M)
Shirling, G. K. (M)

Altenburg (SL-6)
Fischer, F. E. (M)
Fischer, R. A. (M)

Bel-Ridge (SL-6)
De Velde, E. C. (M)

Belton (KC-6)
Brownfield, A. W. (A)
Scarborough, C. B. (A)

Berkeley (SL-6)
Baumann, P. H., Jr. (M)
Crowe, E. W. (M)
Esker, A. T. (M)
Gilleman, L. (M)
Heilweck, B. J. (SM)
Isaacson, C. C. (A)
Maas, J. L. (A)
Moore, R. J. (A)
O'Neill, R. (SM)
Parsons, D. E. (M)
Schmidt, T. G. (M)

Boonville (KC-6)
Lang, R. H. (A)

Brentwood (SL-6)
Alberter, R. G. (M)
Beasley, J. M. (M)
Benton, C. L. (A)
Briner, C. D. (M)
Brodkowitz, J. S. (M)
Chew, J. Y. (M)
Conley, C. W. (M)
Droege, R. F. (A)
Gulledge, D. B. (A)
Hall, R. S. (M)
Kuhlman, E. A. (M)
Wiese, A. H. (M)

Bridgeton (SL-6)
Baker, C. E. (M)
Case, B. C. (M)
Mitchell, W. T. (M)
Schurter, W. W. (M)

Buckner (KC-6)
Courtright, E. L. (M)

Cape Girardeau (SL-6)
Brennan, R. D. (M)
Hirsch, O. C. (M)
Hirsch, R. O. (M)
Poe, H. E. (M)
Walter, D. R. (M)

Clayton (SL-6)
Esterson, G. L. (M)
Fiedler, G. J. (F)
Gildenberg, D. I. (M)
Lerman, G. S. (M)

Columbia (SL-6)
Benningfield, L. M. (M)
Capps, D. R. (M)
Cheng, D. H. S. (M)
Hogan, J. C. (M)
Lago, G. V. (M)
Lamb, J. F. (M)
Randall, J. E. (M)
Schuder, J. C. (M)
Troth, B. J. (A)
Tudor, J. R. (M)
Tuttle, W. R. (A)
Waidelich, D. L. (F)

Crestwood (SL-6)
Boman, W. T., Jr. (M)
Dowdle, E. E. (M)
Dubuque, T. J. (M)
Ebert, W. J., Jr. (M)
Hendren, J. W. (M)
Schwarz, R. M. (SM)

Creve Coeur (SL-6)
Andersen, A. R. (A)
Downing, T. S. (M)
Hemler, C. E. (M)
Hiestand, D. W. (M)
Lindenberg, E. C. (SM)
Margulies, H. H. (M)
McHoney, L. M. (SM)
Miller, R. A. (M)
Simmons, G. J. (M)
Welxler, H. J. (M)
Whitcombe, D. W. (SM)

Dearborn (KC-6)
Boydston, M. C. (A)

Deepwater (KC-6)
Shaffner, L. D. (M)

Des Peres (SL-6)
Clayton, G. H. (M)

Doniphan (SL-6)
Rice, G. M. (M)

Ferguson (SL-6)
Cave, J. H. (A)
Davis, R. T., Jr. (M)
Eggers, K. E. (M)
Harward, J. E. (M)
Henderson, H. W. (M)
Hobbs, E. W. (SM)
Reed, D. L. (M)
Schultz, R. E. (M)
Sudfeld, C. C. (M)

Florissant (SL-6)
Acker, R. E. (SM)
Bardon, D. G. (M)
Bell, J. H. (M)
Bennett, D. W. (M)
Bott, M. E. (M)
Brown, P. O. (M)
Bunko, M. (M)
Burnett, N. C. (A)
Campbell, L. G. (M)
Cherer, M. J., Jr. (M)
Decker, D. D. (M)
Deutschmann, F. C. (M)
Doll, J. W. (M)
Du Charme, M. D. (M)
Fenton, R. J. (A)
Fiedler, R. A. (A)
Gardner, B. H. (M)
Goetz, L. E. (M)
Gosselin, B. G. (A)
Guthrie, A. K. (M)
Hamilton, R. H. (M)
Haselwood, S. (M)
Haynes, F. H. (A)
Hinrichs, C. A. (M)
Iwan, R. D. (M)
Klein, E. J., Jr. (M)
Kliros, D. E. (M)
Kouba, E. R., Jr. (M)
Lawrence, R. C. (M)
Lawson, R. G. (A)
Lee, A. (M)
Luedde, W. J. (M)
Mackin, R. J. (M)
Morgan, R. D. (M)
Mueth, C. G. (M)
Nienhaus, H. A. (M)
Pyle, H. S. (A)
Rowton, E. E. (M)
Russell, N. E. (SM)
Saxe, R. E. (M)
Schaible, A. V. (M)
Schmidt, M. H. (M)
Spillman, R. M., Jr. (M)
Szukalski, D. J. (M)
Thompson, J. R. (M)
Torrisi, J. (A)
Twombly, J. W., Jr. (M)
Vieth, R. V. (M)
Volk, J. A. (SM)
White, E. F. (A)
Wolf, C. P. (M)

Fort Leonard-Wood (KC-6)
Berry, J. L. (M)

Glendale (SL-6)
Malsbary, J. S. (M)
Rustemeyer, G. L. (A)

Grandview (KC-6)
Bahm, D. H. (M)
Bishop, D. D. (M)
Damon, F. A. (A)
Gallagher, D. M. (SM)
Richardson, B. W. (M)
Schlesselman, L. A. (A)
Ware, J. F. (M)

Hazelwood (SL-6)
Anderson, R. C. (M)
Fish, G. D. (M)
Henkes, V. W. (M)
Maybach, R. L. (M)
McGarry, J. J., Jr. (M)
Nesheim, W. L. (M)

Hickman Mills (KC-6)
Hailey, W. (M)
Long, E. D. (M)
Mason, R. E. (M)
Smith, F. M. (M)
Snider, D. D. (A)
Witte, W. E. (M)

High Ridge (SL-6)
Schaefer, J. (A)

Houston (SL-6)
McElroy, J. (M)

Independence (KC-6)
Adams, L. W. (A)
Beebe, J. A. (M)
Benedict, K. D. (M)
Fornstal, J. A. (M)
Gessley, D. (M)
Hanneman, W. E. (M)
Jones, P. V. (A)
Koontz, F. A. (M)
Leibold, F. H. (A)
McCall, E. A. (M)
McDole, M. M. (A)
Netter, H. A. (M)
Perkins, J. L. (A)
Ptacek, J. F. (M)
Richey, J. O. (M)
Riegle, G. W. (A)
Schell, R. H. (A)

Jefferson City (KC-6)
Lindhardt, G. E. (A)
Rephlo, L. C. (M)

Jennings (SL-6)
Blankenship, G. S. (M)
Janning, D. R. (M)

Joplin (KC-6)
Bell, N. L. (A)

Kansas City (KC-6)
Aco, R. E. (A)
Anderson, R. W. (M)
Ashley, W. H., Jr. (M)
Barman, J. E., Jr. (A)
Bastin, Q. S. (M)
Bergren, A. L. (SM)
Berry, F. M. (M)
Bettis, M. E. (A)
Bossert, A. J., Jr. (M)
Boutros, O. L. (M)
Bowen, M. J. (A)
Boyles, J. O. (M)
Brackney, K. H. (M)
Brink, D. K. (M)
Brown, R. S. (M)
Burton, R. R. (A)
Butler, R. W. (SM)
Catalano, S. J. (M)
Cleary, D. R. (M)
Coats, C. L., Jr. (M)
Collins, J. J. (M)
Constant, P. C., Jr. (SM)
Cometti, V. (A)
Cottrell, G. G. (M)
Cox, G. O. (M)
Crissman, L. R. (M)
Davis, S. E. (A)
Day, D. H. (A)
Demel, W. J. (A)
Denny, R. O. (A)
Devine, W. F. (SM)
Donovan, R. W. (M)
Easterday, M. R. (M)
Ellis, R. R. (M)
Epstein, S. (A)
Fago, E. T., Jr. (M)
Finlay, R. S. (M)
Fitzgerald, J. A. (M)
Foster, C. L. (SM)
Fouts, A. L. (M)
Fry, L. D. (A)
Fry, W. E. (A)
Gish, G. B. (A)
Goldenberg, H. E. (M)
Goldsmith, A. (M)
Grimsley, J. E. (A)
Hains, V. H. (M)
Hall, K. L. (M)
Hall, R. P. (M)
Hanson, D. K. (A)
Hardin, M. K. (M)
Harris, J. B. (M)
Hathhorn, W. R. (M)
Heffelfinger, J. B. (SM)
Heimlich, C. J. (A)
Heisey, W. H. (A)
Howard, J. W. (M)
Jensen, L. J. (A)
Johnson, L. R. (M)
Jones, F. S. (M)
Jones, I. J. (M)
Jones, M. R. (SM)
Kams, K. B. (SM)
Kartman, D. J. (M)
Keith, J. M. (A)
Kelley, R. M. (A)
Kempf, E. J. (A)
Keser, O. A. (M)
Kilo, J. A. (M)
Kimball, C. N. (F)
Kirk, W. J., Jr. (M)
Kolen, N. (A)
Kramer, D. M. (M)
Kunkle, B. L. (A)
Lane, C. A. (M)
Lanier, W. T. (A)
Lewis, W. R. (SM)
Lutes, R. K. (M)
Lutz, J. W. (SM)
Mackie, S. P. (A)
Magilo, M. W. (A)
Mariotti, A. L. (M)
Martin, E. J., Jr. (SM)
Mayer, A. B. (A)
McAllister, M. J. (A)
McFarland, R. L. (M)
McKnight, H. P. (A)
Meador, B. M. (SM)
Meltzer, A. A. (M)
Miller, H. S. (M)
Modrcin, M. R. (A)
Moore, H. H. (M)
Musburger, R. B. (A)
Nall, P. L. (M)
Neidenberger, T. A. (M)
Nemecek, J. F. (M)
Newton, K. V. (SM)
Parks, J. V. (M)
Pascuzzi, C. A. (A)
Patton, P. C. (M)
Peters, N. S. (M)
Plummer, T. S. (M)
Rector, A. H. (SM)
Reidy, K. (M)
Rhodes, M. H. (M)
Roberts, B. (M)
Rohs, A. H. (M)
Ruby, D. P. (M)
Runge, L. (M)
Russell, T. J. (M)
Salzer, C. E. (M)
Savino, B. J. (M)
Schmidt, A. F. (M)
Schnakenberg, K. L. (A)
Schrunk, J. F. (M)
Scott, G. H. (SM)
Scott, P. (M)
Scribner, N. (M)
Shapiro, E. (A)
Shontz, L. A., Jr. (SM)
Slater, C. A., Jr. (M)
Slusher, R. W. (A)
Soldanels, R. M. (M)
Spies, F. A. (M)
Stablein, R. G. (M)
Sterner, W. J. (M)
Stone, J. B. (A)
Stout, H. L. (SM)
Swafford, J. H. (A)
Troeglen, K. (SM)
Uhrig, R. B. (M)
Van Gundy, C. G. (M)
Verhyden, L. C. (A)
Vilander, N. E. (M)
Waite, W. P. (M)
Watson, J. F. (M)
Welborn, D. L. (A)
Werner, W. T. (M)
White, J. D., Sr. (A)
White, R. N. (SM)
Wickersham, P. D. (M)
Wilcox, J. V. (SM)
Williams, H. E. (A)
Willinger, K. G. (A)
Wilson, R. W. (M)
Young, C. D., Jr. (M)
Kearney (KC-6)
Plumlee, B. L. (A)

Kirkwood (SL-6)
Barnes, J. A. (M)
Binzel, M. S. (M)
Henrichs, M. W. (M)
Hermon, R. (M)
McAllister, J. C. (SM)
Risk, J. E. (M)
St. Vrain, W. E. (M)
Susek, J. F., Jr. (M)
Verbarg, L. E. (SM)
Watson, G. A. (M)
Yount, T. L. (SM)

La Due (KC-6)
Zak, S. J. (SM)

Lee's Summit (KC-6)
Herde, E. E. (A)
Johnson, A. C. (M)
Porter, B. L. (A)
Saba, S. A. (M)
Tuel, E. E. (M)
Wolfskill, R. F. (SM)

Liberty (KC-6)
Barnes, R. E. (SM)
Hilton, W. A. (M)
Lovan, J. E. (M)

Lowndes (SL-6)
Gibbons, J. L. (M)

Maberly (SL-6)
White, J. H. (M)

Macon (SL-6)
Faught, S. W. (M)

Manchester (SL-6)
Gibbs, T. M. (M)
Hollandsworth, W. J. (SM)
Kell, E. W. (A)

Maplewood (SL-6)
Fricke, L. H., Jr. (M)
Herries, D. G. (M)

Memphis (SL-6)
Johnston, J. J. (M)

Monett (KC-6)
Brewster, E. J. (M)

Moscow Mills (SL-6)
Humphrey, D. D. (M)

Normandy (SL-6)
Makela, L. V. (M)
Murty, E. H. (M)
Stephens, E. T. (A)

North Kansas City (KC-6)
Bishop, W. T., Jr. (SM)

Northwoods (SL-6)
Bossert, J. A. (A)
Ridings, R. V. (M)

Oak Grove (KC-6)
Means, R. T. (M)

Olivette (SL-6)
Chapman, G. H. (M)
Trugman, J. (M)

Overland (SL-6)
McFarland, T. C. (M)
Means, S. B. (A)
Mosley, C. E. (SM)
Nordling, W. K., Jr. (M)
Stringham, G. A. (M)

Parkville (KC-6)
Clark, W. B. (M)
Craycraft, K. S. (A)
Habe, W. P. (M)
Robertson, A. J. L. (M)

Perryville (SL-6)
Short, L. E. (A)

Pine Lawn (SL-6)
Weir, J. E. (M)

Raytown (KC-6)
Beougher, L. C. (M)
Coker, G. F. (M)
Dastous, P. J. (M)
Repper, O. C. (M)
Sneddon, J. H. (M)
Snodgrass, R. L. (M)
Vaughan, L. D. (A)
Whitaker, B. J. (M)

Rayville (KC-6)
Cox, H. G. (A)

Richards-Gebaur AFB (KC-6)
Fernane, J. (SM)
Schmitendorf, J. A. (M)
Szczepanski, J. J. (A)

Richmond (KC-6)
Basham, R. (M)

Richmond Heights (SL-6)
Harris, R. L., Jr. (M)

Lynch, F. R. (M)

Rock Hill (SL-6)
Frazier, R. L. (M)
James, C. W. (A)

Rockville (KC-6)
Smith, P. O., Jr. (A)

Rolla (SL-6)
De Woody, R. T. (M)
Hord, W. E. (M)
Johnson, J. H. (M)
Marsinkavage, D. M. (A)
Mitchum, M. M. (M)
Nau, R. H. (SM)
Nolte, R. E. (SM)
Peatman, J. B. (M)
Skitek, G. G. (M)
Smith, J. G. (M)
Staley, J. G. (M)
Thompson, D. (M)
Tingley, F. T. (M)

St. Ann (SL-6)
Wall, D. E. (M)

St. Charles (SL-6)
Benner, B. (SM)
Boschert, R. J. (M)
Bosworth, V. O., Jr. (A)
Bromberg, B. G. (SM)
Finke, H. G. (M)
Flickinger, P. R. (A)
Hegner, H. R. (M)
Hercules, F. P. (M)
Hommes, H. E. (M)
Martin, G. M. (M)
Mercer, D. H. (M)
Stover, D. R. (M)
Wagner, F. R. (M)

St. Joseph (KC-6)
Koelling, A. J., Jr. (M)
Moss, D. E. (A)

St. Louis (SL-6)
Abernathy, J. L. (M)
Albert, M. P. (M)
Anderson, K. M. (A)
Apel, C. K. (M)
Augustine, R. J. (M)
Auld, S. D. (M)
Aurin, R. N. (M)
Babka, F. J. (M)
Baker, C. L. (M)
Barnes, B. B. (M)
Beeler, G. W., Jr. (M)
Bennetsen, W. J. (M)
Bertling, D. J. (M)
Beuc, R., Jr. (M)
Bitzer, R. J. (M)
Black, D. R. (M)
Blauvelt, R. C. (SM)
Boring, W. D. (M)
Borrok, M. J. (M)
Bowers, J. C. (M)
Bredemann, R. V. (M)
Brent, L. L. (SM)
Brickler, J. B. (M)
Brnjac, J. B. (M)
Browde, A. (SM)
Brown, J. (M)
Brueggemann, T. A. (M)
Bundschuh, W. A. (M)
Burgener, W. R. (M)
Butler, J. G., Jr. (M)
Carrell, B. C. (M)
Cassidy, R. E. (M)
Ceries, R. E. (M)
Chambers, R. M., Jr. (M)
Clemens, J. F. (SM)
Clodfelter, G. C. (M)
Coe, G. J. (SM)
Combs, J. F. (M)
Condon, E. U. (F)
Connell, J. B. (M)
Cowan, M. A. (M)
Cox, J. R., Jr. (A)
Detchemendy, J. A. (M)
Dicknette, A. J. (A)
Dillon, R. B. (M)
Dreifke, G. E. (M)
Duda, F. A. (M)
Dusin, A. J., Jr. (M)
Eckhoff, J. L. (M)
Efthim, C. (M)
Ehlers, E. A. (M)
Elshen, D. E. (A)
Ellis, G. A. (A)
Emmerich, C. M. (M)
Fahey, J. R. (M)
Fenci, J. G. (M)
Fisher, C. L. (M)
Fixman, G. (M)
Fox, G. W. (SM)
Fuerst, R. J. (M)
Furfine, A. L. (M)
Gasparotti, J. J. (M)
Germeroth, J. H. (M)
Gerth, D. E. (M)
Giola, S. C. (M)
Goodberlet, E. F. (M)
Griffiths, O. H. (M)
Grindon, J. R. (M)
Hamm, H. W. (M)
Harris, H. H. (M)
Harrison, C. E. (SM)
Hawkins, D. L. (M)
Heembrock, M. R. (SM)
Heitzeberg, C. H. A. (SM)
Henning, J. C., III (M)
Honnell, P. M. (F)
Hooper, J. A. (M)
Hubenschmidt, W. E. (A)
Jacobsmeyer, H. T. (SM)
Jones, E. H., Jr. (M)
Jordan, P. R. (M)
Kamponeinert, D. (M)
Katheinus, N. (A)
Kelly, L. A., Jr. (M)
Kling, N. (M)
Koenig, M. (M)
Kozlowski, D. R. (M)
Kuny, K. C. (M)
Langston, J. C. (A)
Lauher, V. A. (M)
Lechtreck, L. M. (SM)
Lienhard, O. W. (A)
Little, G. R. (M)
Loew, W. (M)
Long, L. L. (M)
Longshore, J. F. (M)
Lowell, B. W. (A)
Mayer, M. F. (M)
McCabe, W. M. (SM)
McClure, W. E. (M)
McDaniel, O. S. (SM)
McDonough, S. L. (M)
McGary, W. T. (A)
McKinney, H. F. (A)
Meehan, R. F. (A)
Meyer, G. C. (M)
Meyer, G. L. (M)
Miller, G. L. (M)
Mohrman, R. F. (A)
Mollman, L. A. (M)
Mueller, V. C. (M)
Mundel, E. F. (M)
Murphy, C. H. S. (SM)
Naab, P. J. (M)
Newton, C. L. (M)
Niekamp, R. B. (A)
Ordinachev, M. D. (A)
Ozment, R. (M)
Pautler, R. A. (M)
Polk, G. D. (M)
Pultman, L. (M)
Quick, J. R. (M)
Reed, P. J. (M)
Reed, V. W. (M)
Richter, R. J. (A)
Riepl, C. G. (M)
Roberts, E. M., Jr. (M)
Roche, J. M. (M)
Rosenkoetter, E. A. (M)
Ross, D. K. (M)
Salman, N. D. (M)
Sammis, T. M. (SM)
Sanchez, C. M. (M)
Sang, W. W. (M)
Saxer, N. K. (M)
Sayer, J. D. (M)
Scally, T. M. (M)
Scherz, C. J. (M)
Schewe, R. W. (M)
Schlaman, K. J. (A)
Schmidt, E. C., Jr. (M)
Schwarz, C. J. (SM)
Sheehan, J. S. (M)
Sherman, S. M. (M)
Shockley, L. W. (M)
Sleeman, A. B. (A)
Small, F. R. (SM)
Stanhooe, R. D. (A)
Stape, V. E. (M)
Steinmeyer, D. J. (M)
Stertmann, W. E. (A)
Stuhlman, R. M. (M)
Sullivan, H. G. (M)
Swartz, C. W. (M)
Taylor, J. J. (M)
Tedeschi, A. (A)
Thomas, R. M. (A)
Thomson, J. R. (M)
Timm, W. C. (M)
Toole, W. W. (M)
Trantham, J. F. (A)
Tsai, S. (M)
Underwood, R. F. (M)
Upton, L. (A)
Varvel, W. M. (M)
Veras, J. A. (A)
Vogel, E. H. (M)
Wagner, M. L. (M)
Wall, H., Jr. (A)
Wallace, N. D. (M)
Waters, J. I. (M)
Weiler, J. L. (M)
Weinstock, G., Jr. (M)
West, J. R. (M)
White, C. E. (A)
Williams, A. (A)
Williams, J. T. (A)
Wilson, L. V. (M)
Withers, J. S. (A)
Wolf, N. F. (M)
Wulfmeyer, J. A. (SM)
Wylie, J. E. (M)
Zaborszky, J. (SM)
Zehr, N. J. (SM)
Zeman, E. L. (M)

Salisbury (SL-6)
Koling, H. V. (M)

Sappington (SL-6)
Schillinger, E. J. (M)

Springfield (KC-6)
Curry, W. F. (A)
Summers, O. H., Jr. (M)
Trotter, C. E. (M)
Wheat, W. M. (M)

Sullivan (SL-6)
Withington, J. G. (M)

University City (SL-6)
Bulger, M. V. (M)
Goldberg, J. G. (M)
Hallo, M. (SM)
Hieken, M. H. (M)
Liddle, W. C. (M)
McArdle, B. L. (SM)
Min, H. S. (M)
Motchan, H. L. (SM)
Scheer, M. L. (M)
Tucker, M. F. (M)
Watson, S. E., Jr. (SM)

Warrensburg (KC-6)
Iverson, R. W. (M)
Shanafelt, W. C. (M)

Warson Woods (SL-6)
Weigle, D. M. (M)

Webster Groves (SL-6)
Hill, R. D., Jr. (SM)
Hope, J. L. (M)
Jeter, W. C. (M)
Sigman, H. M. (M)
Smith, H. N. (M)
Walsh, G. J. (M)

Wright City (SL-6)
Myers, J. W. (A)

MONTANA

Billings (SEA-7)
Belvredi, R. T. (M)
Kuhn, R. L. (A)
Lundquist, F. E. (M)
Mills, N. W. (M)
Watkins, P. E. (M)

Bozeman (SEA-7)
Barton, D. W. (M)
Beadle, W. E. (M)
Erps, F. D. (M)
Kilmer, W. L. (M)
Nickerson, J. F. (M)
Pritchard, B. D. (M)
Seibel, R. C. (M)
Shyne, N. A. (M)
Sykes, C. B. (M)
Weeks, R. W. (M)
Weir, T. T. (M)

Butte (SEA-7)
Kerns, R. L. (A)
McCourt, A. R. (M)

Fort Peck (SEA-7)
Von Eschen, R. L. (A)

Glasgow AFB (SEA-7)
Limberg, A. C. (M)
Ward, L. D. (A)

Glendive (SEA-7)
Brown, R. E. (M)

Great Falls (SEA-7)
Andersen, V. O. (M)
Fulton, W. L., Jr. (SM)
Judkins, D. J. (A)
Lopuch, A. J. (M)
McKelvey, H. K. (A)
Parker, J. E. (M)
Wiscavage, W. J. (M)

Helena (SEA-7)
Johnson, A. W. (M)
Lynch, H. N. (M)

Lewistown (SEA-7)
Blackburn, J. G. (A)

Malstrom AFB (SEA-7)
Kerekes, J. K. (M)
Tomaszewicz, J. S. (M)

Missoula (SEA-7)
Donham, B. G. (M)
Taylor, A. S. (SM)

Opheim (SEA-7)
Dereska, S. P. (M)

NEBRASKA

Aurora (OM-L-5)
Nilson, M. A. (A)

Beatrice (OM-L-5)
Emerson, W. R. (M)

Bellevue (OM-L-5)
Muir, W. A. (M)
Newsome, R., Jr. (M)
Osinski, W. M. (A)
Tyler, J. T. (M)

Chadron (OM-L-5)
Riemenschneider, A. L. (M)

Columbus (OM-L-5)
Carter, G. W. (M)
Ernst, M. L. (M)
Fraka, D. L. (M)
Lewis, W. A. (M)
Richardson, M. J. (M)
Risk, G. (SM)
Ross, R. M. (A)
Watley, L. D. (M)
Watley, O. D. (M)

Crete (OM-L-5)
Bratzler, R. M. (A)

Dakota City (OM-L-5)
Shadbolt, M. H. (A)

Edison (OM-L-5)
McCann, A. B. (M)

Fort Crook (OM-L-5)
Totten, G. A. (A)

Fremont (OM-L-5)
Anderson, J. C. (M)
Hoffman, A. G. (A)
Hoffman, K. L. (A)
Snyder, H. C. (M)

Grand Island (OM-L-5)
Farrell, W. R. (M)
Jelinek, G. S. (M)
Lynch, U. L. (M)

Hastings (OM-L-5)
Allison, D. B. (M)

Hebron (OM-L-5)
Upholf, R. D. (M)

Kearney (OM-L-5)
Beshore, P. S. (M)
Kirwan, E. R. (M)
Pace, R. A. (M)

Lexington (OM-L-5)
Bitner, R. J. (M)

Lincoln (OM-L-5)
Allington, R. W. (M)
Bashara, N. M. (SM)
Bayless, R. E. (A)
Combs, R. G. (M)
Davis, W. B. (M)
Diedrichs, R. D. (M)
Dunham, P. N. (M)
Dvorak, A. R. (A)
Ebel, A. J. (SM)
Elwell, W. C. (M)
Frenzel, G. G. (M)
Gallawa, R. L. (M)
Gatliff, H. H. (A)
Ghormley, R. K. (SM)
Honda, M. (A)
Howlett, F. J. (M)
Hyde, C. M. (SM)
Marts, B. C. (M)
Nelson, D. J. (M)
Norris, F. W. (SM)
Olive, D. W. (M)
Park, L. C. (M)
Robison, W. C. (M)
Sohl, L. H. (M)
Taylor, D. R. (M)
Wignall, J. R. (M)
Winkler, C. W. (M)

McCook (OM-L-5)
Lenwell, L. W. (M)

Mead (OM-L-5)
Schollard, R. J. (M)
Sullivan, L. D. (M)

Milford (OM-L-5)
Bamer, W. J. (M)
Fritz, G. L. (A)

Norfolk (OM-L-5)
Gettman, W. C. (M)

North Platte (OM-L-5)
Baker, R. L. (A)
Griffin, D. C. (A)
Selde, J. H. (M)

Offutt AFB (OM-L-5)
Bonselgneur, P. J., Jr. (M)
Gerber, W. E., Jr. (M)
Gould, G. T., Jr. (SM)
Hausman, L. R. W. (M)
Marks, J. B. (M)
Smith, D. W. (M)
Snoke, C. E., Jr. (SM)
Wheeler, R. D. (M)

Ogallala (OM-L-5)
Huntley, C. W. (M)
Kesler, M. G. (M)
Pestel, T. L. (A)
Rasdal, W. D. (M)
Reeves, W. P. (A)
Wainwright, R. M. (SM)
Wiles, Q. T. (A)

Omaha (OM-L-5)
Akerson, A. W. (M)
Backman, F. F. (M)
Barmore, J. L. (M)
Barnett, R. D. (M)
Bates, A. G. (M)
Becker, H. W. (SM)
Beenken, H. G. (SM)
Bjornberg, V. J. (M)
Borcher, E. J. (A)
Chamberlain, I. J. (SM)
Crozier, C. R. (M)
Curry, H. D. (M)
Dexter, D. A. (M)
De Witt, C. D. (A)
Doll, C. L. (M)
Dunbar, B. L. (M)
Dunn, A. L. (SM)
Dunn, F. L. (SM)
Ebertshauser, H. F. (M)
Edgerton, M. J. (A)
English, L. D. (A)
Emery, D. W. (A)
Fergusson, C. A. (A)
Fried, R. A. (A)
Gaeth, A. R. (M)
Gilmore, Q. E. (M)
Glasgo, M. L. (A)
Griffin, J. M. (M)
Groce, J. L. (M)
Hadsell, G. C. (SM)
Hansen, C. L. (M)
Harb, C. L. (A)
Hickey, H. G. (M)
Hicks, R. W. (M)
Hill, R. L. (M)
Hirschinger, K. (M)
Holdcraft, F. E., Jr. (A)
Hommrich, R. A. (M)
Howser, P. A. (M)
Iannotti, J. D. (M)
Jaudegis, P. V. (M)
Jett, C. D. (SM)
Jones, D. W. (M)
Jones, R. L. (M)
Kotera, W. J. (SM)
Kozicki, L. J. (M)
Larsen, W. M. (A)
Loch, R. D. (M)
Malm, R. F. (A)
Matejka, J. (M)
McGowan, M. L. (M)
McMillan, J. G. (SM)
Moss, T. L. (M)
Mumick, A., Jr. (M)
Nagle, C. L. (A)
Neelands, C. H. (M)
Niatas, A. (M)
Noonan, D. J. (M)
Peterson, L. P. (SM)
Petrik, J. S. (SM)
Plossl, T. F. (A)
Poppe, R. W. (M)
Ralls, R. H. (SM)
Risley, M. I. (SM)
Rogers, J. A. (M)
Rogers, W. M. (M)
Rood, R. S. (M)
Schneider, A. A. (M)
Sedlak, L. J. (A)
Sellars, R. F. (SM)
Shanahan, J. C. (M)
Sibilia, L. (M)
Snyder, J. D. (A)
Stafford, B. H. (M)
Staley, J. D. (M)
Stratbucker, R. A. (M)
Thedens, R. L. (M)
Thomas, A. R. (M)
Wallace, J. F. (M)
Wallis, D. E., Jr. (M)
Walston, C. E. (SM)
Wayne, J. W., III (M)
Wentzler, A. J., Jr. (A)
Wilson, W. D. (M)
Wittry, M. B. (M)
Wolfe, R. N. (A)

Overton (OM-L-5)
Wycoff, K. H. (M)

Papillion (OM-L-5)
Doll, R. E. (M)

Pender (OM-L-5)
Pearson, J. A. (M)

Ralston (OM-L-5)
Hartman, A. E. (M)

Seward (OM-L-5)
Osborn, L. W. (A)

Tekamah (OM-L-5)
Moore, R. (A)

Verdigre (OM-L-5)
Larsen, L. G. (M)

Wahoo (OM-L-5)
Tellkamp, H. M., Jr. (M)
Thompson, J. J. (M)

NEVADA

Babbitt (SAC-7)
Dolan, W. D. (M)

Boulder City (LV-7)
Willoughby, R. J. (M)

Fallon (SAC-7)
Collins, R. L. (M)

Fallon AFS (SAC-7)
Lone, R. S. (M)

NEVADA

Henderson (LV-7)
McEwen, D. L. (A)

Las Vegas (LV-7)
Amadon, C. R. (A)
Bentley, F. R. (M)
Block, C. A. (M)
Budge, E. C. (M)
Daly, E. J. (SM)
Delzer, C. L. (M)
Dixon, K. L. (M)
Erlick, P. S. (M)
Faarar, J. P. (M)
Ferguson, H. G. (M)
Fink, W. K. (A)
Foreman, J. D. (A)
Fraizer, R. R. (A)
Gomel, C. L. (SM)
Gonce, C. L. (M)
Ham, W. B. (M)
Hawkins, P. A. (M)
Hopkins, W. L. (A)
Hunt, D. P. (M)
Johnson, L. V. (M)
Jurmain, J. H. (M)
Kreyer, L. S. (M)
Luetkehans, G. R. (M)
Marsh, O. A. (A)
Matthews, E. M. (M)
Merian, R. F. (M)
Mohr, R. W. (SM)
Nelson, T. J. (M)
Neville, W. (M)
Patten, R. B. (M)
Percy, G. F. (A)
Piccolo, J. F. (M)
Pointer, F. E. (M)
Richards, R. G. (M)
Rickwartz, C. H. (M)
Rogers, C. M. (A)
Rooer, W. C., Jr. (A)
Scott, W. S. (A)
Spiess, E. R. (M)
Stralser, B. J. (SM)
Trabert, J. W. (M)
Warner, B. P. (M)
White, D. J. (M)
Wilder, L. D. (M)
Winn, R. (A)
Young, F. W. (M)

Mercury (LV-7)
Parr, J. R. (A)
Stewart, M. E. (M)

Nellis AFB (LV-7)
Sue, R. (M)

North LasVegas (LV-7)
Carder, B. M. (SM)
Fort, R. L. (M)
Hanson, B. L. (M)
Harris, H. W. (M)
Hopkinson, E. A. (M)

Reno (SAC-7)
Clark, G. H. (M)
Conly, E. R. (M)
Feil, C. F. (SM)
Kosso, E. V. (M)
Mattingly, C. D. (A)
McGee, A. D. (M)
Sandorf, I. J. (SM)
Shearer, R. W. (M)
Turner, H. G. (SM)
Whited, C. R. (M)

Sparks (SAC-7)
Carlson, A. L. (M)
Janssen, W. W. (M)
Marshall, R. A. (M)
McVae, D. K. (M)

Tonopah (LV-7)
Edwards, B. C. (M)
Korbe, A. J. (M)
Stout, D. J. (M)

NEW HAMPSHIRE

Amherst (B-NH-1)
Martin, P. E. (M)
Mohr, M. T. (M)
Wenzel, J. H. (M)
Williston, R. L. (M)

Antrim (B-NH-1)
Johnson, N. M. (M)

Brookline (B-NH-1)
Leppanen, K. E. (M)
Sewell, C. R. (M)
Sommers, D. J. (M)

Canaan (B-NH-1)
Brigham, V. M. (M)

Charlestown (B-NH-1)
Buckland, F. A. (M)

Chester (B-NH-1)
Akseisen, H. (M)
Greenway, T. H. (M)
Minks, F. A. (SM)

Concord (B-NH-1)
Bartelink, E. H. B. (SM)
Brew, R. A. (M)
Canty, J. E. (M)
Dall, A. B. (M)
Dwyer, J. J. (M)
Edwards, J. N. (A)
Ellingwood, R. E. (M)
Erskine, L. L. (A)
Evans, C. B. (M)
Fernanian, A. (M)
Gagnon, C. A. (M)
Hermansen, L. A. (M)
Jutras, P. D. (M)
Kelliher, F. J. (M)
Nys, A. D. (A)
Paine, B. B. (M)
Patrick, K. P. (M)
Reith, D. C. (M)
Richardson, T. F., Jr. (M)
Stoneham, C. E. (M)
Weeks, R. F. (M)

Contoocook (B-NH-1)
Healy, A. M. (M)

Derry (B-MV-1)
Tupper, F. R., Jr. (M)

Derry Village (B-NH-1)
Oleson, D. R. (M)

Dover (B-MV-1)
Armitage, P. E., Jr. (A)
Mucher, G. J. (SM)
Neal, W. S. (M)
Ouellette, A. E. (M)
Rotunel, B. J. (M)

Durham (B-MV-1)
Clark, R. R. (M)
Faiman, R. N. (SM)
Frost, A. D. (SM)
Hellar, M. W., Jr. (M)
Melvin, D. W. (M)
Winn, A. L. (M)

East Rochester (B-NH-1)
Ashton, D. (M)

East Sullivan (B-NH-1)
Walters, S. H. (SM)

Epping (B-MV-1)
Karandanis, S. M. (M)

Exeter (B-MV-1)
Carbonneau, V. J. (M)
Gilbert, R. W. (M)
Matthews, C. M. (A)

Francestown (B-NH-1)
Bailey, A. B. (SM)

Gilmanton (B-NH-1)
Wilkens, W. B. (SM)

Goffstown (B-NH-1)
Bergman, R. L. (A)
Sprouse, R. T. (A)
Wood, J. A. (M)

Hampton (B-MV-1)
Farrell, L. H. (M)
Leoutsakos, G. N. (M)

Hanover (B-NH-1)
Heckbert, A. I. (SM)
Miller, H. C. (M)
Morgan, M. G. (SM)
Wellman, B. (M)

Hillsboro (B-NH-1)
O'Loan, W. R. (SM)

Hollis (B-NH-1)
Rogers, C. J. (A)
Smith, C. N. (M)
Wood, L. R. (M)

Hudson (B-NH-1)
Carlson, E. L. (A)
Misek, V. A. (M)
Whitaker, N. A. (M)

Keene (B-NH-1)
Cloutier, D. L. (M)
Robarge, E. T. (M)

Kingston (B-NH-1)
McLean, D. I. (M)

Laconia (B-NH-1)
Campbell, R. H., Jr. (M)
Greene, G. G. (SM)
Hadden, G. H. (M)

Lebanon (B-NH-1)
Spencer, M. C. (M)

Lisbon (B-NH-1)
Ottowitz, P. J. (M)

Lyme (B-NH-1)
Johnson, G. L. (SM)
Wood, J. A., Jr. (SM)

Manchester (B-NH-1)
Allard, E. L. (M)
Apostolos, T. (M)
Baer, R. H. (M)
Banker, J. A. (M)
Bean, F. E. (M)
Bellucci, F. A. (M)
Bergman, R. L. (A)
Bond, M. L. (SM)
Brous, D. W. (SM)
Cassidy, J. A. (M)
Castor, A. H. (M)
Chagaris, C. N. (M)
Chase, E. W. (M)
Daughton, G. B. (M)
Fucci, J. R. (M)
Gagne, L. E. (M)
Greene, A. N. (M)
Jones, J. F. (M)
Lamere, B. E. (M)
Loeffler, W. J., Jr. (M)
Loynd, H. T., Jr. (M)
Meisel, J. G. (M)
Mondor, L. E. (M)
Nadeau, R. U. (M)
Nakamura, C. N. (M)
Robertson, G. L. (M)
St. George, R. C. (A)
Smaus, L. H. (SM)
Tilton, D. S. (M)
Treisman, J. E. (A)
Westlake, L. L., Jr. (M)
Wilkinson, H. W. (M)

Milford (B-NH-1)
Bowes, R. D. (A)
Brown, C. R. (M)
Day, P. F. (M)
Nelligan, K. P. (M)
Romney, E. (A)
Striffler, F. L. (M)
Willette, D. C. (A)

Nashua (B-NH-1)
Allen, J. E. (SM)
Andrews, E. G. (SM)
Arnesen, R. F. (M)
Ault, R. D. (A)
Ayer, D. R. (M)
Bartlett, H. E. (M)
Bergeron, J. A. (M)
Borski, G. K. (M)
Bostwick, L. W., Jr. (M)
Bradley, D. J. (M)
Bryant, W. E. (M)
Burch, C. T. (M)
Butler, I. J. (A)
Butler, J. L. (M)
Clement, C. M., Jr. (A)
Dabrowski, S. A. (M)
Dionne, E. (M)
Dollinger, K. (M)
Eidson, R. A. (M)
Erickson, D. H. (A)
Evans, J. E., Jr. (M)
Fletcher, R. C. (M)
Forcier, F. O. (A)
Frank, R. A. (M)
Gayne, F. W. (M)
Gallagher, L. R. (M)
Gilligan, L. H. (M)
Goodwin, R. O. (M)
Goulder, M. E. (M)
Grandmaison, C. J. (M)
Graney, J. F., Jr. (M)
Greenspan, L. E. (M)
Hadlock, C. F. (SM)
Hall, E. J. (M)
Hall, W. N. (M)
Hargrave, L. E., Jr. (M)
Hamington, J. D. (A)
Hawes, R. B. (SM)
Johnson, M. L. (M)
Kittredge, E. M. (M)
Klarman, K. J. (M)
Le Blanc, R. A. (A)
Lepine, R. A. (A)
Le Van, J. D. (M)
Lowe, W. R., Jr. (M)
Martin, J. A. (M)
Mayhew, D. K. (M)
Melvon, M. E. (A)
Minot, H. P. (M)
Morgan, W. E., Jr. (M)
Newsom, E. G. (A)
Newton, L. W. (SM)
O'Neil, J. F., Jr. (A)
Otey, C. R. (M)
Porter, F. A. (M)
Pothier, R. G. (M)
Putnam, H. (A)
Robbins, R. (M)
Rusch, W. T. (M)
Ryder, A. V. (M)
Safford, F. J. (SM)
Sanders, R. C., Jr. (F)
Sannenan, R. A. (A)
Schappals, E. A. (SM)
Senio, N. (M)
Sheftelman, E. H. (M)
Solomon, H. W. (M)
Steeg, G. F. (M)
Stromswold, C. E. (M)
Sweenie, G. C. (M)
Thayer, G. H. (M)
Truell, F. (M)
Turner, C. F. (M)
Uhrich, W. J. (SM)
Weeber, R. E. (M)
Willard, D. G. (M)
Williams, J. R. (M)
Wilson, W. J. (M)
Witthun, H. D. (M)
Wood, C. S. (A)
Woodruff, T. E. (M)
Woods, R. E. (M)
Zumba, C. F. (M)

New Boston (B-NH-1)
Tyler, W. L. (A)

New Ipswich (B-NH-1)
Cole, H. I. (M)

Newmarket (B-MV-1)
George, J. A. (A)

Newport (B-NH-1)
Maertens, W. A. F. (A)

Pease AFB (B-MV-1)
Bloom, V. A. (M)
Decker, B. J. (A)

Pelham (B-NH-1)
Powers, J. E. (M)

Penacook (B-NH-1)
Booth, H. M. (SM)
Brock, J. M. (M)

Peterboro (B-NH-1)
Hampson, E. R. (M)

Pittsfield (B-MV-1)
Adams, P. L. (M)

Plaistow (B-MV-1)
Backard, E. M. (A)
Backard, M. J. (M)
Frymoyer, E. M. (M)
Minnich, E. L. (M)

Portsmouth (B-NH-1)
Halle, C. F. (A)
Molla, J. J. (M)

Reeds Ferry (B-NH-1)
Boren, B. C., Jr. (M)
Kannair, C. J., Jr. (M)
Stoddard, R. D. (M)

Rochester (B-NH-1)
Chandler, G. G. (A)

Salem (B-NH-1)
Falkenham, G. A. (A)
Goyette, P. E. (M)

Salmon Falls (B-MV-1)
White, R. C. (M)

Seabrook (B-NH-1)
Eaton, R. C. V., Jr. (M)

Somersworth (B-NH-1)
Famsworth, R. G. (M)

South Merrimack (B-MV-1)
Comstock, D. C. (M)

Strafford (B-MV-1)
Mucher, W. J. (SM)

Wilton (B-NH-1)
Abbott, W. B. (M)
Dickinson, R. V. C. (A)
Eckhardt, E. W. (A)

Windham (B-NH-1)
Nakasato, J. (M)

NEW JERSEY

Absecon (PHI-3)
Dong, J. G. (M)
Dunkel, H. D. (M)
Gay, T. W., Jr. (M)
Kidd, G. B. (M)
Sloan, W. R. (A)
Taggart, S. E. (M)
Walkling, R. W. (M)
Willey, V. E. (M)
Ziegelmair, L. A. (M)
Zimnoch, J. J. (M)

Allendale (NNJ-2)
Robinson, A. S. (M)
Strauch, G. R. (M)
Tate, H. J. (M)

Allenhurst (NY-M-2)
Greer, W. R., Jr. (SM)
Silva, A. A. (M)

Allentown (NY-M-2)
Murr, J., Jr. (A)

Alpha (NNJ-2)
Schaefer, J. B. (SM)

Alpine (NNJ-2)
Merry, J. M. P. (A)
Sargeant, C. F. (M)

Andover (NNJ-2)
Meister, P. T. (M)
Ostlund, E. M. (SM)

Asbury Park (NY-M-2)
Bauer, P. S., Jr. (M)
Cahn, H. (SM)
Dranweek, W. R. (M)
Ercolino, M. D. (A)
Foderaro, J. V. (A)
French, H. H. (A)
Galenian, J. C. (M)
Gisonno, G. L. (M)
Jones, J. D. (M)
Kolchin, R. I. (M)
Mannel, W. M. (M)
Ritter, R. J. (M)
Rokaw, L. (M)
Salvano, D. P. (A)
Schelleng, J. C. (F)
Schodowski, S. S. (M)
Schwartz, S. S. (M)
Siglin, P. W. (SM)
Strasser, S. (M)
Tobias, W. T. (M)
Van Deusen, G. L. (F)
Weitz, S. (M)
Wood, H. G. (M)

Ashland (PHI-3)
Hughes, C. J. (M)
Kingsbury, S. R. (A)
Mahland E. W. (M)
Nelson, D. W. (M)
Russell, K. H. (M)

Atco (PHI-3)
Bazan, S. J. (M)
Stanko, E. (SM)

Atlantic City (PHI-3)
Abernethy, J. G. (M)
Gieseche, H. (A)
Holland, F. C. (M)
Knight, G. T. (M)
Kups, E. F. (SM)
Marschall, F. W. (M)
Martin, W. A., Jr. (M)
Moss, A. R. (M)
Mouradian, H. (M)
Newman, S. (M)
Packard, A. C. (SM)
Pardee, S. (M)
Perlstein, D. E. (A)
Ricketts, P. E. (SM)
Sallo, B. (M)
Scott, R. M. (SM)
Yulo, C. (M)

Atlantic Highlands (NY-M-2)
Barrett, L. C., Jr. (A)
Brown, S. P. (SM)
Douglas, R. G. (M)
Durrer, J. H. (A)
Forest, O. J. (M)
Gange, R. A. (M)
Klein, T. J. (M)
Petersen, P. B. (M)
Popovich, R. G. (M)

Audubon (PHI-3)
Beers, R. A. (SM)
Ficcki, R. F. (M)
Grace, J. W. (M)
Heacock, R. M. (M)
Kozanowski, H. N. (SM)
Massari, J. P. (M)
Rolf, T. E. (M)
Roome, E. C. (M)
Rutherford, R. O. (M)
Ryan, J. G. (M)
Schatz, S. (A)
Smalls, F. W. (M)
Stasz, C. E. (M)

Avenel (PRI-2)
Caton, W. J. (M)
Shuskus, J. M. (A)
Willmot, W. C. (A)

Avon (NY-M-2)
Egley, T. H. (A)

Avon-By-The-Sea (NY-M-2)
Child, T. M. (SM)

Barnegat (NY-M-2)
Morrison, J. G. (A)

Barrington (PHI-3)
Johnson, C. W. (M)
Reis, G. C. (A)
Rudolph, R. L. (M)
Shaw, F. H. (M)
Smith, E. J. (A)
Thompson, J. R. (M)

Basking Ridge (PRI-2)
Berg, G. M. (M)
Dargue, F. B. (M)
Engelbrecht, R. S. (M)
Farmer, W. B. (M)
Glauber, J. J. (SM)
Hasley, A. D. (SM)
Hirsch, G. F. (M)
Hull, R. W. (M)
Iwerks, M. C. (M)
Jacobus, H. R. (SM)
James, G. W. (M)
Paul, R. L. (M)
Power, D. W. (SM)
Rosson, J. W. (M)
Samuel, R. (M)
Schumacher, R. B. F. (M)
Uhler, K. W. (SM)

Bay Head (NY-M-2)
Parker, J. A. (M)

Bayonne (NNJ-2)
Eager, G. S., Jr. (M)
Golembeski, J. J. (M)

Mazzilli, F. (M)
Mydosh, J. A., III (M)
Rakelsky, W. W. (A)
Selman, V. (M)
Skibneski, C. E. (M)
Szmerda, R. J. (M)
Vatalaro, A. V. (A)

Bayville (NY-M-2)
La Cava, E. (A)

Beach Haven (NY-M-2)
Dunn, W. J. (A)

Bedminster (PRI-2)
Chase, S. C., Jr. (M)
Gells, J. W. (M)

Belford (NY-M-2)
Cowgill, R. M. (M)
Glendinning, W. B. (M)
Motsek, M. (A)

Belle Mead (PRI-2)
Hagerbaumer, W. (M)
Pressey, C. W. (A)
Smith, H. B. (M)
Szekely, M. E. (M)

Bellmawr (PHI-3)
Balchaltis, A. V. (M)
Daun, A. S. (A)
King, E. (M)
Walyilko, J. J. (M)
Ziehm, R. T. (M)

Belleville (NNJ-2)
Bagno, S. M. (F)
Cohen, B. E. (M)
Corradi, F. J., Jr. (A)
Douglas, M. L. (M)
Frank, A. (M)
Franklin, D. E. (M)
Godfrey, P. (M)
Greene, V. A. (M)
Kiolbasa, E. (M)
Klein, M. S. (M)
Levy, D. S. (M)
Meyers, S. J. (M)
Mock, W. C., Jr. (SM)
Pickholtz, R. L. (M)
Reilly, R. A. (M)
Richards, G. P. (M)
Salz, H. (M)
Schuster, R. M. (M)
Seiden, N. (M)
Silverman, D. (M)
Warren, J. E. (M)
Winship, T., Jr. (M)
Woodman, R. A., Jr. (M)
Woodson, R. D. (M)

Belmar (NY-M-2)
Boxer, V. (M)
Brookins, R. U. (M)
Gordon, F., Jr. (M)
Hambleton, G. E. (M)
Jarema, E. D. (M)
Kampinsky, A. (M)
Kosmahl, H. C. (SM)
Lee, A. J. (SM)
Shaw, A. W. (M)
Stone, M. V. H. (M)
Thelssing, H. H. (SM)
Townes, W. D. (SM)
Vandermeer, W. E. (M)
Wagner, H. M. (SM)
Waltz, R. W. (M)

Bergenfield (NNJ-2)
Abend, I. J. (M)
Anolik, B. S. (M)
Bright, T. F. (A)
Crawford, A. R. (M)
Scolnko, E. G. (A)
Fee, D. R. (M)
Goodman, L. J. (M)
Haleblian, D. K. (A)
Kralman, H. (M)
Lowe, G. C. (M)
Meadow, S. (M)
Musselman, H. (A)
Rosenstein, M. (A)
Rusch, H. (A)
Schmidt, C. J. (SM)
Votaw, C. J. (M)

Berkeley Heights (NNJ-2)
Abbott, G. F., Jr. (M)
Andrews, H. W. (M)
Austin, J. E. (M)
Chruney, M. (M)
Closson, H. T. (M)
Cohen, B. G. (M)
Digrindakis, M. (M)
Draper, W. R. (M)
Estoppey, R. F. (M)
Graham, R. E. (F)
Hall, R. E. (M)
Hart, O. P., Jr. (M)
Heacock, B. E. (SM)
Humerick, S. M. (M)
Huseland, N. (M)
Jensen, A. G. (F)
Karlik, S., Jr. (M)
Kozicki, H. (M)
Lyon, W. C. (A)
Maher, T. P. (M)
Mann, H. (M)
Maul, L. L. (M)
Mayo, J. S. (A)
Moore, E. P. (M)
Nace, P. L. (M)
Orlando, A. J. (M)
Redding, P. B. (M)
Schade, F. W. (A)
Schwarz, G. R. (M)
Shombert, D. J. (A)
Smith, F. B. (A)
Stark, P. D. (M)
Williams, C. E. (M)

Berlin (PHI-3)
Erichsen, H. K. (M)
Helliwell, J. (M)
Wiseman, P. E., Jr. (M)

Bernardsville (PRI-2)
Coles, F. A. (SM)
Green, N. H. (M)
Hedel, K. K. (M)
Levine, S. (SM)
Murphy, J. A., Jr. (M)
Rager, G. T. (M)
Wooldridge, A. C. (SM)

Beverly (PHI-3)
Christensen, J. L. (M)
Cottone, C. V. (A)
Day, R. F. (M)
Gehweiler, W. F. (A)
Horton, P. R. (M)
Jones, T. M. (M)
Newcomb, R. H. (M)
Soohoo E. L. (M)
Taylor, D. M. (M)
Wolcott, R. G. (M)

Blackwood (PHI-3)
Elwood, F. P., Jr. (M)
Swedloff, B. (A)
Trebing, G. W. (M)
Webb, R. B. (M)

Blairstown (NNJ-2)
Maffenbeier, J. B. (M)

Bloomfield (NNJ-2)
Accardo, N. A. (M)
Baxter, H. R. (M)
Bitinas, J. (M)
Bloom, R. F. (M)
Brown, J. T. L. (M)
Clements, W. I. (M)
Cook, H. L. (M)
Coon, C. E. (M)
Elston, G. F. (SM)
Everett, L., Jr. (SM)
Fortin, R. C. (SM)
Geissler, R. G. (M)
Gluck, F. W. (M)
Grandmont, P. E. (M)
Hawk, W. H. (M)
Hayes, W. A. (M)
Heberling, W. W., Jr. (M)
Heney, J. F. (M)
Heuston, T. J. (M)
Hobbs, J. (A)
Howard, J. W. (M)
Ivey, H. F. (SM)
James, R. L. (M)
Jannick, R. J. (M)
Johnson, V. L. (M)
Johnson, W. C. (SM)
Kelso, R. J. (M)
Kerwin, B. D. (A)
Kishel, J. J. (M)
Kittiver, C. (M)
Knochel, W. J. (SM)
Kreer, J. G., Jr. (SM)
Lang, A. J. (M)
Marchese, N. (M)
McNall, J. W. (SM)
Menne, R. S. (M)
Mitchell, A. V. (M)
Mitchell, C. D. (SM)
Olsta, E. (M)
Phillimore, H. R. (A)
Rhodes, H. A. (M)
Sifre, R. A. (A)
Simon, R. T. (M)
Singer, F., Jr. (SM)
Skellett, A. M. (F)
Sloan, F. M. (A)
Wallace, P. A. (M)
Waskiewicz, L. R. (A)
Wetzel, K. C. (M)
Whelan, W. R. (A)
Widell, E. G. (SM)
Williams, N. T. (SM)
Wilmarth, R. W. (SM)
Wood, G. R., Jr. (M)
Yeisley, W. F. (M)

Bloomingdale (NNJ-2)
Brennan, P. M. (A)
Forshay, D. W. (A)
Parisi, J. A. (M)

Bloomsbury (PRI-2)
Belanger, E. D. (A)

Bogota (NNJ-2)
Forsythe, A. M. (A)
Gilcher, V. (A)
Hafenmaier, H. F. (M)
Kramer, A. (M)
McCaffery, W. W. (M)
Scherf, H. T. (A)
Weber, R. A. (M)

Boonton (NNJ-2)
Anderson, N. J. (A)
Bidlack, R. H. (M)
Cook, L. (M)
Downsbrough, G. A. (M)
Durany, F. (A)
Erickson, L. E. (M)
Franks, C. J. (M)
Genoble, F. (M)
Hooler, V. E. (A)
Houlroyd, G. F. (M)
Hoyt, W. F. (M)
Hull, C. J. (A)
Hull, L. M. (F)
Jacobus, W. M. (A)
Jones, J. J., Jr. (M)
Kenney, C. M. (A)
King, P. B., Jr. (SM)
Kromka, D. S. (A)
Mannik, G. (A)
March, P. S. (M)
Martin, R. F. (A)
Montcalm, S. R. (SM)
Parkes, A. W., Jr. (SM)
Pittenger, A. W. (M)
Pittenger, R. C. (A)
Plahn, R. W. (M)
Redington, J. H. (SM)
Richardson, A. G. (F)
Richardson, S. A. (M)
Schanz, W. H. (M)
Seabury, E. S. (A)
Sha, R. T. (M)
Tyzzer, H. J. (SM)
Weinberg, J. (A)
Weiser, F. E. (M)
White, W. F. (M)
Zayac, F. R. (M)
Zieger, J. A. (M)

Boonton Township (NNJ-2)
Black, W. L. (SM)
Engert, G. W. (M)

Bordentown (PHI-3)
Di Pietro, V. J. (M)
Meier, D. J. (M)

Bound Brook (PRI-2)
Boyles, C. W. (A)
Brown, W. A. R. (A)
De Versterre, W. I. (M)
Engelberg, C. (M)
Gruber, R. (M)
Handen, J. (M)
Kuklis, J. A. (M)
Reid, S. C., Jr. (M)
Toth, A. M. (M)
Van Derveer, F. J. (M)
Van Iderstine, A. (SM)
Witherell, C. E. (M)

Bradley Beach (NY-M-2)
Brown, M. A. (M)
MacAllister, A., Jr. (A)
Steward, R. L. (M)

Bricktown (NY-M-2)
Franck, D. T. (M)
Kasper, H. W. (M)
Mossa F. P. (M)
Rottner, A. W. (M)
Vorwerk, F. A. (A)

Bridgeton (PHI-3)
Deal, J. H. (A)

Brielle (NY-M-2)
Eason, C. R. (M)
Schor H. (M)

Brigantine (PHI-3)
Keeley, J. F. (A)
Stinson, L. F. (M)
Walker, D. L. (M)

Brookside (NNJ-2)
Adams, E. W., Jr. (M)

Browns Mills (PHI-3)
Tellier, J. C. (F)

Burlington (PHI-3)
Adams, J. C., Jr. (M)
Cole, D. A. (M)
Dubrow, W. (M)
Escriba, C. F. (M)
Fels, F. E. (A)
Gula, H. E. (M)
Nolan, J. L. (M)
Oelwein, W. R. (M)
Stover, R. A. (A)
Tanzman, H. D. (M)

Butler (NNJ-2)
Bishop, E. L., Jr. (M)
Bradford, D. C. (M)
Hoagland, K. A. (SM)
Levine, M. J. (M)
McKeon, T. M. (M)
Meyer, K. H. (M)
Miller, H. W. (M)
Munroe, P. C. (SM)
Thomas, C. R. (M)
Wachter, J. E. (M)
Wild, R. F. (SM)
Wolter, H. R. (M)

Caldwell (NNJ-2)
Del Guercio, V. G. (M)
Garten, L. A. (M)
Graff, E. S. (M)
Greenberg, A. H. (M)
Gurwacz, C. J. (M)
Hotopp, A. H., Jr. (SM)
Janes, A. W. (M)
McBrair, H. C. (M)
Meixell, O. S. (SM)
Neu, E. C. (M)
Schoenbaum, J. R. (SM)
Schwerin, R. L. (SM)
Serra, G. F. (M)
Sutherlin, L. (SM)
Trendowski, C. R. (M)
Williams, W. J., Jr. (A)

Caldwell Township (NNJ-2)
Dulac, J. P. P. (M)
Edelman, G. (M)
Oboryshko, H. (M)
Poole, R. E. (M)

Califon (NNJ-2)
Pfarrer, J. (A)

Camden (PHI-3)
Adezio, L. S. (M)
Ankenbrandt, F. L. (F)
Apelletti, C. (M)
Baker, A. B. (M)
Benima, D. (A)
Bennett, F. L. (M)
Berg, C. O. (M)
Berges, W. P. (A)
Berlind, J. L. (A)
Bishop, B. F. (M)
Bock, J. J. (M)
Boehm, P. C. (A)
Bolden, E. L. (M)
Bomelsler, R. E. (M)
Bonshock, S. N. (M)
Booth, A. T., Jr. (M)
Bowen, D. C. (SM)
Brooks, R. R. (M)
Cameron, H. F. (M)
Chalupa, J. F. (M)
Chan, R. H. G. (M)
Chen, D. B. (M)
Christopher, A. J., Jr. (M)
Colton, R. M. (M)
Corrington, M. S. (F)
Courtney, J. E. (M)
Cramer, R. E., Jr. (M)
Dickens, B. L. (M)
Di Paolo, L. A. (M)
Domin, F. J. (A)
Eagan, J. F., Jr. (A)
Edwards, N. E. (M)
Elsenberg, H. (M)
Elderkin, C. D. (M)
Fang, J. C. (M)
Feyerherm, M. P. (SM)
Figueroa, J. W. (M)
Flateau, S. L. (M)
Franks, T. A. (M)
Fricke, R. H. (M)
Gelchis, M. V., Jr. (M)
Glanelle, W. H. (M)
Gleitman, J. (M)
Glenn, A. B. (SM)
Gloates, E. (A)
Goldberg, A. S. (M)
Goss, G. J. (M)
Green, L. S. (M)
Gunther, C. A. (F)
Guthrie, P. L., Jr. (M)
Harris, S. J. (SM)
Harris, W. A. (SM)
Hawes, M. K. (M)
Head, F. E. (M)
Howard, D. V., Jr. (M)
Jones, L. F. (SM)
Klessling, G. A. (M)
Lacy, W. H. (A)
Langworthy, D. C. (M)
Le Vam, M. F. (M)
Lindley, R. A. (A)
Lujetic, V. J. (M)
Maguire, J. A. (A)
Martin, H. B. (SM)
Mathews, J. W. (M)
Matsumura, G. K. (M)
McAdara, F. C. (M)
McCasland, G. P. (M)
McDonnell, F. M., Jr. (M)
McNicol, F. R. (A)
Monshaw, V. R. (M)
Moore, C. E. (SM)
Morris, R. E. (M)
Morse, E. (A)
Myers, B. D., Jr. (A)
Neubauer, J. R. (SM)
Novick, S. (M)
Patterson, T. T., Jr. (SM)
Peebles, P. Z. (M)
Rao, G. V. (M)
Reeves, T. C. (M)
Scally, P. J. (A)
Schulbach, A. (M)
Sisle, M. E. (M)
Smith, F. D. (M)
Smith, T. A. (F)
Stech, G. (M)
Tait, W. F. (A)
Taylor, J. I., Jr. (M)
Terris, D. (M)
Thomas, L. C. (M)
Tourshou, S. (SM)
Tracy, E. C. (M)
Trainer, M. A. (SM)
Ur, H. (M)
Vilkomerson, B. S. (SM)
Walter, J. C. (SM)
Waters, G. B. (M)
Wege, H. R. (SM)
Wilder, J. (M)
Woywood, D. J. (A)
Wright, S. L. (A)

Cape May (PHI-3)
Knauss, D. L. (M)

Carlstadt (NNJ-2)
Kaiser, A. W. (SM)
Payne, M. P. (SM)

Carteret (PRI-2)
Craig, C. A. (A)
Goyena, S. R. (A)

Cedar Brook (PHI-3)
Wasiski, E. B. (A)

Cedar Grove (NNJ-2)
Altman, H. (M)
Balas, P., Jr. (M)
Barclay, G. W. (M)
Beckers, A. E. (M)
Brown, W. G. (M)
Bulkley, A. W. (M)
Clarke, A. F., Jr. (M)
Cohen, A. B. (M)
Dickstein, S. R. (M)
Dooner, J. L. (M)
Dumont, A. B. (F)
Fichter, W. C., Jr. (M)
Golick, G. (M)
Gordon, R. F. (M)
Gorss, C. G., Jr. (M)
Grieg, D. D. (F)
Harris, R. J. (A)
Hartmann, J. C. (M)
Himmel, L. (SM)
Kaplan, M. (SM)
Keim, F. J., Jr. (M)
Kettmann, H. W. (A)
Klein, A. M. (M)
Kuras, H. F. (M)
Lawrence, J. T. (SM)
Lenker, J. N. (M)
Luongo, J. (M)
Magdeburger, P. E. (M)
Mamar, G. (M)
Masnik, W. (M)
May, L. T. (M)
Merel, W. (M)
Petruzzelli, R. T. (A)
Pogoda, A. L. (M)
Rakowsky, G. (M)
Reeves, E. H. (M)
Reichert, W. G., Jr. (M)
Shackelford, C. L. (SM)
Sterling, W. G. (A)
Spiro, N. J. (M)
Sutton, L. E., III (A)
Trim, M. E. (M)
Van Brunt, L. R. B. (M)
Van Duyne, J. P. (M)

Cedar Knolls (NNJ-2)
Eden, B. F. (M)
Hetzel, G. L. (M)

Chatham (NNJ-2)
Albrecht, H. W. (SM)
Andrew, H. B. (M)
Arnold, C. G. (SM)
Babcock, W. C. (M)
Bishop, J. D. (M)
Bobeck, A. H. (M)
Bondy, M. (M)
Bryant, N. W. (SM)
Corwith, H. P. (F)
Cousins, V. M. (M)
De Motte, C. G. (SM)
Diehl, G. A. (A)
Drake, F. (M)
Edson, A. P. (M)
Edwards, J. R. (M)
Felch, E. P. (F)
Filo, J. P. (M)
French, H. N. (M)
Funk, D. L. (M)
Glasel, W. B. (M)
Hand, E. C. (M)
Higgs, R. E. (M)
Hilberg, E. A., Jr. (M)
Hinger, F. J. (M)
Hladky, W. (M)
Hofmockel, D. L. (M)
Hopper, K. D. (M)
Houghton, E. W. (SM)
Kay, E. D. (M)
Klesse, W. R. (M)
Koch, D. G. (M)
Koll, V. G. (A)
Lambert, D. W. (M)
Levengood, J. W. (M)
Lynch, J. A. (A)
Macina, N. A. (A)
McBride, J. F. (A)
McLean, D. A. (SM)
Moorhead, G. H. (M)
Morrow, S. R. (M)
Peterson, A. C., Jr. (SM)
Radcliffe, F. E. (SM)
Rohn, W. B. (M)
Rose, R. H., II (M)
Rowe, H. C. (SM)
Rupo, O. R. (A)
Sagan, E. A. (M)
Schreiber, O. P. (M)

Smoot, A. W. (M)
Southworth, G. C. (F)
Sproul, P. T. (SM)
Standley, J. G. (M)
Sweeny, C. P. (SM)
Taylor, P. H. (M)
Tighe, D. J. (M)
Vaughan, H. E. (SM)
Vaughan, V. N., Jr. (SM)
Von Der Linden, M. A. (SM)
Winningham, W. T. (F)
Wirsz, N. C. (M)
Wissolik, R. A. (SM)
Yariv, A. (M)

Chatham Township (NNJ-2)
Singer, F. J. (SM)
Stone, R. C., Jr. (M)

Cherry Hill (PHI-3)
MacDougall, M. H. (A)

Chester (NNJ-2)
Hubbell, B. (M)
Ruff, J. A. (A)
Widenor, P. E., Jr. (SM)

Cinnaminson (PHI-3)
Delany, J. F. (SM)

Clark (NNJ-2)
Bassrab, J., Jr. (M)
Collazo, J. L. (M)
Comer, W. J., Jr. (A)
Mayer, C. G. (SM)
Rizzoni, E. M. (SM)
Seymour, J. W. (SM)
Vrattos, G. P. (M)

Cliffside Park (NNJ-2)
Larena, S. F. (A)
Ring, E. W. (M)

Clifton (NNJ-2)
Ackerman, H. I. (M)
Alexander, G. C. (M)
Arditi, M. (SM)
Arp, R. H. (A)
Ault, C. F. (M)
Bean, J. O. C. (M)
Bearman, A. L. (A)
Bellinfante, J. D. (M)
Bender, D. J. (M)
Benyacar, I. (A)
Brady, J. F. (SM)
Brockel, E. P. (A)
Burton, R. G. (M)
Carpinelli, D. D. (M)
Casabona, A. M. (M)
Christman, W. G. (M)
Clemens, J. R. (M)
De Bell, J. M., Jr. (M)
De Villeroy, E. V. (M)
Dolan, F. J. (M)
Dzula, B. (M)
Egan, T. R. (M)
Elbert, C. H. (M)
Fabisch, M. P. (M)
Fahnestock, D. L. (M)
Feldt, R. (SM)
Fillman, J. J. (M)
Grant, R. T. (M)
Green, M. W. (SM)
Haefell, J. E. (M)
Harnar, R. K. (M)
Helm, A. M. (M)
Hogan, M. J. (A)
Hval, H. N. (M)
Jeans, J. R. (M)
Kaplan, W. (M)
Katzmann, F. L. (M)
Kohler, E. (A)
La Plant, W. P. (A)
Lappin, D. (M)
Legrang, J. S. (M)
Le Vine, H. D. (SM)
Librizzi, P. N. (SM)
Lieberman, I. J. (M)
Lust, A. M. (M)
McKeeby, R. W. (M)
Meyer, S. F. (M)
Moron, M. (A)
Murphy, G. G. (SM)
Nelson, J. E. (SM)
Nilsen, R. N. (M)
Nugaris, C. J. (M)
Osifchin, N. (A)
Oswald, R. L. (M)
Otis, A. N., Jr. (A)
Pablan, L. (M)
Petersen, R. C. (A)
Pollack, L. (SM)
Postal, R. H. (A)
Rate, W. R., Jr. (M)
Reenstra, A. L. (M)
St. Louis, R. A. (M)
Salzer, P. (M)
Salzer, R. M. (M)
Sanford, E. E. (A)
Scherago, R. I. (A)
Schneider, A. E. (M)
Schneiderman, M. (A)
Schroeder, J. O. (SM)
Schwartz, P. L. (M)
Smith, C. B., Jr. (M)
Snadyc, A. M. (SM)
Solomon, K. (M)
Stallone, M. J. (SM)
Stein, S. (M)
Stueck, T. (M)
Suktich, W. J. (A)
Tobias, J. (M)
Vanca, G. (M)
Weinshanker, J. (M)
Wilding, J. V. (M)
Yeates, R. A. (M)
Zahner, C. F. (M)

Closter (NNJ-2)
Burhenne, J. L. (M)
Slawson, W. J. (M)
Soderquist, W. A. (A)

Collingswood (PHI-3)
Ackerman, M. J. (SM)
Aron, S. (M)
Aurand, J. A. (M)
Avella, N. R. (M)
Baker, W. W. (M)
Bancroft, H. S. (M)
Beauchemin, A. (M)
Booth, G. W. (M)
Brotzman, E. S. (SM)
Brown, E. M. (SM)
Brown, W. J. (M)
Cavell, J. D. (A)
Chin, G. D. (M)
Clark, E. L. (SM)
Corey, C. P. (A)
Cox, R. L. (M)
Crawford, R. D. (M)
Daniel, J. W., Jr. (M)
Dansky, A. H. (M)
Davis, C. E. (M)
Diehl, D. W. (M)
Dobbins, L. W. (M)
Douglas, J. W. (M)
Duffin, J. D. (M)
Elselein, J. E. (SM)
Evin, N. I. (M)
Farnett, E. C. (M)
Finkelstein, M. B. (SM)
Genetta, T. L. (M)
Gluyas, T. M., Jr. (SM)
Goodrich, H. C. (SM)
Gottschalk, J. M. (M)
Grier, E. W. (M)
Hedlund, L. V. (M)
Herzog, D. G. (M)
Homan, A. A. (M)
Honda, H. (M)
Houck, G. S. (M)
Hunford, W. L. (M)
Kane, J. R. (M)
Kolar, R. F. (M)
Kowal, A. (M)
Lapidos, R. W. (M)
Laskey, J. M. (M)
Lauer, H. (M)
Lefczik, S. W. (A)
Low, F. (M)
Lynn, S. (SM)
Mallitz, E. (M)
Maloff, I. G. (F)
Martin, T. B. (M)
McDonnell, J. A. (SM)
McGiffney, D. Z. (M)
Meeker, W. F. (M)
Moschetti, G. J. (M)
Mozzi, E. J. (M)
Needham, G. A. (A)
Paley, L. I. (M)
Paris, A. A. (M)
Phillips, L. B. (M)
Pierce, J. A. (M)
Rangachar, H. V. (M)
Rezek, G. (A)
Robertson, J. Y. (M)
Roe, J. H. (SM)
Russo, E. D. (M)
Salisbury, J. T. (M)
Schlueter, R. C. (M)
Schwarz, H. G. (M)
Selby, E. O. (M)
Sharp, R. F. (M)
Shashoua, F. E. (M)
Shelton, C. T. (M)
Shoaf, J. R., II (SM)
Slukola, M. (M)
Smith, A. E. (M)
Southworth, W. T. (M)
Staniszewski, J. R. (M)
Stupp, R. W. (M)
Thompson, E. E. (M)
Turner, A. H. (M)
Underwood, J. F. (SM)
Ver Wys, G. A. (M)
Watson, F. M. (A)
Weiss, H. J. (M)
Williams, D. R. (M)
Wing, D. H. (M)
Wolf, R. R. (M)
Woodward, B. J. (M)
Yin, H. B. (M)
Young, H. D. (M)
Zielony, M. A. (M)

Colonia (NNJ-2)
Anderson, E. C. (A)
Balaban, P. (M)
Gegenheimer, R. F. (M)
Glick, C. L. (M)
Griffee, F. M. (M)
Levine, I. (M)
Sheffield, B. (SM)
Vick, E., Jr. (A)
Woodzinski, J. C. (A)
Zeler, A. J. (M)

Colts Neck (NY-M-2)
Chasek, N. (M)
Cummins, R. L. (M)
Daugherty, R. M. (SM)

Cookstown (PHI-3)
Kazmierczak, B. (M)

Coytesville (NNJ-2)
Kertesz, Z. J. (A)
Robin, G. W. (M)

Cranbury (PRI-2)
Matthews, N. F. J. (M)
Morgan, J. M. (SM)
Ricci, R. C. (M)
Shankweiler, R. G. (SM)
Zonis, F. I. (M)

Cranford (NNJ-2)
Abrams, H. (M)
Andrews, W. W. (M)
Backinoff, B. (M)
Bell, B. A. (M)
Brown, R. E. (M)
Carlson, F. M. (M)
Herzer, W. P. (M)
Hillyer, C. (M)
Jagerman, D. L. (M)
Kolts, R. C. (M)
Lee, H. C. (M)
Marchand, O. P. (A)
Scaturo, C. (M)
Scheibner, J. F. (M)
Schwarz, W. H. (A)
Serspinski, V. (M)
Shenk, J. J. (M)
Sullivan, H. J. (M)
Walsh, G. M. (M)
Widmann, E. (M)

Cresskill (NNJ-2)
Makowy, W. (M)
Stebbins, M. D. (M)
Walsh, J. B. (SM)

Deal (NY-M-2)
Bennett, H. S. (SM)
Berger, R. M. (SM)
Klayton, M. H. (SM)
Reingold, I. (SM)
Rosenblum, A. (M)
Russell, D. D. (M)

Delanco (PHI-3)
Hermann, P. E. (M)
Phillips, J. W. (A)
Potter, E. H. (SM)

Delaware Township (NNJ-2)
Batterman, S. (M)
Weir, W. T. (M)

Demarest (NNJ-2)
Clarke, T. F. (M)
Furrer, C. G. (A)
Sapiro, A. M. (M)

Denville (NNJ-2)
Bemis, A. R. (M)
Bercaw, J. D. (M)
Boatright, D. L. (M)
Cawein, M. (F)
Denney, J. M. (M)
Dutton, A. A. (A)
Farbanish, E. (A)
Farbanish, R. S. (M)
Gilbert, E. A. (M)
Jamba, D. M. (M)
Koch, H. J. (M)
Kruger, H. A. (M)
Langdon, G. G. (M)
Miller, G. F., III (M)
Morrill, D. E. (M)
Nexon, V. J. (M)
Paull, M. (A)
Porter, E. A. (M)
Renwick, E. B., Jr. (M)
Ritterman, S. A. (M)
Sclar, N. (SM)
Vanek, L. J. (M)
Van Winkle, D. (A)

Dover (NNJ-2)
Anspach, T. E. (A)
Backer, L. A. (SM)
Baker, W. A. (M)
Benson, R. K. (M)
Brown, A. F. (M)
Calafati, S. S., Jr. (SM)
Cochran, J. A. (SM)
Corrigan, R. H. (M)
Frank, J. E. (M)
Gerlach, C. G. (SM)
Glass, L. H. (M)
Grenier, T. J. (M)
Grinoch, A. (M)
Guerin, J. H. (M)
Hansell, P. D. (M)
Held, W. F. (A)
Helm, G. D. (SM)
Hotvedt, A. (M)
Hughes, T. A. (M)
Jensen, A. K. (M)
Johnson, R. H., Jr. (M)
Karger, G. (M)
Mackey, J. E. (A)
McCrory, J. R. (M)
McKechnie, K. H., Jr. (M)
McKinney, V. M. (M)
Neville, S. M. (M)
Nielsen, M. I. (M)
Olson, J. W. (M)
Pauken, D. J. (M)
Pelletier, F. P. (A)
Peretko, H. T. (M)
Poolas, G. (A)
Pursley, R. E. (M)
Rein, J. J., Jr. (M)
Schulman, B. L. (M)
Tilson, B. A. (M)
Waxler, D. (SM)
Weber, R. M. (A)
Zenk, G. E. (M)

Dumont (NNJ-2)
Auld, J. S. (A)
Benesch, E. J. (M)
Eland, P. D. (M)
Garrison, R. J. (M)
Hahn, J. (M)
Hammerstein, H. A. (M)
Hendel, Z. I. (M)
Kerner, S. J. (M)
Kompass, E. J. (M)
Schwerin, P. (SM)
Smythe, R. D. (A)
Strain, M. (M)
Strole, J. C. (M)
Sundberg, A. (A)
Townsend, C. L. (A)

Dunellen (PRI-2)
Chabrak, T. A. (M)
Geigel, A. A. (M)
Kaiser, C. J. (M)
Longo, C. V. (SM)
Povich, J. (A)
Wolin, S. (SM)

Dutch Neck (PRI-2)
Wysocki, J. J. (M)

East Brunswick (PRI-2)
Aniskovicz, S. (A)
Cook, A. W. (M)
Fisher, J. L. (M)
Fisher, W. W. (M)
Goldberg, H. (M)
Meyerhoff, A. A. (SM)
Rubin, A. (M)
Silverstein, S. (M)
Vaccaro, F. E. (SM)

East Keansburg (NY-M-2)
Higgins, V. J. (M)

East Newark (NNJ-2)
Kahn, L. (SM)

East Orange (NNJ-2)
Adams, H. G. (M)
Atkins, C. E. (SM)
Borken, A. (M)
Byrum, E. J. (SM)
Carlat, B. (SM)
Carlson, W. K. (M)
D'Amanda, A. W. (M)
Di Massimo, D. V. (M)
Doyle, L. B. (M)
Esposito, R. V. (A)
Forman, J. A. (M)
Frandsen, D. V. (A)
Freeling, M. R. (M)
Gawler, H. C. (SM)
Gonzalez, C. (M)
Henry, T. J. (SM)
Holden, D. C. (M)
Jalajas, A. A. (M)
Kendall, B. W. (SM)
Killen, D. E. (A)
Landieri, G. (A)
Levine, M. E. (SM)
Lewis, E. T. (M)
Lindon, J. (A)
Loomis, D. C. (A)
Maslowski, R. S. (M)
Meyer, B. (M)
Meyers, S. T. (SM)
Moritz, K. C. (SM)
Nelson, R. S. (M)
Richardson, D. E. (M)
Riegler, R. L. (A)
Rubin, S. (M)
Ruston, J. (M)
Sandretto, P. C. (F)
Silverman, G. (M)
Smith, H. H. (M)
Smith, W. P. (A)
Spies, D. (A)
Stalker, F. B. (M)
Tanguay, G. R. (M)
Weible, N. R. (M)
Wolsky, M. S. (M)
Worthington, R. L. (M)
Yaeger, W. O. (M)

East Paterson (NNJ-2)
Benewicz, T. F. (M)
Bonhill, E. J. (A)
Brennan, J. E. (M)
Dehoney, R. J. (M)
Dietz, F. H. (A)
Ederer, N. (M)
Gardner, J. L. (A)
Genzel, S. (A)
Grower, B. B. (M)
Hesse, H. R. (SM)
Hoffman, P., Jr. (A)
Kelsey, J. P. (M)
Kendall, K. J. (M)
Koenig, J. A. (A)
Krell, J. (A)
Lerner, H. (M)
Maron, M. (M)
Pfeiffer, G. L. (M)
Rosenes, O. (M)
Sinnema, E. M. (M)
Travis, W. (A)
Tuber, R. J. (M)
Van Der Poel, J. M. (M)
Woodward, R. J. (M)

East Rutherford (NNJ-2)
Painter, J. G. (M)
Skalski, W. A. (M)

East Vineland (PHI-3)
Konrad, L. (M)

Eatontown (NY-M-2)
Anderl, J. H. (M)
Barton, J. E. (M)
Burkhard, H. F. (M)
Curtis, M. W. (M)
Deblasio, C. (A)
Duffie, K. R. (A)
Feibish, H. L. (A)
Fentress, T. D., Jr. (SM)
Florkowski, J. H. (M)
Gaskell, R. J. (A)
Goubau, G. J. E. (F)
Hanson, E. D. (M)
Heinlein, J. V. (A)
Hendricks, A. D. (M)
Jones, J. L. (SM)
Jory, H. R. (M)
Katz, L. (SM)
Kesselman, W. A. (M)
Landberg, A. (M)
Laugesen, T. C. (A)
Lucyk, J. (M)
Lupinski, A. M. (M)
Mattes, A. J. (M)
Megna, J. J. (M)
Moody, C. S. (M)
Myura, A. J. (M)
Newman, H. (M)
Occhiogrosso, T. (M)
Petrella, A. J. (M)
Petrillo, S. E. (F)
Rauffer, W. M. (A)
Reilly, V. E. (SM)
Runyon, J. B. (A)
Shirley, T. L. (M)
Silberstein, R. (SM)
Singer, F. L. (M)
Thomas, S. M., Jr. (M)
Yonkers, E. S. (M)

Edgewater (NNJ-2)
Yelick, N., Jr. (A)

Edgewater Park (NNJ-2)
Smith, G. J. (M)
Taynton, R. (SM)

Edison (PRI-2)
Bernstein, A. L. (M)
Birdsey, G. J., Jr. (M)
Cameron, J. A. (M)
Gardner, R. A. (M)
Kaytar, J. J. (A)
Kozma, J. A. (M)
Nelson, E. B. (M)
Sokol, S. (M)
Taylor, J. C. (M)
Van Savage, J. (M)
Zacharellis, G. (A)

Edison Township (PRI-2)
Nussear, J. G. (SM)

Egg Harbor (PHI-3)
Luciani, V. J. (M)
Egg Harbor City (PHI-3)
Haskin, R. H. (M)

Elberon (NY-M-2)
Blum, M. S. (M)
Brand, F. A. (M)
Eisenberger, A. J. (M)
Elser, A. C. (M)
Epstein, M. (M)
Favre, R. M., Jr. (M)
Fontana, W. J. (SM)
Gelernter, B. (M)
Gould, W. B., III (A)
Hatkin, L. (M)
Hill, J. F. (M)
Ikrath, K. (A)
Jacoby, D. L. (M)
Kitts, H. L. (SM)
Krueger, T. O. (M)
Parmer, H. W. (SM)
Prichard, A. C. (SM)
Rupp, W. M. (M)
Skobel, M. (SM)
Sussdorff, R. R. (M)
Wynne, W. M. (M)
Ziegler, H. K. (F)

Elberon Park (NY-M-2)
Maresca, P. T. (SM)
Pfaff, D. L. (M)

Elizabeth (NNJ-2)
Abenilla, J. C. (A)
Bauer, A. A. (M)
Bellis, V. L. (A)
Blaisdell, W. C. (SM)
Cherdak, A. S. (M)
Cocker, W. T. (A)

Cooper, C. G. (A)
Elovic, A. (M)
Fenster, P. (M)
Garfinkel, B. D. (M)
Gibson, H. B. (M)
Glassman, S. H. (M)
Green, L. N. (M)
Greenberg, N. S. (M)
Heinen, J. (M)
Horowitz, N. (M)
Kaseta, A. R. (M)
Krochmal, R. S. (A)
Levine, S. W. (M)
Ligis, T. (M)
Lowe, W. H. (A)
Milowitz, P. (M)
Olsen, R. F. (A)
Pecina, R. G. (M)
Peterson, T. A., Jr. (SM)
Pietrantonio, F. V. (M)
Poznar, M. E. (M)
Putterman, H. (M)
Rosen, H. (M)
Stlasny, R. (M)
Tanga, C. N. (M)
Triano, J. N. (M)
Walsh, C. (SM)
Worthing, F. L. (A)

Elmer (PHI-3)
Tipton, W. F. (M)

Emerson (NNJ-2)
Boyens, R. D. (SM)
Freid, J. (M)
Kelley, J. R. (M)
Leonard, C. J. (M)
Long, J. H. (SM)
MacVeety, R. C., Jr. (M)
Rappaport, H. (SM)
Reinish, G. B. (M)
Rubino, J. W. (SM)
Sacco, V. (M)

Englewood (NNJ-2)
Alsberg, H. (A)
Anick, G. (A)
Dahlin, E. K. (M)
Dern, H. (SM)
Elders, D. S. (M)
Hillman, L. (M)
Hughes, K. E. (M)
Jamison, R. P. (M)
Kavanagh, J. J. (M)
Kozmik, F. (A)
Lanigan, J. J. (A)
Levine, L. (M)
Lewis, C. J. (M)
Mendelsohn, M. (M)
Morse, M. (A)
Press, M. (SM)
Roselli, D. J. (A)
Saliba, G. J. (SM)
Saliba, J. R. (M)
Scharf, S. W. (M)
Smith, P. C. (M)
Solins, R. (M)
Stiefel, E. (A)
Thomas, E. R. (M)
Wolthoff, C. E. (A)

Englewood Cliffs (NNJ-2)
Ballin, R. C. (M)
Brown, B. D. (M)
Davis, J. H. (M)
Kaplan, S. J. (A)
Scott, D. A. (A)

Erlton (PHI-3)
Blaisdell, H. L. (SM)
Blombam, H. M. (M)
Brown, W. J. (M)
Carignan, R. J. (M)
Casolaro, R. N. (M)
D'Amato, E. J. (M)
Foley, T. U. (M)
Gross, S. D. (M)
Harmon, G. B. (A)
Kampf, R. J. (A)
Kiss, W. F. (M)
Mechler, E. A. (SM)
More, C. C. (M)
Mullen, C. V. (A)
Murdock, W. G. (M)
Nowlan, M. J. (SM)
Pearson, R. W. (M)
Pettersen, E. S. (M)
Purdue, R. E. (M)
Schottenfeld, I. A. (M)
Siegal, M. E. (M)
Siegel, L. (A)
Smith, C. J. (M)
Varsos, S. G. (M)
Weisbecker, J. A. (M)

Erskine Lakes (NNJ-2)
Cosgrove, T. (SM)

Essex Fells (NNJ-2)
Henneberger, T. C., Jr. (M)
Lederer, E. A. (F)

Fair Haven (NY-M-2)
Aronoff, M. (SM)
Chappell, J. F. (M)
Clark, T. G. (M)
Corkran, D. H. (SM)
Daniel, A. F. (SM)
Dickson, F. H. (M)
Evans, E. D., Jr. (M)
Gale, R. J. (M)
Hanley, J. F. (SM)
Harrison, D. J. H. (A)
Kelley, L. C. (M)
Kolar, E. F. (SM)
Lartaud, H. R. (SM)
Leddy, E. J. (M)
Loud, V. F. (A)
Marcuse, D. (M)
Newell, R. A. (M)
O'Neil, J. J. (M)
Priebe, F. K. (M)
Puzio, P. S. (A)
Riehs, R. C. (SM)
Russell, W. J., Jr. (M)
Ruthroff, C. L. (M)
Schedlbauer, C. M. (SM)
Schwed, S. (M)
Young, J. A., Jr. (M)
Zahl, H. A. (F)

Fair Lawn (NNJ-2)
Bawer, L. I. (SM)
Bradburd, E. M. (M)
Brodsky, J. L. (M)
Carlin, B. (M)
Carpenter, P. J. (M)
Chao, J. (A)
Cooper, B. (M)
Diepeveen, N. (M)
Feit, L. (A)
Feller, M. (M)
Fischer, L. O. (M)
Frank, E. D. (M)
Fruchter, C. L. (M)
Gaines, R. I. (M)
Goldstein, R. L. (A)
Grabois, B. (M)
Guertin, W. S., Jr. (A)
Gulack, J. G. (SM)
Hill, E. (M)
Hill, E. R. (A)
Jelinek, R. H. (M)
Johnson, A. C. (M)
Judlowe, S. B. (M)
Katz, M. (A)
Kaylin, R. R. (M)
Kole, W. C. (M)
Lafferty, R. E. (SM)
Le Vine, D. J. (SM)
Levitsky, J. (M)
Liss, S. (SM)
Lupo, F. J. (SM)
Maloy, M. (M)
Mittman, E. E. (SM)
Moulton, J. H. (M)
Perry, M. A. (M)
Piskadlo, R. M. (M)
Rabb, M. (M)
Relis, M. J. (M)
Reyers, R. R. (M)
Roberts, H. (SM)
Rosenberg, L. (A)
Sachs, H. S. (M)
Scarr, H. F. (SM)
Schacher, D. L. (M)
Schwartz, E. L. (M)
Sherman, H. (A)
Simon, A. (M)
Simoni, F. R. (A)
Stein, E. (M)
Stein, E. (M)
Steinberg, S. (M)
Stemberg, M. (M)
Stumpf, F. J., Jr. (M)
Zerkin, M. (M)

Fairview (NNJ-2)
Georgiou, A. G. (A)
Hammerle, F. H. (M)
Meo, M. (M)
Pattan, B. A. (M)
Possamai, L. (M)
Stalupoi, J. P. (M)

Fanwood (NNJ-2)
Aaron, J. D. (A)
Few, F. A. (M)
Henley, E. J. (SM)
Isaacson, A. M., Jr. (M)
Rybakoff, G. (M)
Seidel, H. (M)
Thomas, A. W. (M)
Wise, W. H. (SM)

Far Hills (PRI-2)
Baulch, E. L. (M)
Grissler, H. W. (M)
James, D. B. (SM)
Peery, W. E. (M)
Serig, H. W. (SM)

Farmingdale (NNJ-2)
Law, D. C. (M)
Rock, F. E. (M)
Smith, P. (M)
Thurber, J. R. (M)

Fayson Lakes (NNJ-2)
Duncombe, W. M. (A)

Flemington (PRI-2)
Cadra, V. J. (M)
Hoffmann, K. C. (M)
Shaffer, R. E. (A)
Tanana, E. J. (M)
Florham Park (NNJ-2)
Ambruster, W. S. (A)
Chapman, C. M. (M)
Coonce, H. E. (M)
Fultz, K. E. (A)
Gaunt, W. B., Jr. (M)
Greenwood, T. S. (A)
Meinholtz, H. J. (M)
Nichols, L. A. (A)
Nikiel, R. V. (M)
Purdy, D. R. (M)
Simone, C. F. (M)
Spence, P. W. (M)
Sullivan, M. V. (SM)
Tarrant, S. R. (A)

Fords (NNJ-2)
De Sciscio, J. W. (A)
Glickman, V. (M)
Gumbs, J. (A)
Helm, R. J. (A)
Kalista, S. A. (A)
King, B. H. (M)
Kleinberg, L. L. (M)
Mosoloo, R. N. (M)
Zapotocky, A. C. (M)

Fort Dix (PRI-2)
Kannawin, W. I. (A)
Mulholland, R. B. (M)
Washington, S. (M)

Fort Lee (NNJ-2)
Beebe, B. A. (A)
Bemstein, S. B. (A)
Bloom, R. (M)
Boychuk, B. (M)
Chin, E. (M)
Conerly, F. L. (A)
Frisch, F. W. (M)
George, W. P. (M)
Goldsman, J. L. (M)
Grant, M. S. (M)
Hanson, M. D. (M)
Hayum, R. (M)
Keller, E. W. (M)
Lacey, J. C. (A)
Lager, B. (M)
Lepic, R. E. (M)
Lieberman, H. (M)
Nidus, L. S. (M)
Schlisser, G. (M)
Snell, W. A. (M)
Unold, R. W. (SM)
Yee, R. C. (M)

Fort Monmouth (NY-M-2)
Bates, R. H. (SM)
Brazee, G. (SM)
Feldman, N. W. (SM)
Freiberga, E. (M)
Gerber, E. A. (F)
Goodrich, R. H. (M)
Hafner, E. (M)
Kirby, T. J. (M)
McKim, W. J. G. (M)
Meindl, J. D. (M)
Missenda, A. M. (M)
Seybold, L. C., Jr. (M)
Thames, W. M. (SM)
White, H. E. (M)
Wilson, J. L., Jr. (SM)
Wright, W. H. (M)

Franklin (NNJ-2)
Segarra, J. (A)

Franklin Lakes (NNJ-2)
Buster, W. V. (SM)
Gottfried, N. J. (M)
Hoover, L. R. (M)
Houghton, T. F. (M)
Pulchinoek, E. S. (M)
Sellner, H. W. (A)

Franklin Park (PRI-2)
Anas, V. R. (A)
Belohoubek, E. F. (M)
Boersma, J. (A)
Braun, M. (M)
Brown, H. R. (A)
Callais, R. T. (M)
Metz, D. F. (M)
Moore, T. H. (M)
Murray, P. C. (M)
O'Connell, J. H. (A)
Presser, A. (M)
Sjoquist, P. L. (M)

Freehold (NY-M-2)
Buck, D. T. (M)
Elcock, G. C. (A)
Hersh, H. J. (SM)
Kaiser, E. J. (M)
Katz, S. (M)
O'Donnell, R. V. (SM)
Pochmerski, D. (M)

Garfield (NNJ-2)
Gabel, D. D. (A)
Horvath, S. J. (M)
Krzych, L. J. (A)
Mayumik, G. (A)
Puskas, W. E. (M)
Sadvary, J. W. (A)
Wojcik, M. H. (M)

Gibbsboro (PHI-3)
Hogge, C. R., Jr. (M)
Killmeyer, F. P. (M)
Lebovitz, S. (A)
Neely, W. J. (A)
Nikolayuk, N. (A)

Gillette (NNJ-2)
Almquist, M. L., Jr. (M)
Hardin, L. L., Jr. (SM)
Rist, R. E. (M)
Roller, E. L. (M)
Rushing, L., Jr. (M)
Rystedt, T. (M)
Spector, C. J. (M)
Turrin, R. H. (M)
Vitkovits, S., Jr. (M)

Glassboro (PHI-3)
Atherton, D. G. (M)
Borton, J. T., Jr. (M)
Casson, S. M. (M)
Deml, A. J. (M)
Joannides, J. P. (M)
Loeb, P. (M)
Riggs, D. L. (M)
Saganowich, J. T. (M)
Sloan, R. H. (M)

Glendora (PHI-3)
Currey, W. J. (A)
Jack, D. E. (M)
Rawnsley, J. A. (M)

Glen Gardner (PHI-2)
Bozer, R. (M)
Scully, J. F. (SM)

Glen Ridge (NNJ-2)
Brubaker, P. M. (M)
Crowley, J. F. (A)
Dorff, L. A. (SM)
Hamilton, G. E. (SM)
Honaman, R. K. (SM)
Hoogood, R. C. (SM)
Mandel, M. (M)
Olsen, E. U. (M)
Polyzou, J. (M)
Reveal, P. A. (M)
Tambling, R. L. (SM)
Vallese, L. (SM)
Wolfe, R. A. (M)
Wolfe, T. R. (M)

Glen Rock (NNJ-2)
Abrams, I. (M)
Ballou, F. M. (M)
Becken, E. D. (M)
Browne, R. (M)
Cadmus, R. B. (M)
Clark, L. E. (M)
Cotellessa, R. F. (SM)
Erickson, C. R. (M)
Fischer, L. G. (SM)
Graebner, J. C. (M)
Green, R. C. (M)
Kloster, D. E. (A)
Lott, R. E., Jr. (M)
Lukas, W. (M)
Mallahan, E. F. (M)
McGovern, J. J. (M)
Munich, F. E. (SM)
Ringer, R. L., Jr. (M)
Singer, E. (M)
Willes, R. L. (A)

Gloucester (PHI-3)
Comet, E. (SM)
Dunn, D. C. (M)
Fisher, D. M. (A)
Leung, T. C. (M)
Osler, S. J. (M)

Great Notch (NNJ-2)
Berkley, C. (A)
Godley, P. F. (F)
Godley, P. F., Jr. (M)

Grenloch (PHI-3)
Barton, H. R., Jr. (A)
Henuset, F. V., III (A)

Hackensack (NNJ-2)
Bastian, A. L. (M)
Crawford, J. A. (M)
Difini, V. F. (M)
Flanagan, J. R. (M)
Frishman, M. A. (M)
Gage, L. W. (M)
Gill, C. J. (M)
Lane, W. M. (M)
Massik, C. (M)
Mate, H. (M)
McKenzie, A. A. (SM)
Mercer, M. C., Jr. (A)
Messinee, V. C. (M)
Roemisch, J. L. (SM)
Ross, R. G. (M)
Rutherford, E. C. (M)
Samuelson, C. D. (SM)
Siltanen, J. C. (M)
Wertman, R. C. (M)
Wylde, W. N. (M)

Hackettstown (NNJ-2)
Brooks, P. J. (M)
Ouellette, L. A. (A)

Haddonfield (PHI-3)
Achenbach, J. C. (SM)
Adams, R. L. (M)
Alexander, E. M. (M)
Allen, W. F., Jr. (M)
Alter, A. C. (SM)
Ammon, G. M. (M)
Anderson, C. V. (M)
Anderson, J. B. (M)
Andrews, B. I. (M)
Andrews, J. C., Jr. (M)
Anlage, J. J. (A)
Ardys, J. (M)
Arenstein, G. H. (SM)
Armbruster, G. J. (A)
Austein, E. E. (M)
Bail, J. W. (M)
Bailey, R. E. (M)
Balback, E. J., Jr. (M)
Bardash, I. (M)
Barry, R. F. (M)
Barton, D. K. (SM)
Barton, R. (M)
Bauer, W. R. (M)
Beck, F. X., Jr. (M)
Beers, G. L. (F)
Benner, A. H. (SM)
Berge, R. G. (SM)
Binzer, C. (M)
Blackman, W. (M)
Blau, W. (M)
Blaustein, H. D. (M)
Blodgett, E. D. (SM)
Bott, A. H. (M)
Boudreaus, L. E. (M)
Bowen, O. N. (M)
Bowman, S. T. (A)
Bradburn, R. C., Jr. (A)
Braddock, E. (M)
Breckman, J. (M)
Brock, F. M. (M)
Brooks, C. L., Jr. (M)
Brostrand, A. C. (SM)
Brown, H. W., Jr. (SM)
Brown, L. (M)
Bry, J. C. (M)
Bullock, J. B. (M)
Bunn, J. S., Jr. (M)
Burton, N. H. (M)
Butler, J. G. (A)
Cammarato, J. L. (M)
Campanella, M. J. (M)
Caplan, D. I. (M)
Capron, R. W. (M)
Casey, R. H. (M)
Castleberry, J., Jr. (M)
Cederbaum, L. R. (M)
Chang, D. M. Y. (M)
Cheetham, R. P. (M)
Chiabrando, J. C. (A)
Cimerman, I. (M)
Cohen, P. (SM)
Coleman, J. B. (F)
Coleman, R. E. (M)
Condon, S. F. (M)
Connor, W. J., Jr. (M)
Cook, M. E. (M)
Cooper, R. M., III (M)
Cooper, S. (M)
Cooperman, M. (M)
Copenhaver, B. (M)
Covely, F. D., III (SM)
Coyle, D. J. (M)
Crawford, C. F. (SM)
Cubert, J. S. (M)
Cunningham, O. B. (SM)
Davis, S. J. (M)
De Long, G. E. (M)
Dennen, W. B., Jr. (M)
Denton, B. E. (SM)
Desrochers, R. E. (M)
Dewitt, C. C. (A)
Dillon, L., Jr. (A)
Dishler, J. J. (M)
Ditkofsky, H. (M)
Donze, D. W. (M)
Dougherty, J. P. (M)
Downs, F. (SM)
Drake, A. H. (A)
Drenik, J. (M)
Edmonson, R. H. (SM)
Ehrich, W. G. (M)
Elliott, H. M. (M)
Erdmann, R. G. (M)
Emsberger, R. E. (M)
Erwin, G. E. (M)
Everhard, F. U., Jr. (A)
Facer, R. S. (A)
Fedak, J. F., Jr. (M)
Federlin, H. M. (M)
Felix, E. H. (SM)
Feller, J. B. (M)
Ferron, J. A. (M)
Feryszka, M. (M)
Fillebrown, S. M. (M)
Fink, M. (M)
Finkel, L. (M)
Fitzpatrick, A. G. (M)
Flint, R. J. (M)
Fong, T. T. (M)
Forrester, C. A. (M)
Foster, H. B. (M)
Fox, E. D. (M)
Fox, H. M. (M)
Fox, R. I. (M)
Frary, R. S. (M)
Fritscher, M. E. (A)
Frosch, J. A. (M)
Funk, K. A. (M)
Furnstahl, J. S. (M)
Fuschetto, A. N. (M)
Galenek, G. J. (A)
Gallo, J. E. (SM)
Gallo, L. (M)
Gensel, W. L. (M)

Gerardi, V. A. (M)
Goldsmith, A. L. (M)
Graeff, R. F. (M)
Gray, F. D. (M)
Green, M. (M)
Grigg, R. D. (M)
Gross, D. T. (M)
Guerber, H. P. (M)
Gutsmuth, H. R. (M)
Haag, G. H. (M)
Halpern, S. (SM)
Hammel, R. A. (A)
Harger, R. A. (M)
Harwood, L. A. (M)
Haynes, H. E. (SM)
Haynes, R. W. (M)
Helzer, J. T. (M)
Henter, C. R. (M)
Hernan, G. W. (M)
Herrmann, F. J. (SM)
Hill, D. R. (M)
Hill, N. R. (M)
Hillman, E. L. (A)
Himmelstein, F. (M)
Hodson, L. A. (SM)
Horton, J. B. (M)
Houck, R. D. (M)
Housey, L. J. (M)
Hsieh, P. K. (M)
Hubbard, B. L. (M)
Hudgins, W. D. (SM)
Hunt, R. W. (M)
Hurd, R. G. (A)
Hymas, D. G. (M)
Ingraham, H. S., Jr. (M)
Into, A. N., Jr. (A)
Isom, W. R. (SM)
Janz, D. W. (M)
Joffe, I. (M)
Johnson, E. O. (SM)
Johnson, R. V. (M)
Kasmar, R. A. (M)
Katz, A. (M)
Keefe, J., Jr. (A)
Kellom, B. K. (A)
Kennitz, W. F. (M)
Kennedy, H. W., Jr. (M)
Kessler, B. I. (M)
Kettler, A. H. (SM)
Kimball, D. J. (M)
King, R. E. (M)
Kingan, J. (M)
Kiseleski, J. M. (A)
Kita, R. K. (M)
Klavens, N. I. (M)
Klawsnik, F. (SM)
Korff, M. (M)
Koros, L. L. (SM)
Korsen, M. (M)
Kouns, W. D., Jr. (M)
Krasney, S. (A)
Kruger, I. D. (M)
Krupman, L. M. (SM)
Lawler, J. J. (M)
Lea, E. C. (M)
Lemberg, A. E. (M)
Lev, S. N. (M)
Levy, M. A. (M)
Lewis, E. S. (M)
Lezan, G. R. E. (M)
Lieberman, G. (M)
Liebermann, J. (M)
Lilly, C. H. (A)
Lind, A. H. (M)
Lindheim, F. H. (M)
Lindner, G. H. (A)
Linhardt, R. J. (SM)
Lisicky, A. J. (M)
Lochanko, A. A. (M)
Loewer, H. C. (A)
Lombardo, A. (A)
Lowe, M. H. (SM)
Luber, L. (M)
Luddy, E. N. (M)
Ludwiczak, T. A. (M)
Luksch, J. A. (M)
Lundgren, D. L. (SM)
Lundon, J. J. (M)
Lykins, W. S. (A)
Lyndon, W. L. (SM)
Lyons, E. C., Jr. (M)
Lyons, R. E. (M)
Magyarics, R. F. (M)
Major, R. P. (M)
Malkin, I. I. (M)
Mannino, A. J. (SM)
Marks, T. P. (A)
Maron, I. (M)
Mars, T. (M)
Martin, F. F. (M)
Martinson, L. W. (M)
Mathwich, H. R. (M)
Matson, L. E., Jr. (M)
Mayer, D. B. (M)
Mayo, A. L. (A)
McCoy, J. F. (SM)
McGaughey, P. C. (SM)
McKee, D. M. (A)
Meisenheimer, R. L. (SM)
Mertz, H. W. (M)
Messina, M. F. (M)
Michel, C. A. (M)
Milewski, C. A. (M)
Miller, E. T. (M)
Miller, G. F. (M)
Mitchell, R. D. (A)
Mitchell, W. T. (M)
Mohler, O. E. (M)
Moore, C. R. (M)
Morgan, H. T., Jr. (M)
Morgan, M. J., Jr. (A)
Moule, W. N. (M)
Munson, I. K. (SM)
Muolo, A. W. (M)
Murakami, T. (SM)
Nachtrieb, T. W. (M)
Nazario, J. H. (M)
Neitzert, C. (M)
Nessmith, J. T., Jr. (SM)
Newman, R. J. (A)
Nicholson, B. E. (SM)
Niewenhous, J. H. (M)
Nishimura, G. H. (M)
Noel, R. Y. M. (M)
Noguchi, R. Y. (A)
Nold, D. E. (A)
Nordyke, H. W., Jr. (M)
Nossen, E. J. (M)
Oberle, G. W. (SM)
O'Brien, T. J. (A)
Ohler, A. E. (M)
Olson, T. W. (M)
O'Neil, P. T. (M)
O'Neill, D. R. (A)
Pandorf, R. J. (M)
Papasso, F. P. (M)
Parker, J. R. (M)
Perry, S. V. (SM)
Peterson, C. E. (M)
Peterson, R. A. (SM)
Petri, W. H., Jr. (SM)
Petty, H. C. (M)
Phelps, D. E. (A)
Poitras, D. J. (M)
Poorte, G. E. (M)
Poskevich, J. J. (M)
Potts, J. B. (M)
Pratt, D. (SM)
Price, W. E. (SM)
Pritchard, E. M. (SM)
Prunty, R. B. (M)
Pyle, M. O. (M)
Ramanis, O. (M)
Randt, R. C. (M)
Reimertz, R. R. (M)
Reinert, D. O. (M)
Rettig, A. S. (SM)
Riccio, A. H. (SM)
Ringo, K. A. (SM)
Rippere, J. B. (SM)
Roach, C. B. (M)
Roberts, G. H. (M)
Robinson, W. C. (M)
Rocamora, R. L. (M)
Romagnoli, J. D. (M)
Rose, H. E. (M)
Rose, W. A. (M)
Rosenblatt, M. (M)
Ross, G. T. (M)
Roth, J. H. (SM)
Rowland G. E. (M)
Russell, G. (M)
Ryan, V. F., Jr. (M)
Ryan, W. J. (A)
Sabie, J. D. (M)
Samartino, R. F. (M)
Sander, Seymour (M)
Sandler, G. H. (M)
Sapp, D. H. (M)
Scharff, L. (SM)
Schilling, R. D. (M)
Schlegelmilch, H. K. (M)
Schneider, H. T. (A)
Schrade, H. J. (F)
Schwartz, B. R. (M)
Schwarz, N. (M)
Schwendler, R. C. (A)
Scobee, E. M. (M)
Scott, P. B. (M)
Shapiro, L. (M)
Sheetman, M. (M)
Sheng, A. S. (M)
Simon, L. H. (M)
Singer, G. A. (M)
Skarbek, I. R. (M)
Skidmore, W. S. (M)
Smith, E. B. (SM)
Smith, J. N. (M)
Some, N. M. (A)
Spiegel, S. S. (M)
Stadnitski, R. K. (M)
Stafford, R. H. (A)
Starner, C. J. (M)
Starr, S. C., Jr. (M)
Staton, M. G. (M)
Stern, L. (M)
Strickland, K. T. (M)
Strio, J. (SM)
Sullivan, J. L. (A)
Sumino, R. S. (A)
Svihula, G. F. (M)
Sweeney, C. E. (A)
Symbalisty, S. (M)
Taylor, J. P. (A)
Taylor, W. C. (A)
Tice, G. Y. (M)
Tissot, T. P., Jr. (M)
Toscano, P. M. (SM)
Trachtenberg, R. (SM)
Traub, W. F. (M)
Trouant, V. E. (SM)
Truesdell, R. L. (M)
Turecki, A. (M)
Turnbull, S. W. A. (M)
Turner, R. R. (M)
Ubben, R. C. (M)
Wallner, F. S. (M)
Walter, C. E., III (SM)
Walters, W. R. (M)
Wang, T. (A)
Watson, S. H. (SM)
Weber, L. J. (M)
Weir, Kendall (M)
Weise, R. C. (M)
Weiss, M. V. (M)
Weiss, S. L. (M)
Welsh, R. R. (SM)
Welsher, C. E. (SM)
Wenger, W. D. (SM)
Wentworth, J. W. (M)
West, L. G. (M)
Westwood, D. H. (SM)
Wezner, F. S. (M)
Wheeler, B. F. (SM)
Widmann, F. W. (SM)
Wilder, M. K. (M)
Williams, T. J. (M)
Willman, R. C. (SM)
Wilson, H. S. (M)
Wiu, L. A. (M)
Wojciehowski, E. T. (M)
Wolf, L. J. (SM)
Wolf, R. E. (M)
Woolf, I. (M)
Wooten, L. B. (M)
Wroblewski, B. (M)
Yanis, E. M. (M)
Yanofsky, B. M. (A)
Yao, Y. L. (M)
Ziemelis, V. (M)

Haddon Heights (PHI-3)
Aitel, M. L. (M)
Allen, H. E. (SM)
Auerbach, B. (M)
Barger, J. R. (M)
Beckhart, G. H. (M)
Boehm, P. P. (M)
Boyd, E. A. (M)
Braun, J. H. (M)
Brennan, J. P., Jr. (M)
Burke, A. M. (M)
Conroy, G. J. (M)
Darnell, W. E. (SM)
Desautels, G. L. (M)
Eulo, G. R. (M)
Goodman, G. H. (SM)
Gumter, D. L. (M)
Hartmann, H. (A)
Harwood, C. T. N. (M)
Hoger, D. T. (M)
Hoyle, W. E. (M)
Laighton, A. K. (M)
Latham, N. D. (M)
Mackway, H. J. (M)
McKern, B. L. (M)
Meagher, J. C. (M)
Moore, E. E. (M)
Palamar, P. (A)
Pan, W. Y. (F)
Phillips, C. R. (M)
Roberts, R. S., Sr. (M)
Schimsky, D. (M)
Schneider, P. J. (A)
Seaton, W. G. (M)
Solomon, K. (M)
Wolf, L. (SM)
Woll, H. J. (SM)

Haledon (NNJ-2)
Jassen, C. (M)

Hamburg (NNJ-2)
Tomey, J. G. (M)

Hamilton Square (PHI-3)
Callen, P. J. (M)
Griess, R. K. (M)
Johns, W. (M)
Kriss, G. H. (M)
Miller, J. C. (M)
Quinn, R. E. (M)

Hammonton (PHI-3)
Pietrofitta, S. M. (M)
Reber, P. W. (A)

Hanover (NNJ-2)
Byrne, E. R. (M)
Cody, H. J. (M)
Coker, J. A. (M)
Doll, W. E. (M)
Irland, E. A. (M)
Simms, R. L., Jr. (M)

Harbourton (PRI-2)
Reed, R. D. (SM)

Harrington Park (NNJ-2)
Aron, M. (SM)
Burruano, S. J. (SM)
Evers, J. H. (A)
Schentzler, J. G. (M)
Vieth, W. G. (SM)
Wenman, R. N. (M)

Harrison (NNJ-2)
Austin, W. M. (M)
Bahls, W. E. (SM)
Bertin, E. P. (M)
Bucklin, K. G. (SM)
Carrona, J. J. (M)
Castine, P. H. (M)
Cimorelli, J. T. (SM)
Cranmer, W. S. (SM)
Dunn, R. F. (M)
Eberly, H. L. (SM)
Ellison, C. R., Jr. (M)
Freedman, N. S. (SM)
Gutowski, J. L. (SM)
Hiflinger, J. F. (SM)
Huntington, R. C. (M)
James, W. M. (SM)
Johnk, O. (M)
Johnson, N. C. (M)
Kauzmann, A. P. (SM)
Kleinman, B. (M)
Koustas, P. (SM)
Maguire, J. T. (M)
McElwee, E. M. (SM)
McMurrough, R. W. (M)
Mead, W. H. (M)
Meyer, C. A. (SM)
Middings, S. (M)
Modugno, V. D., Jr. (A)
Morris, C. M. (SM)
Novak, G. (M)
Nowoprodzki, M. (M)
Perkins, T. B. (M)
Rose, G. M., Jr. (F)
Sanullo, M. J. (M)
Schindler, M. J. (SM)
Shaw, G. R. (F)
Shuttleworth, E. (A)
Smith, D. Y. (SM)
Stacy, I. F. (M)
Stein, V. J. (M)
Talpey, R. G. (SM)
Troy, E. M. (M)
Warchow, J. J., Jr. (M)
Wheeler, C. R. (SM)

Hasbrouck Heights (NNJ-2)
Chambers, A. A. (A)
Henn, W. (M)
Klasewitz, S. J. (M)
Lasch, W. H. (M)
Lazos, N. J. (M)
Michaelson, W. (M)
Nasi, J. L. (M)
Polcyn, S. J., Jr. (M)
Smith, W. A. (A)
Zoref, A. S. (A)

Haworth (NNJ-2)
Clausen, R. W., Jr. (M)
Guy, R. F. (F)
Osborn, P. H. (M)
Shotliff, L. A. (SM)
Terry, F. B. (A)

Hawthorne (NNJ-2)
Carlson, E. S. (M)
Chaparian, L. (M)
Galle, R. C. (M)
Madle, P. J. (SM)
Sondermeyer, J. C. (M)

Hazlet (NY-M-2)
Angel, K. W. (M)
Bogaenko, S. W. (M)
Bryson, W. B. (M)
Coffey, W. D. (M)
Goldberg, E. M. (M)
Hancock, G. H. (A)
Harries, W. (M)
McDonald, J. R. (A)
Morgan, R. L. (M)
Przybyiski, T. P. (A)

High Bridge (PRI-2)
Bartles, E. K. (A)
Hoffman, J. E., Jr. (M)

Highlands (NY-M-2)
De Bretteville, A. P., Jr. (M)
Ferrar, R. C. (SM)
Rohrle, T. A. (A)

Highland Park (PRI-2)
Bocchieri, A. J. (A)
Feldman, S. (M)
Goldin, S. M. (M)
Hassell, R. D. (A)
Hsieh, T. T. H. (A)
Kressel, H. (M)
Lannary, J. (M)
Lawless, J. C. (M)
Molony, D. A. (SM)
Nelson, D. E. (M)
Nelson, J. L. (SM)
Nishida, R. K. (A)
Norman, D. W. (M)
Passalaqua, A. M. (M)
Stephenson, M. L. (A)

Highstown (PRI-2)
Harris, W. C. (M)
Janes, T. A., III (M)
Monsen, A. M. (A)

Hillsdale (NNJ-2)
Bamabic, E. V. (M)
Conroy, R. J. (M)
Goldberg, S. R. (M)
Hoffman, D. (SM)
Horowitz, L. (M)
Keller, E. F. (A)
Klein, M. E. (M)
Koehler, J. A. (M)
Lapham, F. K., Jr. (A)
Marsh, C. O., Jr. (M)
Paradise, R. Y. (M)
Powell, C. (M)
Sullinger, W. B. (SM)
Teitler, A. (SM)
Yard, R. (M)

Hillside (NNJ-2)
Alelxo, A. (M)
Breunig, J. J. (M)
Cohen, H. (M)
Hood, C. N., II (SM)
Hrusovsky, S. (A)
Kahant, C. G. (A)
Lenkey, A. A. (A)
Medaris, J. B. (SM)
Sperber, M. (M)
Zentmaier, K. H. (M)

Hoboken (NNJ-2)
Asch, J. F. (A)
Clark, J. J. (M)
De Mello, W. (M)
Ficken, W. H. (M)
Gillmore, A. C., Jr. (M)
Hahn, R. F. (M)
Hauser, E. B. (M)
Lee, S. K. (M)
Lenge, J. A. (M)
Merrill, L. L. (SM)
Rossi, S. (A)
Simberkoff, S. W. (A)
Sullivan, W. L. (SM)

Hohokus (NNJ-2)
Brown, G. G. (M)
Ebersol, E. T. (M)
Mangels, L. A. (A)
Markus, J. (SM)
Saul, E. R. (M)
Spaulding, H. K. (A)

Interlaken (NY-M-2)
Todd, W. (M)

Holmdel (NY-M-2)
Belmont, E. (M)
Caldwell, W. C. (SM)
Chang, Y. G. (M)
Davison, C. A. (A)
De Lange, O. E. (M)
Edwards, C. F. (M)
Enloe, L. H. (M)
Hess, H. M. (M)
Marcatili, E. A. J. (M)
Meijer, R. R. (SM)
Schacker, D. J. (A)
Wagner, L. H. (M)
Woo, K. W. (M)
Young, D. T. (M)

Hopewell (PRIN-2)
McCoy, D. S. (M)

Iona (PHI-3)
Divins, R. C. (M)

Ironia (NNJ-2)
Markle, R. E. (M)

Irvington (NNJ-2)
Angello, J. P. (M)
Bahler, A. S. (M)
Cappucci, J. D. (M)
Dobkowski, J. T. (A)
Dougherty, E. V. (M)
Goldberg, D. L. (A)
Groop, B. P. (M)
Heber, J. F. (M)
Huettl, K. W. (A)
Keder, V. (M)
Mommo, E. J. (SM)
Nesselroth, M. D. (M)
Pierce, C. T. (M)
Roethe, H. A., Jr. (A)
Schroeder, C. R. (M)
Stevens, Z. J. (M)
Sutton, R. H. (A)

Iselin (PRI-2)
Fryer, W. R. (M)
Kosonocky, W. F. (M)
Kvedaras, A. P. (M)
Libes, S. (A)
Roth, S. J. (M)

Jersey City (NNJ-2)
Balter, L. (M)
Bernstein, E. (A)
Brogan, J. M. (M)
Caputo, W. R. (M)
Castaldi, J. A. (A)
Delchert, R. W. (M)
De Rosa, J. J., Jr. (A)
Gaudiosi, J. V. (A)
Graul, G. D. (M)
Gregory, J. P., Jr. (A)
Howell, W. J. (SM)
Israel, D. D. (F)
Klerce, E. (M)
Lee, T. J. (M)
Loiterman, L. (M)
Luxford, E. G. (M)
Marrie, E. K. (M)
McAndrew, T. V. (M)
Murray, A. A. (A)
Olin, R. P. (M)
Orrico, J. T. (M)
Parisi, D. J. (A)
Parrillo, V. J. (M)
Putt, D. R. (A)
Reiner, R. (M)
Rehhausser, F. V. (M)
Seel, M. (A)
Sickles, C. E. (A)
Slurzberg, N. (A)
Smith, J. A. (M)
Swietiuk, S. (M)
Wormcke, W. (M)
Yaworsky, Y. J. (M)
Yurechko, J. J. (A)

Keansburg (NY-M-2)
Darke, J. G. (A)

Kearny (NNJ-2)
Arena, L. J. (M)
Bondon, L. A. (SM)
Durie, J. C., Jr. (A)
Helwig, W. J. (SM)
Isdanovich, E. J. (A)
Koch, S. J. (A)
Lewis, R. F. (M)
McKeon, E. F. (M)
Percival, W. R. (SM)
Pflieger, K. W. (SM)
Pirrello, A. M. (M)
Rleman, W. E. (A)

Keasbey (PRI-2)
Albers-Schoenberg, E. (SM)
Snyder, C. L. (SM)

Kenilworth (NNJ-2)
Jakub, J. J. (M)
Mayer, J. H. (A)
McCarroll, A. K. (A)
Scheel, R. J. (A)

Keyport (NY-M-2)
Blumberg, L. (M)
Schlaack, N. F. (SM)
Slobodin, L. (M)

Kinnelon (NNJ-2)
Gaw, N. W. (M)

Lake Hiawatha (NNJ-2)
Bremer, H. A. (M)
Calzaretta, R. G. (M)
Gabbert, B. K. (M)
Husbands, C. R. (A)
Walecki, V. (M)

Lakehurst (NY-M-2)
Robbins, A. H. (M)

Lake Parsippany (NNJ-2)
Janik, J., Jr. (M)

Lake Pine (PHI-3)
Gavinski, V. A. (M)

Lakewood (NY-M-2)
Bell, J. (A)
Drukaroff, I. (M)
Ringel, M. (A)

Landing (NNJ-2)
Bower, H. H., Jr. (M)

Laurel Springs (PHI-3)
Coffey, E. W. (M)
Smith, W. J. (A)

Lavallette (NY-M-2)
Grudus, W. S. (M)

Lawnside (PHI-3)
Jones, R. L. (M)

Lawrenceville (PRI-2)
Blankenbaker, J. V. (M)
Christiansen, D. A. (M)
Clark, A. N. (A)
Kihn, H. (SM)

Lebanon (PRI-2)
Daskam, S. W. (M)
Kosmac, I. (M)
Rhodes, R. M. (M)

Leonia (NNJ-2)
Burger, F. J. (A)
Chetelle, F. W. (M)
Dietsch, C. G. (SM)
Grube, W. O. (SM)
Kennedy, T. R., Jr. (SM)
Kerman, M. (M)

Levittown (PHI-3)
Amemiya, H. (M)
Arlan, L. (M)
Bardash, M. L. (M)
Blesse, H. O. (M)
Buckman, S. L. (A)
Callahan, J. F. (M)
Cox, A. L. (M)
Crandell, A. J. (M)
Cunningham, T. P. (M)
Curtis, J. J. (M)
Davis, R. S. (M)
Dorfman, L. H. (M)
Dorsey, T. A. (M)
Duca, R. J. (M)
Eaton, C. B. (SM)
Faris, R. V. (M)
Fastring, R. A. (M)
Fogle, R. E. L., Jr. (M)
Garcia, S. C. (M)
Godefroy, A. F. (M)
Godfrey, R. B. (A)
Goldman, H. B. (A)
Guerin, M. (M)
Halley, W. M. (M)
Hirsch, S. C. (A)
Hocker, J. H. (M)
Holdridge, G. R. (M)
Kardash, J. J. (M)
Katelansky, P. (M)
Klemicki, W. J. (M)
Kilday, J. C., III (M)
Krietzer, H. M. (A)
Mayhew, T. R. (M)
McAllister, J. P. (M)
McGuire, T. J. (M)
McHugh, E. L. (M)
Mitchell, A. (M)
Mogensen, H. (M)
Mohr, H. F. (M)
Muller, P. E. (SM)
Neely, E. H. (M)
O'Brien, D. B. (M)
Pickus, L. C. (M)
Pinkis, I. A. (M)
Price, R. L. (M)
Rapoza, T. J. (M)
Reich, A. (M)
Roberts, A. N. (M)
Ross, W. C. (M)
Saks, H. L. (M)
Scearce, F. T. (M)
Smith, A. L. (A)
Smith, C. D., Jr. (M)
Smith, E. D. (SM)
Smith, R. A. (M)
Snay, C. A. (SM)
Srolowitz, H. R. (A)
Stachejko, V. (M)
Thomas, O. D., Jr. (M)
Vetack, J. E. (M)
Westcott, E. J. (M)
Wilker, M. D. (M)
Yu, E. K. C. (M)

Lincoln Park (NNJ-2)
Brobst, W. S. (M)
Fagot, W. C. (SM)
Lapham, J. (A)
Morris, A. R. (A)
Quintan, D. E. (A)
Young, C. H. (SM)

Lincroft (NY-M-2)
Buegler, J. A. (M)
Ceres, G. V. (M)
Duffy, J. P. (M)
Kroehs, A. R. (A)
Marcum, D. (M)
Novick, G. (M)
Slevin, R. F. (M)
Vogt, G. F. (SM)

Linden (NNJ-2)
Braun, L. (A)
Garshells, I. J. (M)
Gladden, C. J. (A)
Kashork, E. F. (M)
Levin, R. M. (A)
Olesky, M. (A)
Riley, G. B. (SM)
Tkach, G. D. (M)

Lindenwold (PHI-3)
Dalber, E. M. (A)
Fayer, J. V. (M)
Logan, W. L. (M)

Linwood (PHI-3)
Baker, R. L. (SM)
Braverman, N. (SM)
Dogantzis, B. E. (M)
Geller, M. (M)
Grayson, Y. A. (A)
Julian, O. K. (M)
Rogers, D. C. (M)
Russell, C. M. (SM)
Saadeh, D. (M)
Volsich, J. (A)

Little Falls (NNJ-2)
Balber, D. (SM)
Beard, M. R. (SM)
Bluhm, R. W. (A)
Bondy, J. O. (A)
De Ryder, H. (M)
Edwards, R. A. (M)
Heins, P. N. (M)
Hintikka, I. (M)
Hohn, F. W. (M)
Jaasma, E. G. (M)
Krauss, E. (A)
Needels, F. R. (M)
Nord, H. H. (M)
O'Donnell, V. C. (M)
Russo, O. L. (A)
Van Gelder, A. (M)

Little Ferry (NNJ-2)
Chandler, J. A. (M)
Gartner, J. J. (M)
Rostan, R. J. (M)

Little Silver (NY-M-2)
Blair, C. L. (SM)
Borgeson, C. A. (SM)
Bracken, J. R. (M)
Brueckmann, H. L. (F)
Bullwinkel, E. C. (M)
Butler, H. I. (SM)
Corderman, W. P. (SM)
Craig, LeR. H. (SM)
Daniels, F. B. (SM)
Domidion, W. G., Jr. (A)
Fox, K. H. (SM)
Ganiff, K. (SM)
Goldsmith, B. M. (SM)
Griffiths, R. J. (SM)
Havel, J. M. (SM)
Huebner, D. L. (M)
Jensen, A. M. (M)
Kelly, L. H. (A)
King, H. D. (SM)
Klenk, L. M. (SM)
Krevsky, S. (SM)
Lowry, L. R. (SM)
Mack, A. (M)
Miller, L. (SM)
Mond, L. I. (M)
Morris, M. M. (SM)
Paschetto, E. J. (M)
Pick, L. A. (M)
Pollock, D. (M)
Poteet, D. P. (M)
Sharp, C. E. (SM)
Shive, S. L. (SM)
Zilliger, W. H. (SM)

Livingston (NNJ-2)
Augenblick, H. A. (M)
Bishop, J. B. (SM)
Bogner, I. (SM)
Bolvin, P. B., Jr. (M)
Broekhuysen, W. C. (SM)
Bystrycky, W. (M)
Chen, R. K. (M)
Cohen, E. (M)
Cunningham, T. M. (M)
Dale, L. L. (A)
Dorros, I. (M)
Engelmann, H. F. (SM)
Estvander, R. A. (M)
Feinstein, J. (M)
Galanty, H. (SM)
Goldstein, A. (M)
Greenwald, C. (A)
Hatch, R. W. (M)
Hetherington, R. W. (A)
Hoeh, F. W. (M)
Hoerner, E. F. (M)
Kafalas, C. (M)
Kiser, N. L. (SM)
Kronacher, G. (SM)
Kulik, V. A. (M)
Levine, B. (M)
Markosian, V. (SM)
Mawhinney, D. D. (M)
Mennie, J. H. (M)
Michels, H. P. (A)
Newman, L. (A)
Nordlin, H. G. (SM)
Normando, N. J. (M)
Ost, S. B. (M)
Plouffe, R. L., Jr. (SM)
Porter, D. D. (M)
Richardson, A. L. (M)
Sanger, D. M. (M)
Schneider, I. (M)
Silverscholtz, S. B. (M)
Simkovich, J. R. (M)
Sporn, M. (A)
Steiger, B. F. (M)
Stinehelfer, H. E., Sr. (SM)
Steinhoff, R. (M)
Sussman, E. B. (M)
Swiggett, W. O. (A)
Ussery, P. W. (M)
Vadersen, C. W. (M)
Veley, H. N. (SM)
Wolkstein, H. J. (M)
Zacharais, E. M., Jr. (M)

Lodi (NNJ-2)
Brand, E. G. (M)
Conrad, R. J. (M)
Glazer, E. (M)
Loehr, R. C. (M)
Meyer, R. W. (M)
Seda, O. L. (A)
Sidari, P. J. (A)
Taylor, R. C. (M)
Villar, R. A. (A)

Long Branch (NY-M-2)
Adamson, A. L. (SM)
Alexander, J. M. (M)
Allen, J. A. (M)
Allen, R. C. (M)
Ballato, A. D. (M)
Ballon, I. A. (M)
Barbasso, S. (M)
Barr, H. (M)
Baugher, J. D. (M)
Berl, S. (M)
Brown, A. (SM)
Chernow, M. (M)
Christianson, L. F. (SM)
Dowski, E. R. (M)
Dwin, D. (A)
Eaton, K. D. (M)
Eggert, J. (SM)
Faralla, R. A. (SM)
Gaus, E. L. (M)
Gougoulis, G. H. (M)
Greene, H. R. (SM)
Greenspan, S. (M)
Gubin, L. L. (A)
Hamer, H. (SM)
Hartz, R. S. (M)
Holsclaw, R. F. (A)
Homa, S., Jr. (M)
Humbel, B. F. (M)
Insierman, H. E. (M)
Kahn, D. (M)
Kardauskas, E. (M)
Katell, E. (M)
Keely, J. (M)
Kravitz, M. L. (M)
Lieblein, E. (M)
Marsh, C. J. (M)
Perlman, S. (SM)
Reder, F. H. (SM)
Rose, J. R. (A)
Ross, P. (M)
Sacks, F. A. (A)
Sarlo, L. M. (M)
Schwab, D. (M)
Silberman, A. (M)
Tarantolo, G. J. (A)
Theibault, J. E. (A)
Weinstock, M. (A)
Winkler, G. M. R. (M)

Long Valley (NNJ-2)
Caman, J. H. (M)
Rand, H. T. (M)

Longport (PHI-3)
Jones, M. C. (M)

Lyndhurst (NNJ-2)
Domanico, P. T. (M)
Friberg, V. (A)
Gaffney, J. F. (M)
Hamer, W. A. (A)
Horbach, S. (M)
Kelmis, K. J. (A)
La Medica, K. O. (A)
Lomega, M. (M)
Lopresti, E. M. (A)
Park, R. C. (M)
Robinson, G. D. (A)
Sobocienski, G. S. (A)
Timan, H. (M)

Madison (NNJ-2)
Aster, A. K. (M)
Barclay, J. C. (M)
Browne, T. E. (M)
Carter, H. T. (SM)
D'Asaro, L. A. (M)
Dennison, D. O. (M)
Dimock, P. V. (SM)
Duffy, F. P. (M)
Eastwood, N. W. (M)
Ellis, B. T., Jr. (SM)
Garreau, R. R. (M)
Grantges, R. F. (M)
Green, C. W. (M)
Gross, F. J. (M)
Hammann, P. L. (SM)
Hartzell, J. W. (M)
Howard, E. J. (SM)
Kennedy, R. N. (M)
Lange, M. C. (M)
Leppert, J. H. (M)
Livera, A. L. (M)
Lindin, J. A. (M)
Martin, E. O. (M)
Mearns, A. B. (M)
Munk, P. R. (M)
Neunzig, R. C. (A)
Oster, F. J. (M)
Parrott, A. D. (M)
Peterson, R. N. (SM)
Reed, J. F., Jr. (M)
Roelken, A. A. (F)
Ross, A. T. (SM)
Ruckelshaus, J. G. (SM)
Smith, J. W. (SM)
Thomason, C. F. (M)
Van Tassel, E. K. (SM)
Vogelsong, J. H. (M)
Weppler, H. E. (SM)
Wilson, W. F. (M)

Magnolia (PHI-3)
Bisaga, J. J. (M)
Carmuccio, J. N. (M)
Ciarrocchi, J. A. (M)
Davis, E. D. (M)
Egan, W. E. (M)
Frank, W., Jr. (M)
Guertin, R. J. (M)
Lawton, R. S. (M)
Liebold, F. A. (M)
Mann, H. T. (M)
Zarnoch, E. J. (M)

Malmah (NNJ-2)
Anderson, R. C. (M)
Berg, R. M. H. (A)
Constatine, A. (A)
Constantine, P. M. (A)
Krantz, A. (M)
Shaw, R., Jr. (M)
Sielski, A. T. (M)

Manahawkin (NY-M-2)
Taylor, J. W. (A)

Manasquan (NY-M-2)
Cline, D. E. (M)
May, M. M. (M)
Teetsel, W. P. (M)

Manasquan Park (NY-M-2)
Gibbons, D. R. (M)

Mantual Township (PHI-3)
Montgomery, D. H. (M)

Maple Shade (PHI-3)
Annis, E. W. (M)
Brown, C. J. (M)
Hoover, E. W. (M)
Johnson, D. C. (M)
Kim, Y. C. (M)
Kramer, N. R. (M)
Nauberelt, H. (M)
O'Donnell, J. J. (M)
Parmer, M. E. (M)
Ramsell, J. L. (M)
Rogers, A. (M)
Rozlosnik, K. P. (M)
Rudner, M. A. (SM)
Small, H. E. (M)
Twinam, J. R. (M)
Williams, R. V., Jr. (M)

Maplewood (NNJ-2)
Almquist, M. L. (F)
Barkley, H. F. (M)
Berstein, G. (SM)
Borden, D. C. (M)
Cohen, D. (M)
Dickey, D. W. (SM)
Froiner, M. (M)
Gardner, P. S. (A)
Gruenberg, H. S. (M)
Hazeltine, A. L. (F)
Helfrich, J. H. (M)
Hibbett, R. M. (M)
Humphrey, H. C. (M)
Koskos, P. (SM)
Layer, W. J. (M)
Murphy, W. F., Jr. (M)
Myers, G. H. (SM)
Oswald, A. A. (F)
Prosser, T. C. (A)
Pruden, H. M. (SM)
Rapp, K. G. (M)
Sherman, A. E., Jr. (A)
Tschang, P. S. (M)
Vance, H. C., Sr. (SM)
Wallenstein, J. P. (M)
Wilhelm, J. F. (SM)
Youngstrom, N. C. (M)

Margate (PHI-3)
Justman, S. (M)
Kester, R. E. (SM)

Margate City (PHI-3)
Aleo, J. (M)
Mower, I. (M)
Thron, B. K. (M)
Wetter, A. (M)

Marlboro (NY-M-2)
Bernard, R. W. (M)
Hindin, A. (A)

Marlton (PHI-3)
Allison, W. V., Jr. (M)
Altzman, S. D. (M)
Barber, F. H. (M)
Bessette, O. E. (M)
Cochran, S. W. (SM)
Folse, R. C. (M)
Garrott, L. O. (M)
Gaskill, M. L. (A)
Glauberman, M. H. (M)
Harold, P. H. (M)
Koch, W. R. (F)
Kute, B. A. (M)
Maggio, A. F. (M)
Moody, W. L. (M)
Shoop, G. N. (M)
Skorup, G. E. (SM)
Thowless, E. A. (M)
Wood, R. F. (M)

Martinsville (PRI-2)
Gerhardt, G. E. (A)
Harris, G. C. (M)
Petzina, R. J. (A)
Squires, W. K. (SM)
Walker, F. R. (SM)

Masonville (PHI-3)
Hodge, W. H. (M)

Matawan (NY-M-2)
Romanello, A. C. (M)
Ronson, H. T. (A)

Mays Landing (PHI-3)
Seedorf, J. H. (M)

Maywood (NNJ-2)
Coggeshall, I. S. (F)
Corthwaite, J. L. (A)
Hackenberg, F. U. (M)
Halpern, E. L. (M)
Johnston, E. B. (M)
Locklair, J. M. (M)
Meeks, P. S. (A)
Parowski, G. C. (M)
Russo, A. (M)
Savisaar, A. (M)
Seibert, J. L. (SM)

McGuire AFB (PRI-2)
Looser, J. A. (A)
Poulsen, N. R. (M)

Medford (PHI-3)
Au, R. C. S. (M)
Hess, W. J. (M)
Jennings, E. R. (M)
Kidder, R. W. (M)
Malvin, M. A. (M)
Snow, F. W. (M)
Weise, D. S. (M)
Whale, D. J. (M)

Medford Lakes (PHI-3)
Beaulieu, D. E. (M)
Cichon, H. P. (M)
Fink, W. R. (M)
Hatcher, E. T. (M)
Liddle, R. W., Jr. (A)
McCoy, J. W. (M)
Phillips, P. C. (M)

Schneider, H. F. (SM)
Sprowls, P. H. (M)
Stegchew, J. (A)
Wilson, R. M. (M)
Zinn, S. V., Jr. (M)

Mendham (NNJ-2)
Brooks, R. E. (M)
Halline, E. G. (M)
Hires, J. B. (M)
Irvine, M. M. (SM)
Lewis, W. D. (F)
Murray, J. L. (M)
Ong, F. C. (SM)
Pocius, C. F. (A)
Saltus, G. E. (A)
Straube, H. M. (SM)
Wilder, K. T. (M)
Wintemitz, T. W. (M)

Merchantville (PHI-3)
Abeyta, I. (M)
Aldrich, J. L. (A)
Allen, J. R. (M)
Arnowood, W. E. (M)
Barkow, W. H. (M)
Bartlett, T. L. (M)
Bell, O. K. (SM)
Boerner, T. J. (SM)
Bragdon, J. H. (M)
Brown, I. (M)
Brumbaugh, J. H. (M)
Cafaro, J. A. (M)
Campolano, C. N. (M)
Carey, G. R. (M)
Cantellack, E. M. (M)
Connelly, J. J. (M)
Coston, H. E. (SM)
Croom, L. W. (M)
Darling, W. (M)
Deal, H. B. (SM)
Dordick, H. S. (M)
Enfiejian, E. A. (A)
Farkas, C. E. (M)
Fell, W. F. (M)
Gainey, L. L. (M)
Gallo, P. (SM)
Gaynor, E. (SM)
Gerber, M. M. (SM)
Gilbring, H. E. (SM)
Goldman, L., Jr. (M)
Graham, R., Jr. (SM)
Grim, E. D. (M)
Groff, J. H. (M)
Halpern, H. M. (M)
Hamm, N. G. (SM)
Hobbs, C. A., Jr. (M)
Holler, F. W., Jr. (M)
Hopkins, A. R. (SM)
Kapust, L. A. (M)
Kem, R. J. (M)
Kimmel, J. (M)
Kolesnik, M. (M)
Kranzley, A. S. (M)
Lakin, G. A. (M)
Lappin, L. S. (SM)
Lawrence, W. L. (M)
Layer, J. H. (A)
Lazarus, F. F. (M)
Lemberg, B. (A)
Lending, R. D. (M)
Lessen, M. (M)
Link, J. M. (M)
Luther, A. C., Jr. (M)
MacDermid, B. W. (A)
Marsh, D. R. (M)
McAllister, H. M. (M)
McClure, D. A. (M)
McGough, R. P., Jr. (M)
McKinney, R. S. (M)
Miller, J. P. (M)
Mittelman, W. (M)
Musto, W. C. (M)
Nash, A. A. (A)
Nelson, A. L. (M)
Noble, R. B. (M)
O'Leary, W. J. (M)
Oman, N. J. (M)
Onni, A. G. (A)
Orr, J. R. (M)
Ottinger, R. W. (M)
Parker, D. J. (SM)
Patterson, E. B. (SM)
Pendred, C. R. (M)
Perreault, W. J., Jr. (M)
Phillipson, R. B. (M)
Pilsetnieks, D. (M)
Piontkowski, J. S. (M)
Popper, G. (M)
Quinn, W. H. (M)
Reese, J. S. (M)
Rosenberg, S. (M)
Rydz, J. S. (M)
Sakale, F. S. (M)
Sanborn, J. W. (SM)
Schach, S. (M)
Schwartz, A. J. (M)
Sellers, J. D. (SM)
Shepherd, R. C. (A)
Smiley, J. W. (M)
Smith, W. E. (M)
Smyton, S. A. (M)
Stahl, P. D. (SM)
Steagall, W. F. (M)
Stokes, P. F. (M)
Story, T. H. (SM)
Swierczak, P. C. (SM)
Thompson, L. E. (F)
Tomsic, R. J. (M)
Trinkle, R. C. (A)
Van Keuren, E., III (M)
Virostek, R. F. (M)
Voiles, G. E. (A)
Wald, S. (SM)
Warren, M. V. (A)
Weitz, M. K. (M)
Welch, C. H. (A)
Wuerffel, H. L. (SM)
Young, J. E. (SM)

Metuchen (PRI-2)
Aderente, A. A. (M)
Arntsen, A. P. (M)
Barton, C. H. (M)
Brereton, C. H. (SM)
Bronstein, S. H. (M)
Chandler, R. D., Jr. (M)
Chin, J. W. (M)
Dineen, J. J. (M)
Downie, D. E. (M)
Fiorito, P. (A)
Fooks, J. H. (SM)
Ford, R. W. (M)
Ginsberg, L. H. (SM)
Gluchoski, W. J. (M)
Griffeth, G. G. (M)
Grill, J. (A)
Haeseler, P. R. (M)
Heffron, C. B. (M)
Heim, C. W. (M)
Jordan, J. P. (SM)
Kasner, E. (M)
Kedrowsky, G. V. (M)
Kmosko, J. A. (A)
Kokinda, J. J. (M)
Kornetz, N. S. (SM)
Lampman, G. L. (M)
Lempert, I. E. (SM)
Lerner, A. M. (M)
Lowy, M. A. (SM)
MacDonald, A. F. (SM)
McClane, C. T. (M)
Nash, H. (M)
Olson, D. H. (A)
Pilkinton, D. C. (M)
Polack, M. M. (M)
Pritchard, P. G. (M)
Russell, G. H. (M)
Sampson, F. A. (A)
Scheer, F. H. (SM)
Schiffmayer, G. F. (M)
Schilling, W. A. (M)
Schneider, W. A. (SM)
Schofield, C. R. (A)
Slenklewicz, L. J. (SM)
Sillman, D. (SM)
Skinner, K. R. (M)
Staffin, R. (M)
Thomas, D. G. (M)
Wasserman, J. (M)
Welkowitz, W. (M)
Whitney, G. H. (A)

Middlesex (PRI-2)
Day, R. G. (SM)
Hatzikyriakos, P. P. (M)
King, M. L. (M)

Middletown (NY-M-2)
Baumann, D. A. (M)
Clark, H. R. (M)
Hayes, F. A. (A)
Keen, J. J. (A)
Klein, G. E. (M)
Martin, J. E. (M)
Mikkelsen, W. R. (A)
Miller, S. E. (F)
Patterson, R. A. (M)
Stanley, A. M. (M)
Valenty, G. E. (M)

Midland Park (NNJ-2)
Bertram, H. A. (A)
Brophy, W. T. (M)
Ellison, B. (M)
Gedney, G. C. (M)
Koole, J. G. (M)
Sohn, H. B., Jr. (M)

Milford (PRI-2)
Franklin, S. G. (M)

Millburn (NNJ-2)
Bailey, A. (F)
Bown, R. (F)
Chassanoff, A. L. (M)
Freeman, R. H. (A)
Halstead, W. K. (SM)
Higgins, W. H. C. (F)
Johnson, J. B. (F)
Linn, G. A. (M)
Manushat, J., Jr. (M)
Mazer, W. M. (SM)
McNally, J. O. (F)
Mellen, E. R. (SM)
Morris, R. M. (F)
Nyquist, H. (F)
Rosenthal, A. S. (M)
Shackleton, S. P. (SM)
Striley, M. E. (F)
Wall, G. B., III (M)
Wittlinger, H. A. (M)

Millington (NNJ-2)
Alexander, A. A. (M)
Boschen, A. C. (M)
Dettman, M. C. (M)
Drenick, R. (SM)
Frost, H. B. (M)
Hammett, W. G. (M)
Harrison, C. W. (M)
Morelock, J. (SM)
Schwenker, J. E. (M)
Slana, M. F. (M)
Walsh, L. (SM)
Williams, J. A., Jr. (M)

Milltown (PRI-2)
Kang, C. L. (M)
Moon, G. K., Jr. (A)

Monmouth Beach (NY-M-2)
Silverman, J. R. (M)

Monmouth Junction (PRI-2)
Ogletree, W. A. (M)
Van Der Lans, J. H. M. (M)

Montclair (NNJ-2)
Baker, C. I. (SM)
Berntsen, T. J. (M)
Bradley, J. L. (A)
Busignies, H. (F)
Crombie, K. F. (A)
Curtis, L. W. (M)
Dooley, M. N. (M)
Freeman, L. C. (M)
Gage, W. M. (A)
Gaon, D. (M)
Goodfriend, L. S. (SM)
Haynes, H. S. (M)
Johnson, R. E. (M)
Jones, D. M. (A)
Josephson, P. R. (A)
Kauffman, C. W. (M)
Kirchner, K. F. (SM)
Lane, F. A. (M)
Leighton, H. W. (M)
Maginnis, W. J. (M)
Maginnis, W. P. (SM)
McMillian, R. E. (SM)
Miller, H. P., Jr. (SM)
Nuttall, A. F. (M)
Payne, J. V., Jr. (M)
Razdow, A. (M)
Rose, F. C. (M)
Rucki, D. H. (M)
Schulz, F. J. (A)
Scott, F. I., Jr. (M)
Shvidrik, W. P. (M)
Smyth, W. F. (M)
Sprague, V. G. (M)
Steinbrecher, E. E. (M)
Thomas, H. E. (SM)
Thompson, B. C. (M)
Trackman, J. C. (M)
Vosburgh, M. C. (SM)
Wall, C. K. (A)
Weiss, W. I. (M)
Whitley, E. G. (A)
Whittle, R. L. (SM)
Wolff, F. M. (M)

Montvale (NNJ-2)
Doniger, J. (M)
Scherer, D. R. (M)
Taylor, H., Jr. (A)

Montville (NNJ-2)
Atwood, H., Jr. (M)
Douglas, E. B. (M)
Higgins, L. A. (A)
Marrone, P. C. (M)
Rathjen, P. (M)

Moorestown (PHI-3)
Alexander, W. R. (M)
Anderson, T. E. (M)
Anderson, W. G. (M)
Andros, L. R. (M)
Baker, H. F. (M)
Batsel, M. C. (F)
Baumgardner, P. E. (M)
Blackwell, W. C., Jr. (A)
Blasberg, L. A. (SM)
Brassaw, L. L., Jr. (M)
Breeden, T. D. (M)
Breisford, H. A. (SM)
Bucher, T. T. N. (M)
Buder, S. B. (M)
Campbell, A. R. (A)
Christen, A. L. (M)
Colby, N. C. (M)
Coleman, J. T. (M)
Colligan, J. A. (M)
Conant, L. C., Jr. (M)
Conner, R. W. (M)
Corum, D. R. (M)
Craig, J. A. (M)
Dague, P. B. (M)
Deakins, G. E. (SM)
Dobson, D. B. (M)
Donnell, G. P. (M)
Duncan, H. S. (SM)
Duszak, H. (M)
Evans, L. L. (SM)
Falls, M. P. (SM)
Farkas, L. (M)
Field, G. R. (SM)
Finn, H. M. (SM)
Fisher, R. M. (A)
Foley, A. A. (A)
Frederick, R. H. (M)
Freier, M. (M)
Gibo, E. (A)
Gillespie, H. C. (M)
Glazer, B. G. (M)
Goldman, S. (M)
Gordon, D. (M)
Gotch, W. E. (M)
Graham, M. L. (SM)
Greenwood, H. T., III (SM)
Greven, P. J. (M)
Grossman, H. W. (SM)
Hadlock, W. O. (SM)
Hain, J. L. (M)
Haines, E. C., Jr. (M)
Haman, W. J. (M)
Harmon, H. D. (M)
Harrison, P. C. (M)
Hartnett, E. J. (M)
Hawley, M. E. (SM)
Herman, R. F. (SM)
Holmes, D. B. (SM)
Hopkins, G. C. (M)
Howard, T. B. (M)
Howery, R. W. (M)
Hubbell, P. G. (M)
Hudgings, D. W. (SM)
Hyde, G. (M)
Ireland, F. H. (SM)
Jackson, A. (M)
Jose, R. S. (M)
Koontz, R. F., Jr. (M)
Krouna, H. F. (M)
Ladof, L. G. (SM)
Lanphear, F. L. (M)
Laurlat, P. R. (M)
Lerch, Q. A., Jr. (M)
Lidiak, J. E. (M)
Lieber, R. (M)
Lillie, D. F., Jr. (M)
Macqueene, P. H. (SM)
Matthews, E. W., Jr. (SM)
McCall, E. G., Jr. (M)
McCulley, J. M. (M)
Mertens, L. E. (M)
Mills, C. A. (M)
Moll, A. P. (A)
Morrison, W. C. (SM)
Mulle, W. A. (M)
Nagle, J. J. (SM)
Nishino, H. H. (SM)
Noakes, G. L. (M)
Nyden, R. C. (SM)
Oldershaw, L. E. (M)
Olive, G. A. (M)
Palss, M. H. (SM)
Palm, K. E. (SM)
Palmer, J. B., Jr. (M)
Palmquist, J. F. (SM)
Perecinic, W. S. (M)
Pierson, J. L. (M)
Poch, W. J. (F)
Poellnitz, F. D. (M)
Porter, J. W. (M)
Ratliff, M. (M)
Rawdin, E. (M)
Ray, R. H. (M)
Renfrow, R. J. (M)
Rettenmeyer, F. X. (F)
Robinson, J. E. (M)
Rodman, M. D. (M)
Rogers, G. F. (SM)
Rogers, M. W. (SM)
Rulifson, R. R. (M)
Sarabacha, H. (M)
Schmit, D. F. (F)
Scott, H. M. (M)
Scull, W. E., Jr. (SM)
Sheeder, A. M. (M)
Sheppard, W. H. (M)
Sherman, S. M. (SM)
Silverman, B. P. (M)
Smith, R. M. (SM)
Sommer, W. G. (M)
Stevens, R. W. (M)
Stevens, W. T., Jr. (M)
Taenzer, E. (SM)
Talamini, A., Jr. (SM)
Tall, M. M. (M)
Taylor, M. L. (SM)
Taylor, T., Jr. (A)
Tesch, W. L. (SM)
Twitchell, M. D., Jr. (M)
Tysenn, W. J. (M)
Vance, D. H. (M)
Vaughan, J. A. (M)
Venters, D. C. (M)
Watts, J. A. (M)
Weimer, A. G. (M)
Wem, D. W., Jr. (M)
Whisonant, J. T. (SM)
Whitman, G. L. (A)
Williams, E. A. (M)
Wills, W. P. (SM)
Wood, T. A. (M)

Morgan (NNJ-2)
O'Connor, E. J. (A)

Morganville (NY-M-2)
Lavole, S. D. (A)

Morris Plains (NNJ-2)
Alexander, E. J. (M)
Andrews, R. J. (M)
Blair, B. W. (M)
Brown, V. L. (M)
Campbell, M. E. (SM)
Clark, N. M. (M)
Dougherty, H. J. (M)
Freeman, W. C., Jr. (SM)
Gibbon, J. (M)
Giorgi, D. A. (A)
Gretsch, W. R. (M)
Johannesen, J. D. (M)
King, G. L. (M)
Kurtz, D. P. (M)
MacDermid, L. (M)
Manship, J. F. (M)
McClure, R. M. (M)
Neevik, J. M. (M)
Nyberg, R. G. (SM)
Ossanna, J. F., Jr. (M)
Perugini, M. M. (M)
Poole, N. K. (A)
Robertson, J. P. (M)
Robinson, W. A. (A)
Schauler, V. A. (A)
Sharko, N. (M)
Smith, L. M. (M)
Sweet, R. D. (A)
Townley, R. C. (M)
Underwood, M. D. (M)
Van Dine, G. A. (M)
Waldhauer, F. D. (M)
Wall, R. D. (M)
Wantuch, E. (M)
Whalen, A. D. (M)
Wilde, A. E., Jr. (SM)
Young, J. M. (M)

Morristown (NNJ-2)
Aghib, E. G. (A)
Bara, S. (M)
Bohning, J. R. (M)
Bond, J. E. (M)
Bruce, C. R. (M)
Buxbaum, P. J. (M)
Caparrola, L. J. (M)
Chapman, W. P., Jr. (M)
Cohen, R. M. (SM)
Crowell, M. H. (M)
Davis, C. G. (M)
Du Bois, J. H. (SM)
Eddy, T. W. (M)
Ehrlich, N. (SM)
Evans, P. H. (F)
Faige, M. D. (SM)
Filmer, W. L. (M)
Gausman, L. A. (M)
Gebhardt, R. J. (A)
Gerth, J. H. (SM)
Githens, J. A. (M)
Goldfarb, S. (M)
Hagelbarger, D. (M)
Hammer, H. (M)
Harkless, E. T. (M)
Harris, J. R. (SM)
Hershenov, S. (M)
Higgs, H. P. (A)
Hines, J. N. (M)
Huff, F. R. (M)
Jacobs, O. B. (M)
Jewell, A. G. (M)
Johnston, H. R. (SM)
Kessler, J. E. (M)
Kienzle, H. G. (M)
Kretsch, K. P. (M)
Laine, R. U. (M)
Laude, J. L. (M)
Lenihan, J. J., Jr. (A)
Lennon, F. W. (A)
Maddox, C. L. (M)
McCann, T. A. (SM)
McCarter, R. S. (M)
McDaniel, W. J. (M)
Meltzler, A. H. (M)
Melvill, J. R. (A)
Meseke, D. W. (M)
Miller, J. G. (M)
Minter, J. B. (M)
Morrison, H. (SM)
Perow, J. (M)
Peskin, E. (SM)
Peterson, R. B. (M)
Peters, W. T. (M)
Poage, J. F. (M)
Potter, R. K. (F)
Priebe, H. F., Jr. (A)
Ringer, R. S. (A)
Roxberry, R. C. (M)
Sandahl, C. R. (SM)
Shaw, H. M. (A)
Stewart, J. C. (M)
Stewart, J. B. (M)
Straubel, E. P. (M)
Strong, W. A. (M)
Sturyk, C. (M)
Taylor, F. F. (M)
Temple, T. M. (A)
Unger, S. H. (M)
Voeller, R. L. (M)
Wakefield, P. R. (M)
Willett, R. J. (M)
Zambarelon, J. T. (A)

Mountain Lakes (NNJ-2)
Bareiss, M. (M)
Beck, R. J. (M)
Bender, W. G. (M)
Bliss, E. E. (A)
Dezzie, J. P. (A)
Dodington, S. H. M. (SM)
Gabel, W. (M)
Hart, P. K. (M)
Hedeman, W. R. (SM)
Hodges, G. W. (M)
Hughes, R. W. (SM)
Jackson, F. R., Jr. (SM)
Jenny, H. K. (SM)
Krist, H. K. (SM)
Krogh, R. A. (M)
Leef, G. R. (M)
Locke, A. S. (SM)
Mathews, P. J. (A)
Naugle, R. B. (M)
Nordstrom, B. H. (SM)
Osterland, E. (SM)
Ross, P. C. (SM)
Sessler, J. G. (M)
Ware, J. L. (SM)
Webster, F. D. (SM)
West, J. M. (SM)
Wilson, L. F. (M)
Winter, J. W. (M)

Mountainside (NNJ-2)
Anderson, T. N. (SM)
Arnaud, J. P. (F)
Burns, G. K. (SM)
Harris, F. (SM)
Horner, R. G. (M)
Johansson, L. G. (M)
Knlazuk, M. (M)
Magno, H. T. (SM)
Vreeland, W. E. (A)
Wagner, S. J. (SM)

Mount Arlington (NNJ-2)
Wacker, W. F., III (A)

Mount Ephrain (PHI-3)
Anzalone, P. J. (M)
Taylor, J. M., Sr. (M)

Mount Freedom (NNJ-2)
Joehlin, N. C. (M)

Mount Holly (PHI-3)
Batteas, J. D. (M)
Custer, C. W. (M)
Fessler, W. H. (M)
Goldberg, E. (M)
Gorman, J. (M)
Griffith, B. D. (M)
Gubin, S. (SM)
Guhn, D. K. (M)
Heinly, W. A. (M)
Heyer, E. E. (M)
Huttar, D. E. (M)
Johnson, M. C. (M)
Langelo, V. A. (SM)
Lowd, L. R. (M)
Lyon, W. T. (M)
Ray, P. R. (M)
Schantz, H. F. (M)
Shreve, R. K. (M)
Sibley, R. L. (M)
Squire, F. C., Jr. (M)
Welsted, I. G. (M)

Murray Hill (NNJ-2)
Aagesen, J. (M)
Aaron, M. R. (M)
Aaronson, D. (M)
Abraham, L. G. (F)
Amon, I. (A)
Andrews, F. T., Jr. (M)
Ansley, W. G. (M)
Aricson, L. H. (M)
Armstrong, F. O. (M)
Ashkin, A. (M)
Badgley, R. H. (SM)
Baldwin, G. L. (SM)
Baldwin, M. W., Jr. (F)
Ballik, E. A. (M)
Bangert, J. T. (SM)
Barnett, W. T. (M)
Barstow, J. M. (F)
Basford, R. L. (M)
Becker, F. K. (SM)
Becker, G. E. (SM)
Bednar, E. S. (M)
Bennett, W. R. (F)
Bishop, W. M. (A)
Bittner, J. C. (A)
Black, D. M. (SM)
Blackman, R. B. (M)
Bleisch, G. W. (M)
Blye, P. W. (SM)
Bomba, J. S. (M)
Bowker, M. W. (M)
Boyd, G. D. (M)
Boyd, R. C. (M)
Braga, F. J. (M)
Brown, A. F., Jr. (SM)
Brown, J. M. (M)
Brunson, B. B., Jr. (M)
Bullington, K. (F)
Bullock, D. B. (M)
Burford, T. M. (M)
Burger, M. J. (SM)
Candy, C. J. (M)
Carbrey, R. L. (M)
Carlson, D. E. (M)
Carson, D. N. (M)
Chang, J. J. (M)
Chapman, R. C., Jr. (M)
Chen, F. S. (M)
Chisholm, D. A. (M)
Chislow, J. H. (M)
Ciccolella, D. F. (SM)
Clement, F. J. (M)
Cocker, J. T. (M)
Cook, J. S. (M)
Cornell, W. A. (M)
Crawford, R. V. (SM)
Crowley, T. H. (M)
Crue, C. R. (A)
Cutler, C. C. (F)
Dacey, G. C. (SM)
Daggett, E. H. (M)
Darlington, S. (F)
David, E. E., Jr. (SM)
Day, C. M., Jr. (M)
Delninger, R. L. (M)
Dennis, F. R. (M)
Depp, W. A. (SM)
Dickleson, A. C. (F)
Doba, S., Jr. (F)
Dodson, G. A. (M)
Dreyer, G. C. (M)
Dubosky, D. D. (M)
Durkee, A. L. (SM)
Ebbe, G. L. (M)
Eglin, J. M. (M)
Ehrbar, R. D. (SM)
Eisenlohr, D. M. (M)
Elmendorf, C. H. (SM)
Fagen, M. D. (SM)
Fay, C. E. (F)
Ferrell, E. B. (F)
Fischer, H. B. (SM)
Fisk, J. B. (F)
Flanagan, J. L. (M)
Flegal, J. R. (SM)
Fletcher, R. C. (SM)
Forman, L. E., Jr. (M)
Foyt, A. G. (M)
Franks, L. E. (M)
Fraser, J. M. (SM)
Froehlich, F. E. (SM)
Fulmer, R. J. (M)
Gault, R. L. (M)
Gewartowski, J. W. (M)
Gianola, U. F. (SM)
Gibby, R. A. (M)
Giger, A. J. (SM)
Giguere, W. J. (M)
Glaser, J. L. (SM)
Glass, M. S. (SM)
Golden, R. M. (M)
Goldey, J. M. (M)
Goodale, W. D., Jr. (M)
Gray, M. C. (M)
Grossman, A. J. (SM)
Gruman, E. L. (M)
Haas, H. H. (M)
Habib, S. (M)
Hall, W. G. (M)
Hartman, C. D. (M)
Harvey, F. K. (M)
Hathaway, J. W. (A)
Hefele, J. R. (SM)
Heinze, W. W. (M)
Hempstead, C. F. (M)
Herr, F. J. (M)
Hey, H. C. (SM)
Highleyman, W. H. (M)
Hirsch, A. E., Jr. (M)
Hohmann, L. A., Jr. (M)
Hopkins, H. F. (SM)
Hopper, A. L. (SM)
Hornbeck, J. A. (SM)
Horton, A. W., Jr. (F)
Howson, L. (M)
Hudack, J. M. (SM)
Ingram, S. B. (SM)
Israel, J. O. (SM)
Iwersen, J. E. (M)
Jarett, D., Jr. (A)
Johanson, A. E. (M)
Johnson, A. K. (M)
Julesz, B. (M)
Junker, S. L. (M)
Jutson, R. P. T. (SM)
Kaenel, R. A. (M)
Kahna, D. (M)
Kammerer, F. W. (M)
Karlin, I. E. (M)
Karnaugh, M. (M)
Kelley, R. A. (M)
Kelly, J. L. (M)
Kerney, I. (SM)
Kersta, L. G. (SM)
Kimme, E. G. (M)
Kinariwala, B. K. (M)
Kinsburg, B. J. (M)
Kinzer, J. P. (SM)
Kluver, B. (A)
Knowlton, A. D. (SM)
Kogelnik, H. (M)
Kolding, A. R. (M)
Kotovsky, S. K. (M)
Kretzmer, E. R. (SM)
Kummer, O. (SM)
Kuo, F. F. (M)
Kurokawa, K. (M)
Lebert, A. W. (M)
Leed, D. D. (SM)
Levin, S. A. (SM)
Levinson, J. (SM)
Lewis, H. A. (SM)
Livingston, J. R. (M)
Llewellyn, F. B. (F)
Loar, H. H. (M)
Logan, B. F., Jr. (M)
Loman, G. T. (M)
Long, N. E. (M)
Lomnicki, C. W. (M)
Looney, D. H. (M)
Louis, R. A. (M)
Mallery, P. (M)
Manley, J. M. (F)
Mason, W. P. (F)
Mathews, M. V. (M)
Matlack, R. C. (A)
Maunsell, H. I. G. (M)
Maybach, W. J. (M)
McDavitt, M. B. (SM)
McDonald, H. S. (M)
McEntee, J. A., Jr. (M)
McGuigan, J. H. (M)
McKay, K. G. (SM)
McKiernan, D. L. (M)
McLaren, J. W. (M)
Meacham, L. A. (F)
Meadows, H. E., Jr. (M)
Mehring, A. C. (M)
Mendenhall, H. E. (SM)
Merrill, J. L., Jr. (M)
Michael, F. R. (M)
Michaels, S. E. (SM)
Miedema, H. (SM)
Miller, R. A. (M)
Millman, S. (F)
Mischler, W. D. (M)
Misenheimer, H. N. (SM)
Molnar, J. P. (F)
Moore, E. F. (M)
Moore, G. E. (M)
Morgan, S. P. (SM)
Morgan, T. F. (M)
Morton, J. A. (F)
Mottram, E. T. (SM)
Mounts, F. W. (A)
Myrow, A. J. (A)
Nei, K. J. (A)
Neumann, P. G. (M)
Newhall, E. E. (A)
Noll, J. C. (SM)
Norton, E. L. (SM)
Norwine, A. C. (SM)
Nylund, H. W. (SM)
Osofsky, A. J. (M)
Ostermayer, F. W. (M)
Packard, G. N. (M)
Perryman, N. A. (M)
Pierce, J. R. (F)
Porter, P. T. (M)
Powell, J. F. (M)
Powers, T. L. (M)
Raisbeck, G. (SM)
Raleigh, J. T. (M)
Rea, W. T. (SM)
Regitz, W. M. (A)
Reiling, P. A. (M)
Reutlinger, G. W. (A)
Rice, L. P. (M)
Rice, S. O. (F)
Riesz, R. R. (SM)
Rigrod, W. W. (M)
Roberts, L. R. (M)
Rosenthal, C. W. (M)
Ross, I. M. (SM)
Rudolph, J. G. (M)
Runyon, J. P. (M)
Ryder, E. J. (SM)
Ryder, R. M. (F)
Saari, V. R. (M)
Sabto-Agami, J. C. (M)
Sandberg, I. W. (M)
Sauseng, O. G. (A)
Schachtman, M. G. (M)
Schenker, L. (SM)
Schimpf, L. G. (SM)
Schneider, H. A. (M)
Schott, L. O. (M)
Schulte, H. J., Jr. (M)
Schwartz, B. (M)
Schwartz, F. L. (M)
Sears, R. W. (F)
Shaer, N. R. (M)
Sharp, W. O. (SM)
Sharpe, G. E. (SM)
Sherman, P. M. (M)
Shive, J. N. (SM)
Sipress, J. M. (M)
Slepian, D. (SM)
Slonczewski, T. (SM)
Spang, T. C. (M)
Sparks, M. (SM)
Spencer, A. E., Jr. (M)
Steensart, W. J. D. (M)
Stickle, R. L. (M)
Stillwell, A. L. (SM)
Stone, H. A., Jr. (SM)
Stoughton, M. D. (M)
Sumner, E. E. (SM)
Sunde, E. D. (SM)
Szekely, Z. (M)
Szentimai, G. (M)
Thatcher, T. W., Jr. (M)
Thomas, D. E. (SM)
Thurston, R. N. (M)
Tien, P. K. (M)
Tilley, J. H. (M)
Townsend, M. A. (SM)
Toy, W. N. (M)
Trofatter, K. F. (A)
Tucker, R. S. (SM)
Uenohara, M. I. (M)
Varnerin, L. J., Jr. (SM)
Veazie, E. A. (SM)
Von Roesgen, C. A. (M)
Weller, D. C. (SM)
White, L. D. (M)
Whitehead, H. G. (M)
Wickliffe, P. R., Jr. (M)
Willis, F. H. (M)
Winnicky, A. P. (SM)
Winter, H. F. (M)
Wolfe, R. M. (M)
Wolman, E. (M)
Wolontis, V. M. (SM)
Wood, I. E. (M)
Zeigler, R. M. (A)
Zimmerman, G. A. (M)

Neptune (NY-M-2)
Ackerman, J. C. (M)
Alexander, L. D. (A)
Alvarez, F. B. (M)
Armstrong, R. W. (SM)
Baars, R. D. (M)
Christian, J. R. (M)
Coffin, W. W. (A)
Coulopoulos, J. D. (M)
Danko, S. F. (M)
Davidson, G. G. (M)
Davis, R. D. (A)
Dennis, L. F. (M)
Dworzak, D. C. (A)
Evers, J. T. (M)
Hannon, LaF. (A)
Haratz, D. (SM)
Kennedy, A. (SM)
Kramer, N. (A)
Lipetz, N. (M)
Loffer, G. W. (M)
Matthei, W. G. (M)
McNaul, J. P. (M)
Michaels, J. V. (M)
Ruzgis, A. G. (M)
Smith, A. W. (M)
Speaker, B. (A)
Steloes, W. R. (M)
Swingle, D. M. (M)
Ulfers, H. E. (M)
Warner, F. N. (M)
Wilson, N. J. (A)
Woodyard, O. C. (M)

Neshanic Station (PRI-2)
Barnard, D. F., Jr. (M)
Pignatiello, J. L. (M)

Netcong (NNJ-2)
Reichard, W. C. (SM)

Newark (NNJ-2)
Abou-Taleb, N. M. (SM)
Acosta, F. B. (A)
Andrushkiw, R. I. (M)
Barabutes, T. (M)
Bizon, M. J. (A)
Blonder, I. S. (M)
Blundell, J. W. (M)
Bortkiewicz, J. (A)
Boyson, C. V. (A)
Burrows, R. L. (M)
Carluccio, J. (SM)
Carvajal, J. A. (A)
Cerf, A. E. (A)
Cody, H. J. (M)
Cohen, H. (M)
Cohen, S. (SM)
Condos, G. J. (M)
Connell, D. M. (M)
Coppola, A. A. (M)
Elizondo, E. L. (M)
Fischman, R. D. (M)
Fishman, S. (SM)
Freeman, A. B. (SM)
Furman, J. (M)
Gams, T. C. (M)
Giordano, A. F. (SM)
Golding, J. (A)
Gordon, A. (M)
Graydon, A. (M)
Green, D. (M)
Heidrick, C. P. (M)
Henry, J. L. (A)
Hodowanec, G. (M)
Hooven, M. D. (SM)
Hull, R. (M)
Jelsma, L. F. (M)
Kalfus, P. I. (M)
Karcher, E. A. (M)
Kaufman, A. S. (M)
Keshavan, B. V. (M)
Koopelon, R. (SM)
Kozimor, M. (M)
Kubilins, E. T. (A)
Kwast, V. B. (M)
Lakshmanan, T. K. (SM)
Lamb, F. X. (M)
Lamoreaux, F. (A)
La Verda, F. R. (M)
Lazar, D. C. (M)
Lemeshka, M. B. (M)
Light, H. A. (M)
Lloyd, A. G. (M)
Manz, A. F. (M)
Matula, R. A. (M)
Maximow, B. (A)
Mayer, A. (M)
McClure, R. B. (M)
McCormick, D. A. (M)
Meier, P. L. (M)
Meyer, H. G., Jr. (A)
Mohsen, A. (M)
Morgan, W. H. (M)
Munson, V. E. (M)
Mutschler, E. C. (M)
O'Malley, M. (A)
Pak, Y. K. (M)
Pallante, G. J. (M)
Perna, P. J. (M)
Peterson, D. A. (M)
Polinsky, M. A. (M)
Polsinelli, V. (A)
Ranger, R. H. (F)
Robertson, R. P. (M)
Ross, P. L. (M)
Russell, F. A. (SM)
Savin, W. (M)
Scharkss, H. (M)
Schmidt, A. E. (M)
Schwartzberg, I. G. (M)
Seifert, R. E. (M)
Shaller, A. (SM)
Shaw, N. K. (M)
Sibul, L. H. (M)
Silzer, V. (M)
Skoler, A. E. (A)
Spratt, E. L. (A)
Steers, W. F. (SM)
Stein, F. S. (SM)
Steinkamp, W. H. (M)
Stepner, A. B. (A)
Stolar, G. (SM)
Sur, J. D. Y. (M)
Tongue, B. H. (SM)
Uslan, G. M. (M)
Valentine, E. (A)
Vincent, R. (M)
Walker, H. R. (M)
Zlydak, V. J. (M)

New Brunswick (PRI-2)
Barto, J. W. (M)
Baumunk, J. F. (M)
Berman, A. L. (M)
Blatter, H. (M)
Bohnstedt, C. E. (M)
Brilliant, J. B. (M)
Cahill, R. M. (M)
Claypool, H. W. (A)
Dalton, R. C. (M)
Dienst, J. F. (M)
Fich, S. (SM)
Foodman, H. W. (M)
Frisch, J. A. (A)
Haldemenakis, E. D. (M)
Hertz, K. L. (M)
Irby, H. C. (M)
Katz, R. A. (M)
Klenk, R. L. (M)
Knapp, J. Z. (M)
Lazovick, P. B. (M)
Lebowitz, L. L. (M)
Lionick, R. (M)
Munt, I. (M)
Polgar, M. S., Jr. (M)
Potter, J. L. (F)
Reinitz, H. (M)
Rosenthal, L. (SM)
Ruble, G. B. (M)
Slekanowicz, W. W. (M)
Vigliante, F. S. (M)
Williams, M. E. (M)
York, R. K. (M)

Newfoundland (NNJ-2)
Goebel, R. J. (M)

New Hampton (PRI-2)
Boehm, G. H. (M)

New Milford (NNJ-2)
Ewert, A. C. (M)
Gartner, G. W. (M)
Godofsky, M. (M)
Grillo, J. (SM)
Hammerich, H. A. (A)
Jones, M. E. (A)
Lang, A. H. (A)
Llucci, C. A. (A)
Lotwis, J. J., Jr. (M)
Northrop, D. T. (M)
Oliver, W. (M)
Ornstein, S. (M)
Phelps, R. B. (M)
Reich, P. J. (M)
Roth, H. (M)
Scully, S. J. (M)
Shaw, A. B. (M)
Shaw, W. (M)
Umles, M. S. (M)
Vergoz, R. A. (A)

New Providence (NNJ-2)
Alterman, M. E. (M)
Andrews, J. L. (A)
Barnard, R. D. (M)
Bowyer, L. R. (M)
Class, J. S. (M)
Drexler, J. (M)
Farney, G. K. (M)
Griswold, D. M. (M)
Holzman, L. N. (M)
Hutchison, P. T. (M)
Johnson, H. C. (M)
Kocan, J. (M)
Latter, R. F. (M)
Malthaner, W. A. (SM)
McCulloh, W. L. (M)
Nast, D. W. (M)
Nasto, S. N. J. (A)
O'Neill, M. P. (M)
Poole, K. M. (A)
Robinson, A. J. (M)
Simonds, R. E. (SM)
Tenten, R. C. (A)
Thatch, R. A. (M)
Waltke, H. C. (M)
Welber, I. (M)
Zmolek, C. R. (M)

New Shrewsbury (NY-M-2)
De Camillis, M. (M)
De Paola, G. E. (M)
Keigher, B. J. (M)
Levy, B. (M)
MacPherson, D. H. (SM)
Meader, G. S., Jr. (M)
Schallerer, J. W. (M)
Seley, E. L. (M)
Toivonen, I. A. (M)

Newton (NNJ-2)
Kellogg, W. M. (SM)
Langstroth, T. A. (A)
Schneider, B. K. (A)
Sirowatka, J. C. (A)

New Vernon (NNJ-2)
D'Heedene, A. R. (SM)

Nixon (PRI-2)
Feder, E. I. (M)
Gote, J. T. (M)
Neidig, K. E. (M)
Re Corr, K. H. (M)
Rogers, R. T. (M)

Nixon Park (PRI-2)
Sable, A. A. (A)

North Arlington (NNJ-2)
Bruning, J. M. (M)
Finkelstein, D. (M)
Glickman, M.N. (SM)

North Bergen (NNJ-2)
Adam, E. P., Jr. (A)
Assadourian, F. (SM)
Bopp, R. W. (M)
Bowab, L. G. (M)
Cox, J. L. (M)
Decker, W. J. (M)
Feucht, R. E. (M)
Fullington, H. J. (A)
Genser, A. (A)
Handjani, H. (M)
Harms, F. G. (A)
Hollopeter, W. C. (M)
Kirsch, A. F. (M)
Nordman, E. G. (M)
Nordman, O. D. (M)
Perlis, H. J. (SM)
Pizzigoni, A. (A)
Puente, J. G. (M)
Saye, I. M. (M)
Scherer, G. A. (M)
Shahin, E. S. (M)
Sigman, M. (M)
Sparacio, F. J. (M)
Wasserman, A. (M)

North Branch (PRI-2)
Aitken, K. M. (SM)
McDonald, J. H. (SM)
Willison, R. E. (M)

North Brunswick (PRI-2)
Gannon, J. J. (A)
Morris, M. J. (A)
Ungerleider, B. R. (M)
Upholl, E. C. (M)

North Caldwell (NNJ-2)
Adamson, A. A. (SM)
Carmody, T. P. (M)
Gialanella, J. A. (A)
Goldman, H. (A)
Knight, M. B. (SM)
Luteran, F. K. (M)
Moore, E. B. (SM)
Muller, C. R. (SM)
Oberg, T. E. (SM)
Peet, E. C. (SM)
Porter, W. S. (M)
Rennenkampf, L. J. (M)
Schade, O. H., Jr. (M)
Schneider, P. C. (M)
Siemens, R. H. (SM)
Smith, P. G. (M)
Sokolowski, E. M. (A)

Northfield (PHI-3)
Burke, J. J. (M)
Curtis, V. F. (A)
Eakin, K. G. (SM)
Fehr, D. L. (M)
Frankenberg, A. J. (M)
Franklin, L. F. (M)
Hazelwood, C. E. (A)
Holliday, R. H. (SM)
Lasewicz, V. J. (M)
Schneider, F. H. (M)
Shanteau, N. G. (M)
Swanseen, H. W. (A)
Wright, C. R. (M)
Wright, M. E. (M)

North Haledon (NNJ-2)
Diebler, H. G. (M)

North Plainfield (NNJ-2)
Beehler, J. (M)
Blicher, A. (SM)
Flavin, M. A. (M)
Foulkrod, R., Jr. (M)
Frank, R. J. (M)
Grover, A. C., Jr. (M)
Henn, H. C. (A)
Johnson, C. L., Jr. (M)
Keane, J. B. (M)
Larson, B. O. (M)
Larson, H. E. (A)
Low, R. C. (M)
McMurtrie, C. L. (M)
Otisbre, J. N. (SM)
Quinlan, R. V. (M)
Wamsley, D. H. (SM)
Williams, A. D. (M)
Woolfson, J. L. (A)

Northvale (NNJ-2)
Arlessohn, E. R. (M)
Zito, G. V. (M)

Norwood (NNJ-2)
Brick, F. R., Jr. (SM)
Haas, K. A. (A)

Nutley (NNJ-2)
Altman, F. J. (SM)
Aubrey, G. (M)
Beyer, J. P. (M)
Blanchard, R. J. (M)
Boychenko, O. (M)
Boyer, J. T. (M)
Bradley, R. W. (M)
Brandes, N. J. (M)
Brush, J. M. (M)
Bura, P. (SM)
Campbell, D. R. (M)
Capen, H. N. (SM)
Carey, E. D. (M)
Carocari, J. B. (M)
Carpenter, D. J. (M)
Chapman, R. F. (M)
Cirulis, U. (M)
Clark, J. T., Jr. (M)
Coen, R. T. (M)
Colin, R. I. (SM)
Collard, J. R. G. (M)
Conninos, R. (M)
Cuny, J. J. (M)
Davis, R. C. (SM)
Day, R. G. (M)
De Clark, R. S. (A)
De Vany, B. V. (M)
Duerig, W. H. (M)
Ellis, R. (M)
Feldman, J. (M)
Felsenheld, R. A. (M)
Finocchi, A. J. (M)
Fletcher, I. L. (M)
Friedman, D. S. (M)
Galvin, P. (M)
Girgus, S. D. (M)
Glomb, W. L. (M)
Goldan, T. J. (A)
Goldstein, B. S. (M)
Gray, R. E. (M)
Griebell, C. A. (M)
Gronberg, H. C. (M)
Gruber, C. W. (M)
Hacker, S. J. (M)
Hamilton, K. E. (M)
Hansen, E. N. (M)
Happe, W. H., Jr. (M)
Harding, G. C. (M)
Harvey, J. (SM)
Hatchwell, J. A. (M)
Helman, D. R. (M)
Herbin, L. (A)
Himes, D. I. (M)
Hoechner, I. L. (M)
Imboldi, E. (A)
Janeff, W. (M)
Johnson, W. K. (M)
Kandoian, A. G. (F)
Kennedy, J. B. (M)
Khanna, S. M. (M)
Kiss, M. L. (M)
Kozuch, M. (M)
Kunkel, E. A., Jr. (M)
Landfear, G. F. (A)
Mazaloine, W. W. (SM)
Mack, N. B. (M)
Mangolds, B. (M)
Marchese, T. J. (SM)
Margetts, H. S. (M)
Masonson, M. (M)
Mavromatis, A. (M)
McMullen, E. W. (A)
Merrill, J. B. (M)
Metzger, J. E. (SM)
Miller, R. J. (A)
Mindes, B. M. (M)
Moreno, C. N. (M)
Mount, E. (M)
Norton, M. L. (M)
Odess, L. R. (M)
Orlando A. S. (M)
Ormston, W. J. (M)
Perry, H. H. (M)
Place, H. (A)
Presto, A. F. (M)
Rasley, D. R. (SM)
Rogoff, M. (M)
Rutherford, R. E. (SM)
Rutherford, R. E., Jr. (M)
Schildknecht, R. O. (SM)
Schmall, D. (M)
Schmidt, W. M. (M)
Schreiner, S. M. (SM)
Shames, J. (M)
Shapiro, O. (M)
Sichak, W. (F)
Silverman, M. L. (M)
Sliwa, R. A. (M)
Snedeker, E. K., Jr. (M)
Sokol, G. F. (M)
Solomon, R. H. (M)
Soukup, J. (SM)
Spahr, P. K., Jr. (M)
Starita, F. A. (M)
Stein, N. N. (M)
Steisand, J. L. (M)
Sugal, I. (M)
Surenian, D. (M)
Swinney, J. G. C., Jr. (SM)
Taplin, R. H. (M)
Taylor, A. R. (A)
Tonaszewski, J. A. (M)
Van Vechten, R. K. (A)
Weber, F. J. (M)
White, H. R. (M)
Wickersham, W. H. (SM)
Wing, A. K., Jr. (F)
Wojtowicz, Z. A. G. (M)
Young, N. H. (SM)
Zablocki, H. S. (M)
Zeliff, R. J. (A)

Oakhurst (NY-M-2)
Bady, I. (SM)
Burke, M. H. (M)
Hecker, H. F. (M)
Malkin, S. (M)
Schafer, J. P. (SM)
Trauben, W. (M)
Whelan, C. D. (M)
Woodworth, J. D. (M)

Oakland (NNJ-2)
Bloch, M. W. (M)
Dzula, G. (M)
Johnson, W. H., Jr. (M)
Kraemer, H. J. (A)
Leopold, R. (SM)
McEwan, D. R. (A)
Rosenberg, H. C. (M)
Thomas, G. N. (M)
Van Siclen, H. E., Jr. (M)
Yohai, I. (M)

Oaklyn (PHI-3)
Austin, W. J. (M)
Bensky, L. S. (M)
Biensiy, T. J. (M)
Christiansen, W. G. (A)
Forbes, E. J. (M)
Gerber, P. D. (M)
Giordano, R. L. (M)
Graham, J. J. (SM)
Henderson, R. A. (SM)
Hennessy, E. T. (M)
Kenville, R. F. (M)
Korbin, A. D. (M)
Seay, R. T. (A)
Smith, C. L. (M)
Watts, E. R. (M)
Kozak, M. J. (M)
Moseley, S. V. (M)
Olson, C. L. (M)
Putzrath, F. L. (M)
Richter, R. (M)

Oak Ridge (NNJ-2)
Simon, B. (M)

Ocean City (PHI-3)
Gallagher, V. C. (M)

Ocean Gate (NY-M-2)
Thompson, J. M. (SM)
Ewald, H. W. (M)
Gabriel, E. Z. (M)

Oceanport (NY-M-2)
Bereza, A. (M)
Bryan, J. F. (SM)
Buckley, J. E. (M)
Capam, C. (M)
Hooten, M. G. (M)
Nylander, G. A. (M)
Schmidt, R. A. (M)
Schmidt, S. J. (M)
Sherburne, F. B. (A)
Waite, A. H., Jr. (SM)

Old Bridge (PRI-2)
Bellis, R. P. (M)
Brown, I. A. (M)
Gallagher, J. L., Jr. (A)
Strlednig, L. J. (M)
Student, S. G., JR.
Tomasheski, C. J. (M)

Old Tappan (NNJ-2)
Bass, S. D. (M)
Emery, L. T. (M)
Salmen, L. M., Jr. (M)

Oldwick (PRI-2)
Mortimer, A. J. (M)

Oradell (NNJ-2)
Anthony, I. B. (M)
Brackett, H. H. (M)
Bruce, W. D. (M)
Fichtl, R. R. (A)
Fowler, D. C. (A)
Howard, J. S., Jr. (A)
Podell, R. L. (M)
Rauch, L. R. (M)
Zich, M. M. (M)

Orange (NNJ-2)
Adams, M. R. (M)
Brodersen, R. K. (M)
Burkhart, W. H. (M)
Butenko, J. W. (M)
Cake, A. F. (A)
Cerone, J. R. (M)
Di Girolamo, J. V. M. (SM)
Domchick, S. J. (M)
Hardwick, A. H. (SM)
Hardwick, F. (M)
Herre, J. (M)
Kadin, J. (M)
La Manna, R. J. (M)
Markowitz, H. (A)
Shackelford, B. E. (F)
Slmberkolf, J. A. (A)
Sumpter, P. B. (M)
Suydam, C. H. (M)

Oxford (NNJ-2)
Edson, J. O. (SM)

Packanack Lake (NNJ-2)
Edobert, J. D. (SM)
Krehbiel, K. K. (M)
Lang, H. J. (M)
Seergy, C. M. (M)

Palisade (NNJ-2)
Andrews, E. (M)
Lefebvre, R. E. (A)
Magnetta, V. B. (A)
Rover, R. R., Jr. (M)

Palisades Park (NNJ-2)
Ackerman, B. F., Jr. (M)
Fassberg, M. (A)
Heflich, G. B. (M)
Isaacson, A. (M)
Kam, E. W. (M)
Levine, O. W. (M)
Packer, S. S. (M)
Richards, E. G. (M)
Schmied, J. W. (M)
Takakjian, J. S. (M)

Palmyra (PHI-3)
Brewster, P. J. (M)
Ennis, F. J. (A)
Farber, K. L. (M)
Foerster, W. (M)
Galton, E. B. (SM)
Groon, J. G. (A)
Halushynsky, G. D. (M)
Hilbourn, C. L. (M)
Hill, C. N. (M)
Kawafuchi, P. M. (M)
Keller, C. E., Jr. (M)
O'Brien, J. F. (M)
Phillipoy, C. R. (A)
Rammer, C. A. (M)
Rice, R. A. (M)
Ringer, H. N. (M)
Robinson, H. A. (SM)
Scheuer, H., Jr. (M)
Smith, W. I. (M)
Vidas, V. G. (M)
Walker, K. E. (SM)
Waring, J. W. (M)
Yewdall, G. E. (SM)

Paramus (NNJ-2)
Ankenbrock, C. A. (A)
Becker, O. G. (M)
Bodeen, G. S. (SM)
Brown, R. I. (M)
Brown, T. G. (SM)
Campanale, A. J. (M)
Chalmers, W. G. (M)
Chanes, H. (M)
Church, A. (A)
Conway, J. F., Jr. (SM)
Cookson, A. E. (SM)
Croy, J. E. (M)
Deiss, E. W. (A)
Devane, F., Jr. (M)
De Vincent, J. (M)
Donaldson, W. G. (SM)
Eder, J. J. (A)
Edwards, D. B. (M)
Fox, A. (M)
Freud, E. L. (M)
Gilmore, J. P. (SM)
Gutman, W. J. (M)
Haque, R. Z. (A)
Halina, J. W. (M)
Harvey, C. C. (M)
Honeiser, V. P. (M)
Housman, H. (M)
Jackson, E. B. (M)
Jansky, C. M. (SM)
Jelfers, N. L. (SM)
Karz, A. R. (M)
Kashar, A. S. (M)
Keller, H. A. (SM)
Knights, G. F. (M)
Kramer, B. H. (M)
Kriss, C. J. (M)
Krulee, R. L. (M)
Laning, C. B. (SM)
Lerman, H. (M)
Levin, M. S. (M)
Manheimer, B. H. (M)
McGovern, M. J. (M)
McSweeny, R. (SM)
Mills, H. J. (M)
Morrisroe, D. W. (M)
Morse, J. L. (M)
Neu, W. J. (M)
Norton, J. F. (M)
Pfuhl, H. P. G. (M)
Plehn, A. D. (M)
Pravetz, R. M. (M)
Renwick, F. B. (M)
Root, C. S. (SM)
Rosen, G. (M)
Sattem, I. (M)
Sautner, J. (M)
Schmidt, L. D. (M)
Slotkin, A. (M)
Taylor, R. G., Jr. (M)
Trager, B. C. (M)
Werth, A. M. (M)
Wilk, W. L. (M)
Wolf, E. W. (SM)
Wolff, R. S. (M)
Zitovsky, S. A. (M)

Park Ridge (NNJ-2)
Bellis, H. M. (M)
Bertuccio, T. D. (M)
Bowles, J. A. (A)
Norton, E. A. (M)
Schiff, R. M. (A)
Stansfield, F. H. (M)
Parlin (PRI-2)
Hezrel, W. W. (A)
Howard, F. S. (M)
Panos, R. J. (M)
Robinson, R. C. (M)
Zaratkiewicz, E. A. (M)

Parsippany (NNJ-2)
Anders, J. V. (M)
Davis, H. M. (A)
Goeller, L. F., Jr. (M)
Helgeson, R. B. (M)
Hendrickson, A. H. (M)
Kalish, H. M. (M)
Krause, C. K. (M)
Lawton, B. E. (M)
Marco, G. E. (M)
Meola, R. R. (SM)
Montsma, J. (M)
Morganstem, A. L. (M)
Pratt, W. R. (M)
Stanton, S. W. (M)
Waters, H. S. (M)
Wing, J. M. (M)

Passaic (NNJ-2)
Ashbrook, J. M. (M)
Backus, A. S. (SM)
Brussel, E. H. (M)
Cox, J. E. (M)
Feller, R. G. (M)
Giba, E. M. (M)
Glasser, S. (M)
Larkin, J. P. (M)
Masavage, I. R. (A)
McGuire, L. D. (M)
Rosenthal, J. E. (SM)
Schumann, L. C. (A)
Seats, P. (A)
Shaw, R. S. (M)
Sim, R. M. (A)
Sommermeyer, O. R. (M)
Stoj, F. R. (M)
Stuart, H. P. (A)
Suszek, E. J. (A)
Talmadge, W. (A)
Tuszynski, A. A. (M)
Wakeman, R. P. (SM)
Webster, W. C. (M)
Woods, J. R. (M)
Yu, Y. P. (M)
Zavoda, J. P. (M)

Paterson (NNJ-2)
Binneveld, H. A. J. (A)
Brino, J. A., Jr. (M)
Cameron, R. F. (M)
Carlson, O. E. (M)
Chiosso, J. L. (M)
Cohen, M. R. (M)
Earnshaw, E. F., Jr. (M)
Fierro, R. A. (M)
Fomin, M. (A)
Gold, M. (M)
Hoberman, M. J. (SM)
Honour, J. H., Jr. (A)
Houskamp, R. W. (M)
Janowsky, S. (M)
Kuehler, H. R. (M)
Lavorgna, M. P. (M)
Levin, H. L. (M)
Lome, J. B. (M)
Noveko, N. (A)
Papanou, D. S. (M)
Piller, S. (SM)
Pross, C. R. (M)
Rosenkoof, R. (M)
Shapiro, F. J. (A)
Spinosa, M. (M)
Street, W. D. (M)
Thonus, F. J. (A)
Winters, H. (A)

Pennington (PRI-2)
Bamford, H. S. (SM)
Duncan, S. L., Jr. (M)
Lyon, C. C. (A)
Tuska, J. W. (M)

Pennsauken (PHI-3)
Adams, A. G. (M)
Arleth, J. M. (M)
Astheimer, W. (M)
Boenecke, C. A. (M)
Brady, T. J., Jr. (M)
Brummer, C. H., Jr. (A)
Carpenter, R. N. (M)
Colander, G. E. (M)
Crosby, D. R. (SM)
Eddy, K. C. (M)
Fedorka, R. T. (M)
Freedman, D. D. (M)
Givens, R. C. (M)
Goans, C. E. (M)
Hobson, N. L. (A)
Homann, A. J. (M)
Howard, E. O. (M)
Hughes, P. F. (M)
Kaufman, E. J. (M)
Kaufmann, K. G. (M)
Kay, F. T. (M)
Kent, W. S. (M)
Knapschaefer, D. H. (M)
Knoble, K. L. (M)
Krawitz, L. J. (A)
Landis, J. V. (SM)
Londner, R. T. (M)
Lyndley, W. D. (M)
Mayer, L. J. (A)
Mehuron, W. O. (M)

Menkes, E. D. (A)
Mina, V. A. (M)
Mitin, N. (A)
Montemuro, A. T. (M)
Moy, R. G. (M)
Musson, D. R. (M)
Nelson, G. A. (A)
Nickel, G. C., Jr. (M)
Oberlander, F. M. (SM)
Pearson, A. W. (M)
Pietrolewicz, J. P. (M)
Purvis, R. E. (M)
Quinlan, E. J. (M)
Rende, A. M. (M)
Reynolds, P. H. (SM)
Rodeman, G. A. (M)
Rosenzweig, G. E. (M)
Rudd, R. B. (M)
Sawyer, J. F. (M)
Schneider, M. (A)
Sie, C. H. (M)
Sietz, A. J. (SM)
Sinn, R. S. (M)
Solomon, S. (SM)
Troxel, D. I. (M)
Tullai, J. (M)
Willey, J. R. (M)
Wyant, E. D. (M)
Yao, F. C. (M)

Penns Grove (PHI-3)
Dilks, C., Jr. (M)
Garrett, L. B., Jr. (M)

Pennsville (PHI-3)
Loeffler, T. F. (M)

Pequannock (NNJ-2)
Altonji, E. R. (M)
Bergeron, W. F. (M)
Goldman, I. (M)
Hollis, R. P. (M)
Kearney, J. J. (M)
Richard, C. A., Jr. (M)
Schkolnick, H. (M)
Schmidt, C. R. (M)
Temes, R. J. (M)

Perth Amboy (PRI-2)
Basson, D. E. (M)
Chizmadia, R. A. (M)
Giovanos, L., Jr. (M)
Houser, B. E. (A)
Jesse, S. A. (A)

Phalanx (NY-M-2)
Welle, R. J. (M)

Phillipsburg (NNJ-2)
Barletta, J. M. (M)
Gerken, W. G. (M)
Jones, C. E. (M)

Pine Brook (NNJ-2)
Brinkman, J. D. (M)
West, C. B. (M)
Wheeler, C. M. (SM)

Pine Hill (PHI-3)
Burns, D. C. (A)

Pines Lake (NNJ-2)
Schroeder, G. F. (SM)

Pitman (PHI-3)
Andrade, L. (M)
Brown, I. N. (SM)
Fisher, J. M., Jr. (M)
Sterner, J. F. (SM)

Pittstown (PRI-2)
Bennett, A. F. (SM)

Plainfield (NNJ-2)
Adams, W. C. (M)
Babcock, W. E. (SM)
Balbo, C. C. (M)
Belamarich, J. P. (M)
Bethke, J. R. (A)
Bloom, S. (SM)
Boyce, W. E. (A)
Bradfield, H. J. (SM)
Brickly, D. S. (M)
Butzlen, P. E. (M)
Byrne, C. J. (M)
Churchill, L. S. (M)
Cooke, J. P. (A)
Cormier, R. J. (A)
Cowperthwait, W. L., Jr. (M)
Coxhead, H. B. (SM)
Danzer, P. M. (M)
De Mattos, R. F. (M)
Fennick, J. H. (M)
Freedman, D. R. (M)
Glasberg, M. (M)
Goldsmith, A. S. (M)
Harris, R. C. (SM)
Harris, S. (A)
Harris, W. T. (M)
Haydu, G. K. (A)
Held, J. L. (M)
Hunter, W. B. (A)
Husenita, J. (A)
Jamiyan, H. H. (M)
Kelly, F. J. (M)
Kettering, H. V. (M)
Kuchinsky, S. (SM)
Kuhn, E. F. (M)
Kyle, W. F., Jr. (M)
Lacy, H. R. (A)
Layton, H. J. (M)
Lee, R. F. (A)
Lester, B. E. (SM)
Lewin, D. R. (A)
Lyon, Z. G., Jr. (M)
Masnaghetti, R. K. (M)
Mastroianni, R. G. (A)
May, C. J., Jr. (M)
Mazur, S. (M)
McCutchen, B. S. (F)
McEowen, J. R. (M)
Melhose, A. E. (M)
Mosolgo, R. E. (M)
Mullin, S. N. (A)
Nussbaum, E. (M)
Oefelein, J. C. (A)
Perks, A. F. (A)
Pike, F. R. (M)
Rossig, E. W. (M)
Sampson, S. F. (M)
Schaeffer, R. W. (M)
Shupack, M. H. (A)
Soja, M. (SM)
Sweeney, W. R. (M)
Townsend, W. H., Jr. (M)
Trachenberg, R. (M)
Wallace, R. L., Jr. (F)
Warren, C. A. (SM)
Weingarten, I. R. (A)
Woody, M. W. (A)
Wright, J. E. (M)

Plainsboro (PRI-2)
Culler, V. (M)

Pleasantville (PHI-3)
Felton, W. W. (SM)
Little, G. D. (M)
McFann, H. L. (M)
Santora, C. G. (M)
Segen, S. A. (A)
Zyzys, E. A. (M)

Pluckemin (PRI-2)
Sattler, E. W., Jr. (A)

Point Pleasant (NY-M-2)
Boggio, M. R. (M)
Diebold, B. A. (M)
Eckenfelder, R. C. (M)
Elliott, C. T. (M)
Falk, H. H. (A)
Hiester, H. B. (M)
Lucier, O. S. (A)
Scharmann, L. E. (M)
Van Benthem, J. (M)

Point Pleasant Beach (NY-M-2)
Szafranski, J. J. (M)

Pomoton Lakes (NNJ-2)
Chmiel, B. A. (M)
Gorman, R. T. (A)
McEwan, A. W. (SM)
Plummer, R. J. (M)
Romain, D. O. (A)

Pomoton Plains (NNJ-2)
Abrahams, R. P. (SM)
Arnold, A., Jr. (A)
Engler, C. F. (M)
Gitter, R. E. (M)
Hansen, N. W. (M)
Hollberg, R. W. (M)
Johnson, K. C. (M)
Kramer, A. S. (SM)
Lang, C. W. (M)
McAdams, B. (SM)
Millard, J. W. (M)
Muller, F. A. (SM)
Nielsen, A. H. (M)
Pauloski, S. H. (M)
Porta, A. (M)
Stem, W. (A)
Urban, A. (A)

Princeton (PRI-2)
Amarel, S. (SM)
Arons, L. D. (M)
Aronson, A. (M)
Avins, J. (F)
Awschalom, M. (M)
Bach, H. M. (M)
Bangs, J. R. (M)
Barco, A. A. (F)
Barton, L. E. (F)
Beck, G. A. (M)
Bedford, A. V. (F)
Behrend, W. L. (SM)
Bertuch, C. J. (M)
Binstock, P. L. (M)
Blattner, D. J. (SM)
Bliss, W. H. (SM)
Bond, D. S. (F)
Borgelt, W. E. (M)
Borkan, H. (SM)
Braden, R. A. (SM)
Brandinger, J. J. (M)
Briggs, G. R. (SM)
Brown, G. H. (F)
Burns, L. L., Jr. (SM)
Burrill, C. M. (SM)
Caras, B. (A)
Carlson, D. J. (SM)
Carlson, W. L. (F)
Causse, J. P. (M)
Chambers, F. T., III (M)
Chaykowsky, O. C. (M)
Cheeseman, P. R. (M)
Chin, T. N. (M)
Christian, S. M. (SM)
Clement, P. R. (M)
Cohen, S. (M)
Cooke, H. L. (SM)
Cosentino, L. S. (M)
Cowan, E. J. (M)
Czukrasz, Z. P. (A)
D'Agostini, D. (M)
Daniel, J. T. (M)
Davey, J. R. (M)
De Sobrino, R. (SM)
Dickey, E. T. (SM)
Dodge, S. W. (SM)
Donal, J. S., Jr. (SM)
Donath, E. (SM)
Donley, H. L. (SM)
Doolittle, E. W. (A)
Dousmanis, G. C. (SM)
Dow, O. E. (SM)
Eckenhoff, W. B. (A)
Epstein, J. (SM)
Ewing, D. H. (F)
Favreau, R. R. (M)
Fendley, J. R., Jr. (A)
Fischbeck, K. H. (M)
Fischer, J. T. (M)
Fletcher, D. D. (M)
Flory, L. E. (F)
Flory, R. E. (M)
Forque, S. V. (SM)
Forney, G. D., Jr. (M)
Fredendall, G. L. (F)
Freedman, L. A. (M)
Frei, A. H. (M)
Frum, A. (A)
Garretson, E. B. (M)
Gay, A. C. (SM)
George, R. W. (SM)
Glaino, E. C., Jr. (A)
Gibson, J. J. (M)
Gibson, W. G. (M)
Goldstein, A. (M)
Goldstein, P. (M)
Goodale, E. D. (SM)
Goodman, A. M. (M)
Goodman, J. A. (M)
Graber, G. F. (M)
Grasberg, A. G. (M)
Grasselli, A. (M)
Greenblatt, M. H. (SM)
Gross, J. (SM)
Grundmann, G. L. (SM)
Hackley, R. A. (M)
Hallows, R. L. (M)
Hamner, L. H. (M)
Handelsman, M. (SM)
Hanford, R. W. (SM)
Hansell, C. W. (F)
Harries, W. L. (SM)
Hart, H. C. (M)
Harvey, R. L. (SM)
Hatke, F. L. (A)
Hauser, G. G. (A)
Heacock, D. P. (SM)
Headrick, L. B. (F)
Herkart, P. G. (M)
Herman, F. (SM)
Hemquist, K. G. (SM)
Hershenov, B. (M)
Herzog, G. B. (SM)
Hillier, J. (F)
Hinsdale, E. M., Jr. (SM)
Hirsch, C. J. (F)
Hoedemaker, R. W. (M)
Holmes, R. S. (F)
Hook, H. O. (SM)
Houghton, W. D. (SM)
Hubbard, B. R. (M)
Hutter, E. C. (M)
Isaila, M. V. (M)
Johnson, E. O. (F)
Johnson, H. (F)
Johnson, W. C. (SM)
Johnston, L. B. (M)
Jolliffe, C. B. (F)
Kagan, C. A. R. (SM)
Kaplan, K. R. (M)
Kams, M. E. (SM)
Karstad, K. (SM)
Keigler, J. E. (M)
Keiser, B. E. (SM)
Keizer, E. O. (SM)
Kell, R. D. (F)
King, C. J., Jr. (SM)
Kingsley, B. (SM)
Klopfenstein, R. W. (SM)
Korman, N. I. (F)
Kreuzer, B. (M)
Kurshan, J. (SM)
Lamorte, M. F. (M)
Landon, V. D. (F)
Laport, E. A. (F)
Larrabee, R. D. (M)
La Valva, M. M. (A)
Law, H. B. (F)
Lechner, B. J. (M)
Lefrak, F. H. (M)
Leverenz, H. W. (F)
Levy, S. Y. (M)
Lewin, M. H. (M)
Leyton, E. M. (SM)
Lieberman, E. (M)
Lindenblad, N. E. (F)
Linder, E. G. (F)
Lindsay, F. A. (A)
Loebner, E. E. (SM)
Lorber, H. W. (M)
Lowers, C. E. (SM)
Luck, D. G. C. (F)
Lugannani, R. (M)
Mac Lean, K. G. (SM)
Madsen, R. G. (SM)
Malek, H. J. (M)
Manasse, F. K. (M)
Mantinelli, C. C. (SM)
Mather, N. W. (SM)
McClusky, E. J., Jr. (SM)
McCusker, J. H. (A)
Mesner, M. H. (SM)
Metzger, S. (SM)
Miller, H. L. (M)
Mitchell, G. J. (M)
Moles, W. H. (M)
Morgan, W. L. (M)
Morton, G. A. (F)
Mueller, C. W. (F)
Nergaard, L. S. (F)
Nicoll, F. H. (F)
Norman, F. H. (M)
North, D. O. (F)
Ochs, S. A. (M)
O'Connor, R. A. (SM)
Olson, C. V. (M)
Olson, H. F. (F)
Palmer, R. C. (M)
Pankove, J. I. (SM)
Pearce, P. F. (SM)
Pensak, L. (SM)
Peterson, D. W. (M)
Petrie, J. W. (A)
Pilip, A. T. (SM)
Pike, N. (M)
Pinto, A. (M)
Plummer, C. H. (M)
Poor, E. W., Jr. (M)
Powers, K. H. (SM)
Pradervand, M. (A)
Pritchard, D. H. (M)
Pyne, I. B. (M)
Rahm, W. E., Jr. (A)
Rajchman, J. A. (F)
Rankin, J. B. (M)
Reichard, H. S. (M)
Reickord, A. W. (M)
Roberts, T. C. W. (A)
Roberts, W. V. B. (F)
Robinson, J. G. (M)
Rodda, W. E. (M)
Rose, A. (F)
Ross, C. W. (SM)
Rounds, W. A. (M)
Rynn, N. (SM)
Sall, C. W. (SM)
Sanford, R. F. (M)
Schairer, O. S. (F)
Schnitzler, P. (M)
Schoenwald, G. (A)
Serrell, R. (SM)
Shahbender, R. A. (M)
Shatzkin, J. (SM)
Sklansky, J. (SM)
Smith, B. (M)
Smith, J. P. (SM)
Smith, P. T. (F)
Sommer, A. H. (F)
Staras, H. (SM)
Sternberg, S. (SM)
Sterzer, F. (M)
Strother, J. A. (SM)
Stuber, P. (M)
Surber, W. H., Jr. (M)
Tabak, M. D. (M)
Thomas, J. B. (SM)
Thompson, H. A. (SM)
Thompson, R. D. (M)
Truitt, T. D. (M)
Tufts, J. (M)
Tuska, C. D. (F)
Uzman, R. E. (M)
Vose, C. H. (SM)
Vural, B. (SM)
Wadlin, M. L. (M)
Wall, M. E. (M)
Wallmark, J. T. (SM)
Warter, P. J., Jr. (M)
Webster, W. M. (F)
Weimer, P. K. (F)
Wendt, F. S. (M)
Westneat, A. S., Jr. (SM)
Wickenden, H. R. (A)
Wilkinson, W. C. (SM)
Williams, C. H. (A)
Williams, T. R. (M)
Wilmotte, R. M. (F)
Wine, C. M. (M)
Wittke, J. P. (M)
Wolff, I. (F)
Wolff, S. S. (M)
Woodbridge, D. E. (M)
Woodward, J. G. (SM)
Woodward, O. M., Jr. (SM)
Woolston, J. R. (M)
Wright, S. E. (M)
Young, C. J. (F)
Zaininger, K. H. (M)
Zaboulla, L. M. (A)
Zworykin, V. K. (F)

Princeton Junction (PRI-2)
Bowker, J. D. (M)
Chandler, H. M., Jr. (M)
De Remer, K. R. (M)
El-Kareh, A. B. (M)
Fraibont, D. F. (M)
Kerr, R. B. (M)
Kvitman, I. M. (M)
Riedel, J. (A)
Schorr, H. (M)
Sublette, I. H. (M)
Prospect Park (NNJ-2)
Serra, E. M. (M)

Rahway (NNJ-2)
Bellingham, L. C. (A)
Dipole, W. M. (A)
Horneck, J. F. (M)
Jones, E. L. (A)
Robinson, G. D. (A)
Rogers, R. E. (M)
Wytyshyb, M. B. (M)

Ramsey (NNJ-2)
Buyer, E. M. (SM)
Chalmers, B. H. (M)
Cynamon, J. J. (M)
Detweiler, H. L. (M)
Dubbs, W. M. (M)
Gray, L. F. (M)
Heiser, W. H. (SM)
Lynch, D. J. (M)
Maillet, A. J. (A)
Mason, R. S. (M)
McKee, F. J. (M)
Murphy, W. J. (M)
Price, J. M. (M)
Ramsey, C. E. (A)
Smith, T. J. (A)
Stryker, H. J. (M)
Wood, H. F. (A)
Yurasek, J. F. (M)

Rancocas Woods (PHI-3)
Gilmartin, T. A. (M)

Raritan (PRI-2)
Ditrick, N. H. (M)
Fucito, D. T. (M)
Kleppinger, R. E. (M)
Molnar, J. T. (A)
Newman, J. D. (M)
Pearson, D. B. (SM)
Troiano, A. (M)

Red Bank (NY-M-2)
Anderson, E. C. (SM)
Axeling, G. S. (M)
Bagwell, C. E. (SM)
Barrios, A. A. (M)
Bassler, S. G. (M)
Beck, A. C. (F)
Becker, S. M. (A)
Belzer, H. H. (SM)
Benowitz, R. B. (M)
Billick, P. (M)
Brown, J. W. (M)
Budenkaye, A. C. (M)
Bugnolo, D. S. (M)
Bush, J. A. (A)
Castellini, M. R. (A)
Chin, S. L. (M)
Cohen, M. (M)
Crawford, A. B. (F)
Crivello, A. A., Sr. (M)
Dathe, L. C. (A)
De Loach, B. C., Jr. (M)
Demko, J. G. (M)
Dickey, V. F. (M)
Doelger, R. J., Jr. (M)
Eells, J. J. (SM)
Ehrlich, W. E. (A)
Fox, A. G. (F)
Frankel, H. C. (SM)
Goodall, W. M. (F)
Hawley, R. C. (M)
Hogg, D. C. (SM)
Hunt, D. W. (M)
Hunt, L. E. (SM)
Jakes, W. C., Jr. (SM)
Johnson, G. D., Jr. (M)
Kaminow, I. P. (M)
Kaprelian, E. K. (SM)
Kibler, L. U. (M)
King, A. P. (SM)
Koch, O. F. (A)
Komofner, R. (F)
Kulinyi, R. (A)
Lacy, R. E. (SM)
Lane, L. M. (SM)
Lewis, G. (M)
Li, T. (M)
MacIlroy, A. P., Jr. (A)
Macleod, G. A. (M)
Marx, D. H. (M)
Massell, E. (SM)
Menhennett, G. H. (M)
Miller, H. V. (M)
Moore, J. C., Jr. (A)
Munn, K. J. (M)
Nilson, L. H. (M)
Novick, W. (M)
Ohm, E. A. (M)
Parisi, J. P. (A)
Perkins, O. D. (SM)
Peters, A. E. (M)
Pickover, M. B. (M)
Pinsley, R. S. (M)
Ring, D. H. (SM)
Rose, C. F. P. (SM)
Rowe, H. E. (M)
Sardo, W. (M)
Schmidt, J. L. (A)
Schwering, F. K. (M)
Senn, G. F. (SM)
Sharpless, W. M. (F)
Sher, H. T. (M)
Sideman, J. A. (M)
Stanley, H. T. (M)
Stout, J. E. (M)
Tillotson, L. R. (SM)

Trifolo, F. J. (M)
Turner, E. H. (SM)
Warters, W. D. (SM)
Wopat, J. W., Jr. (A)
Wright, D. S. (M)
Wurthmann, G. E. (A)
Zalesky, S. J. (M)

Ridgefield (NNJ-2)
Bhboo, P. (M)
Cheng, B. K. (M)
Frisiensky, C. A. (M)
Gershon, G. S. (M)
Olwig, R. F. (A)
Ricca, R. F. (M)
Ross, G. G. (M)
Spitz, T. S. (M)
Sterling, R. S. (A)
Sutherland, E. F. (M)

Ridgefield Park (NNJ-2)
Almette, A. A. (M)
Foster, R. M. (A)
Machi, D. (M)
Schott, J. R. (M)
Vinkman, V. V. (A)

Ridgewood (NNJ-2)
Anderson, C. W. (M)
Bailey, E. M. (A)
Blauvelt, D. H. (M)
Boyle, G. G. (M)
Clay, A. N. (M)
De Leon, J. (M)
Detlefs, H. (SM)
Donnell, J. R. (A)
Engel, G. C. (M)
Flitts, W. F. (M)
French, H. A. (SM)
Hinckley, R. H. (SM)
Holt, A. C. (SM)
Hutchinson, H. P. (SM)
Ilowite, R. (M)
James, S. D. (SM)
Johnson, F. H. (M)
Labagh, E. L. (M)
Mead, D. C., Jr. (M)
Mihalik, J. J. (M)
Mueller, J. F. (M)
Mulligan, J. H., Jr. (F)
Piel, S. A. (M)
Pitzalis, O., Jr. (M)
Priest, R. B. (M)
Puckette, C. M., Jr. (M)
Pufahl, E. R. (M)
Robinson, K. H., Jr. (A)
Rogers, T. I. (SM)
Scarpone, J. B. (M)
Schmalz, H. H. (M)
Simpson, L. C. (F)
Streich, R. J. (M)
Stubner, J. W. (M)
Troell, R. E. (M)
Walsh, P. P. (A)
Willis, J. S. (SM)

Riverdale (NNJ-2)
Cioli, E. J. (M)
Hegeman, B. L. (A)

River Edge (NNJ-2)
Balter, S. A. (M)
Baum, E. (M)
Biagi, A. D. (M)
Garfunkel, A. C. (M)
Gravel, C. L. (M)
Grybowski, T. M. (M)
Howitt, G. (SM)
Isert, I. L. (M)
Izzo, A. J. M. (A)
Kennedy, M. J. (M)
Matter, L. L. (M)
Mazzola, J. R. (SM)
Seldin, L. (SM)
Selover, P. F. (M)
Slack, S. J. (M)

River Plaza (NNJ-2)
Serwin, R. J. (M)

Riverside (PHI-3)
Bogush, A. J., Jr. (M)
Buy, B. P. (M)
Cashwell, R. C., Jr. (M)
Gardner, R. K. (M)
Kalmes, E. A. L. (A)
Schide, C. C., Jr. (M)
Stockton, E. M. (M)
Taylor, J. G. (M)
Vanmen, C. M. (M)

Riverton (PHI-3)
Allen, C. D. (M)
Alpeein, N. N. (M)
Arduso, N. F. (M)
Baron, A. S. (M)
Billoon, R. F. (SM)
Blumenstein, W. C. (M)
Bohn, J. T. (M)
Bollinger, W. P. (SM)
Bondy, M. F. (M)
Brown, F. R. (M)
Brown, L. (SM)
Burke, T. J. (M)
Burton, G. T. (M)
Butterfoss, E. J. (M)
Campbell, H. (A)
Canavan, T. P. (M)
Chapman, L. J. (M)
Coan, E. M. (SM)
Coffland, A. E. (A)
Corr, J. J. (M)
Curtin, W. A. (M)
Danheiser, E. L. (M)
Delker, A. G., Jr. (M)
Drake, J. C. (SM)
Dudziak, C. (M)
Dusheck, G. J., Jr. (M)
Fabbioli, L. F. (M)
Fallon, C. (A)
Falvey, T. L., Jr. (M)
Farrelly, R. J. (M)
Faust, A. C. (M)
Faustini, C. (M)
Gale, M. (M)
George, M. E. D. (A)
Gold, A. (SM)
Gold, J. L. (M)
Goodwin, W. V. (SM)
Hammel, D. G. (M)
Hartshorne, F. A. (M)
Herman, D. J. (M)
Hoefle, R. R. (SM)
Hong, J. C. T. (A)
Howells, J. A. (A)
Hunt, G. W., Jr. (M)
Jones, L. W. (M)
Kamen, D. A. (M)
Keys, D. D. (A)
Kitchens, L. E. (M)
Kreitzberg, S. B. (M)
Langley, L. E. (M)
Lavedan, L. J., Jr. (M)
Law, C. K. (SM)
Lawrance, W. J. (M)
Lawson, J. Q. (M)
Le Donne, F. (M)
Lee, G. C. (M)
Llewellyn, A. D. (M)
Long, K. G. (M)
Marsten, R. B. (SM)
McCaskill, W. K. (M)
McChesney, P. E. (M)
McCubbin, J. G. (M)
Mead, M. C., Jr. (A)
Mintzer, A. I. (M)
Moats, R. G. (M)
Nahay, L. P. (M)
Norcross, J. S., Jr. (A)
Oberman, J. R. (M)
Oseas, J. (M)
O'Toole, C. E. (SM)
Penfield, A. W. (A)
Pessin, L. (M)
Petraitis, J. A. (A)
Petrilla, A. D. (M)
Pfolker, M. H. (M)
Potter, E. A. (A)
Powell, W. E., Jr. (M)
Powell, W. K. (M)
Prant, A. (M)
Pritchard, C. J. (M)
Pruitt, D. L. (SM)
Quan, K. K. (M)
Raphelson, M. (M)
Reust, R. H. (M)
Rutledge, J. E., Jr. (M)
Schweiss, W. W. (M)
Scott, H. N. (A)
Shultz, R. S. (M)
Sidnam, R. D. (M)
Small, C. E. (M)
Smith, B. D. (M)
Spoelstra, R. J. (M)
Starlin, H. E. (A)
Streleckis, J. A. (M)
Strinkowski, N. W. (M)
Suther, G. A. (M)
Szczepkowski, T. G. (M)
Torbert, J. C., Jr. (M)
Turnow, W. F. (M)
Underwood, R. W. (M)
Vendeland, R. N. (M)
Voegtlen, H. D. (M)
Warnick, G. E. (M)
Watson, B. W. (M)
Weber, M. (SM)
Weiss, C. M. (M)
Westcott, H. H. (M)
Whiteside, R. B. (M)
Wieder, E. J., Jr. (M)
Wieler, C. E. (M)
Woodward, C. P. (SM)
Yager, R. W. (A)
Yarbrough, H. B. (M)

River Vale (NNJ-2)
Batuel, F. A. (A)
Betlejewski, F. J. (M)
Brain, B. (A)
Nelson, B. W. (M)

Robbinsville (PRI-2)
Scholz, K. W. (A)

Rochelle Park (NNJ-2)
Brannagan, T. H. (M)
Carroll, J. M. (A)
De Yoreo, R. (M)
Farber, D. J. (M)
Ferrando, R. J. (M)
Jones, G. E., Jr. (SM)

Rockaway (NNJ-2)
Beckmann, U. L. (A)
Benton, A. (M)
Blaustein, S. E. (M)
Dale, J. C. (M)
Davis, J. J. (M)
Frazier, L. M. (M)
Fundak, F. J. (M)
Gesinger, R. L. (A)
Goldstein, M. (M)
Greene, K. (SM)
Gulkis, D. (M)
Haupt, A. (M)
Horton, W. E. (M)
Humphries, J. H. (A)
Kelder, D. T. (M)
Klein, R. (M)
Mindes, A. S. (M)
Morgen, M. (M)
Nicola, E. J., Jr. (M)
Santos, J. S. (M)
Satz, R. G. (M)
Schmidt, D. J. L. (M)
Seeber, C. C. (M)
Uiga, E. (SM)
Varvaro, C. (M)
Wahlig, R. L. (M)
Williams, C. S. (M)
Zyskowski, J. J. (M)

Roosevelt (NY-M-2)
Myhre, R. (A)

Roseland (NNJ-2)
Ahlstedt, T. E. (SM)
Robinson, H. T., III (A)
Schwartz, S. (M)

Roselle (NNJ-2)
Barash, M. (M)
Boycks, E. C. (M)
Durand, I. G. (M)
Fanarjian, R. C. (M)
Frank, L. H. (A)
Saccente, J. C. (M)
Zoolakis, G. (M)

Roselle Park (NNJ-2)
Hanselman, K. J. (M)
Johnson, R. O. (A)

Rumson (NY-M-2)
Deisler, J. D. (M)
Friis, H. T. (F)
Golay, M. J. E. (F)
Gruol, J. W. (SM)
Kimmel, L. D. (M)
Stromberg, R. E. (M)

Runnemede (PHI-3)
Eckel, C. C. (M)
Jones, G. C. (A)
Nieh, N. Y. (M)
Norman, T. E. (A)
Williamson, W. H., Jr. (M)

Rutherford (NNJ-2)
Barthel, D. H. (M)
Corsani, T. W. (A)
Dasaro, J. A. (M)
Foster, J. E. (M)
Henzel, G. L. (A)
Juhas, L. A. (M)
Lohrenz, C. A. (M)
Loresti, A. P. (A)
Loresti, M. (M)
Manon, G. (M)
Medler, L. (M)
Moskowitz, C. (M)
Nashman, A. E. (SM)
Nienaltowski, W. (M)
Pieluc, E. T. (M)
Ponticas, S. (M)
Rau, A., Jr. (SM)
Ravner, S. M. (M)
Reenstra, W. A. (M)
Sammon, A. C. (A)
Schwartz, M. I. (M)
Scott, G. R. (M)
Simpson, W. F. (M)
Sledge, L. L. (M)
Staller, K. J. (M)
Thom, K. S. (M)
Van Winkle, E. W. (SM)
Walker, D. J. (M)
Walter, C. W. P. (SM)
Wattson, H. B. (SM)
Weinshenker, T. J. (M)

Saddle Brook (NNJ-2)
Auerbach, A. (M)
D'Amico, A. T. (M)
Feoranz, F. J. (M)
Gross, H. A. (M)
Nadkarni, D. D. (M)
Silver, M. (M)
Sterman, B. (M)
Torrey, L. W., Jr. (M)

Salem (PHI-3)
Bailey, L. W. (SM)
Morton, R. S. (M)
Periswaig, A. M. (M)

Scotch Plains (NNJ-2)
Ballinger, L. H. (M)
Barr, J. C. (M)
Bell, J. S. (M)
Bird, S. P. (M)
Butler, W. E. (M)
Charest, R. J. (A)
Dooley, G. F. (M)
Dranetz, A. (M)
Dworak, F. S. (M)
Forsyth, P. G. (SM)
Greene, W. J. (SM)
Hergenhan, O. (M)
Jensen, C. A. (M)
Jones, M. M. (A)
McLean, J. B. (M)
Montiller, J. A. (M)
Mueller, P. L. (M)
Nellis, S. (A)
Schultz, J. L. (SM)
Schumacher, R. A. (M)
Shippen, H. T. (M)
Young, C. B., Jr. (SM)

Sea Bright (NY-M-2)
Schnabolk, H. L. (M)

Seabrook (PHI-3)
Okamoto, K. (M)
Superior, W. J. (M)

Sea Isle City (PHI-3)
Bechler, W. C., Jr. (M)

Secaucus (NNJ-2)
Dewland, J. F. (M)
Tonn, J. L. (A)

Sewaren (PRI-2)
Lojewski, T. (A)

Sewell (PHI-3)
Collar, H. W. (SM)
Rostrom, R. W. (M)
Woodward, J. D. (SM)

Short Hills (NNJ-2)
Bodmer, M. G. (M)
Budenbom, H. T. (F)
Carroll, M. J. (SM)
Dabrowski, H. L. (A)
Dore, A. J. (A)
Gerber, G. V. (M)
Giese, R. C. (SM)
Granlund, J. (M)
Green, E. I., (F)
Handelmann, R. B. (SM)
Huber, G. H. (SM)
Jones, H. B., Jr. (M)
Kelly, M. J. (F)
Klehm, W. G., Jr. (M)
Merriam, F. F. (SM)
Olson, N. K. (M)
Schaumberg, F. L. (A)
Schisel, J. (SM)
Tucker, J. P. (M)
Vanderbilt, S. (A)
Wertz, H. S. (SM)
Whittemore, L. E. (F)
Wright, A. K. (SM)
Ziegler, A. W. (SM)

Shrewsbury (NY-M-2)
Bechmann, R. (F)
Bernhardt, W. L. (M)
Covici, W. (M)
Czerwinski, W. P. (M)
Davis, R. C. (A)
Edmonds, E. E. (SM)
Gerhold, R. A. (M)
Govinsky, W. (A)
Johnstone, J. H. (SM)
Layden, O. P. (M)
Maloney, T. E. (M)
Rehm, W. L. (SM)
Ross, A. H. (SM)

Sicklerville (PHI-3)
Ayres, J. J. (M)
Berry, R. L. (A)

Signac (NNJ-2)
Fetko, J. F. (M)

Somerdale (PHI-3)
Darmofal, W. A. (M)
Haworth, R. F. (M)
Holt, J. M. (M)
Howell, M. (M)
Insalaco, P. J. (A)
Kolodin, L. (A)
Larson, K. E. (M)
Mascoli, V. J. (A)
Metzler, M. A. (M)
Peperissa, T. C. (M)
Ross, M. D. (M)
Warren, W. L. (M)
Weisenfeld, S. (M)

Somers Point (PHI-3)
Gaito, K. W. (M)
Holmquist, J. A. (M)
Mayer, D. S. (M)
McNulty, F. E. (M)

Somerville (PRI-2)
Ahrons, R. W. (M)
Armstrong, L. D. (M)
Barrett, C. W. (M)
Boesenberg, W. A. (SM)
Brooks, B. (M)
Buehler, R. K. (M)
Cohen, E. (M)
Collings, F. C., Jr. (M)
Cormier, R. A. (M)
Di Stefano, R. T., Jr. (M)
Donahue, D. J. (M)
Erb, G. H. C. (M)
Fournier, R. V. (SM)
Gibbons, L. H., Jr. (M)
Gifford, J. S. (M)
Glover, A. M. (F)
Gobat, A. R. (SM)
Gold, R. D. (M)
Good, L. H. (SM)
Greig, W. J., Jr. (M)
Hance, H. V. (SM)
Hilibrand, J. (M)
Imrie, R. W. (M)
Jacobus, L. A., Jr. (M)
Jones, R. B. (F)
Johnson, R. R. (M)
Kelly, R. L. (SM)
Kestenbaum, A. L. (M)
Kleinman, H. M. (M)
Koch, P. F. (M)
Krauss, D. M. (M)
Lederhandler, S. R. (A)
Levin, B. B. (M)
Levy, D. T. (M)
Lewinstein, M. (SM)
Lohman, R. D. (M)
Luedicke, E. (M)
McLaughlin, K. M. (SM)
Okun, A. M. (SM)
Olmstead, J. A. (M)
Painter, R. R. (M)
Palmquist, H. H. (M)
Parker, H. (A)
Peckover, P. A. (M)
Pinto, R. C. (M)
Plus, L. (M)
Roettcher, C. A. (A)
Ross, A. J. (SM)
Rustako, A. J., Jr. (A)
Santilli, R. A. (M)
Sundburg, J. H. (M)
Thanos, H. (M)
Thorne, D. (M)
Veloric, H. S. (M)
Vossen, J. L. (M)
Wheeler, A. J. (M)
Wybrands, K. (M)
Zuk, B. (M)

South Amboy (PRI-2)
Espenshade, D. L. (M)
Holahan, J. F. (A)
Kaluzny, E. F. (A)
Kilcomons, W. H. (M)
Rauth, R. G. (M)

South Bound Brook (PRI-2)
Dobrowolski, R. M. (M)
Hemmer, R. J. (A)
Kalish, I. H. (M)

South Hackensack (NNJ-2)
Sherman, E. W. (A)

South Merchantville (PHI-3)
Doyle, J. C. (M)

South Orange (NNJ-2)
Bonanno, J. L. (SM)
Burman, R. S. (F)
Crowley, H. L. (SM)
Harris, W. A. (F)
Hight, S. C. (F)
Miller, H. J. (SM)
Robison, R. M. (M)
Stanwick, C. A. (M)
Stewart, J. H. (M)

South Plainfield (PRI-2)
Bellew, F. N. (SM)
Brooks, W. D. (M)
Goehner, R. H. (M)
Greenman, R. (M)
Hoyt, R. S. (M)
Hunter, F. L., Jr. (M)
Kimble, C. B. (M)
Lipnick, J. (A)
Misdon, W. E. (M)
Pettersen, A. (M)
Pickering, W. C. (M)
Rogers, H. D., Jr. (A)
Shalvoy, R. E. (M)
Silbermann, G. F. H. (M)
Sirotkin, A. L. (A)
Tesno, R. R. (SM)
Wolfe, R. W. (M)

South River (PRI-2)
Blanchard, C. K. (M)
Edwards, W. L. (M)

South Somerville (PRI-2)
Della-Torre, E. (M)

Sparta (NNJ-2)
Hearn, E. F. (M)
Hussey, L. W. (SM)
Lundstrom, A. A. (SM)

Spotswood (PRI-2)
Nachbar, M. S. (M)
Pike, G. W. (A)
Sideris, G. W. (A)

Springfield (NNJ-2)
Bagley, D. S. (M)
Baker, D. (A)
Cunningham, F. W. (SM)
Emmel, L. L. (M)
Field, W. T. (M)
Garber, A. M. (M)
Hall, G. M. (M)
Hartz, W. W. (M)
Levy, M. L. (SM)
Liberman, M. E. (M)
Martinovitch, V. N. (M)
McDowell, H. L. (M)
Meisel, H. R. (M)
Melroy, D. O. (M)
Ollendorf, J. (M)
Pollacek, E. H. (M)
Rawicz, H. C. (M)
Rice, D. W. (M)
Sensale, C. J. (M)
Silverstein, A. N. (M)
Wells, G. W. (M)
Wolfe, G. (SM)
Wolff, J. P. (M)

Spring Lake (NY-M-2)
Huber, W. A. (SM)
Voigt, G. (A)
Witham, R. G. (M)

Spring Lake Heights (NY-M-2)
Huband, L. W. (M)

Stanhope (NNJ-2)
Grogan, D. E. (M)

Stirling (NNJ-2)
Himann, J. (SM)
Swartzwelder, J. C. (A)

Stratford (PHI-3)
Casey, C. B. (M)
Holaday, V. D. (M)
Johnson, P. O. (M)
Matty, H. B., Jr. (M)
McAllister, N. F. (M)
Parnell, H. A. (M)
Shellock, J. V. (A)
Vinci, F., Jr. (M)
Weinrich, A. W. (M)

Succasunna (NNJ-2)
Abbott, J. D. (M)
Apostolakis, G. C. (M)
Di Stadio, D. (M)
Habib, N. (M)
Hangley, R. M. (M)
Hauck, G. (M)
Johnson, J. R. (M)
Johnson, L. C. (M)
Lightcap, E. T. (M)
Moss, A. M. (M)

Summit (NNJ-2)
Baker, P. A. (M)
Black, H. S. (F)
Bost, J. F. (M)
Carlson, K. J. (M)
Champlin, R. B., Jr. (M)
Chasek, M. B. (M)
Cheo, B. R. S. (M)
Cohen, G. (M)
Davis, R. E. (M)
Denton, R. T. (M)
Diemer, F. P. (M)
Doucette, E. I. (M)
Dudley, H. W. (SM)
Early, J. M. (F)
Evans, H. W. (SM)
Evers, L. (A)
Ewoldt, H. J. (M)
Frazier, W. R., Jr. (M)
Grierson, C. A. W. (SM)
Griffin, W. F. (SM)
Hammell, R. (M)
Hanchett, G. D. (SM)
Hartley, R. V. L. (F)
Hathaway, S. D. (M)
Haverty, M. B. (M)
Haynie, G. D. (M)
Helsing, R. A. (F)
Helms, H. D. (M)
Hensel, M. L. (M)
Higgins, R. H. (M)
Hoth, D. F. (SM)
Howden, W. E. (M)
Hughes, E. C., Jr. (SM)
Johnson, R. L. (M)
Kaiser, E. T. (SM)
Kaiser, J. F. (A)
Kelly, H. P. (M)
Kirsche, R. N. (M)
Klisopoulos, S. C. (SM)
Koslov, S. (M)
Long, M. B. (M)
Lundry, W. R. (SM)
Marshall, R. W. (M)
Mayhew, A. G. (A)
McClelland, W. R. (A)
McCullough, R. H. (M)
Means, W. J. (SM)
Meise, H. A., Jr. (M)
Meyer, R. H. (A)
Miller, B. T. (A)
Moore, R. F., Jr. (M)
Moster, C. R. (M)
Nordahl, J. G. (SM)
Ozsvath, D. R. (M)
Pain, D. H. (A)
Perry, I. D. (M)
Phillipo, R. C. (M)
Quinby, E. J. (M)
Raynsford, C. K. (M)
Rechtenbaugh, D. L. (M)
Richards, P. C. (M)
Rollman, R. F. (M)
Savoca, J. G. (M)
Seelen, H. R. (SM)
Shepard, F. H., Jr. (M)
Small, L. M. (A)
Snedeker, D. E. (M)
Snyder, G. H. (M)
Stevens, F. J. (M)
Tendick, F. H., Jr. (M)
Terrell, R. M., III (M)
Thomas, G. B., Jr. (SM)
Townsend, R. L. (M)
Treitel, W. S. (M)
Waddell, R. E. (M)
Wagenhals, E. R. (M)
Witt, F. J. (M)
Yost, L. A. (SM)

Sussex (NNJ-2)
Bliss, D. C. (A)

Teaneck (NNJ-2)
Ball, J. L. (M)
Benamy, D. A. (M)
Borg, R. H. (A)
Chamberlain, L. J. (M)
Chesley, G. D. (M)
Colloff, I. (M)
De Jongh, E. (A)
Dolinko, L. (M)
Ennis, F. T. (M)
Galbraith, J. E. (M)
Gannett, E. K. (SM)
Greenquist, R. E. (M)
Heitmann, R. F. (M)
Hertzberg, I. (M)
Jacobs, B. H. (M)
Kalin, F. (M)
Kinn, A. J. (M)
Kramer, G. L. (M)
Kurtz, A. D. (M)
Lawrence, C. W. (M)
Levy, D. (M)
Levy, G. (A)
Ludwig, M. L. (M)
Luhrs, C. H. (M)
Luskin, B. (M)
Mayor, R. (A)
McCarthy, G. F. (M)
Meyers, J. G. (SM)
Mezger, G. R. (SM)
Mittenthal, R. S. (M)
Pearl, S. L. (M)
Pincus, B. G. (M)
Pittler, M. S. (M)
Pulley, A. A. (M)
Quance, F. R. (M)
Rensin, E. (M)
Roesch, B. D. (M)
Rugo, J. J. (A)
Sather, O. J. (SM)
Shaft, P. D. (M)
Sheer, C. (SM)
Solomon, S. M. (M)
Tsao, T. C. (SM)
Verseput, P. C. (A)
Victor, H. W. (SM)
Weber, S. (M)
Wood, T. A. (M)
Woolf, J. (A)
Zimmerman, J. R. (M)

Tenally (NNJ-2)
Adams, R. H. (A)
Anthony, R. L. (SM)
Border, B. (A)
Del Ben, R. A. (M)
Engel, J. S. (M)
Hull, R. E. (M)
Iwahashi, K. K. (A)
Katzberg, J. (M)
Litsios, J. (A)
Lunghard, C. T. (M)
Mayo, H. L. (M)
Newton, H. L. (M)
Parker, S. R. (M)
Sciorra, A. F. (M)
Unger, W. H. (M)

Teterboro (NNJ-2)
Boehm, G. W. (A)
Dorman, H. S. (M)
Keetch, W. A. (M)
Kowalik, F., Jr. (A)
McCaul, J. N. (A)
Molnar, R. J. (A)
Nietsch, H. E. (A)
Robinson, C. S. (M)
Shangraw, C. C. (SM)
Sprung, R. A. (M)
Starek, R. A. (M)
Watts, C. D., Jr. (A)
Welsh, D. R. (M)

Toms River (NY-M-2)
Dreessen, W. B. (M)
Dunn, W. J. (A)
Faust, D. W. (M)
Hartley, J. H. (M)
Helmus, D. H. (A)
Jackson, P. F. B. (M)
Jacob, R. E. (M)
Mangold, E. J. (M)
Pyenson, J. I. (A)

Totowa (NNJ-2)
Leahy, G. F. (M)
Marantz, H. V. (M)
Monsees, W. A. (M)
Unger, A. (M)

Totowa Borough (NNJ-2)
Helnis, F. W. (A)
Van Manen, S. (M)
Wehner, J. H. (M)

Towaco (NNJ-2)
Bird, H. H. (A)
Edmunds, J. J., Jr. (M)
Huetiner, O. A. (M)
Muller, E. E. (M)

Trenton (PRI-2)
Bender, M. (M)
Carver, L. A. (M)
Celmer, P. R. (M)
De Chico, R. A. (M)
Edwards, L. M. (A)
Ernst, W. P. (M)
Fausey, D. C. (M)
Ferber, L. W. (SM)
Garfinkel, A. R. (SM)
Harris, F. M. (M)
Hull, D. H. (M)
Inslee, J. A. (M)
Klotz, C. G. (M)
Kucker, J. A. (M)
Kunickl, H. R. (M)
Lavin, R. D. (A)
Lisinski, Z. J. (M)
Logan, R. G. (M)
Mariani, E. A. (M)
Merritt, J. F. (M)
Miller, H. S. (M)
Molnar, J. G. (M)
Monshaw, J. H. (M)
Peters, F. D. (A)
Popelarski, A. F. (M)
Power, J. B. (A)
Raser, E. G. (SM)
Ratz, A. G. (M)
Remis, B. R. (M)
Rogers, A. E. (M)
Sabisky, E. S. (M)
Seideman, I. M. (M)
Snedaker, D. G. (M)
Sowiak, M. M. (M)
Strother, W. F. (A)
Szmauz, L. (M)
Szwedo, S. G. (A)
Ulrich, J. K. (M)
Wentzel, A. G., Jr. (M)
Yard, E. M. (M)
Zimmermann, K. A. (M)

Troy Hills (NNJ-2)
Sumrell, F. N. (SM)

Union (NNJ-2)
Anderson, N. E. (M)
Bonnelycke, B. E. (M)
Brunje, R. M. (M)
Chartoff, M. (M)
D'Agostino, V. F. (M)
Davis, E. S. (M)
Deo, J. A. (A)
Dreker, H. C. (A)
Edwards, J. B. (M)
Frank, D. N. (A)
Gershen, B. J. (M)
Goldman, J. (A)
Hemmendinger, B. G. (M)
Hickey, E. J. (M)
Jahn, C. W. (A)
Kiesling, J. D. (M)
Lambert, G. W. (A)
Mathews, R. H. G. (SM)
Metzler, R. (A)
Miller, E. F. (M)
Miller, L. (M)
Nagy, J., Jr. (M)
Polkosnik, C. F., Jr. (M)
Prangley, A. G. (M)
Sakatos, M. J. (M)
Salduti, A. R. (M)
Saloom, J. A. (M)
Schneider, A. (M)
Snyder, V. A. (A)
Tell, C. J. A. (A)
Uebelhoer, H. K. (M)
Weinberg, M. (M)
Weintraub, N. (SM)
Woemer, G. R. (M)

Union City (NNJ-2)
Corson, D. E. (SM)
Danzo, P. A., Jr. (A)
Delguidice, T. F. (M)
Galoopo, D. E. (A)
Matto, V. G. (A)
Piccione, N. A. (M)
Savi, L. (M)
Vaughan, C. B. (A)
Werner, N. P. (A)

Upper Montclair (NNJ-2)
Adams, P. R. (F)
Beisel, F. A. (M)
Blancke, T. B. (M)
Borden, E. W. (SM)
Buck, T. F. (M)
Chipp, R. D. (F)
Christaldi, P. S. (F)
De Falco, N. J. (M)
De Rosa, L. A. (F)
Dishal, M. (F)
Dunn, J. G. (M)
Ferguson, J. G. (SM)
Flynn, H. (M)
Fraser, G. K. (M)
Goldsmith, T. T., Jr. (F)
Gombos, J. E. (A)
Hamilton, R. D. (M)
Hart, F. D. (A)
Hicks, B. A. (SM)
Hunkins, H. R. (M)
Huntley, H. R. (F)
Johnson, J. L. (A)
Mandzik, M. M. (M)
Nagy, L. D. (A)
Osborne, H. S. (F)
Peer, G. C. (A)
Ruiter, J. H., Jr. (SM)
Siegel, R. (A)
Sparrow, E. L. (M)
Stanton, F. T., Jr. (A)
Stone, W. R. (M)
Sullivan, J. F. (M)
Terhune, H. R. (SM)
Warner, H. M. (A)
White, R. J. (M)

Upper Saddle River (NNJ-2)
Feldkamp, L. P. (M)
Havstad, H. (SM)
Sereno, C. A. (SM)
Weiner, M. J. (M)

Vaux Hall (NNJ-2)
Seldon, C. (M)

Ventnor (PHI-3)
Clavier, A. G. (F)

Ventnor City (PHI-3)
Longo, P. (M)
Williamson, H. G. (M)

Verona (NNJ-2)
Barosin, S. (M)
Baxter, C. L. (A)
Behrends, W. E. (M)
Beltz, W. F. (SM)
Beste, H. E. (SM)
Boronow, F. S. (A)
Butler, H. R. (SM)
Callanan, W. F. (M)
Caruso, C. (SM)
Curtis, L. B. (M)
Dillon, J. J. (A)
Feyder, F. J. (M)
Flynn, C. W. (M)
Harac, S. S. (M)
Hectus, G. V. (M)
Hershoff, L. (SM)
Hooos, H. W. (A)
Hulst, G. D. (SM)
Jacobs, G. W. (M)
Janoff, A. (M)
Kram, W. (M)
Lawless, W. J. (M)
McDonough, V. T. (M)
Metzger, A. C. (M)
Polkinghorn, F. A. (F)
Rymer, R. H. (M)
Scheraga, M. G. (SM)
Scherer, M. (M)
Smith, E. J. (M)
Smith, H. R. (M)
Stegner, C. B. (SM)
Tobler, C. R. (M)
Tompson, E. C. (A)
Walrath, D. J. (M)
Zelen, H. J. (M)

Vincentown (PHI-3)
Collins, D. H. (M)

Vineland (PHI-3)
Lolli, A. V. (M)
Waugh, J. R., Jr. (M)

Waldwick (NNJ-2)
Atkin, J. (M)
Broderick, N. E. (SM)
Brown, T. M. (A)
De Witt, R. G. (M)
Guido, J. A. (M)
Juba, S. J. (M)
McGuire, J. C. (A)
Miller, C. L. (A)
Pearson, D. D. (A)
Piazza, M. (M)
Schumacher, H. L. (M)
Shaler, D. (SM)
Starrett, W. A. (A)

Wallpack (NNJ-2)
Houck, H. W. (F)

Wanamassa (NY-M-2)
Acker, M. (M)
Chewey, V. C. (M)
Cohen, A. E. (SM)
Goldberg, B. (SM)
Kunnapfel, R. H. (SM)
Leinkram, C. Z. (SM)
Miller, M. (M)
Resnick, A. (M)
Sinnott, D. J. (M)
Wiener, A. (M)

Washington (NNJ-2)
Aten, D. C. (M)
Campas, W. (M)
Feindel, A. (M)
Neuls, C. W. (A)
Schmidt, A. F., Jr. (A)
Simon, I. M. (M)

Watchung (NNJ-2)
Hellstrom, M. J. (SM)
Hoeckele, W. J. (A)
Jones, S. R. (M)
Wehof, H. (M)

Wayne (NNJ-2)
Appleberry, T. K. (M)
Armstrong, T. R. (M)
Beaton, H. C. (M)
Berkley, A. Y. (SM)
Bonazza, W. J. (M)
Brown, A. T., III (M)
Bruggeman, J. T. (M)
Butterworth, J. W. (SM)
Caspar, C. W., Jr. (M)
Des Jardins, R. A. (A)
Dilatush, E. (M)
Ecklund, E. E. (SM)
Evans, N. L., Jr. (M)
Fockler, W. G. (SM)
Fosher, W. A. P. (M)
Goldstein, H. (M)
Gregory, L. A., Jr. (M)
Gutleber, F. S. (M)
Hamlin, J. C. (M)
Hilton, J. J. (M)
Kass, J. S. (M)
Katz, A. J. (SM)
Kern, G. A. (SM)
Koudelka, O. (A)
Lay, C. A., Jr. (A)
Legendre, V. (M)
Lehman, G. C. (M)
Liljegren, J. C. (M)
Lucas, E. F. (M)
Mohn, D. L. (M)
Mumford, E. L. (M)
Murphy, D. F. (M)
Mutz, H. R. (SM)
Nemeroff, I. (M)
Numrich, F. H. (SM)
Peters, G. J. (M)
Potash, J. (M)
Rich, P. A. (A)
Ryan, H. J. (M)
Schmidt, L. (M)
Schreiber, S. (M)
Spelle, T. F. (A)
Struck, H. E. (M)
Thierpartner, G. J. (A)
Thompson, W. T. (M)
Timmerman, J. G. (A)
Umbach, P. E. (M)
Underhill, E. M. (SM)
Washburn, C. L. (M)
Williams, R. J. (M)
Wixson, F. C. (SM)
Wolfish, H. H. (M)
Yaroshko, P. (M)

Wayne Township (NNJ-2)
Blake, N. A. (M)
Grimes, W. M., Jr. (M)

Weehawken (NNJ-2)
Armstrong, D. T. (A)
Bodonyi, A. B. (M)
Mahony, J. P. (M)

Wenonah (PHI-3)
Robinson, J. L. (M)

West Allenhurst (NY-M-2)
Brockel, H. W. (A)
Friedrich, V. L. (SM)
Levine, R. H. (SM)
Lewis, H. M. (SM)
Ramella, P. R. (M)
Steelman, K. C. (A)
Treston, P. (M)

West Belmar (NY-M-2)
Applegate, G. W. (M)
Fliegler, E. (M)

West Berlin (PHI-3)
Trimble, J. E. (M)

West Caldwell (NNJ-2)
Beyer, F. J. (M)
Brundage, J. H. (SM)
Capodanno, R. T. (SM)
Cerino, R. (M)
Chemack, G. (M)
Crump, E. E. (SM)
Dunn, R. H. (M)
Eberhard, L. E. (M)
Edge, W. H. (M)
Friedman, S. L. (M)
Gilbert, R. W. (F)
Grundler, H. L. (M)
Hampshire, R. A. (M)
Hessinger, P. S. (SM)
Knoop, W. A., Jr. (SM)
Kolleboojian, G. (M)
Levine, S. B. (M)
Lynn, P. R. (M)
Matthews, T. N. (A)
Myers, R. H. (A)
Quickel, T. E. (M)
Reiner, R. L. (M)
Richardson, G. G. (SM)
Richardson, R. J. (M)
Rusinow, K. (M)
Schade, O. H. (F)
Seybold, A. M. (SM)
Shepard, R. H. (M)
Stalder, J. J. (M)
Steiner, J. W. (M)
Toepel, W. A. (M)
Walzer, F. (M)
Zemanian, A. H. (SM)

West Collingswood (PHI-3)
Cummings, J. J. (SM)
Levy, A. S. (M)
O'Brien, J. A. (SM)
Orth, R. B. (M)
Perry, R. A. (M)
Polwat, J. S. (A)
Ryerson, C. M. (SM)
Tomei, J. B. (M)
Williams, D. E. (M)

West End (NY-M-2)
Chazen, J. (M)
Mattson, R. A. (M)

NEW JERSEY

Tenzer, M. (SM)
Winters, A. L. (A)

West Englewood (NNJ-2)
Bitner, R. E. (M)
Boesch, D. R. (M)
Bucholtz, M. N. (M)
Fagan, E. P. (A)
Gelling, H. F. (M)
Krainin, S. (M)
Kuss, P. W. (SM)
Newdow, I. (M)
Schnoll, N. (SM)
Segal, J. B. (M)
Shenk, E. R. (SM)

Westfield (NNJ-2)
Augustadt, H. W. (SM)
Bachrach, H. E. (M)
Barker, R. A. (M)
Beeny, L. S. (SM)
Beltz, D. M. (M)
Bergan, M. D., Jr. (A)
Brehm, J. H. (M)
Burniller, G. B. (M)
Canavan, J. J. (M)
Clements, D. F. (M)
Cravis, H. (M)
Cunniff, T. W. (M)
Duyhi, L. J. (A)
Edwards, R. (SM)
Fineman, T. P. (M)
Follingstad, H. G. (SM)
Foster, R. M. (F)
Hayward, W. S., Jr. (M)
Hopkins, C. H. (M)
Imoltis, D. (M)
Jackson, W. H. (M)
Jensen, T. F. (M)
Leeds, M. (M)
Leggett, E. P. (M)
Lott, D. H. (A)
Magoill, L. T., Jr. (M)
Massey, R. P. (A)
McCormack, R. J. (A)
Meyer, B. W. (M)
Moons, A. G., Jr. (M)
Nein, H. R. (M)
Perez, C. P. (SM)
Peterson, L. J. (M)
Sensenig, W. A. (M)
Shepard, R. M. (A)
Siegelin, C. O. (SM)
Smith, J. W. (SM)
Smith, K. D. (SM)
Suchomel, M. (A)
Warner, H. K. (M)
Watts, R. N. (M)
Welsh, W. A. (SM)
Wier, J. M. (M)
Wohlgemuth, A. J. (M)
Wolf, B. H. (SM)
Yaskoff, R. (M)
Young, C. E. (M)

West Long Branch (NY-M-2)
Abbott, N. A. (SM)
Anderson, B. S. (SM)
Barbour, T. M. (M)
Berman, G. (M)
Bonicllo, A. (M)
Castle, B. B. (M)
Curry, D. D. (M)
Deisinger, D. A. (SM)
Doxey, W. L. (M)
Esposito, S. M. (M)
Farlee, R. J. (M)
Gikow, E. (SM)
Gore, T. S., Jr. (M)
Griffith, P. E. (SM)
Grubman, S. (M)
Gutwein, G. K. (SM)
Howard, J. E. (M)
Jacobs, H. (SM)
Kublin, V. J. (M)
Kullback, I. (M)
Labanca, D. L. (M)
La Marca, P. J. (M)
Lippel, B. (M)
Lipton, M. H. (M)
Martinson, F. L. (SM)
McKenna, F. A. (SM)
Newberg, J. (M)
O'Brien, J. F. (M)
O'Dwyer, M. S. (M)
Segner, S. M. (SM)
Smidowicz, T. Z. (M)
Spergel, J. (M)
Teti, J. E. (M)
Vieweger, A. L. (SM)
Vogler, J. G. (M)
Wolinsky, A. (A)

West Milford Township (PRI-2)
Kuller, K. K. (M)

Westmont (PHI-3)
Beezer, J. E. (M)
Carrell, R. M. (M)
Cepas, P. J. (M)
Chaba, P. (M)
Dennison, R. C. (M)
Dilley, J. E. (M)
Fast, H. (M)
Garabedian, H. B. (M)
Hald, H. R. (M)
Krupa, J. E. (A)
Leidy, H. W. (A)
Mullen, D. J. (M)
Orlov, I. (M)
Pandolfi, D. L. (M)
Pierce, D. L. (A)
Rapoza, E. J. (M)
Sinnett, C. M. (F)
Sloan, J. E. (M)
Szlaczky, C. A. (A)
Yourich, A. A. (A)
Zartman, N. B. (M)

West New York (NNJ-2)
Alecci, D. E. (M)
Da Silva, L. F. (M)
Davis, G. B. (M)
Hershberg, D. E. (M)
McPhee, A. J. (M)
Pierro, V. A. (A)

West Orange (NNJ-2)
Abate, J. F. (M)
Adler, A. W. (A)
Albanese, D. F. (M)
Baron, H. M. (M)
Belott, N. J. (A)
Bernstein, B. (M)
Blanchard, W. A. (M)
Booth, R. P. (SM)
Dzik, A. (SM)
Edison, T. M. (M)
Felker, J. H. (F)
Fishbein, S. B. (SM)
Frasco, W. V. (M)
Goldshine, A. D. (M)
Goldstein, M. K. (SM)
Grady, C. B., Jr. (M)
Grayson, E. L. (M)
Greenberg, H. (M)
Greenfield, G. (M)
Haddad, R. A. (M)
Hess, R. C. (M)
Hetherington, G. V. (A)
Horvath, B. N. (A)
Huber, P. E. (M)
Kantrowitz, W. (A)
Karpeles, M. A. (M)
Kishpaugh, A. W. (SM)
Kolondra, F. (M)
Langford, R. C. (SM)
Mann, O. J. (M)
Masson, F. Y. (SM)
McBride, T. G. (M)
Milner, C. M. (M)
Nachtigall, S. (SM)
Newman, R. J. (SM)
Okean, H. C. (M)
Padalino, J. J. (SM)
Panter, P. F. (SM)
Peitzer, H. E. (SM)
Perry, D. P. (M)
Peters, F. H. F. (A)
Pfersch, G. H., Jr. (M)
Puder, R. K. (A)
Reed, E. D. (M)
Reilly, W. C. (M)
Reise, H. A. (SM)
Riemenschneider, N. L. (M)
Rosenthal, M. S. (M)
Saltzberg, B. R. (M)
Sapoff, M. (M)
Schottland, F. D. (SM)
Segers, R. G. (M)
Shamis, S. S. (SM)
Shimp, C. H. (A)
Smith, J. F. (A)
Snow, H. A. (F)
Solek, L. R. (M)
Tulchin, H. (SM)
Wagner, R. L. (M)
Zmuda, E. J. (M)

West Paterson (NNJ-2)
Cullari, C. C. (M)
Knight, R. T. (M)
Tu, J. C. (M)
Woncik, M. (M)
Young, D. A. (M)

Westville (PHI-3)
Baer, J. (SM)
D'Andrea, D. J. (M)
Sinclair, G. (M)

Westwood (NNJ-2)
Anaya, F. J. (M)
Clark, S. F. (M)
Dickerson, T. J. (A)
Duschka, W. A. (M)
Elwell, H. G., Jr. (M)
Gordon, M. J. (M)
Gregory, G. S. (SM)
Gunderson, L. C. (M)
Hirsch, R. M. (SM)
Kamena, D. H. (M)
Lender, A. (M)
Link, F. M. (SM)
O'Connell, E. P., Sr. (M)
Rudd, C. D. (M)
Scharg, G. A. (M)
Schentes, M. J. (SM)
Siegel, P. (M)
Soanes, W. M. (M)
Stevens, P. L. (A)
Warden, F. W. (SM)
Ware, D. H. (M)
Woodin, R. H. (M)
Young, F. E. (M)
Zangenberg, H. E. (M)

Wharton (NNJ-2)
Hart, R. E. (A)
Hoh, W. L. (A)
Klapach, P. (A)
Krueger, P. C. (M)
Obee, R. A. (A)
Soussa, D. S. (A)
Vandak, R. F. (M)

Whippany (NNJ-2)
Alsberg, D. A. (SM)
Anderson, A. B. (M)
Anderson, G. M. (SM)
Anselmo, D. R. (M)
Armistead, W. H., Jr. (M)
Armstrong, C. A. (SM)
Bachman, W. J. (SM)
Baird, J. A. (SM)
Baker, G. H. (M)
Baldwin, E. G. (M)
Barnard, R. L. (A)
Barstow, J. M., Jr. (M)
Bearer, P. J. (SM)
Becraft, C. E. (A)
Bedell, E. H. (M)
Beeler, T. L. (M)
Berger, L. C. (M)
Blair, R. R. (SM)
Bode, H. W. (F)
Boheen, A. K. (SM)
Bollman, J. H. (SM)
Boyce, P. M. (M)
Boysen, A. P., Jr. (M)
Brass, R. L. (M)
Brenneman, D. (M)
Brodnax, C. T. (M)
Brown, D. J. (M)
Brown, L. O., Jr. (M)
Bryan, C. E. (M)
Budlong, W. A. (M)
Burco, R. A. (M)
Busch, K. J. (A)
Cagle, W. B. (M)
Carretta, P. M. (M)
Cavanagh, A. (SM)
Chasteen, J. T. (M)
Clarke, D. R. (M)
Clement, W. (SM)
Clutts, C. E. (M)
Cocchiaro, M. (A)
Compton, H. B. (SM)
Connell, J. B. (M)
Coulter, D. M. (M)
Crater, T. V. (M)
Dale, G. V. (M)
Daley, I. W. (M)
Danylchuk, I. (M)
Darnell, P. S. (F)
De Graaf, D. A. (M)
De Motte, F. E. (SM)
Dietzold, R. L. (F)
Dintenfass, J. (M)
Dollard, P. M. (M)
Dominck, J. B. (SM)
Dorn, R. J. (M)
Dudek, S. J. (M)
Dungan, M. R. (SM)
Dunlap, K. S. (M)
Eggers, F. G. (M)
Elias, L. G. (SM)
Elliott, J. J. (M)
Emshwiller, M. (M)
Engstrom, O. D. (SM)
Fair, I. E. (M)
Fairweather, B. A. (M)
Favin, D. L. (M)
Fleming, H. C. (SM)
Franke, H. C. (M)
Frantz, D. R. (SM)
Freeman, E. R. (M)
Fuss, P. S. (M)
Gallant, R. J. (A)
Gamble, G. L. (M)
George, J. E. (M)
Ghiron, H. (A)
Gieseler, L. P. (M)
Giloth, P. K. (A)
Glesnes, R. W. (M)
Goldstein, H. L. (M)
Gresham, H. V. (A)
Gruitzner, R. W. (M)
Haber, K. H. (M)
Harding, P. A. (M)
Haught, D. E. (M)
Hays, F. R. (M)
Hearn, R. B. (SM)
Heber, E. (A)
Heberlein, A. A. (SM)
Hibbert, J. J. (M)
Hinck, L. L. (M)
Hodde, F. W. (M)
Hoffmann, E. H. (M)
Hohmann, G. D. (M)
Huff, D. N. (A)
Ingerson, W. E. (M)
Jacobs, I. (M)
Janiszewski, F. A. (M)
Joel, A. E., Jr. (SM)
Johnson, G. D. (SM)
Johnson, J. E. (M)
Kasper, F. J. (M)
Kay, A. M. (M)
Kelley, W. E. (M)
Ketchledge, R. W. (SM)
Kindberg, E. V. (M)
Kirkpatrick, W. E. (SM)
Kirkwood, L. W. (SM)
Kiss, M. J. (M)
Klahn, R. (M)
Koenig, W., Jr. (A)
Kovach, L. D. (M)
Krauss, W. N. (M)
Kriegler, R. W. (M)
Lane, R. F. (SM)
Larsen, L. F. (M)
Lauver, R. M. (M)
Leavitt, J. R. (M)
Lee, C. Y. (M)
Lenigan, T. E. (M)
Lin, Y. S. (M)
Linder, S. L. (SM)
Lindsey, P. D. (M)
Lowell, R. (M)
Lowry, G. M. (A)
Lowry, T. N. (M)
Lozier, J. C. (SM)
Lund, N. (M)
Lunney, R. E. (M)
Macchio, H. A. (M)
MacWilliams, W. H., Jr. (SM)
Marshall, J. L., Jr. (M)
Martin, D. W. (A)
Martin, J. F. P. (M)
Matthews, H. (M)
Mattingly, R. L. (SM)
Maurer, J. W. (M)
May, J. E., Jr. (SM)
McBride, A. L. (M)
McCarthy, J. A. (SM)
McCoy, J. C. (SM)
McGune, R. J. (A)
McMillan, B. (SM)
McWhan, B. (M)
Mead, R. (A)
Medwin, A. H. (M)
Menard, J. Z. (M)
Meyer, W. C. (M)
Miller, W. F. (M)
Moore, R. M. (SM)
Morris, J. E. (A)
Morris, P. L. (A)
Morrison, E. D. (M)
Morrison, J. F. (F)
Morrison, L. W. (SM)
Morrison, R. F., Jr. (M)
Mowery, V. O. (A)
Mumford, W. W. (F)
Munn, A. J. (SM)
Nebel, C. N. (M)
Nelson, W. L. (M)
Newhouse, R. C. (F)
Nicodemus, K. L. (M)
Nielson, G., Jr. (M)
Norton, J. A. (M)
Och, H. G. (SM)
O'Donohue, J. P. (M)
Otterman, J. (SM)
Pardee, S., Jr. (M)
Patyk, D. G. (M)
Paul, C. E. (M)
Peterson, A. E., Jr. (M)
Petrich, L. G. (M)
Price, A. C., Jr. (M)
Reed, S. C. (M)
Reichle, W. T. (SM)
Reologie, J. O. (M)
Rice, D. R. (M)
Rice, R. V. (A)
Richman, G. H. (A)
Robertson, G. H. (A)
Rumpel, C. H. (A)
Rundstedt, R. J. (M)
Sakkas, P. E. (M)
Saxe, H. A. (M)
Schaefer, F. J., Jr. (M)
Schmidt, E. F. (M)
Schmidt, J. W. (M)
Schramm, C. W. (SM)
Schunneman, R. F. (M)
Sears, P. R. (M)
Seckler, H. N. (M)
Seidler, R. L. (M)
Sellers, G. A., Jr. (M)
Shaffer, R. A. (M)
Siegel, E. H., Jr. (M)
Simons, B. H. (M)
Sinclair, R. O., Jr. (SM)
Smith, C. A. (SM)
Smith, P. H. (F)
Snow, H. E. (M)
Soltesz, A. (M)
Souders, E. R. (M)
Spiees, W. G. (M)
Staehler, R. E. (M)
Stammerjohn, L. W. (M)
Stelger, R. E. (A)
Sturdy, W. W. (SM)
Sturges, R. P. (M)
Sund, E. T. (M)
Suozzi, J. J. (M)
Swift, R. A. (SM)
Taft, C. R. (SM)
Tatsuguchi, I. (M)
Thompson, M. J. (M)
Thompson, T. H. (M)
Tidd, E. D. (M)
Tidd, W. H. (SM)
Tinus, W. C. (F)
Tuomenoksa, L. S. (M)
Ulrich, W. (M)
Von Aulock, W. H. (A)
Warner, A. W., Jr. (SM)
Watson, D. A. (M)
Weiss, M. M. (SM)
Wheeler, G. W. (SM)
White, D. L. (M)
Wiggins, J. J. (A)
Williams, D. L. (M)
Williams, J. M. (M)
Willson, F. E. (M)
Winans, R. C. (M)
Wise, R. O. (SM)
Yokelson, B. J. (M)
Yostpille, J. J. (M)
Zimmerman, A. P. (M)
Whitehouse (PRI-2)
Brough, J. R. (SM)

White House Station (PRI-2)
Berkowitz, M. D. (M)

Wickatunk (NY-M-2)
Grubb, W. C., Jr. (SM)

Wildwood (PHI-3)
Eberle, H. (M)
Henry, W. O. (M)
Wouters, A. P. (A)

Wildwood Crest (PHI-3)
Barrett, C. S. (M)
Burjoice, R. A. (M)

Williamstown (PHI-3)
Kaufmann, D. C. (M)
Roberts, M. J. (M)

Woodbridge (PRI-2)
Benko, G. M. (A)
Desimone, O. L., Jr. (A)
Melnick, R. J. (M)
Rugg, D. A. (A)
Thomas, R. W. (M)

Woodbury (PHI-3)
Bailey, E. S. (M)
Barnes, R. W., Jr. (M)
Billstein, R. W. (A)
Comninos, D. A. (M)
De Credico, R. J. (M)
Frank, A. J. (M)
Frantz, E. C. (M)
Garcia, A. (M)
Glenn, H., Jr. (M)
Harbert, D. D. (M)
Lapp, D. N. (SM)
Mandoky, E. W. (M)
Mledzius, C. A. (M)
Neubert, H. A., Jr. (M)
Rittman, M. C. (M)
Rozier, C. P. (M)
Salter, P. W. (M)
Schell, R. E. (SM)
Secor, W. B. (M)
Shibler, W. (M)
Skinner, R. L. (M)
Swientisky, E. C. (M)
Torre, A. J. (SM)
Yelverton, J. N. (M)

Woodcliff Lake (NNJ-2)
Franzel, I. H. (M)
Hammerschmidt, A. L. (SM)
McNally, J. P. (A)
Swanson, C. A. (M)
Von Kunits, P. (M)

Woodcrest (PHI-3)
Gibbison, W. J. (M)

Wood Ridge (NNJ-2)
Robinson, K. P. (M)
Wilson, D. (A)
Yockel, A. P. (M)

Wrightstown (PHI-3)
Miller, R. (M)

Wyckoff (NNJ-2)
Baasch, H. C. (M)
Braun, W. E. (M)
Chambers, A. B. (A)
Foley, R. M. (M)
Lorenzo, A. M. (A)
Marshall, R. A. (A)
Oesterle, A. G., Jr. (M)
Poch, S. (M)
Samson, R. L. (M)
Troast, W. H. (A)
Watson, W. E. (A)

NEW MEXICO

Alameda (A-LA-7)
Hookins, L. A., Jr. (M)

Alamogordo (ALA-H-7)
Arnold, N. E. (A)
Barker, D. R. (A)
Barr, W. E. (M)
Behrens, W. A. (A)
Bengtson, C. N. (A)
Berg, B. V. (M)
Bergwerk, J. C. (A)
Bracken, T. W. (M)
Bradford, J. T. (M)
Bradley, M. R. (M)
Breunig, K. H. (M)
Burmeister, H. G. (M)
Castillo, H. T. (M)
Conway, J. P. (A)
Cornell, F. W. (M)
Covington, L. R. (M)
Crawford, J. E. (A)
Dodd, S. C. (M)
Driscoll, M. W. (SM)
Ebersole, H. R. (M)
Ehni, F. P. (M)
Frederick, W. H. (A)
Frei, J. (M)
Gatton, H. F. (SM)
Green, M. C. (SM)
Gustus, D. A. (M)
Hammer, W. H. (A)
Harris, L. M. (M)
Hawn, A. V. (M)

Heinrich, R. E. (M)
Hibben, A. T. (M)
Hursh, E. M. (M)
Jaenke, M. G. (A)
Johnson, R. R. (SM)
Jones, M. W. (M)
Keller, P. A. (A)
Lanfair, B. B. (M)
La Pierre, A. F. (SM)
Le Grand, H. R. (M)
Lovell, R. E. (SM)
Lux, M. O. (SM)
Martin, W. T. (M)
McFarland, J. H. (A)
Muhlberger, J. G. (A)
Nicholson, T. (M)
Phipps, J. H. (A)
Pykosz, T. F. (M)
Ray, R. L. (M)
Rowe, M. L. (A)
Rudy, C. E., Jr. (M)
Sanders, W. M. (M)
Saylor, R. R. (M)
Shively, G. C. (A)
Smith, H. D. (M)
Smith, J. D. (M)
Steele, O. A. (SM)
Stevenson, D. L. (M)
Stewart, F. E. (A)
Stotts, W. S. (SM)
Suggs, K. U. (M)
Tantzen, R. G. (M)
Taylor, L. L. (SM)
Thorne, M. G. (M)
Tisdale, W. G. (A)
Titterington, E. J. (A)
Trexler, W. E. (M)
Trout, E. M. (A)
Tuttle, J. B. (M)
Vellquette, H. R. (A)
Warnock, R. L. (SM)
Waterman, A. (A)
Webb, R. C. (M)
Weber, D. W. (M)
Weber, M. E. (M)
Wegman, R. L. (M)
Whitley, G. E. (M)
Wiant, R. C. (M)
Yanick, S. J. (A)
Young, D. L. (A)
Zagone, P. V. (M)

Albuquerque (A-LA-7)
Abeyta, G. A. (M)
Adams, R. E. (M)
Allen, B. O. (SM)
Allen, J. B. (M)
Allen, L. J. (M)
Alls, C. R. (M)
Altwies, D. E. (M)
Ames, J. R. (M)
Amonette, E. L. (SM)
Anderson, G. W., Jr. (M)
Anderson, H. L. (M)
Anderson, W. L. (M)
Arnold, J. A. (M)
Arnot, G. A., Jr. (M)
Arquette, D. W. (M)
Asselmeier, A. E. (M)
Austin, H. B. (M)
Bachand, G. (SM)
Baerwald, H. G. (SM)
Bailey, V. A. (A)
Baker, R. P. (M)
Baker, W. L. (M)
Baldwin, J. A., Jr. (M)
Banks, T. G., Jr. (SM)
Barlow, W. J. (M)
Basore, B. L. (SM)
Belote, J. C. (M)
Bennett, H. A. (M)
Benson, J. J. (M)
Bentz, R. D. (A)
Bidwell, C. H. (SM)
Bircher, P. H. (M)
Bird, F. W. (A)
Bishop, R. H. (M)
Bivens, H. M. (M)
Bloomquist, J. L. (A)
Boatwright, L. T., Jr. (M)
Boettcher, G. E. (M)
Booker, S. R. (M)
Boor, R. A. (M)
Bortniak, P., Sr. (M)
Bourgeois, N. A., Jr. (SM)
Brace, L. B. (A)
Brassfield, J. R. (M)
Braudaway, D. W. (A)
Brazda, A. L. (A)
Breen, E. L. (M)
Brooks, E. P. (M)
Brown, R. L. (M)
Bryan, W. C. (M)
Bryant, G. S. (A)
Bueffel, B. H., Jr. (SM)
Buska, E. J. (A)
Burns, W. W. (A)
Canute, A. J. (A)
Carman, W. H. (SM)
Carter, A. G., Jr. (M)
Church, A. B. (M)
Church, T. S. (SM)
Cilke, H. J. (M)
Clark, A. J., Jr. (M)
Clement, W. L. (M)
Clifford, D. E. (M)
Cole, E. L. (M)
Cole, L. L. (M)
Coleman, D. J. (M)
Collier, J. R. (SM)
Connell, J. C. (M)
Cooper, K. G. (M)
Cooper, W. K. (M)
Cordova, N. A. (M)
Corey, F. B. (M)
Cramond, W. R. (M)
Cravens, M. N., Jr. (M)
Crevelling, R. (SM)
Crook, G. S. (A)
Dankworth, J. F. (M)
Davis, E. C. (SM)
Davis, L. W. (SM)
Denton, D. H., Jr. (M)
Dieruf, B. E. (M)
Dietz, J. P. (A)
Dike, S. H. (F)
Dodds, L. F. (A)
Donohoe, R. W. (M)
Dossey, J. L. (SM)
Downs, G. G. (M)
Drake, K. W. (M)
Dunbar, D. L. (M)
Durand, J. R. (M)
Durnani, S. H. (M)
Edison, A. R. (M)
Edmonds, S. C. (A)
Ehrman, L. (M)
Elkins, E. P. (M)
Ellingson, A. C. (M)
Elliott, N. J. (M)
Ellis, J. W. (M)
Ellis, P. R., Jr. (M)
Erteza, A. (M)
Farrell, R. W. (A)
Feezor, J. G. (M)
Fernandez, H. M. (M)
Finch, H. D. (M)
Findlay, J. H. (SM)
Fish, F. N. (A)
Fisher, H. V., Jr. (M)
Fisher, R. V. (A)
Flanagan, T. J. (M)
Fletcher, E. E. (M)
Fletcher, E. R. (M)
Fligner, O. M. (M)
Flynn, K. D. (M)
Ford, R. M. (M)
Fossum, D. E. (SM)
Foster, C. E. (M)
Fowler, G. A. (F)
French, G. (SM)
French, R. R. (A)
Frenkel, L. J., Jr. (SM)
Fuhrman, D. W. (M)
Garlington, A. R., Jr. (A)
Gatlin, H. E. (M)
Gebert, C. T. (M)
Gelt, P. A. (M)
Gerwin, H. J. (M)
Glass, R. E. (SM)
Glaze, E. W. (M)
Glenn, H. L. (M)
Goldenberg, H. B. (SM)
Goss, F. A., Jr. (SM)
Grannemann, W. W. (M)
Graves, P. J. (M)
Greenwood, S. B. (M)
Griffith, R. D. (M)
Gross, J. E. (SM)
Grover, R. K. (M)
Guilford, R. P. (M)
Hagedorn, J., Jr. (M)
Halliday, J. R. (M)
Hampy, R. E. (M)
Hansen, V. W. (M)
Hanson, D. C. (M)
Hanson, R. E. (M)
Hardin, K. D. (M)
Harrison, C. W., Jr. (SM)
Harrison, S. E. (M)
Harrown, T. V. (M)
Hart, A. S., Jr. (A)
Hayre, H. S. (SM)
Henry, D. E. (M)
Henry, W. E. (M)
Herrmann, R. W. (M)
Herron, R. G. (SM)
Hey, J. C. (M)
Hicks, C. W. (SM)
Hinde, J. E. (M)
Hinds, D. R. (M)
Hodges, E. M. (M)
Hoque, L. H. (M)
Holck, D. K. (M)
Holcomb, M. E. (M)
Holladay, R. E. (M)
Hollinger, E. C. (A)
Holmes, J. J. (M)
Hood, J. A. (M)
Houts, H. E. (SM)
Hunter, A. L. (M)
Hunter, W. C. (SM)
Hurford, A. F. (SM)
Huters, A. F. (M)
Hyde, W. L. (M)
Iverson, M. M. (A)
Ives, E. E. (M)
Jacklin, W. L. (A)
Jacobs, C. F. (M)
Janza, F. J. (SM)
Jean, F. H. (M)
Jeske, H. O. (M)
Johnson, G. S. (M)
Johnson, R. O. (A)
Johnson, R. M. (M)
Johnson, R. L. (M)
Jones, L. E. (M)
Jones, M. C. (M)
Jones, P. C. (M)
Jones, R. D. (M)
Jorgensen, R. W. (M)
Kampwirth, R. T. (A)
Kasparek, R. L. (A)
Katzenstein, J. (M)
Kear, F. W. (A)
Keck, L. J. (M)
Kelly, C. N. (M)
Kelly, R. D. (M)
Kersten, E. W. (A)
Kimball, G. S. (M)
King, C. J. (M)
Kinoshita, G. S. (M)
Klink, E. J. (M)
Koepsel, W. W. (M)
Komen, P. J., Jr. (SM)
Koschmann, A. H. (M)
Kostel, J. J. (A)
Kreitler, C. E. (M)
La Coss, W. D. (M)
Lam, C. F. (M)
Lambert, R. P. (M)
Land, C. E. (SM)
Lane, E. L. (M)
Laster, J. A. (A)
Lathrop, L. L. (M)
Lawrence, A. F. (M)
Laycock, H. S. (SM)
Lee, C. K. (M)
Lemm, R. S. (M)
Lenhert, D. H. (M)
Lewis, C. E. (M)
Lincoln, R. A. (M)
Lindsay, N. A. (M)
Linsenmayer, G. R. (M)
Littleford, A. C. (M)
Livingston, P. E. (A)
Lochner, J. R. (M)
Lodge, L. L. (A)
Lommasson, T. E. (M)
Long, C. M. (M)
Longerot, C. D. (M)
Looney, V. C. (A)
Lopez, O. (M)
Love, W. D. (M)
Ludwig, R. I. (A)
Lung, H. R. (M)
Lynch, G. J. (M)
Lytle, C. W. (SM)
MacKay, J. S. (M)
Madlener, M. J., Jr. (A)
Maestas, J., Jr. (M)
Manelis, R. E. (M)
Marker, T. F. (SM)
Martinek, R. E. (M)
Mason, H. (M)
Mason, J. T. (M)
Matthews, R. P. (M)
Mattison, M. T. (M)
Max, A. J. (SM)
Maxon, J. S. (M)
May, W. L. (M)
Mayfield, G. L., Jr. (M)
Mayo, R. F. (M)
McCampbell, C. B. (M)
McCann, R. P. (SM)
McCarthy, F. M. (M)
McDowell, J. F., Jr. (M)
McDowell, J. K. (M)
McGehee, R. M. (SM)
McLay, J., Jr. (SM)
Mellek, L. M. (M)
Merren, G. T. (A)
Mills, G. S. (A)
Miller, E. G., Jr. (SM)
Milton, O. (M)
Minnear, L. H. (SM)
Mitchell, J. C., Jr. (M)
Moe, G. O. (M)
Moffat, W. T. (A)
Montoya, E. K. (A)
Moore, R. K. (SM)
Morrison, D. M. (M)
Morton, W. B. (M)
Myers, V. V., Jr. (M)
Myre, W. C. (M)
Naley, N. C. (M)
Neely, L. F. (M)
Neilson, F. W. (M)
Nelson, L. E. (A)
Newlin, G. C. (M)
Newman, J. J. (M)
Newman, P. (M)
Newman, W. E. (M)
Newsom, M. M. (M)
Nicoloff, C. C. (M)
Noble, R. P. (M)
Nowlin, D. K. (A)
Oelsner, R. M. (A)
O'Nan, R. L. (M)
Oren, O. L., Jr. (M)
Pace, R. K. (A)
Pace, T. L. (SM)
Paddison, L. J. (M)
Padilla, D. J. (A)
Palmer, J. E. (SM)
Palmer, P. R. (M)
Patterson, A. D. (A)
Patterson, H. H., Jr. (SM)
Paulus, W. K. (M)
Peabody, R. L. (A)
Peckham, V. D. (M)
Pereda, E. F. (M)
Petty, W. E. (M)
Peurifoy, R. L., Jr. (M)
Pfarmer, W. R. (A)
Phinney, E. S. (M)
Polakowski, W. G. (M)
Post, D. F. (M)
Poulsen, H. L. (A)
Powell, R. L. (M)
Puariea, J. W. (M)
Purdue, C. H. (M)
Quate, C. F. (M)
Radman, N. T. (A)
Ray, B. M. (SM)
Reese, J. D. (M)
Rehberg, J. C. (SM)
Reineke, R. G. (M)
Reintjes, J. C. (M)
Reynolds, R. S. (SM)
Ridlinger, J. J. (M)
Riggins, G. L. (A)
Roberts, R. W. (SM)
Roble, D. D. (A)
Roby, E. M. (M)
Rogers, J. L. (M)
Rogers, W. J., Jr. (A)
Rollosson, G. W. (SM)
Ross, F. A. (M)
Ross, R. R. (A)
Rudolph, R. J. (M)
Russell, J. F. (SM)
Rust, R. F. (M)
Sabisch, K. A. (M)
Sander, H. H. (M)
Scebold, R. D. (A)
Scharrer, R. G. (M)
Schauer, J. D. (SM)
Scheibner, J. E. (M)
Schelby, F. (M)
Schiess, M. C. (M)
Schmidt, C. H. (M)
Schreiner, D. G. (A)
Schultz, L. E. (M)
Schwarz, A. C. (M)
Scott, J. H. (M)
Scott, J. C. (M)
Scranton, W. A. (M)
Seavey, R. W. (M)
Sedlack, B. F. (M)
Seifert, F. F. (M)
Sellers, T. A. (M)
Senter, C. H. (SM)
Sewell, B. L. (M)
Shaum, R. L. (SM)
Shoemaker, W. F. (M)
Shoup, J. P. (SM)
Showalter, E. M. (M)
Shrock, J. B. (SM)
Shumway, K. J. (M)
Singleton, H. A. (A)
Sloan, A. B. (M)
Smith, G. K. (A)
Smith, M. T. (A)
Smoll, L. A. (M)
Sonnenberg, R. E. (M)
Sparks, C. L. (M)
Sparks, D. (M)
Spence, R. C. (SM)
Starling, L. D. (M)
Steely, S. C. (M)
Stockham, T. G., Jr. (M)
Stockley, C. H., Jr. (M)
Stomp, J. M., Jr. (A)
Stone, T. E. (SM)
Stringfellow, W. M. (SM)
Swain, G. R. (A)
Swain, R. R. (M)
Swimm, K. R. (M)
Syler, R. P. (M)
Taylor, C. D. (M)
Thomas, J. A. (M)
Thorn, D. C. (M)
Tillery, R. J. (M)
Tillman, J. E. (SM)
Tinkle, T. M. (M)
Todd, J. L., Jr. (M)
Tompkins, H. E. (SM)
Torres, H. S. (M)
Trembly, B. D. (M)
Tullar, R. V. (M)
Tynes, R. A. (SM)
Uhl, J. E. (A)
Vayer, R. M. (M)
Vulgan, E. J. (A)
Walker, H. E. (SM)
Walsh, J. P. (M)
Warner, B. D. (M)
Warthen, C. M. (M)
Watkins, L. C., Jr. (SM)
Weimer, R. E. (A)
Weingarten, D. H. (M)
Wentz, J. L. (M)
West, R. E. (M)
Westman, W. W., Jr. (M)
Westmark, C. I. (M)
Weston, B. J. (SM)
Wetherington, J. M. (M)
Whaley, E. W. (M)
Whitford, R. E. (M)
Widenhoefer, N. C. (A)
Wilken, A. C. (M)
Williams, C. S., Jr. (M)
Williams, L. E. (A)
Williams, R. H. (A)
Womelsdulf, R. E. (A)
Worden, O. L. (M)
Wright, J. T. (A)
Wright, O. L. (M)
Wright, P. H. (M)
Wymer, F. J. (M)
Yingst, R. B. (A)
Yrisarri, E., Jr. (A)
Zeller, T. R. (A)

Belen (A-LA-7)
Douglass, T. F. (M)
Lucas, A. E. (A)

Caprock (EP-6)
Flanagan, J. R. (M)

Cedar Crest (A-LA-7)
Coce, J. F. (A)
Miller, G. L. (M)
Roeschke, C. W. (SM)
Urquhart, K. J. (M)

Clovis (A-LA-7)
Watrous, D. S. (M)

Eagle Nest (A-LA-7)
Eggeman, D. J. (M)

Edgewood (A-LA-7)
Wilson, G. Q. (M)

Farmington (A-LA-7)
Levisay, L. O. (A)

Holloman AFB (ALA-H-7)
Artery, H. D. (M)
Barnes, R. B. (M)
Belan, E. F. (M)
Boaar, L. D. (M)
Byrd, J. S. (M)
Chick, W. G. (M)
Crowder, L. F. (M)
Deese, C. K. (M)
Doherty, J. M. (M)
Gaiser, W. L. (M)
Godwin, C. B. (M)
Kiefer, C. F., Jr. (M)
Koellner, K. H. (A)
Lockhart, R. J. (M)
Marr, W. J. (M)
May, C. L. (M)
Miller, D. H. (M)
Montgomery, R. L. (M)
Mooney, J. F. (A)
Morse, J. H. I. (M)
Murphy, D. J. (M)
Peake, E. C. (M)
Shelley, C. B. (M)
Skarnes, N. (A)
Vicek, D. H. (SM)
Weinstein, G. E. (M)
Zell, H. P. (M)

Kirtland AFB (A-LA-7)
Cantrell, G. W. (M)
Dudley, V. E. (M)
Joppa, R. N. (SM)
Kalish, J. L. (M)
Katzive, R. H. (M)
Kuras, A. C. (M)
Olszewski, L. V. (A)
Vajda, F. S. (M)

Las Cruces (EP-WS-6)
Bacon, J. K. (M)
Bone, S., Jr. (M)
Bullard, R. W. (M)
Bunn, J. R. (A)
Campbell, C. C. (A)
Carbine, I. L. (M)
Cirrillo, C., Jr. (M)
Chin, B. (M)
Coffee, T. A. (M)
Coleman, H. (SM)
Collins, R. E. (A)
Daniels, C. M. (A)
De Rosa, A. L. (A)
Eckland, R. E. (A)
Embree, O. D. (M)
Garrett, L. E. (SM)
George, J. E. (A)
Haas, H. W. (M)
Helfrich, G. A. (M)
Hemingway, F. S., Jr. (M)
Higgins, L. S. (A)
Hill, P. D. (M)
Holcomb, W. G. (M)
Hook, W. C. (M)
Jensen, W. V. (M)
Kidwell, R. P. (M)
Kunz, K. S. (M)
Lopez, J. Q. (M)
Maestas, J. F. (M)
Malone, C. P. (M)
Megeath, S. A. (M)
Miller, V. L. (M)
Mills, J. C. (M)
Owen, R. L. (M)
Perdue, J. D. (M)
Prado, D. (M)
Roberson, C. F. (M)
Ruiz, M. L. (M)
Sedillo, J. N. (A)
Small, P. (M)
Smith, M. E. (M)
Still, A. L., Jr. (M)
Taylor, H. V. (M)
Tipton, R. B. (M)
Treat, C. J. (M)
Wagner, N. (A)
Welch, C. M. (SM)
Whittlesearver, C. D. (M)
Wise, J. A., III (M)
Young, J. R. (M)

Las Vegas (A-LA-7)
Procter, B. M. (A)
Wood, L. S. (M)

Los Alamos (A-LA-7)
Aiello, W. P. (M)
Aporill, G. P. (M)
Bell, R. R. (A)
Benton, C. U. (M)
Blanks, B. L. (M)
Bohl, R. J. (M)
Boyd, T. J., Jr. (M)
Briscoe, W. L. (SM)
Brown, E. A. (M)
Carlson, W. F. (M)
Charmatz, A. W. (M)

Crawford, T. R. (M)
Crew, W. H. (SM)
Deal, J. B., Jr. (M)
Demuth, H. B. (M)
Doremire, F. E. (SM)
Erickson, P. B. (M)
Fagan, P. (SM)
Field, W. R. (M)
Freyman, R. W. (SM)
Gilland, J. R. (M)
Glascock, R. B. (M)
Glore, J. P. (M)
Grant, L. P. (M)
Gray, R. W. (SM)
Greenwood, A. H. (M)
Hale, I. C. (M)
Hayes, B. (M)
Hiebert, R. D. (SM)
Hull, D. E. (SM)
Janney, D. H. (M)
Jennings, H. K. (M)
Kaufman, D. E. (M)
Kemp, E. L., Jr. (M)
Koelle, A. R. (M)
Kraker, K. P. (M)
Lamb, J. K. (SM)
Landahl, C. E. (M)
Lang, H. J. (M)
Lewis, R. E. (M)
Lilienthal, J. R. (SM)
Malmberg, A. F. (M)
McCloud, B. J. (M)
Milich, C. P. (M)
Mohler, R. R. (M)
Peck, R. C. (M)
Rawcliffe, A. S. (SM)
Rudnick, P. (SM)
Rupert, G. N. (M)
Schulze, H. T. (M)
Singer, S. (SM)
Spack, W., Jr. (M)
Standring, H. A. (M)
Stapleton, R. E. (M)
Steger, W. W. (A)
Strait, B. G. (M)
Tesche, F. R. (SM)
Tolmie, D. E. (M)
Trexler, V. L. (M)
Washburn, B. W. (M)
Watts, R. J. (SM)
Weber, W. (M)
Weintraub, L. (A)
White, J. G., Jr. (M)
Winston, J. C. (M)
Wittman, F. E. (M)

Mountainair (A-LA-7)
Tillery, J. F., Jr. (M)

Raton (A-LA-7)
Ficklin, B. P. (M)
Howe, J. W. (M)
Maciszewski, A. H. (SM)

Roswell (EP-6)
Bouvier, F. C. (M)
Goodwin, S. D. (M)
Johnson, C. K. (M)
Malovich, J. M. (M)
McKee, C. W. (M)
Stapleton, J. W. (M)

Sandia Park (A-LA-7)
Yearout, D. K. (M)

Sandoval (A-LA-7)
Smith, W. T. (SM)

Santa Fe (A-LA-7)
Bookwalter, E. C. (M)
Doles, A. E. (M)
Ford, W. R. (M)
Gardiner, T. (M)
Heyman, H. (SM)
Martin, C. F. (M)
Parsons, B. B. (A)
Sanders, B. T., Jr. (M)
Wilcoxon, H. O. (M)

Socorro (A LA-7)
Bailey, R. K. (A)
Foster, A. M. (M)
Pickett, H. (M)

State College (EP-WS-6)
Duncan, R. H. (M)

Tijeras (A-LA-7)
Caldes, W. E. (SM)
Davis, G., Jr. (M)
Middleton, A. D. (SM)
Stout, K. D. (M)

Truth or Consequences (A-LA-7)
Manley, D. W. (M)

Tucumcari (A-LA-7)
Larilton, L. P. (M)

Tularosa (ALA-H-7)
Billups, E. E. (M)

University Park (A-LA-7)
Boulay, P. F. (A)
Brown, H. A. (SM)

Corcoran, H. B., II (A)
El-Moslimany, M. A. (M)
Jasi, R. A. (A)
La Fleur, W. (M)
McSpadden, W. R., Jr. (M)
Miller, G. W., Jr. (M)
Paul, R. H. (M)
Perry, B. W. (M)
Quinlan, P. S. (M)
Soong, A. (M)
Van Dolman, J. F. (M)
Weeks, W. L. (M)
Weinschel, H. D. (M)
Williams, J. N (A)

White Sands Missile Range (EP-WS-6)
Berkowitz, M. Z. (A)
Crocker, B. G. (A)
Hakeman, G. J. (M)
Kellogg, L. H. (SM)
Lebanoff, L. (M)
Milstead, F. C. (M)
Moore, T. E. (M)
Morgan, W. C. (M)
Mraz, W. L. (SM)
Olmstead, N. C. (SM)
Pollock, C. (M)
Pyle, C. A. (M)
Schafersman, R. L. (M)
Shoe, D. S. (A)
Smith, W. G. (M)
Taylor, L. H. (M)
Weir, W. B. (M)

NEW YORK

Accord (NY-C-2)
Pagel, R. W. (M)

Afton (BING-1)
Lavender, R. W. (M)

Akron (BN-1)
Mech, H. D. (A)

Albany (SCH-1)
Bloomsburg, R. A. (M)
Bradley, B. F. (M)
Carleton, L. K. (M)
Christo, N. (A)
De Russo, P. M. (M)
Dewire, D. S. (SM)
Fortuna, T. R. (M)
Lorch, J. (M)
Maurer, J. W. (M)
Portanova, M. C. (M)
Reagan, J. A. (M)
Schaffer, C. A. (M)
Schwedock, B. (M)
Smith, D. H. (SM)
Steere, E. A. (M)
Tewell, J. R., Jr. (M)

Albertson (LI-2)
Brandt, T. (M)
Corrado, V. M. (M)
Delore, C. E. (M)
Kay, L. M. (SM)
Kelvin, W. (M)
Sonder, E. (A)
Sullivan, G. D. (M)
Tripp, J. R. (M)
Westman, H. P., Jr. (M)

Albion (ROC-1)
Nayman, F. S. (A)

Alden (BN-1)
Allen, J. K. (M)
Shelmidine, H., Jr. (M)
Van Deusen, P. P. (A)

Alfred (ELM-C-1)
Burzycki, M. (M)
Sherrick, J. D. (M)
Smith, J. S. (M)

Allegany (BN-1)
Enderle, P. H. (A)

Almond (ELM-C-1)
Amato, J. A. (M)

Alplaus (SCH-1)
Story, R. W. (M)

Altamont (SCH-1)
Bleichner, C. W. (SM)
Fortington, W. H. (M)

Amityville (LI-2)
Barone, S. A. (SM)
Brockner, C. E. (SM)
Casey, J. P. (M)
Chadwick, J. H., Jr. (M)
Cosmas, A. (M)
Franley F. P. E. (M)
Goldzung, R. W. (M)
Hyland, J. R. (M)
Isherwood, H. (M)
Krayer, G. (SM)
Martin, J. L. (M)
Palmer, W. (F)
Pearsall, C. H., Jr. (M)
Schabbehar, E. A. (M)
Stuart, A. F. (M)
Trinkle, F. J. (M)
Wieland, J. A. (SM)

Withnell, R. (M)
Wolber, R. R. (M)
Zeluff, I. S., Jr. (SM)

Amsterdam (SCH-1)
Bohanske, T. A. (M)
Dzek, R. J. (A)
Garratt, P. M. (M)
Sumner, L. E. (A)
Warren, D. W. (M)

Anawalk (NY-W-2)
Ulander, H. R. (M)

Angola (BN-1)
Olney, V. W. (M)
Riker, C. E. (A)

Apalachin (BING-1)
Benscoter, W. A. (M)
Betts, W. K. (M)
Bird, C. M. (M)
Engott, H. L., Jr. (M)
Frank, D. E. (M)
Frizzell, J. H. (M)
Grimmer, R. C. (M)
Hartnett, W. J. (M)
Hess, G. (M)
Houser, G. G. (M)
Howard, P. H. (M)
Hudson, F. J., Jr. (M)
Jones, J. C. (M)
Jones, R. W. (M)
Joseph, D. L. (M)
Kostyshyn, B. (M)
Mahoney, R. E. (A)
Minnick, A. W. (M)
Schaaf, F. W. (M)
Scott, G. L. (M)
Simpson, R. G. (M)
Sweet, M. E. (M)
Taylor, P. R. (SM)
Wolterman, A. J. (M)
Wood, E. W. (M)

Ardsley (NY-W-2)
Busharis, J. G. (SM)
Derr, R. J. (M)
Graveson, R. T. (M)
Prestholdt, O. (M)

Armonk (NY-W-2)
Bashe, C. J. (M)
Hector, L. G. (F)
Northen, W. C. (M)
Porterfield, E. A. (M)
Roehn, F. J. (SM)

Astoria (LI-2)
Breitzer, D. I. (M)
Breslin, T. E. (M)
Fitzgerald, D. J. (A)
Grosso, T. (M)
Guenther, W. A. (M)
Iversen, R. J. (SM)
Odabashian, H. (A)
Palumbo, C. J. (M)
Perini, H. R. (M)
Phanos, S. (M)
Siouris, G. M. (M)
Spirakis, P. (M)
Strauss, H. J. (M)
Temini, F. A. (A)
Vovou, J. (A)
Wald, H. (M)
Zachos, T. H. (M)

Atlantic Beach (LI-2)
Harvey, A. J. (A)

Attica (ROC-1)
Frazer, A. W., Jr. (SM)

Auburn (SYR-1)
Byrns, R. E. (M)
Dyer, R. F., Jr. (M)
Hall, G. N. (SM)
Hall, W. H. (SM)
Hague, K. (M)
House, H. J. (A)
Kaufman, H. (A)
Lyon, R. P. (SM)
O'Connor, G. R. (M)
Williams, G. V. (A)

Aurora (SYR-1)
Willy, J. R. (M)

Avoca (ELM-C-1)
Bliss, R. L. (A)

Avon (ROC-1)
Malone, W. J. (A)

Babylon (LI-2)
Anderson, R. G. (M)
Brown, M. W., Jr. (M)
Collins, K. (M)
Gollhofer, P. J. (M)
Lindberg, R. (M)
Lory, J. (M)
McQueeney, L. G. (A)
Nolte, C. T. (M)
Picone, J. D. (M)
Siegel, L. I. (M)
Stavros, P. S. (M)
Steen, R. A. (M)
Szuchy, N. C. (M)

Baldwin (LI-2)
Antonucci, D. (M)
Bressner, G. (M)
Comis, D. (M)

Constable, R. C. (M)
Cornell, R. (M)
Dayton, F. R. (M)
Dreyer, J. F., Jr. (SM)
Hartmann, Z. (M)
Jagodowski, S. J. (M)
Karron, G. A. (M)
Klahr, S. (M)
Lautenberger, H. W. (M)
McConaughy, R. L. (M)
McCoy, L. L. (A)
McDonald, F. J. (A)
Menesz, W. R. (M)
Ozolins, I. (A)
Pascocello, A. W. (A)
Plotkin, A. A. (M)
Schnebbe, A. D. (M)
Selde, L. M. (A)
Shelton, P. W. (M)
Sobczak, T. V. (A)
Solbrig, A. L. (M)
Tschudi, E. W. (M)
Utley, W. A. (SM)
Welch, T. J. (M)
White, C. E. (A)
Zeldner, S. (A)

Baldwin Harbor (LI-2)
Krieger, K. C. (M)

Baldwinsville (SYR-1)
Ackley, E. H. (M)
Barg, D. E. (M)
Berry, R. E. (M)
Bloomquist, R. G. (M)
Brittain, J. K. (M)
Brown, B. P. (SM)
Burns, D. L. (M)
Buttery, R. N. (A)
Chapin, W. T. (SM)
Christensen, W. M. (M)
Ciper, J. A. (M)
Connolly, T. E. (M)
Cottle, D. W. (M)
Craig, E. L. (M)
Cummings, S. J. (M)
Custin, T. G. (M)
Downey, R. L. (M)
Fallon, C. C. (M)
Fish, K. (M)
Goetter, W. F. (M)
Hansen, R. J. (SM)
Hildebrandt, H. J. (M)
Jones, D. V. (SM)
Ladstatter, J. (M)
Lanzl, R. H. (M)
Lavin, H. P. (M)
Lyness, H. J. (M)
Majcher, C. L. (M)
Mathis, V. P. (SM)
Mayer, F. J., Jr. (SM)
McCann, R. T. (M)
Nielsen, E. G. (A)
North, S. M. (M)
Putschi, H. N. (M)
Rhodehamel, A. J. W. (M)
Russell, M. E. (SM)
Schiro, A. R. (M)
Schmidt, J. D., Jr. (M)
Sleams, H. F. (M)
Stone, R. F. (M)
Thomas F. C. (A)
Vahle, J. (M)
Ver Schure, M. D. (M)
Wainright, J. A. (SM)
Wilder, R. L. (A)
Winchester, D. S. (M)
Wood, R. F. (M)
Young, G. G. (SM)

Ballston Lake (SCH-1)
Blume, A. E. (SM)
Brusseau, J. N. (M)
Coffey, W. N. (M)
Freiburghouse, E. H. (M)
Hawkins, D. W. (SM)
Hodges, D. J. (M)
Jachym, T. M. (M)
Krueger, D. H. (M)
Spalding, J. F. (M)
Truax, C. J. (M)
Whitten, J. R. (M)

Ballston Spa (SCH-1)
Rettenmeyer, R. D. (SM)

Barton (BING-1)
Greer, W. M. (A)

Batavia (ROC-1)
Amos, B. (M)
Brown, B. S. (M)
Drummeter, W. (M)
Hayles, O. J. (M)
Henry, F. T. (M)
Kwit, C. J. (A)
Lofton, J. H. (M)
Richardson, D. A. (M)
Thalner, R. R. (SM)
Waring, R. J. (A)

Bath (ELM-C-1)
Barney, W. H., Jr. (M)
Capagna, E. R. (M)
Connelly, T. R. (M)
Fleck, W. (SM)
Haley, A. J. (M)
Keegan, T. D. (M)
Massey, W. F. (M)
Merritt, S. (M)
Overholts, R. W. (M)

Payne, W. J. (M)
Szilasi, A. (SM)
Van Der Jaht, A. (SM)

Bayport (LI-2)
Rose, R. M. (M)
Thogersen, G. O. (A)
Walters, J. L. (M)
Watson, R. F. (M)

Bay Shore (LI-2)
Dudley, D. J. (M)
Engleman, J. (M)
Gilmer, L. B. (A)
Koop, R. E. (M)
Mellinger, A. W. (M)
Petty, B. E. (M)
Putland, R. J. (M)
Rappolt, F. A., Jr. (M)
Robertson, C. A. (A)
Royce, R. C. (M)
Salvante, F. A. (A)
Schindwolf, R. (M)
Sears, R. A. (M)
Seckel, J. P. (M)
Thompson, W. G. (A)
Zeman, J. (M)

Bayside (LI-2)
Askanas, C. (M)
Averett, S. S. (M)
Bartram, R. H. (M)
Bass, H. H. (M)
Battle, R. P. (SM)
Blass, J. (M)
Bloom, L. R. (SM)
Blum, R. J. (A)
Bodenburg, J. F. (SM)
Bohn, R. (A)
Bracco, D. J. (SM)
Caffiaux, J. A. (SM)
Carrara, A. S. (A)
Carver, F. (A)
Cecka, R. A. (M)
Chertoff, A. B. (M)
Cortizas, A. P. (M)
Costa, T. A. (M)
Crowhurst, N. H. (SM)
Damora, V. A. (A)
D'Avola, S. B. (M)
De Sena, F. G. (M)
Doyle, E. J. (M)
Dzik, S. (M)
Ellefson, B. S. (F)
Eng, J. W. (SM)
Feay, D. I. (M)
First, D. (SM)
Fowler, V. J. (M)
Friedlander, I. N. (M)
Friedrich, S. (SM)
Garbarini, G. S. (M)
Gardiner, C. E. (M)
Gatti, W. (M)
Geissler, F. X. (M)
Gellert, J. (M)
Golden, H. (A)
Golick, S. (M)
Grazda, E. E. (M)
Greenblatt, E. (M)
Gross, J. (M)
Gross, L. (M)
Gross, V. (SM)
Harrison, R. I. (SM)
Harrison, S. W. (SM)
Howell, D. M. (M)
Hurley, E. T. (M)
Hyatt, A. J. (M)
Jacobson, N. (M)
Jenkins, P. R., Jr. (M)
Keck, P. H. (M)
Krimsky, W. J. (M)
Lavaglio, D. A. (A)
Lewis, B. F. (M)
Lieber, S. (M)
Ligori, J. (M)
Livingston, D. C. (SM)
Lubkin, S. (F)
Malang, A. W. (M)
Mastandrea, A. E. (M)
McEvoy, J. A. (M)
Mealy, J. T. (M)
Monahan, W. R. (M)
Nadler, B. D. (SM)
Nakamura, D. S. (A)
Novick, P. B. (M)
Nutman, A. J. (A)
Olsson, B. G. (SM)
O'Neill, G. D. (F)
Oranges, D. F. (M)
Partner, A. I. (A)
Paulisen, H. (M)
Podeyn, G. J., Jr. (A)
Poteracke, J. L. (M)
Ramirez, E. V. (M)
Reinhardt, G. (A)
Rook, S. (A)
Rosen, B. (M)
Rosenstein, M. (M)
Ross, A. (M)
Roth, R. F. (M)
Rouffy, F. E., Jr. (M)
Saltzman, H. S. (A)
Sarter, L. B. (M)
Scheffler, R. G. (A)
Schneider, S. (SM)
Shaler, G. J. (M)
Shivack, I. M. (M)
Siegmann, M. J. (M)
Sklar, S. (M)
Sonnenschein, A. H. (SM)
Spero, W. I. (M)

Suito, T. (A)
Taylor, I. R. (M)
Teichman, L. (A)
Tellerman, J. (M)
Terleckyj, J. (A)
Tobey, G. D. (M)
Trinkaus, J. W. (SM)
Troxler, L. J. (SM)
Tylinski, F. V. (A)
Verton, M. P. (M)
Westerkamp, J. E. (M)
Whalley, W. B. (SM)
Zelsler, M. D. (M)

Bayside Hills (LI-2)
Marotta, A. R. (M)

Bayville (LI-2)
Bartolomei, G. G. (M)
Caputo, J. B. (M)
Finn, E. C. (A)
Morenz, P. W. (M)
Richardson, H. W. (M)

Beacon (NY-MH-2)
Craft, J. L. (M)
Cummings, C. E. (M)
Roess, L. C. (M)
Zakarias, I. (M)

Bearsville (NY-C-2)
Reynolds, A. M. (M)

Beaver Dams (ELM-C-1)
Marshall, D. E. (A)

Bedford (NY-W-2)
MacDonald, W. D. (SM)

Bedford Hills (NY-W-2)
Vogeler, R. A. (M)

Bedford Village (NY-W-2)
Miccioli, A. A. (M)

Beechhurst (LI-2)
Coundjeris, A. (SM)
Meyrowitz, P. E. (M)
Nistal, G. E. (A)
Orgass, R. (M)
Seetoo, T. F. (M)

Bellaire (LI-2)
Amato, J. A. (M)

Belle Harbor (LI-2)
Elisaoff, A. (M)
Schure, A. (M)
Williamson, R. T. (M)

Bellerose (LI-2)
Aidala, J. B. (SM)
Altman, D. (A)
Biss, R. P. (M)
Burger, J. H. (A)
Chibnik, J. (M)
De Angelis, D. P. (M)
Edelmann, R. (M)
Farber, H. (SM)
Frey, H. E. (M)
Kashkin, R. (M)
Lewis, M. B. (M)
Slater, L. F. H. (M)
Turbe, F. (M)
Wengrym, M. (M)
Zymaris, C. (M)

Bellerose Manor (LI-2)
Buchsbaum, W. H. (SM)

Bellmore (LI-2)
Berkowitz, B. (M)
Bulwin, E. B. (A)
Cohen, G. J. (M)
Dvorak, C. J. (M)
Glaser, E. M. (SM)
Jackson, C. H. (M)
Tocci, D. P. (M)
Wellman, F. C. (M)
Woodford, R. E. (M)
Zacharia, H. (M)

Bellport (LI-2)
Madey, R. (SM)

Berkshire (Bing-1)
Domfest, A. (M)
Klessling, C. E., Jr. (A)

Bethpage (LI-2)
Algase, L. I. (SM)
Bogner, R. D. (M)
Bronstein, F. (M)
Burk, A. J. (A)
Cantamella, V. J. (A)
Clark, A., Jr. (A)
Cosentino, F. J. (M)
Friedlander, M. O. (A)
Glanatasio, A. J. (M)
Gruber, R. E. (A)
Jones, M. W. (A)
Lipset, L. B. (M)
Mason, L. (M)
Morrow, P. F. (M)
Mueller, E. H. (M)
Nelson, V. H. (M)
Nielsen, P. (M)
Nosal, P. (M)
Rice, J. (M)
Rinkel, S. A. (M)
Russell, D. H. (M)
Sangl, D. W. (M)
Sater, W. I., Jr. (M)
Schenck, H. F. (M)
Schlenn, N. H., Jr. (M)
Schumacher, J. H., Jr. (M)
Smith, G. E. (M)
Smith, W. F. (M)
Waldrop, J. E., Jr. (M)
Wallace, D. F. (M)
Yamall, W. M. (SM)

Big Flats (ELM-C-1)
Howe, L. H. (SM)

Binghamton (BING-1)
Aldershof K. L. (M)
Bartholy, F. E. (M)
Bechtol, H. D. (SM)
Berger, R. E. (M)
Bishop, R. J. (M)
Brown, G. A., Jr. (M)
Bucci, A. A. (M)
Burton, W. F. (M)
Carpenter, M. L. (M)
Corderman, S. A. (M)
Dahlbera, A. W. (M)
Decker, G. A. (M)
Dibh, G. (M)
Dudek, R. J. (M)
Fletcher, G. (A)
Foss, F. A. (M)
Fruci, N. A. (M)
Gamblin, R. L. (M)
Getman, C. J. (A)
Gilbert, H. C. (SM)
Hallinan, C. (M)
Harrison, C. L. (A)
Heniis, R. B. (M)
Hicken, J. (SM)
Higgs, P. T. (A)
Hill, T. W. (M)
Hunt, J. M. (SM)
Jumbick, G. T. (A)
Klinko, E. H. (A)
Koch, R. C. (A)
Kornbluh, A. J. (A)
Kripl, J. F. (M)
Laws, L. R. C. (M)
Ling, O. T. (SM)
Maass, K. K. (M)
MacIntyre, R. E., Sr. (M)
Mattison, C. J. (A)
McPheeters, D. W. (M)
Merchant, J. H. (M)
Mitchell, J. (M)
Napierala, R. J. (A)
New, R. F. (M)
Paulve, E. H. (M)
Reed, G. G. (A)
Reeves, W. B. (M)
Rekort, W. (M)
Rexford, J. J. (A)
Ricciardelli, G. (M)
Richter, K. E. (M)
Saeman, C. D. (A)
Schmid, H. (A)
Sheridan, E. W. (A)
Sims, J. R. (M)
Sitterlee, L. J. (SM)
Soboleski, J. W. (A)
Taylor, G. P. (M)
Vignos, J. P. (M)
Walsh, N. J. (M)
Webster, J. E. (M)
Weiss, W. J. (A)
Whitmore, J. H. (M)
Wilkinson, R. H. (M)
Young, M. A. (M)

Black Creek (ELM-C-1)
Lewis, R. M. (M)

Blauvelt (NY-W-2)
Condit, B. (M)

Bloomington (NY-C-2)
Loekle, O. J. (M)

Blossvale (RU-1)
Carney, J. A. (M)
Vogel, G. J. (M)
Williams, R. P. (M)

Blue Point (LI-2)
Field, P. L. (M)
Wedegis, H. G. (A)

Boonville (RU-1)
Vannicola, V. (A)

Boston (BN-1)
Drankhan, V. C. (M)

Bowmansville (BN-1)
Lindberg, E. (M)

Breesport (ELM-C-1)
Scullin, C. H. (M)

Brentwood (LI-2)
Backe, R. J. (M)
Branigan, J., Jr. (M)
Carroll, J. J. (M)
Gabusi, J. J. (M)
Gould, G. B. (M)
Ipolyi, G. (A)
McNamara, R. A. (M)
Wooding, H. C., Jr. (M)

Brewerton (SYR-1)
Bushroe, R. G. (M)
Donath, D. A. (M)
Hunt, D. E. (M)
Thomas, W. P., Jr. (M)

Brewster (NY-MH-2)
Blumenfeld, A. (M)
Dreher, C. (F)
Hazzard, E. W. (M)
Hemming, C. B. (M)
Siegert, R. R. (M)

Briarcliff Manor (NY-W-2)
Brooks, L. P. (M)
Burditt, W. F. (A)
Durfee, G. H. (M)
Edwards, A., Jr. (M)
Ellen, N. A. (SM)
Eyster, J. A. (SM)
Foglia, H. R. (M)
Fried, W. R. (SM)
Holzman, G. R. (M)
Marinace, R. C. (SM)
Sacks, E. I. (SM)
Stavis, C. (SM)
Stitzer, J. (M)
Struner, J. N. (M)
Urban, C. (M)

Briarwood (LI-2)
Della Salle, L. R. (M)
Lewit, E. (M)
Podell, B. A. (M)
Raft, P. D. (M)

Brightwaters (LI-2)
Becker, S. (M)
Damast, M. A. (M)
Faltin, J. W. (SM)
Geiger, J. M. (M)
Hansen, J. P. (SM)
Kramer, S. I. (SM)
Lang, J. G. (M)
Mueller, M. M. (M)

Brockport (ROC-1)
Donaher, T. P. (M)

Bronx (NY-2)
Abrevaya, E. (M)
Ackerman, D. D. (M)
Alfieri, G. J. (M)
Alphonse, G. A. (M)
Altamuro, V. M. (A)
Amozon, J. R. (A)
Asher, R. L. (M)
Atzenbeck, C. R. (M)
Axelrod, J. (M)
Baldovin, J. C. (A)
Barbera, J. P. (A)
Barjian, H. (M)
Barkey, R. (M)
Baumoel, D. (M)
Beattie, J. W. (M)
Berg, S. (M)
Berger, L. (A)
Bianco, S. G. (A)
Birenbaum, L. (M)
Bloom, G. (A)
Boles, S. (M)
Bomfreund, J. R. (M)
Braus, H. A. (M)
Breeman, M. W. (M)
Breindel, E. (M)
Brickman, A. F. (A)
Byrnes, I. F. (F)
Caban, J. P. (A)
Cash, W. I. (M)
Castro, A. J. (A)
Cohen, M. L. (M)
Collado, R. O. (M)
Covino, A. A. (M)
Crawford, J. J. (M)
Creedon, R. I. (M)
D'Amico, V. J. (M)
Damovsky, A. (M)
Davidson, G. M. (M)
De La Parra, A. F. (M)
Dellon, F. (M)
Demby, S. J. (M)
De Salvo, A. F. (SM)
Dickstein, M. (M)
Divins, B. (A)
Dolan, D. T. (M)
Dolobowsky, I. (M)
Doyle, F. H. (M)
Dunn, E. J., Jr. (A)
Easton, D. J. (A)
Eckstein, S. (A)
Epstein, M. J. (M)
Facio, V. J. (M)
Fanuele, M. A. (M)
Farrago, R. J. (A)
Farrand, C. L. (F)
Fernandez, J. E. (M)
Ferri, R. I. (M)
Fioretti, C. (M)
Fischbein, E. (M)
Fisher, L. M. (A)
Fitzpatrick, J. K. (M)
Fong, J. T. (M)
Ford, B. H. (A)
Fraser, G. R. (M)
Friedman, J. (M)
Gerson, M. (A)
Ghausi, M. S. (M)
Glanguzzi, L. C. (A)
Glannattasio, A. R. (M)
Ginsburg, L. (M)
Giordano, A. M. (A)
Giumento, A. (M)
Glatt, G. M. (M)
Gold, S. D. (A)
Golden, R. J. (M)
Goldman, G. M. (M)
Goldstein, S. I. (A)
Gonzalez-Villafane, A. (A)
Good, S. (A)
Goodman, A. (SM)
Goodman, L. (M)
Grabel, A. (M)
Greenblatt, E. M. (A)
Greenblatt, S. (M)
Grossman, D. H. (M)
Hagen, H. G. (A)
Haims, M. J. (M)
Hanau, R. (A)
Handler, H. (M)
Hamatuk, S. N. (M)
Harris, B. (SM)
Hasoel, M. S. (M)
Hastings, J. J. (M)
Hauptschein, A. (SM)
Henderson, P. A. (M)
Henion, T. T. (M)
Herskowitz, A. E. (A)
Huesch, A. J. (A)
Huettner, R. E. (M)
Jacobowitz, N. (M)
Johannes, V. I. (M)
Jones, L. R. F. (SM)
Kahn, W. A. (M)
Kane, J. R. (M)
Kantrowitz, P. (M)
Kaplan, L. J. (M)
Kaplan, M. (A)
Kass, E. J. (M)
Kearney, J. E. (A)
Kemp, A. (M)
Kirschner, M. (A)
Klipper, H. (M)
Klipper, S. (M)
Korman, J. (M)
Kraemer, J. T., Jr. (M)
Kreppel, R. L. (M)
Kupersmith, F. (M)
Kurz, L. (M)
Kwo, T. T. (M)
Lampeit, L. (M)
Lane, S. (A)
Lastig, W. (M)
Lauricella, J. C. (A)
Lavenue, H. L. (A)
Lebowitz, F. (M)
Lederman, S. (M)
Lee, J. W. (A)
Lerman, S. (M)
Levine, L. (M)
Linder, A. (M)
Litt, S. S. (M)
Lohmann, V. F., Jr. (M)
Machanic, E. D. (A)
Machorro, R. A. (M)
Malina, B. (M)
Maniere, N. E. (M)
Mansky, L. (M)
Martellotto, N. A. (M)
Mattila, P. A. (A)
McCabe, R. A. (A)
McDermott, J. P. (M)
Mednick, S. (A)
Metal, D. (A)
Miller, L. N. (M)
Miller, R. M. (SM)
Moore, J. E. (A)
Moran, W. B. (A)
Munk, M. R. (A)
Muscolino, J. V. (M)
Natale, S. V. (A)
Neuwirth, P. (M)
Nissman, I. J. (M)
O'Hare, T. F. (M)
Olick, J. (A)
Oppenheimer, H. N. (M)
Orenstein, A. (A)
O'Sullivan, T. J. (M)
Paniagua, R. (A)
Panzitta, J. (M)
Pechner, B. J. (A)
Pellinen, A. D. (M)
Philactos, C. J. (M)
Pinck, M. (M)
Pintell, R. H. (SM)
Pleshko, P. (M)
Portante, R. R. (M)
Portnoy, A. (M)
Pressman, H. D. (A)
Price, R. (M)
Radansky, H. (A)
Ragazzini, J. R. (F)
Reich, S. M. (M)
Reiss, E. V. (A)
Rimai, E. (M)
Ringelheim, I. B. (A)
Rivers, R. D. (M)
Robey, M. J. (M)
Roher, N. J. (A)
Rosenblatt, A. (M)
Rosenheck, B. M. (M)
Rosenstark, S. (M)
Rossnick, M. (M)
Rothbart, A. (M)
Rotondaro, J. A. (A)
Rubinstein, R. B. (M)
Runyon, S. (M)
Ruttenberg, K. A. (M)
Sahud, L. R. (A)
Sales, M. (M)
Salit, M. (M)
Schachter, H. (M)
Scharf, G. (M)
Schick, W. (M)
Schirtzer, M. M. (M)
Schneider, G. (M)
Schreiner, E. H. (M)
Schulzman, E. (M)
Schwartz, H. H. (M)
Scliglio, R. (A)
Scipione, A. S. (M)
Selden, N. (M)
Shabad, Z. (M)
Shapiro, H. (M)
Sheqirian, P. (M)
Sherman, S. (M)
Silveri, R. A. (M)
Silverman, I. (M)
Smolar, S. (A)
Sommer, R. C. (M)
Spector, G. (M)
Spielberg, J. R. (M)
Spock, R. E. (M)
Sporty, S. (A)
Stangel, J. J. (M)
Starace, N. L. (A)
Stettiner, R. L. (M)
Stewart, B. J. (M)
Stiefel, A. A. (M)
Stillerman, M. (SM)
Suarez, A. (A)
Sullivan, E. (M)
Thomas, R. O. (M)
Torrusio, J. (A)
Trott, G. G. (M)
Unnar, S. G. (M)
Vogel, S. (A)
Wald, A. S. (M)
Weber, D. D. (M)
Weil, R. T., Jr. (SM)
Weinberg, K. L. (M)
Weiner, I. L. (A)
Weinstein, R. L. (A)
Weiss, S. R. (M)
Weissman, F. S. (A)
Wexelbaum, R. L. (M)
Woolgesy, J. D. (M)
Wong, A. S. (A)
Woethen, G. B. (M)
Yablon, M. (M)
Yager, L. A. (M)
Yoh, J. W. (SM)
Zadanowsky, L. (A)
Zaslavsky, S. (M)
Zenzefilis, G. E. (M)
Zuckerbraun, J. S. (M)
Zupan, B. (M)
Zywokarte, M. D. (M)

Bronxville (NY-W-2)
Angevine, R. A. (M)
Bein, W. (SM)
Egnuss, E. M. (M)
Genz, W. F. (M)
Golden, D. (M)
Grossman, J. (SM)
Halperin, A. (M)
Hollinger, W. P. (M)
Julie, J. (SM)
Langley, R. H. (F)
Lerner, N. C. (M)
McCoy, R. D. (F)
McNulty, W. A. (M)
McVicar, S. H., Jr. (A)
Rie, C. L. (A)
Slavin, M. J. (M)
Whittemore, D. B. (A)

Brooklyn (NY-2)
Aaronson, G. (M)
Abilock, S. (M)
Abramowitz, J. L. (M)
Abrams, S. J. (M)
Adlerstein, S. A. (M)
Affronti, A. P. (M)
Albanese, A. P. (M)
Aldag, H. R. (M)
Altmark, S. (A)
Altomare, V. A. (M)
Amster, G. C. (A)
Anderson, C. L. (A)
Anderson, F. (A)
Anderson, J. R. (A)
Angelari, R. D. (A)
Angelastro, S. P. (M)
Angelo, E. J., Jr. (SM)
Anton, N. G. (F)
Apoleman, S. (M)
Aram, R. A. (A)
Arida, J. A. (M)
Arluk, M. P. (M)
Aronoff, M. (M)
Arrow, A. (M)
Arzi, G. D. (A)
Ascher, H. E. (M)
Ascione, N. R. (M)
Ascione, R. (A)
Baade, E. C. (A)
Bader, B. (M)
Baggia, M. E. J. (M)
Bain, A. (A)
Baker, L. C. (M)
Ball, I. R. (A)
Balsamo, D. C. (A)
Bambara, J. E. (SM)
Banner, L. (M)
Barbiero, E. (A)
Barish, B. T. (M)
Barnett, J. (M)
Barth, A. M. (A)
Bayer, I. (SM)
Bayliss, A. L. (M)
Beach, R. (SM)
Becker, L. (SM)

Becker, P. A. (M)
Belove, C. (M)
Berger, J. (M)
Berger, M. (M)
Bergstein, L. E. (A)
Berk, M. A. (M)
Berlin, J. (M)
Berliner, J. M. (M)
Berman, H. (A)
Bernfeld, M. (M)
Bernstein, J. L. (M)
Bernstein, K. (A)
Besmertnik, J. (A)
Bessen, A. S. (M)
Bierman, H. (M)
Bing, C., Jr. (A)
Birenbach, A. (A)
Blimbaum, J. (M)
Blackmore, F. E. (M)
Blaustein, P. H. (M)
Blauvelt, A. J. (A)
Blazek, W. J. (M)
Blecher, F. (M)
Bloomberg, H. (M)
Boesch, F. T. (M)
Boilen, I. (M)
Bolognovsky, G. (M)
Bongiorno, J. J., Jr. (M)
Borowski, E. (A)
Bower, J., Jr. (M)
Boyle, B. (A)
Brandell, S. R. (SM)
Brathwaite, A. (A)
Brennan, E. C. (A)
Bressi, N. P. (M)
Broder, L. J. (M)
Brodie, P. M. (M)
Brodsky, C. I. (M)
Broman, H. F. (M)
Bromberg, R. S. (M)
Bronzo, F. J. (A)
Brosch, W. A. (M)
Brown, E. A. (M)
Brown, P. R. (A)
Brownstein, M. A. (A)
Brun, J. H. (M)
Bryant, C. D. (M)
Burmil, S. (M)
Burnett, L. E. (M)
Butler, W. I. (M)
Caliguiri, H. J. (M)
Camack, C. W. (A)
Camer, H. J. (A)
Cammer, H. R. (M)
Cane, P. (M)
Canfora, A. E. (A)
Caplan, N. (M)
Cardenia, J. F. (A)
Caretto, H. L. (M)
Carini, R. P. (M)
Carlin, H. J. (F)
Carney, F., Jr. (A)
Casazza, C. A. (M)
Cassedy, E. S., Jr. (M)
Cassidy, F. T. (M)
Castagnaro, D. (SM)
Catanese, J. P. (M)
Catania, M. (A)
Cattelona, J. A. (M)
Charney, H. R. (M)
Chays, S. (SM)
Chehik, F. (M)
Chwick, A. (M)
Cisek, T. G. (M)
Cohen, A. N. (M)
Cohen, H. (M)
Cohen, I. A. (A)
Cohen, L. D. (M)
Cohen, L. (M)
Cohen, M. S. (M)
Cohn, E. M. (M)
Cohn, P. M. (M)
Coltun, L. (A)
Colucci, J. A. (A)
Conroe, A. H. (A)
Cooper, N. (M)
Corbellini, J. G. (M)
Corbin, S. A. (A)
Corprew, G. W. (M)
Costantini, J. J. (A)
Cottam, R. W. (A)
Cowan, J. R. (M)
Crager, W. C., Jr. (M)
Cregg, J. M. (M)
Curcio, A. T. (A)
D'Amato, R. J. (SM)
Danziger, A. (M)
Datillo, W. P. (M)
Davis, J. E. (M)
Davis, M. C. (M)
Day, G. (SM)
De Carlo, C. J. (SM)
Costanzo, J. R. (A)
Defilippis, L. S. M. (M)
Defonzo, G. J. (M)
Degazon, D. A. (A)
De Grande, R. S. (M)
Dell'Erba, L. J., Jr. (A)
Depiulski, V. V. (M)
De Satnick, S. (M)
De Sena, A. (M)
Desposito, S. F. (M)
Diamond, J. M. (M)
Diamond, S. (A)
Di Fusco, F. J. (M)
Di Santi, N. (M)
Di Stefano, A. J. (M)
Di Stefano, J. J. (M)
Dolkas, J. B. (A)
Doll, G. G. (A)
Dorf, H. (M)
Dorigato, R. (A)
Dougherty, M. W. (M)
Dover, B. M. (M)
Drosin, A. B. (M)
Drossman, M. M. (M)
Du Britz, M. A. (M)
Dudgeon, D. E. (M)
Dunham, B. R. (A)
Dzingelis, V. F. (A)
Edwards, D. S. (A)
Egolf, R. S. (SM)
Eisenmesser, S. H. (M)
Eisenstadt, H. J. (A)
Elkin, B. P. (M)
Elustondo, A. E. (A)
Ely, F. E. (M)
Engelson, M. (M)
Epstein, M. A. (A)
Epstein, S. (M)
Erdman, A. (A)
Ettenberg, M. (SM)
Fass, S. (M)
Feldman, M. (M)
Feldman, S. (M)
Ferdman, S. C. (M)
Fetsch, J. T. (SM)
Finkelstein, M. S. (M)
Finkelstein, P. N. (A)
Fishman, H. (M)
Fleisher, V. (M)
Flomenbaum, H. S. (A)
Forman, I. (A)
Forman, P. (M)
Forrest, F. J. (M)
Fox, J. (SM)
Frank, J. (A)
Frankie, J. T. (M)
Fredericks, A. C. (A)
Freed, R. M. (A)
Frellich, A. (M)
Frey, J. J. (M)
Frey, W. W. (M)
Friedman, E. M. (M)
Friedman, R. (M)
Friedman, W. (A)
Fruchter, M. (M)
Galitzer, S. (M)
Galligan, T. J. (M)
Gardner, R. K. (M)
Garshman, G. (M)
Gartner, J. K. (M)
Galzke, F. W. (A)
Geldston, S. (M)
Gelfand, P. (M)
Geller, R. L. (A)
Genlot, A. G. (M)
George, D. E. (M)
Gindoff, M. (M)
Giordano, A. B. (F)
Giordano, N. J. (A)
Giordano, P. J. (M)
Glantz, L. M. (SM)
Glick, H. (M)
Glickman, M. (M)
Glist, S. (M)
Goetz, H. (M)
Goldberg, E. (M)
Goldberg, M. (A)
Goldblatt, E. (A)
Golden, D. (M)
Goldgewert, D. (M)
Goldstein, H. (M)
Goldstein, S. E. (A)
Golubinski, A. P. (A)
Gordon, A. (A)
Gorden, R. S. (M)
Gore, A. M. (A)
Goronin, A. (M)
Gottlieb, M. (M)
Gray, G. A. (A)
Grebler, M. (A)
Green, B. W. (M)
Green, E. H. (M)
Green, G. (M)
Green, S. N. (A)
Greene, E. (A)
Greene, W. E. (SM)
Greenidge, G. (M)
Greenspan, J. (M)
Gregory, F. H. (M)
Grelck, H. L. (M)
Groder, M. L. (SM)
Grossman, W. S. (A)
Grushkin, A. G. (M)
Gusman, L. (M)
Haas, M. F. (A)
Haberman, E. (A)
Hachemeister, C. A. (SM)
Halbfish, M. L. (A)
Hallen, E. (M)
Hallett, J. L. (A)
Hanna, E. E. (M)
Hanon, J. (M)
Harris, L. (SM)
Harrison, G. S. (M)
Hartmann, P. (A)
Harvey, T. (A)
Haug, H. (M)
Hausner, J. (M)
Haviland, R. T. (SM)
Hedlund, C. U. (M)
Heftman, E. (A)
Heller, G. (A)
Heller, J. I. (SM)
Heller, O. (M)
Hembrooke, E. F., Jr. (M)
Hendrickson, H. L. (A)
Herman, H. B. (A)
Herman, S. (M)
Hershkowitz, C. (A)
Hershowitz, D. B. (M)
Hessel, A. (M)
Heuner, R. C. (M)
Heymann, I. R. (M)
Hickey, W. T. (M)
Hindin, H. J. (M)
Hinrichsen, E. N. (M)
Hirsch, B. (M)
Hirsch, P. (M)
Hirsch, S. (M)
Hirsch, S. A. (M)
Hobbs, M. (SM)
Hoekstra, R., Jr. (M)
Hoffman, C. (M)
Holmes, A. J. (M)
Holtzer, H. (A)
Holzman, S. (M)
Honig, W. M. (SM)
Hope, G. S. (M)
Hopfer, S. (SM)
Hopkins, E. J. (M)
Horzepa, J. J. (M)
Huang, H. (M)
Hughes, E. (A)
Hunt, D. F. (M)
Hunt, H. J., Jr. (A)
Hutson, L. S. (M)
Iacono, V. C. (M)
Israel, D. (M)
Jacenko, D. (M)
Jackson, F. D. (M)
Jacobs, D. (M)
Johnson, B. F. (A)
Johnson, W. H. (A)
Jonsson, J. J. (SM)
Jorysz, A. (M)
Judge, W. J. (M)
Juro, E. (A)
Kagan, H. N. (M)
Kahn, E. H. (M)
Kahn, W. K. (SM)
Kallstak, P. (M)
Kallan, R. A. (M)
Kaminski, J. F. (A)
Kaminsky, H. (M)
Kane, P. M. (M)
Kaplan, A. B. (M)
Kaplan, G. L. (M)
Kaplan, I. (A)
Karl, P. R. (M)
Karle, A. J. (M)
Karvel, C. T. (A)
Kassel, A. (M)
Katz, E. H. (M)
Katz, G. M. (M)
Katz, J. (A)
Katz, L. (M)
Katz, M. (M)
Katz, M. D. (M)
Keely, J. F. (A)
Kelly, M. A. (A)
Kempler, A. R. (A)
Kent, H. J. (M)
Kerdock, A. M. (M)
Kerenyi, G. R. (M)
Kessler, A. (A)
Killmnik, B. (M)
Klpnis, N. B. (A)
Kirdahy, E. (M)
Kirkpatrick, E. E. (M)
Kimon, E. M. (M)
Kirtman, F. (M)
Klahs, C. N. (M)
Klein, S. S. (A)
Kline, M. (M)
Klose, R. C. (M)
Knapo, A. (A)
Knowles, C. C. (A)
Korek, M. (SM)
Korkes, H. (M)
Komberg, F. (M)
Kombluth, S. E. (M)
Korrol, C. R. (M)
Kozitzky, W. J. (M)
Kramarenko, P. (M)
Kramer, M. (M)
Krieger, D. (A)
Krieger, P. (M)
Kriss, J., Jr. (A)
Kronfeld, A. I. (M)
Kultunen, M. O. (M)
Kunis, S. R. (M)
Kurland, N. (M)
Kurss, H. (SM)
Kurta, J. M. (A)
Kurtz, J. A. (M)
Kurzweil, J. H. (M)
Kuzmyak, M. G. (M)
Lacher, D. (SM)
Laifer, E. (M)
Lampert, I. (M)
Landau, S. (M)
Landerer, H. (SM)
Landow, I. S. (M)
Langenthal, I. M. (M)
Lanton, S. (A)
Lapidus, G. (A)
Laskin, H. J. (M)
Latorre, F. N. (M)
Lawrence, S. (SM)
Leben, M. (M)
Lebenson, D. G. (A)
Lebowitz, R. A. (M)
Lederman, S. (A)
Leibowitz, M. R. (M)
Lenner, P. D. (M)
Lentini, J. J. (M)
Leonard, J. P. (M)
Lerner, L. P. (A)
Lerner, S. B. (M)
Letzter, A. O. (M)
Levey, L. (M)
Levi, E. (M)
Levine, E. L. (M)
Levine, M. B. (M)
Levine, R. I. (M)
Levine, S. T. (M)
Levine, S. N. (SM)
Levins, A. L. (M)
Levy, A. H. (M)
Levy, B. F. (M)
Lewis, R. K., Jr. (M)
Liebersohn, A. (A)
Liebman, P. M. (SM)
Liebreich, E. (M)
Likel, H. C. (SM)
Lindell, L. (M)
Livote, N. A. (M)
Lohr, R. F., Jr. (M)
Lorenzo, J. J. (M)
Lowder, C. A. (M)
Lowen, I. B. (M)
Luger, H. P. (A)
MacLean, W. (SM)
Mader, A. H. (M)
Maggi, J. A. (M)
Magill, E. G. (M)
Magill, S. M. (M)
Mahrous, H. (SM)
Mandarino, F. D. (M)
Manders, A. M. (M)
Manoukis, D. M. (A)
Marantz, S. A. (M)
Marder, H. S. (A)
Maretzo, C. M. (M)
Marlowe, D. (M)
Marshall, S. L. (A)
Manushak, J. B. (M)
Masur, B. (M)
Matorin, C. M. (M)
Mattera, A. F. (M)
Mattisinko, N. S. (M)
Maybar, S. H. (M)
McBurney, F. J. (A)
McCormick, L. P. (A)
McCoy, R. J. (A)
McDermott, D. A. (M)
McDonnell, J. P. (M)
McGrath, J. M. (M)
Melrowitch, M. P. (M)
Melville, J. T. (M)
Mangani, C. M. (A)
Menkes, A. B. (M)
Merkin, S. L. (A)
Merkler, F. T. (M)
Mermelstein, E. I. (M)
Mermelstein, S. (M)
Messina, A. S. (M)
Meyers, S. (SM)
Michelson, M. B. (M)
Michitsch, J. J. (M)
Mineroff, S. A. (A)
Minerva, L. P. (A)
Miniter, S. F. (M)
Minogue, J. P. (M)
Miesley, M. M. (M)
Misclagna, J. J. (A)
Mishkin, E. (SM)
Mitchell, S. L. (A)
Mittman, S. A. (M)
Moore, J. B. (F)
Moore, W. A. (A)
Morales, J. A. (M)
Mordkowitz, I. (M)
Morgan, E. K. (A)
Morgenstern, M. (A)
Morris, A. A. (A)
Morrison, J. A. (M)
Morton, A. R. (SM)
Moses, A. I. (M)
Moskowitz, N. (A)
Moskowitz, S. (M)
Mullen, H. F. (M)
Murphy, T. J., Jr. (M)
Musacchio, A. A. (M)
Nadler, W. L. (M)
Nakahara, T. (M)
Napolitano, M. R. (M)
Navon, V. (M)
Nazerian, H. H. (A)
Nelson, E. A. (M)
Nelson, W. (A)
Nicolosi, J. P. (M)
Nisteruk C. J. (M)
O'Donnell, J. P. (M)
Ogonlak, T. J. (A)
Okonski, J. A. (A)
Oliner, A. A. (F)
O'Neil, W. K. (M)
Orbach, S. (M)
Ortolani, F. P. (M)
Ostrov, B. (M)
Oswald, H. J. (M)
Oxley, J. E. (M)
Pande, H. C. (M)
Papoulis, A. (SM)
Parke, H. G. (M)
Parsons, T. W. (M)
Pasternack, C. (M)
Pazer, J. (M)
Pearlman, E. C. (M)
Pearlman, L. (M)
Pease, R. L. (SM)
Pecoraro, C. J., Jr. (M)
Pellitsch, E. J. (M)
Penikas, G. (M)
Perelmuter, E. I. (M)
Perlman, I. (M)
Perry, L. (M)
Pesce, V. J., Jr. (M)
Peters, D. P. (M)
Petroulakis, S. G. (A)
Pfeufer, F. J. (M)
Platoff, E. B. (A)
Plimik, S. I. (A)
Pizzirusso, A. J. (M)
Pizzulli, D. (M)
Plawsky, M. I. (M)
Pleckaitis, C. A. (M)
Plevy, A. L. (M)
Plotkin, B. (M)
Polen, E. (M)
Pollack, H. W. (SM)
Popper, J. N. (M)
Posner, W. (M)
Post, B. S. (A)
Potell, S. (M)
Prager, S. (M)
Prensky, S. D. (M)
Prestianni, V. T. (M)
Principe, A. J. (A)
Privor, H. L. (M)
Pugliese, L. (SM)
Pullman, M. (M)
Quinn, J. C., Jr. (A)
Rafale, M. J. (SM)
Rall, H. L. (M)
Rapoooort, J. F. (M)
Rattner, A. (M)
Reader, M. (M)
Reid, J. J. (M)
Rente, F. A. (M)
Rett, H. C. (M)
Richer, J. (M)
Rifkind, H. M. (M)
Ring, H. (A)
Ritter, R. E. (A)
Roberts, R. P. (M)
Robinson, J. (M)
Robinson, R. M. (M)
Rockwell, W. D. (A)
Roen, S. A. (M)
Rogers, F. A. (M)
Roman, S. (M)
Romano, S. A., Jr. (M)
Rosasco, R. H. (M)
Rosen, R. (M)
Rosenbaum, E. R. (A)
Rosenberg, D. (M)
Rosenbluth, A. A. (A)
Rosenfeld, M. I. (M)
Rosenthal, M. P. (M)
Roth, E. J. (M)
Rothenstein, S. (M)
Rothstein, H. (M)
Rowe, I. (M)
Rubertone, A. (M)
Rubertone, M. A. (A)
Rubin, F. (M)
Ruda, J. (M)
Ruderfer, M. (M)
Rudner, B. S. (SM)
Rudofsky, B. I. (M)
Ryan, E. H. (M)
Sadofsky, M. B. (A)
Sandstrom, W. H. (M)
Santori, P. J. (A)
Sapsowitz, M. J. (M)
Sawelson, A. I. (SM)
Sawyer, P. N. (M)
Schachter, P. (M)
Schaja, H. B. (M)
Schechner, C. B. (M)
Schechter, L. (M)
Schillinger, A. G. (M)
Schlatter, W. J. (M)
Schnall, E. (A)
Schwartz, M. (SM)
Schwartz, P. (A)
Schwartz, P. L. (M)
Schwartz, R. (M)
Schwartz, R. (M)
Schwartzman, L. (M)
Scinto, L. L. (A)
Scire, F. J. (M)
Seewald, E. J. (M)
Segreto, A. J. (M)
Seiden, S. L. (M)
Seldman, W. (M)
Seligman, J. H. (M)
Shafiroff, H. (SM)
Shalev, Y. (M)
Shapiro, P. (M)
Shaw, L. G. (M)
Sherman, S. A. (M)
Shmoys, J. (SM)
Shostack, S. (A)
Shuhandler, M. B. (M)
Siclari, V. (A)
Silberman, B. (M)
Silver, B. L. (M)
Silver, M. (M)
Silvera, R. V. (M)
Silverberg, J. (M)
Silverman, E. J. (A)
Silverman, E. L. (A)
Silversmith, G. B. (M)
Silverstein, S. C. (M)
Simon, H. (M)
Sinclaire, F. S. (M)
Sisskind, S. G. (M)
Slatic, G. A. (A)
Smilen, L. I. (SM)
Smirlock, M. I. (M)
Smith, E. T. (A)
Smith, E. J. (M)
Smith, I. R. (M)
Smola, H. (M)
Smykowski, C. P. (M)
Soares, M. L. (M)
Sobel, A. (SM)
Sochet, E. (A)
Soller, J. (M)

Sonkin, R. M. (M)
Spector, P. H. (M)
Speer, S. (M)
Spencer, R. J. (A)
Spierer, E. D. (M)
Stark, H. M. (M)
Stefanis, A. (M)
Stein, B. A. (M)
Stein, H. S. (M)
Stein, H. H. (M)
Steinberg, R. M. (A)
Steinman, G. R. (M)
Steinman, S. (M)
Sterman, I. I. (M)
Stern, S. (M)
Stillman, M. (M)
Strauss, L. (SM)
Sullivan, J. T. (M)
Summerville, R. W. (A)
Susman, L. (M)
Sutton, R. (A)
Sweet, L. O. (M)
Tabbitas, R. L. (A)
Talish, I. M. (M)
Talley, D. (SM)
Tamir, T. (M)
Tarshis, T. T. (M)
Tashjian, A. (M)
Teitelbaum, M. (M)
Temple, W. J. (A)
Tilem, J. Y. (M)
Tomasulo, V. D. (M)
Torrero, E. A. (M)
Travis, E. (M)
Treanor, E. F. (M)
Trusinoff, B. (A)
Truxal, J. G. (F)
Tscheme, R. A. (M)
Turchin, M. J. (M)
Turczyn, W. A. (M)
Ubillos, P. (M)
Uslan, S. D. (M)
Van Der Bokke, L. (M)
Varrone, E. (M)
Veder, A. (M)
Viola, R. D. (M)
Viola, V. (M)
Vitrogan, D. (SM)
Volonnino, F. P. (M)
Volpe, C. P. (M)
Vulcan, V. A. (M)
Waas, G. J. (M)
Wade, G. A. (A)
Walters, R. W. (A)
Wambold, R. F. (M)
Warnock, F. W. R. (M)
Warshauer, J. A. (M)
Washington, H. A. (M)
Watine, M. N. (A)
Waxman, R. (M)
Weber, E. (F)
Webster, E. (M)
Wechsler, G. G. (M)
Weil, J. L. (A)
Wein, F. A. (M)
Weinberger, R. C. (M)
Weiner, L. H. (A)
Weinstein, D. C. (M)
Weinstein, H. M. (M)
Weinstein, S. M. (M)
Weintraub, S. (A)
Weiss, A. J. (M)
Weiss, D. (M)
Weissbaum, S. E. (M)
Weissman, W. A. (M)
Wertheim, L. A. (M)
Wexler, I. (M)
Wheeler, R. R. (A)
Wiener, M. I. (M)
Williams, L. (M)
Williams, L. A. (M)
Wilson, S. I. (M)
Wilson, F. B. (A)
Wilson, T. I. (M)
Wishna, S. (M)
Witlin, J. J. (A)
Wolf, E. M. (M)
Wolff, E. J. (A)
Wolk, N. (SM)
Wolsky, M. (M)
Wood, J. D. (M)
Young, K. (M)
Youskites, E. J. (M)
Zanger, H. H. (M)
Zapin, A. J. (A)
Zaretsky, A. (M)
Zarouni, A. (M)
Zauderer, J. (M)
Zecca, A. A. (M)
Zeiger, L. B. (M)
Zetekoff, A. (M)
Zivotosky, B. (M)
Zohar, S. (M)
Zourides, V. G. (M)
Zuckerman, J. A. (A)
Zupnick, I. N. (M)

Brookville (LI-2)
Platzman, P. M. (M)

Buffalo (BN-1)
Achzehner, R. Q. (M)
Appel, H. G., Sr. (M)
Ashman, J. W. (M)
Babcock, T. R. (M)
Bachman, C. G. (M)
Ball, J. N. (SM)
Barczys, D. A. (M)
Bargman, M. (A)
Barrowcliff, T. A. (A)
Bartnik, J. C. (M)
Bauman, N. C. (M)
Beach, J. B. (M)
Beneke, J. (A)
Bergner, V. D. (M)
Berkovits, B. V. (M)
Bernhardt, C. C. (M)
Bock, D. H. (M)
Bradbery, J. L. (M)
Brendle, T. A. (M)
Brenner, C. H. (M)
Brown, J. E. (M)
Budwey, J. N. (M)
Burdette, L. R. (M)
Cannavo, J. A. (M)
Card, A. A. (M)
Carroll, T. J. (M)
Caserta, J. N. (M)
Cassert, C. R. (M)
Catalino, F. M. (M)
Chapman, S. (SM)
Chevallier, C. C., Jr. (M)
Chimera, A. J. (M)
Chipchak, J. S. (M)
Clark, J. J., Jr. (M)
Clausen, E. B. (M)
Coviello, G. J. (M)
Csonka, J. C. (M)
Cuthill, W. R. (M)
Cutter, R. H. (A)
Cyrulik, R. J. (M)
Davis, J. E. (M)
De Joseph, A. (M)
Diehl, J. H. (M)
Dmytrijuk, W. (M)
Dybowski, A. J. (M)
Eckert, E. H. (M)
Erhard, J. L. (M)
Erickson, J. W. (M)
Farber, M. (A)
Feigenbaum, M. L. (A)
Fiocco, G. D. (M)
Fischer, C. P. (SM)
Flood, W. A., Jr. (M)
Flynn, D. J. (M)
Freund, H. G. (M)
Galler, H. (M)
Gavin, R. F. (M)
Gottstine, J. A. (M)
Hamilton, D. T. (M)
Hansen, C. T. (M)
Hayman, R. A. (M)
Hill, L. L. (M)
Hoffman, K. B. (SM)
Holmes, W. S. (SM)
Horton, A. B., Jr. (M)
Horvath, J. O. (A)
Huber, C. W. (M)
Hunt, R. A. (M)
Huthmacher, J. E. (A)
Ignatz, R. P. (M)
Jackson, R. W. (A)
Jacobson, L. (M)
Jagodzinski, N. S. (A)
Jocoy, E. H. (M)
Johnson, R. C. (A)
Jondle, J. J. (M)
Kahn, D. A. (M)
Kell, R. E. (M)
Kissinger, H. E. (M)
Kintner, P. J. (M)
Kitchin, H. W. (SM)
Klepp, H. (A)
Kluever, H. C. (M)
Kopeck, R. N. (M)
Korabell, I. (A)
Lampone, D. J. (M)
Lauer, C. A. (A)
Lautz, C. F., Jr. (M)
Lawton, G. (M)
Leipold, W. H. (M)
Leland, H. R. (M)
Leonard, R. J. (M)
Levin, K. L. (SM)
Levitt, M. (A)
Lochocki, R. F. (M)
Malm, R. (SM)
Mancone, J. G. (M)
Marso, R. (M)
Martin, F. C. (M)
Mason, H., Jr. (M)
McClanahan, J. M. (M)
Meese, H. F. (M)
Michaelis, T. D. (M)
Michnik, L. (M)
Militello, P. G. (M)
Mitscher, R. W. (A)
Moncton, H. S. (M)
Mondloch, A. A. (M)
Mullan, C. E. (SM)
Murphy, G. V. (M)
Neubauer, R. A. (M)
Nicoletti, R. J. (A)
Niles, R. O. (A)
Noyes, R. J. (M)
Odden, R. B. (M)
O'Hara, M., Jr. (A)
Okonski, E. S. (M)
Pache, R. (A)
Parker, R. (A)
Parker, R. R. (M)
Plummer, D. K. (M)
Powell, F. D. (SM)
Pritchard, F. E. (M)
Puttick, A. W. (A)
Quagliana, V. E. (A)
Radvany, I. E. (M)
Raney, J. J. (SM)
Ratajczak, R. A. (M)
Renau, J. (M)
Ridgeway, F. B. (M)
Ross, R. A. (M)
Rowe, W. D. (M)
Rubin, M. (M)
Rusnak, W. (M)
Rynaski, E. G. (M)
Salz, N. P. (SM)
Schmick, R. F. (M)
Schultz, W. C. (M)
Schultze, W. J. (A)
Schwartz, E. C. (M)
Schwanz, R. N. (A)
Sears, R. A. (M)
Shub, L. (SM)
Siegel, V. H. (M)
Singleton, R. J. (M)
Smith, R. J. (A)
Spooner, M. G. (M)
Stafford, W. F., Jr. (A)
Steeh, E. C., Jr. (M)
Stengel, C. J., Jr. (M)
Stetter, S. M. (A)
Stock, R. M. (M)
Tatoian, G. (A)
Taylor, F. E. (M)
Uncapher, M. E. (M)
Unger, W. J. (M)
Valtkevicius, L. A. (M)
Vasek, J. (A)
Veath, M. S. (A)
Wagner, R. W. (M)
Ward, V. E., Jr. (M)
Watson, W., Jr. (M)
Weber, F. A. (M)
Welkner, J. C. (A)
Welsh, J. P. (SM)
Werlink, R. (A)
Wilson, J. E. (M)
Wilsene, R. L. (M)
Wolding, S. (M)
Wolf, A. H., Jr. (M)
Wolf, E. H. (M)
Young, C. E. (SM)
Zimmerman, E. A. (A)

Burnt Hills (SCH-1)
Florino, J. A. (M)
Hesse, M. H. (M)
Milton, R. T. (M)
Speck, R. S. (M)

Cambria Heights (LI-2)
Crauwels, G. L. (A)
Elson, R. T. (A)
Gach, L. M. (M)
Koenig, R. H. (M)
Kruk, R. J. (SM)
London, M. M. (M)
Martin, J. R. (A)
Smith, P. (M)
Swain, J. A. (A)
Way, T. L. (M)
Zeines, B. (SM)

Camden (RU-1)
Hickey, J. B. (A)

Camillus (SYR-1)
Arnold, R. D. (M)
Ast, H. C. (M)
Bender, D. R. (M)
Gaffney, W. D. (M)
Hornback, A. B. (M)
Kraus, W. A. (A)
Lambert, J. M. (M)
Maslalt, R. L. (M)
Pfueller, A. W. (M)
Place, J. F. (M)
Ring, R. B. (M)
Schweers, O. H. (SM)
Smith, A. W. (M)
True, T. T. (M)
Wall, J. J. (M)

Campbell Hall (NY-MH-2)
Martin, G. B., Sr. (A)

Canandaigua (ROC-1)
Harrold, G. B. (M)
Knapp, A. J. (M)
Sanders, E. W. (SM)
Waddell, R. B. (A)
Wager, G. F. (M)

Candor (BING-1)
Jenkins, W. S. (A)
Silsbee, D. L. (M)

Carle Place (LI-2)
Bossinger, A. L. (SM)
Drasney, G. C. (A)
Gurian, S. D. (M)
Hekaros, J. S. (A)
Jarecky, J. L. (M)
Lincoff, W. (M)
Smith, C. I. (A)
Vadus, J. R. (SM)

Carmel (NY-MH-2)
Fredrick, A. H. (M)
Lewinski, J. (SM)

Cato (SYR-1)
Breese, H. R. (M)
Sproul, S. S. (M)

Catskill (NY-C-2)
Gardner, C. B. (M)
Cazenovia (SYR-1)
Casselberry, R. L. (M)
Frenzel, R. P. (SM)
Haller, G. L. (F)
Hart, J. E. (M)
Kidder, M. S. (A)
Kinsey, R. R. (M)
Learned, A. J. (M)
Learned, D. A. (A)
Morse, H. W. (M)
Silco, R. O. (M)
Winslow, W. R. (M)

Cedarhurst (LI-2)
Dick, T. M. (M)
Durbin, E. (M)
Goodman, J. D. (M)
Mercier, A. E. (SM)
Merlin, A. G. (A)
Shapiro, D. L. (M)

Cententon (NY-C-2)
Krisniski, S. V. (M)

Centereach (LI-2)
Clark, M. J. (A)
Iverson, R. W. (M)
Larkin, D. E. (M)
Levine, S. (M)
Mussman, G. F. (A)
Nunziata, A. (A)
Tierney, T. J. (M)

Center Moriches (LI-2)
Field, V. R. (M)
Nagle, C. M., Jr. (A)

Centerport (LI-2)
Derganc, W. (M)
Klaus, G. H. (SM)
Prichert, J. (M)
Rezek, R. M. (M)

Central Islip (LI-2)
Grant, J. G. (M)
O'Donohue, R. E., Jr. (M)

Central Square (SYR-1)
Boyd, L. E. (M)
Cooper, C. W. (A)

Central Valley (NY-MH-2)
Arnold, R. G. (M)

Chadwicks (RU-1)
Kapfer, V. C. (A)

Chappaqua (NY-W-2)
Amdahl, G. M. (M)
Becher, W. E. (M)
Buttolph, J. D. (M)
De Lano, R. B., Jr. (M)
Fenner, M. E. (SM)
Goldman, E. H. (SM)
Hawkins, G. V. (M)
Haynes, M. K. (M)
Horwitz, L. P. (M)
Humphrey, W. S. (SM)
Hungerford, E. A., Jr. (M)
Hunt, W. A. (M)
Kellogg, D. S. (SM)
Lawson, C. C. (M)
Little, J. B. (SM)
McCarter, G. B. (M)
Novak, W. D. (M)
O'Farrell, J. J., Jr. (M)
Sarley, J. M. (SM)
Spatz, P. (M)
Speller, J. B. (SM)
Vladimir, L. O. (SM)

Cheektowaga (BN-1)
Aldrich, F. E. (M)
Carroll, F. L. (M)
Cronin, R. J. (M)
Lewicki, W. M. (M)
Maclag, W. J. (M)
Pierce, H. C., Jr. (M)
Slater, R. H. (M)
Staloff, M. (M)
Testa, J. S. (M)
Whitney, R. W. (M)

Chenango Bridge (BING-1)
Carpenter, J. F. (A)

Chittenango (SYR-1)
Combes, E. T. (M)
Cox, T. M. E. (M)
Hautsig, L. (M)
Little, D. W. (M)
Wallman, E. J., Jr. (M)

Churchville (ROC-1)
Allen, S. E. (M)
Jackson, R. W. (A)

Clarence (BN-1)
Benedict, T. R. (M)
Bennett, J. E. (M)
Gray, R. D. (SM)
Greatbatch, W. (M)
Holfelder, R. G. (M)
Kellerman, R. E. (M)
Neprud, R. N. (SM)
Sanders, E. R. (SM)
Semiuk, W. (SM)
Vanacore, T. (M)
Wartella, A. (M)
Wixson, E. S. (M)

Clay (SYR-1)
Brady, D. J. (M)
Brannan, J. C. (SM)
Bray, T. E. (A)
Carlson, E. R. (SM)
Durso, J. L. (M)
Gilliland, M. E. (M)
Hsu, H. (SM)
Knickerbocker, L., Jr. (M)
Marshall, J. C. (M)
McElwain, J. L. (M)
Morton, C. T. (M)
Noyes, J. E. (M)
Page, J. (M)
Phucas, B. A. (M)
Smith, E. E. (A)
Tehon, S. W. (SM)

Cleverdale (SCH-1)
Mead, M. S., Jr. (SM)

Clifton Springs (ROC-1)
Morris, I. A. (SM)

Clinton (RU-1)
Baldwin, G. F. (SM)
Busch, W. S. (M)
Butler, G. T., Jr. (M)
Cappelli, A. L. (M)
Conrad, G. A. (M)
Crockett, G. R. (M)
Disch, L. J. (A)
Holzel, R. W. (M)
Knoke, P. J. (M)
Lewis, J. R. (M)
Luthiger, R. (M)
Philpott, L. R. (SM)
Piesbo, J. D. (A)
Rasmussen, C. P. (M)
Smith, A. E. (M)
Turner, M. L., Jr. (M)
Van Etten, P. (A)
Wheeler, J. P. (SM)
Worhach, R. (M)

Clinton Corners (NY-MH-2)
Eardley, D. B. (M)

Clyde (ROC-1)
Robbins, W. G. (M)

Cohocton (ELM-C-1)
Fox, R. A. (M)

Cohoes (SCH-1)
Piwnica, W. M. (M)

Cold Springs (NY-C-2)
Sutton, A. J. (M)

Cold Spring Harbor (LI-2)
Duryea, J. C. (SM)
Tyndall, R. M. (M)

College Point (LI-2)
Belock, H. D. (SM)
Fury, A. E., Jr. (A)
Gluck, A. L. (M)
Hoffman, R. A. (A)
Huxhold, H. P. (A)
Mannarino, S. R. (M)
Parker, R. J. (A)
Rilling, J. C. (A)
Ryan, W. R. (M)
Stiepel, G. W. (A)

Commack (LI-2)
Anzalone, A. T. (M)
Bonasera, J. T. (M)
Boose, G. M., Jr. (M)
Brady, J. P. (M)
Bryant, B. L., Jr. (M)
Cappadona, W. J. (M)
Cataldo, T. J. (M)
Chesnes, G. J. (M)
Clarke, J. M. (M)
Cohen, B. (A)
Cotter, G. E. (M)
Croxville, W. B. (M)
Daelemans, G. L., Jr. (M)
De Lorenzo, J. D. (M)
Di Nardo, A., Jr. (M)
Eisenberg, M. H. (M)
Fahey, W. P. (M)
Feldman, S. (A)
Ferrara, J. J. (M)
Ferry, J. B. (M)
Frimet, S. H. (M)
Gillin, G. F. (M)
Kelley, E. J. (M)
Lichtenstein, H. (M)
Lopez, A. R. (M)
Loss, M. B. (M)
Lynch, J. T. (A)
MacDonald, L. A. (M)
Maffei, E. V. (M)
Matylewich, T. D. (A)
Morris, J., Jr. (M)
Murphy, J. J. (M)
Nelson, A. G. (A)
Offutt, W. B. (M)
O'Neill, J. J. (M)
Otten, H. C. (M)
Paulson, J. O. (M)
Philbin, M. J. (M)
Pyros, I. E. (M)
Renkowitz, D. (M)
San Giovanni, C., Jr. (M)

Schwartz, I. S. (M)
Sokol, L. L. (M)
Stenecker, R. G. (M)
Stewart, J. J. (M)
Sweeney, D. J. (M)
Trias, J. J. (M)
Wilks, E. G. (M)
Wilson, E. L. (M)
Wrobel, R. E. (M)
Zopf, V. R. (M)

Conklin (BING-1)
Emmons, D. W. (M)

Copiague (LI-2)
Chalom, R. (M)
Hightower, S. G. (M)
Kubat, L. C. (A)
Mautner, R. S. (SM)
Pull, H. L. (M)
Rennie, F. P. (M)
Sclafani, D. A. (M)
Stone, T. W. (M)

Corinth (SCH-1)
Willman, E. S. (A)

Corning (ELM-C-1)
Allen, R. E. (M)
Benjamin, L. P. (A)
Brouneus, H. A. (M)
Cammen, M. M. (M)
Charters, M. L. (M)
Dates, H. F. (M)
Davis, J. K. (SM)
Deegan, G. M. (M)
Gordon, P. E. (M)
Griest, E. M. (M)
Guyer, E. M. (SM)
Halaby, S. A. (M)
Hamjian, R. V. (M)
Herczog, A. (M)
Hocker, J. P. (M)
Hudson, W. H. (M)
Jenkins, W. H. (M)
Lapp, M. C. (A)
Layton, M. M. (M)
Leffel, P. C., Jr. (M)
Lineweaver, J. L. (M)
MacDonell, P. A. (A)
Munier, J. H. (M)
Nitsche, J. E. (M)
Pinkston, J. C., III (M)
Pollock, K. G. (M)
Rexford, H. E. (M)
Sackinger, J. P. (M)
Sheldon, J. L. (F)
Smith, G. P. (M)
Szuvillo, R. E. (M)
Trementozzi, F. J. (M)
Wetmore, W. L. (A)
Whitney, R. K. (M)

Cornwall-on-the-Hudson
(NY-C-2)
Peck, N. D. (M)

Corona (LI-2)
Balacki, S. J. (M)
Bianchini, P. J. (M)
Kostas, D. J. (M)
Martinez, E. P., Jr. (A)
McGovern, F. X. (M)
Pafundi, M. T. (A)
Spatz, S. (M)

Cortland (SYR-1)
Belensky, C. R. (A)
Gauthier, R. T. (M)

Cowlesville (ROC-1)
Wightman, C. W., Jr. (M)

Crestwood (NY-W-2)
Fine, E. M. (M)
Krauer, O. (A)
Merritt, A. H., III (A)

Croton-On-Hudson (NY-W-2)
Critchlow, A. J. (M)
Gomberg, L. (M)
Guzi, G., Jr. (A)
Haibt, L. (M)
Karp, R. M. (M)
Levy, H. B. (A)
Mausler, R. (M)
Whitlock, J. R. (M)

Crugers (NY-W-2)
Foin, W. C. (M)

Cuba (ELM-C-1)
Abramowicz, R. W. (A)
Miller, E. A. (M)

Dansville (ROC-1)
Blum, R. J. (M)

Deansboro (RU-1)
Palmer, P. D. (M)

Deer Park (LI-2)
Axel, A. J. (M)
Berman, L. R. (M)
Berman, R. F. (A)
Bisby, J. F. (SM)
Bond, D. W. (M)
Bostrom, R. C. (M)
Brown, J. K. (M)

Burghard, A. R. (M)
Burns, A. J. (M)
Close, R. N. (SM)
Dantus, G. (A)
Dudick, G. R. (M)
Etengoff, M. A. (M)
Harris, D. J. (M)
Hechtman, H. (M)
Ihrig, L. C. (M)
Kabaservice, T. P. (M)
Katz, E. H. (M)
La Cascia, N. (A)
Levine, A. M. (M)
Loughren, A. V. (F)
Matchett, M. W. (M)
Messina, J. (A)
Miller, D. M. (SM)
Morton, G. W. (M)
Neverotski, W. J. (M)
Ozild, P. E. (M)
Prooper, M. (A)
Rice, T. B. (M)
Roche, M. J. (A)
Rowe, M. J. (A)
Sawyer, H. S. (M)
Schenck, T. M. (M)
Schlesinger, J. (M)
Schwartz, R. H. (M)
Shalat, J. (A)
Skifter, H. R. (F)
Stephey, H. M. (M)
Stern, E. N. (M)
Tangredi, G. F. (M)
Tolles, W. E. (F)
Tressa, F. J. (M)
Turkish, S. (M)
Warren, S. D. (M)
White, G. C. (M)
Wolkov, D. (SM)

Delmar (SCH-1)
Davis, J. L. (M)

Depew (BN-1)
Diener, H. C., Jr. (M)
Herold, C. D., Jr. (M)
Hetlich, R. D. (M)
McIntyre, R. C. (M)
Newton, D. J., Jr. (M)
Reed, E. K. (M)
Whitebeck, R. F. (M)
Wiggin, E. E. (M)

De Witt (SYR-1)
Andrews, W. A. (M)
Bartley, W. P. (M)
Briggs, A. S. (M)
Brown, J. S. (SM)
Burroughs, E. H. (M)
Byars, W. F. (M)
Casey, K. T. (M)
Clark, H. T. (SM)
Clements, D. A., Jr. (M)
Converse, L. M. (M)
Copp, J. H. (SM)
Coulbourn, J. M. (M)
Davis, R. J. (SM)
Deal, D. L. (M)
Dickey, F. R., Jr. (SM)
Dominguez, M. J. (A)
Downie, J. W. (SM)
Flashner, G. (M)
Grisetti, R. S. (M)
Hamett, D. E. (F)
Hyde, H. I. (M)
Intrator, A. M. (M)
Jacobson, I. J. (M)
Kovacs, F. M. (M)
Leeds, L. M. (F)
Lothes, R. N. (M)
Lowry, H. R. (A)
Marin, L. L. (SM)
Perkins, D. W. (M)
Records, J. K. (M)
Scalzetti, M. R. (M)
Shain, E. (M)
Silverman, B. (SM)
Silverman, L. (A)
Simon, C. J. (M)
Slaughter, J. E. (M)
Spear, A. G. (SM)
Stankosky, J. J. (M)
Stillwell, H. R. (M)
Watts, D. E. (SM)
Wechsler, L. D. (M)
Wilson, G. G. (M)
Woods, C. R. (M)
Zahora, L. J. (SM)

Dix Hills (LI-2)
Rafferty, W. G. (M)
Young, J. M. (M)

Dobbs Ferry (NY-W-2)
Brown, D. E., Jr. (M)
Crousel, L. E. (M)
Hill, J. D. (M)
Holm, C. H. (M)
Mabuchi, O. (A)
Miller, D. H. (M)
Mitchell, D. D. (M)
Parvelescu, A. (SM)
Singer, L. W. (A)
Weindling, F. (M)
Weisman, I. (M)
Young, R. O. (M)

Douglaston (LI-2)
Batcher, R. R. (F)
Birsten, B. R. (M)
Bristol, R. W. (M)

Collard, A. C. (M)
Dumaresq, J. (A)
Dunn, S. B. (M)
Dunmoyo, C. P. (M)
Grover, H. G. (SM)
Hertzberg, R. E. (A)
Kline, A. (M)
Milkman, N. (M)
Neeck, J. E. (A)
Pollack, A. S. (SM)
Shanck, R. B. (SM)
Tyson, B. F. (F)

Dover Plains (NY-MH-2)
Langdon, J. L. (M)

Dryden (ITH-1)
Shelton, G. L., Jr. (M)

Dunkirk (ERI-1)
Gawlowicz, D. K. (M)

East Amherst (BN-1)
Ruda, E. V. (M)
Swonger, C. W. (M)

East Aurora (BN-1)
Bolland, P. E. (A)
Celer, R. R. (M)
Clark, D. C. (M)
Gnau, D. V. (A)
Hopkins, J. E. (M)
Illig, F. J. (M)
Monagh, F. H. (SM)
Smith, C. J. (A)
Smith, N. B. (SM)
Tribou, P. W. (SM)

Eastchester (NY-W-2)
Collison, P. B. (SM)
Dunn, C. J. (M)
King, K. L. (SM)
Lundgren, P. R. (A)
Masucci, C. (M)
McGinnis, F. (SM)
Sarahan, B. L. (M)
Tomback, S. D. (M)

East Elmhurst (LI-2)
Gordon, S. M. (A)
Greene, E. L. E. (A)
Innarco, A. E. (M)
Segota, A. S. (M)

East Greenbush (SCH-1)
Anastas, D., Jr. (M)
Merry, F. J. (M)

East Islip (LI-2)
Bolum, D. R. (A)

East Meadow (LI-2)
Basil, A. (M)
Breheney, R. F. (A)
Brownman, H. L. (M)
Byron, M. (A)
Burgess, E. G., Jr. (M)
Chadwick, J. S. (M)
Colbert, R. P. (M)
Drogin, E. M. (M)
Farber, B. (M)
Frost, S. (M)
Garrett, B. R. (A)
Glasser, H. (A)
Goldstein, I. (A)
Gottlieb, E. D. (SM)
Grizzel, R. W., Jr. (M)
Grodzinsky, S. (SM)
Gruber, P. (M)
Hall, P. D. (A)
Iassoona, P., Jr. (M)
Iorio, S. A. (M)
Kunz, A. B. (A)
Letow, A. M. (M)
McGowan, J. G. (M)
Nelson, H. H. (M)
Newman, S. O. (SM)
Nichik, J. J. (M)
Parker, S. (M)
Pollard, R. E. (M)
Redovian, M. (M)
Reichfield, S. (M)
Reizes, H. N. (A)
Renard, S. J. (M)
Rosenthal, S. A. (SM)
Schwartz, A. (M)
Scordato, M. (A)
Sierminski, P. J. (A)
Silbiger, R. J. (M)
Sills, M. M. (M)
Trunk, E. G. (SM)
Turner, G. C. (M)
Weisfeld, B. R. (M)
Wohl, C. (M)
Yagerline, J. I. (A)
Yuni, W. (M)

East Northport (LI-2)
Andersen, A. H. (M)
Baurle, H. F. (M)
Benz, J. K. (M)
Bumby, E. A. (A)
Chomet, M. (M)
Clinton, R. E. (A)
Colgan, G. P. (M)
Cope, R. H., Jr. (SM)
Ellis, F. W. (M)
Hallock, H. B. (SM)
Holland, J. W. (M)
Hsu, J. (M)
Joseph, R. C. (M)

Koehler, K. G. (M)
Kos, S. M. (M)
Krasnick, S. (M)
Kuehn, C. W. (M)
Kuiper, C. R. (M)
Kurz, F. A. (M)
Kuskowski, L. J. (M)
Langebartels, L. A. (M)
Leeds, B. L. (SM)
Leslie, R. E. (M)
Mahoney, T. J., Jr. (A)
Marcus, M. S. (A)
Masak, R. J. (A)
Meixner, V. G. (A)
Middlebrook, V. S. (M)
Muth, R. N. (M)
Ness, C. H. (M)
Oakes, R. E. (M)
Oswald, L. H. (M)
Phagan, R. J. (M)
Philbin, J. P. (M)
Salmon, H. A. (M)
Schleher, D. C. (M)
Selvaggio, N. J. (M)
Siegel, R. (M)
Spinner, C. R. (A)
Stolzman, B. R. (M)
Tenner, H. H. (M)
Van Deusen, R. B. (M)
Wallace, R. A. (M)
Weinberger, J. (F)
Weltman, I. (M)
Wright, M. L. (M)
Zinke, R. L. (M)

East Norwich (LI-2)
Barry, H. P., Jr. (M)
Boecker, A. (SM)
Churchill, D. B. (M)
Davis, S. (M)
Fishman, G. N. (M)
Fowler, C. A. (SM)
Garretson, C. M. (SM)
Mogul, E. (SM)
Plunkett, R. (M)
Salzberg, B. (F)

East Patchogue (LI-2)
Potter, D. W. (M)

East Rochester (ROC-1)
Bass, G. A. (M)
Enslein, K. (SM)
Hosking, M. B. (M)
Loudin, W. D. (M)
Numann, G. W. (A)
Pellegrino, P. P. (M)
Wobig, W. H. (M)

East Rockaway (LI-2)
Albert, A. M. (M)
Brown, W. (M)
Cohen, G. (M)
Gruber, A. E. (M)
Helmer, R. L. (M)
Kadar, I. (A)
Mahnken, W. J. (M)
Wallach, D. M. (M)
Wind, M. (SM)

East Syracuse (SYR-1)
Arnold, D. W. (M)
Beane, M. I. (A)
Biggs, J.P. (M)
Chamberlain, L. W. (M)
Demetrick, J., Jr. (A)
Doggett, F. F. (SM)
Elster, R. D. (M)
Friedman, D. B. (M)
Galway, P. T. (A)
Grimm, D. S. (M)
Haynes, J. S. (M)
Johnson, A. (M)
Kim, J. C. S. (M)
Krenitsky, P. (M)
Lindsay, G. A. (M)
Maggio, A. F., Jr. (M)
Momeno, W. J. (M)
Morrison, R. H. (M)
Mueller, W. J. (M)
Nelson, G. R. (M)
Purser, C. W. (M)
Rupley, D. C. (M)
Schick, N. E. (SM)
Segale, R. O. (M)
Stauffer, J. W. (M)
Strong, W. J. (M)
Strout, R. J. (M)
Thompson, T. N. (M)
Winfield, K. C. (M)
Zellmer, L. R. (M)

East White Plains (NY-W-2)
Roland, P. A. (A)

East Williston (LI-2)
Brannin, R. S. (SM)
Doucette, A. R. (SM)
Galella, P. F. (SM)
Johnson, J. H. (M)
Packer, L. (M)
Sege, T. D. (M)
Starr, G. I. (A)

Eaton's Neck (LI-2)
Mulholland, G. T. (A)

Ebenezer (ERI-1)
Boelke, G. L. (M)

Eden (BN-1)
Pontius, J. C. (M)
Steele, K. P. (M)

Eggertsville (BN-1)
Atkins, W. J. (M)
Borkowski, C. J. (M)
Freeman, D. J. (A)
Harvey, H. F. (M)
Mezger, C. C. (M)
Rosenfelder, G. S. (M)
Schneeberger, R. F. (M)

Elbridge (SYR-1)
O'Connor, L. T., Jr. (M)

Ellenville (NY-MH-2)
Bucholtz, M. (M)
Liu, C. C. Y. (M)
Schwartz, J. (M)
Wang, G. C. (M)

Elma (BN-1)
La Wall, G. W. (M)
Reinnagel, R. E. (SM)
Welse, R. W. (SM)

Elmhurst (LI-2)
Antman, H. S. (M)
Arvotti, R. L. (A)
Blumenstock, N. R. (M)
Boronow, E. L. (M)
Coggins, W. J. (M)
Curry, A. A. (SM)
Daly, R. E. (M)
De Bruyn, P. R. (M)
Erlichson, H. (M)
Fitzgerald, P. J. (M)
Francoeur, G. R. (M)
Frisbie, F. L. (M)
Gala, D. C. (M)
Ghiglietti, R. (M)
Gionta, J. M. (M)
Hanft, A. J. (M)
Himmel, R. D. (A)
Kearns, W. J., Jr. (M)
Kenneth, F. (A)
Kestenbaum, H. S. (M)
Kochman, M. (A)
Le Guillou, J. L. (M)
Leibmann, V. (M)
Linder, A. J. (M)
Manaley, R. N. (M)
Meth, I. (M)
Myer, J. F. (M)
Paar, J. C. (M)
Pelzer, B. (A)
Pisarski, J. (M)
Reichenbacker, G. J. (M)
Rugge, R. A. (SM)
Schuster, G. M. (M)
Schwartz, J. (M)
Semmelhaack, C. F. (M)
Shapiro, L. C. (SM)
Soreny, E. V. (A)
Stern, M. L. (M)
Stuhler, R. E. (A)
Tomberg, V. T. (SM)
Toufexis, S. (M)
Wasnak, L. G. (M)
Zadro, A. P. (M)

Elmira (ELM-C-1)
Airey, R. K. (M)
Aldrich, D. F. (SM)
Andrews, R. W. (M)
Argyle, L. C. (A)
Atil, E. (SM)
Boncer, J. J. (M)
Buck, D. C. (M)
Carpentier, P. E. (M)
Carpentier, R. P. (M)
Cherry, S. J. (SM)
Cox, G. L. (M)
Dart, H. F. (F)
Dovi, A. G. (M)
Doyle, R. J. (M)
Duhl, J. E. (M)
Fink, J. H. (M)
Freggens, R. A. (M)
Gillies, W. (M)
Hall, J. A. (SM)
Hayter, W. R., Jr. (SM)
Kalafut, J. S. (M)
Keeton, T. G. (M)
Kylander, J. C. (M)
Lanose, A. C. (M)
Linequist, P. T. (M)
Link, V. F. (M)
Lovell, L. I. (A)
MacDonald, C. (M)
Mageoch, N. H. (M)
Martin, L. (SM)
McCurdy, W. H. (SM)
Miller, C. F. (SM)
Millett, R. G. (M)
Moran, W. G. (SM)
Mulligan, J. M. (M)
Murphy, D. L. (M)
Pautz, T. F. (M)
Peretto, D. P. (A)
Ramich, C. E. (SM)
Riggen, T. K. (M)
Suchannek, R. G. (M)
Syp, C. J. (M)
Townsend, F. H. (SM)
Upshaw, V. (SM)
Vicedomine, D. A. (M)
Weber, W. N. (SM)
White, L. E. (M)

White, S. H. (M)
Williams, R. G. (M)

Elmont (LI-2)
Brown, J. J. (M)
Chapel, I. J. (SM)
Cohen, A. (M)
Coniglio, P. J. (A)
Dressler, R. (SM)
Franceschini, J. B. (M)
Glick, S. M. (M)
Gould, S. (M)
Greenberg, L. (A)
Griffen, K. A. (A)
Griffing, W. W. (M)
Hanover, A. M. (A)
Kanton, L. B. (A)
Kuck, G. P. (M)
La Mantia, R. (M)
Lutz, C. J. (A)
Rhodes, M. L. (A)
Riemenschneider, W. W. (M)
Seidman, A. H. (SM)

Elmsford (NY-W-2)
Carlisle, R. W. (SM)
Gallant, M. (M)
Greenbaum, W. H. (M)
Myers, H. W. (M)
Ossolf, A. (A)
Pearson, H. A. (M)
Ross, P. L., Jr. (M)
Von Baudissin, J. (M)

Endicott (BING-1)
Ackerman, T. E. (M)
Adams, D. A. (M)
Akmenkalns, I. G. (M)
Avery, R. W. (M)
Bachman, D. F. (M)
Baldauf, D. R. (M)
Becker, H. A. (M)
Benware, L. T. (M)
Berge, R. (A)
Berkin, G. M. (M)
Bloom, E. M. (M)
Boyd, R. E. (M)
Brannen, P. M. (M)
Branning, H. F. (M)
Brooke, A. W. (M)
Buehner, A. A. (M)
Burcak, T. (M)
Busen, F. E. (M)
Cantwell, R. J. (M)
Chandler, R. T. (M)
Chervenic, J. (M)
Cloud, H. A. (M)
Cohen, G. L. (M)
Conrod, C. D. (SM)
Corvette, C. (M)
Damron, D. H. (M)
Danen, R. J. (A)
Dimmick, R. F. (M)
Dodge, H. E. (M)
Dorrell, C. E. (M)
Dortzator, R. H. (M)
Durling, A. F. (M)
Evans, B. O. (M)
Feiner, H. (M)
Ferraro, D. (M)
Flagg, P. B. (M)
Forbes, R. E. (M)
Gibble, C. P. (M)
Gombar, M. F. (M)
Gottshall, P. L. (A)
Grace, C. H. (M)
Gross, W. C. (M)
Gwin, J. D. (M)
Haven, J. R. (A)
Heintz, R. E. (M)
Hermann, G. L. (M)
Higley, R. J. (M)
Hill, Y. M. (SM)
Hix, I. M. (SM)
Inafuku, R. H. (M)
James, R. F. (M)
Jensen, H. R. (M)
Johnson, R. M. (M)
Jones, H. E. (M)
Jones, H. L. (M)
Kapur, K. N. (M)
King, J. H., Jr. (M)
Klotz, H. J. (SM)
Kovalchick, N. (M)
Lampathakis, K. E. (M)
Lewis, T. B. (M)
Livingston, M. P. (M)
Lyon, R. L. (M)
McKee, R. J. (M)
McNabb, R. E. (M)
McQuarrie, R. P. (M)
Merkle, B. W. (M)
Mertz, E. H. (A)
Miller, W. C. (M)
Mutha, G. A. (A)
Niehoff, W. H., II (M)
Oi, I. (M)
Olson, F. W. (M)
Pachuta, J. R. (M)
Pasternak, E. (M)
Patch, F. D. (M)
Patzer, W. J. (M)
Pawletko, J. P. (M)
Peercy, R. L., Jr. (M)
Pine, B. J. (M)
Pipkorn, J. H. (A)
Pyle, C. L. (M)
Rand, J. F. (M)
Rask, D. A. (M)
Reeser, F. H. (M)
Rhodes, K. E. (SM)
Ristad, C. H. (M)
Rooney, J. J., Jr. (M)
Roth, W. J. (M)
Rycker, B. V. (M)
Ruoff, C. E. (M)
Ruppert, J. R. (M)
Rusnak, M. E. (M)
Russell, E. C., Jr. (M)
Saraceno, S. F. (A)
Shell, E. F. (M)
Short, R. B. (M)
Smith, G. L. (A)
Stankowich, J. A. (M)
Steen, W. J. (SM)
Stieglitz, C. B. (M)
Stup, C. F., Jr. (M)
Swanson, L. H. (A)
Swanton, W. L. (M)
Tate, R. G. (M)
Taub, S. (M)
Trezona, G. E. (M)
Troutman, B. C. (M)
Urban, H. E. (M)
Waller, R. K. (M)
Wilber, R. E., Jr. (M)
Wilfinger R. J. (M)
Womack, K. K. (M)
Wood, B. G. (M)
Yurgaitis, W. C. (A)
Zimmerman, R. H. (M)

Endwell (BING-1)
Adams, L. R. (M)
Anderson, L. E. (M)
Ayers, J. G., Jr. (M)
Barbieri, G. (A)
Bennet, D. S. (M)
Burshnick, J. D. (M)
Crofford, D. J. (M)
Dombroski, F. C. (A)
Forester, M. C. (M)
Frehsee, R. (M)
Frushour, J. E. (M)
Fry, L. D. (M)
Greene, T. A. (M)
Gurski, C. S. (M)
Hamilton, L. L. (M)
Haskell, J. W. (M)
Herzig, D. F. (M)
Ingram, J. J. (M)
Lewis, G. N. (M)
Lukas, J. M. (M)
Markarian, H. (M)
Maslak, M. (M)
Mason, P. R., Jr. (M)
Mazza, S. V. (M)
Motzel, L. W. (M)
Meuller, C. F. (M)
Obsharsky, P. (M)
Rogers, J. C. (M)
Sharer, E. E. (M)
Shatz, J. R. (M)
Silver, A. G. (M)
Simek, J. G. (M)
Southard, C. D. (SM)
Stott, C. B. (M)
Sullivan, D. L. (M)
Wagner, J. L. (SM)
Warrick, A. C. (SM)
Zacheis, P. R. (M)

Fairport (ROC-1)
Bok, R. F. (A)
Cunningham, G. E. (A)
Hamlin, N. B. (M)
Kreckel, K. H. (M)
Newitt, J. W. (A)

Farmersville Station (BN-1)
Wiley, V. H. (A)

Farmingdale (LI-2)
Aronowitz, L. (M)
Botta, A. J. (A)
Buble, F. L. (M)
Cap, S. T. (M)
De Gennaro, R. (A)
Dery, C. F. (M)
Eng, D. Y. (M)
Gneses, M. I. (M)
Gorczycki, E. (M)
Hart, J. E. (M)
Hassett, R. E. (M)
Holley, J. S. (A)
Keefe, P. J. (M)
La Fond, N. R. (M)
Maguire, J. P. (SM)
Monahan, P. D. (M)
Pranitch, J. (M)
Rosenthal, M. M. (SM)
Rubenstein, C. F. (SM)
Schaeffer, A. J. (M)
Schwab, C. E. (M)
Schwartz, M. (SM)
Sicuranza, A. J., Jr. (M)
Spector, A. (M)
Stevens, W. J. (A)
Stolov, S. E. (M)
Sugimoto, J. (M)
Wolfe, M. L. (M)
Woodward, A. E. (M)
Yuen, R. (M)

Far Rockaway (LI-2)
Edelstein, H. N. (SM)
Glass, H. W. (M)
Gold, R. A. (A)
Haynes, N. M. (M)
Liegey, P. R. (M)
Mentcher, I. (M)
Rogers, R. H. (A)
Rosenberg, S. H. (A)
Rutter, A. (A)
Sable, D. (A)
Shapiro, R. A. (A)
Smith, S. (M)
Weinstein, R. L. (A)
Wildenberg, H. I. (M)

Fayetteville (SYR-1)
Gaines, E. A. (SM)
Ballard, E. J. (M)
Beams, C. E. (M)
Beckwith, R. W. (SM)
Blackford, W. (SM)
Campbell, C. M. (M)
Carp, G. (M)
Chapman, R. M. (M)
Couleur, J. F. (SM)
Costas, J. P. (SM)
Degan, L. J. (M)
Deitzler, R. P. (M)
Doane, J. T. (M)
Doolittle, W. T., Jr. (M)
Douglass, W. D., Jr. (M)
Doxey, G. A. (A)
Eaton, R. C. (SM)
Eliot, A. B. (M)
Face, G. D. (M)
Fancher, H. B. (SM)
Fye, R. P. (M)
Gamberg, F. (M)
Gethmann, R. B. (M)
Gildersleeve, R. E. (SM)
Goor, D. (M)
Grabowski, S. J. (M)
Hannah, W. M. (A)
Hansen, R. E. (M)
Hartwell, R. L., Jr. (M)
Hiller, R. G. (M)
Holcomb, W. O., Jr. (M)
Johnson, C. W. (M)
Johnson, S. O. (M)
Jones, J. L. (SM)
Kordalewski, A. P. (M)
Lipke, H. (M)
Locke, J. R., Jr. (SM)
Longacre, A. (SM)
Manke, A. G. (SM)
McGilvra, G. E. (M)
McLaughlin, J. R. (M)
Messer, H. G. (SM)
Mott, D. R. (M)
Perry, E. V., Jr. (SM)
Prestwich, G. D. (M)
Reinsmith, G. M. (M)
Relyea, R. A. (M)
Revercomb, H. E. (SM)
Reynolds, A. G. (M)
Rives, F. M. (SM)
Rouault, C. L. (SM)
Russell, J. B., Jr. (F)
Ruth, R. L. (SM)
Ryerson, J. D. (A)
Schafer, D. C. (M)
Schlesinger, K. (F)
Sinback, W. R. (M)
Totten, H. Q. (M)
Varga, J. A. (M)
Waugh, G. T. (M)
West, A. A. (M)
Wunch, E. R. P. (M)
Xenakis, S. N. (M)

Fernwood (SYR-1)
Manwarren, T. E. (M)

Fishkill (NY-MH-2)
Allen, G. W. (M)
Curtis, R. T. (A)
Farrell, A. C. (A)
McQuaid, W. K. (M)
Saulnier, E. A., Jr. (M)
Stahl, W. L. (SM)
Wohr, T. E. (M)

Floral Park (LI-2)
Ackerley, L. D. (M)
Barnes, J. W. (M)
Bellantoni, J. (M)
Berenberg, O. (M)
Brady, T. M. (M)
Eberle, E. E. (M)
Fabbricatore, L. (A)
Garbato, S. F. (M)
Garrand, L. W. (SM)
Hauerstock, C. (M)
Helwege, G. (A)
Lemanczyk, J. C. (M)
Loynes, O. H. (M)
Lyon, R. W. (M)
Marshall, T. A. (M)
Mooney, V. J. (SM)
Nixon, G. M. (SM)
Peaceman, H. T. (M)
Rogers, W. (M)
Schmidt, R. D. (SM)
Snitzer, M. S. (M)
Spittal, W. R. (M)
Troupo, L. B. (A)
Wolf, E. (M)

Flushing (LI-2)
Albin, A. L. (SM)
Altmann, S. (A)
Appelbaum, D. (M)
Arquello, R. J. (M)
Arlt, J. E. (A)
Ash, J. (M)
Ashton, S. (M)
Auerbach, L. (M)
Auerbach, M. (SM)
Aull, W. (SM)
Barber, A. W. (SM)
Barron, K. F. (M)
Barry, S. (A)
Bauman, L. (M)
Beiser, L. (A)
Belluck, R. E. (M)
Bergherr, W. (A)
Berkowitz, M. W. (M)
Bernstein, S. S. (M)
Bettan, M. I. (M)
Blickstein, M. J. (M)
Boate, J. G. H. (A)
Bodak, L. (A)
Boltan, M. (A)
Boyd, C. H. (M)
Burnett, B. (M)
Burns, E. P. (SM)
Carney, G. A. (M)
Cammarata, J. (A)
Carhart, R. N. (M)
Carpenter, J. J. (A)
Castro, S. J. (M)
Chaskin, H. (M)
Chin, H. C. (A)
Ciru, J. L. (M)
Climent, L. J. (M)
Cohen, A. Z. (A)
Connolly, J. (A)
Constance, M. (M)
Corrigan, J. P. (M)
Crangle, W. J. (A)
Davidson, L. M. (M)
Dechter, A. (M)
Dechter, J. A. E. (M)
Deutscher, L. (A)
Donegan, E. V. (M)
Dorwitt, S. J. (M)
Dove, P., Jr. (A)
Dubovy, J. L. (A)
Duffy, J. J. (M)
Eisenhuth, A. J. (M)
Elefant, J. (M)
Erenburg, S. A. (M)
Feinman, G. (M)
Fifer, W. C. (M)
Fitzpatrick, J. A. (M)
Fleischman, M. (A)
Frank, A. M. (M)
Franklin, J. I. (M)
Fredricks, I. (M)
Gethin, S. A. (A)
Gilbert, G. Y. (M)
Gilmore, J. F. (M)
Goldberg, R. (A)
Golding, L. S. (M)
Goldman, N. I. (M)
Gordon, F. (M)
Gould, R. D. (A)
Grace, M. I. (M)
Greenwood, E. (M)
Grilli, J. J. (M)
Grochnert, W. A. (A)
Groudan, A. I. (M)
Guarino, P. A. (M)
Haeberle, A. (M)
Hannon, J. J. (M)
Hansen, H. M. (A)
Harrison, S. (M)
Hartman, C. T. (A)
Hartten, E. J., Jr. (A)
Hatfield, L. N. (SM)
Havemeyer, F. H. (A)
Heller, S. (M)
Hertz, S. (A)
Hille, P. F., Jr. (M)
Hillman, K. (M)
Holleman, E. M. (M)
Hung, H. M. (M)
Ilich, D. F. (A)
Jasik, H. (F)
Kaiteris, C. P. (M)
Kafenty, C. R. (M)
Kaplan, R. A. (M)
Katz, D. (A)
Kaufman, L. (M)
Keil, R. A. (A)
Kelber, K. H. (M)
Kent, L. I. (SM)
King, M. (M)
Klafter, R. D. (M)
Kristianson, L. (A)
Kupferberg, K. M. (M)
Lametta, J. (A)
Landstein, M. (A)
Lanes, A. (M)
Lang, R. M. (A)
Langer, P. L. (M)
Lanzisero, N. T. (M)
Larsen, R. P. (M)
Laskin, R. (M)
Lavella, D., Jr. (A)
Lee, D. H. (M)
Lefor, F. M. (M)
Leibowitz, B. (M)
Lenczowski, T. M. (M)
Leonard, E. (M)
Levene, L. F. (M)
Levine, J. (A)
Low, J. (M)
Ligotti, R. E. (A)
Lippmann, J. S. (A)
Lipsky, S. E. (M)
Liss, M. (M)
Lovaglio, F. J. (M)
Lustig, H. E. (SM)
Lynch, W. J. (A)
Lyons, W. (SM)
Maksimik, C. J. (M)
Maldonado, R. (M)
Mallon, J. F., Jr. (A)
Markowitz, A. (M)
Marsocci, V. A. (SM)
Martin, P. S. (M)
Maurer, J. G. (A)
Mazurkiewicz, R. J. (A)
Medici, N. (M)
Melmed, A. (A)
Mendel, J. M. (M)
Merson, L. (A)
Metzger, J. M. (A)
Miller, G. P. (M)
Monroe, J. (M)
Navis, R. W. (A)
Nigro, A. F. (M)
Odorico, J. M. (M)
Pallas, M. (M)
Pater, D. C. (A)
Payton, T. J. (A)
Pendergrass, H. L. (A)
Peritz, R. A. (M)
Pettit, O. F. (M)
Pillinger, L. (M)
Pinck, E. (M)
Polan, M. J. (A)
Ranky, B. (SM)
Reilley, A. C., Jr. (M)
Ressler, H. C. (SM)
Roman, S. (A)
Rosenberg, N. (M)
Rubin, S. (M)
Rubin, S. (A)
Ruotolo, M. (M)
Russ, B. H. (M)
Saarts, H. (A)
Saliano, A. (M)
Salkind, L. (M)
Saliviolo, F. E. (A)
Sammon, P. J. (M)
Savarese, J. A. (M)
Scherer, R. L. (M)
Schimmel, H. (M)
Seelig, W. (M)
Sherman, H. (A)
Shoh, A. (M)
Sicker, M. (M)
Sieminski, E. (SM)
Silberlicht, J. W. (M)
Sinreich, N. (A)
Small, B. (M)
Smilowitz, S. N. (M)
Smith, L. (A)
Sobel, S. (M)
Sohne, G. C. (M)
Solzberg, S. (M)
Sommer, E. (M)
Spett, H. (M)
Spiegelthal, E. S. (M)
Stange, W. (A)
Stile, V. R. (A)
Surdi, M. (M)
Taylor, A. (M)
Teitelbaum, M. G. (A)
Terry, D. M. (A)
Thom, R. H. (A)
Tucker, M. H. (A)
Uhran, J. J., Jr. (M)
Valente, J. G. (M)
Vinarub, M. E. (M)
Visscher, J. F. (A)
Wachtel, A. (M)
Wagner, I. L. (A)
Warshauer, W. J. (M)
Webber, G. (M)
Weber, A. L. (M)
Weiland, G. H. (M)
Weiss, E. (A)
Weiss, G. (SM)
Wolf, F. E., Jr. (M)
Wyle, H. (M)
Youdin, M. (M)
Zeltkowitz, L. J. (M)
Zivitofsky, F. I. (M)

Flushing Manor (LI-2)
Grunet, A. (A)

Forest Hills (LI-2)
Aguado, M. M. (M)
Altman, R. D. (A)
Avanessians, A. A. (M)
Baum, S. H. (SM)
Berkin, A. M. (A)
Brody, J. (M)
Broomer, C. J. (M)
Canavaciol, F. L. (SM)
Carol, L. K. (M)
Cohen, M. A. (A)
Crump, J. F. (A)
Davidson, L. M. (A)
Eichacker, P. G. (A)
Eickstedt, L. A. (A)
Eng, J. (M)
Ewen, K. (M)
Fisher, L. H. (SM)
Fonseca, A. P. (M)
Frankfort, M. J. (M)
Friedlander, E. (A)
Geller, M. (M)
Gister, S. (M)
Gitten, L. J. (M)
Glaser, A. B. (M)
Goldberg, J. A. (M)
Goodman, S. (M)
Grayson, K. B. (M)
Green, P. S. (M)
Greer, S. E. (M)
Gunzenhauser, A. (A)
Hanchrow, J. J. (A)

Hausmann, H. C. (SM)
Herbstman, M. I. (M)
Hersch, W. (M)
Hogan, J. V. (SM)
Horan, R. A. (A)
Hymen, C. (A)
Jacobson, J. (M)
Karamitsopulos, N. (A)
Kearny, D. H. (M)
Keim, A. (M)
Kent, J. S. (M)
Kerne, B. (M)
Klein, G. P. (A)
Kniecik, J. E. (M)
Kotrich, J. F., Jr. (M)
Krumbein, J. (A)
Kustin, S. (M)
Laudon, H. (M)
Leavitt, L. E. (M)
Lee, T. K. (M)
Leifer, M. S. (M)
Levy, S. M. (M)
Maher, B. (M)
Makris, C. J. (M)
Marcinkowski, H. L. (M)
Mariotti, P. G. (SM)
Munshower, R. M. (A)
Newfield, G. (M)
Newton, A. (A)
Ney, A. L. (M)
Ottenberg, E. C. (M)
Petrossian, G. (M)
Pollack, P. (M)
Prince, B. A. (M)
Reilly, N. B. (M)
Roark, M. A. (M)
Sandor, A. (SM)
Saphin, H. N. (M)
Schiechter, I. (M)
Schmeltzer, R. A. (M)
Scott, J. E. (M)
Seitz, H. J. (A)
Shpiesel, N. A. (M)
Silver, L. (M)
Sterling, S. J. (M)
Teltscher, E. S. (M)
Tevonian, R. B. (M)
Violette, W. R. (M)
Vivenzio, L. J. (A)
Wahl, G. J. (A)
Wartenberg, M. R. (M)
Weber, I. J. (M)
Weiss, L. H. (A)
Wills, A., Jr. (A)
Winzemer, A. M. (SM)
Yieh, T. (M)
Zimmerman, H. (M)

Fort Edward (SCH-1)
Grahame, F. W. (M)

Fort Johnson (SCH-1)
Motyl, A. J. (A)

Frankfort (RU-1)
Buckel, D. G. (A)
Carr, E. Q. (M)
Judge, F. W. (M)
Kenyon, H. P., Jr. (M)
Krueger, A. R. (M)

Franklin Square (LI-2)
Avallone, A. (M)
Balough, J. (M)
Basilico, C. (A)
Berlinsky, M. (M)
Biberacher, R. (A)
Brody, H. (A)
Bresner, A. (M)
Engelson, B. (M)
Hallisey, R. J. (M)
Harris, S. M. (M)
Kirwan, J. P. (M)
Lee, V. C. (M)
Lipson, W. (M)
Mahler, L. J. (M)
Marrara, C. (M)
McNealus, A. L. (M)
Muth, J., Jr. (M)
Rand, G. (M)
Richards, J. A. (A)
Schmeiter, S. (M)
Schmidt, R. Q. (M)
Schussel, B. H. (A)
Schwalbe, J. H. (M)

Fredonia (BN-1)
Blohm, C. F. (A)

Freeport (LI-2)
Agoplan, A. (A)
Beck, G. S. (M)
Belderok, H. C. (A)
Bridgeman, T. H. (SM)
Burger, R. L. (M)
Campani, L. M. (M)
Carlson, W. A. (M)
Cohen, J. (SM)
Di Russo, J. C. (M)
Dolphy, E. L. (M)
Furst, R. E. (M)
Goldman, J. M (M)
Gottlieb, H. B. (M)
Gould, G. A. (M)
Guzzo, J. J. (A)
Henke, G. W. (M)
Homeyer, W. (M)
Kahn, L. R. (SM)
Knox, R. W. (M)
Liguori, F. (M)
Maher, E. F. (A)
Miller, D. A. (M)
Prichard, J. S. (M)
Russell, G. A. (M)
Seidman, B. J. (A)
Smedes, R. L. (M)
Spargo, J. S. (A)
Stryjewski, A. H. (A)
Tricamo, V. A. (M)
Washton, A. A. (A)
Weiss, F. L. (M)

Freeville (ITH-1)
Fitzpatrick, J. J. (A)
Phillips, T. A. (M)
Smith, C. L. (A)
Temple, K. A. (M)
Wood, R. H. (M)

Fresh Meadows (LI-2)
Barry, G. (A)
Candell, R. L. (M)
Cooper, J. F. (A)
Feingold, W. (M)
Gebhardt, J. W. (M)
Gerstlen, M. G. (A)
Herskowitz, G. J. (M)
Lubell, P. D. (M)
Meyer, D. P. (M)
Newman, H. (M)
November, P. M. (M)
Pirone, C. (M)
Regis, R. (SM)
Richman, D. (F)
Schwartz, N. L. (M)

Fulton (SYR-1)
Le Roy, C. D. (A)
Lichoroblec, E. J. (M)

Galway (SCH-1)
David, W. R. (M)

Garden City (LI-2)
Allen, C. M. (M)
Allen, W. T. (M)
Alley, P. D. (M)
Bamaby, R. H. (M)
Beck, A. J. (M)
Beck, C., Jr. (M)
Behn, E. R. (SM)
Bellmer, W. A. (A)
Berglund, E. B. (SM)
Bemsley, J. T. (M)
Blasbalg, S. (M)
Bock, C. D. (SM)
Bolton, G. E. (A)
Cammack, F. (M)
Cardon, J. (SM)
Collard, C. A. (M)
Conte, J. A. (A)
Comes, R. W. (SM)
Danielson, F. H. (M)
Dean, W. N. (M)
De France, J. J. (SM)
Dietz, H. G. (M)
Dunn, L. J. (SM)
Edwards, R. S. (M)
Eriksen, E. M., Jr. (M)
Esposito, J. A. (A)
Feely, M. J. (A)
Frost, R. F. (SM)
Fuller, E. J. (M)
Gedney, A. G. (M)
Gemmill, F. Q. (M)
Girodias, R. M. (M)
Gittens, E. D. (SM)
Giullanelli, R. M. (M)
Granese, D. G. (A)
Gregson, A. C. (M)
Hancock, J. R. (A)
Henney, K. (F)
Hesse, A. N. (M)
Hoffman, E. J. (SM)
Jahn, D. M. (M)
King, L. H. (SM)
King, W. E., Jr. (M)
Kirby, M. J. (M)
Kroeger, R. D. (M)
Leamed, V. (F)
Lester, J. M. (SM)
Liebert, F. R. (M)
Linn, S. S. (M)
Macha, M. (M)
Madigan, W. J. (M)
Mauro, J. J. (M)
Meaney, M. H., Jr. (A)
Meller, W. N. (M)
Menke, W.W. (M)
Mieher, W. W. (F)
Niemela, R. J. (A)
Nino, R. V. (M)
Olthuis, R. W. (M)
Parsons, M. H., Jr. (A)
Pellino, W. M. (M)
Pohl, A. E. (M)
Rachael, M. S. (M)
Rau, D. S. (F)
Robertson, A. S. (M)
Seay, P. A. (M)
Sellers, R. C. (M)
Shaper, H. B. (M)
Shepherd, J. E. (F)
Shute, E. R. (SM)
Simpson, M. (M)
Smith, W. G. (M)
Stark, E. W. (M)
Stauber, M. C. (M)
Sussman, N. (M)
Terman, F. W. (M)
Tschanen, W. (A)
Volgt, D. C. (M)
Wai, K. N. (M)
White, W. T. (SM)
Wies, G. (M)
Winchell, W. H. (M)
Woodworth, F. B. (SM)
Wunderlich, N. E. (M)

Garden City Park (LI-2)
Braun, L., Jr. (M)
Fitzgerald, J. E. (A)
Frank, K. F. (M)
Schreitmueller, R. F. (M)

Gardiner (NY-MH-2)
Thompson, T. N. (M)

Garrison (NY-MH-2)
Elmore, W. B. (M)
Lewis, E. J. (M)

Geneseo (ROC-1)
Laidlaw, W. R. (M)

Geneva (ROC-1)
Aquilano, N. J. (M)
Benda, D. (M)
Fairbanks, D. I. (M)
Smith, S. S. (M)
Woodworth, D. J. (M)

Germantown (NY-C-2)
Dougherty, J. W. (A)
Hinkein, D. J. (A)

Getzville (BN-1)
Brown, A. H. (M)

Glen Cove (LI-2)
Aiello, V. S. (M)
Andres, R. K. (M)
Biscoe, G. W. (M)
Buchbinder, M. M. (SM)
Buchteskirch, A. J. (M)
Burr, R. P. (SM)
Cohen, M. (M)
Cramer, S. (M)
Davis, W. M. (M)
De Piola, F. J. (M)
Doncese, G. (M)
Donellan, S. J., Jr. (M)
Duffy, D. P. (M)
Foley, J. H. (M)
Glassman, S. (M)
Grabbe, D. (A)
Hedman, W. R. (M)
Jackson, D. E. (M)
Jorge, A. (M)
Kelly, A. W., Jr. (M)
Kingsbury, A. P. (M)
Kiser, W. L. (SM)
Klein, M. M. (M)
Knizeski, J. M., (M)
Laviano, V. R. (M)
Lenihan, P. M. (M)
Levenstein, H. (SM)
Magagnos, W. F. (M)
McCarron, J. M. (A)
McDonough, J. A. (SM)
Papas, J. (A)
Parry, J. P. (M)
Proudlit, A. (M)
Robinson, D. L. (SM)
Saferstein, L. J. (M)
Saffery, C. J. (M)
Scott, G. G. (A)
Shell, W. H. (M)
Shufer, M. (M)
Siegel, N. (M)
Smith, H. H. (M)
Sokoloff, L. (M)
Souder, C. W. (SM)
Swigoett, R. L. (M)
Teevan, C. H. (M)
White, G. R. (M)
Wilson, J. F. (A)

Glendale (LI-2)
Capellupo, F. V. (M)
Merkel, K. (A)
Murphy, L. J. (M)
Vought, N. F. (SM)

Glen Falls (SCH-1)
Consadine, R. C. (M)
Ellis, R. N. (A)
Gorby, E. W. (M)
Johnson, F. L. (M)
Merrill, R. C. (M)
Nichols, D. H. (M)
Wells, H. D., Jr. (M)
Wirn, O. H. (SM)

Glen Head (LI-2)
Busching, H. L. (M)
Cetrone, V. C. (M)
Cooke, W. T. (SM)
De Lallo, L. D. (M)
Dow, C. J. B. (F)
Gauger, R. H. (M)
Hanson, G. N. (SM)
Hollister, F. J. (M)
Keeneth, J. A. (A)
Kliman, M. (M)
Martin, E. E. (A)
Mayer, F. N. (M)
McClure, R. E. (M)
Miller, H. D. (M)
Mitchell, P. S. (M)
Morgan, J. F. (M)
O'Brien, T. H. (M)
Popkin-Clurman, J. R. (SM)
Reed, F. C., Jr. (M)
Roessler, F. J., Jr. (M)
Seberg, H. N. (M)
Simmons, J. C. (M)
Slaughter, G. K. (SM)
Timms, R. J. (M)
Zylla, H. R. (M)

Glen Oaks (LI-2)
Broder, A. (M)
Bruce, G. B. (SM)
Byrne, J. P. (M)
Carlson, C. E. (M)
Da Rold, J. J. (M)
Davis, J. T. (M)
Detmit, M. E. (A)
Dorchak, C. J. (M)
Ehrlich, S. (M)
Fisher, G. C. (M)
Gallagher, M. L. (M)
Gaughan, G. H. (M)
Kircher, W. L. (A)
Kraus, C. P. (M)
Lally, K. P. (M)
Mefford, J. P. (M)
O'Leary, D. F. (M)
Reynolds, M. (M)
Sanderson, G. H. (M)
Shizume, P. K. (M)
Szeglin, R. K. (M)
Tramposch, R. W. (A)
Wood, S. (A)

Glen Oaks Village (LI-2)
McVey, A. B. (M)

Glenwood Landing (LI-2)
Hulland, B. L. (M)
Ohman, B. V. (M)

Gloversville (SCH-1)
Harges, M. T. (M)
Lambdin, W. S. (SM)

Goshen (NY-MH-2)
McClean, J. F. (SM)

Gowanda (BN-1)
Allen, M. B. (M)
Bowen, G. D. (A)

Grand Island (BN-1)
Berlin, R. E. (M)
Knapp, W. H. (A)
Prast, J. W. (A)
Rayhill, E. A. (A)
Rothenberg, D. L. (M)

Grand View (NY-W-2)
Iurica, J. A. (M)

Gravesville (RU-1)
Bigelow, R. W. (A)

Great Neck (LI-2)
Abrams, H. M. (M)
Adams, J. (M)
Adise, H. H. (M)
Alchele, P. F. (SM)
Asher, M. W. (M)
Astrow, M. (M)
Bachman, H. L. (SM)
Bass, R. F. (M)
Beck, D. H. (SM)
Becker, J. E. (M)
Becker, W. M. (M)
Bender, A. (M)
Benjamin, J. N. (SM)
Bibbero, R. J. (SM)
Bloom, C. H. (M)
Blumkin, R. (M)
Bozlwick, G. E. (M)
Brambrut, S. A. (M)
Brian, J. (M)
Brown, B. B. (M)
Brown, D. R. (M)
Browning, J. H. (M)
Budne, T. A. (M)
Butt, R. J. (M)
Cahn, E. D. (M)
Castro, A. A. (M)
Chaikin, M. (A)
Chatterton, J. B. (M)
Chubb, C. F., Jr. (SM)
Coe, M. R. (SM)
Cook, C. E. (SM)
Crawford, J. D. (SM)
Croly, J. W. (A)
Crosby, R. W. (M)
Dacier, W. C. (M)
De Fries, H. A. (M)
Dettinger, D. (SM)
Drossos, J. (M)
Drvostep, J. J. (SM)
Dunlap, O. E., Jr. (SM)
Engelson, H. R. (A)
Epstein, H. S. (M)
Erickson, R. L. (M)
Flinberg, W. S. (M)
Fletcher, J. W. (M)
Frank, R. L. (SM)
Frantz, W. P. (SM)
Freeman, H. (SM)
Freeman, P. H. (M)
Frische, C. A. (F)
Garville, L. R. (M)
Gittelman, J. N. (M)
Goldstein, S. H. (A)
Goodstein, L. P. (SM)
Graham, V. M. (F)
Granoff, H. N. (A)
Green, W. F. (M)
Greene, S. J. (M)
Guscott, J. K. (M)
Guttman, M. D. (A)
Hanfling, J. D. (M)
Harris, H., Jr. (M)
Hauser, A. A., Jr. (M)
Hershler, A. (M)
Holcomb, P., Jr. (SM)
Hollander, J. M. (M)
Holmboe, L. W. (SM)
Huber, W. J. (M)
Jaffe, D. L. (SM)
Jasik, C. (SM)
Jennings, M. H. (SM)
Kahn, M. B. (SM)
Kaskel, H. (A)
King, J. J. (M)
Knittel, G. H. (M)
Kohn, D. (M)
Krencik, P. M. (A)
Kudo, Y. (M)
Landsman, D. I. (M)
Larick, S. H. (M)
Lazar, E. F. (SM)
Leeds, G. G. (A)
Leffingwell, W. B. (M)
Lehrer, M. (M)
Lemkin, E. H. (A)
Lerz, D. M., Jr. (SM)
Levers, E. O. (A)
Lewiss, D. B. (M)
Liebowitz, B. H. (M)
Litton, J., Jr. (M)
London, F. H. (M)
Loth, P. A. (SM)
Maloney, R. T. (SM)
Marcuvitz, N. (F)
Markson, M. D. (M)
Mayerson, M. I. (M)
Mazzola, V. (M)
McBee, W. D. (SM)
McClellan, G. B. (SM)
McGuire, R. (M)
Melhado, W. K. (M)
Milazzo, P. J. (M)
Miller, C. R. (M)
Milton, J. (M)
Milton, L. (M)
Mindell, M. I. (M)
Morrison, M. (M)
Mulligan, G. K. L. (M)
Mulligan, J. R. A., Jr. (M)
November, F. D. (M)
Nover, E. P. (M)
Onyskin, M. (M)
Paley, W. D. (M)
Planteroth, J. A. (M)
Puttre, R. E. (M)
Radnay, L. S. (A)
Redlien, H. W., Jr. (M)
Reid, W. (M)
Reuther, D. W. (M)
Riddell, R. B. (M)
Ripple, J. W. (M)
Roake, W. C. (M)
Robin, N. (A)
Rosanes, A. P. (M)
Rosenberg, S. L. (M)
Ross, H. (M)
Rostky, G. H. (M)
Rudich, I. (M)
Sadler, L. R. (M)
Saladna, J. C. (M)
Schindler, J. P. (SM)
Schmidt, E. R. (M)
Schwartz, J. M. (M)
Schwartz, L. S. (F)
Service, R. C. (M)
Shutterly, H. B. (M)
Skank, H. D. (M)
Sperling, J. G. (M)
Spero, R. E. (M)
Sprague, G. J. (A)
Stanley, A. G. (M)
Steber, W. C. (SM)
Sterns, R. B. (M)
Stone, S. M. (M)
Sussman, H. (SM)
Swern, L. (SM)
Taffet, M. S. (M)
Tanenbaum, M. S. (SM)
Tanguay, R. H. (M)
Tenebaum, F. (M)
Tuminaro, R. D. (M)
Vaupel, G. E. (M)
Ward, W. C., Jr. (M)
Weill, A. E. (M)
Wheeler, H. A. (F)
Williams, F. H. (SM)
Writer, J. D. (M)
Yenoll, D. L. (M)
Zbar, P. B. (M)
Zellers, J. E., Jr. (M)
Ziegler, F. W. (SM)
Zion, H. (SM)

Greenlawn (LI-2)
Fussa, B. J. (A)
Graham, W. T. (M)
Johnston, H. (M)
Kinney, D. D. (A)
Lisy, B. J. (M)
Mathis, C. E. (M)
Meinen, C. W. (M)
Morse, R. V. (M)
Nelson, R. T. (SM)
Polettl, G. (M)
Schoenfeld, K. (M)
Shergalis, L. D. (M)
Somberger, E. A. (A)
Sposato, F. J. (M)
Woodard, G. F. (M)

Greenport (LI-2)
Shipman, J. W., III (M)

Greenvale (LI-2)
Best, R. A. (M)
Di Paolo, E. M. (M)
Goldsmith, K. G. (M)
Hansel, P. G. (F)
Harrison, A. E. (SM)
Siegmund, E. L. (M)
Wathen, R. L. (M)

Griffiss AFB (RU-1)
Branch, G. E. (SM)
Bratge, J. R. (M)
Caplan, A. E. (M)
De Mesme, T. A. (M)
Dillow, J. C. (M)
Disher, A. J., Jr. (M)
Entzminger, J. N. (M)
Erb, G. E. (SM)
Glushko, W. (M)
Graul, D. P. (SM)
Harvey, D. M. (M)
Harvey, E. (M)
Humpage, W. H. (M)
Larsen, P. N. (M)
Marlow, H. C. (A)
Newsome, W. A., Jr. (M)
Nicholson, C. L. (M)
Norton, M. L. (M)
Shiner, G. A. (M)
Snider, D. E., Jr. (M)
Strother, J. F. (M)
Sues, L. B. (A)
Sullivan, C. J. (M)
Toomay, J. C. (M)
Yarbrough, L. A. (M)

Guilderland (SCH-1)
Hannam, H. J. (M)

Halesite (LI-2)
Bubbers, J. J. (M)
Donnelly, F. L. (A)
Laivo, O. W. (M)
Larson, A. F. (SM)
Tengelsen, W. E. (M)
Warner, W. V. (A)

Hamburg (BN-1)
Espersen, G. C. (M)
Euler, J. R. (M)
Fiedler, L. (M)
Filfield, N. N., Jr. (A)
Gurley, F. R. (A)
Haushalter, C. H. (SM)
McBride, N. G. (M)
Van Sickle, T. T. (M)

Hamilton Beach (LI-2)
Pihl, R. L. (M)

Hammondsport (ELM-C-1)
Pear, R. L. (M)

Hampton Bays (LI-2)
Isemann, L. W. (A)
Turner, F. T. (M)

Harpursville (BING-1)
Lawrence, N. S. (M)

Harrison (NY-W-2)
Carpiniello, F. (A)
De Pasquale, R. H. (SM)
Gallone, W. J. (A)
Gray, D. G. (M)
McIntyre, F. P. (M)
Speranza, A. A., Jr. (A)

Hartsdale (NY-W-2)
Belchis, S. (M)
Bonney, H. W. (M)
Byrne, R. M. (M)
Cloud, P. R. (M)
Codina, J. G. (A)
Engelhardt, G. B. (SM)
Fischer, L. A. (A)
Hammond, R. A. (SM)
Hoffman, J. D. (SM)
Horn, I. (M)
Hurst, K. J. (M)
Koved, F. L. (M)
Medoff, H. (M)
Novick, R. (M)
Rabinowitz, M. (M)
Robertson, H. E. (M)
Seelbach, W. C. (M)
Sherr, S. (SM)
Simon, M. L. (M)
Sobel, J. J. (M)
Streifus, C. A. (M)
Vagt, H. T., Jr. (M)
Vogel, W. H., Jr. (M)

Hastings-on-Hudson (NY-W-2)
Archbald, R. W. (SM)
Batchelor, J. C. (SM)
Daniels, R. W. (A)
Garman, R. L. (F)
Hohberger, H. P. (A)
Lodge, W. B. (F)
Mendelson, R. H. (M)
Ripp, H. (M)
Southworth, M. P. (M)
Yurko, M. (M)
Hauppauge (LI-2)
Aichroth, J. W. (M)
Amberger, D. J. (M)
Holmes, A. P. (A)
Moritz, F. G. (M)
Savadel, R. J. (M)
Takach, R. V. (A)
Thomson, G. W. (M)

Hawthorne (NY-W-2)
Augustine, R. O. (M)
Hales, E. B. (M)
Schauer, R. F. (M)

Hempstead (LI-2)
Austin, G. A. (M)
Baker, W. G. (M)
Bedingfield, S. C. (M)
Bellmar, C. L. (M)
Caligiurn, J. F. (M)
Coleman, J. R. (A)
Comitz, P. (M)
Croslin, M. E. (M)
Dieterich, G. V. (A)
Dixon, F. E. (A)
Eklund, K. E. (M)
Fener, H. (M)
Gelling, R. B. (A)
Handler, M. J. (A)
Hernandez, J. (A)
Johnson, H. E. (A)
Kaplan, R. M. (M)
Keonjian, E. (SM)
Kilmer, T. W. (A)
Kurzman, D. Z. (M)
Leo, M. J. (M)
Lesser, J. (SM)
Mandl, G. P. (SM)
Morris, R. C., Jr. (A)
Pell, R. B. (A)
Peters, J. L. (SM)
Pflieger, R. H. (M)
Pilnick, C. (SM)
Reeves, G. I. (A)
Ross, H. E. (M)
Rudnick, I. M. (A)
Sastri, M. V. S. (M)
Schinzel, R. R. (M)
Selig, M. J. (M)
Selkirk, W. J. (M)
Skirrow, J. E. (A)
Stein, P. J. (M)
Steinberg, W. A. (M)
Stringham, R. H. (M)
Westover, T. A. (SM)
Wolff, M. F. (M)
Zettler, S. G. (M)
Zimbalatti, A. G. (M)

Hempstead Village (LI-2)
Jackson, M. E. (M)

Henrietta (ROC-1)
Ablon, L. J. (M)
Carey, J. J. (M)

Herkimer (RU-1)
Cunningham, W. L. (M)

Hewlett (LI-2)
Kahgan, J. J. (M)

Hewlett Harbor (LI-2)
Cahan, L. C. (M)

Hicksville (LI-2)
Abjanich, G. S. (SM)
Auer, L. (A)
Baggia, R. J., Jr. (M)
Bassett, W. H., Jr. (A)
Bianco, F. P. (M)
Blackstone, H. (SM)
Blau, A. (M)
Borgen, H. (M)
Brecht, L. R., Jr. (M)
Brenner, J. C. (SM)
Brooks, M. S. (M)
Brown, G. C. (M)
Brydia, W. L. (A)
Cady, R. T. (M)
Chaber, P. K. (SM)
Chen, S. J. (M)
Cines, S. M. (M)
Cole, J. A. (M)
Constantakes, P. (M)
Cooper, D. J. (M)
Cordts, R. C. (M)
Cosonas, A. (M)
Craven, E. S. (M)
Daum, A. (SM)
Devine, J. H., Jr. (M)
Dircks, H. F. (M)
Dolin, M. (M)
Dorgelo, E. G. (SM)
Emilio, G. A. (A)
Fein, A. (M)
Figlia, J. R. (M)
Fink, A. (SM)
Fry, W. H. (M)
Goodman, L. (M)
Hagedorn, H., Jr. (A)
Hall, J. D. (M)
Haller, K. A. (M)
Hartman, A. (M)
Hayes, A. J. (M)
Hayes, W. A. (A)
Helm, R. R. (M)
Herzel, J. S. (M)
Hickman, R. S. (M)
Hofmanis, I. A. (M)
Jacobs, B. (M)
Kawaller, J. (M)
Keith, W. S. (M)
Kilata, M. S. (A)
Kliphuis, J. (M)
Kramer, S. (M)
Leahy, R. E. (M)
Lonschein, J. R. (A)
Maisel, L. (M)
Malotte, D. W. (M)
Mann, R. P. (A)
Marino, J. (M)
Marion, J. F. (M)
Martin, R. W. (M)
McNamara, D. J. (M)
Meagher, E. (M)
Meirowitz, R. L. (M)
Meyer, F. (M)
Monahan, D. P. (M)
Naftulin, A. D. (M)
Nieminski, W. V. (M)
Noland, J. A. (M)
Noneman, F. A. (SM)
Oberlies, J. L. (M)
Pavalow, M. (SM)
Poulos, E. (M)
Rabin, G. C. (M)
Rehbehn, J. E. (M)
Rennie, M. (A)
Roth, B. J. (M)
Rousselet, C. A. (A)
Ruppel, D. (M)
St. John, K. M. (SM)
Sherry, L. J. (M)
Sicuranza, C. A. (M)
Sikalis, C. (M)
Simon, I. A. (M)
Simonyan, K. G. (M)
Spence, H. W. (M)
Spillane, L. R. (M)
Strong, J. J., Jr. (M)
Suttenberg, S. (M)
Szalay, A. P. (A)
Tilly, V. F. (M)
Tomes, S. R. (SM)
Uretsky, C. L. (M)
Variano, V. V. (M)
Vehslage, E. P. (M)
Waller, H. H. (M)
Wasson, I. (SM)
Weinrauch, A. (M)
Welch, A. J. (M)
White, R. J. (M)
Williams, G. W. (M)
Wolfschmidt, L. A. (A)
Young, D. B. (A)
Zamoino, F. J. (A)
Zaret, M. E. (SM)
Zimmerman, H. (M)
Zimmerman, L. (A)
Zinn, L. (M)

Highland (NY-MH-2)
Mackie, D. (M)
Ogden, S. (M)
Reynolds, J. L. (M)
Schaefer, W. C. (M)
Semmelhack, H. P. (M)

Hillburn (NY-W-2)
Teso, W. A. (M)

Hillsdale (NY-C-2)
Sabeff, S. S. (M)

Holcomb (ROC-1)
Barker, J. R. (A)
Hudson, D. M. (M)
Rimlinger, D. C. (M)

Holland Patent (RU-1)
Cale, T., Jr. (SM)
Gaige, J. C. (M)
Ladwig, H. A. (M)
Millet, J. F. (A)
Pulhamus, W. R. (M)
Ryerson, J. L. (M)

Hollis (LI-2)
Arra, G. J. (A)
Auerbach, A. A. (M)
Caputo, N. J. (M)
Edell, J. J. (M)
Kaplan, B. (M)
Lurin, E. S. (M)
Malafi, H. T. (M)
McDuffie, T. E. (M)
Palmer, R. H. (M)
Prior, F. J. (A)
Ransom, V. L. (M)
Richter, I. P. (A)
Sabato, C. A. (M)
Samuels, M. (A)
Schlafly, H. J. (SM)
Simes, J. G. (M)
Strack, R. R. (A)
Walko, D. G. (M)

Hollis wood (LI-2)
Marcus, P. (SM)

Homer (SYR-1)
Ciccoricco, F. A. (M)

Honeoye Falls (ROC-1)
Laniak, D. K. (A)
Semmel, K. N. (A)

Hoosick Falls (SCH-1)
De Luca, A. P. (M)
Hopewell Junction (NY-MY-2)
Butler, R. A. (A)
Lear, E. F. (A)
Macmullen, J. H. (M)
McGovern, W. (M)
Meyers, M. M. (A)
Nidermayor, V. A., Jr. (A)
Strohm, W. B. (SM)
Templeton, H. S. (M)

Hornell (ELM-C-1)
Deegan, T. E. (M)

Horseheads (ELM-C-1)
Alexander, J. J. (A)
Bamford, A. J. (M)
Betts, B. J. (M)
Bolakas, J. A. (M)
Bruster, H. E., II (A)
Canty, B. R. (M)
Clayton, R. H. (M)
Gerard, W. A. (M)
Gleason, C. H. (SM)
Groo, H. R., III (M)
Larson, R. G. (SM)
Long, E. D. (M)
Mansfield, W. O., Jr. (M)
Playfoot, K. C. (A)
Rial, W. S. (M)
Sadler, J. G. (SM)
Staples, R. L. (M)
Welton, D. A. (M)
White, R. A. (SM)

Howard Beach (LI-2)
Friedman, H. (M)
Green, M. (M)
Janis, I. R. (A)
Martinson, C. D. (A)
Zechnowitz, A. L. (M)

Hudson (NY-C-2)
Pazera, J. A. (A)

Hudson Falls (SCH-1)
Clark, N. R. (M)
Cohen, M. (A)
Corwin, N. J. (M)
Flood, F. R. (M)
Scoville, M. E. (SM)

Hughsonville (NY-MH-2)
Walter, G. (A)

Huntington (LI-2)
Abbott, J. J. (A)
Alber, J. D. (M)
Attura, G. M. (M)
Baasch, T. L. (M)
Beckhardt, T. (M)
Benisch, N. E. (M)
Bennett, A. I. (SM)
Berger, C. D. (SM)
Billhimer, R. D. (A)
Bolton, R. H. (M)
Breese, M. E. (SM)
Burke, E. W., Jr. (SM)
Buzzanca, V. J. (M)
Carlstrom, R. A. (M)
Carroll, J. M. (SM)
Casper, S. D. (SM)
Caswell, J. N. (SM)
Comstock, G. E., III (M)
Conigliaro, S. A. (SM)
Daly, R. T. (SM)
Dannals, M. J. (M)
Dano, John (M)
Daskam, Edw., Jr. (M)
De Rochemont, L. L. (SM)
Di Petto, Frank (M)
Dosch, T. J. (M)
Douglas, W. S. (A)
Dubin, L. (M)
Eicher, H. G. (M)
Evans, R. L. (A)
Evans, T. L. (M)
Feltham, C. F. (M)
Frey, S. (M)
Ferrier, D. T. (SM)
Forsberg, K. E. (M)
Fried, G. (A)
Fugazzi, C. (M)
Gilbert, R. C. (SM)
Goldberg, R. M. (M)
Goldmuntz, L. A. (M)
Gore, J. H. (M)
Graham, G. E. (SM)
Gretz, R. W. (M)
Grieser, T. F. (SM)
Grossman, B. C. (SM)
Gunsaulus, L. A. (M)
Gutlove, N. M. (M)
Halden, F. C. (SM)
Hanley, G. L. (M)
Hansen, C. A. (SM)
Hansen, J. A. (SM)
Hartman, L. A. (M)
Hauck, H. O. (SM)
Herr, D. L. (SM)
Hinchey, R. L. (M)
Hinz, H. E. (A)
Hoelle, H. J. (A)
Holcombe, P. G. (M)
Howell, S. N. (A)
Hoxie, I. R., Jr. (A)
Hutchison, T. C. (M)
Jappe, R. W. (M)
Johnson, R. L., Jr. (M)
Joss, E. T. (M)
Jurman, H. R. (A)
Kahan, J. G. (M)
Kam, D. R. (M)
Karpen, E. W. (M)
Kaufman, I. (M)
Kenyon, D. E. (SM)
Keogh, R. J. (M)
Kulik, H. S. (M)
Lahm, G. P., Jr. (M)
Levine, I. (SM)
Lipske, J. A. (M)
Livant, W. (M)
Loecher, G. S. (M)
Losee, W. B., Jr. (M)
Loughlin, B. D. (F)
Lurye, J. R. (M)
Lyons, R. C. (M)
Mac Donald, W. W. (SM)
Maher, T. F. (SM)
Manoogian, H. (SM)
Matthews, L. M. (M)
Mayhan, J. W. (M)
Mazzochi, J. J. (M)
Michalski, E. H. (M)
Milazzo, S. (M)
Muller, W. M. (M)
Narodny, L. H. (M)
Nehrbas, T. C. (M)
Newman, J. (M)
Packard, K. S., Jr. (SM)
Palter, N. H. (SM)
Perry, J. S. (M)
Poppe, C. W. (A)
Poznanski, Z. (M)
Ramsay, J. F. (A)
Rearwin, R. H. (A)
Rosar, M. T. (M)
Rousso, E. (M)
Russell, J. A., III (M)
Sachs, B. K. (M)
Safran, M. (M)
Sammis, S. L., Jr. (M)
Sanial, A. J. (SM)
Sard, E. W. (M)
Schaefer, A. E. (M)
Schroeder, K. R. (SM)
Schwartz, S. L. (M)
Search, R. W. (M)
Setaro, J. E. (M)
Sherman, C. M. (A)
Simons, R. F. (SM)
Sinnott, J. (SM)
Soboleski, W. P. (M)
Sokol, A., Jr. (M)
Spacie, R. W. (A)
Sperber, A. O. (SM)
Stengel, J. F., Jr. (A)
Sturgeon, W. S. (SM)
Swenson, W. J. (A)
Tinto, J. M. (M)
Tyler, E. M. (M)
Vincent, E. P. (M)
Vogel, E. (SM)
Weaver, S. E. (M)
Weber, R. L. (M)
Wheeler, R. B. (M)
Winslow, R. G. (M)
Wohleking, W. C. (M)
Wolff, H. H. (SM)
Woolard, J. (M)
Yamamoto, G. H. (M)

Huntington Bay (LI-2)
Van Davelaar, F. S. (SM)

Huntington Station (LI-2)
Agree, I. (M)
Ahman, A. J. (M)
Arguin, R. G. (M)
Baehr, R. E. (M)
Bemay, R. A. (M)
Blank, C. A. (M)
Buehrle, W. E., Jr. (M)
Burke, H. E., Jr. (M)
Carroll, W. J. (M)
Cermignani, D. J. (M)
Chatterton, W. J. (M)
Chudzik, M. W. (M)
Cittadini, J. J. L. (M)
Connolly, T. W. (M)
Connor, W. E., Jr. (A)
Copel, M. (SM)
Coronis, A. A. (A)
De Troy, B. A. (A)
Dickerson, N. I. (M)
Domchick, R. J. (M)
Driscoll, F. X. (M)
Faber, M. J., Jr. (M)
Feavearyear, J. E. (M)
Fox, J. L. (A)
Fraser, R. (M)
Frasier, D. A. (M)
Freundlich, M. M. (SM)
Fuller, J. B. (M)
Gilmartin, J. J., Jr. (M)
Glazar, A. J. (M)
Goldstein, A. (M)
Graven, C. J. (M)
Grayson, C. M. (A)
Grib, B. F. (M)
Griese, W. F., Jr. (M)
Gross, S. H. (SM)
Hall, R. L. (SM)
Hein, R. W. (M)
Hultmark, R. S. (M)
Jacquette, J. H. (M)
Janhsen, H. K. (A)
Johnson, W. A. (M)
Johnston, W. A., Jr. (SM)
Joline, E. S. (M)
Jolly, E. F. (M)

Kammeter, J. B. (M)
Kerzner, N. A. (M)
Kiel, J. H. (M)
Kleves, J. K. (A)
Kintner, P. M. (SM)
Kish, R. C. (M)
Kishi, H. J. (M)
Knecht, R. A. (SM)
Koppel, A. U. (SM)
Krusos, D. A. (M)
Kuhn, K. H. (M)
Lamb, H. M. (SM)
Lane, J. L. (M)
La Plante, R. A. (M)
Larsen, G. R. (M)
Leeds, D. (M)
Lehr, P. (SM)
Lemberger, S. (M)
Lenehan, J. J. (SM)
Levine, S. (M)
Liguori, A. (SM)
Loaec, G. L. (M)
Lyons, T. M. (M)
Marchesano, J. E. (M)
Marcus, J. A. (M)
McDermott, F. A. (M)
McMenamin, J. M. (M)
Megrdichian, M. O. (M)
Merrigan, M. T. (A)
Mesecher, M. G. (M)
Miller, M. P. (M)
Morrow, A. J. (SM)
Moss, L. A. (M)
Nelson, E. P. (M)
Newdale, E. I. (M)
Nishimura, J. Y. (A)
Noji, T. T. (SM)
Olson, C. W. (M)
Orford, R. J. (M)
Papamarcos, G. (M)
Peck, H. E. (M)
Popylisen, D. J. (M)
Prisco, L. C. (A)
Proctor, D. W. (M)
Reila, J. D. (M)
Remily, W. M. (M)
Richardson, C. M. (M)
Richter, F. G. (M)
Richter, H. E. (M)
Ritchey, N. B. (SM)
Rock, P. (A)
Roller, W. P. (A)
Rosen, M. (SM)
Rossoff, A. L. (SM)
Sachleben, J. H. (M)
Schauerman, J. R. (M)
Schramm, C. T. (M)
Schroter, R. G. (M)
Schwaninger, J. W. (M)
Schwartz, B. (M)
Schwelsberg, E. (M)
Shepherd, L. P. (M)
Sherralis, D. J. (M)
Strazzulla, R. L. (M)
Uzzo, A., Jr. (M)
Vandenburgh, A. A. (A)
Vetter, R. F. (M)
Vetter, W. F. (SM)
Walker, A. C. (M)
Walker, C. E. (M)
Wanty, B. G. (M)
West, J. L. (SM)
Williams, H. R. (A)
Wochinger, R. (SM)
Yee, H. (M)
Zwack, H. W. (M)

Hurley (NY-C-2)
Gannon, W. J. (A)
Hoffman, J. E. (M)
Plonsky, A. T. (M)
Powers, R. L. (M)
Stem-Montaeny, F. H. (M)
Turner, J. M. (M)
Weber, J. L. (M)

Hyde Park (NY-MH-2)
Burnett, B. B. (M)
Cooper, R. A. (M)
Dammann, J. E. (M)
Dettling, A. K. (A)
Eckelman, P. F. (M)
Flynn, M. J. (M)
Gordon, F. J., Jr. (A)
Gruodis, A. J. (M)
Hartwig, A. D. (M)
Henle, R. A. (M)
Hohmann, R. E. (M)
Muenzer, B. M. (M)
Patti, M. J. (M)
Repchuk, J. S. (A)
Rodriquez, L. H. (A)
Steigerwalt, G. F. (M)
Tilton, C. J. (M)
Trimble, L. F. (M)
Whitenack, R. M. (M)

Ilion (RU-1)
Broich, J. H., Jr. (A)
Budney, A. R. (A)
D'Hoostelaere, A. C. (M)
Eisenschmied, M. D. (M)
Momberger, P. E. (M)
Pierce, D. C. (M)
Polomoscanik, M. (M)
White, G. S. (M)
Whitehead, R. E. (A)

Inwood (LI-2)
Geske, R. N. (A)

Irvington (NY-W-2)
Thorley, B. V. (M)
Warren, J. (SM)

Irvington-on-Hudson (NY-W-2)
Auerbacher, W. F. (SM)
Cath, P. G. (M)
Espersen, G. (F)
Hipple, J. A. (SM)
Hutchinson, D. P. (M)
Kohler, T. R. (SM)
Le Croy, W. O., Jr. (M)
Schaefer, L. E. (M)

Island Park (LI-2)
Horowitz, H. (M)
Marino, P. J. (M)
Preisler, M. (M)
Schmitt, J. H. (A)

Islip (LI-2)
Daubaras, E. J. (M)
Raynor, J. E. (A)

Islip Terrace (LI-2)
Monsees, F. G. (A)

Ithaca (Ith-1)
Ankrum, P. D. (M)
Ares, M. (M)
Baker, H. D. (M)
Beutel, R. C. (M)
Bilinski, J. R. (M)
Bolgiano, R., Jr. (M)
Booker, H. G. (F)
Bowler, B. L. (M)
Brierley, D. H. (M)
Bryant, N. H. (M)
Cameron, B. (M)
Carleton, H. R. (M)
Charton, P. W. (SM)
Cohen, M. H. (M)
Colbert, S. M. (M)
Curtice, W. R. (M)
Dalman, G. C. (SM)
Davis, M. I. (M)
De Claris, N. (SM)
Djorup, R. S. (M)
Dobyns, B. A., Jr. (M)
Dysinger, J. H. C., Jr. (M)
Eastman, L. F. (M)
Farrell, G. F., Jr. (M)
Ferris, E. E. (A)
Ford, L. H. (M)
Freedman, W. A. (M)
Frohman, E. D. (M)
Gala, J. C. (M)
Gilmour, A. S., Jr. (M)
Gilmour, G. A. (M)
Greer, D. L. (M)
Hackett, C. M., Jr. (M)
Harris, D. C. (M)
Harris, J. E. (M)
Hautaniemi, B. W. (M)
Heydt, H. L. (M)
Hilbrecht, M. H. (A)
Hildebrand, D. B. (M)
Hildreth, R. F. (M)
Hilz, F. L. (M)
Ho, K. W. (M)
Holden, W. D. (M)
Hollar, M. E. (M)
Howland, I. R. (SM)
Humphrey, L. C. (SM)
Ingalls, C. E. (SM)
Johnson, E. M. (M)
Kenyon, R. E. (M)
Kerns, G. P. (M)
Kram, W. P. (M)
Laaspere, T. (M)
Lanphere, J. E. (A)
Lind, E. R. (M)
Lipp, J. P. (M)
Lohne, W. E. (M)
Mitchell, E. E. (SM)
Mitchell, M. E. (M)
May, J. C. (M)
Mayer, H. F. (F)
McElroy, G. E. (SM)
McGaughan, H. S. (SM)
McIsaac, P. R. (M)
McLean, T. (SM)
Meserve, W. E. (SM)
Nepveux, D. L. (M)
Nichols, B. (SM)
Nitzberg, R. (A)
Perry, A. D., Jr. (SM)
Perry, F. M. (SM)
Rider, L. S. (M)
Roberts, C. R. (M)
Robins, R. S. (SM)
Rogers, R. G. (M)
Rosenblatt, F. (M)
Rougelot, R. S. (M)
Rumi, G. (M)
Sanford, J. R. (M)
Schumacker, R. A. (M)
Schwarz, F. C. (M)
Sedlor, R. J. (M)
Seymour, M. E. (M)
Sherman, W. W. (M)
Shnurer, F. (M)
Smith, H. G. (M)
Struckman, K. A. (M)
Tartanian, C. N. (M)
Teegarden, W. M. (M)
Thornton, R. D. (M)
Tobias, D. L. (M)
Townley, R. K. (SM)
Turri, R. N. (M)
Vrana, N. (M)

Warr, R. E. (M)
Weaver, P. F. (M)
West, N. H. (M)
Wheeler, N. D. (M)
Whyland, W. P. (M)
Witt, H. R. (A)
Worden, R. A. (M)
Young, M. C. (M)
Zammat, D. (M)
Zandl, W. W. (M)
Zimmerman, S. W. (SM)

Jackson Heights (LI-2)
Alvazian, D. G. (A)
Alford, J. R. (M)
Aronoff, E. (M)
Beremyi, S. (M)
Berlly, E. (M)
Bila, P. (M)
Boltson, E. D. (M)
Brenner, A. (M)
Chao, T. (M)
Chiei, A. (A)
Chin, D. B. (M)
Cosachow, B. (A)
Dermit, G. (M)
Di Stefano, J. J. (M)
Dorato, P. E. (M)
Dudek, J. J. (M)
Dupot, R. S. (A)
Eng, R. S. (M)
Feigenbaum, M. H. (M)
Flum, E. (M)
Gaillard, R. L. (M)
Gary, W. L. (M)
Gilmore, M. A. (M)
Glick, H. (M)
Gormo, F. J. (M)
Goodlet, J. L., Jr. (M)
Graf, J. M. (M)
Green, S. (M)
Grunwald, F. S. (A)
Hall, R. C. (M)
Hanft, C. J. (A)
Hockersmith, W. E. (A)
Hollabaugh, G. (SM)
Hong, R. (M)
Houston, C. R. (M)
Hrbek, C. J. (M)
Kalet, M. L. (M)
Karlsruher, G. W. (M)
Katz, N. I. (A)
Kelley, L. A. (M)
Koen, M. J. (M)
Lavallee, M. L. (A)
Lipszyc, O. F. (SM)
Mahler, R. J. (M)
Marsocci, M. R. (M)
Mazzara, A. (A)
McChrie, L. (A)
Michaelson, H. B. (M)
Mullin, J. F. (M)
Murphy, W. J. (M)
Nemchuk, W. J. (M)
O'Donnell, J. R. (M)
Ordonez, A. J. (M)
Papke, F. E. (M)
Paterno, P. M. (M)
Peters, E. (M)
Pleasure, M. (SM)
Rehberg, C. F. (M)
Rehfeld, M. J. (M)
Rosenfeld, A. (M)
Salsberg, A. P. (A)
Scholer, M. M. (A)
Serchuk, A. (A)
Torian, J. T. (SM)
Torrenzano, J. J. (M)
Weil, K. (M)
Wink, A. J. (A)
Zirin, M. J. (A)
Zisselman, A. (SM)
Zysman, G. I. (M)

Jamaica (LI-2)
Bacanskas, E. (A)
Baldwin, T. W. (M)
Barr, M. P. (M)
Barsanti, D. H. (A)
Bertan, H. S. (M)
Bertuccio, D. J. (M)
Blum, A. J. (A)
Bodow, J. (M)
Brilliant, M., B. (M)
Bruch, R. M. (A)
Bukofzer, R. (M)
Bunicci, J. (A)
Butler, C. R. (A)
Cadek, J. (M)
Carter, B. S. (M)
Chandler, A. (A)
Deal, C. J. R. (M)
Delol, D. J. (M)
Donoo, H. L. H. (M)
Fuchs, H. B. (A)
Funck, E. V. (M)
Galanter, M. (M)
Gilleran, F. M. (M)
Gleimer, L. (M)
Goldstone, S. (M)
Goodman, H. (SM)
Gordon, J. J. (M)
Gordon, R. R. (M)
Gould, J. J. (M)
Green, P. I. (M)
Grigoraki, N. M. (M)
Gross, R. I. (M)
Hargrave, E. T. (A)
Holland, B. S. (M)
Homa, R. M. (M)
Hudelson, R. L. (M)

Kamen, S. K. (M)
Karson, A. (M)
Koch, I. I. (A)
Koffman, I. (M)
Kolakowski, K. P. (M)
Koren, S. (SM)
Kraus, J. (SM)
Kushner, H. K. (M)
Leopold, M. (M)
Lundy, A. S. (M)
Madden, J. L. (M)
Martin, A. R. (A)
Mazzei, A. L. (SM)
McDonald, C. C. (M)
Melxner, R. P. (M)
Menaker, D. S. (M)
Midani, F. M. (M)
Moos, A. M. (M)
Myles, M. D. (M)
Nicsky, T. A. (M)
Olsen, R. T. (A)
Paledes, T. P. (M)
Pan, J. W. (M)
Perliss, R. E. (M)
Primoff, E. H. (M)
Resnick, S. (M)
Robbins, A. (M)
Roencke, F. M., Jr. (A)
Russo, L. J. (A)
Saam, R. J. (M)
Sachs, R. (SM)
Sander, W. M. (M)
Sasaki, S. I. (A)
Schachter, I. K. (A)
Schachter, J. (M)
Schlachter, C. P. (A)
Seelig, K. V. (A)
Sequerra, R. (M)
Shottenfeld, D. (M)
Singer, E. N. (SM)
Stein, B. J. (M)
Sulsky, B. (M)
Theodoseau, T. (A)
Topper, L. (M)
Trachtenberg, J. M. (A)
Trieb, M. (M)
Tudor, J. E. (M)
Vaher, E. (M)
Weisman, L. S. (M)
Weiss, J. (M)
Zachariou, H. (M)
Ziblatt, R. (M)

Jamaica Estates (LI-2)
Selbmann, R. W. (M)
Smithline, H. (M)

Jamesport (LI-2)
Ames, M. D. (M)

Jamestown (ERI-1)
Anderl, M. T. (M)
Antonevich, J. N. (M)
Crissey, D. L. (M)
Jazbutis, A. (M)

Jamesville (SYR-1)
Raper, J. A. A. (M)

Jericho (LI-1)
Barbella, A. M. (M)
Barr, P. (M)
Baumel, I. D. (M)
Berman, H. M. (SM)
Brower, J. D. (M)
Bryeman, G. J. (M)
Chin, J. H. S. (M)
Cohen, H. (M)
Edwards, O. S. (A)
Goodman, I. (M)
Hasenfus, R. G. (M)
Hayflick, R. M. (M)
Houseworth, G. H. (SM)
Huggard, R. F. (M)
Jacobson, N. (M)
Leight, J. (M)
Levinson, E. (M)
Maone, V. P. (M)
Mehlman, S. J. (SM)
Metzner, P. (M)
Michaels, G. M. (M)
Miller, G. E. (A)
Novick, M. (M)
Pace, R. A. (M)
Pincus, M. (M)
Snyder, J. B. (M)
Tom, H. Y. (M)
Torgow, E. N. (SM)
Trevisin, R. F. (M)
Zadoff, S. A. (M)

Jewell (RU-1)
Markham, I. F. (M)

Johnson City (BING-1)
Black, T. L. (M)
Bodak, H. J. (M)
Bosman, E. H. (M)
Caulfield, J. T. (M)
Demer, F. M. (A)
Dervay, W. (A)
Deskur, K. J. (A)
Dickinson, M. M., Jr. (M)
Duran, F. A., Jr. (SM)
Ferris, D. L. (M)
Fournier, L. E. (M)
Gingerich, L. (M)
Good, T. M. (M)
Gula, N., Jr. (M)
Johnson, M. R. (SM)

Jones, R. A. (M)
King, F. E. (M)
Kobb, T. J. (M)
Lewandowski, F. P. (M)
Linehan, R. J. (M)
Lundry, D. W. (M)
Miller, H. T., Jr. (A)
Moore, R. P. (M)
Moyer, R. G. (A)
Nasoni, D. E. (M)
Neyhart, P. L. (M)
Pittsley, E. L. (M)
Rangitsch, E. L. (M)
Richmond, L. W. (M)
Samuel, J., Jr. (M)
Szczech, R. W. (M)
Tunis, C. J. (M)
Tye, G. (A)
Weston, J. E. (M)
Wilts, J. R. (M)

Johnstown (SCH-1)
Blethen, W. M. (A)
Vunk, A. C. (M)

Katonah (NY-W-2)
Bacon, D. R. (M)
Bender, R. R. (A)
Carter, W. C. (M)
Cassidy, J. J. (M)
Hilliard, W. P. (M)
Krongelb, S. (M)
Stuckert, P. E. (M)
Weller, D. R. (SM)

Kenmore (BN-1)
Bechtel, M. E., Jr. (M)
Brown, R. M. (A)
Browne, J. F. (M)
Constantino, J. C. (M)
Cooke, D. E. (A)
Dietrich, R. W. (M)
Fleming, R. W. (M)
Franclemont, H. J., Jr. (A)
Hessinger, W. A. (M)
Kaushagen, W. M. (SM)
Klaiber, G. S. (SM)
Klingenmeier, P. L. (M)
Koncsol, A. E. (M)
Lamy, R. H. (M)
Le Van, W. I. (M)
Matay, I. M. (A)
Meister, L. E. (M)
Moore, M. J. (M)
Owlett, V. C. (M)
Riggs, J. H. (SM)
Rupp, E. W., Jr. (SM)
Spears, R. E. (A)
Stephenson, H. B. (M)
Warren, F. H. (M)

Kerhonkson (NY-C-2)
Greenberg, H. (M)

Kew Garden Hills (LI-2)
Gittelman, A. I. (M)
Levene, L. F. (M)
Rock, S. A. (M)
Wehner, J. F. (M)

Kew Gardens (LI-2)
Alexandro, F. J., Jr. (M)
Balacek, T. V. (A)
Barber, D. (M)
Benscher, W. (A)
Bidner, H. (M)
Devito, M. F. (M)
Espenschied, L. (F)
Forsberg, A. W. (SM)
Friedman, I. (M)
Fu, C. (M)
Glorit, I. (A)
Hannwacker, J. (M)
Haugh, J. R. (A)
Jacobs, M. (M)
Jensen, A. J. (M)
Kamarek, S. S. (A)
Kovensky, D. J. (M)
Kraker, D. I. (M)
Landauer, A. (M)
Lerner, S. D. (M)
Marantz, S. B. (A)
Meyer, S. S. (A)
Okress, E. C. (SM)
Reuter, P. J. (SM)
Robinson, H. L. (M)
Schultz, M. L. (A)
Schwarz, J. (M)
Seltzer, A. D. (M)
Slotsky, G. J. (M)
Smith, C. R. (SM)
Spielman, S. (M)
Stock, D. C. (M)
Taylor, J. M. (M)
Warren, D. M. G. (M)
Weingarten, A. (M)
Wiesner, L. (M)

Kings Park (LI-2)
Brown, R. M. (A)
Dunbar, L. E. (M)
Goodman, K. G. (M)
Liverios, D. T. (M)
Logrieco, M. G. (M)
Preti, L. L. (SM)
Reichel, H. (M)
Williamson, L. A. (A)

Kingston (NY-C-2)
Acton, E. E. (M)
Ambrosini, F. (M)

Anderson, C. I. (M)
Baxter, D. W. (A)
Beatty, H. J., Jr. (M)
Broadman, I. S. (M)
Brown, M. E. (M)
Brown, W. J. (M)
Byman, E. C. (M)
Capasso, G. F. (M)
Carlson, J. W. (M)
Carroll, W. N. (M)
Cleveland, J. L. (M)
Connell, R. D. (A)
Cooley, H. E. (M)
Craft, B. G. (M)
D'Antonio, R. A. (M)
Dobberstein, E. A. (M)
Dolan, P. A. (M)
Donaghy, D. J. (M)
Dumas, A. M. (M)
Eisenstein, A. M. (M)
Foster, G. L. (M)
Frechette, G. A. (M)
Geller, H. (M)
Gilman, W. L. (M)
Glass, D. H. (M)
Gold, J. (M)
Gordon, C. R. (A)
Gower, D. E. (M)
Greer, R. S. (M)
Hairabedian, B. Z. (M)
Hayden, H. P. (M)
Heassler, R. A. (M)
Hofler, E. V. (M)
Hollis, L. L. (M)
Holmes, A. W., Jr. (M)
Hughes, M. W. (M)
Jenny, F. L. (M)
Johnson, E. L. (M)
Kaufman, H. B. (M)
Kenney, R. C. (M)
Krause, H. W. (M)
Kronick, H. E. (M)
Kunz, C. J., Jr. (M)
Lampe, A. W. (M)
Linton, J. H. (M)
Malden, A. E. (M)
Markow, G. R. (SM)
McNellis, J. G. (A)
Mine, G. D. (A)
Moynihan, J. D. (SM)
Newton, J. D. (M)
Olliva, J. F. (M)
Onysyk, J. (A)
O'Reilly, J. P. (M)
Pearson, K. A. (M)
Pechloff, J. (M)
Perlmutter, T. W. (M)
Phillips, E. L. (M)
Pinsly, A. L. (SM)
Pomerantz, R. (M)
Rolfe, R. C. (M)
Schaaf, S. (A)
Schlam, D. (A)
Schoepf, D. B. (A)
Schrufer, H. J. (A)
Siphers, J. W. (M)
Skerritt, J. W. (M)
Smith, C. L. (M)
Smith, W. E. (M)
Sossner, A. P. (M)
Thomas, H. E. (A)
Tuchman, W. L. (M)
Tutwiler, K. E. (M)
Walda, E. S. (M)
Warren, D. J. (M)
Warren, L. H. (SM)
Waters, L. E. (M)
Watkins, D. L. (M)
Whalen, R. J. (M)
Williams, C. W. (M)
Woltz, J. R. (M)
Yanoschak, V. (A)
Zucco, V. S. (M)

Kirkville (SYR-1)
Grunden, C. A. (M)
Smith, S. L. (M)

Lackawanna (BN-1)
Bieliak, A., Jr. (M)

Lafayette (SYR-1)
Jutila, S. T. (M)

La Grangeville (NY-MH-2)
Christ, J. G. (A)
De Filippi, R. J. (M)
Malar, T. F. (M)

Lake Carmel (NY-MH-2)
Bagley, J. D. (M)

Lake George (SCH-1)
Strempel, E. L. (M)

Lake Katrine (NY-C-2)
Georgallis, G. C. (M)
George, G. A. (M)
Harder, J. A., Jr. (M)
Houck, F. J. (M)
Metrick, J. (M)
Mikonis, P., Jr. (M)
Salzillo, E. M. (M)
Schiff, A. (A)
Skatrud, R. O. (A)
Snell, L. W. (M)

Lake Mohegan (NY-W-2)
Baskin, H. B. (M)
Oguey, H. J. (M)

O'Hara, T. R. (M)

Lake Ronkonkoma (LI-2)
Gold, T. (M)
Tannery, R. B. (M)
Thompson, D. M. (M)

Lake Success (LI-2)
Barnes, R. S. (M)
Barrow, W. L. (F)
Delany, F. J. (SM)
Schneider, R. M. (SM)
Wagner, W. O. (A)
Zimbalist, A. (M)

Lakeview (BN-1)
Devlin, J. N. (A)

Lancaster (BN-1)
Meiler, G. L. (M)
Moran, S. F., Jr. (M)

Larchmont (NY-W-2)
Adler, B. (SM)
Adler, J. T. (A)
Basile, G. I. (M)
Brownell, H. R. (M)
Gordon, J. E. (A)
King, S. (A)
Rudd, W. C. (M)
Schneider, J. R. (A)
Stein, D. R. (M)
Viebranz, A. C. (M)

Latham (SCH-1)
Campese, N. H. (A)
Fitzgibbons, J. J. (M)
Heminway, J. R. (M)
Mortenson, K. E. (SM)
Winkowski, R. (M)

Laurelton (LI-2)
Antin, J. (M)
Bogner, B. F. (M)
Cohen, D. (M)
Epstein, M. (M)
Glaser, M. (SM)
Gottesfeld, M. L. (A)
Groner, P. S. (M)
Josepher, A. (A)
Marin, F. L. (M)
Miller, A. H. (M)
Seligson, A. L. (M)

Lawrence (LI-2)
Simberg, R. S. (M)

Lee Center (LE-1)
Brunette, G. E. (M)
De Minco, A. P. (SM)
Kunze, A. A. (SM)

Leroy (ROC-1)
Angevine, O. L., Jr. (SM)
Lapp, R. S. (M)
Lapp, S. P. (A)
Stefani, R. D. (M)

Levittown (LI-2)
Barcseki, A. J. (M)
Beamer, F. E. (M)
Brandstetter, R. W. (A)
Brenner, W. (SM)
Brown, L. E. (M)
Butterfield, W. J. (A)
Catlin, R. G. (M)
Clarke, G. M. (M)
Clune, W. T. (M)
Corwin, J. J. (M)
Craig, A. F. (M)
Crush, J. F. (M)
D'Agostino, J. V. (M)
Di Matteo, P. L. (M)
Di Meolio, E. (A)
Dumas, E. G. (A)
Fishel, J. I. (M)
Flynn, W. J. (M)
Friedman, H. (A)
Gassler, J. H. (M)
Gerrity, R. J. (M)
Graef, R. L. (M)
Heacock, W. J., Jr. (M)
Kayne, F. (A)
Kulba, N. S. (M)
Lavendol, L. G. (M)
Li, C. H. (SM)
Lo Presti, K. R. (A)
Machover, C. (M)
McArthur, W. G. (M)
Mehr, A. (A)
Nickel, W. S. (SM)
Piccione, S. C. (M)
Prebster, M. T. (M)
Rice, W. F. (M)
Rich, A. L. (SM)
Rooich, S. G. (M)
Rubin, A. (M)
Sant Angelo, M. A. (M)
Schultz, R. D. (A)
Strickland, R. D. (M)
Sudinsky, L. (M)
Tatz, A. (SM)
Walker, C. M. (A)
Walker, S. A. (M)
Werner, C. T. (M)
Wethington, T. G. (M)
White, J. D., Jr. (M)

Lewiston (BN-1)
Haney, C. A. (A)

Heston, W. S. (M)
Jachlewski, R. H. (M)

Lincolndale (NY-W-2)
Bruns, W. H. (M)

Lindenhurst (LI-2)
Buda, P. V. (M)
Brandes, G. A. (M)
Church, T. A. (A)
Mathisen, V. S. (A)
McDonald, J. F., Jr. (M)
Meyers, S. D. (M)
Morgenstern, O. A. (SM)
Persh, H. R. (M)
Rohner, G. J. (SM)
Stele, W. A. (A)
Suchanek, C. F. (A)

Little Neck (LI-2)
Allen, A. (M)
Bailey, W. F. (F)
Beam, R. L. (SM)
Berendsen, C. G. (M)
Blaha, R. F. (M)
Boos, F. H., Jr. (M)
Bordman, S. L. (M)
Dean, C. E. (F)
Eeler, G. A. (M)
Erickson, T. (M)
Froehlig, G. M. (M)
Hana, T. C. (SM)
Hershkowitz, B. (A)
Hunter, E. M. (M)
Kapp, C. E. (A)
Lampert, N. I. (A)
Levin, H. L. (A)
Marks, R. (A)
Nagel, K. H. (A)
Nelson, R. G. (M)
Page, C. E. (SM)
Pressman, R. (M)
Rosenblum, H. (SM)
Rosin, A. (A)
Schwartz, M. (M)
Silverberg, M. (M)
Spector, N. (M)
Spiegel, R. M. (M)
Taft, R. J. (A)
Tobin, M. W. (M)
Tucker, S. A. (SM)
Weinberg, S. (SM)
Wilson, W. H. (M)
Young, V. J. (SM)
Zimmer, E. W. (M)

Liverpool (SYR-1)
Allen, A. E. (M)
Alvira, A. (SM)
Angus, A. C. (M)
Applebaum, S. P. (SM)
Bear, D. R. (M)
Beard, A. L. M. (M)
Belson, J. M. (M)
Bemis, B. G. (M)
Beeley, R. L. (M)
Boothroyd, D. C. (A)
Bowman, D. C. (M)
Boyce, H. K. (A)
Branaman, L. A. (M)
Brown, W. W. (SM)
Browne, D. E. (M)
Burris, H. A. (M)
Casey, N. V., Jr. (M)
Clark, M. E. (SM)
Cover, N. W. (M)
Cripe, C. W. (M)
Crissey, K. L. (M)
Demo, R. D. (M)
Eber, L. O., Jr. (M)
Eriksen, B. K. (M)
Eveleigh, V. W. (M)
Fazio, J. A. (M)
Feldman, A. W. (A)
Field, T. O. (M)
Fisk, R. E. (M)
Flood, J. L. (M)
Frazier, J. P. (M)
French, R. W. (M)
Gillett, R. L., Jr. (M)
Gingrich, W. G. (M)
Hall, R. W. (M)
Hanson, R. E. (M)
Hatfield, J. P. (M)
Henry, G. V., Jr. (M)
Herrick, H. J., Jr. (M)
Hicks, C. L. (M)
Holstead, A. J. (M)
Hostak, D. Y. (M)
Hudak, N. J. (M)
Hunting, R. A. (M)
Hwang, Y. (M)
Jobes, S. S., Jr. (M)
Kelly, C. R. (A)
Knight, W. W. (M)
Lantz, A. J. (M)
Lane, J. R. (M)
Lee, A. E. (M)
Lemanski, E. J. (M)
Lewis, R. V. (SM)
Malagisi, C. S. (M)
McCoy, D. R. (M)
Mickelsen, J. K. (M)
Miner, A. R., Jr. (A)
Nans, E. A., Jr. (M)
Nease, J. (M)
Nester, W. H. (M)
Noble, M. L. (A)
Paschetto, D. D. (M)

Perreault, D. A. (M)
Pfisterer, F. (A)
Platts, G. F. (SM)
Polito, L. J. (A)
Pollock, A. H. (M)
Potter, H. C. (M)
Pua, J. (M)
Riggs, R. H. (M)
Salamy, A. E. (M)
Sanderson, R. F. (M)
Sellstad, N. D. (M)
Sharon, A. U. (M)
Simrine, R. C. (M)
Slaughter, W. R. (M)
Smith, H. W. (M)
Smith, J. M. (M)
Smith, L. D. (M)
Smith, W. F., Jr. (M)
Sparks, J. E. (M)
Spitzak, E. W. (M)
Starz, W. A. (M)
Steam, E. (M)
Sutton, D. A. (M)
Swing, M. (SM)
Thor, R. C. (M)
Vanderlaan, H. J. (M)
Walker, O. F. (SM)
Wall, J. A. (M)
Wanuga, S. (M)
Ward, D. D., Jr. (M)
Watson, R. B. (A)
Welch, R. F. (M)
Williams, G. R. (M)
Williamson, J. C. (M)

Livonia (ROC-1)
Benson, S. E. (M)

Lockport (BN-1)
Bulmore, H. R. (A)
French, P. M., Jr. (M)
Janowsky, R. H. (A)
Lee, B. W. (M)
Rupp, R. B. (M)

Lockwood (BING-1)
Vanderpool R. F. (M)

Locust Valley (LI-2)
Barber, R. G. (M)
Glasheen, R. W. (M)
Ray, G. T. (M)
Shaw, R. F. (SM)
Whipple, G. D. (M)

Long Beach (LI-2)
Anis, J. (A)
Auerbach, V. (M)
Doherty, D. T. (M)
Ellis, N. (A)
Korn, S. J. (M)
Mertz, P. (F)
Pranitch, J. (A)
Smook, I. R. (M)
Weiss, R. (M)
Wurman, G. (M)

Long Island City (LI-2)
Alfieris, M. (M)
Ashley, H. R. (A)
Astwood, E. J. (A)
Batamuth, L. (M)
Bernstein, L. (M)
Bouzenhorn, B. (M)
Buch, N. S. (M)
Cabeen, S. K. (A)
Camilleri, C. M. (A)
Cohen, H. (M)
Como, A. (M)
Dodgson, J. G. (M)
Dolid, W. A. (A)
Douglas, D. J. (A)
Drzewiecki, D. D. (A)
Feldstein, A. D. (M)
Fleishman, G. (M)
Freeman, J. F. (M)
Geen, W. E. (A)
Ginters, F. A. (M)
Glasgal, R. (M)
Goodman, H. (M)
Hannum, E. W. (M)
Haring, L. L. (M)
Hartman, R. K. (M)
Hecht, G. (SM)
Heinrich, F. R. (A)
Hurley, J. C. (M)
Jacobs, B. (A)
Jurison, J. (A)
Kelly, J. J. (A)
Kessler, F. (A)
Klein, W. L. (M)
Lesmez, J. J., Jr. (M)
Lewyt, A. M. (SM)
Linge, J. M. (M)
Loui, J. S. (M)
Madden, E. J. (M)
Marzoli, A. (M)
Monturo, J. B. (M)
Morse, F. (M)
Odessey, P. H. (M)
Osherowitz, J. M. (A)
Rubin, S. W. (SM)
Scott, T. J. (M)
Shulman, I. (A)
Simmonds, J. (A)
Skwarek, F. J. (SM)
Snyder, S. J. (M)
Stahl, A. S. (SM)
Szabo, W. (M)
Vignali, J. J. (M)

Wald, D. (A)
Walker, W. (M)
Wall, R. (M)
White, C. H. (A)

Loudonville (SCH-1)
Gisser, D. (M)
Jemakoff, G. (M)
Rulison, J. P. (M)

Ludlowville (ITH-1)
Crozier, M. A. (A)
Kaschka, G. E. (M)
Prochazka, A. M. (M)
Rasmussen, J. M. (M)
Sherman, R. G. (M)
Wild, E. C. (M)

Lynbrook (LI-2)
Backus, C. H. (A)
Davidoff, F. (M)
Dixon, L. G. (M)
Doherty, T. F. (A)
Duttera, W. S. (SM)
Germano, G. (A)
Giarolana, J. A. (M)
Granville, R. W. (M)
Haus, G. R. (M)
Kirchner, C. W. (A)
Koch, R. F. (SM)
Lehemy, R. F. (M)
Magin, J. J. (M)
Mondschein, M. (M)
Ohliger, R. G. (M)
Parkins, G. (M)
Richardson, K. (A)
Rosenfeld, R. I. (SM)
Ruppel, A. E. (M)
Seltzer, R. S. (A)
Seliger, V. H. (SM)
Smith, J. S. (SM)
Surette, W. E., Jr. (M)
Vickery, D. H., Jr. (M)

Macedon (ROC-1)
Randall, J. M. (M)
Wesenberg, C. L. (M)

Mahopac (NY-MH-2)
Beck, W. E. (A)
Bemstein, R. (M)
Damerell, J. B. (A)
Griffin, J. F., Jr. (M)
Mover, J. J. (M)
Renke, A. (M)
Seelig, S. M. (M)

Mahopac Falls (NY-MH-2)
Millicker, D. J., Jr. (A)

Malverne (LI-2)
Beck, A. T. (M)
Callahan, J. L. (F)
Clemens, R. W. (A)
Deans, W. L. (A)
Greis, W. F. (M)
Gurevics, D. (A)
Hepburn, J. C. (SM)
Kelly, F. J. (M)
Mirman, I. (SM)
Pollack, I. (M)
Schneider, R. E. (M)
Schwartz, L. J. (M)
Shanney, W. I. (M)
Sharpe, L. E. (M)
Spencer, B. F. (SM)
Tanck, H. (M)
Van Rosenbergh, W. (M)
Werman, H. M. (M)

Mamaroneck (NY-W-2)
Backstrom, E.F.C., Jr. (A)
Bemanti, M. A. (A)
Carlisle, S. F., Jr. (M)
Cavallere, J. R. (M)
Conover, D. G. (A)
Falola, A. (A)
Geldmacher, R. C. (M)
Johnson, R. K. (M)
Kemeny, E. S. (M)
Morgan, G. T. (M)
Mullenger, K. E. (M)
Pose, O. I. (A)
Robbins, I. M. (A)
Romero, R. F. (M)
Steinberg, M. I. (A)
Stevens, A. M. (F)
Sumner, M. (M)
Vollenweider, A. D. (M)

Manhasset (LI-2)
Baum, P. A. (SM)
Bell, W. W., III (M)
Bowie, R. M. (F)
Davis, W. J. (M)
Della-Corte, J. P. (SM)
Ebert, J. E. (SM)
George, C. (A)
Gorrill, W. S. (SM)
Grosselfinger, W. H. (SM)
Hamlett, R. T. (SM)
Hathaway, J. L. (SM)
Jackson, B. A. (M)
Knights, C. F. (M)
Nickel, F., Jr. (M)
Pores, E. B. (SM)
Push, G. M. (M)
Rimmler, F. F. (A)
Scott, R. (A)
Tennis, J. E. (M)

Weibel, G. E. (SM)
Woods, W. C., Jr. (M)

Manlius (SYR-1)
Beard, C. E. (SM)
Bennett, E. C. (M)
Chamberlin, J. C. (M)
Dickinson, R. H. (SM)
Edwards, K. A. (SM)
French, A. D. (SM)
Greenhalgh, K. D. (M)
Hartman, D. K. (M)
Hartmann, R. G. (M)
Heartz, R. A. (M)
Jacobs, G. B. (SM)
Johnson, T. T. (SM)
Oleyar, M., Jr. (M)
Webb, T. E. (M)
White, P. K. (M)
Wolf, G. T. (M)

Marathon (SYR-1)
Kaye, G. A., Sr. (M)
Pruitt, D. C. (SM)
Wilson, R. M. (A)

Marcellus (SYR-1)
Budell, L. A. (M)
Devine, G. F. (SM)
Sauer, W. A. (M)

Marcy (RU-1)
Bickelhaupt, M. H., Jr. (M)
Blake, H. C. (M)
Weiss, H. R. (M)

Marlon (ROC-1)
Kellock, D. E. (M)

Marlboro (NY-MH-2)
Charles, F. J. (M)
Mahoney, G. W. (M)

Maspeth (LI-2)
Bergamo, M. V. (M)
Brounstein, A. (M)
Howard, R. F. (M)
Jaworowski, B. R. (M)
Jaworowski, E. V. (A)
Martin, R. E. (SM)
McLaughlin, T. R. (M)
Meinck, M. M. (M)
Palatinus, A. C. (M)
Patakl, E. (M)
Robertone, V. R. (A)
Szydlowski, J. J. (A)
Voots, W. R. (M)
Younker, R. F. (A)

Massapequa (LI-2)
Alter, J. (SM)
Amodeo, C. F. (M)
Ashus, A. (A)
Baunach, E. L. (M)
Berler, R. (M)
Biegen, A. J. (M)
Bonner, W. A., Jr. (M)
Buff, C. (SM)
Capasso, L. V. (M)
Chapman, P. W. (M)
Cherry, M. (M)
Clark, G. J., III (M)
Darden, R. R., Jr. (SM)
Di Toro, M. J. (F)
Enlow, P. M. (M)
First, M. H. (M)
Flamholtz, P. (A)
Gallagher, J. H. (A)
Gold, J. I. (M)
Goldberg, A. A. (M)
Goldstone, L. L. (M)
Hammond, R. J. (A)
Haneman, F. G. (M)
Hill, C. E. (M)
Hollis, W. C. (SM)
Husmann, D. (M)
Katz, S. H. (SM)
Kaye, M. (M)
Krueger, A. C. (M)
Lefkowitz, E. (M)
Levens, P. J. (A)
Lombardi, M. W. (M)
Lowell, N. (A)
Marcinkowski, E. R. (M)
McCaw, R. K. (M)
McGowan, T. C. (M)
Mehall, A. D., Jr. (M)
Mertens, R. G. (A)
Montren, W. (M)
Morris, P. E. (M)
Murphy, G. N. (M)
Musketos, A. (M)
Nykolyn, A. (M)
Perlman, B. S. (M)
Ruvin, A. E. (M)
Sabath, H. (M)
Sail, A. H. (M)
Salamy, M. S. (M)
Salz, J. S. (M)
Scharf, E. (M)
Schmidt, R. J. (A)
Schutkind, D. (M)
Shapiro, H. L. (SM)
Sirota, N. (SM)
Staros, B. (SM)
Whitefall, J. W. (M)

Massapequa Park (LI-2)
Arlin, A. D. (M)
Bailey, G. E. (M)
Brandon, J. M. (M)
Cipolla, A. P. (M)
Cronauer, E. A. (M)
Emory, W. B. (M)
Faniglietti, B. L. (A)
Feerst, I. (SM)
Finken, K. R., Jr. (M)
Gans, M. L. (M)
Giolelli, R. R. (A)
Goodman, J. (M)
Green, R. (M)
Halpin, A. T., Jr. (M)
Heins, J. L. (SM)
Hermelin, L. S. (SM)
Karas, J. P. (M)
Kurzrok, R. M. (SM)
Lidell, D. (A)
Lizzio, J. (A)
Mansfield, E. C. (A)
Marderstein, S. (M)
Romeo, A. (A)
Smith, H. D. (M)
Sweatingen, T. J. (SM)
Virgadamo, F. (M)
Yutkowitz, C. K. (M)
Ziegler, J. M. (M)
Zuzolo, P. R. (M)

Massena (SYR-1)
Bond, N. T. (M)

Mastic (LI-2)
Parmely, E. H., Jr. (A)

Mastic Beach (LI-2)
Fuelling, P. W. (M)

Mattydale (SYR-1)
Gannett, G. L. (M)
Hull, C. O., Jr. (M)
Humphrey, J. G. (M)
Jones, R. E., Jr. (A)
Wakefield, J. S. (M)

Mechanicville (SCH-1)
Belmonte, A. P. (M)

Medina (ROC-1)
Vosteen, R. E. (SM)

Melville (LI-2)
Anselmo, A. J. (M)
Arams, F. R. (SM)
Avery, R. E. (SM)
Blank, S. J. (M)
Cahill, F. C. (SM)
Caputi, W. J. (M)
Cohen, A. M. (M)
Comstock, G. C. (F)
Crist, P. W. (SM)
Fadem, R. J. (M)
Fagan, D. F. (M)
Fitzgerald, B. F. (M)
Fromm, W. E. (SM)
Gaus, A. (M)
Gery, S. W. (M)
Goldberg, J. (M)
Greenberg, D. L. (M)
Hansard, H. H. (M)
Hendler, A. J. (M)
Kanischak, G. M. (M)
Kearney, J. W. (SM)
Kelly, F. X., Jr. (M)
Klug, S. H. (M)
Larson, R. A. (M)
Lebenbaum, M. T. (SM)
Lehin, J. E. (SM)
Lombardo, P. P. (M)
Lowman, R. V. (M)
Mesard, R. A. (M)
Minkiewicz, M. D. K. (M)
Mueller, F. J. (M)
Okwit, S. (M)
Owen, D. J. (M)
Peyton, B. J. (M)
Pomeranz, H. (M)
Rearwin, R. H. (A)
Schrader, L. W., Jr. (M)
Schwartz, L. H. (M)
Sferrazza, P. J. (M)
Shilkoff, M. (M)
Shulman, A. (A)
Siegel, J. R. (M)
Speh, K. C. (SM)
Steohenson, J. G. (SM)
Whelehan, J. J., Jr. (M)
White, W. D. (F)
Williams, A. L. (M)
Woodward, B. A. (M)
Yale, W. H. (SM)

Memphis (SYR-1)
Conlber, G. A. (M)

Merrick (LI-2)
Baird, J. E. (M)
Bresler, A. D. (SM)
Casale, D. R. (M)
Friedman, J. W. (M)
Gelsmar, G. G. (M)
Grob, B. (M)
Hirsch, R. B. (M)
Knight, P. (M)
Kowalski, A. (M)
Lindenfelser, W. A. (M)
Loehr, R. A. (A)
Lory, B. (A)
Paul, I. (M)
Randall, G. A. (SM)
Sann, E. J. (M)
Squitieri, A. (M)
Wildfeur, D. (SM)
Wolff, H. (M)
Woodbury, C. P. (M)
Zeller, J. F. (M)

Middleburgh (SCH-1)
Weller, W. C. (A)

Middle Island (LI-2)
Sondericker, J. H., Jr. (M)

Middleport (BN-1)
White, R. W. (M)

Middletown (NY-MH-2)
Carroll, I. (M)
Pajak, A. W. (M)

Middle Village (LI-2)
Blatz, R. E. (M)
Donoo, D. A. (M)
Frazita, R. F. (M)
King, C. N. (M)
Krouna, R. G. (A)
Leclaire, W. L. (A)
Lyons, J. W. (M)
Merkel, J. F. (A)
Michal, R. L. (M)
Muller, W. G. (A)
Newman, I. M. (M)
Pace, G. V. (M)
Parker, H. L. (A)
Wolnsky, M. N. (M)
Zamir, I. Z. (M)

Millbrook (NY-MH-2)
Fitts, P. F. (A)
Florac, W. A., Jr. (M)
Gates, H. R. (M)
Gribble, L. V. (M)
Rogers, L. S. (M)
Schilling, D. L. (A)
Wroblewski, E. J. (A)

Miller Place (LI-2)
Sanford, V. M. (M)
Watson, C. W. (M)

Mineola (LI-2)
Beecher, M. J. (A)
Belli, A. R. (A)
Brown, L. L. (A)
Brunet, W. J. (A)
Caddell, R. (A)
Canning, J. H. (SM)
Crepeau, P. J. (M)
Elkort, D. S. (M)
Epstein, J. N. (M)
Fyme, M. G. A. (M)
Gengarelly, T. (A)
Haas, E. J. (A)
Herzing, H. A. (A)
Hockenjos, R. M. (M)
Jennis, M. (M)
Kessler, W. H. (M)
Kezer, C. F. (M)
Klein, H. M. (A)
Knocklein, H. P. (M)
Lautermilch, J. J. (A)
Levine, P. (M)
Lynch, W. A. (F)
Lyons, J. F., Jr. (M)
Mackernan, J. L. (M)
Mazziotti, I. J. (M)
McProud, C. G. (M)
Meyer, G. E. (A)
O'Neill, D. J. (M)
Oshiro, F. K. (M)
Parsons, B. L. (M)
Polak, H. L. (A)
Reymann, J., Jr. (M)
Richards, G. F. (M)
Robertson, D. J. (M)
Sauer, H. E. (M)
Schaefer, G. H. (A)
Schormann, K. E. (M)
Schweber, S. C. (A)
Schwenk, H. R. (M)
Simonton, L. J. (M)
Slesbisch, A. (M)
Tlonaytis, C. J. (A)
Vasile, J. A. (M)
Wang, C. C. (F)
Wille, R. A. (A)

Minoa (SYR-1)
Emst, E. C. (M)
Hagnauer, R. A. (M)
Wilson, R. D. (A)

Mohawk (RU-1)
Winne, R. S., Jr. (A)

Monroe (NY-MH-2)
Vollkommer, W. A. (M)

Monsey (NY-W-2)
Gradner, H. (A)
Hofiner, N. (A)
Kritz, A. (M)
Mendelsohn, C. (M)
Sargent, A. F. (M)
Selender, H. (M)
Zinn, A. W. (M)

Munsey Park (LI-2)
Heindel, H. J. (SM)

Montauk (LI-2)
Weiss, B. I. (A)
White, W. H. (A)

Montrose (NY-W-2)
Pullman, B. C. (M)

Mount Kisco (NY-W-2)
Burden, R. W. (A)
Daley, W. E. (M)
Diou, L. J. (M)
Doyle, R. J. (A)
Glasser, R. M. (A)
Grace, F. (SM)
Harmon, H. F. (M)
Le May, C. Z. (SM)
Meagher, P. F. (M)
Mountain, J. D. (M)
Orell, F. M. (M)
Radke, W. A. (M)
Rochester, N. (F)
Schenck, L. S. (A)
Short, W. P. (SM)
Sigal, H. (M)
Taggart, C. E. (M)

Mount Marion (NY-C-2)
Aiken, L. W. (M)
Eickhorn, C. R., Jr. (M)
Reilly, T. J. (M)

Mount Vernon (NY-W-2)
Achtellik, G. (M)
Bannon, D. W. (M)
Bloom, F. J. (SM)
Brenner, B. (M)
Campbell, C. H. (M)
Colman, S. (M)
De Angelis, R. (M)
Desnoes, W. B. (A)
Douglas, R. H. (M)
Dowling, T. J. (M)
Duffy, J. J. (M)
Eng, S. O. (M)
Green, J. L., Jr. (M)
Hendlin, H. M. (M)
Herz, H. L. (M)
Hineline, H. D. (M)
Hoffmann, W. H. (M)
Kutka, E. R. (M)
Lang, H. M. (A)
Lawlor, I. E. (M)
Lee, V. C. (A)
McGrath, J. J. (M)
Miller, D. C. (M)
Mitchell, D. C. (M)
Morrison, R. L. (M)
Napolitani, F. D. (M)
Pasternak, J. M. (A)
Pestone, A. A. (A)
Redstone, C. W. (M)
Rosenbaum, A. H. (M)
Rosenberg, P. (F)
Rotondi, G. L. D. (M)
Saltzman, H. (M)
Stabicki, W. (A)
Sonkin, D. (SM)
Spann, L. B. (M)
Spencer, J. L. (M)
Spiteri, J., Jr. (A)
Stallard, L. B. (M)
Strongin, J. (M)
Sturm, N. (M)
Wallace, M. (SM)
Wines, A. J., Sr. (A)

Nanuet (NY-W-2)
Stabile, J. C. (M)
Strauss, G. M. (M)
Went, J. J. (A)

Nassau (SCH-1)
Merchant, R. (M)
Smith, G. H. (M)

Nelsonville (NY-MH-2)
Hustis, D. A. (A)

Neponsit (LI-2)
Goldfein, S. F. (M)
Sylvane, A. A. (SM)

Nesconset (LI-2)
Cannon, R. R. (A)

Newark Valley (BING-1)
Flanders, E. S. (M)
Hill, B. M. (A)
Knouse, G. H. (M)
Sullivan, R. M. (M)

Newburgh (NY-MH-2)
Ahem, J. T. (M)
Brooks, M. M. (A)
Byerly, J. W. (A)
Ellman, R. P. (M)
Galaoe, D. J. (M)
McNamara, D. B. (M)
Podell, S. (M)
Richards, L. G. (M)
Schaffer, E. J. (A)
Schoch, D. L. (A)
Vecchiarelli, N. (M)
Webb, J. C. (M)
Youngblood, H. R. (M)

New City (NY-W-2)
Doellner, L. J. (M)
Feldner, L. (M)
Greenwald, M. H. (M)
Hastings, L. S., Jr. (A)
Matarese, J. (M)
Zehner, W. J. (M)

New Hartford (RU-1)
Baldridge, B. H. (SM)
Barrick, W. E. (M)
Blakely, R. T. (SM)
Brennan, J. F. (M)
Brown, C. D. (M)
Bussey, H. C. (M)
Lucia, A. De (M)
Dennis, U. E. (M)
Dial, A. R. (M)
Estey, H. E. (M)
Fostar, M. (M)
Gelser, D. T. (M)
Golder, A. J. (M)
Griswold, J. H. (M)
Harris, L. D. (M)
Hogan, E. V., Jr. (SM)
Hornak, P. M. (M)
Kindle, W. G. (M)
Kramer, R. S. (M)
Kuehl, W. J. (SM)
Larkin, R. M. (SM)
Llenins, J. U. (M)
Markwalter, J. L., Jr. (SM)
Matt, S. (M)
McCabe, K. E. (M)
Melfi, V. A. (M)
Nicholson, D. W. (M)
North, F. J. (M)
Olson, F. A. (M)
Pangburn, L. R. (M)
Pashby, C. A. (M)
Pincombe, A. L. (A)
Powers, R. (M)
Priest, F. R. (SM)
Ricci, B. E. (M)
Scanlan, R. E. (M)
Schaefer, G. J. (M)
Shumaker, J. F., Jr. (M)
Siegel, G. H. (SM)
Staudaher, F. M. (M)
Walker, R. K. (M)
Walthall, W. C., Jr. (M)
Watters, C. J. (M)
Watts, P. M. (M)
Yoder, D. F. (A)
Zachary, R. A., Jr. (SM)
Zampier, A. L. (M)

New Hyde Park (LI-2)
Adler, L. L. (M)
Allen, E. H. (M)
Beinikls, V. (M)
Bell, V. J., Jr. (M)
Berger, M. (M)
Berkowitz, B. (M)
Berman, N. (M)
Bertan, L. L. (M)
Bodd, R. R. (M)
Bomzer, H. W. (SM)
Callaghan, E. P. (M)
Callahan, J. F. (M)
Camp, S. N. (M)
Collins, W. G. (M)
Commerton, J. M. (A)
Contrastan, D. P. (A)
Detwiler, S. P. (SM)
Dittenhoefer, H. F. (M)
Duffy, A. F. (A)
Elsenhauer, F. E. (M)
Farber, R. J. (SM)
Fishbein, M. (SM)
Friedman, I. (M)
Gamar, R. L. (A)
Glese, J. E. (A)
Goebeler, W. H., Jr. (M)
Hoebscher, H. (SM)
Hyman, A. (M)
Isaacs, P. J. (M)
Jackson, F. S. (M)
Jacob, G. W. (M)
Jones, R. C. (M)
Jung, C. W. (M)
Lenefsky, S. (M)
Liebman, H., Jr. (A)
Lonkemper, O. A. (M)
Loughlin, R. G. (SM)
Madrick, S. A. (A)
Magid, M. (SM)
Marsman, J. H. (SM)
McKenna, K. F. (M)
McMahon, J. R. (M)
Milik, R. W., Jr. (M)
Moretti, W. (M)
O'Connor, J. F. (M)
Odom, C. H. (A)
Orazio, A. F. (M)
Palmieri, C. A. (M)
Petrie, L., Jr. (M)
Proscia, P. A. (M)
Ries, C. A. (SM)
Salcedo, A. E. (M)
Sherbin, L. E. (SM)
Sherry, R. S. (SM)
Sibilla, J. F. (M)
Simonelli, N. A. (M)
Sinner, L. M. (A)
Sprigman, A. (A)
Stamler, L. (SM)
Stein, J. W. (A)
Storey, M., Jr. (M)
Wittenberg, R. C. (M)
Wozniak, L. M. (M)
Yorinks, A. (SM)
Zalkin, S. P. (M)

New Paltz (NY-C-2)
Capps, R. G. (M)
Corwin, D. L. (A)
Culver, R. S. (M)
Demers, M. E. (M)
Du Bois, G. E. (M)
Fritz, F. J. (M)
Heck, N. A. (M)
McCov, W. B. (M)
Stone, F. A. (M)
Wilson, P. J. (M)

New Rochelle (NY-W-2)
Andraud, R. J. (A)
Appelbaum, G. (M)
Amdt, A. E. (A)
Auditore, C. J. (SM)
Benjamin, S. K. (SM)
Berke, L. C. (M)
Bower, C. M. (M)
Burnett, L. J., Jr. (M)
Callahan, J. P. (M)
Dana, A. W. (M)
Dobbs, R. C., Jr. (M)
Dryden, W. G. (A)
Dubilier, W. (F)
Elsenberg, I. (M)
Feldman, E. F. (SM)
Fisher, S. G. (A)
Gaffney, D. T. (A)
Gage, L. S. (SM)
Goldberg, M. I. (A)
Goldfischer, L. I. (SM)
Greibach, E. H. (F)
Harnack, W. P. (M)
Hirsch, J. D. (SM)
Kaiser, L. A. (M)
Karp, J. R. (SM)
Kilsheimer, R. L. (M)
Landis, J. C. (M)
Lee, G. F. (M)
Levy, P. M. (SM)
Love, G. V. (M)
Lurie, W. B. (SM)
Munson, H. D. (M)
Murphy, M. J. (M)
Nowak, M., Jr. (A)
Nunan, K. W., Sr. (A)
Pels, E. (M)
Pettai, R. (M)
Polansky, P. (A)
Reed, J. (SM)
St. Clair, B. W. (M)
Saltman, R. G. (M)
Schachat, T. (SM)
Schlenger, J. I. (M)
Schlessel, B. (M)
Shapiro, H. (M)
Sherman, P. D. (M)
Sinuk, S. (M)
Sottile, M. R. (M)
Temple, D. I. (SM)
White, F. E., Jr. (M)
Wiegand, C. W. (M)
Williams, J. E. (M)
Wood, C. R. (M)
Woog, D. H. (A)
Wu, W. I. L. (SM)

New York (NY-2)
Abbot, E. A. (SM)
Abbott, H. H. (SM)
Abraham, I. (A)
Abrahamsen, A. (A)
Abrams, J. S. (M)
Acheson, M. A. (F)
Adams, A. T. (M)
Adams, M. D. (SM)
Addamo, J. A. (A)
Adler, J. (A)
Adler, R. H. (M)
Afshar, G. H. (M)
Ahrens, P. E. (M)
Ahrensdorf, R. E. (A)
Aldahonda, C. L. (A)
Aldor, E. (M)
Alexander, H. W. (A)
Alexander, L. (M)
Allen, H. (M)
Alliot, E., Jr. (M)
Altschuler, H. M. (SM)
Amsler, W. E., Jr. (M)
Amy, E. V. (SM)
Anderson, R. J. E. (M)
Andrasko, J. P. (M)
Angelaras, I. D. (A)
Angelos, J. D. (M)
Appel, H. W. (SM)
Applebaum, S. J. (M)
Armstrong, G. S. (M)
Arnold, J. W. (SM)
Arons, E. L. (A)
Aronson, F. (M)
Arthur, W. (M)
Asen, R. (A)
Ash, R. B. (M)
Atwood, S. (SM)
Audain, R. B. (A)
Auriema, A. (A)
Aviv, D. G. (M)
Bachman, R. G., Jr. (A)
Backer, C. M. (SM)
Baer, T. M. (M)
Bailey, G. W. (F)
Balban, M. S. (M)
Bang, H. R. (A)
Barasch, H. P. (M)
Barash, L. F. (M)
Barghout, J. M. (M)
Barr, S. M. (SM)
Bart, G. P. (M)
Bartlett, S. C. (SM)
Barton, T. H. (M)
Bashkow, T. R. (M)
Baum, L. (M)
Baum, M. C. (M)
Baumann, R. H. (M)
Bechtold, H. P., Jr. (M)
Becker, D. G. (M)
Bednar, F. J. (A)
Beers, Y. (M)
Bein, H. F. (M)
Beiti, J. L. (M)
Beller, W. C. (M)
Bemis, E. W. (SM)
Benedikt, J. (A)
Bennett, L. (A)
Berber, J. (M)
Berelvas, T. (M)
Berger, L. (M)
Bernstein, R. K. (A)
Bernstein, R. I. (SM)
Bertero, E. P. (A)
Berzins, F. E. (M)
Bethel, C. D., Jr. (SM)
Bickel, H. J. (M)
Bird, W. P. (M)
Bitner, R. F. (A)
Blanchard, E. P., Jr. (A)
Blanchard, S. J. (M)
Blocker, T. B. (M)
Blomqvist, E. A. (M)
Blume, R. J. (M)
Blumenthal, H. W. (M)
Bock, M. (M)
Bodin, M. (M)
Boguslawski, H. A. (SM)
Bohn, W. C. (M)
Bolton, A. (M)
Bombenger, D. C. (M)
Bonner, M. K. (M)
Borner, R. C. (M)
Borst, J. M. (M)
Bose, J. H. (SM)
Bostwick, L. G. (M)
Bottari, W. J. (M)
Botwinick, E. (M)
Boughtwood, J. E. (M)
Bouraue, A. R. (M)
Boutross, A. J. (M)
Bowen, H. D. (M)
Bowen, J. S. (A)
Bowler, M. J. (M)
Boyd, W. L. (A)
Bradley, F. R., Jr. (M)
Brady, T. D. (M)
Brainard, T. (A)
Brandt, R. H. (M)
Brandt, W. (M)
Braunfeld, M. T. (M)
Braverman, M. (A)
Brayman, P. J. (M)
Bray, P., Jr. (A)
Brender, D. M. (M)
Brenner, E. (SM)
Breuel, J. W. (A)
Bright, H. S. (SM)
Brocliner, V. (M)
Brodheim, E. (M)
Brodie, R. B. (M)
Brolin, S. J. (M)
Bromberg, J. J. (A)
Brookner, E. (M)
Brown, E. (M)
Brown, F. L. (M)
Brown, P. M. (M)
Brown, R. L. (M)
Brown, S. (M)
Brown, T. M. (M)
Bruckmann, F. E. (M)
Brudner, H. J. (SM)
Brunet, M. (SM)
Buell, H. (M)
Buffo, B. (SM)
Burghard, G. E. (SM)
Burnham, F. L. (M)
Busch, A. (M)
Butler, J. G. (M)
Butterworth, J. S. (A)
Buttner, H. H. (F)
Byam, L. A., Jr. (SM)
Cady, L. D. (A)
Calderin, N. J. (A)
Callaghan, E. J. (M)
Cambridge, C. C. (SM)
Cameron, D. B. (M)
Campana, C. R. (A)
Campbell, E. A. (A)
Campbell, R. D. (F)
Cannlff, C. J. (A)
Capon, J. (M)
Carlebach, W. M. (M)
Carter, R. W. (SM)
Caruthers, R. S. (SM)
Casey, R. G. (M)
Cassell, J. L. (M)
Casselman, W. G. B. (A)
Cataldi, J. T. (M)
Cederbaum, I. (SM)
Chaffee, J. G. (F)
Chamberlain, A. B. (F)
Chan, K. (M)
Chandler, J. A. (A)
Chang, S. S. L. (SM)
Chaloff, I. (M)
Chen, P. C. (M)
Chen, T. S. (M)
Chen, Y. M. (M)
Chernin, S. (M)
Chernoff, D. P. (M)
Chesnes, A. A. (SM)
Chin, J. S. N. (M)
Chin, M. (A)
Chin, Y. H. (A)
Chinn, H. A. (F)
Chirlian, P. M. (SM)
Chisholm, T. L., Jr. (A)
Chong, G. R. (M)
Cinelli, H. L. (M)
Claassen, F. S. (M)
Clarke, K. K. (M)
Clemens, G. J. (M)
Clewell, D. H. (F)
Clinton, P. J. (M)
Coen, V. C. (M)
Cohen, A. J. (M)
Cohen, C. B. (M)
Cohen, E. (M)
Cohen, H. D. (A)
Cohen, J. (A)
Cohen, M. M. (M)
Cohen, M. (A)
Cohn, H. (SM)
Cohn, I. H. (M)
Coleman, S. F. (M)
Conlin, E. C. (M)
Connelly, J. H. (M)
Connelly, J. J. (M)
Connor, G. C. (M)
Cooley, A. G. (F)
Cooper, D. I. (SM)
Cooper, F. S. (M)
Coolein, G. D. (M)
Corey, H. E., Jr. (SM)
Comeretto, A. (A)
Correa, H. A. (A)
Costello, A. W. (M)
Cothron, W. C. (SM)
Cotter, M. A. (M)
Cottin, R. S. (M)
Cowan, S. R. (A)
Cox, E. G. (M)
Crane, R. R. (M)
Cravitz, S. (SM)
Crawford, W. J. (SM)
Crews, F. H. (M)
Cronin, D. (A)
Crosby, J. F. (M)
Crowson, F. B. (SM)
Croyle, J. C. (M)
Cumming, L. G. (SM)
Cumming, M. J. (M)
Curtis, R. B. (M)
Cutting, F. (F)
Dagpett, B. I. (A)
Dahlbom, C. A. (SM)
D'Andreano, L. D. (A)
Davidovits, M. (A)
Davies, A. C. (SM)
Davis, E. W. (M)
Davis, L. B. (SM)
De Boer, J. J. (M)
De Bragga, J. W. (A)
Deely, R. M. (M)
Deland, T. (A)
Deltoro, V. (SM)
Demin, A. N. (A)
De Muro, T. M. (M)
Demuth, R. L., Jr. (M)
De Neuf, D. K. (SM)
Denny, C. R. (M)
Desikachar, P. R. (M)
Desnoes, A. B. (M)
Deuth, A. F. (SM)
Deutsch, F. M. (M)
Dewey, G. C. (M)
Diamond, S. (M)
Dibenedetto, G. J. (M)
Dietrich, E. S. (A)
Dilson, J. (M)
Dodge, J. L. (A)
Dodson, E. E. (M)
Doherty, W. H. (F)
Doktor, T. L. (M)
Donald, D. D. (SM)
Donohoe, D. C. (M)
Donovan, W. E. (SM)
Doremus, J. A. (SM)
Dorf, R. H. (M)
Dorney, L. M. (M)
Dowds, H. M. (M)
Dressel, H. O. (M)
Dubs, E. E. (A)
Duffus, R. A., Jr. (M)
Dufort, J. R. (A)
Dulberger, L. H. (M)
Duskis, E. F. (A)
Eason, L. (M)
Ebersman, B. (M)
Echtman, L. (M)
Edelberg, S. (A)
Edmonds, R. H. (M)
Edwards, H. M. (M)
Efremov, O. (M)
Egert, S. S. (M)
Ehrenorels, D. B. (SM)
Ehrlich, C. N. (A)
Ehrlich, H. B. (A)
Eichwald, B. (SM)
Eisenborg, L. (M)
Elderkin, C. J. (M)
Ellem, F. (M)
Ellis, A. E., Jr. (M)
Ellis, P. V. (M)
Ellis, R. (M)
Ellner, D. M. (A)
Ellwood, W. B. (SM)
Elschner, H. J. (M)
Elsea, I. W. (M)
Emberson, R. M. (SM)
Engel, J. S. (M)
Engle, V. M. (M)
Englisb, C. (A)
Engstrom, E. W. (F)
Engstom, H. T. (F)
Enslow, R. M., Jr. (A)
Enterline, J. R. (M)
Eoyang, T. T. (SM)
Ettlinger, A. B. (M)
Evans, A. P., Jr. (M)
Fabbroni, J. P. (M)
Faoln, S. L. (M)
Fairchild, S. M. (A)
Falk, H. (M)
Falknor, F. B., Jr. (M)
Farkas, F. S. (SM)
Farkas, Z. D. (A)
Farley, J. (A)
Farmer, O. J. (M)
Farrar, J. T. (M)
Federing, A. M. (M)
Feher, E. (A)
Feiner, H. A. (A)
Feldman, S. (A)
Feldman, S. (M)
Ferrell, O. P. (A)
Fezer, H. (M)
Fifer, S. (SM)
Fine, C. R. (SM)
Finkel, J. (M)
Finkelstein, M. J. (M)
Fish, P. (SM)
Fishberg, S. (M)
Fisher, A. (A)
Fisher, G. J. (M)
Fisher, K. (M)
Fitch, J. G. (M)
Fitch, W. A. (SM)
Flack, S. M. (M)
Fleischer, H. (A)
Fleischer, P. E. (M)
Fleming, F. L. (M)
Flick, R. A. (M)
Flynn, R. E. (M)
Fordham, R. J. (M)
Forman, A. J. (M)
Forman, I. (M)
Forman, J. B. (A)
Fortoul, J. I. (A)
Foster, O. C. (M)
Fox, S. (M)
Frank, G. (M)
Frankel, S. (A)
Franklin, K. L. (A)
Freed, A. (A)
Freed, L. (A)
Freed, R. D. (M)
Freeman, R. L. (M)
Freiberger, H. (M)
Freseman, W. V. (SM)
Freudenberg, B. (SM)
Frezzolini, D. (M)
Friedensohn, G. (M)
Friedland, B. (M)
Frishauf, S. H. (M)
Fritsche, A. J. (A)
Fritschi, W. W. (SM)
Fritz, C. B. (M)
Fruehauf, M. C. (SM)
Fruhner, E. T. (SM)
Fuller, H. W. (A)
Furth, E. (A)
Furth, F. R. (SM)
Fury, A. E. (A)
Gaines, A. M. (M)
Gallichio, F. J. (M)
Gallmore, J. W. (M)
Galvin, J. P. (M)
Gancher, L. (A)
Gandolsh, A. A. (M)
Gardner, R. S. (M)
Garos, S. J. (M)
Garson, E. L. (M)
Gast, R. W. (SM)
Gates, V. (M)
Gelbman, R. A. (M)
Generales, C. D. J., Jr. (SM)
Gensler, B. N. (A)
Gerard, D. R. (M)
Gerb, B. (M)
Gersch, W. M. (M)
Geyer, A. J. (A)
Ghirardi, A. A. (SM)
Gibbons, J. (A)
Gibson, O. B. (SM)
Gillette, E. H. (A)
Gilman, G. W. (F)
Giovanni, G. (M)
Girdwood, J. (M)
Gladston, H. (M)
Glasser, L. J. (M)
Glickstein, J. (A)
Gobiel, C. E. (M)
Goetz, F. M. (M)
Gold, S. R. (M)
Goldfarb, A. T. (M)
Goldschmidt, K. (M)
Goldsmith, A. N. (F)
Goldstone, L. O. (SM)
Goldwag, S. (M)
Gomez, N. (A)
Goodman, A. S. (M)
Goodman, S. J. (M)
Goon, G. J. H. (A)
Gordon, S. (A)
Gorstein, M. (M)
Gourgey, A. A. (A)
Goyder, C. W. (SM)
Grace, F. C. (M)
Gray, S. B. (M)
Green, J. D. (M)
Green, J. R. (M)
Green, R. R. (SM)
Greenbaum, M. (M)
Greene, R. J. (A)
Greenstein, P. (M)
Grelo, J. H. (M)
Grill, L. (A)
Grimza, E. (A)
Grosch, H. R. J. (SM)
Gross, R. D. (M)
Grossfield, A. (M)
Grossner, N. R. (M)
Gruen, W. (M)
Grundfest, H. (SM)
Gryb, R. M. (M)
Gubernick, J. (A)
Guenther, R. (M)
Guild, B. (SM)
Gunderson, R. W. (M)
Gunn, D. W. (M)
Gustafson, W. G. (M)
Gutenstein, R. G. (A)
Guterman, H. C. (SM)
Gutfeld, N. W. (M)
Haas, M. (A)
Haase-Dubosc, A. A. (M)
Hackenberg, J. H. (M)
Haenschke, D. G. (M)
Haertig, M. M. (M)
Hagerty, G. E. (M)
Hagoplan, A. H. (M)
Hahn, S. (M)
Halpert, H. (M)
Halstead, W. S. (SM)
Handler, T. M. (M)
Haney, F. (M)
Hanft, J. (M)
Hannibal, J. O. (M)
Hara, B. (M)
Harberts, H. H. (A)
Hardy, A. N. (A)
Hare, V. C. M., Jr. (M)
Harford, J. J. (A)
Harkavy, H. A. (M)
Harmatz, H. J. (M)
Harmon, R. N. (F)
Harris, C. M. (F)
Harris, H. E. (M)
Hart, L. (M)
Hartley, S. H. (M)
Hartog, E. (M)
Hartwigsen, C. K. (M)
Harty, L. T. (A)
Harvey, W. W. (A)
Hata, J. H. (M)
Hauck, R. A. (A)
Hausler, R. A. (M)
Haves, J. F. (M)
Haymes, H. M. (M)
Haywood, O. G. (SM)
Hedlund, H. E. (M)
Heilbrunn, M. (A)
Heller, T. (A)
Hendrickson, J. F. (M)
Henry, J. L. (M)
Hermanos, R. L. (A)
Herron, E. H., Jr. (A)
Hertsch, G. (M)
Herz, H. (M)
Hexter, R. M. (M)
Higgins, J. N. (A)
Hillman, H. D. (M)
Hilton, A. M. (M)
Hinkley, J. W. (SM)
Hodges, A. R. (SM)
Hoefler, F. J. (A)
Hoelderich, W. A. (M)
Holahan, J. P. (M)
Hollander, L. J. (SM)
Hollander, S. (SM)
Holzer, P. J. (M)
Hom, V. M. (M)
Horvath, E. L. (M)
Hough, J. B. (A)
Hovgaard, O. M. (SM)
Howard, J. H. (SM)
Howard, W. A. (SM)
Huber, L. J. (M)
Hudson, G. W. (M)
Hull, R. B. (M)
Hultquist, J. A. (M)
Hung, J. C. (M)
Hunter, G. T. (M)
Hurlbut, P. R. (M)
Hyatt, W. R., Jr. (SM)
Hylton, A. W. (A)
Hyneman, J. R. (SM)
Iglesias, J. E. (M)
Inquilt, C. N. (A)
Irvine, P. L. (A)
Isele, H. A. (A)
Israel, M. W. (A)
Itzkan, I. (M)
Jackson, H. H. (M)
Jacobs, A. B. (M)
Jacobson, J. H. (A)
Jaenike, W. F. (M)
Jansen, E. K. (A)
Jasson, W. A. (SM)
Jatlow, J. I. (SM)
Javid, M. (M)
Javitz, A. E. (M)
Jeffries, B. S. (A)
Joerg, E. A. (M)
Johnson, D. A. (A)
Johnson, J. C. L. (A)
Johnson, H. W. (SM)
Johnson, R. L. (M)
Johnson, R. M. (M)
Jones, D. D. (A)
Jones, G. S., II (M)
Jones, H. S. (SM) __

Jones, H. W. (SM)
Jones, J. P., Jr. (M)
Jones, T. A. (M)
Julie, L. (M)
Jung, C. K. (M)
Jungen, R. K. (SM)
Kabat, C. L. (A)
Kadonaga, H. (A)
Kahn, I. (A)
Kallmann, H. E. (F)
Kalius, S. (M)
Kaltman, A. H. (A)
Kaminski, A. (M)
Kampschoer, J. F. (M)
Kao, C. C. (M)
Kaplan, M. (M)
Karachuk, S. T. (M)
Karda, W. O. (M)
Karmin, I. (M)
Kassan, J. D. (M)
Kaszerman, P. (M)
Katz, S. (A)
Kauders, A. (A)
Kaufman, G. L. (A)
Kavee, R. C. (M)
Kaye, R. S. (M)
Kelb, A. J. (M)
Keller, A. C. (F)
Kennedy, E. P. (M)
Kennedy, J. M. (M)
Kent, G. J. (SM)
Kettleman, E. V. B. (M)
Kievit, B. (SM)
Kilian, L. H. (A)
Kim, W. H. (SM)
Kimball, V. L., Jr. (SM)
Kimura, E. (M)
King, F. (SM)
Kinn, J. M., Jr. (SM)
Kiriloff, A. (SM)
Kist, W. P. (A)
Klapper, J. (M)
Klein, L. (A)
Klein, R. M. (SM)
Klein, S. (M)
Knapp, R. L. (M)
Koehler, A. O. (M)
Koff, R. M. (A)
Kojima, M. (M)
Kolker, N. (A)
Konig, W. F. (M)
Kosinski, F. J. (A)
Kotliar, A. (M)
Kranc, G. (M)
Krause, A. M. (M)
Kretschek, R. O. (A)
Kuhn, A. S. (SM)
Kukasch, H. L. (M)
Kunc, F. (M)
Kunik, I. J. (M)
Kurreimeyer, B. (SM)
Laas, I. E. (A)
La Fiandra, J. (M)
Lainer, G. (SM)
Lala, J. J. (M)
Lambert, L. B. (M)
Lamneck, W. J. (M)
Landauer, W. E. (SM)
Lapatine, S. (SM)
Larguier, R. (SM)
Laruccia, W. A. (A)
Lashinsky, H. (M)
Laufer, J. (M)
Lavi, Y. (M)
Lawless, W. J., Jr. (SM)
Lawson, R. H. (M)
Leary, M. T. (M)
Lebel, C. J. (SM)
Lederman, A. (SM)
Lee, R. H. (M)
Le Fevre, K. G. (A)
Legedza, Z. (M)
Leiner, A. L. (M)
Lemly, F. W. (A)
Leni, J. (M)
Lennon, T. J. (M)
Lesman, E. (SM)
Lessey, S. K., Jr. (M)
Leung, H. (A)
Levens, L. M. (SM)
Levi, L. (M)
Levine, B. I. (M)
Levine, E. (M)
Levine, H. M. (A)
Levinsohn, S. (M)
Levit, M. (A)
Levy, B. R. (M)
Levy, C. (M)
Levy, H. J. (M)
Levy, M. G. (M)
Lewin, J. (M)
Liebell, E. (M)
Lieberman, D. (M)
Lienhard, J. W. (M)
Lilienfeld, P. (A)
Lindner, N. J. (M)
Lindsay, M. H. A. (SM)
Lines, K. A. (A)
Linton, L. (A)
Litchman, W. S. (M)
Loomis, A. L. (F)
Losher, M. I. (M)
Loshin, A. M. (M)
Lovett, R. S. (M)
Lowe, D. B., Jr. (M)
Lowenstein, M. (A)
Lukashewitz, P. (A)
Lukianoff, L. (A)
Luntz, J. D. (SM)
Lynn, E. L., Jr. (M)
Mabuchi, K. K. (M)
Mackey, L. B. (A)
MacNeil, J. A. (M)
Maedel, G. F. (SM)
Magid, A. (M)
Maier, F. S. (M)
Mandell, M. (M)
Mandl, H. J. (M)
Mann, J. (A)
Mapes, C. M. (SM)
Marentis, C. (M)
Margolis, S. (A)
Mariner, T. H. (A)
Marius, K. A. (M)
Markel, R. (A)
Marolda, J. (M)
Marron, D. B. (A)
Marshall, B. W. (M)
Marshall, T. G., Jr. (M)
Martin, A. E. (SM)
Martin, J. A. (M)
Martinez, M. E. (M)
Martinson, O. M. (M)
Marvin, P. R. (SM)
Marx, E. A. (SM)
Marx, F. L. (SM)
Mason, W. (SM)
Match, I. (M)
Mattison, G. H. (M)
Maurer, S. J. (M)
Mauro, A. (A)
Mauzey, P. T. T. (M)
Mayer, R. O. (M)
McClelland, H. (A)
McCluskey, V. (M)
McConnell, J. H. (SM)
McConnell, K. R. (SM)
McDermott, B. (M)
McDonald, J. R. (M)
McFarlane, R. (M)
McGiffert, S. Y. (SM)
McKinney, J. G. (M)
McKnight, R. W. (M)
McLaughlin, N. C. (M)
McMahon, G. W. (M)
McManus, T. J. (M)
McMillin, R. R. (A)
McPherson, J. C. (SM)
Mehta, S. H. (A)
Meier, P. J. (M)
Menikoff, A. T. (A)
Meserole, W. E. (M)
Meslener, G. J. (A)
Meth, I. M. (M)
Meyerson, A. H. (M)
Michl, W. L. (A)
Migliore, S. P. (M)
Milenbach, H. (M)
Millar, J. Z. (F)
Miller, H. G. (SM)
Miller, K. S. (SM)
Miller, T. S. (A)
Millman, J. (F)
Minich, C. H. (A)
Minkow, M. (A)
Minto, E. W. (A)
Mitchell, C. W. (M)
Mitchell, D. (F)
Mitchell, L. B. (A)
Mitchell, T. H. (SM)
Miyakawa, H. (M)
Monk, N. (SM)
Moore, J. H. (SM)
Moore, S. F. (M)
Morand, G. D. (A)
Morel, P. (A)
Morrison, G. E. (M)
Morrison, J. W., Jr. (M)
Mosely, J. D. S. (M)
Moss, H. (M)
Mower, C. P. (A)
Munkenbeck, F. W. (M)
Muirhead, D. E. (A)
Muller, J. H. (SM)
Mulvey, R. J. (M)
Murbach, J. F. (M)
Murino, C. C. (M)
Murphy, F. X. (M)
Murphy, O. J. (SM)
Muscat, E. A. (A)
Myer, D. A. (SM)
Myers, M. C., Jr. (M)
Nagelberg, E. R. (M)
Nai, P. (A)
Naibantian, J. H. (SM)
Nancoz, A. P. (A)
Napoli, A. E. (M)
Nathan, A. M. (M)
Neary, J. A. (M)
Nedell, E. (M)
Neeman, C. (A)
Nelson, M. (M)
Nestor, R. P. (M)
Nicholides, E. C. (M)
Nielsen, H. V. (M)
Nielson, R. W. (A)
Nissen, J. H. (M)
Norman, N. C. (M)
Norris, S. (M)
Noto, J. W. J., Jr. (A)
Novik, W. (M)
Novotny, G. V. (M)
O'Brien, J. V. (A)
O'Brien, R. S. (SM)
O'Bryan, H. M. (F)
Olcott, E. W. (M)
Olsen, M. V. (M)
O'Melia, J. B. (A)
Onder, K. (SM)
O'Neill, L. H. (SM)
Onyshkevych, L. S. (M)
Oppenheim, J. (M)
Orenstein, N. (M)
Orr, W. C. (M)
O'Shea, M. C., Jr. (M)
Osthelmer, F. R. (A)
Ostrolenk, S. (M)
Ostrow, J. M. (A)
Ottoson, P. E. (M)
Owen, C. H. (M)
Oxer, H. (A)
Ozolins, L. (M)
Panano, C. N. (M)
Paley, W. S. (A)
Palmer, R. L. (SM)
Palocz, I. (SM)
Palocz, S. (M)
Parisler, M. (A)
Parker, J. D. (SM)
Parzen, B. (SM)
Paskin, M. (M)
Pasquier, C. J. (M)
Paul, G. S. (M)
Pearson, H. (SM)
Pedersen, C. R. (M)
Pegler, H. M. (M)
Pegler, J. A. (A)
Pegram, J. B. (M)
Peixoto, E. S. (SM)
Pekarowitz, R. (M)
Pellegrinelli, G. L. (A)
Pelton, R. G. (M)
Peterson, E. (F)
Petranek, L. (A)
Petrides, T. (SM)
Pfeffer, P. (M)
Phelps, C. H., Jr. (M)
Philbin, S. H. (A)
Pletrzyba, G. J. M. (M)
Plncus, R. M. (M)
Plore, E. R. (F)
Pitre, V. H. (A)
Plzzuti, F. D. (M)
Plesset, K. (A)
Plishner, P. J. (M)
Plottel, R. (A)
Polin, H. S. (A)
Pollak, J. P. (SM)
Pollak, R. H. (M)
Pommel, J. A. (M)
Ponemon, R. D. (M)
Porter, R. W. (SM)
Poss, E. (M)
Post, R. D. (M)
Postal, J. B. (M)
Potter, N. S. (SM)
Prager, J. (M)
Price, A. S. (A)
Privitera, P. S. (A)
Pullman, I. (M)
Quirk, W. B. (M)
Rabinowitz, J. (M)
Rabinowitz, S. J. (M)
Racker, J. (M)
Rader, S. (A)
Raffone, J. J. (M)
Rahmes, R. E. (SM)
Rainwater, L. J. (SM)
Rait, C. M. (M)
Rankin, R. L. (SM)
Rarity, J., Jr. (M)
Rashid, M. (M)
Raymond, R. (A)
Reaser, R. R. (M)
Rehm, M. P. (M)
Reicher, M. D. (M)
Reiner, D. G. (M)
Reiner, M. (M)
Reiss, L. (A)
Relson, M. (M)
Renne, H. S. (SM)
Renton, C. A. (M)
Revzin, S. A. (M)
Reynolds, G. (M)
Rhodes, R. A. (A)
Richman, J. L. (M)
Richter, G. H. (A)
Rider, J. F. (M)
Ridings, G. H. (M)
Rieker, J. P. (A)
Rifkin, R. H. (M)
Rigoglioso, A. B. (M)
Rinder, R. M. (A)
Rivera, J. J. (A)
Robbins, G. J. (A)
Roberts, A. K. (SM)
Robertson, C. B. (M)
Robinson, F. F. (A)
Rochwarger, M. M. (M)
Rocke, A. J. (A)
Roehrig, H. W. (A)
Rogal, E. (M)
Rogan, J. J. (SM)
Rogers, D. W. (M)
Rogoff, J. B. (A)
Roldan, J. A. (A)
Rolland, R. G. (A)
Romnes, H. I. (F)
Rosaler, R. C. (SM)
Rose, T. T. (A)
Rosen, M. (A)
Rosen, S. R. (M)
Rosenberg, H. J. (A)
Rosenfeld, A. (M)
Rosenfeld, H. (M)
Rosner, I. S. (M)
Ross, H. D., Jr. (M)
Ross, K. F. (A)
Roth, J. E., Jr. (M)
Roth, S. A. (A)
Rothenstein, E. M. (M)
Rothschild, R. S. (M)
Rothschild, R. S. (M)
Rothschild, R. F. (M)
Rubenstein, A. L. (A)
Rubin, J. (M)
Rubinstein, B. (M)
Runyon, C. R., Jr. (SM)
Russell, W. S. (M)
Ruttenberg, S. (A)
Sackson, M. M. (M)
Sadenwater, P. O. (M)
Safir, R. (SM)
Safran, P. (M)
Sager, N. (M)
Salin, J. A. (M)
Sanders, R. G. (A)
Saporta, L. J. (SM)
Sarachik, P. E. (M)
Samoff, D. (F)
Sasaki, T. (M)
Sawka, R. J. (A)
Schaffer, E. (M)
Schauffler, F. A. (A)
Scheikunoff, S. A. (F)
Schetzen, M. (M)
Schiller, M. H. (SM)
Schilling, D. L. (M)
Schlalkjer, J. E. (SM)
Schlenger, S. B. (M)
Schlesinger, S. P. (M)
Schmertz, R. C., Jr. (M)
Schmidt, H. (A)
Schoenfeld, R. L. (M)
Schoenfuss, A. F. (SM)
Schooley, C. E. (SM)
Schulz, P. R. (M)
Schwartz, H. T. (M)
Schwartz, M. J. (A)
Schwarz, R. J. (SM)
Schweitzer, M. P. (A)
Schwenzfeger, E. E. (A)
Scolnik, W. L. (M)
Scott, R. H. (SM)
Sedacca, J. M. (A)
Sellinger, S. (M)
Senseney, G. T. (A)
Shain, M. D. (A)
Shamos, M. H. (M)
Shapiro, E. S. (A)
Shapiro, J. (M)
Shapiro, M. H. (M)
Sharpe, E. (A)
Shaw, B. (SM)
Sheldon, E. E. (A)
Sheldon, M. (M)
Shelley, E. F. (SM)
Shepard, W. H. (A)
Sher, F. D. (M)
Sherman, B. S. (M)
Sherman, J. B. (SM)
Shiese, E. M. (M)
Shloman, W. A. (SM)
Shlank, M. (A)
Skokkos, C. (M)
Shonnard, J. R. (M)
Shulman, C. (SM)
Shuster, R. G. (SM)
Silber, A. (A)
Silbey, S. A. (M)
Silverman, R. A. (SM)
Simon, E. J. (F)
Simon, P. F. (A)
Simpson, L. (M)
Sims, R. E. (A)
Sims, S. P. (M)
Sinha, N. K. (M)
Siri, L. C. (M)
Slate, M. W. (M)
Slater, D. (M)
Smith, A. R. (M)
Smith, A. V. (M)
Smith, F. W. (M)
Smith, G. M. (SM)
Smith, J. J. (A)
Smith, J. H., Jr. (M)
Smithberg, S. B. (M)
Snyder, R. L. (M)
Solomon, A. H. (M)
Solomon, M. N. (M)
Soman, R. O. (M)
Sonsky, S. N. (M)
Sontz, C. (M)
Soskuty, O. V. (M)
Soukas, A. V. (M)
Spampinato, P. (A)
Spampinato, R. (A)
Spangenberg, L. F. (SM)
Spiecens, C. P. (M)
Spiegel, R. E. (M)
Spira, J. S. (M)
Spitalny, M. (M)
Sponable, E. I. (SM)
Sprafkin, H. M. (M)
Sprague, R. E. (M)
Spreen, W. P. F. (M)
Sproul, A. E., Jr. (A)
Sprung, J. (M)
Stalemark, F. R. V. (A)
Stanfield, F. L. (M)
Stanton, L. J. (M)
Star, A. A. (M)
Stearns, R. (M)
Stehn, J. W. (M)
Steigman, P. (M)
Stein, P. (M)
Steinberger, N. (M)
Stenhammer, H. T. (M)
Steole, W. W. (M)
Stern, F. G. (M)
Stern, J. L. (M)
Stem, K. (M)
Stem, M. M. (M)
Stern, R. M. (M)
Stern, T. E. (M)
Stewart, A. E. (A)
Stiefel, R. C. (A)
Stiles, K. P. (SM)
Stobbe, J. A. (SM)
Stochel, N. H. (M)
Stock, D. J. R. (A)
Stone, E. W. (F)
Stone, W. G. (A)
Strack, W., Jr. (M)
Strickland, H. A., Jr. (SM)
Striker, R. G. (M)
Strobel, H. M. (M)
Stubbs, L. W., Jr. (M)
Sunder, J. E. (M)
Sussman, A. I. (M)
Sverdlik, S. S. (A)
Symon, M. S. (M)
Szava, M. Z. (A)
Szucs, A. S. (A)
Tabor, J. H. (A)
Talsholf, J. (SM)
Talley, T. J. (SM)
Talts, R. V. (A)
Tanne, S. (M)
Taub, H. (M)
Taylor, C. H. (F)
Taylor, R. M. (M)
Taylor, W. H., Jr. (SM)
Temes, C. L. (M)
Temmer, S. F. (M)
Thayer, G. N. (F)
Thieblemont, A. H. (M)
Thomas, L. (A)
Thomasson, M. M. L. (M)
Thompson, M. A. (M)
Thompson, R. B. (M)
Throckmorton, C. L. (M)
Tilley, H. H. (SM)
Tillistrand, C. O. (M)
Tint, G. (M)
Tolopko, L. N. (A)
Tompos, A. (M)
Toro, M. A. (A)
Tower, W. S., Jr. (A)
Towns, W. W. (A)
Trachtenberg, A. (M)
Traubel, W. (A)
Traver, H. A. (M)
Trevor, J. B., Jr. (M)
Troll, J. H. (SM)
Trotter, H., Jr. (SM)
Trucksess, D. E. (SM)
Tsai, L. (A)
Tuckerman, L. S. (M)
Tully, F. M. (M)
Tung, F. F. C. (M)
Turchiano, M. W. (M)
Tutoli, J. G. (A)
Tuttle, C. W. (A)
Tykulsky, A. (M)
Uttal, J. A. (M)
Valakos, A. (SM)
Van Delft, R. N. (M)
Van Horn, R. H. (SM)
Van Valkenburgh, R. P. (A)
Van Wynen, K. G. (SM)
Vehling, R. H. (M)
Velitchko, W. A. (M)
Vetter, A. J. (M)
Vinarub, E. I. (M)
Vogel, R. P. (M)
Volgin, V. V. (A)
Volpe, G. (M)
Vorhes, D. M. (M)
Voss, R. M. (A)
Voulgaris, N. (M)
Vulcan, A. I. (M)
Wagner, E. G. (M)
Waks, L. I. (A)
Wales, H. B., Jr. (M)
Walker, H. N. (A)
Walker, J. J. (M)
Wallace, A. (M)
Walsh, A. L. (A)
Walsh, M. A. (M)
Walsh, T. P. (A)
Walton, J. S. V. (A)
Wartell, R. (M)
Wasserman, R. (M)
Watkins, J. E. (M)
Watts, W. W. (A)
Weaver, A. (M)
Weber, G. A. (A)
Weber, J. H. (M)
Weber, L. A. (M)
Wehrlin, R. E. (A)
Weiblen, R. E. (M)
Weigert, H. (M)
Weinman, M. (M)
Weinstock, G. D. (M)
Weiss, G. D. (M)
Weiss, M. R. (M)
Weiss, R. (M)
Weiss, S. I. (SM)
Weissman, E. (M)
Weitz, G. (A)
Weller, L. (M)
Wenglin, S. (M)
Wemer, D. T. (A)
Wemer, R. L. (SM)
Wemick, J. I. (M)
Wemlein, C. E., Jr. (M)
Westheimer, M. (M)
Wexler, P. S. (M)
Whalen, B. F. (A)
White, S. D. (SM)
Wiberg, H. J. (M)
Wichtendahl, W. J. (M)
Wiesendanger, M. U. (A)
Willett, E. (M)
Williams, H. D. (A)
Williams, R. D. (M)
Willner, P. (M)
Wilson, I. G. (SM)
Wing, O. (M)
Winkler, A. (M)
Winner, B. A. (M)
Winner, L. (M)
Winters, A. (A)
Wise, R. J. (SM)
Wolder, S. (M)
Wolf, C. F. (A)
Wolf, H. (SM)
Wolfson, H. S. (M)
Wolfthal, D. A. (M)
Wong, W. K. T. (A)
Woo, K. D. (A)
Wouk, V. (SM)
Wuorinen, J. H., Jr. (M)
Wyatt, K. S. (A)
Wyman, N. (M)
Yamada, T. (A)
Yarmus, L. (M)
Yellen, S. (A)
York, A. (A)
Young, H. H. (A)
Young, W. R., Jr. (SM)
Yusem, S. (M)
Zak, M. A. (M)
Zaman, M. K. (A)
Zames, I. I. (M)
Zeamans, H. R. (M)
Zeigler, K. I. (M)
Zenchoff, P. (M)
Zernoske, D. (A)
Zimet, M. M. (M)
Zimmermann, R. E. (SM)
Zinsser, H. H. (M)
Zippler, W. H. (M)
Zydney, H. M. (M)

New York Mills (RU-1)
Bonham, E. P. (M)
Huss, J. P. (M)

Niagara Falls (BN-1)
Albin, J. F. (M)
Bowman, D. S. (M)
Bruton, J. V. (M)
Cadzow, J. A. (M)
Collins, F. M. (M)
Emes, H. R. (M)
Gleason, M. H. (M)
Hardy, L. H. (M)
Joseph, J. F. (M)
Krupper, J. A. (M)
Leming, J. G. (M)
Leonard, D. J. (M)
Libby, M. E. (A)
Potter, C. E. (M)
Rowe, R. G. (SM)
Sarkees, Y. T. (M)
Shulman, H. (A)
Teal, H. E. (M)
Ziemendorf, E. F. (M)

Nichols (BING-1)
Schwarz, D. F. (M)

Niskayuna (SCH-1)
Shea, R. F. (F)

North Babylon (LI-2)
Baron, A. R. (M)
Deboo, G. J. (M)
Gliatti, E. L. (M)
Goldstein, S. (M)
Hart, G. K., Jr. (M)
Klar, I. (M)
Laughlin, S. I. (M)
Nelson, O. A. (A)
Oxholm, J. M. (A)
Predmore, E. E. (M)
Revere, R. W. (A)
Wenzel, S. B. (M)

North Baldwin (LI-2)
Kappelmann, G. E. (A)
Schaten, P. (M)
Witt, C. J. (M)

North Bellmore (LI-2)
Bischoff, J. J. (A)
Brock, R. H. (M)
Burton, M. E. (M)
Dolin, R. (SM)
Doundoulakis, G. J. (M)
Duckstein, S. (A)
Eisenbach, J. (M)
Furia, N. J. (M)
Johl, M. J. (SM)
Sallhofen, C. H. (A)
Shaw, D. (M)
Tenenbaum, E. (M)
Wamer, L. L. (A)

North Chili (ROC-1)
Previte, P. E. (M)

North Lindenhurst (LI-2)
Danhl, M. (A)

North Massapequa (LI-2)
Adams, G. P. (A)
Algeo, J. J. (A)
Chambers, D. A. (M)
Johnson, J. H., Jr. (A)
Kaelin, B. A., Jr. (SM)
Kant, M. (M)
Kornbluth, A. E. (SM)
Mohlenbrok, D. E. (M)
Prager, L. (A)
Prunty, P. F. (M)
Quinn, J. A. (M)
Sonntag, L. (M)

North Merrick (LI-2)
Bissegger, C. A. (M)
Branker, H. E. (M)
Leggio, J. (SM)
Schneiderman, W. (M)
Takach, A. (M)

North Pelham (NY-W-2)
Wolfson, R. (M)

Northport (LI-2)
Bass, H. W. (M)
Bean, J. E. (M)
Cenci, A. A. (M)
Chubb, E. (M)
Cullen, W. P. (M)
Davis, F. S. (A)
Dickerman, J. J. (M)
Goldstein, J. D. (A)
Guido, L. A. (A)
Hannan, P. W. (SM)
Hans, M. W. (M)
Havel, J. F. (A)
Hunter, W. T. (M)
Huntington, A. (M)
Jacobson, R. S. (SM)
Lamensdorf, C. M. (M)
Litchford, G. B. (SM)
Lockwood, M. D. (M)
Mansberg, H. (M)
Newman, D. B. (SM)
Othmer, R. E. (SM)
Paine, L. W. (M)
Ripnitz, A. (M)
Rudish, R. M. (M)
Stankiewicz, S. (SM)
Stodola, E. K. (F)
Strieul, H. F. (M)
Thomson, H. C. (M)
Waller, W. E. (M)
Yourdon, F. R. (M)

North Rockville Centre (LI-2)
Melman, I. J. (SM)

North Syracuse (SYR-1)
Adamthwaite, F. V., Jr. (M)
Arnold, W. J. (M)
Ashley, R. B. (A)
Baker, V. L., Jr. (M)
Barnett, W. P. (SM)
Bauer, R. C. (M)
Becker, D. A. (M)
Besenfelder, E. R. (M)
Blackstock, R. S. (M)
Bockstiegel, R. B. (M)
Bough, C. F. (M)
Boyd, C. R. (M)
Cadwell, E. B., Jr. (M)
Cady, W. R. (SM)
Carr, J. K. (M)
Carson, R. W. (SM)
Chynoweth, W. R. (SM)
Cleary, C. J., Jr. (M)
Coddington, G. H. (M)
Cole, E. S. (M)
Colley, L. E. (M)
Crow, E. O. (M)
Cunningham, J. H. (M)
Dahl, F. J., Jr. (M)
Davidson, H. A. (M)
Day, G. D. (M)
Denslow, J. H., Jr. (M)
Dickson, J. H. (A)
Dobberstein, R. H. (M)
Donegan, J. H. (M)
Driskill, R. D. (M)
Duncan, M. R. (SM)
Dunlap, I. J., Jr. (M)
Eachus, E. D. (M)
Eichel, J. H. (SM)
Elkins, R. A. (M)
Ellis, C. R. (M)
Ellis, C. L. (SM)
Ellis, S. S. (M)
Fehlau, C. E. (M)
Fisch, E. A. (M)
Flaherty, T. J. (A)
Forney, J. F. (M)
Frederick, L. G. (M)
Friant, R. J., Jr. (M)
Garrett, D. E., Sr. (SM)
Gerling, H. B. (SM)
Gersten, E. J. (M)
Gerwig, C. H., Jr. (M)
Geyer, B. H., Jr. (SM)
Gibson, V. R., Jr. (SM)
Ginder, M. E. (M)
Gordon, F. D. (M)
Gordon, S. S. (M)
Graubarmer, W. E. (M)
Grimm, H. H. (SM)
Harmon, R. E. (A)
Hieber, J. C. (M)
Hoefling, J. E. (M)
Horsch, J. R. (SM)
Hughes, W. L. (M)
Hundstad, C. E. (M)
Jacobs, P. W. (M)
Jacobs, T. E. (M)
Jenkins, W. M. (M)
Jensen, H. J. (M)
Johnson, F. P. (M)
Johnson, G. L. (M)
Johnson, W. G., Jr. (M)
Jones, M. E. (SM)
Jones, W. H. (M)
Karr, A. L. (M)
Kirkpatrick, G. M. (SM)
Knox, R. L. (M)
Koprowski, E. M. (SM)
Kovarik, J. C. (M)
Krause, L. O. (SM)
Kuhn, D. H. (M)
Landini, B. T., Jr. (M)
Larosche, J. R. (M)
Letizia, A. (M)
Linnertz, R. C. (A)
Lowther, F. E. (M)
Maloney, W. J. (M)
Mandale, W. R. (M)
Markes, R. T. (M)
Mayo, B. R. (M)
McClure, R. C. (M)
McLean, R. C. (M)
Meehan, J. A. (A)
Merriam, R. H. (M)
Michalek, A. R. (M)
Moerth, W. J. (A)
Moncrief, L. E. (SM)
Montella, D. T. (M)
Morris, A. E. (M)
Mosser, F. D. (M)
Most, H. D. (M)
Muschamp, R. A. (SM)
Nelson, W. D. (M)
Neppel, W. C. (M)
Nichols, W. B. (M)
Ostrowski, R. E. (M)
Otis, G. E. (A)
Pachilis, E. V. (M)
Palladino, M. J. (SM)
Peeples, J. W., Jr. (A)
Peil, W. C. (M)
Perry, J. R. (M)
Phillips, K. G. (M)
Plavcan, C. T. (M)
Pooejoy, I. J. (M)
Powell, F. E., Jr. (A)
Rate, E. T. (M)
Rausch, R. H. (M)
Rose, T. E. (M)
Schultz, R. E. (SM)
Schultz, S. V. (M)
Schumacher, G. B. (M)
Schwartz, N. (SM)
Schwartz, E. G. (M)
Shumway, N. R. (M)
Skovholt, R. L. (M)
Snyder, R. L. (A)
Spence, J. W. (M)
Stabler, E. P. (M)
Stasior, R. A. (A)
Stewart, N. J. (M)
Stokes, C. L. (M)
Streiuht, R. F. (M)
Taylor, R. A. (M)
Thielking, R. C. (M)
Thomson, D. F. (M)
Thompson, R. T. (M)
Tidwell, B. B. (M)
Tillman, J. T., Jr. (M)
Tomlison, J. M. (M)
Voth, N. D. (A)
Wagner, B. F. (M)
Warren, R. A. (M)
Wassilak, E. J. (M)
Webb, R. S. (M)
Whisenhunt, J. A. (M)
White, W. C. (M)
Whiteside, J. S., Jr. (M)
Wich, H. C. (SM)
Wightman, E. E. (M)
Wintle, H. C. (SM)
Zenon, Z. (M)
Zizza, L. R. (M)

North Tarrytown (NY-W-2)
Cavanagh, R. T. (SM)
Christiansen, M. E. (A)
Palmquist, C. A. (M)
Tayor, E. R., Jr. (A)
Vavra, J. M. (A)

North Tonawanda (BN-1)
Arrison, C. R., Jr. (M)
Arsem, A. D. (SM)
Brand, J. R. (M)
Johnston, G. D. (M)
Joy, R. J. (A)
Juda, H. J. (M)
Knorr, W. G., Jr. (M)
Lubs, W. J. (A)
Martin, C. E. (SM)
Meldenbauer, K. G. (M)
Purnell, R. F. (M)
Ratzer, W. F. (M)
Taber, R. F. (A)

North Wantagh (LI-2)
Hellering, H. L. (M)
Retzger, L. I. (A)

North White Plains (NY-W-2)
Koblick, S. N. (A)
Weinstein, G. (M)

North Woodmere (LI-2)
Frieling, E. (M)
Norwich (BING-1)
Bates, W. R. (M)
Hamilton, O. M. (A)
Knudson, L. I. (M)

Nyack (NY-W-2)
Koulomzin, N. J. (A)
Miller, H. M. (SM)
Murphy, R. P. (SM)
Perry, A. C. (A)

Oakdale (LI-2)
McGowan, J. F., Jr. (M)

Oakfield (ROC-1)
De Marinis, J. V. (M)
Sulim, J. S. (A)

Oceanside (LI-2)
Addison, G. H. (M)
Arany, D. M. (SM)
Binder, D. I. (M)
Cohen, M. (SM)
Diamond, G. H. (M)
Eisenberg, A. J. (SM)
Giampiccolo, P. M. (M)
Gleimer, B. (SM)
Greenberg, I. G. (SM)
Kaplowitz, M. (A)
Pattison, W. L., Jr. (A)
Schrader, W. A. (M)
Urbanik, J. G. (M)

Old Bethpage (LI-2)
Bernstein, M. H. (M)
Birnbaum, W. N. (M)
Bolnick, F. I. (M)
Davidson, R. (SM)
Di Franco, J. V. (SM)
Dombro, L. (M)
Fox, E. I. (M)
Herman, J. H. (M)
Kaden, P. A. (M)
Kenny, M. (M)
Kushner, D. (M)
Miller, M. H. (A)
Rudis, M. (M)
Schwartz, P. (M)

Old Westbury (LI-2)
Feldmann, H. (SM)

Olean (BN-1)
Bosworth, O. T. (A)
Jarboe, R. A. (M)
Jenner, W. C. (M)
Rogers, M. F. (M)
Zakrewski, J. E. (M)

Oneida (SYR-1)
Boyko, L. L. (A)
Lunnen, R. J., Jr. (M)
Simchik, R. J. (A)

Oranoeburg (NY-W-2)
Adelsberg, J. (M)

Orchard Park (BN-1)
Buranich, G. F. (SM)
Doak, J. A. (M)
Earl, H. D. (SM)

Oriskany (RU-1)
Harris, G. T. (M)
Hinkle, M. L., Jr. (M)

Ossining (NY-W-2)
Akin, R. M. (M)
Boyce, J. (M)
Brown, R. D. (M)
Capobo, J. G. (M)
Clanton, P. D. (M)
Credle, A. B. (M)
Dennard, R. H. (M)
Ellis, I. T., Jr. (M)
Goldammer, F. R. (A)
Gulland, G. R. (SM)
Hawkes, R. M. (A)
Hurley, P. J. (M)
Kruse, L. C. (M)
La Hane, R. L. (M)
Lescarboura, A. C. (SM)
Levitt, R. S. (M)
Lowdenslager, J. R. (A)
Magnino, J. J., Jr. (M)
Mandelbrot, B. B. (SM)
Mazza, R. V. (M)
Miles, F. A. (M)
Motchok, E. P. (M)
Nienburg, R. E. (SM)
Penafiel, H. R. (A)
Prudhom, A. L. (M)
Rickert, H. H. (SM)
Roberts, A. (M)
Ruedisueli, R. W. (M)
Saron, R. B. (M)
Smith, L. A. (SM)
Terlet, R. H. (M)
Trifari, F. R. (SM)
Webb, W. J. (M)
Wong, E. (M)
Yu, H. N. (M)

Oswego (SYR-1)
Gill, L. R. (A)

Owego (BING-1)
Anderson, D. D. (M)
Armstrong, R. A. (M)
Arnold, O. E. (M)
Barlow, J. P. (M)
Bowles, P. L. (M)
Brown, L. E. (M)
Carmichael, P. D. (M)
Coonradt, T. (M)
Davis, R. V. (A)
Dearden, Z. T. (M)
Doolittle, G. V. (A)
Easton, F. H. (M)
Giroux, P. H. (M)
Grant, R. A. (M)
Handley, J. W. (M)
Hansen, R. R. (M)
Hofecker, W. J. (M)
Holmes, J. R. (SM)
Hundley, J. C., Jr. (M)
Huopana, R. O. (M)
Johnson, C. I. (SM)
Johnson, G. W. (A)
Kilmer, F. G. (M)
Knox, L. A. (SM)
Kopacko, J. L. (A)
Larson, D. M. (A)
Long, R. E. (M)
Martin, A. G., Jr. (M)
Mathers, H. W. (M)
Mayo, G. A. (M)
Melville, R. W. (M)
Morgan, W. A. (M)
Motes, J. H. (M)
Myles, H. E. (M)
Pulford, S. R. (M)
Rawley, R. B. (A)
Smith, D. A. (A)
Stalma, J. F. (M)
Stoops, E. H. (M)
Summers, W. P. (SM)
Sykas, A. J. (M)
Vance, V. G. (M)
Van Horn, J. F. (M)
Vinal, A. W. (M)
Vogler, A. J., Jr. (M)
Walker, R. V. (M)
Wolcott, R. C. (M)
Yaeger, T. E. (M)

Oyster Bay (LI-2)
Brack, W. (M)
Cahalan, I. W. (M)
Cooney, F. A. (M)
Dyer, J. N. (F)
George, B. A. (A)
George, H. A. (A)
Messner, W. S. (M)
Poqust, F. B. (M)
Porter, S. T. (M)
Roelofs, D. D. (M)
Swanson, E. H. (SM)
White, J. R. (SM)

Oyster Bay Cove (LI-2)
Bruns, E. A. (M)
Busby, J. W. (SM)

Ozone Park (LI-2)
Bazylevsky, G. (M)
Canavan, J. F. (A)
Cava, F. C., Jr. (A)
Florietta, A. A. (M)
Mellard, J. (A)
Nuscher, L. E. (A)
Steffek, L. J. (M)
Tleman, F. V. (M)
Volpe, J. R., Jr. (M)
Watson, W. C. (A)

Painted Post (ELM-C)
Coolidge, J. C. (A)
Frazier, J. F. (M)

Palisades (NY-W-2)
Lonardi, A. G. (M)
Ward, B. R. (M)

Patchogue (LI-2)
Fishman, T. (M)
Grossman, A. S. (A)
Marshall, R. H. (M)
Tooker, W. R. (A)

Pattersonville (SCH-1)
Dodge, A. O. (SM)

Pearl River (NY-W-2)
Cohn, D. A. (M)
Feineman, B. (M)
George, R. E. (M)
Pacifico, E. M. (M)
Porter, H. A. (A)
Schwartz, C. S. (M)

Peconic (LI-2)
Oates, J. P., Jr. (A)

Peekskill (NY-W-2)
Bederman, S. (A)
Brennan, P. A. (M)
Foxe, M. (M)
Galbiati, E. W. (M)
Guarino, R. J. (M)
Hyde, A. E. (M)
Juanillo, J. J. (M)
Koepcke, R. W. (A)
Kusnick, A. A. (SM)
Lee, H. (M)
Leitner, M. (A)
McCarthy, T. (A)
Nelson, W. F. (M)
Schreiner, R. J. (M)
Slawsky, S. M. (M)

Stein, J. J. (M)
Thorpe, R. A. (M)
Todd, S. E. (M)
Varza, G. (A)
Walder, B. (M)
Widmer, A. X. (M)
Winkelstein, R. A. (M)
Wolfson, R. B. (M)
Yourke, H. S. (M)

Pelham (NY-W-2)
Aaltonen, T. K. (A)
Skinner, F. J. (SM)

Pelham Manor (NY-W-2)
Burnell, N. (A)
Callan, J. M. (M)
Ian, D. C. (SM)
Norvell, B. E. (M)
Rosenfield, S. B. (M)

Penfield (ROC-1)
Berch, W. H. (M)
Bohl, L. H., Jr. (M)
Bristow, T. R. (M)
Heil, J. C. (M)
Huie, J. A. (M)
Kurvits, A. (M)
Larkin, W. D. (M)
Potter, F. J. (M)
Reinke, R. V. (M)
Schwittek, E. W. (M)
Shirman, J. (M)
Stoklas, F. P. (SM)
Tubinis, M. P. (M)
Wyman, B. D. (M)

Penn Yan (ROC-1)
Emerson, L. E. (A)
Scheerer, W. G. (M)

Phoenix (SYR-1)
Bowers, G. F. (M)
Claycomb, H. E. (M)
Pacia, E. (M)
Pavetto, J. C. (M)
Schlecht, M. F. (M)
Smith, D. L. (SM)

Pittsford (ROC-1)
Ashbaugh, R. R. (M)
Briles, W. F. (M)
Brust, N. T. (M)
Franco, G. A. (M)
Jorgensen, O. A. (M)
McGovern, E. (M)
Nelson, J. A. (M)
Rabe, W. A. (A)
Straehl, R. N. (M)
Taylor, R. B. (SM)
Vamum, J. B. (M)
Walker, W. F. (M)

Plainview (LI-2)
Abramson, J. (M)
Absatz, S. I. (M)
Alper, R. (M)
Ammirati, S. (M)
Asian, E. E. (M)
Barna, G., Jr. (M)
Bedoian, B. (A)
Beidler, S. (M)
Benenson, C. A. (M)
Berens, J. (SM)
Berge, P. J. (M)
Bernstein, H. (M)
Berton, J. F. (M)
Bloom, G. M. (M)
Brown, A. R. (M)
Brown, R. H. (M)
Brubaker, A. E. (M)
Chatterton, E. L. (SM)
Cilluffo, J. S. (M)
Cohen, B. C. (A)
Cohen, J. B. (A)
Coll, R. A. (M)
Courounis, S. P. (M)
Craib, J. F. (SM)
Crane, R. (M)
Cretella, S. A. (M)
Dalessandro, J. A. (M)
Darch, N. S. (M)
Davies, R. H. (SM)
Davis, H. M. (SM)
De Martino, A. J. (A)
Dickman, A. (SM)
Dinbart, M. (M)
Dorman, D. (M)
Duggan, D. P. (M)
Eliason, R. (A)
Fabricant, B. (M)
Feltzin, A. (M)
Fine, A. M. (M)
Foodim, E. (M)
Friedman, E. D. (SM)
Frisch, I. J. (M)
Fucci, S. (SM)
Geffe, P. R. (M)
Gertzis, S. (M)
Gewirtz, A. (M)
Goetz, A. H. (SM)
Gold, I. (M)
Gordon, R. L. (M)
Gorelick, G. (M)
Grand, B. (M)
Greenwald, M. S. (M)
Gronlund, A. G. (A)
Gross, J. (M)
Hall, S. F. (M)
Halpern, M. (M)
Hastings, R. (M)
Hebel, E., Jr. (A)
Heichlinger, C. L. (A)
Heiss, W. H. (SM)
Heller, Z. H. (M)
Helms, M. E. (M)
Herman, S. (M)
Hirsh, J. (A)
Ingram, R. H. (M)
Jacobson, R. I. (SM)
Kahl, D. S. (SM)
Kanner, M. (M)
Kimball, L. R. (M)
Kirschen, C. B. (M)
Klein, R. C. (M)
Kogan, M. A. (A)
Kostiw, N. (M)
Kretzing, J. C. (M)
Laird, R. J. (M)
Lanning, W. C. (SM)
Lapidus, H. J. (A)
Leichtman, J. A. (A)
Lesser, D. (M)
Lovrecich, J. (M)
Maheau, H. L. (M)
Marcus, M. A. (M)
Margosian, J. W. (SM)
Marsden, W. Y. (A)
Martin, M. B. (M)
McGuire, J. P. (M)
McInnis, T. F. (M)
Merl, M. C. (M)
Milukas, V. V. (M)
Neill, D. L. (M)
Nesenoff, N. (M)
Oken, S. (M)
Parzen, P. (SM)
Perzley, W. (M)
Pighi, L. H. (M)
Pignataro, F. P. (M)
Pizzichi, D. J. (SM)
Pizzutiello, R. (M)
Potter, J. T. (A)
Prew, H. E. (M)
Quatraro, W. (M)
Radzka, B. (SM)
Raffer, M. (M)
Rasche, R. E. (M)
Romer, T. (M)
Rose, S. I. (M)
Ross, C. J. (M)
Ross, G. F. (SM)
Sadowski, H. (M)
St. Jean, L. E. (SM)
Salit, L. (SM)
Sayer, G. (M)
Schroeder, R. P. (M)
Schuster, D. (A)
Schwint, K. F. (A)
Segall, J. (M)
Shaw, D. (A)
Sherman, P. (A)
Shinners, S. M. (M)
Shubel, E. J. (M)
Simis, R. S. (M)
Sims, N. L. (M)
Steven, R. L. (M)
Slocum, G. V. (M)
Slusarchyk, G. J. (M)
Smith, R. H. (M)
Spiegelman, S. D. (M)
Steen, R. O. (M)
Steinberg, C. A. (M)
Szabo, J. A. (A)
Taboski, A. F. (M)
Taub, J. J. (SM)
Terry, H. P. (A)
Tom, L. J. (SM)
Tramposch, A. F. (M)
Trock, R. (SM)
Turner, E. (M)
Van Dercreek, L. M. (M)
Vasilos, M. G. (M)
Wasserman, J. (M)
Weil, W. M. (M)
Weinberg, M. (M)
Weiner, W. (M)
Wexler, H. (M)
Zaremba, C. J. (M)
Zinaman, H. J. (M)

Plandome (LI-2)
Blackwell, O. B. (F)
Di Biasi, J. (SM)
Dunning, O. M. (F)
Gillespie, C. H., Jr. (M)
Lane, J. T. (A)
Michel, J. J. A. (M)
Spellman, F. C. (M)
Winship, L. T. (M)

Plattsburgh (SCH-1)
Steve, W. T. (M)

Pleasant Valley (NY-MH-2)
Atkins, J. B. (M)
Bloxsome, J. L. (M)
Herscovitch, H. (M)
Howie, G. S. (M)
Kennedy, J. C. (M)
Kingston, W. J. (A)
Taylor, O. P. (SM)
Yeager, R. J. (M)

Pleasantville (NY-W-2)
Armstrong, F. L. (M)
Berger, F. B. (F)
Bernstein, E. (M)
Birns, M. L. (A)
Blum, M. P. (SM)
Campbell, J. P. (SM)
Deveau, E. J. (M)
Dewhirst, T. P. (M)
Dubbels, D. A. (M)
Elsele, W. A. (A)
Forrest, J. C. (M)
Fraser, J. T. (SM)
Freiman, C. V. (M)
Gamertsfelder, G. R. (SM)
Grove, A. C. (SM)
Hannahs, W. H. (M)
King, G. W. (M)
Kleckner, C. C. (M)
Kolb, O. J. (M)
Kowalsky, J. (M)
Lee, R. W. (SM)
Lohman, A. F. (M)
Losier, J. A. (M)
McGuire, E. C. (A)
McKendry, J. K. (M)
Merritt, N. A. (M)
Michalec, G. W. (M)
Miller, A. G. (M)
Nagy, T. (M)
Odell, T. W. (M)
Paine, G. R. (M)
Pourciau, L. L. (M)
Reed, H. J., Jr. (SM)
Rolfs, J. C. (M)
Rosenberg, H. J. (SM)
Rossero, H. P. (M)
Sakson, P. J. (M)
Silberberg, M. Y. (M)
Sioles, G. W. (M)
Smith, A. G. (M)
Staniand, J. E. (M)
Tull, W. J. (SM)
Ward, J. C. (M)
Warnick, G. H. (M)
Zola, M. J. (M)

Point Lookout (LI-2)
Morgan, J. F. (A)

Poland (RU-1)
Williams, E. E. (A)

Port Chester (NY-W-2)
Anderson, A. E. (M)
Barker, D. R. (M)
Botwin, L. (SM)
Burant, F. T. (M)
Carmody, D. J. (M)
Goldberg, H. D. (A)
Houck, G. B., Jr. (M)
Tonan, J. J. (A)
Woloschak, K. (SM)

Port Jefferson (LI-2)
Coffman, B. C. (SM)
Coyle, D. L. (M)
Fay, F. A. (A)
Fields, W. H. (A)
Munzer, L. F. (M)

Port Jefferson Station (LI-2)
Giordano, S. (M)
Haft, P. S. (M)
Jacobson, L. A. (A)
Kolarcik, J. J. (M)
Mills, J. J. (A)

Port Jervis (NY-MH-2)
MacCallum, W. F. (A)
Weill, R. L. (A)

Port Washington (LI-2)
Aitken, R. K. (M)
Barker, C. G. (A)
Baston, W. M. (M)
Belanich, J. M. (A)
Bergel, T. C. (M)
Bicknese, F. H. (M)
Blodgett, D. F., Jr. (M)
Burroughs, H. A. (SM)
Carleton, E. O. (A)
Craig, D. R., Jr. (M)
Dallas, J. C. (M)
Dawson, T. F. (M)
Doersam, C. H., Jr. (SM)
Dorrell, R. E., Jr. (M)
Dorsey, J. R. (M)
Dunn, B. B. (M)
Edquist, H. W. (A)
Evans, P. R. (M)
Falco, E. E. (M)
Fitzgerald, R. J. (A)
Fogelsong, M. D. (M)
Foxhall, O. C. (M)
Friedland, I. (M)
Gabor, A. (A)
Greenberg, S. (M)
Hawes, D. K. (M)
Herzog, A. W. (M)
Hickey, J. H. (SM)
Hong, O. (SM)
Hylas, A. E. (M)
Jassen, R. W. (M)
Joerger, W. J. (M)
Kfoury, N. F. (M)
Kidwell, L. S. (M)
King, R. W., Jr. (M)
Klopperman, W. (M)
Knouff, S. B. (A)
Larson, J. E. (A)
Laszlo, B. (SM)
Little, D. S. (SM)
Lubkin, Y. J. (M)
Mahoney, J. J. (A)
Marantz, D. R. (M)
Marcus, S. (A)
Marshall, J. H. (M)
Massengale, D. W. (M)
Massengale, W. B. (A)
Miller, J. K. (M)
Moody, J. R. (M)
Narcisse, B. R. (M)
Naybor, E. V. (M)
Nelson, E. L., Jr. (M)
Nixon, W. E. (A)
O'Connor, J. F. (M)
Okrent, J. J. (SM)
Pacent, H. C. (M)
Pasek, D. M. (SM)
Pasqua, L. (A)
Peters, D. L. (M)
Pyle, R. H. (M)
Reynolds, V. F. (M)
Robberson, E. L. (A)
Salenius, A. G. (M)
Scrofani, J. (A)
Selfert, L. I. (M)
Shaw, W. R. (M)
Spencer, N. A. (SM)
Staten, R. J. (M)
Stehle, D. (M)
Stellwagen, F. W. (SM)
Stevens, E. J. (M)
Strawbridge, R. B. (M)
Streif, D. G. (A)
Trautman, DeF. L. (SM)
Volpe, I. D. (M)
Weston, S. (SM)
Williams, G. W., Jr. (M)
Willkom, D. C. (A)
Wilmer, F. S. (M)
Wolf, F. J., Jr. (SM)
Yamamoto, T. H. (M)
Zehner, H. H. (M)

Potsdam (SYR-1)
Jurgens, R. F. (M)
Landon, J. V. (A)
Martin, A. R. (A)
Reed, G. W. (M)
Sanford, R. S. (A)

Poughkeepsie (NY-MH-2)
Adem, R. (M)
Agusta, B. (M)
Alley, R. E., Jr. (M)
Ang, W. S. (M)
Ashar, K. G. (M)
Austin, J. M. (M)
Bahret, R. W. (M)
Baird, J. (SM)
Barber, A. E. (A)
Bardell, P. H., Jr. (M)
Barta, N. J. (M)
Bartell, J. E. (A)
Bauer, E. W. (M)
Baumgarte, P. H. (M)
Beausoleil, W. F. (M)
Bedrij, O. J. (M)
Beesley, J. P. (M)
Benson, A. B. (M)
Berger, A. W. (M)
Berger, B. L. (M)
Beverly, N. E. (M)
Blaauw, G. A. (M)
Blakely, W. R. (M)
Bloch, E. (M)
Blosk, R. T. (M)
Blust, C. D. (M)
Boden, R. C. (M)
Boehm, H. G. (M)
Boland, L. J. (M)
Bonevac, S. (M)
Bono, R. C. (A)
Bowers, R. W. (M)
Branin, F. H., Jr. (SM)
Breiding, E. J. (M)
Brennemann, A. E., Jr. (M)
Brooks, F. P., Jr. (M)
Brosseau, E. F. (M)
Brown, D. T. (M)
Bruce, G. D. (M)
Brunschweiger, A. (M)
Bryson, B. L. (M)
Buchholz, W. (SM)
Buckley, W., Jr. (M)
Buelow, F. K. (M)
Buley, T. L. (M)
Burke, E. J. (M)
Burton, D. M. (M)
Button, C. H. (M)
Byrne, J. J. (M)
Cadden, W. J. (M)
Carlsen, R. W. (M)
Carlson, F. A. (M)
Carpenter, E. J., Jr. (M)
Carrothers, G. H. (M)
Casthew, J. R. (M)
Case, P. W. (M)
Caswell, A. (A)
Chin, F. W. (M)
Christensen, R. L. (SM)
Christiansen, C. L., Jr. (M)
Cicchetti, J. B. (SM)
Cobb, R. W. (A)
Conroy, E. D. (M)
Cooper, D. K. (A)
Coughlin, J. J. (M)
Counihan, R. G. (M)
Courtois, J. R. (A)
Crane, A. E. (M)
Crawford, D. J. (M)
Crawford, J. K. (A)
Crawford, W. A. (A)
Cunningham, B. E. (M)
Davidson, S. R. (M)
Davies, D. M. (M)
Davis, C. M. (A)
Davis, E. M., Jr. (M)
Deabler, L. T. (M)
Dean, K. W. (M)
Dessutels, P. M. (M)
De Witt, D. (SM)
Dill, F. H., Jr. (M)
Disney, J. V. (M)
Domenico, R. J. (M)
Donohue, D. C. (A)
Doody, D. T. (M)
Dorbin, G. M. (A)
Druckeman, M. (M)
Dundatscheck, E. P. (M)
Dunwell, S. W. (M)
Earle, J. (M)
Edman, P. (M)
Eibsen, R. L. (M)
Einolf, C. W. (M)
Esaki, L. (SM)
Fidanza, W. (A)
Fleisher, M. D. (M)
Fletcher, R. P. (A)
Floros, T. G. (M)
Folsom, R. M. (M)
Forster, J. B. (M)
Foster, A. S. (M)
Fox, P. E. (SM)
Fralm, N. R. (M)
France, N. A. (M)
Frese, S. J., Jr. (A)
Filtz, E. L. (A)
Frizzell, C. E. (SM)
Fuegel, E. F. (SM)
Gajdos, R. S. (M)
Gannon, P. M. (M)
Gayle, A. (M)
Geary, J. I. (M)
Gedney, R. W. (M)
Gielow, F. C., Jr. (M)
Gindi, A. M. (A)
Goble, A. S., III (M)
Goldman, B. M. (M)
Gordon, O. M. (M)
Grant, P. M. (M)
Grecco, J. A. (M)
Greene, K. F. (M)
Greene, N. E. (M)
Greer, F. G. (M)
Griffith, J. D. (A)
Grubb, D. S. (M)
Hack, G. E. (M)
Hahn, E. F. (M)
Hallock, D. G. (M)
Harding, W. E. (M)
Harrison, B. A. (M)
Hartman, F. B. (M)
Hasbrouck, L. J. (A)
Hauptman, G. (M)
Helleman, L. (M)
Hlatt, G. C. (M)
Hill, R. A. (M)
Hilsenrath, F. (M)
Hipp, J. A. (M)
Hnat, S. (M)
Hoernes, G. (M)
Homrig, L. L. (M)
Horchos, L. A. (M)
Horton, J. A. (M)
Hoskinson, W. C. (M)
Hotchkiss, G. L. (M)
Houldin, R. J. (M)
Howell, R. S. (M)
Hsiao, M. (M)
Hunter, L. P. (SM)
Husson, S. S. (M)
Isenberg, I. F. (M)
Isole, J. J., Jr. (M)
Jensen, P. S. (M)
Johnson, D. D. (M)
Johnson, J. R. (M)
Jones, R. P. (M)
Jones, T. T. (A)
Jordan, E. I. (A)
Joyal, H. J. (M)
Jung, P. (M)
Kanter, L. E. (M)
Karan, C. (SM)
Kauffmann, J. A. (A)
Kennard, A. G., Jr. (M)
Kilcrease, D. L. (M)
King, L. E. (M)
King, R. M. (M)
Klein, M. (M)
Knueppel, R. G. (M)
Koblenz, A. M. (M)
Koelsch, A. C., Jr. (M)
Konyathy, D. L. (M)
Koskos, A. (M)
Kwei, T. C. L. (M)
Landau, N. (M)
Lang, W. W. (SM)
Lange, L. K. (M)
Lawrence, D. C. (M)
Lawrence, G. (A)
Lawrence, W. W., Jr. (M)
Leake, A. (M)
Leitonen, R. (M)
Lewis, R. L. (M)
Lioon, G. C. (M)
Lindquist, A. B. (M)
Ling, E. W. (M)
Lioppel, B. (M)
Lloyd, R. H. F. (M)
Lo, A. W. (SM)
Lockett, D. E. (M)
Logan, J. S. (M)
Logue, J. C. (SM)
Loizides, E. (M)
Lorenz, E. J. (A)
Lyon, J. R. (M)
Mackay, J. B. (A)
MacSorley, O. L. (SM)
Mandra, R. R. (M)
Marcy, H. T. (M)
Martin, C. R. (M)
Maryon, M. K. (A)
Masterson, F. H. (M)
Matthews, E. G. (A)
Melan, E. H. (M)
Merrill, R. L. (A)
Merrill, R. E. (M)
Merwin, R. E. (M)
Metzger, R. A. (M)
Meyers, N. H. (SM)
Metzger, J. P. (M)
Miano, S. V. (M)
Miller, E. W. (M)
Milta, L. A. (M)
Moher, T. F. (A)
Monroe, G. R. (M)
Montgomery, H. C. (M)
Montren, J. J. (M)
Moore, J. G. (M)
Moore, J. W. (M)
Moran, W. T. (A)
Morey, G. A. (M)
Murphy, J. J. (M)
Mutter, W. E. (SM)
Myers, A. S., Jr. (M)
Nanes, M. (M)
Necol, J. C. (M)
Nelson, V. A. (A)
Newman, E. G. (M)
Nipper, A. O. (M)
Noll, G. T. (M)
Northrup, C. D. (A)
Oh, S. J. (M)
Oliva, F. J. (M)
O'Neill, G. R. (M)
Ordemann, F. A., Jr. (M)
Ostapkovich, P. L. (M)
Ostrowski, E. A. (M)
Padeos, A. (M)
Pao, H. C. (A)
Patrick, R. M. (M)
Paulsen, R. C. (M)
Pell, E. F. (M)
Perlini, R. (A)
Perlman, D. J. (M)
Peters, R. M. (M)
Pfiman, W. S. (M)
Phelps, B. E. (M)
Phillips, F. G., Jr. (M)
Pierpont, J. E., Jr. (M)
Pietras, C. M. (M)
Pinto, M. A. (M)
Pitkowsky, S. (M)
Plaut, T. Z. (M)
Pliskin, W. A. (SM)
Plummer, R. W. (A)
Pomerene, J. H. (M)
Post, F. L. (M)
Preiss, R. J. (M)
Rebh, W. R. (M)
Reed, K. A. (A)
Reed, S. G. (M)
Reid, F. A. (M)
Reiner, W. D. (M)
Reynolds, D. J. (M)
Rice, R. (M)
Riley, W. B. (M)
Riordan, E. R. (M)
Robins, R. D. (M)
Robinson, J. D. (A)
Roush, W. B. (M)
Rubsam, K. G. (M)
Russell, G. E. (M)
Russell, L. A. (M)
Rutz, R. F. (M)
Rymaszewski, E. J. (SM)
Santino, L. (A)
Sawyer, D. E. (M)
Schaal, W. C. (A)
Schaffer, H. G. (M)
Schiavone, R. N. (M)
Schmookler, M. S. (M)
Schroeder, C. E. (A)
Schulman, F. D. (M)
Schultz, D. D. (M)
Scott, A. E. (M)
Scott, T. R. (M)
Seaman, H. A. (M)
Seaman, P. H. (M)
Sellers, F. F. (M)
Sharp, E. M. (M)
Shelford, L. L. (M)
Shen, M'N. (M)
Sheppard, D. M., Jr. (M)
Shirk, R. W. (M)
Sholtz, P. N. (M)
Short, R. G. (M)
Shultz, G. L. (M)
Sih, K. Y. (M)
Simek, R. L. (A)
Simkins, Q. W. (M)
Sindelar, F. J. (A)
Singer, D. F. (A)
Singer, S. (M)
Sippel, R. J. (M)
Skiko, E. J. (M)
Skov, R. A. (M)
Slade, B. N. (SM)
Slonaker, R. D. (M)
Smith, G. H. (M)
Smith, J. W. (M)
Smith, W. J. (M)
Smithline, E. T. (M)
Smoyer, C. K. (M)
Snedecor, P. A., Jr. (M)
Sobol, H. (M)
Soltan, P. (M)
Spence, T. M. (M)
Spencer, D. R. (M)
Spencer, G. W., II (M)
Stafford, T. S. (M)
Stephens, C. E. (M)
Stetler, I. H. (A)
Stevens, W. Y. (M)
Stoughton, P. N. (M)
Suelflow, R. D. (M)
Sullivan, D. J. (M)
Surman, G. R. (M)
Swenson, W. G. (M)
Taren, W. J. (M)
Thomas, E. M. (M)
Thome, R. E. (M)
Thompson, D. B. (M)
Thomson, J. F. (M)
Thomson, L. J. (A)
Thornton, W. G. (M)
Tjon Pian Gi, W. E. (M)
Trachy, R. A. (M)
Trampel, K. M. (M)
Tritschler, R. J. (M)
Twicken, S. (M)
Tyner, V. (A)
Ulfsparre, L. O. (M)
Underhill, G. H. (M)
Unger, G. G. (M)
Vandewinckel, A. W. (M)
Van Winkle, H. E., Jr. (M)
Ventura, J. J. (M)
Verdibello, A. A. (M)
Vitek, W. J. (M)
Walsh, J. L. (M)
Warner, J. H., III (A)
Waxman, R. (M)
Weber, E. V. (M)
Weiss, D. H. (M)
Wenner, J. W. (M)
Whalen, R. M. (M)
Whitmore, D. C. (M)
Wild, H. K. (M)
Willemsen, W. J. (A)
Williams, J. H. M. (M)
Wilser, W. C. (M)
Wilson, E. S. (SM)
Wilson, H. R. (M)
Winger, W. D. (A)
Winkler, V. D. (M)
Wirth, E. D. (M)
Wittenberg, W. M. (SM)
Wolfersperger, D. B. (A)
Wolff, C. H. (M)
Wolff, H. P. (SM)
Wong, D. J. (M)
Wong, W. C. H. (M)
Woo, P. P. W. (M)
Wood, E. C. (M)
Wright, R. W. (A)
Wright, W. V. (M)
Zagursky, J. J. (M)
Zantow, W. F. (M)
Zentgraf, H. J. (M)

Poundridge (NY-W-2)
Taylor, W. J., III (M)
Tingley, G. R. (A)

Putnam Valley (NY-MH-2)
Lupano, E. L. (A)

Queens (LI-2)
Collett, I. E. (A)
Stella, P. B. (M)
Thompson, J. M. (M)

Queens Village (LI-2)
Belz, R. A. (A)
Benedon, A. (M)
Bracken, T. C. (A)
Bracken, W. B. (A)
Campbell, G. M. (A)
Cegelski, R. M. (A)
Fredricks, R. J. (M)
Gerych, W. E. (M)
Gould, N. (M)
Griemsmann, J. W. E. (F)
Hagen, A. A. (M)
Hansen, E. L. (SM)
Hill, E. B. (A)
Hoffer, L. H. (A)
Johnson, C. W. (M)
Kleinoder, J. (A)
Klumpen, R. D. (A)
Lapping, A. M. (M)
La Ware, H. D. (M)
Llelbriedis, K. (SM)
Mayer, H. A. (M)
Peters, R. A. (M)
Peters, W. G. (A)
Pezzullo, G. (A)
Trelewicz, E. R. (M)
Wassermann, C. I. (M)
Yeager, J. R. (M)

Ramapo (NY-W-2)
Allen, C. L. (M)

Red Hook (NY-C-2)
Bannon, R. D. (M)
Gerbitz, C. G. (A)
Holmes, F. L., Jr. (M)
Lancio, R. C. (M)
Lawrence, W. A. (A)
Lovallo, F. J., Jr. (M)
Neason, S. J. (A)
Rhodes, R. (M)
Sevigny, G. D. (M)
Shortle, J. W. (M)
Thompson, F. E. (A)
Trombly, R. L. (M)
Wood, J. R. (M)

Rego Park (LI-2)
Adams, E. T. (M)
Berman, E. L. (A)
Boorstyn, R. R. (M)
Buccoller, A. A. (A)
Carbonetto, J. Z. (A)
Cohen, S. A. (M)
Cooper, M. (A)
Eisenstein, N. I. (A)
Erlichman, D. B. (M)
Finn, P. L. (M)
Fleig, W. J. (M)
Friedman, L. (M)
Fruth, W. J. (M)
Gold, M. R. (M)
Herrmann, W. J. (SM)
Krygier, G. F. (SM)
Kusnetz, J. (M)
Lipsky, A. H. (M)
Matz, B. (M)
Metzner, J. J. (M)
Ocheret, R. (M)
Podolsky, H. F. (A)
Rabinovici, B. (SM)
Shostak, M. (M)
Spector, B. (A)
Weissman, S. (M)
Wiener, L. (M)
Wong, N. F. (M)

Remsen (RU-1)
Frichtel, J. S. (M)
Grant, R. D. (M)

Rensselaer (SCH-1)
Stuarts, A., Jr. (M)

Rexford (SCH-1)
Cobine, J. D. (F)
Stutt, C. A. (M)

Rhinebeck (NY-C-2)
Beeby, P. A. (M)
Burawski, J. A. (M)
Coburn, W. N. (M)
Conklin, R. N. (M)
Cox, T. C. (M)
Crowe, J. W. (M)
Cyoser, R. J. (M)
Foster, B. D. (M)
Gmeiner, P. (M)
Howe, C. K. (A)
Lynch, C. F. (SM)
O'Hara, A. C., Jr. (M)

Richfield Springs (SCH-1)
Kitts, D. E. (A)

Richmond Hill (LI-2)
Amell, E. B. (A)
Binzis, G. (M)
Coles, W. T. (A)
Egan, W. G. (M)
Fees, H. W. (A)
Glacketti, N. (M)
Guthrie, T. F. (M)
Iorio, J. (M)
Johannesen, W. (M)
Kahl, W. T., Jr. (A)
Kaufman, F. M. (M)
Keller, J. R. (M)
Lazarich, M. R. (A)
Maguire, J. B. (M)
Marek, J. R. (A)
McGrath, E. (M)
McMahon, J. F. (M)
Scaturro, M. R. (A)
Schenkerman, S. (M)
Schuck, W. H. (M)
Scifo, J. A. (M)
Selnick, L. L. (A)
Trumo, E., Jr. (M)
Vambutas, E. (M)
Winer, J. D. (M)
Yellen, A. F. (A)
Zanichkowsky, M. (M)

Ridgewood (LI-2)
Condy, J. (A)
Engelfried, R. E. (M)
Kalpaxis, J. A. (M)
Krueger, A. M. (M)
La Presti, P. (A)
La Via, J. (M)

Riverdale (NY-2)
Baker, J. R. (M)
De Beer, B. C. (M)
Elnson, S. E. (M)
Froehlich, C. (SM)
Hartman, C. J. (M)
Heller, J. L. (M)
Karlan, J. H. (A)
Kellner, R. (M)
Radner, M. A. (M)
Rosenthal, S. W. (SM)
Stahl, C. (M)

Riverhead (LI-2)
Atwood, J. B. (SM)
Braaten, A. M. (SM)
Herbig, A. J. (M)
King, E. E. (M)
Leis, W. S. (M)
Lonska, R. E. (M)
Olsen, W. E. (A)
Peterson, H. O. (F)
Schock, R. E. (SM)
Schoenborn, F. J. W. (M)
Shipley, D. G. (M)
Taylor, H. A. (SM)
Wickizer, G. S. (F)
Zimmerman, R. (A)

Rochester (ROC-1)
Agallides, E. (M)
Agel, C. W. (A)
Aquals, R. W. (M)
Albright, G. E. (A)
Alexander, H. R. (M)
Almagnault, R. J. (A)
Anderson, J. G. (A)
Anderson, R. T. (M)
Andrews, D. (M)
Andzer, A. (A)
Andzer, A. L. (M)
Apoar, R. R., Jr. (M)
Arao, R. S. (SM)
Amts, F. D., Jr. (M)
Atkins, R. E. (M)
Auer, J. H., Jr. (M)
Bailey, C. E. (A)
Baker, A. A., Jr. (M)
Baldwin, L. D. (A)
Balling, A. W. (M)
Bangs, R. G. (A)
Baron, E. A. (M)
Barr, E. M. (M)
Bartholomay, D. R. (A)
Bartlett, W. F. (A)
Bayer, W. L. (SM)
Beaman, L. W. (M)
Bean, L. F. (A)
Beardsley, R. R. (SM)
Bellor, W. F. (M)
Benedict, C. F. (M)
Berostrom, T. A. (M)
Biocar, R. A. (SM)
Billin, A. G. (SM)
Blessing, R. R. (SM)
Blow, A. W. (M)
Boqart, C. C. (A)
Bonaventura, J. J. (A)
Bouchard, G. O. (M)
Bouyoucos, J. V. (M)
Bowen, B. D. (A)
Bowin, W. F. (M)
Brady, T. W. (A)
Braggins, R. D. (M)
Brant, S. J. (A)
Brennan, A. T. (SM)
Brewer, W. L. (SM)
Brock, E. G. (SM)
Broutman, G. A. (M)
Brown, G. A. (M)
Brumley, C. H. (M)
Bryzinski, T. F. (M)
Buck, R. C. (M)
Bukley, D. D. (M)
Burkhardt, J. R. (A)
Cape, M. R. (M)
Carson, R. E. (M)
Chen, Y. (A)
Chesna, J. (A)
Cieslak, A. B. (M)
Cirelli, J. B. (A)
Clark, A. A. (A)
Clark, G. J. (A)
Clark, P. S. (A)
Clayton, K. (M)
Clement, M. A. (M)
Clickner, G. M. (M)
Close, S. W. (M)
Cohen, G. H. (M)
Colwell, C. E. (A)
Coombs, W. F., Jr. (M)
Cotter, W. F. (SM)
Cullen, F. P. (SM)
Curry, R. C. (M)
Curtis, S. R. (SM)
Czora, W. G. (M)
Dallor, F. E. (M)
Dasburg, A. V. (M)
Davidson, R. C. (A)
De Haas, T. (M)
Demont, R. A. (A)
Dietz, J. H. (M)
Dobson, H. R. (M)
Douglas, J. L. (M)
Dowdell, V. L., Jr. (M)
Dubin, D. (M)
Dumell, R. S. (A)
Eisaman, L. C. (M)
Elliott, G. (SM)
Ellis, J. R. (M)
Ellis, T. E., Jr. (SM)
Engard, W. J. (A)
England, W. B. (SM)
Engleman, R. (M)
Erbelding, J. C. (A)
Erdman, R. C. (M)
Erman, R. J. (M)
Fahey, F. R. (M)
Fehrenbach, R. J. (M)
Ferrell, H. M. (M)
Fey, C. (M)
Fine, L. L. (M)
Fink, E. J. (M)
Finkelstein, N. A. (SM)
Fisher, C. R. (SM)
Fitzgerald, K. P. (M)
Fomenko, J., Jr. (M)
Fondrk, J. S. (M)
Formicola, A. F. (A)
Foster, G. C. (M)
Foster, S. J. (M)
Franke, G. S. (M)
Freehafer, J. E. (M)
Friellngaus, K. H. (A)
Fyfe, S. B., Jr. (M)
Ganias, T. E. (M)
Gardner, K. J. (M)
Garland, J. E. (M)
Gasoar, A. F. (M)
Gerace, R. E. (M)
Gilson, R. J. (SM)
Glass, W. F. (M)
Goebel, H. K. (M)
Goldstein, J. L. (M)
Gordon, K. F. (M)
Grammer, R. A., Jr. (M)
Gray, M. B. (M)
Guenther, J. H. (SM)
Gutzner, R. F. (A)
Hahnel, A. (SM)
Hailes, W. D. (SM)
Haines, T. H. (M)
Hardl, F. R. (M)
Harris, T. J. (M)
Harrison, B. H. (M)
Hattersley, T. E., Jr. (SM)
Haust, G. H. (SM)
Hausler, W. B. (M)
Hayes, G. V. (M)
Healy, D. W., Jr. (SM)
Heath, R. R. (M)
Hecht, N. E. (M)
Heise, E. R. (M)
Henderson, F. R. (A)
Hewitt, C. C. (M)
Hicks, H. F., Jr. (SM)
Hoeft, R. H. (M)
Holmes, L. C. (F)
Holstrom, A. (SM)
Houde, R. A. (A)
Hronek, R. L. (SM)
Hughes, E. W. (M)
Hunt, W. E., Jr. (M)
Huntington, M. B. (M)
Ichikawa, T. (M)
Johnstone, N. J. (M)
Jones, D. E. (M)
Jordan, J. F. (M)
Joseph, R. J. (A)
Kanal, L. N. (M)
Karas, W. P. (SM)
Karker, E. C. (M)
Kavanagh, D. A. (M)
Kay, R. H. (M)
Keane, J. E. (A)
Keim, D. Y. (M)
Keiman, F. J. (M)
Kellam, J. C., Jr. (A)
Kelley, J. E. (M)
Kendall, H. C. (SM)
Kende, G. (SM)
Kennedy, R. P., Jr. (M)
Kincaid, W. B. (M)
King, H. G. (A)
Klemmer, A. E. (M)
Klumb, H. J. (M)
Kostuslak, K. H. (M)
Kraley, R. L. (M)
Krassner, G. N. (M)
Kreim, W. J. (M)
Kreiss, W. T. (M)
Krishan, B. (M)
Krueger, R. K. (M)
Kushel, V. (M)
Lachs, G. (M)
Ladd, J. H. (M)
Lake, A. E., Jr. (A)
Lamb, F. E. (M)
Lamendola, A. J. (A)
Landgraf, R. C. (M)
Lawson, H. W., Jr. (M)
Leavens, C. F. (M)
Le Brun, R. L. (M)
Lins, H., Jr. (M)
Long, J. J. (M)
Lucas, K. A. (M)
Luhowy, G. J. (M)
Luke, L. M. (M)
Lusted, L. B. (F)
Lyke, E. F. (M)
Mack, D. E. (M)
Maitra, K. K. (M)
Mandis, G. A. (M)
Manson, R. H. (F)
Marcopulos, D. P. (M)
Marlotti, D. J. (M)
Martens, A. E. (M)
Martin, E. L. (A)
Mateyk, W. (M)
Mavis, G. W. (M)
Mazel, L. G. (M)
Mcdermid, W. J. (M)
McLean, J. D. (SM)
Miller, H. A. (SM)
Mitchell, F. A. (M)
Morken, D. A. (M)
Morris, G. F. (M)
Morrison, R. F., Jr. (M)
Morse, J. E. (M)
Motch, J. F. (M)
Mumma, H. A., Jr. (SM)
Murphy, W. L. (M)
Navarra, J. A. (A)
Neff, W. H. (M)
Nelson, D. E. (M)
Nelson, R. L. (M)
Nichols, N. B. (SM)

Niertit, F. (M)
Nixon, R. C. (A)
Norwood, W. R. (A)
O'Connor, B. M. (M)
Okada, S. (M)
Ooms, J. (M)
Orlowski, J. S. (M)
Ormsby, T. R. (M)
Oster, S. (M)
Ota, A. Y. (M)
Pagerey, P. F. (M)
Parker, D. C. (M)
Parks, W. J. (SM)
Partis, D. C. (A)
Patton, D. W. (A)
Pavelka, C. F. (M)
Payne, R. C. (M)
Payne, W. T., Jr. (A)
Pelham, K. F. (SM)
Phillips, K. P. (M)
Phipps, A. R. (M)
Pitlik, H. (M)
Platnick, D. (M)
Pomroy, R. A. (A)
Prasil, A. (M)
Qualich, A. (M)
Ramos, A. S. (A)
Raymond, R. S. (M)
Recine, T. D. (M)
Resch, G. W. (M)
Richards, W. H., Jr. (A)
Richman, E. F. (M)
Ridolo, W. (M)
Robbins, R. E., Jr. (M)
Roberts, F. R. (M)
Rogers, J. A. (SM)
Rogers, R. J. (M)
Roman, R. J. (SM)
Ronbeck, J. E. (M)
Ross, H. J. (M)
Ross, L. A. (A)
Rubega, R. (M)
Saeli, J. J. (A)
Sabba, D. R. (M)
Salata, M. F., Jr. (M)
Sass, L. J. (M)
Savchuk, V., Jr. (SM)
Schiff, S. (M)
Schneider, G. O. K. (M)
Schreder, K. D. (M)
Schwartz, L. S. (M)
Schwarz, A. H. (M)
Schwertz, F. A. (M)
Searcy, C. E. (M)
Sheffer, O. N. (M)
Sheve, H. C. (M)
Shook, C. G. (M)
Slaymaker, F. H. (SM)
Smart, R. L. (A)
Smith, D. S. J. (SM)
Smith, D. F. (M)
Smith, G. H. (M)
Smith, J. B. (A)
Smith, M. D. (M)
Smith, R. V. (M)
Snow, P. G. (M)
So, H. C. (M)
Sowers, A. E. (M)
Spence, R. (M)
Squassoni, G. F. (SM)
Staples, W. D. (SM)
Stevenson, H. (M)
Stewart, F. B. (M)
Stewart, L. C. (M)
Stillwater, J. (A)
Stingel, R. E. (M)
Stolze, W. J. (SM)
Stone, D. J., Jr. (M)
Stoutz, C. O., Jr. (M)
Strack, H. O. (M)
Studley, W. J. (A)
Stumo, T. M. (M)
Suntoo, M. A. (M)
Talbot, R. D. (M)
Tapernoux, P. J. (SM)
Taylor, H. M. (A)
Tholstrup, H. (SM)
Till, J. E. (A)
Timm, D. C. A. (A)
Tolliver, P. M. (M)
Torpie, J. D. (M)
Traino, C. (M)
Traub, R. A. (A)
Trost, H. K. (M)
Trott, M. (M)
Tryon, L. E. (M)
Turner, W. (M)
Tyrlick, W. V. (M)
Updike, B. P. (M)
Van Arsdell, J. C., Jr. (M)
Vang, J. P. (A)
Van Sandwyk, J. (M)
Veal, T. G. (M)
Velie, J. L. (M)
Vincent, A. W. (SM)
Wang, F. (M)
Wheeless, L. L., Jr. (M)
Whitman, R. M. (M)
Wilber, W. D. (M)
Williams, R. C. (M)
Wilson, J. E. (M)
Wise, C. M. (M)
Wojtaszek, E. J. (M)
Wolcott, J. R. (M)
Wolf, A. A. (SM)
Wolff, R. L. (M)
Worth, J. H. (M)
Yamada, H. (A)
Yeaton, E. C. (A)
Young, E. A. (M)
Young, F. C. (SM)
Zarcone, C. J. (A)
Zefting, A. H. (M)
Zentis, J. J. (M)
Zigadlo, J. P. (A)
Zylich, N. P. (M)

Rock Stream (ROC-1)
Sheppard, W. H. (M)

Rockville Centre (LI-2)
Butta, R. S. J. (A)
De Weese, H. W. (SM)
Duke, V. J. (SM)
Gilman, B. S. (M)
Ginsberg, M. P. (SM)
Grevious, J. S. (M)
Hawkes, T. A. (A)
Herman, J. (SM)
Hopkins, J. J. (SM)
Lee, L. H. (M)
Lee, R. L. (M)
Leuteritz, H. C. (M)
Lo Giudice, T. F. (M)
Mason, J. D. (M)
McCartney, E. (A)
Meehan, J. D. (M)
Ottenberg, L. A. (M)
Padovano, R. J. (M)
Potter, N. (A)
Rich, E. M. (M)
Rutstein, I. (SM)
Shakun, M. F. (M)
Sinsheimer, W. J. (M)
Tuck, C. A., Jr. (A)
Uzmann, J. G. (SM)
White, H. A. (A)
Wolff, F. (SM)
Wolff, G. (A)

Rocky Point (LI-2)
Goldstine, H. E. (SM)
Kahn, A. (SM)
Martin, C. A. (SM)
Miller, W. A. (SM)
Moore, H. A. (M)
Paramithas, C. P. (M)
Peterson, L. E. (M)
Wagner, R. J., Jr. (M)

Rome (RU-1)
Ackley, R. A. (M)
Akerman, S. (A)
Allen, R. L. (M)
Allen, R. F. (M)
Anderson, S. E. (M)
Apgar, H. E., Jr. (M)
Arnold, R. A. (A)
Ballentine, E. C. (SM)
Barth, M. J. (M)
Bartley, L. S. (M)
Bayless, H. A. (M)
Beers, R. H. (M)
Benoit, R. C., Jr. (SM)
Bethke, W. P. (SM)
Bikis, A. (A)
Blymiller, A. L. (M)
Briggs, A. S. (M)
Bromley, J. E. (M)
Brooks, E. C., Jr. (M)
Brooks, R. M. (M)
Brownstein, H. S. (M)
Buesking, W. E. (M)
Burgess, J. S. (SM)
Burrill, E. W. (M)
Burrows, W. R. (M)
Byrne, R. D. (M)
Cagney, W. M. (A)
Carlson, H. A. (SM)
Carney, P. G. (M)
Cason, C. L. (M)
Chapin, E. J., Jr. (M)
Christie, R. L. (M)
Colangelo, L. P. (SM)
Cook, B. S. (M)
Coover, B. (M)
Coppola, A. (M)
Cossette, E. E. (M)
Craiglow, L. H. (SM)
Crowley, H. J. (SM)
Crulckshank, J. E. (SM)
Cusimano, J. P. (A)
Dayton, W. P. (M)
Dehnam, T. F., Jr. (M)
Diamond, F. I. (M)
Dieter, M. R. (A)
Dimon, C. H., Jr. (M)
Donovan, B. M. (A)
Eannarino, J. M. (SM)
Eldman, F. E., Jr. (M)
Eltches, I. (SM)
Fallik, J. (M)
Feiner, A. (A)
Ferlo, O. F. (A)
Fishner, S. (A)
Forte, M. P. (SM)
Fouts, W. L. (M)
Frank, F. W. (M)
Friedman, H. (SM)
Frohlich, A. J. (M)
Gabelman, I. J. (SM)
Geesey, R. A. (M)
Glavlano, C. R. (M)
Gordon, C. W. (SM)
Graettinger, W. F. (A)
Graham, R. C. (M)
Green, K. B. (A)
Griffiths, J. D. (M)
Grzesik, J. (A)
Hancock, D. W. (A)
Hanna, L. P. (A)
Harris, H. N., Jr. (M)
Hartofil, P. E. (M)
Headle, H. W., Jr. (M)
Heidgen, B., Jr. (M)
Holberger, R. R. (M)
Howe, W. P. (M)
Huckaby, J. R. (M)
Iuorno, S. J. (M)
Jaeger, M. (M)
Jankowski, J. A. (M)
Joys, F. H. (M)
Kaufman, J. (M)
Kelly, W. S. (A)
Krupinski, J. A. (M)
Lamanla, L. A. (M)
Leinbach, H. J., Jr. (M)
Lemoine, J. S. (M)
Levy, G. (M)
Libby, R. L. (M)
Lindeman, B. (SM)
Lockner, J. G. (M)
Long, G. A. (M)
Loreto, D. R. (M)
Maggio, T. (M)
Marks, R. L. (SM)
Marshall, J. P. (M)
Mason, W. F. (SM)
McFee, J. E. (A)
McLaughlin, R. L. (M)
Meyer, C. H., III (M)
Miles, R. A. (M)
Miller, C. R. (M)
Miller, H. W. (M)
Mills, H. J. (M)
Moore, F. F. (A)
Morenoff, E. (M)
Munzer, E. N. (SM)
Nantier, R. (M)
Naresky, J. J. (M)
Neeley, A. C. (A)
Nilsson, N. J. (M)
Nisbett, J. R. (A)
Oglesby, R. G. (M)
O'Neel, W. E. (M)
O'Neil, J. M. (M)
Pappas, C. P. (M)
Peacock, J. T. (A)
Pendleton, E. E. (A)
Peters, G. A. (M)
Petersen, J. A. (A)
Poore, J. N., Jr. (M)
Poor, W. T., Jr. (M)
Pranke, J. A. (M)
Pullease, T. W. (M)
Rabe, R. E. (M)
Retterer, B. L. (M)
Richards, M. V. (M)
Richter, H. (M)
Riechman, S. D. (M)
Roberts, C. E. (A)
Rock, R. A., Jr. (M)
Rose, W. C. (M)
Rudensey, M. B. (M)
St. John, C. G. (M)
Schraml, K. F. (A)
Selover, E. E. (M)
Sharkl, P. (SM)
Simpson, P. D. (M)
Slouka, G. E. (M)
Smith, H. R. (M)
Stemlicht, L. (M)
Storrs, E. N. (SM)
Strom, C. A., Jr. (SM)
Stumpf, F. M. (M)
Szalach, F. E. (M)
Taffel, B. R. (M)
Tepper, S. J. (M)
Tikijian, G. H. (M)
Vaccaro, J. (A)
Warner, M. (M)
Waszkiewicz, L. R. (M)
Watkins, B. O. (M)
Weaver, C. E. (A)
Webb, H. E., Jr. (M)
Weber, J. V. (M)
Welker, F. E. (M)
Werle, B. O. (M)
Wheeler, A. C. (M)
Wiejek, A. J. (SM)
Wilcox, C. R. (M)
Williams, T. G. (SM)
Williams, W. T. (M)
Wilson, H. L. (A)
Winbigler, W. K. (M)
Winkler, E. H. (SM)
Wolf, J. K. (M)
Wong, G. B. (A)
Woodruff, W. D. (M)
Worthington, D. T. (M)
Worthington, J. W., Jr. (SM)
Wright, R. O. (M)

Ronkonkoma (LI-2)
De Muria, V. (M)

Roosevelt (LI-2)
Adachi, W. Y. (M)
Brown, E. M. (SM)
Forster, E. E. (M)
Fragola, C. F. (SM)
Kushner, J. (M)
Ladue, J. A. (M)
Randazzo, J. J. (A)
Zuroff, C. A. (M)

Roosevelt Field (LI-2)
Kelley, A. S. (A)

Rosedale (LI-2)
Avionone, A. J. (A)
Cavallari, J. D., Jr. (M)
Damm, G. W. (A)
Lazarus, L. S. (A)
Sandler, H. M. (A)
Stio, W. V. (A)
Sweeney, J. N. (M)
Weiner, F. (A)
Zang, G. R. (M)

Roslyn (LI-2)
Easton, A. (SM)
Haback, D. H. (M)
Hicks, W. M. (A)
Kahrilas, P. J. (SM)
Kamen, I. (SM)
Kennedy, S. A. (M)
Leibfried, W. P. (M)
Lessler, A. L. (M)
Marqulies, F. (M)
Match, M. J. (M)
Moerman, N. A. (M)
Nash, A. (M)
Rosenberg, M. (M)
Shnitkin, H. (M)
Sontag, H. M. (M)
Stern, D. L. (M)
Susskind, S. E. M. (A)
Vonelman, J. H. (F)
Wild, J. J. (M)
Wolf, E. G. (M)

Roslyn Estates (LI-2)
Affias, I. M. (SM)
Lipkin, W. (M)
Shalleck, A. B. (M)
Shanley, J. H. (M)

Roslyn Harbor (LI-2)
Aaron, B. D. (SM)
Evans, R. A. (A)
Minc, A. (M)

Roslyn Heights (LI-2)
Adler, J. I. (M)
Ashley, A. (M)
Boltz, J. H. (SM)
Boop, W. E. (M)
Bordiga, B. (A)
Bourke, W. A. (SM)
Carduner, W. (M)
Corwin, A. (SM)
Deutsch, S. (M)
Dmytrasz, J. N. (M)
Duffy, J. P., Jr. (M)
Dumey, A. I. (SM)
Feldmann, F. (SM)
Fidelman, D. (M)
Forster, H. D., Jr. (M)
French, E. M., Jr. (A)
Gaines, B. (SM)
Gonzalez, V. M. (M)
Gray, J. E. (A)
Hauer, W. B. (M)
Hochman, R. J. (M)
Jackson, T. T. (SM)
Kohn, S. A. (M)
Larsen, A. (M)
Loesing, J. B., Jr. (A)
Martin, J. B. (M)
McLinden, J. E., Jr. (SM)
Merten, D. J. S. (SM)
Morris, J. J. (M)
Pride, D. W. (M)
Roth, H. H. (SM)
Scopin, L. (A)
Seelev, S. W. (F)
Skipper, L. C. (SM)
Spielberger, S. C. (SM)
Star, J. (SM)
Weinmann, R. H. (M)
Willenbecher, J. F. (SM)
Yelsey, B. (M)
Zetkov, G. A. (M)

Rotterdam (SCH-1)
Peek, N. A. (M)

Roxbury (BING-1)
Fryling, J. L. (M)

Rush (ROC-1)
Kohl, W. B. (A)

Rye (NY-W-2)
Bisson, E. W. (SM)
Borck, A. (SM)
Davis, D. (M)
Deri, H. B. (A)
Eaves, A. J. (SM)
Greenberg, E. P. (M)
Haselton, M. L. (M)
Lamarque, J. W. (M)
Van Ness, H. J. (M)

Sag Harbor (LI-2)
Barker, V. S. (SM)

St. Albans (LI-2)
Behr, J. (A)
Brown, A. R. (M)
Ceccanti, L. P. (A)
Edmonds, S. T. (A)
Elmquist, J. F. (M)
Johnson, R. L. (A)
Kelcher, A. J. (M)
Kelcher, R. J. F. (M)
Kirsch, W. A. (SM)
Peyton, W. B. (A)
Reasor, G. E. (M)
Rothenberg, S. M. (SM)
Smikle, K. R. (M)
White, S. (M)

St. James (LI-2)
Grayson, R. (M)
Henspergen, E. S. (SM)
Jolas, G. C. (M)
O'Hara, T. D. (M)
Schubert, T. H. (A)

St. Remy (NY-MH-2)
Cantar, G. (M)

Salem Center (NY-W-2)
Smith, G. J. (A)

Salt Point (NY-MH-2)
Howson, J. C. (M)
Taylor, R. L. (A)

Sands Point (LI-2)
Callahan, E. C. (SM)
Deakin, G. (M)
Hayward, G. H. (A)
Hollister, D. G. (SM)
Langerman, H. (A)
Leonard, E. V. (M)
Moore, F. H. (SM)

Saratoga (SCH-1)
Goldstein, S. L. (A)

Saratoga Springs (SCH-1)
Ant, E. B. (M)
Cavenaugh, D. E. (SM)
Saslow, S. (SM)

Saugerties (NY-C-2)
Allen, G. W. (M)
Bright, D. W. (M)
Buck, R. D. (SM)
Byle, B. J. (A)
Cart, R. E. (M)
Conard, L. J. (A)
Gaglianello, J. W. (A)
Goldberg, M. (M)
Hill, H. W. (M)
Kelly, D. A. (M)
Kurtz, G. W. (M)
Laird, J. A., III (M)
Lemmon, R. S. (M)
Lett, A. S. (M)
Luigi, R. H. (A)
Newcomb, C. E. (A)
Nitschke, N. E. (M)
Patterson, D. A. (M)
Pocalyko, P. N. (M)
Posklensky, D. (A)
Rosenberger, G. B. (M)
Sawutz, G. (M)
Slaney, E. G. (M)
Young, F. G. (M)

Sauquoit (RU-1)
Kruscmark, K. A. (M)
La Forte, J. T. (M)

Sayville (LI-2)
Kussmaul, E. A. (M)
Vail, G. H. (A)

Scarborough (NY-W-2)
Banta, F. D. (M)

Scarsdale (NY-W-2)
Alpert, N. (SM)
Altieri, J. R. (M)
Axelrod, A. (M)
Behringer, R. W. (M)
Bernstein, B. (M)
Burnell, L. G. (SM)
Carlson, R. E. (SM)
Davidoff, S. (SM)
Dubbs, B. (M)
Fein, M. J. (SM)
Fox, W. C. O. (M)
Heller, S. (M)
Jarl, R. B. (M)
Keegan, R. R. (M)
Lichtenstein, M. J. (SM)
Maser, H. (SM)
McKirdy, R. W. (M)
Misisco, E. J. (SM)
Monroe, R. B. (SM)
Oppenheimer, F. W. (M)
Rudwick, B. H. (SM)
Savage, C. F. (SM)
Schimmel, H. (M)
Schmitt, J. W. (M)
Schotland, R. M. (M)
Seitz, F. A. (M)
Slaybaugh, C. W. (SM)
Snyder, R. F. (SM)
Stephens, M. C. (A)
Turner, A. (M)
Walsh, W. J. (A)
Worthington, J. H. (A)

Schenectady (SCH-1)
Acton, E. S. (M)
Adams, H. J. (M)
Alexanderson, E. F. W. (F)
Alger, P. L. (SM)
Allen, C. C. (SM)
Ammerman, D. W. (SM)
Amoth, V. W. (SM)
Anderson, J. M. (SM)
Anderson, R. E. (SM)
Auger, M. E., Jr. (A)
Barber, W. D. (M)
Barlow, D. P. (M)

Barney, D. A. (M)
Baturin, L. (M)
Beaos, J. E. (F)
Bemdt, W. E. (SM)
Bhimani, B. (SM)
Bolster, M. F. (M)
Borner, E. F. (M)
Bottone, S., Jr. (M)
Bowne, W. L. (M)
Boyd, M. R. (M)
Branch, G. M., Jr. (SM)
Brandes, P. D. (M)
Broughton, W. G. (M)
Buchhold, T. A. (SM)
Burke, H. K. (M)
Buscher, R. G. (M)
Chernoch, J. (M)
Chestnut, H. (SM)
Coates, C. L., Jr. (M)
Coghill, H. D. (M)
Cohen, A. (M)
Concordia, C. (SM)
Craig, E. J. (M)
Cruger, B. W. (A)
Cummings, J. C. (M)
Curtis, T. P. (SM)
Dabul, A. (M)
Day, H. R. (SM)
Deblase, R. C. (M)
Dehn, R. A. (SM)
De Santis, V. J. (SM)
Dickerson, A. F. (SM)
Dickinson, T. M. (M)
Dodson, G. C., Jr. (M)
Duckwald, C. S., Jr. (M)
Edwards, H. H. (M)
Edwards, M. A. (F)
Ellert, F. J. (A)
Eshbach, J. R. (M)
Farrall, G. A. (M)
Felker, G. E., Jr. (M)
Feth, G. C. (M)
Fick, C. G. (F)
Fink, L. R. (F)
Fisher, J. C. (M)
Ford, W. A. (SM)
Frick, C. W. (SM)
Fruin, R. E. (M)
Gable, A. C. (SM)
Glow, A. E. (M)
Goldman, R. C. (SM)
Granborg, B. S. M. (M)
Grover, F. W. (F)
Gunshor, R. L. (M)
Hall, R. N. (F)
Hamilton, J. J. (SM)
Hamden, J. D., Jr. (SM)
Hartmann, D. P. (M)
Heiden, C. M. (SM)
Henyan, G. W. (M)
Hess, P. N. (M)
Hewitt, T. L. (M)
Hickey, J. S., Jr. (SM)
Hoffman, T. F. (SM)
Hogan, R. B. (M)
Hughes, R. M. (M)
Hutchinson, D. F. (M)
Jakowatz, C. V. (M)
Jenkins, K. W. (M)
Johnson, J. N. (M)
Kamen, W. J. (A)
Kaufmann, R. H. (A)
Keenan, P. P. (M)
Keister, J. C. (F)
Kessler, G. W. (M)
Kirchmayer, L. K. (M)
Kohl, H. F. (A)
Kowalczyk, A. C. (A)
Lafferty, J. M. (F)
Lano, J. M. (M)
Larson, R. W. (SM)
Lawson, J. L. (SM)
Lee, E. S. (SM)
Lemmerman, E. R. (SM)
Lemmond, C. Q. (M)
Lewis, P. M., II (M)
Linville, T. M. (SM)
Lipoitt, D. L. (M)
Maginniss, F. J. (M)
McAllister, J. F., Jr. (SM)
McArthur, E. D. (F)
McKeehan, W. F. (A)
Meahl, H. R. (SM)
Merz, D. M. (M)
Michaelson, A. (M)
Mihran, T. G. (SM)
Moles, F. J. (SM)
Morgan, R. E. (M)
Morrison, A. (SM)
Newhouse, V. L. (M)
Numrych, E. C. (M)
Palmer, H. L. (M)
Pape, R. L. (M)
Pashler, P. E. (SM)
Patterson, F. G. (M)
Pester, R. F. (SM)
Peters, P. H., Jr. (SM)
Plata, E. F. (A)
Pohl, W. J. (SM)
Pravda, M. F. (M)
Prince, D. C. (SM)
Quitt, J. S. (M)
Quine, J. P. (M)
Raschke, R. R. (M)
Reed, R. I. (SM)
Reiling, G. H. (M)
Rich, J. A. (SM)
Ringlee, R. J. (M)
Rivest, E. L. (SM)
Robinson, R. D. (SM)
Rocha, H. A. F. (SM)
Rodbell, D. S. (M)
Rosner, C. H. (M)
Rothe, F. S. (M)
Rowe, A. C. (A)
Russ, R. B. (SM)
Sampson, E. S. (SM)
Santoro, P. J. (A)
Shinn, B. J. (SM)
Shuey, R. L. (SM)
Spang, H. A., III (M)
Speray, M. R. (M)
Storm, H. F. (SM)
Stupp, R. J., Jr. (SM)
Suits, C. G. (F)
Summerhayes, H. R., Jr. (SM)
Swann, D. A. (M)
Swanson, J. R. (M)
Szalewski, F. J. (M)
Tannas, L. E., Jr. (M)
Taylor, J. E. (M)
Taylor, L. A. (M)
Teare, W. H. (SM)
Teasley, R. C. (M)
Thal, H. L., Jr. (M)
Thayer, R. W. (A)
Thorson, H. L. (SM)
Tiemann, J. J. (M)
Tomiyasu, K. (SM)
Troutman, P. H. (M)
Turrentine, R. E. (SM)
Verzulli, J. U. (M)
Wade, W. T. (M)
Waldron, W. K. (M)
Ward, R. H. (A)
Watkins, J. E. (M)
Watson, R. P. (SM)
Watters, R. L. (M)
Webster, H. F. (SM)
Weinstein, M. (M)
White, G. M. (M)
White, W. C. (F)
Wolfe, J. E. (SM)
Wood, A. J. (M)
Woolley, R. L. (SM)
Young, C. M. (SM)
Young, J. D. (M)
Yu, S. P. (M)

Scipio Center (SYR-1)
Matuzich, J. D. (A)

Scotia (SCH-1)
Alexander, N. W. (M)
Bailey, W. E., Jr. (M)
Bilharz, D. W., Jr. (A)
Bondley, R. J. (SM)
Brougham, R. W. (M)
Chambers, D. E. (F)
Cole, H. W. (M)
Cook, E. D. (F)
Coolidge, A. W., Jr. (M)
Day, B. E. (M)
Fraenckel, V. H. (M)
Gardiner, P. C. (SM)
Gardner, G. F. (M)
Gauper, H. A., Jr. (SM)
Gittinger, N. C. (M)
Griffin, G. J., Jr. (M)
Hanrahan, L. R. (A)
Harris, L. A. (M)
Iler, G. W. (SM)
Jones, C. M. (M)
Mayer, C. B. (SM)
Moore, G. F. D. (M)
Roberts, S. (M)
Sawada, F. H. (SM)
Sendzuk, G. T. (M)
Travis, E. F. (SM)
Vaughan, J. R. M. (SM)
Wade, E. J. (M)
Wagoner, C. A. (SM)

Scottsville (ROC-1)
Benin, Z. (SM)

Sea Cliff (LI-2)
Beer, A. E. (M)
Black, L., Jr. (SM)
Forker, L. W. (A)
Hine, E. A. (M)
Matuszek, F. A. (M)
Shane, D. C. (M)
Solt, H. B. (M)
Widenor, M. D. (M)

Seaford (LI-2)
Abbott, H. J. (A)
Bartolotta, M. (M)
Battle, F. H., Jr. (M)
Charlton, G. G. (M)
Cornetz, W. (M)
Dichlmann, J. T. (M)
Eachus, W. J. (M)
Ferraro, J. P. (M)
Flattau, W. (M)
Goodmon, D. M. (SM)
Klauber, M. (M)
Krammer, J. (A)
Krutman, J. M. (A)
McEvoy, H. G. (M)
Meyer, W. C. (A)
Oliver, O., Jr. (M)
Oppenheim, M. H. (A)
Perlmutter, A. M. (M)
Perzeszty, T. S. (A)
Purdy, R. L. (A)
Stoker, R. R., Jr. (M)
Walker, A. S. (M)
Weiner, G. (A)
Westermann, K. H. (M)
Wolin, S. (A)

Searingtown (LI-2)
Barney, K. H. (SM)
Hammer, R. M. (SM)

Selden (LI-2)
Manzolillo, D. (M)
Marchese, T. L. (A)
Mitchell, J. R. (A)

Seneca Falls (ROC-1)
Burroughs, F. L. (SM)
Cowden, D. G. (M)
Dangremond, J. L. (M)
Dickinson, W. A. (SM)
Dowse, E. C., Jr. (M)
Eisengrein, R. H. (M)
Faust, A. C. (A)
Fogg, G. E., Jr. (M)
Gessford, R. K. (SM)
Greenberg, I. D. (M)
Haas, P. (M)
Holcumb, W. A. (A)
Kahl, M. I. (SM)
Keen, A. W. (SM)
Krawitz, M. (SM)
Loughlin, J. H. (SM)
Mackey, D. G. (A)
Ottemiller, W. H., Jr. (SM)
Peck, H. D., Jr. (M)
Shields, R. R. (M)
Stone, E. O. (M)
Swan, R. A., Jr. (M)
Vogel, R. Q. (M)
Whitten, A. C. (A)

Setauket (LI-2)
Carpenter, J. J., Jr. (M)
Jacke, S. E. (M)
Mason, R. P. (M)

Sherburne (BING-1)
Brown, H. H. (M)
Drake, J. E. (M)
Jaytanie, J. M. (A)
Leitner, R. T. (M)
Lundahl, T. (SM)
Powers, R. E. (A)
Sleeper, G. B., Jr. (M)
Voorhaar, F. R. (M)

Shoreham (LI-2)
Bruhns, W. H. (A)
Sheridan, T. R. (SM)

Shrub Oak (NY-W-2)
Shapiro, E. (M)

Sidney (BING-1)
Delaney, M. J. (M)
Knak, J. L. (M)
Stevens, W. P. (M)
Struble, R. C. (A)

Silver Creek (ERI-1)
Barris, H. A. (A)
Gull, R. A. (SM)

Skaneateles (SYR-1)
Biele, R. J. (SM)
Clark, P. B. (M)
Dean, W. W. (SM)
Gentry, F. E. (SM)
Hackley, C. L. (M)
Leeder, H. A., Jr. (M)
Lloyd, C. G. (SM)
Wiggin, J. F. (A)
York, R. A. (SM)

Slingerlands (SCH-1)
Bowie, W. G. (SM)
Dillenback, G. V., Jr. (M)
Longley, J. F. (SM)
Rechnitzer, B. W. (A)

Smithtown (LI-2)
Becchnia, J. A. (M)
Bernhardt, C. A. (M)
Bertolino, A. P. (M)
Bies, R. K. (M)
Case, S. W. (M)
Casey, R. R. (A)
Chapman, P. L. (M)
Daly, W. P. (M)
Da Parma, E. J. (M)
Elliott, W. A. (M)
Fauvell, R. T. (M)
Ferraro, J. P. (M)
Fincke, W. H. (M)
Goldberg, P. B. (M)
Hanratty, R. J. (M)
Hastings, D. F. (M)
Kelly, J. H. (A)
Knudson, D. R. (M)
Lastra, J. F. (M)
Leary, J. B. (M)
Leidich, A. J. (M)
Lerner, D. (M)
Liers, A. H. (A)
Miller, J. S. (M)
O'Connor, J. L. (M)
Olszewski, W. R. (A)
Pawelko, M. J. (M)
Rosa, J. (M)
Roth, W. B. (A)
Sinniger, J. O. (M)
Williams, D. P. (M)
Zalkin, D. M. (M)

Smithville Flats (SING-1)
Rotherforth, D. E. (A)

Snyder (BN-1)
Balint, A. T. (SM)
Blair, D. J. (M)
Breeden, F. C. (M)
Halsted, G. P. (M)
Mellino, W. P. (SM)
Mulock, R. B. (M)
Richmond, G. E., Jr. (SM)
Robins, B. W. (SM)
Whyman, E. W. (SM)

Solvay (SYR-1)
Fragnito, J. P. (M)
Shofstall, N. F. (SM)
Wagner, Z. G. (A)

Southampton (LI-2)
Buckingham, W. D. (M)
Hildreth, A. E., Jr. (M)
Lamar, R. E. (M)

South Farmingdale (LI-2)
Antlick, L. (M)
Moreira, N. M. (M)
Morishita, N. (SM)
Saur, R. D. (M)
Serra, I. C. (A)

South Hempstead (LI-2)
Doorman, W. G. (M)
La Rosa, R. (SM)

South Huntington (LI-2)
Borghard, A. A. (A)
Roffe, F. G. (M)
Sweet, R. M. (M)

South Lansing (ITH-1)
Bray, D. W. (SM)

South Ozone Park (LI-2)
Anapol, J. (M)
Calabrese, A. (A)
D'Angelo, F. (M)
Glickman, H. (M)
Green, P. A. (M)
Low, J. (A)
Marro, M. J. (M)
Neiland, A. C. (A)
Simmons, C. H. (A)
Stephan, S. J. (M)

South Salem (NY-W-2)
Becker, H. R. (A)
Murphy, T. J. (A)
Smith, J. C. (M)

South Wales (BN-1)
Eames, F. M. (A)

Spencerport (ROC-1)
McGarvey, C. F. (M)
Reynolds, H. J. (A)
Sibley, H. C., Jr. (SM)
Wehrle, A. W. (M)

Springfield Gardens (LI-2)
Berthold, R. V. (M)
James, A. V. (A)
Stiles, A. P. (M)

Spring Valley (NY-W-2)
Bohlke, W. K. (A)
Braunstein, L. J. (A)
Broussely, M. (A)
Cook, S. (M)
Faist, C. A. (A)
Rosenbaum, J. (M)
Semer, M. (M)
Staniloff, S. A. (A)
Weichardt, H. H. (M)
Welan, I. (M)

Staatsburg (NY-MH-2)
Bilous, O. (M)
Norian, R. (M)

Staten Island (NY-2)
Albicocco, S. P. (M)
Ame, O. R. (M)
Auriema, R. C. (M)
Bridge, J. A. (M)
Cerasoli, A. (M)
Chillemi, J. L. (A)
Codd, B. E. (M)
Correard, L. P. (M)
Cortelyou, R. G. (A)
Culicetto, P. J. (M)
De Rosa, H. M. (M)
Dusio, E. W. (M)
Dwyer, R. J. (M)
Gale, M. C. (M)
Gunther, F. A. (SM)
Hamey, P. J., Jr. (M)
Howarth, H. F. (M)
Jurevics, A. (M)
Klein, W. T. (M)
Kopecky, G. F. (M)
Kosow, I. L. (SM)
Lewis, J. C. (SM)
Lifenfeld, J. (M)
Loesch, C. A. (M)
Luse, J. D. (M)
Marraccini, A. J. (A)
Martenson, R. B. (A)
Miller, S. S. (M)
Molinelli, R. J. (M)
Myslicki, R. L. (M)
Niedbalski, N. B. (A)
Panicello, T. B. (M)
Phillips, B., III (A)
Plant, R. E. (A)
Radgowski, S. P. (M)
Reeves, J. F. (M)
Reinhardt, N. J. (M)
Rietmeyer, H. W. F. (M)
Rodwin, G. (SM)
Rosenquist, J. H. (A)
Russell, L. H. (M)
Sanders, C. H. (A)
Scian, H. (A)
Shanley, J. J. (A)
Streble, J. G. (M)
Tesse, M. J. (A)
Weinberg, T. L. (A)
Weinmann, R. W. (M)
Zucker, S. M. (A)

Stewart AFB (NY-MH-2)
Pusch, G. A. (M)
Robbins, R. A. (M)

Stewart Manor (LI-2)
Castro, A. J. (M)
Garrigan, T. E. (A)
Quell, C. H. (M)
Raddy, W. R. (M)

Stittsville (RU-1)
Corey, S. A. (M)
Leqe, A. C. (M)
Williams, R. L. (M)

Stone Ridge (NY-C-2)
Darrell, R. D. (A)
Raymond, A. H., Jr. (M)
Winnard, J. R. (M)

Stony Brook (LI-2)
Beukers, J. M. (M)
Beverage, H. H. (F)
Holmes, D. D. (M)
Keefe, G. (A)
Lurch, E. N. (M)
Medd, J. S. (SM)
Meonds, J. J. (M)
Nash, R. W. (M)
Russell, S. (M)
Tramposch, W. J. (M)
Woodward, J. E. (M)

Sunnyside (LI-2)
Axler, M. F. (M)
Fried, S. J. (M)
Majlinger, A. (M)

Syosset (LI-2)
Abrams, C. F. (M)
Ashinsky, M. (M)
Barlam, T. (M)
Beardsworth, R. (M)
Berg, R. S. (M)
Bergman, S. I. (SM)
Borkum, D. B. (M)
Bosse, W. F. (SM)
Calpena, J. (M)
Cammer, M. (M)
Campbell, T. A. (M)
Carruthers, F. P. (SM)
Chow, W. T. (SM)
Clark, A. E., Jr. (A)
Cole, L. G. (M)
Cox, J. B. (A)
Crosby, M. G. (F)
Cunningham, J. C. (A)
Dagavarian, H. O. (SM)
D'Alvino, R. F. (A)
Detwiler, J. H. (M)
Dilnis, W. (SM)
Engle, D. C. (M)
Erickson, J. S. (SM)
Espenlaub, W. C. (M)
Feldman, L. L. (M)
Fisch, J. (M)
Freeman, S. M. (M)
Freiman, M. J. (M)
Friedman, T. D. (A)
Funk, R. W. (SM)
Gomes, C. N. (M)
Goodwin, R. L. (M)
Gorowitz, M. (M)
Graham, W. (M)
Greene, J. C. (SM)
Greenleaf, F. D. (SM)
Helenek, A. R. (M)
Hershkowitz, P. (M)
Hodgson, R. (SM)
Hoffmann, R. R., Jr. (M)
Holst, P. F. G. (SM)
Howard, M. G. (M)
Irwin, R. P. (M)
Jarva, W. (A)
Kirschner, A., Jr. (M)
Knight, R. W. (M)
Koletsky, H. (M)
Kuhn, J. J. (M)
Lasalna, C. A. (M)
Leavitt, B. W. (SM)
Lehtonen, E. W. (M)
Leslie, M. W. (SM)
Lovell, J. A. (M)
Lublin, I. (M)
Marcus, D. H. (M)
McKeown, P. J. (M)
Mindheim, D. J. (M)
Nittoli, A. J. (M)
Norton, R. S. (SM)

O'Connell, J. A. (M)
Pace, F. P. (M)
Phillips, A. H. (M)
Price, D. (M)
Raber, S. (SM)
Rein, C. A. (A)
Relisch, R. P. (M)
Rowinski, S. J. (M)
Smith, R. (A)
Staschover, L. (M)
Statsinger, J. (SM)
Stella, R. (M)
Thomas, E. U. (SM)
Tisdale, J. G. (M)
Unruh, G. E. (M)
Vander Veer, J. H. (M)
Wachsoress, M. H. (SM)
Walcule, D. (M)
Weidmann, L. J. (M)
Werst, M. C. (M)
White, R. C. (M)
Wing, R. (A)
Wong, H. M. (A)
Wylie, T. F., Jr. (M)

Syracuse (SYR-1)
Abeyta, J. P., Jr. (M)
Abrahams, I. C. (SM)
Adams, J. E. (M)
Allmansky, M. (M)
Almasi, G. S. (M)
Altes, S. K. (M)
Anderson, A. F. (M)
Anderson, C. T. (M)
Anderson, R. L. (M)
Andrews, P. D. (SM)
Andrews, R. S. (M)
Aronson, C. A. (SM)
Ashcroft, D. L. (SM)
Ashley, R. E. (M)
Bachman, C. H. (F)
Baker, L. T. (M)
Balabanian, N. (SM)
Barlow, L. C. (A)
Barnhart, H. D. (M)
Barton, L. M. (SM)
Bennett, S. P. (A)
Berlin, R. D. (A)
Bias, F. J. (SM)
Bienvenu, M. L. (M)
Bittle, R. E. (M)
Bluhm, V. A. (M)
Bogosta, W. (M)
Bostick, G. (SM)
Boucheron, P. H., Jr. (SM)
Bowen, B. A. (M)
Brand, B. (M)
Brandli, A. (M)
Breden, W. W. (M)
Brennan, E. J. (M)
Brower, J. D. (M)
Brown, C. M. (SM)
Brown, R. K. (M)
Brule, J. D. (SM)
Buchta, J. C. (M)
Burkart, H. H. (SM)
Burke, T. H. (M)
Burns, R. K. (M)
Caffrey, T. P. (M)
Cain, W. E., Jr. (M)
Calucci, E. J. (M)
Campbell, Y. C. (SM)
Card, W. H. (M)
Carr, W. C. (A)
Carrillo, E. B. (M)
Chafaris, G. J. (M)
Chapman, J. K. (SM)
Chater, M. L. (A)
Chen, C. H. (M)
Cheng, D. K. (F)
Chevli, N. A. (M)
Chismark, A. H. (M)
Chivers, C. C. (M)
Chovan, J. L. (M)
Chu, R. H. (M)
Clark, M. M. (M)
Cleverley, D. S. (M)
Cochran, N. B. (M)
Cole, B. H. (M)
Collins, N. E. (M)
Conger, W. H. (M)
Connors, T. J., Jr. (M)
Cook, C. L. (M)
Countryman, D. J. (M)
Coykendall, J. C. (SM)
Crosby, H. M. (SM)
Crumley, T. D. (SM)
Cummings, K. C. (SM)
Curry, T. F. (M)
Danielson, G. H. (M)
Davidson, A. P. (M)
Davis, M. M., Jr. (SM)
De Dufour, W. F. (M)
Dee, P. L. (M)
Demkowski, W. P. (M)
Denny, J. H. (M)
Deutch, H. M. (SM)
Di Bartolo, J. J. (M)
Dobbs, W. (M)
Docter, S. (A)
Dome, R. B. (F)
Dostal, C. A. (A)
Drum, J. J. (M)
Duronio, K. B. (M)
Earls, H. G. (SM)
Eaton, R. D. (M)
Eckert, T. A. (M)
Egan, J. J. (A)
Egtvedt, M. D. (M)
Eichoizer, A. J. (M)
Elias, H. J. (M)
Embree, C. R. (M)
Evans, H. J. (SM)
Ewing, L. M. (SM)
Fague, A. C. (M)
Fanning, J. J., Jr. (M)
Farling, R. E. (M)
Farrell, J. J. (F)
Fedorowycz, B. W. (M)
Fetterolf, W. F. (A)
Fiedeler, J. A. (M)
Fields, H., Jr. (M)
Fishman, H. (SM)
Fitzmorris, S. R. (M)
Fong, K. (M)
Foster, R. F. (SM)
Freim, H. R. (M)
Frost, R. R. (M)
Fulk, L. A. (M)
Galbraith, R. A. (SM)
Ganter, C. F. (M)
Garcia, R. R. (M)
Garfein, A. (A)
Garger, S. M., Jr. (M)
Garry, G. A. (M)
Geasey, R. E. (M)
Gehrig, J. W. (A)
Gerlack, R. Z. (M)
Gemand, M. E. (M)
Gibbons, E. H., Jr. (M)
Gimenez, M. S. (A)
Glasford, G. M. (SM)
Gleichauf, P. H. (SM)
Goldman, S. (F)
Golubjatnikov, O. (M)
Good, W. E. (F)
Gordon, D. A. (M)
Gottlieb, E. (M)
Graham, J. F. (M)
Granville, R. W., Jr. (M)
Greenbaum, J. R. (SM)
Greenwood, R. R. (M)
Grosso, J. F. (M)
Gruenberg, H. (M)
Guckenheimer, E. (M)
Gussak, M. (A)
Haedecke, A. D. (SM)
Hamlett, J. G. (M)
Hanousek, R. A. (M)
Harbourt, C. O. (M)
Harford, H. D. (M)
Harrington, R. F. (M)
Harris, P. E. (M)
Healy, R. G. (M)
Heckelman, R. W. (M)
Heinzerling, E. W. (M)
Heising, C. R. (M)
Heller, L. J. (A)
Herzog, E. F. (F)
Hjortzberg, A. B. (M)
Hoefer, W. G. (M)
Hoffman, J. (M)
Hogan, M. B. (SM)
Holland, J. T., Jr. (M)
Holmes, K. O. (SM)
Holonyak, N., Jr. (M)
Holt, L. A. (A)
Holtz, R. E. (M)
Holtzclaw, B. L. (M)
Honigman, R. L. (M)
Howells, P. W. (F)
Hu, M. K. (SM)
Hu, Y. Y. S. (SM)
Humeniuk, P. (SM)
Hunt, R. F. (M)
Hunter, N. E. (M)
Hurley, D. T. (M)
Hutchins, C. M. (M)
Jackson, J. M. (SM)
Jankowski, H. (M)
Jeffers, W. M. (A)
Jensen, M. C. (M)
Johnson, R. A. (SM)
Jost, J. W., Jr. (M)
Jureller, J. F. (M)
Kantor, S. D. (A)
Katz, H. W. (SM)
Keaner, R. M. (M)
Keener, M. A. (A)
Keim, J. M. (M)
Kelly, P. E. (M)
Kent, G. (M)
Kenyon, S. W. (A)
Kerr, A. W. (M)
Kille, R. W. (M)
Kinzie, M. E. (M)
Kipp, K. J. (M)
Kirk, R. L. (M)
Kirkendall, J. T. (M)
Kladke, W. F., Jr. (M)
Kleiner, S. (A)
Kletsky, E. J. (M)
Knights, J. E., Jr. (SM)
Koch, A. R. (SM)
Korolenko, A. V. (M)
Korolenko, K. V. (M)
Krackhardt, E. M. (M)
Krall, W. F. (M)
Kreitzer, N. H. (M)
Kunz, L. G., Jr. (M)
Kvamme, E. F. (M)
Lathi, B. P. (M)
Lasher, H. (M)
Le Clair, J. E. (M)
Lederer, E. H. (SM)
Leinweber, L. F. (M)
Lepage, W. R. (F)
Leuenberger, F. (M)
Lightstone, J. B. (M)
Lipnitz, J. W. (A)
Lippert, H. B. (SM)
Littell, J. C. (A)
Liu, T. P. L. (M)
Lombard, W. A. (M)
Lucas, V. M. (M)
Lurie, A. B. (A)
Lynch, I. E. (M)
Lynn, L. H. (SM)
Lyons, F. T. (M)
Mac Leod, W. R. (M)
Mader, G. E. (M)
Maier, L. C., Jr. (M)
Maier, N. D. (A)
Maroff, R. A. (M)
Marriott, D. F. (M)
Martin, H. R. (A)
Masnik, M., Jr. (M)
Mather, D. L. (M)
Maxwell, D. E. (F)
McCain, C. E. (M)
McCarthy, J. J. (M)
McGaw, J. W. (M)
McGeiver, S. F. (M)
McMurtrie, K. A. (SM)
McNair, W. L. (M)
Melkonian, H. A. (M)
Merrigan, C. F. (M)
Merrill, J. H. (M)
Merrithew, R. F. (M)
Metzler, D. H. (M)
Meyer, B. H. (M)
Mikaelian, M. (M)
Miller, H. G. (M)
Millman, G. H. (SM)
Minuti, A. R. (M)
Mitchell, W. F. (M)
Morgan-Voyce, A. M. (SM)
Moti, A. A. (M)
Muir, D. A. (SM)
Mullen, E. B. (M)
Mullin, L. A. (SM)
Murphy, M. F. (M)
Murray, W. H. (M)
Mushrush, R. S. (SM)
Muth, R. A. (M)
Myers, C. H. (A)
Nakamoto, T. I. (M)
Nanavati, R. P. (M)
Neelands, L. J. (M)
Neely, L. E. (M)
Neill, D. E. (M)
Nercessian, Y. T. (M)
Nonnekens, A. C. (SM)
Norton, C. T. (SM)
Novak, R. L. (M)
Oberrender, G. F., Jr. (M)
Ocko, R. (SM)
Oehling, G. E. (M)
Ohms, D. V. (A)
Olsen, E. C. (M)
Orlenko, A. P. (M)
Padunchewit, I. (M)
Paganelli, T. I. (SM)
Page, E. R. (M)
Pardee, O. O'M. (M)
Passarelli, W. F. (M)
Payne, G. W. (M)
Pearse, E. V. (M)
Penn, W. A. (M)
Perry, H. E. (M)
Peterson, E. O. (M)
Peterson, E. H., Jr. (M)
Phillips, J. P. (M)
Pinter, G. E. (M)
Pittler, G. M. (M)
Pole, R. V. (M)
Polhamus, J. R. (M)
Polisse, L. F. (M)
Popper, H. (SM)
Potter, M. (M)
Priebe, D. A. (M)
Priest, C. A. (F)
Prostine, R. U. (M)
Pustelnyk, M. (M)
Putman, R. E. (M)
Quinn, H. H., Jr. (M)
Raillard, H. (M)
Ramo, H. O. (M)
Randall, D. P. (SM)
Rankin, P. M. (M)
Reale, J. D. (A)
Ream, C. E. (M)
Regan, D. R. (M)
Reibert, F. A. (M)
Reza, F. (M)
Richardson, R. L. (M)
Roberts, E. G., Jr. (SM)
Roberts, R. C. (M)
Robinson, K. T. (M)
Rodems, J. D. (M)
Roesch, R. G. (A)
Roome, G. T. (M)
Rothenberg, H. C. (SM)
Roussin, A. G. (M)
Rubin, I. E. (M)
Rush, S. (SM)
Ruterman, E. R. (M)
Sadowsky, S. S. (M)
Sanders, A. E. (M)
Scanlon, G. W. (M)
Scheelar, J. M. (M)
Schermerhorn, R. E. (A)
Schlereth, F. H. (M)
Schroeder, K. G. (M)
Schuh, R. P. (M)
Scott, K. J. (M)
Scrivner, J. H. (SM)
Sculley, G. A., Jr. (M)
Seidel, R. E. (M)
Sells, T. R. (M)
Selin, B. A. (M)
Sensinger, W. A. (M)
Seshu, S. (M)
Shaw, C. A. (M)
Shepp, R. E. (M)
Shetler, R. L. (M)
Shields, C. J. (M)
Shuart, O. H. (M)
Silvaggio, J. A. (A)
Silverstein, L. S. (M)
Skelton, G. W., Jr. (A)
Smith, B. J. (M)
Smith, R. L. (SM)
Snitke, J. A. (A)
Somers, L. E. (M)
Spann, F. G. (SM)
Spear, E. D. (SM)
Stack, J. F. (M)
Starkey, G. M. (M)
Stearns, C. M. (M)
Stern, A. P. (SM)
Stone, E. W. (SM)
Stonig, J. W. (A)
Straub, W. W. (M)
Stuart, G. F. (M)
Sturge, C. R. (A)
Sullivan, H. M. (SM)
Sullivan, P. E. (M)
Sullivan, R. M. (M)
Suran, J. J. (SM)
Swain, D. L. (M)
Swank, W. B. (M)
Swanson, R. W. (M)
Sylvan, T. P. (M)
Tanakaya, S. T. (M)
Taylor, E. E. (A)
Taylor, F. N. (M)
Teich, P. J. (M)
Tessler, H. J. R. (M)
Thies, C. H. (SM)
Ticen, W. E. (A)
Terok, J. J. (M)
Towlson, H. G. (SM)
Tymann, T. J. (A)
Van Der Esch, P. B. (M)
Vandling, G. C. (M)
Van Koevering, B. D. (M)
Viens, R. F. (A)
Von Fange, E. K. (M)
Waller, A. A. (M)
Wargo, P. (M)
Warner, D. P. (M)
Wayne, C. R. (SM)
Weir, I. R. (F)
Welss, D. W. (M)
Wellman, C. E., Jr. (M)
Wellner, F. R. (SM)
Wengenroth, R. D. (M)
Werner, R. G. (A)
Wessel, G. K. (SM)
Widmann, L. C. (M)
Wilson, R. C. (M)
Wingrove, E. R., Jr. (M)
Witkowski, R. J. (SM)
Wright, T. C. (M)
Wurdinger, E. D. (M)
Wysocki, T. C. (A)
Yamaoka, K. (M)
Yang, G. C. C. (M)
Yerian, C. S. (SM)
Zecher, R. O. (M)
Zeldenbergs, G. (M)
Zierdt, C. H., Jr. (SM)

Taberg (RU-1)
Watjen, J. H. (A)

Tappan (NY-W-2)
Petrakos, N. (M)
Yamasaki, A. A. (M)

Tarrytown (NY-W-2)
Bevan, R. K. (M)
Cartoon, G. P. (M)
Feile, R. H. (A)
Finkler, R. A. (M)
Georgia, A. C. (M)
Guzik, J. M. (M)
Malina, M. (M)
Marshall, S. J. (A)
Norton, J. M. (M)
O'Connor, D. G. (SM)
Passman, A. J., Jr. (M)
Rae, J. R. (SM)

Thornwood (NY-W-2)
Belcher, R. D. (M)
Burfeindt, K. L. (M)
Burns, G. D. (A)
Du Bois, N. L. (M)
Hall, H. D. (M)
Levine, R. J. (M)
MacDonald, J. N. (M)
Matsuoka, M. E. (M)
Thiele, P. O. (M)
Washburn, C. A. (M)

Tillson (NY-C-2)
Hamoshire, J. R. (M)
Mangan, B. A. (A)

Tioga Center (BING-1)
Leightner, R. A. (M)

Tonawanda (BN-1)
Ames, R. W. (A)
Archibald, W. R. (M)
Banshak, W. G. (M)
Baumler, F. R. (M)
Bossler, F. B. (M)
Calhoun, S. H. (M)
Carlson, R. E. (M)
Clune, E. F. (M)
Copper, G. S. (M)
Culverhouse, E. F. (A)
Dole, L. H. (M)
Ess, H. E. (M)
Gilbert, W. E. (M)
Gordy, E. (A)
Groth, L. H. (M)
Harpster, W. T. (SM)
Ives, R. A. (A)
Janushevich, A. (M)
Leichtman, D. K. (SM)
Lepley, R. C. (SM)
Limburg, M. A., Jr. (M)
Mahany, T. D., Jr. (M)
Meldrum, M. A. (M)
Mennen, H. (M)
Morrison, H. V. (M)
Nelson, R. E. (M)
Noye, P. R. (M)
Paley, D. A. (M)
Pate, A. R. (M)
Reese, J. S. (M)
Roess, T. L. (M)
Rubali, N. H. (SM)
Sano, J. P. (M)
Schlichter, E. S. (M)
Shaler, P. M., Jr. (M)
Shuart, J. F. (M)
Smolarek, E. J. (A)
Teleo, E. (A)
Timberlake, F. A. (SM)
Walbesser, W. J. (M)
Wasserman, B. (SM)
Wiedemann, W. C. (M)
Zehr, R. M. (M)

Troy (SCH-1)
Armstrong, A. L., Jr. (M)
Bashford, H. L. (M)
Beam, W. R. (SM)
Close, C. M. (M)
Gotkis, S. J. (M)
Harris, H. D. (M)
Holt, E. H. (M)
Jalaluddin (A)
Johnson, F. F. (A)
Libelo, F. (M)
Love, A. L. (M)
Marsh, J. L., Jr. (M)
McClintock, W. G. (M)
Norvik, F. J. (SM)
Raman, S. (A)
Roy, R. J. (M)
Servis, W. A. (A)
Skelly, D. J. (M)
Strohm, W. G. (M)
Van Den Blogelaar, H. (M)

Trumansburg (ITH-1)
Beers, R. B. (M)
Goodman, H. L. (M)

Tuckahoe (NY-W-2)
Austin, K. B. (M)
Avakian, E. A. (SM)
Drew, C. E. (SM)
Gallios, G. C. (M)
Jurafsky, A. J. (M)
Nerenberg, R. I. (M)
Phinney, E. D. (SM)
Siapoa, P. P. (M)
Walsh, J. V. (M)

Tuxedo (NY-MH-2)
Obolensky, A. G. (A)

Ulster Park (NY-C-2)
Griot, R. P. (M)
Schoonover, D. A. (A)

Unlondale (LI-2)
Aha, R. S. (M)
Brenner, M. (M)
Delligatti, S. F. (M)
Emile, P., Jr. (M)
Gould, R. V. (SM)
Keen, H. S. (M)
Kushner, G. (M)
Lenett, S. D. (M)
Levinson, S. (M)
Mann, A. (M)
Ricker, N., Jr. (M)
Schmidt, J. G. (M)
Vander Minden, W. D. (M)
Von Koenigseck, P. (M)
Welch, M. D. (M)

Upton (LI-2)
Adams, R. R. (M)
Bittner, J. W. (M)
Blewett, J. P. (SM)
Chase, R. L. (M)
Constant, T. N. (M)
Cowan, F. P. (M)
Fine, S. (M)
Fischer, J. (M)
Halama, H. J. (M)
Homer Kuper, J. B. (F)
Plotkin, M. (SM)
Rajapooal, V. (M)
Rankowitz, S. (M)
Rheaume, R. H. (SM)

Utica (RU-1)
Abdoo, G. (M)
Adams, J. H. (M)
Ahladas, J. P. (M)
Ainsworth, M. G. (A)
Alexander, H. A. (M)

Anderson, J. M. (M)
Atkinson, J. D. (M)
Augustine, J. A. (M)
Babicz, R. J. (A)
Baran, A. S. (M)
Barker, J. (SM)
Barrett, J. R. (M)
Baum, H. (M)
Bauman, J. D. (M)
Beaubien, W. H. (M)
Benvenga, F. T. (M)
Bischoff, R. E. (M)
Blachowiak, R. (A)
Blumberg, D. (M)
Boram, R. J., Jr. (M)
Briggs, G. U. (M)
Brodzik, D. A. (A)
Brown, R. J. (M)
Buckman, A. R. (M)
Campbell, W. J. (M)
Carlson, W. A. (M)
Chanatry, Y. D. (A)
Christensen, R. L. (M)
Civin, C. J. (M)
Close, J. N. (M)
Cohen, J. J. (A)
Colin, L. (M)
Connelly, D. C. (A)
Conover, C. A. (M)
Coming, J. J. (M)
Cotton, L. J. (M)
Crosby, R. J. (M)
Crow, D. (M)
Csicsatka, A. (M)
Daniel, R. G. (M)
Darrow, F. M. (M)
Daum, J. E. (M)
Decker, D. M. (M)
Dehring, J. C. (M)
Demick, J. (M)
Dondero, R. L. (M)
Dowdell, J. T. (A)
Drushel, T. J. (A)
Durfey, T. C. (M)
Ellis, H. J., Jr. (M)
Everts, W. J. (M)
Fairley, D. O. (M)
Fanuele, F. J. (M)
Feeney, W. R. (A)
Feldman, H. (M)
Feldman, I. (A)
Ferguson, J. V. (M)
Gardner, R. J. (SM)
Ginsberg, H. E. (M)
Glaser, G. J. (M)
Goodman, I. (M)
Greenberg, S. F. (A)
Gubbins, L. J. (M)
Habeck, G. L. (A)
Hansen, E. R. (M)
Harris, R. L. (M)
Harvey, R. R. (A)
Hiatt, W. R. (M)
Hill, C. M., Jr. (M)
Homer, R. E. (A)
Hunter, M. (M)
Isaac, M. G. (M)
Jeanne, C. E. (M)
Johnson, R. W. (M)
Jones, J. C. (M)
Katz, H. (M)
Kent, L. G. (A)
Kinsey, L. F. (M)
Kinsley, R. B. (M)
Klein, J. A. (M)
Klion, J. (M)
Kmentt, E. K. (M)
Konig, H. F. (A)
Krajewski, S. J. (M)
Krassowsky, S. (M)
Kumik, J. G. (M)
Lantz, N. F. (M)
Lehman, M. L. (M)
Liiv, H. H. (A)
Linz, R. M. (M)
Lovecchio, J. A. (M)
Lubnau, D. G. (M)
Maroulis, N. J. (M)
Martel, L. O. (A)
Martin, F. T., Jr. (A)
McCarthy, R. R. (A)
McComb, D. S. (M)
McGee, R. A. (M)
McLoughlin, B. A. (M)
Mercurio, S. P. (SM)
Metzger, F. J. (M)
Meyer, F. S. (A)
Miles, R. J. (M)
Mills, G. M. (A)
Moldoff, S. (M)
Mongesku, W. O. (M)
Morlock, C. E., Jr. (M)
Muntz, W. E. (SM)
Nishimura, H. G. (M)
Odenweller, C. (M)
Okamura, M. K. (A)
O'Leary, J. J. (SM)
Oot, R. F. (M)
Pacini, H. P. (M)
Panasiewicz, J. J. (M)
Pelerossi, A. F. (M)
Pelowski, E. H. (M)
Penahad, J., Jr. (M)
Perry, F. M. (SM)
Peterpaul, C. A. (M)
Peterson, H. P. (M)
Philip, R. M. (M)
Phillips, D. F. (M)
Phillips, J. N. (SM)
Pietrafesa, D. (A)
Pino, J. P. (M)
Plehn, J. G. (SM)
Puopolo, J. W. (M)
Reichert, D. E. (A)
Reiner, J. (M)
Reveal, C. A. (M)
Richardson, R. D. (M)
Riddle, P. (A)
Robertson, R. G. (M)
Robichaud, R. H. (M)
Romanelli, P. A. (SM)
Rosenberg, M. W. (A)
Rubenstein, S. E. (M)
Ruhm, R. R., Jr. (A)
Rusho, F. W. (M)
Ryan, J. F., Jr. (A)
Salerno, A. (SM)
Sallus, G. M. (M)
Satinoff, D. (A)
Schiffman, M. (SM)
Seideman, S. (M)
Serbyn, M. R. (M)
Smith, D. R. (M)
Smith, M. J. (M)
Spengler, J. R. (A)
Sperling, L. (M)
Staciokas, L. J. (M)
Stewart, D. A. (M)
Still, E. W. (M)
Stovin, W. R. (A)
Streeter, J. P. (M)
Stuart, H. D. (M)
Susterich, E. W. (M)
Thomas, K. W. (M)
Thornton, J. W. (M)
Tibbitts, J. R. (M)
Tountelot, E. E. (M)
Trost, V. E. (A)
Uren, D. E. (M)
Uryniak, A. J. (A)
Wagner, R. A. (SM)
Walls, G. R. (M)
Walters, J. E. (M)
Washington, R. W. (M)
Waters, M. F. (A)
Webb, J. K. (SM)
Werner, W. F. (M)
Willard, C. H. (M)
Williams, H. A., Jr. (M)
Wilson, D. E. (M)
Withington, A. (M)
Young, J. S. (M)
Zabawa, J. J. (M)
Zawada, J. D. (A)
Zielinski, C. A. (M)

Valhalla (NY-W-2)
Bernstein, S. (SM)
Dworetzky, L. H. (SM)
Hodapp, E. W., Jr. (A)
MacAdam, W. K. (SM)
Oswald, H. (M)
Parr, A. F. W. (M)

Valley Cottage (NY-W-2)
Fusco, R. C. (M)

Valley Stream (LI-2)
Agress, M. C. (M)
Albanese, V. J. (SM)
Albaum, M. H. (M)
Barnell, E. J. (A)
Bischof, C. C., Jr. (M)
Bittan, D. R. (A)
Blumenstock, A. (M)
Breslau, S. W. (A)
Cass, J. (A)
Catenaro, R. D. (M)
Clarke, J. F. (A)
Cohen, I. (M)
Davis, S. (M)
Drum, W. A. (A)
Freeman, P. S. (M)
Gangale, F. S. (A)
Goldman, G. (M)
Goodstein, J. (M)
Grossman, M. (M)
Haase, W. C. (A)
Hall, R. (M)
Holmes, R. P. (M)
Jacobs, E. C. (M)
Jeffreys, F. R. (M)
Johnson, A. E., Jr. (M)
Kappauf, E. F. (M)
Kern, J. R. (A)
King, L. H. (SM)
Lo Cascio, G. P. (M)
Magenheim, B. (M)
Mancke, R. B. (M)
Mauser, C. A. (A)
Mazziota, D. R. (M)
Melnick, H. (M)
Miller, G. (A)
Minneman, M. J. (SM)
Misail, G. (A)
Morgenstern, A. (A)
Mukai, V. S. (M)
Peyser, W. P. (SM)
Pihell, L. J. (A)
Pitrelli, F. J. (A)
Platt, S. (M)
Quigley, M. F. (M)
Redding, J. D., Jr. (M)
Rokosz, A. J. (A)
Rostedt, R. (A)
Rothenberg, N. (M)
Sandler, P. L. (M)
Schwartz, H. E. (M)
Shaw, W. J. (M)
Simonsen, P. W. (A)
Spector, L. (M)
Tillman, L. (M)
Wessbecher, F. W. (M)
Woerner, R. G. (A)
Woodbury, W. F. (SM)
Ziegler, G. W. (A)

Vernon (RU-1)
Boothroyd, G. A. (M)
Butler, H. E. (SM)
Francis, H. G. (SM)

Verona (RU-1)
Clark, D. R. (M)
Ulrey, H. J. (M)

Vestal (BING-1)
Barrentine, W. M. (M)
Barry, P. F. (M)
Battison, A. H. (M)
Becklund, R. C. (M)
Bene, J. F. (M)
Blossom, E. L. (M)
Bowling, R. E. (M)
Brockington, H. F. (M)
Busch, D. F. (M)
Busse, C. C. (M)
Bussey, R. L. (M)
Calkins, G. T. (M)
Carpenter, L. C. (M)
Coleman, M. J. (M)
Conner, A. E. (SM)
Cooper, J. V. B. (M)
Daykin, D. R. (M)
Deno, D. W. (M)
Dixon, D. J. (M)
Drechsler, W. G. (M)
Dudek, S. J. (A)
Ellis, H. K. (SM)
Elsbree, W. F. (A)
Farr, L. E., Jr. (M)
Greene, J. E. (M)
Groce, D. C. (M)
Hancock, W. L. (M)
Jahr, E. F. (M)
Jergel, R. F. (M)
Johnstone, T. B. (M)
Koranye, T. D. (M)
Krysiuk, G. (M)
Lawson, E. R. (M)
Lichtenwalner, B. D. (M)
Linardos, S. G. (M)
Lloyd, J. W., Jr. (A)
Lord, P. A. (M)
Lorscheider, E. B. (M)
Lozier, W. B., Jr. (A)
MacLeod, D. S. (M)
Markle, R. E. (M)
Marshall, O. H. (M)
Mason, R. K. (M)
Meyers, J. W. (M)
Miglore, C. (M)
Nuss, H. C. E. (M)
Oates, K. H. (M)
Paston, R. G. (M)
Porterfield, F. B. (M)
Potash, A. G. (M)
Pouyard, R. E. (M)
Rehage, T. A. (M)
Riner, W. L. (M)
Rogers, M. D. (M)
Rood, J. W. (M)
Touchton, C. F., III (M)
Utter, S. W. (A)
Vacca, L. N. (M)
Weisser, D. R. (M)
Wright, W. F. (M)

Victor (ROC-1)
Vandervoort, Q. D. (M)

Wading River (LI-2)
Goscinski, S. C. (A)
Harter, R. H. (A)

Walker Valley (NY-MH-2)
Beeh, R. C. M. (M)

Wallkill (NY-MH-2)
Parker, R. G. (A)

Walton (BING-1)
Meyer, J. W. (A)

Wantagh (LI-2)
Abrams, G. L. (M)
Agresta, R. L. (A)
Archetti, J. B. (M)
Arndt, W. R. (SM)
Bauer, W. C. (M)
Bloom, L. (M)
Crane, R. L. (M)
Deller, P. P. (A)
Fantech, W. S., Jr. (M)
Feingold, F. A. (M)
Gibbs, E. D. (M)
Giesecke, O. W. (SM)
Glueckler, E. J. (M)
Gottheim, E. (M)
Granet, A. J. (M)
Greene, J. C. (M)
Gutman, J. H. (M)
Herring, F. G. (M)
Hodder, R. M. (M)
Hughes, J. G. (M)
Iddings, G. E. (SM)
Jauck, R. H. (SM)
Jordan, D. B. (M)
Kesney, E. S. (A)
Kirschner, D. D. (M)
Kramer, H. A. (M)
Leib, K. G. (M)
Leifer, L. J. (M)
McManus, J. T. (A)
Mills, N. B. (M)
Murphy, J. J. (M)
Nelson, R. P. (M)
Orth, C. A. (M)
Osroff, A. (M)
Ostemdorf, J. F. (M)
Pemick, H. L. (M)
Pollack, P. (M)
Posner, S. (M)
Price, C. R. (A)
Reed, S. I. (M)
Rifkin, W. B. (M)
Riker, W. E. (M)
Rosen, A. (M)
Salzberg, A. (A)
Schieber, T. (M)
Schiffres, P. (M)
Shulman, A. R. (M)
Silverman, S. (M)
Silvermetz, D. (M)
Stateman, M. J. (SM)
Steen, D. R. (M)
Vuono, R. A. (A)
Ward, W. P. (M)
Weinstein, M. (M)
Weiss, L. M. (M)
Zeitz, A. (SM)

Wappingers Falls (NY-MH-2)
Andrus, T. R. (A)
Armstrong, R. M. (M)
Barbetta, R. J. (M)
Belcastro, L. E. (M)
Bielawa, F. R. (M)
Blodyett, A., Jr. (M)
Breault, N. A. (M)
Brewer, D. M. (M)
Brodd, W. D. (M)
Bullard, R. L. (M)
Cannon, D. E. (M)
Caplan, D. (M)
Cardenas, H. A. (M)
Carrea, F. V. (M)
Church, J. B., Jr. (M)
Clark, D. L. (A)
Clark, R. W., Jr. (M)
Councill, E. D. (M)
Cramsie, G. J. (A)
Crumb, D. F. (M)
Cullen, J. W. (M)
Deininger, C. R. (M)
Di Marco, A. F. (M)
Dunloo, L. J. (M)
Eyre, C. (M)
Fremekees, J. E. (M)
Geisler, H. J. (M)
Graff, W. S. (M)
Grossnickle, J. R. (M)
Hamel, R. D. (M)
Headrick, L. L. (M)
Hultman, H. A., Jr. (M)
Johnson, J. D. (M)
Kahn, A. A. (M)
Kennedy, G. F. (M)
Kerr, G. L. (M)
Kerr, J. W. (M)
Kolankowsky, E. (M)
Maling, K. (M)
Marquis, J. F., Jr. (M)
Marsh, D. H. (M)
Marshall, M. R. (M)
McDougall, J. C. (M)
Media, E. (M)
Muhlenbruch, G. R. (M)
Nelson, R. A. (M)
Nick, H. H. (A)
O'Brien, H. A. (M)
Ohlhorst, W. R. (M)
Paul, A. J., Jr. (M)
Platz, E. F. (M)
Powers, D. M. (M)
Price, J. E. (A)
Pricer, W. D. (M)
Richards, R. K. (M)
Rittenhouse, L. E. (A)
Roberts, W. (M)
Romine, B. J. (A)
Rudy, G. J. (M)
Russell, R. A. (A)
Savary, D. L., Jr. (M)
Seimes, M. S. (A)
Shahan, V. T. (M)
Silkman, W. D. (M)
Skwiertz, R. J. (M)
Snyder, J. E. (M)
Tocher, D. A. (M)
Tomasulo, R. M. (M)
Tsilibes, G. N. (M)
Tumbull, J. R., Jr. (M)
Van Wagner, F. R. (M)
Vilas, J. M. (M)
Vogt, N. G., Jr. (M)
Webster, J. J. (M)
Willette, E. L. (M)
Williams, R. J. (M)
Wolensky, W. (M)
Zauchner, J. A. (M)
Zucker, M. S. (M)

Warners (SYR-1)
Pannacciuli, F. R. (A)
Radford, E. R. (M)
Waterford (SCH-1)
Michon, G. J. (M)

Waterloo (ROC-1)
Allen, R. J. (M)

Water Mill (LI-2)
Deibert, C. R. (M)
Luke, R. O. (M)

Waterville (RU-1)
Cooper, F., Jr. (SM)

Watervliet (SCH-1)
Lavoo, N. (M)
Merrill, H. B., Jr. (M)

Waverly (BING-1)
Cooney, J. O., Jr. (M)
Owen, F. D. (M)

Webster (ROC-1)
Beals, D. F. (M)
Beetz, H. J. (M)
Blake, B. F. (A)
Ceranowicz, H. N. (M)
Clark, H. E. (M)
Clarke, W. B. (M)
Coleton, J. W. (M)
Daly, J. P. (M)
De Groat, P. H. (M)
Deming, R. L. (SM)
Fox, R. S. (M)
Harris, H. M., Jr. (M)
Hunderup, A. R. (M)
King, P. F. (M)
Lott, J. E. (A)
Matteson, R. G. (M)
May, P. J. (M)
Neunebauer, H. E. J. (SM)
Ozone, K. (SM)
Piotraschke, C. F. (M)
Porter, G. C. (A)
Price, C. C. (M)
Proctor, T. (M)
Pundleider, H. V. (A)
Richards, C. L. (M)
Samuelson, J. R. (A)
Sham, D. D. (M)
Voselski, J. R. (M)
Wheeler, J. L. (M)
Wood, R. A. (M)
Zogg, F. E. (SM)

Wellsville (ELM-C-1)
Hardy, R. G. (M)
La Dieu, F. A. (A)

West Babylon (LI-2)
Beyer, R. H. (M)
Bussolini, J. J. (M)
D'Angelo, H. (M)
De Franco, J. J. (M)
Gernter, H. J. (A)
McMullin, R. E. (M)
McPherson, D. L., III (M)

West Berne (SCH-1)
Cesana, U. V. (M)

West Branch (RU-1)
Carros, J. R. (M)

Westbury (LI-2)
Abaiian, H. B. (M)
Abrahams, S. (M)
Adelman, S. (M)
Adler, W. (M)
Aloisio, R. R. (M)
Beley, E. G., Jr. (A)
Berodahl, L. A. (M)
Berkoff, S. (M)
Bernstein, J. L. (M)
Berrell, E. J. (A)
Bove, K. G. (M)
Brown, J. L. (M)
Carver, J. R. (M)
Cohen, N. L. (M)
Cohen, S. B. (M)
Coleman, J. H. (M)
Collins, J. F. (M)
Deoul, N. (M)
Dick, A. I. (M)
Dome, A. (SM)
Ellis, P. H. (SM)
Ennis, H. G. (A)
Fialkov, H. (M)
Friedman, J. (M)
Gitlin, S. A. (M)
Gittleman, R. (M)
Glixon, H. R. (M)
Goldman, L. (A)
Goldstein, H. (M)
Graber, L. J. (SM)
Harjes, F. W. (M)
Hellmann, R. K. (F)
Hinckelmann, O. F. (M)
Hittleman, R. L. (M)
Hoffman, G. (SM)
Hoffman, H. L. (M)
Horowitz, J. (SM)
Jones, A. B. (SM)
Kelleher, R. L. (SM)
Kil, G. H. (M)
Kritz, J. (M)
Lawyer, W. R. (M)
Levine, N. (M)
Levine, S. W. (SM)
Liquori, M. A. (A)
Mahler, J. (M)

Mahr, M., Jr. (M)
Malech, R. G. (M)
Mankin, A. H. (M)
Marcolin, J. (M)
Marston, R. S. (M)
Martines, L. T. (M)
McGregor, J. C. (SM)
Meader, J. J. (A)
Mesch, R. M. (M)
Mordechian, R. (M)
Miller, G. E. (M)
Mohr, R. J. (M)
Moscarello, M. A. (SM)
Muligano, G. A. (SM)
Napolin, S. (A)
O'Meara, T. J. (M)
Pedicini, A. A. (M)
Petrack, P. (M)
Pinkham, G. E. (M)
Piwinski, W. (M)
Price, R. C. (SM)
Proskauer, R. (M)
Rush, S. (M)
Rustad, A. C. (SM)
Savet, P. H. (A)
Schuhlein, C. M. (M)
Schumacker, A. L. (M)
Schwiebert, H. (M)
Shostak, R. B. (SM)
Simon, J. M. (SM)
Sleven, M. O. (M)
Smith, H. M. (A)
Smith, W. J. (M)
Stein, D. B. (M)
Stitch, M. (SM)
Stone, N. L. (M)
Tichy, B. W. (M)
Troop, J. (A)
Truhlar, C. (M)
Volpe, C. D. (M)
Wilson, L. B. (M)
Winson, P. (M)
Young, G. F. (M)
Zaklad, S. (M)

West Elmira (ELM-C-1)
Gauthier, R. V. (M)

Westernville (RU-1)
Hanna, P. D. (A)
Mackey, C. L. (M)

West Harley (NY-MH-2)
Ware, N. E., Jr. (M)

West Hempstead (LI-2)
Bifano, V. J. (M)
Bonne, A. W. (M)
Casar, E. G. (M)
Cohen, J. R. (M)
Dean, M. A. (M)
Erdhelm, W. (M)
Fairweather, R. W. (M)
Frank, R. J. (M)
Geist, W. F. (M)
Goldman, B. (A)
Karasz, J. (M)
Levine, H. A. (SM)
Malchman, F. L. (A)
Philips, L. E. (A)
Redisch, M. S. (M)
Saffitz, I. M. (M)
Seifer, S. (M)
Thiede, F. C. W. (M)
Voelpel, J. (A)
Weintraub, I. A. (SM)
Westman, H. P. (SM)

West Hurley (NY-C-2)
Heermans, J. W. (M)
Mirick, H. L., Jr. (M)
Saxe, I. N. (M)

West Islip (LI-2)
Alburty, W. H. (A)
Ayers, J. G., Jr. (M)
Bell, R. W. (M)
Bushor, W. E. (M)
Caliendo, P. J. (M)
Collock, H. (A)
De Cesare, J. F., Jr. (A)
Egan, S. (A)
Gager, C. H. (M)
Hammersmith, N. S. (M)
Koch, E. J. (M)
Rodriguez, J. (M)
Rosenthal, R. F. (M)
Schecker, E. J. (M)

West Monroe (SYR-1)
Flet, J. H., III (A)

West Nyack (NY-W-2)
Lawrence, E. D. (M)
Stilwell, G. R., Jr. (M)
Wolff, J. H. (M)

West Point (NY-MH-2)
Cutler, E. C., Jr. (M)
Fullerton, G. R. (M)
Gillette, E. C., Jr. (M)
Koch, R. A., Jr. (M)
Luebbert, W. F. (SM)
Mitchell, J. D. (M)
Schulke, H. A., Jr. (SM)
Strohm, W. E. (M)

Westport (SCH-1)
Farnsworth, M. M. (A)

West Webster (ROC-1)
Bettin, R. (M)
Fischer, R. E. (M)

White Plains (NY-W-2)
Altman, N. G. (M)
Asch, B. (M)
Baird, J. (SM)
Bauer, A. K. (M)
Bernardi, A. R. (A)
Bloom, W. E. (A)
Bolsey, E. J. (A)
Borden, E. D. (A)
Bradley, M. L. (M)
Brown, H. C. (M)
Buhlmann, R. P. (A)
Cohen, H. P. (M)
Cohn, E. (A)
Coles, G. F. (A)
Darrigo, L. L. (A)
Eisenreich, W. (A)
Faup, J. J. (M)
Flower, R. A. (M)
Fontanella, J. R., Jr. (M)
Fowler, F. B. (A)
Gano, A. S. (SM)
Gazziqli, J. J. (A)
Gilbert, J. (M)
Glancy, R. C., Jr. (SM)
Goertzel, G. (M)
Golden, R. K. (M)
Gottleb, G. J. (M)
Gresko, J. J. (M)
Greunke, O. V. (SM)
Gronner, A. (SM)
Guttman, J. (M)
Haber, F. (M)
Hackett, A. J. (M)
Haddad, J. A. (M)
Halpern, W. (M)
Hanft, H. (M)
Houle, L. A. (M)
Janoer, V. (M)
Jenkins, H. C. (M)
Kaye, H. W. (M)
Lebid, J. (M)
Lewis, J. R. (M)
Lida, S. L. (M)
Lisk, H. H. (M)
Lohman, I. H., Jr. (M)
Markham, G. W. (M)
Metcalfe, D. (SM)
Millman, J. H. (M)
Pelavin, M. H. (M)
Petersen, G. E. (A)
Pinz, B. M. (A)
Polenz, D. L. (M)
Quinn, J. A. (A)
Reiner, S. (M)
Rider, P. M. (A)
Sachs, H. L. (M)
Sands, E. A. (A)
Sansevero, V. J. (M)
Sassoon, H. M. (M)
Scaringella, S. A. (M)
Scheiner, M. L. (M)
Schleicher, M. (A)
Schleider, N. (A)
Schwartz, A. (A)
Shaw, D. B. (SM)
Sorensen, S. E. (A)
Stevens, L. D., Jr. (SM)
Stysko, W. J. (A)
Sulds, I. P. (A)
Swigals, J. (M)
Swanson, R. E. (A)
Tudbury, C. A. (M)
Wiggins, R. R. (A)
Wright, P. H. (M)
Wright, R. G., Jr. (A)
Zilko, P. S. (M)
Ziserman, M. (SM)

Whitesboro (RU-1)
Anderson, W. (M)
Barnes, H. W. (M)
Benman, E. J. (SM)
Bogossian, Z. (M)
Brady, C. E. (M)
Clement, W. H. (M)
Cole, F. G. (SM)
Cranshaw, R. H. (M)
Davis, D. M. (M)
Diab, M. A. (M)
Edgett, R. S. (M)
Egan, G. E. (M)
Fleming, J. A. (M)
Gaffney, R. E. (SM)
Gaull, R. M. (M)
Gibson, J. A. (SM)
Grimm, R. S. (M)
Harding, G. S. (A)
Hartnett, G. C. (M)
Hauge, H. R. (M)
Ketcham, P. M. (SM)
Kulmus, R. J. (M)
Langan, L. J. (M)
Lutze, R. J. (SM)
Lynn, F. H. (A)
Mann, A. R., Jr. (M)
Martin, H. C. (M)
McCue, B. E. (M)
McGuffin, A. L. (M)
Mills, J. B. (M)
Niebuhr, K. E. (M)
Oberg, A. C. (M)
Orear, E. R. (SM)
Power, H. J. (M)
Radnor, R. R. (M)
Ramsey, A. P. (A)
Ray, H. K. (M)
Reaves, D. H. (SM)
Rowland, E. A. (M)
Rugari, A. D. (M)
Ruppert, K. D. (M)
Sarle, S. V. (M)
Schatz, F. W. (SM)
Sill, D. B. (M)
Steel, J. W. (M)
Stitt, R. P. (M)
Sweet, R. E. (A)
Swope, C. S. (M)
Thiele, G. A. (M)
Walker, R. D. (M)
Wallenfels, W. B. (M)
Walls, W. J. (M)
Wolf, D. A. (M)
Woodruff, J. G., Jr. (M)

Whitestone (LI-2)
Abruzzi, P. W. (M)
Chun, B. (M)
Cohen, S. L. (M)
Dunefsky, M. (M)
Franchina, M. A. (SM)
Frann, S. I. (SM)
Friedman, E. H. (M)
Greenberg, E. (M)
Lidsky, R. J. (M)
Magnusen, H. F. (M)
Marhsall, J. C. (M)
Muzyczszyn, O. (A)
O'Connell, T. P. (A)
Pedowicz, J. M. (M)
Pelner, N. (SM)
Piller, S. E. (M)
Pokorny, J. S. (M)
Pollak, F. (M)
Pomerantz, M. (M)
Rubin, W. L. (SM)
Saalborn, O. E. (M)
Sachs, M. (M)
Sandler, H. (M)
Schadelbauer, B. F. (M)
Schischa, E. (M)
Schneiderman, S. (M)
Shapiro, S. R. (M)
Smith, J. W. (SM)
Stone, G. F. (A)
Vogt, J. J. (M)
Wappler, A. C. (A)
Way, F. L. (A)
Weida, R. L. (M)

Whitney Point (BING-1)
Read, L. P., Jr. (M)
Ticknor, S. L. (A)

Williamsville (BN-1)
Baker, D. W. (M)
Baker, K. E., Jr. (M)
Becker, H. D. (M)
Bergerson, C. W. (A)
Billings, N. (M)
Bordner, G. W. (M)
Carr, F. S. (M)
Corp, D. E. (M)
Crooks, R. G. (M)
Diab, K. M. (M)
Di Nicolantonio, F., Jr. (M)
Edwards, L. Z. (A)
Feinberg, E. J. (M)
Fryer, W. D. (M)
Gerber, W. J. (M)
Gibbons, H. M. (M)
Giori, F. A. (M)
Gooding, D. J. (M)
Hart, W. E. (M)
Henderson, P. M., II (M)
Herbert, R. B. (M)
Hmelar, S. L. (M)
Jones, D. R. (M)
Laurien, I. M. (M)
Ledder, W. H. (M)
Lerner, T. (M)
Lightburn, R. C. (M)
Lindsay, J. E. (M)
Mackechnie, H. K. (SM)
Mayiott, C. F. (SM)
Maynard, H. M. (M)
McSweeney, W. R. (A)
Merle, C. W. (SM)
Mock, L. R. (M)
Novo, R. B. (M)
Pelton, F. M. (M)
Pifer, M. J. (SM)
Price, E. L., Jr. (SM)
Prybyl, R. P. (M)
Sacha, R. J. (M)
Sante, D. P. (SM)
Scheetz, H. A. (M)
Schlosser, G. A. (M)
Schmidt, F. M. (SM)
Shannon, F. T. (M)
Snyder, W. W. (SM)
Sullivan, J. L. (M)
Tona, C. J. (M)
Torode, S. W. (SM)
Torres, J. F. (M)
Weppner, B. H. (M)
Wittman, J. H. (A)
Wood, F. S. (M)

Williston Park (LI-2)
Fay, A. H. (M)
Flattau, T. (M)
Grandizio, L. A. (M)
Jennison, R. E. (A)
Kelly, M. J. (M)
Losow, H. C. (M)
Malsto, N. S. (M)
Perkowski, T. F. (M)
Robertson, J. H. (M)
Rothstein, M. (SM)
Schaetzl, F. R. (A)
Schaetzl, R. J. (A)
Zwick, G. (M)

Windsor (BING-1)
Cox, L. T. (M)
Van Billiard, L. A. (A)

Woodbury (LI-2)
Fricker, J. N. (M)
Hanulec, J. D. (A)
Henrich, W. H. (SM)
Novikoff, E. B. (M)
Prasinos, T. (M)
Roel, E. L. (M)
Schlang, A. (SM)

Woodhaven (LI-2)
Bassett, A., Jr. (M)
De Size, L. K. (M)
Glus, H. P. (M)
Hardiman, J. A. (M)
Hess, D. T. (M)
Jacobs, F. (SM)
Reitlinger, A. (M)
Schneider, L. J. (M)
Sloan, R. R. (M)
Sweetland, J. G. (M)
White, C. F. (M)
Winter, D. W. (A)
Wolber, W. O. (M)

Woodmere (LI-2)
Cohen, A. L. (M)
Crystal, F. H. (A)
Farkas, R. D. (M)
Zweifler, I. (M)

Woodside (LI-2)
Altmayer, F. V. (M)
Berger, L. M. (M)
Cabot, J. H. (M)
Carey, T. W. (A)
Chin, J. E. (M)
Culver, A. R. (A)
Dore, N. J. (A)
Dosik, P. H. (M)
Dostal, F. X. (A)
Gautherin, G. A. (M)
Gillen, T. W. (M)
Halko, J. W. (M)
Harris, J. T. (M)
Hlavna, R. S. (M)
Johnston, W. F. (A)
Kroessler, A. W. (M)
Lehr, S. (M)
Liu, R. W. (A)
Marks, W. A. (A)
O'Sullivan, D. R. (A)
O'Sullivan, J. K. (M)
Paolillo, J. (M)
Pedato, R. J. (M)
Perle, R. C. (M)
Rafferty, J. J. (M)
Reuman, W. H. (A)
Ricci, T. M. (A)
Rosenfeld, M. M. (SM)
Rowney, E. A. (A)
Senter, M. I. (M)
Stapler, B. (A)
Tucker, A. G. (A)
Wetzler, C. E. (M)
Zlachevsky, B. (A)

Woodstock (NY-MH-2)
Barton, H. J. (M)
Buoymaster, N. W. (M)
Buton, E. C., Jr. (M)
Carney, W. K. (A)
Grad, P. P. (A)
Gray, R. G. (M)
Jacob, W. P. (M)
Kutcher, M. M. (M)
Leaycraft, E. C. (M)
Lewis, N. T., Jr. (M)
Lindsay, R. L. (M)
Mehring, H. E. (M)
Menard, E. A., Jr. (M)
Riffenburg, R. E. (M)
Spencer, D. L. (M)
Van Rijn, J. C. (SM)

Wyandanch (LI-2)
Center, M. (SM)
Johnston, R. K. (SM)
Logan, R. W. (M)
Totah, E. J. (M)

Yonkers (NY-W-2)
Albano, R. J. (M)
Arbuthnot, J., Jr. (M)
Arcidiacono, J. (M)
Amani, L. J. (M)
Avrutik, R. F. (M)
Balletta, A. G. (M)
Becker, R. A. (M)
Bigelow, S. C. (M)
Bolz, R. A. (M)
Booth, H. H. (M)
Bollari, L. (A)
Buchalter, M. (M)
Burger, E. (M)
Castriota, L. J. (SM)
Defloria, R. N. (M)
Diamond, J. E. (M)
Edlen, G. G. (M)
Ekstein, D. M. (A)
Enterline, R. J. (M)
Fisher, M. T. (M)
Fliderbium, D. D. (A)
French, C. C. (SM)
Friedman, S. N. (M)
Goetzl, M. (M)
Goldman, A. L. (M)
Grabowski, J. L. (M)
Griffin, G. A. (A)
Guido, A. A. (M)
Guthalt, M. (A)
Harris, A. B. (M)
Hillman, P. L. (SM)
Hirschhorn, R. I. (M)
Humphrey, R. M. (M)
Jones, D. H. (A)
Knauert, W. F. (M)
Komar, W. J. (M)
Korewick, J. (M)
Kramer, A. G. (M)
Lamb, R. U. (M)
Landesberg, W. (M)
Lapenson, S. (M)
Lehman, W. (M)
Lilienfeld, H. J. (M)
Lisewsky, E. E. (A)
Loebl, W. W. (M)
Looney, J. (M)
Lynch, D. F., Jr. (A)
Marti-Volkoff, S. (M)
McCabe, R. P. (M)
McKean, A. L. (M)
Murphy, R. J. (M)
Namerow, V. C. (A)
Ondroczky, O. A. (M)
Orefice, G. T. (SM)
Perelle, I. B. (A)
Picciano, J. K. (M)
Quelin, A. G. (M)
Reich, B. (SM)
Richter, J. G. (A)
Robinson, R. J. (M)
Roth, S. S. (A)
Sachs, G. I. (A)
Sadei, H. L. (M)
Samuels, A. A. (M)
Schimanke, O. (M)
Schomstein, M. L. (M)
Schwartz, L. (M)
Singer, R. E. (M)
Speth, A. J. (M)
Staudt, W. (A)
Sterk, A. A. (M)
Sternberg, H. S. (A)
Szymanski, L. A. (M)
Taffet, W. (A)
Troster, M. (M)
Ullman, R. S. (M)
Ungvarsky, W. J. (M)
Valle, J. L. (A)
Voelker, H. R. (A)
Weinberg, S. B. (M)
Wohlfert, W. R. (M)
Woods, B. L. (M)
Yablonsky, D. M. (A)
Youla, D. C. (SM)
Zatorsky, E. F. (M)
Zimmerman, J. (A)

Yorktown Heights (NY-W-2)
Allen, R. G. (M)
Andrews, M. C. (SM)
Arcand, A. T. (M)
Axelrod, M. S. (M)
Bland, G. F. (M)
Boland, W. L. (M)
Booth, R. R. (M)
Butler, S. A. (M)
Callinan, T. D. (SM)
Cedarholm, J. P. (M)
Chang, H. (M)
Chien, R. T. (M)
Coombs, J. M. (M)
Deerhake, W. J. (SM)
Diebold, A. E. (A)
Drake, J. R. (M)
Eggenberger, J. S. (M)
Fang, F. F. (M)
Farber, A. S. (M)
Fleisher, H. (M)
Fleming, P. L. (M)
Franco, A. G. (M)
Funk, H. L. (M)
Galli, E. J. (A)
Gano, H. (M)
Gilchrist, B. (A)
Gonda, T. (A)
Griffith, J. E. (SM)
Gutwin, O. A. (M)
Havens, B. L. (SM)
Heiserman, H. (M)
Hensley, C. B. (M)
Holly, S. (M)
Jackson, P. W. (M)
Jensen, R. A. (SM)
Juliusburger, H. Y. (M)
Kamensky, L. A. (M)
Kiseda, J. R. (M)
La Maire, O. R. (M)
Lambert, J. (M)
Lentz, J. J. (M)
Lovell, J. E. (M)
Luhn, H. P. (M)
Marinace, J. C. (M)
Matick, R. E. (M)
Maxey, H. D. (M)
McNichol, J. J. (M)
Miller, R. E. (M)
Mullery, A. P. (M)

Muroqa, S. (SM)
Narud, J. A. (M)
Notz, W. A. (M)
Nunez, J. (A)
Penoyer, R. F. (M)
Rosenheim, D. E. (SM)
Roth, J. P. (M)
Samuel, A. L. (F)
Sastovsky, S. (M)
Schlig, E. S. (M)
Schreiner, K. E. (SM)
Seiden, P. E. (M)
Shevel, W. L., Jr. (SM)
Siegall, B. (M)
Smith, M. G. (M)
Spruth, W. G. (M)
Stevenson, M. J. (M)
Tang, D. T. (M)
Tasini, B. (M)
Teschmacher, H. W. (SM)
Title, R. S. (M)
Trapnell, F. M., Jr. (M)
Verma, Y. P. (A)
Wang, C. P. (M)
Weinberger, A. (M)
Willoughby, R. A. (M)
Wilser, R. E. (M)

Yorkville (RU-1)
Pankiewicz, C. L. (M)

NORTH CAROLINA

Apex (NC-E-3)
Atkins, G. C. (M)

Asheboro (N-CAR-3)
Smith, G. D. (A)

Asheville (NC-W-3)
Kennedy, R. A. (M)
McConnel, W. G. (SM)
Randolph, J. (M)
Smith, I. A., Jr. (M)
Sprague, G. F. (SM)
Wade, R. A. (M)

Banner Elk (N-CAR-3)
Kalbfleisch, A. M. (A)

Benson (NC-E-3)
Johnson, P. B. (M)

Boone (N-CAR-3)
Isenhour, C. N. (M)
Littleton, W. W. (M)

Brevard (NC-W-3)
Sigmon, H. W. (M)

Burlington (N-CAR-3)
Apple, H. L. (M)
Barlow, J. E. (SM)
Berryman, J. W. (M)
Brown, C. J. (SM)
Byrne, J. J., Jr. (A)
Casey, J. B. (M)
Cassidy, J. T. (A)
Clark, M. (M)
Cobb, H. E. (M)
Cockrell, H. H., Jr. (M)
Collins, J. L. (M)
Davis, D. A. (M)
Day, J. L. (M)
De Loach, H. H. (M)
Donaldson, E. E., Jr. (M)
Evans, G., Jr. (A)
Fisher, A. L. (M)
Fox, M. L. (M)
Goff, H. B. (M)
Guffee, C. O., Jr. (M)
Harris, R. H. (M)
Hastings, C. L. (SM)
Hoover, V. M. (M)
Huffstetler, J. P. (M)
Hurst, E. (M)
James, H. C. (SM)
Jarrett, J. G. (M)
Jones, W. C. (M)
Keyser, R. L. (M)
Lockard, D. T. (M)
Mann, J. H. (A)
Massey, E. H. (M)
McMillin, D. L. (M)
Miller, O. R. (M)
Mincey, J. H. (M)
Monteith, L. K. (M)
Myrick, W. D. (M)
Nahser, P. J. (M)
Nance, R. L. (M)
Nimmcke, F. E. (SM)
North, T. G., Jr. (M)
Overstreet, R. L., Jr. (M)
Palmer, D. B. (M)
Perry, L. A. (M)
Rankin, K. R. (M)
Ratchford, L. M. (M)
Reinke, J. H. (M)
Riley, M. H., Jr. (M)
Rudisill, J. A., Jr. (A)
Rudisill, M. E. (M)
Savoie, L. P. (M)
Shackley, E. R., Jr. (M)
Smith, C. P. (M)
Smith, K. E. (M)
Stuart, J. C. (M)
Thomas, J. M. (M)
Thorne, J. C. (M)
Vance, R. L. (SM)
Vogler, C. M. (M)
Watkins, D. C. (M)
White, L. E. (M)
Winfield, O. M., Jr. (M)
Wolfgang, W. W. (M)
York, D. R., Jr. (M)

Carolina Beach (NC-E-3)
Koerlin, G. H. (M)

Cary (NC-E-3)
Dawkins, L. L. (SM)
McMurray, W. D. (M)

Chapel Hill (NC-E-3)
Jackson, H. L. (M)
MacIntyre, A. B. (M)
Thurstone, F. L. (M)

Charlotte (NC-W-3)
Baldwin, C. M., Jr. (M)
Barron, J. I. (SM)
Bateman, F. F. (M)
Blackwell, T. E. (A)
Brown, F. R. (A)
Bush, T. K. (M)
Cage, J. H. (M)
Caldwell, H. S. (A)
Carey, J. G. (SM)
Caudle, L. L., Jr. (M)
Chaney, A. L., Jr. (M)
Deyton, J. B., Jr. (M)
Flam, J. E. (A)
Hager, M. F. (A)
Henry, W. E., Jr. (M)
Hicklin, W. H., Jr. (M)
Honess, C. B. (A)
Howard, T. E. (M)
Kickler, E. M. (A)
Larson, F. P., Jr. (M)
Livingston, T. C. (M)
Massey, M. T. (M)
McCray, H. R., Jr. (M)
Minor, M. J. (SM)
Mullis, C. B. (M)
Murphy, B. (M)
Nakamura, F. T. (M)
Poole, Z. V. (M)
Ramsey, R. W. (M)
Scoggin, W. G., Jr. (M)
Tomlinson, Z. G. (A)
Townsend, A. P. (A)
Violle, C. E. (M)
Waynick, J. T. (A)
White, K. N. (M)
Whitley, C. W. (M)

Clemmons (N-CAR-3)
Woodford, M. J. (M)

Clinton (N-CAR-3)
Bernier, V. A. (A)

Cordova (NC-W-3)
Parker, C. D. (M)

Durham (NC-E-3)
Chenery, P. J. (SM)
Evans, R. A. (SM)
Fullen, R. E. (A)
George, R. T., Jr. (M)
Hauser, J. R. (M)
McKnight, D. R. (M)
Pilkington, T. C. (M)
Register, L. H., Jr. (M)
Seeley, W. J. (SM)
Vail, C. R. (SM)

Elizabeth City (VIR-3)
Clark, W. H., Jr. (M)
Faulkenberry, W. L. (M)

Elizabethtown (NC-E-3)
Baird, J. W. (M)

Elon College (N-CAR-3)
Baynard, J. S., Jr. (M)

Fayetteville (N-CAR-3)
Lenehan, L. J. (M)
McNulty, J. L. (A)

Fort Bragg (NC-E-3)
Gordon, S. (M)
Ikstenus, J. (M)
Lasberton, D. E. (M)
Webber, P. A. (M)

Fuquay Springs (NC-E-3)
Rosser, T. N. (SM)
Stroupe, M. A. (M)

Garner (NC-E-3)
Nelson, M. (A)

Gastonia (NC-W-3)
Abernathy, D. R. (M)
Halstead, W. R. (M)

Germanton (N-CAR-3)
Long, E. S. (A)

Goldsboro (NC-E-3)
Trueblood, D. B. (M)
Waxman, M. M. (M)

Graham (N-CAR-3)
Hoffman, S. P. (M)
Jones, F. D. (M)
Lowe, E. H. (M)
MacCallum, J. L. (A)
Miller, A. R. (A)
Peake, M. W. (M)
Rountree, R. H. (M)

Greensboro (N-CAR-3)
Adams, T. N. (M)
Aitkenhead, J. (M)
Annas, P. D. (M)
Atcheson, S. E. (M)
Barnes, W. P. (M)
Bescherer, E. A. (SM)
Bezera, G. (M)
Boatenreiter, W. K. (M)
Borgeman, C. E. (M)
Bowers, E. J. (M)
Buntin, A. T. (A)
Cline, J. D. (A)
Coble, R. P., Jr. (SM)
Coordsen, J. F., Jr. (M)
Cullom, J. E. (M)
Ebhardt, C. A. (M)
Fennell, T. C. (M)
Fields, J. R. (M)
Gardiner, J. G. (SM)
Gerstenheimer, W. C. (SM)
Graham, C. E. (M)
Graham, J. F. (A)
Gregory, L. C. (M)
Hambright, W. A., Jr. (M)
Hoppough, R. S. (M)
Johnson, G. W. (M)
Johnson, W. H. (M)
Jones, J. A. (M)
Jordan, J. H., Jr. (A)
Joseph, F. T. (M)
Luston, C. C. (A)
Maddox, H. D. (SM)
Marteena, J. M. (M)
McLaughlin, N. R. (M)
Morris, R. E. (M)
Neiditz, M. M. (A)
Newman, E. G. (M)
Porter, G. R. (M)
Schaffer, L. I. (M)
Shamel, E. F. (M)
Small, C. M. (M)
Smith, F. S. (M)
Stafford, O. C. (M)
Strandberg, C. F. (M)
Thayer, P. H., Jr. (M)
Theriot, E. J. (M)
Wilder, G. R. (M)
Wiseman, D. G. (M)

Greenville (NC-E-3)
Behr, L. V. D. P. (A)

Guilford (N-CAR-3)
Thompson, F. E. (M)

Hamlet (NC-W-3)
Drescher, N. W., Jr. (A)

Hendersonville (NC-W-3)
Howell, E. K. (M)
Nuckolls, J. A. (M)

Hickory (NC-W-3)
Long, T. E. (A)
Roberts, W. L. (A)

High Point (N-CAR-3)
Bivins, J. F. (SM)
Caldwell, D. J. (SM)
Cherry, W. H., Jr. (M)
Goodwin, C. B. (M)
Hilliard, D. A. (M)
Palmer, O. A., Jr. (A)
Portaro, S. A. (M)
Tippett, W. D. (A)
Tolley, F. N. (M)

Jacksonville (NC-E-3)
Law, B. B. (M)
Stearns, M. G. (M)

Jamestown (N-CAR-3)
Moore, R. L. (M)

Kannapolis (NC-W-3)
Goodnight, F. E. (M)
Riddle, R. L. (A)
Shaver, J. L., Jr. (A)

Kernersville (N-CAR-3)
Manning, G. B. (M)

Kure Beach (N-CAR-3)
Cleveland, F. H. (M)

Lenoir (NC-W-3)
Verbyla, A. E., Jr. (A)

Liberty (N-CAR-3)
Fuller, A. J. (M)

Louisburg (NC-E-3)
Allen, J. M. (A)

Madison (N-CAR-3)
Idol, C. A. (M)

Margarettsville (NC-E-3)
Coggins, W. R. (M)

Mount Airy (N-CAR-3)
Epperson, R. H. (A)
Hale, G. K., III (A)

New Bern (NC-E-3)
Haire, B. G. (M)

Norlina (N-CAR-3)
White, G. E., Jr. (A)

Pfafftown (N-CAR-3)
Brunelle, A. A. (A)
Garrison, W. H. (M)
Taylor, C. M. (M)

Raleigh (NC-E-3)
Ashford, D. A. (SM)
Barbot, J. C. (A)
Barclay, W. J. (SM)
Bass, W. H., Jr. (SM)
Bell, N. R. (SM)
Bowman, J. A. (M)
Buck, J. H. (M)
Butler, R. M. (M)
Caviness, L. L. (M)
Chadwick, S. (M)
Charron, C. D. M. B. (M)
Chaskin, W. S. (A)
Colvert, F. T. (A)
Cormack, W. J., Jr. (M)
Coms, R. B. (M)
Dimmick, W. F. (M)
Duncan, V. D. (M)
Goetze, A. J. (M)
Harrell, D. E. (M)
Higgins, J. F. (A)
Hight, T. R. (M)
Hill, J. S., II (M)
Hoadley, G. B. (SM)
Home, W. H., III (M)
Hulick, W., Jr. (SM)
Kahn, S. H. (M)
Manning, E. G. (SM)
McGibbon, D. A. (M)
McIver, W. L. (A)
Moore, C. H. (M)
Neuse, D. H. (A)
Pace, V. A., Jr. (M)
Park, D. M. (A)
Parkin, H. C. (M)
Peterson, F. A. (A)
Rennaker, R. B. (M)
Rothstein, R. I. (A)
Silva, C. (A)
Sloop, W. B. (A)
Solomonic, R. J. (M)
Speed, W. J. (M)
Sugg, C. H. (A)
Tommerdahl, J. B. (M)
Voss, C. H., Jr. (M)
Watson, D. G. (M)
Weber, J. W. (M)
Weinberg, D. I. (M)
Zryd, R. A. (M)

Rural Hall (N-CAR-3)
Caskey, L. F. (M)
Collins, T. J., Jr. (M)
Helms, C. M. (M)

Sanford (NC-E-3)
Buchanan, E. J. (A)
Buchanan, T. B. (A)

Skyland (NC-W-3)
Hamrick, W. H. (M)

Smithfield (NC-E-3
Hanson, D. K. (M)
House, S. G. (M)
Sharek, C. W. (M)

Smithville (NC-E-3)
Sutton, M. D. (M)

Southport (NC-E-3)
Guest, W. T. (SM)

Thomasville (N-CAR-3)
Ward, D. L. (M)

Trinity (N-CAR-3)
Hill, K. R. (A)

Warsaw (NC-E-3)
Scott, C. S. (A)

Waynesville (NC-W-3)
Reece, C. J., Jr. (M)

Welcome (N-CAR-3)
Leonard, P. T. (M)

Wendell (NC-E-3)
Todd, M. C. (M)

Wilmington, (NC-E-3)
Elliott, W. F. (A)
Ledford, W. T. (M)

Winston-Salem (N-CAR-3)
Adams, J. G. (M)
Amend, R. N. (M)
Anderson, F. B. (SM)
Applegate, I. D. (SM)
Arnold, B. J. (M)
Arnold, H. H. (SM)
Bagley, B. D. (M)
Baity, A. C., Jr. (M)
Balden, J. M. (M)
Banks, I. (A)
Baran, M. (SM)
Barnes, W. S. (M)
Barnett, H. A., Jr. (A)
Beach, O. R. (SM)
Beard, C. E. (M)
Beckett, R. R. (M)
Bernath, W. A. (M)
Berry, R. L. (M)
Bertie, C. E. (SM)
Bishop, C. R. (A)
Blake, R. B., Jr. (M)
Boatwright, J. H. (M)
Bobst, W. A. (M)
Boriack, F. L. (A)
Bott, W. J. (M)
Bridges, C. S., Jr. (M)
Bright, J. Q. (SM)
Bright, W. S. (M)
Brock, W. J. (M)
Brooks, R. E. (SM)
Brune, W. L. (SM)
Bunney, E. (M)
Burnett, J. W. (M)
Cantrell, M. E. (M)
Carlisle, H. C., Jr. (A)
Chastain, O. J. (A)
Chipman, L. D. (SM)
Clabough, E. M. (M)
Clayton, F. R. (M)
Climer, F. A. (M)
Coan, J. O., Jr. (A)
Coggins, J. M. (M)
Cole, L. M., Jr. (A)
Connelly, J. W. (M)
Conte, P. F. (A)
Coon, W. M. (M)
Coonen, J. J. (M)
Corderman, R. C. (SM)
Corn, M. (A)
Cottrell, B. P. (SM)
Cox, C. W. (M)
Cranfill, H. D. (M)
Dague, G. I. (M)
Dearing, M. (A)
Disher, R. S. (M)
Doherty, J. V., Jr. (M)
Dorris, H. N. (M)
Dozier, E. C. (M)
Driggs, B. W. (M)
Edwards, G. W. (M)
Eidson, H. G., Jr. (SM)
Elias, L. W. (M)
Epperson, J. P. (M)
Estes, F. B. (M)
Evans, R. D. (A)
Feeney, C. J. (A)
Fillmai, D. L. (A)
Fisher, R. W. (M)
Fowler, J. D. (M)
Fox, E. D. (M)
Fulcher, C. S. (A)
Fulp, W. M. (M)
Geeslin, H. A. (A)
Genaille, R. A. (M)
George, A. A. (A)
Gosten, M. B. (M)
Gourley, R. T. (A)
Greer, L. H. (A)
Haase, W. D. (A)
Hagaman, J. R. (M)
Haines, A. B. (M)
Hamilton, R. D. (A)
Hanks, W. R. (M)
Harrison, W. (A)
Heand, B. E. (M)
Hedrick, P. F. (SM)
Hege, A. (A)
Hendrix, O. W. (M)
Herb, J. W. (M)
Highsmith, H. P. (M)
Hilker, A. H. (M)
Hill, G. V. (SM)
Hill, W. W. (M)
Hinshaw, J. A. (M)
Himer, J. A. (M)
Hoffman, W. R. (M)
Hoole, C. R. (M)
Hopper, F. L. (F)
Hovey, H. H. (M)
Huffman, J. C. (A)
Hundley, J. G., Jr. (M)
Hunter, P. H. (M)
Ittermann, A. S. (SM)
Ivester, H. E. (M)
Jackson, C. E. (M)
Jacobs, T. L. (M)
Johnson, C. R. (M)
Johnson, R. M. (M)
Jordan, C. A. (M)
Keane, W. J. (M)
Kelly, I. E. (M)
Kiger, J. C. (M)
King, L. C. (A)
Kirchner, M. C. (SM)
Kirkland, F. E. (M)
Knowles, C. U. (M)
Kozanosky, C. (M)
Kruse, F. A. (M)
Landolina, W. C., Jr. (M)
Lanford, W. E. (M)
Laughter, F. H. (M)
Lee, R. E., Jr. (M)
Lehr, O. A. (M)
Leonard, A. B. (M)
Libby, V. A. (A)
Litot, P. A. (M)
Littlefield, D. F. (M)
Lumley, R. M. (M)
Lyle, D. A. (A)
MacKinnon, A. J. (M)
Malone, W. H. (M)
March, R. C. (M)
Margerum, R. A. (A)
Masich, A. M., Jr. (M)

McAlpin, J. B. (M)
McAvoy, W. G. (SM)
McBride, G. H. (M)
McClung, H. A. (M)
McFarland, L. R. (M)
McFarland, R. T. (M)
McLane, A. R. (M)
Meredith, J. H. (M)
Miller, C. C. (M)
Molina, R. E. (M)
Moore, D. R. (M)
Moore, N. E. (M)
Moore, W. C. (M)
Morrell, F. M., Jr. (M)
Moskowitz, L. S. (A)
Mueller, H. W. (M)
Mulheron, A. R. (A)
Nagel, W. C. (M)
Needham, D. P. (M)
Newland, E., Jr. (M)
Newsome, A. T. (M)
Nokovich, M. C. (A)
Norwood, C. A. (SM)
O'Dea, O. B. (M)
Okino, H. (M)
Oliver, C. W. (M)
Owen, F. R. (M)
Parish, R. (M)
Parks, S. (M)
Parlee, G. N. (SM)
Payne, R. C. (M)
Perkins, G. L., Sr. (M)
Pfohl, J. T. (A)
Pratt, E. E. (M)
Price, E. (M)
Pritchard, J. A. (A)
Raines, S. L. (M)
Rappa, J. (A)
Rasmussen, R. M. (M)
Reisenweaver, W. B. (M)
Reynolds, C. W. (SM)
Ridgill, J. R. (M)
Robards, G. A. (M)
Robertson, J. D. (M)
Robinson, J. L. (M)
Rodriguez, R. A., Jr. (M)
Rudisill, C. G., III (M)
Rudroff, M. G. (M)
Schellenberg, A. J. (M)
Schumacher, O. J. (M)
Sees, J. H. (M)
Shacklett, J. H. (A)
Shelor, G. M. (M)
Shortt, H. L. (M)
Sidelinger, S. G. (A)
Sims, J. V. (M)
Singletary, W. A. (M)
Skeen, T. H. (M)
Smith, A. D., Sr. (M)
Smith, C. M., Jr. (SM)
Smith, F. C. (M)
Sparks, J. R. (M)
Spencer, M. P. (M)
Spikula, R. W. (M)
Stand, T. R. (A)
Starr, H. E. (M)
Stavrou, N. C. (A)
Stephenson, H. L. (A)
Stepka, A. J. (A)
Sterlinga, J. (M)
Stockberger, J. M. (A)
Stouse, L. E., Jr. (M)
Street, E. E. (M)
Swannack, C. H. (SM)
Tabat, L. E., Jr. (M)
Tanner, T. B. (M)
Terry, J. A. (M)
Testo, C. J. (M)
Tetzlaff, F. L. (M)
Thurlo, E. H. (M)
Tiffany, J. M. (M)
Townsend, W. A. (A)
Tschiegg, M. D. (A)
Turrini, J. J. (M)
Tyack, L. C. (SM)
Tynes, J. P. (M)
Van Doeren, C. A. (M)
Voorhees, H. A. (M)
Weeks, G. E. (M)
Wells, H. W. (M)
Wheeler, B. L. (M)
Williams, F. E. (M)
Williams, J. M. (M)
Williams, R. B. (M)
Wilson, R. B. (M)
Witcher, C. L. (M)
Wood, G. C. (M)
Wright, C. J., Jr. (SM)
York, R. E. (M)
Zammit, J. F. (M)

NORTH DAKOTA

Bismarck (TC-5)
Nelson, I. (M)
Vavra, H. G. (M)

Dickinson (TC-5)
Linster, J. J., Jr. (A)

Fargo (TC-5)
Anderson, E. M. (M)
Anderson, E. G. (SM)
Foerster, A. C. (M)
Hetland, J. M. (M)
Hoaby, E. A. (M)
Hurtubise, W. E. (A)

Grand Forks (TC-5)
Atwell, D. E. (M)
Bares, W. A. (M)
Green, N. R. (A)
Koontz, C. H. (A)
Neudeck, G. W. (M)
Peterson, F. A. (A)
Thomforde, C. (M)

Hankinson (TC-5)
Vick, L. A. (M)

Havana (TC-5)
Syverson, C. N. (M)

La Moure (TC-5)
Janke, J. A. (M)

Minot (TC-5)
Fauchald, P. (M)
Haeusler, H. (A)
Kazek, C. H. (M)
Scot, R. P. (M)
Thien, R. J. (M)

Minot AFB (TC-5)
Krauer, H. J. (M)
Tarassov, V. J. (M)

Pembina (TC-5)
Cox, C. B. (M)

Valley City (TC-5)
Amoo, L. R. (M)

Wishek (TC-5)
Schlenker, J. M. (A)

OHIO

Ada (TOL-4)
Klingenberger, J. L. (M)

Akron (AKR-4)
Anderson, G. D. (M)
Arkwright, L. P. (A)
Au, B. D. (M)
Barnett, C. B. (M)
Barth, J. E. (M)
Bentley, D. E. (M)
Berkey, R. H. (A)
Blumenthal, L. J. (M)
Bock, A. W. (A)
Bock, E. D. (M)
Born, V. A. (M)
Bosomworth, G. P. (F)
Bowman, B. M. (M)
Bowyer, J. M. (M)
Burns, J. N. (SM)
Buxton, A. C. (SM)
Caulkins, F. A. (M)
Chimera, V. J. (SM)
Chipner, R. W. (M)
Clocca, F. J. (M)
Cobbs, E. R. (A)
Colletti, N. (M)
Danek, W. L., Jr. (M)
Di Caudo, V. J. (M)
Eddey, E. E. (A)
Flowers, H. L. (F)
Foley, J. S. (M)
Forman, H. L. (A)
Grant, D. (M)
Gray, C. L. (M)
Hazlip, G. M. (M)
Hegbar, H. R. (F)
Heydorn, R. P. (M)
Higgins, R. B. (M)
Hinkle, W. A. (A)
Hlatky, M. G. (M)
Holler, J. R. (SM)
Homa, G. D. (M)
Huber, J. C., Jr. (M)
Iffland, H. L. (A)
Jonard, H. A. (M)
Jubin, T. A. (M)
Kanis, E. J. (A)
Kechner, J. B. (SM)
Kline, J. M. (M)
Knopp, I. L. (M)
Koelker, R. L. (M)
Kristan, M. (M)
Lambert, C. O. (SM)
Lelbowitz, S. (M)
Le Way, W. E. (M)
Link, T. V. (M)
Lofgren, E. W. (M)
McCarty, J. R. (M)
McCoin, K. H. (M)
McGraw, E. W. (SM)
Means, D. R. (M)
Midlik, W. M. (M)
Morrison, N. (SM)
Murphy, R. H. (M)
Musser, D. A. (M)
Nerhood, H. E. (A)
Obusek, J. G. (M)
Paden, H. R. (M)
Panaioan, I. M. (M)
Phares, D. P. (M)
Platner, F. J. (A)
Potteny, J. (M)
Rataski, C. P. (SM)
Reamond, J. F. (M)
Rogers, C. L., Jr. (M)
Rolenz, E. J. (M)
Ryburn, P. W. (M)
Shively, H. G. (M)
Shoemaker, J. R. (SM)
Stelgerwalt, O. I. (M)
Stelner, W. L. (M)
Strang, J. R. (SM)
Sutherland, E. B. (M)
Tanenhaus, A. M. (SM)
Third, J. H. (M)
Van Buskirk, W. J. (A)
Wagner, W. R. (M)
Watkins, W. H. (M)
Weinsheimer, W. E. (A)
Welch, G. H. (M)
Weyrick, R. C. (M)
Whitchurch, N. E. (SM)
Zatezalo, G. E. (A)

Alliance (AKR-4)
Bates, D. S. (A)
Smith, A. E. (A)

Amlin (COL-4)
Rife, W. E. (SM)

Arcanum (DAY-4)
Weber, S. E. (M)

Ashley (COL-4)
Reid, J. F. (M)

Ashtabula (ERI-1)
Micksch, J. E. (A)

Athens (COL-4)
Leonard, P. L. (M)
Paulsen, G. R. (M)
Smith, R. D. (M)

Atwater (AKR-4)
Hendrix, E. J. (A)
Mellander, W. C. (M)

Avon (CLE-4)
Timar, J., Jr. (A)

Avon Lake (CLE-4)
Dobosy, J. F. (SM)
Ramaley, C. W. (M)

Barberton (AKR-4)
Austin, A. O. (F)
Dorsey, J. T. (M)
Farnsworth, N. B. (M)
Kelley, J. B. (M)
Miller, D. A. (M)

Bay Village (CLE-4)
Didinger, G. H., Jr. (M)
Friswold, F. A. (M)
Harmon, J. L. (M)
Miller, F. E. (A)
Smith, C. W. (A)
Smith, T. H. (SM)
Woznlak, A. J. (M)

Beachwood (CLE-4)
Ulmer, R. M. (SM)

Bedford (CLE-4)
Ballnt, J. J. (M)
Belford, J. F. (M)
Jerome, W. R. (M)
Kessler, J. C. (A)
Seliga, J. (A)
Washko, F. H. (M)
Wolf, F. J. (A)

Bellbrook (DAY-4)
Brown, W. C. (M)
Carpantier, V. J. (SM)
Cunningham, R. F. (SM)
Epoers, W. C., Jr. (SM)
Nordstrom, D. R. (M)
Schroeder, H. (M)
Vance, T. L. (A)

Belpre (PIT-4)
Gottlieb, B. (A)

Berea (CLE-4)
Blackman, C. P. (SM)
Crozier, R. W. (A)
Klinect, R. R. (M)
Lister, R. T. (M)
McDowell, J. E. (M)

Blacklick (COL-4)
Edens, S. V. (M)
Ransom, F. M. (M)

Bluffton (TOL-4)
Triplett, M. M. (M)
Triplett, W. R. (M)

Bowling Green (TOL-4)
Kloofenstein, L. R. (M)
Synnamon, J. H. (M)

Brecksville (CLE-4)
Csensich, J. E. (A)
Cull, R. R. (M)
Deunk, R. K. (A)
Dietrich, J. W. (M)
Hopwood, A. M., Jr. (M)
La Moreaux, D. D. (A)
Lippert, G. R. (SM)
Nace, A. S. (SM)
Roeger, R. E. (M)
Smith, C. E. (F)
Stadig, S. V. (M)
Ulrich, J. F. (SM)
Weaver, J. H. (M)

Brooklyn (CLE-4)
Andrews, F. C. (A)
Lutke, T. A. (A)
Wood, R. M. (M)

Byesville (PIT-4)
Allen, R. W. (SM)

Cambridge (PIT-4)
Crooks, H. N. (SM)
Freeze, R. (M)
Luethy, R. E. (A)
Shelton, J. A. (M)

Campbell (AKR-4)
Klimko, C. A. (M)

Canal Fulton (AKR-4)
Smith, P. C. (SM)

Canton (AKR-4)
Arnold, E. N. (SM)
Beckerman, L. M. (M)
Burtner, R. L. (SM)
Domer, D. J. (A)
Duff, J. E. (A)
Fehn, F. P., Sr. (M)
Greene, F. L. (M)
Jameson, W. B. (A)
Koenig, J. (M)
Leist, L. G. (M)
Leslie, F. C., Jr. (A)
Naylor, J. T. (A)
Schweizer, P. F. (A)
Walker, N. S. (M)

Castalia (CLE-4)
Fabik, R. H. (A)

Celina (TOL-4)
Quinter, K. J. (M)

Centerville (DAY-4)
Deaton, H. W. (M)
Gulden, E. V. (SM)
Kreitzburg, H. L., Jr. (M)
Meyer, G. B. (M)
Palmer, A. F. (M)
Robinson, W. C. (M)
Schelling, E. R. (M)
Schreiber, P. W. (M)
Wehrman, R. B. (A)

Chagrin Falls (CLE-4)
Berlincourt, D. A. (M)
Bird, J. R. (SM)
Blackman, W. S. (M)
Dombos, L. J. (M)
Farr, H. J., Jr. (M)
Fisher, H. F. (M)
Gehman, J. B. (M)
Kilroy, J. W. (M)
McConnell, H. M. (M)
Shields, E. T. (A)

Chesterland (CLE-4)
Bayha, J. E. (SM)
Sallach, M. E. (SM)

Cheviot (CIN-4)
Espelage, P. M. (M)
Peter, J. P. (M)
Spinner, L. N. (M)

Chillicothe (CIN-4)
Hanson, M. L. (SM)

Cincinnati (CIN-4)
Adams, J. S. (M)
Adams, M. M. (M)
Adams, R. H. (M)
Ahrends, S. W. (M)
Ashman, A. B. (M)
Ayers, N. E. (M)
Bain, St. J. (M)
Balash, F. J. (M)
Bandenburg, D. J. (M)
Bass, H. (SM)
Bass, L. (SM)
Bastian, D. W. (M)
Baylor, A. D. (SM)
Beam, L. W. (M)
Berberich, R. J. (A)
Bereskin, A. B. (F)
Berg, D. F. (M)
Bernhard, C. J. (M)
Besco, F. E., Jr. (M)
Blair, D. (M)
Bloss, R. W. (A)
Blum, S. (M)
Bopp, C. (SM)
Bowers, J. L. (SM)
Bowling, J. C. (M)
Bramble, C. A., Jr. (M)
Brandenburg, P. J. (A)
Brangan, W. J., Jr. (M)
Bratt, P. P. (M)
Braun, E. C. (M)
Brean, J. W. (SM)
Breunig, W. H. (M)
Brombaugh, J. B. (M)
Brouse, H. L. (SM)
Brown, N. E. (M)
Buden, D. (M)
Burnett, L. A. (M)
Burrer, G. J. (M)
Busby, L. A. (M)
Busch, A. C. (M)
Bussard, E. J. H. (SM)
Campbell, D. J. (M)
Campisano, F. J. (M)
Carey, C. P. (SM)
Carleton, H. (M)
Carlton, E. O. (A)
Carpenter, C. P. (SM)
Charlton, A. E. (A)
Coble, R. B. (SM)
Collins, J. T. (A)
Conklin, H. A., Jr. (M)
Cooke, R. W. (A)
Crosby, R. H., Jr. (M)
Cunningham, G. W., Jr. (M)
Cunningham, T. W. (M)
Dale, W. L. (M)
Decker, R. H. (M)
Dellekamp, K. J. (A)
Dickhoff, E. B., Jr. (A)
Diehl, J. A. (A)
Dilz, A. E., Jr. (M)
Dingus, D. R. (M)
Doctor, B. (M)
Doerr, W. H. (M)
Dooley, E. B., Jr. (M)
Dutton, C. E. (M)
Ebbeler, J. R. (M)
Ecker, J. L. (M)
Einbinder, L. W. (A)
Emmerling, E. J. (M)
Engel, L. (M)
Engelmann, R. H. (SM)
Englert, R. W. (M)
Fausetl, F., Jr. (A)
Fenstermacher, A. L. (M)
Ficek, J. A. (M)
Fisher, B. W. (M)
Fleming, W. G. (M)
French, B. V. K. (SM)
Frommer, J. C. (SM)
Gaynor, J. M. (M)
Gehring, M. C. (SM)
Geick, G. H. (SM)
George, P. H. (M)
Georger, L. J. (M)
Gleringer, C. K. (SM)
Gilligan, T. R. (M)
Glancy, P. A. (M)
Gorker, G. E. (A)
Gray, C. E. (M)
Greschel, R. A. (A)
Griffin, J. L. (M)
Grossoehme, F. (M)
Grove, H. M. (M)
Gruber, J. R. (SM)
Gulden, W. W. (M)
Haas, D. L. (SM)
Haas, R. W. (M)
Haehnle, C. G. (SM)
Hamilton, F. A. (M)
Harter, W. R. (M)
Harvey, J. T. (M)
Haverkos, N. P. (M)
Haworth, R. E. (M)
Headley, H. N. (M)
Heinzelman, G. J. (M)
Hellen, R. J. (M)
Helmheckel, T. A. (M)
Hentz, E. G. (A)
High, R. A. (M)
Himes, H. D. (M)
Hirashima, H. K. (SM)
Hoffman, S. (M)
Hogan, C. M. (SM)
Hosea, R. A. (M)
Hulstrand, B. E. (M)
Humphrey, W. R. (M)
Inderhees, J. A. (M)
Janning, E. A., Jr. (M)
Johnson, W. C. (M)
Jones, E. M. (SM)
Joyce, D. J. (M)
Jump, J. R. (M)
Kaesemeyer, W. W. (M)
Kamm, D. D. (A)
Kammer, D. E. (M)
Kennedy, D. D. (SM)
Kerber, M. C. (M)
Kibby, J. R. (A)
King, F. W., Jr. (SM)
Kiss, J. S. (M)
Kline, A. J. (M)
Knoblaugh, A. F. (F)
Knoer, H. (SM)
Kober, C. L. (F)
Krody, J. L. (M)
Kuecken, J. A. (M)
Lambert, R. (SM)
Lambert, V. L. (M)
Lawall, R. M. (M)
Lehman, R. H. (M)
Lehnoff, R. G. (M)
Lenk, H. H. (M)
Leppie, H. (M)
Linblad, T. N. (M)
Livingston, E. (M)
Lorah, P. W. (M)
Luhn, P. J. (M)
Lundgren, C. W., Jr. (M)
Lykins, P. H. (M)
Lyne, G. A. (A)
Lytel, A. (M)
Magrish, C. J. (M)
Makrancy, S. L. (M)
Marhauer, H. H. (M)
Marlowe, E. W. (M)
Marshall, D. A. (M)
Martin, D. W. (F)
Mast, C. E. (M)
Mayleben, E. F. (M)
McDermott, E. P. (M)
McDonald, J. M. (SM)
McGregor, M. A. (A)
McNair, R. J. (M)

Meehan, J. P. (SM)
Melick, W. R. (M)
Mentink, A. F. (M)
Meredith, K. M., Jr. (M)
Meyer, A. (SM)
Meyer, C. S. (M)
Mezger, F. W. (M)
Mika, J. I. (M)
Miller, R. W. (M)
Mitchell, W. W., Jr. (A)
Moellering, E. E. (M)
Montross, R. A. (A)
Morgan, C. L. (A)
Moulton, E. W. (SM)
Morley, S. D., Jr. (M)
Murray, J. W. (M)
Nader, J. S. (SM)
Nason, D. B. (SM)
Nauman, J. G. (M)
Neal, N. D. (M)
Needles, W. F., Jr. (A)
Nord, G. L. (M)
Novy, E. W. (M)
Oezer, J. J. (M)
Ohmart, P. E. (M)
Osterbrock, C. H. (M)
Overman, C. I. (A)
Owen, L. L. (M)
Parker, R. L. (A)
Patterson, T. S. (A)
Pelzel, E. R., Jr. (A)
Perry, G. W. (M)
Pfizenmayer, H. L. (M)
Pickett, T. A. (M)
Pienkowski, O. E. (M)
Plogstedt, A. E. (M)
Polaniecki, S. (M)
Pool, L. J. (A)
Pope, I. T. (M)
Post, J. L. (M)
Quitter, J. P. (SM)
Ragen, J. R. (M)
Rakel, R. H. (M)
Ransom, G. B. (SM)
Rockwell, R. J. (F)
Roskos, R. G. (M)
Rowe, S. (M)
Saltzer, C. (M)
Sapp, R. S. (M)
Schafer, G. E. (M)
Schenck, R. L. (M)
Schlemmer, R. P. (M)
Schneider, C. A. (M)
Schroeder, W. R. (M)
Schumacher, T. J. (M)
Scott, V. J., Jr. (M)
Segel, D. L. (SM)
Seichter, K. H. (SM)
Selligman, M., III (M)
Senninger, E. J. (M)
Seward, G. J. (M)
Seyfried, J. E. (A)
Shadley, F. C. (M)
Shaw, C. B., Jr. (M)
Shekro, C. M. (M)
Sheridan, C. J. (M)
Shirk, W. B. (SM)
Smith, D. L. (M)
Staab, P. C. (A)
Stacy, R. A. (SM)
Stallings, R. E. (M)
Steffee, J. W. (A)
Stegman, J. A. (M)
Stegman, T. E. (A)
Steinhoff, E. A. (SM)
Stelten, G. L. (M)
Stephens, T. C. (SM)
Striel, D. A. (M)
Stubbins, W. F. (SM)
Taylor, T. O. (SM)
Thomas, D. E. (M)
Timperman, E. J. (M)
Truitt, J. R. (M)
Tulloss, W. S. (M)
Tupman, L. M. (M)
Turrell, R. M. (A)
Tyberg, A. H. (M)
Vandoch, S. C. (M)
Verkley, B. M. (M)
Weaver, C. W. (M)
Weber, C. E. (M)
Wediq, F. L., Jr. (SM)
Wei, Y-M (M)
Weller, C. E. (M)
Wetz, R. H. (SM)
Whatley, R. L. (M)
White, N. (A)
Williamson, G. F. (M)
Willis, T. W. (M)
Wills, T. C. (A)
Wilson, H. J. (A)
Wilson, J. W. (M)
Winkle, L. V. (M)
Wissel, F. A. (SM)
Wyzenbeek, A. (A)
Yancey, W. D. (M)
Yaney, P. P. (M)
Zimov, L. R. (SM)
Zoerner, J. R. (M)
Zwayer, B. E. (M)

Cleveland (CLE-4)
Ackerman, E. K. (SM)
Anderson, C. R. (M)
Anderson, F. D. (A)
Annick, J. W. (M)
Arndt, J. P. (SM)
Baro, M. W. (SM)
Begun, S. J. (F)
Blank, G. F. (A)
Bletcher, A. L. (M)
Bogas, J. (A)
Bolz, R. W. (SM)
Bremer, E., II (A)
Briggs, R. F. (M)
Brincka, J. J. (M)
Brinkman, H. A. (M)
Brown, S. (M)
Buchspice, J. E. (A)
Buher, J. R. (A)
Burgener, D. R. (M)
Burhans, R. W. (M)
Burns, C. H. (SM)
Busdon, V. P. (M)
Busher, R. E. (M)
Butler, A. H. (M)
Campbell, J. H. (M)
Caskey, H. B. (M)
Cerveny, W. J. (SM)
Chakerian, R. (M)
Chase, W. H. (SM)
Chulick, C. M. (M)
Clark, A. A. (M)
Collin, R. E. (SM)
Comrey, B. C. (A)
Costanza, J. L. (M)
Cowan, H. C. (A)
Cowan, R. A. (A)
Craig, J. H. (SM)
Crows, H. (M)
Cunningham, J. A. (A)
Curran, D. R. (SM)
Dambach, R. A. (SM)
Dambach, T. F. (M)
Davis, J. J. (A)
De Laney, W. B. (M)
De Lany, R. H. (SM)
Dittenberger, R. J. (A)
Dombrady, S. E. (M)
Eberlin, F. E. (M)
Edling, E. A. (A)
Elmendorf, D. E. (M)
Epperson, J. B. (F)
Epstein, I. (M)
Farrar, M. B. (M)
Fifer, T. J. (A)
Frankel, B. L. (M)
Franks, C. V. (M)
Frederico, B. D. (M)
Friedberg, M. R. (SM)
Gehrke, E. P. (M)
Geiger, D. L. (M)
Geringer, D. (M)
Geyer, J. R. (M)
Gilbert, L. J. (M)
Gliolta, T. S. (M)
Glover, W. E. (A)
Gooch, B. R. (M)
Grace, C. H. (SM)
Granger, L. V. (M)
Hamacek, C. R. (M)
Hamann, K. R. (SM)
Haner, L. (M)
Havel, D. F. (M)
Hazony, D. (M)
Hecker, W. E. (M)
Helfeman, T. M. (A)
Heller, H. H. (SM)
Henderson, D. E. (A)
Herke, F. P., Jr. (M)
Hickok, R. D. (SM)
Hornfeck, A. J. (SM)
Horph, R. R. (SM)
Howard, R. M. (A)
Hughes, R. O. (M)
Humphrey, A. J. (M)
Jackson, W., Jr. (M)
Jaffe, H. (SM)
Jaracz, E. S. (M)
Jeffery, E. L. (A)
Jira, J. W. (M)
Johnson, L. E., Jr. (M)
Johnson, W. C. (M)
Kazarian, R. (M)
Keefer, J. M. (M)
Killian, W. H. (M)
Kinkaid, J. C. (A)
Kliever, W. H. (SM)
Klivans, N. R. (M)
Klock, H. F. (M)
Krejny, E. L. (M)
Krez, A. J. (M)
Kriz, W. (A)
Laden, H. N. (M)
Lake, W. H. (M)
Lalli, V. R. (M)
Lannan, P. E. (SM)
Leemon, W. (A)
Lesyk, L. (M)
Little, H. (A)
Little, R. V., Jr. (M)
Lomaz, D. D. (SM)
Loofbourrow, J. W. (M)
Louis, W. B. (M)
Luehring, E. L. (M)
Maclag, E. T. (M)
Malsel, J. E. (M)
Malercak, J. V. (M)
Martin, E. E. (M)
Martin, J. R. (M)
McCarthy, W. A. (M)
McCollister, D. R. (M)
McCollister, J. D. (M)
McCormick, J. R. (M)
McGargle, D. M. (M)
McNeel, E. L. (A)
Mentzer, P. K. (M)
Mergler, H. W. (M)
Merrill, G. (SM)
Middleton, A. E. (M)
Milsek, A. E. (M)
Mitro, A. (M)
Molnar, L. S. (A)
Morrow, L. A. (M)
Murray, J. H. (A)
Murzyn, R. A. (M)
Newborg, D. S. (M)
Nice, A. W. (M)
Oblak, D. P. (M)
O'Hearn, W. F., Jr. (M)
Palmer, P. D. (A)
Pearson, D. M. (M)
Pettus, R. (M)
Piwonka, W. G. (M)
Plaisted, R. J. (M)
Plakadis, A. P. (M)
Plonsey, R. (SM)
Potter, N. M. (M)
Propilin, J. (M)
Pyle, R. E. (A)
Reash, C. W. (SM)
Reed, T. J. (M)
Reiches, S. L. (SM)
Rienerth, G. R. (M)
Rittenhouse, J. W. (SM)
Ross, M. N. (M)
Rothschild, S. (M)
Rundel, G. L. (A)
Saby, J. S. (SM)
Sanderson, J. K. (M)
Sauerland, F. (M)
Schiff, D. W. (A)
Schneider, P. (A)
Seaton, G. (A)
Seely, S. (F)
Sharp, F. R. (M)
Sheetz, J. I. (M)
Shepherd, B. R. (M)
Sherman, K. S. (SM)
Smeallie, G. R. (M)
Smetana, J. (M)
Snedeker, M. L. (SM)
Sollock, L. (A)
Spears, W. F. (SM)
Stafford, K. E., Jr. (M)
Sturman, J. C. (M)
Taber, M. R. (M)
Tapp, N. P. (A)
Taylor, R. C. (M)
Thomas, G. E. (M)
Till, W. C. (M)
Todd, A. W. (A)
Tomanocy, J. A. (M)
Tozier, R. E. (M)
Trumble, W. M. (M)
Tuma, C. F. (A)
Uguccini, O. W. (M)
Varady, D. J. (M)
Vais, I. P. (M)
Walter, R. T. (M)
Webner, R. D. (M)
Wenger, N. C. (M)
West, S. S. (M)
Whalen, P. P. (A)
Whittaker, B. H. (M)
Wiemels, E. L. (M)
Zelle, J. F. (SM)

Cleveland Heights (CLE-4)
Bublitz, A. T. (M)
David, B. W. (SM)
Gibson, J. L. (M)
Hartel, R. R. (M)
Hooper, J. R., Jr. (SM)
Horth, T. C. (M)
Hudson, A. E. (M)
Josefczyk, H. M. (M)
Ko, W-H (M)
Livsey, R. A. (M)
Maloney, T. C. (M)
Manring, J. M. (M)
McIntosh, C. A. (M)
Newman, H. B. (M)
Pierce, D. E. (A)
Scott, E. P. (M)
Silkman, H. G. (SM)
Slater, R. J. (M)
Storey, W. T. (M)
Tame, J. S. (M)
Woods, R. H. (M)

Clinton (AKR-4)
Shaklee, F. S. (M)

Columbus (COL-4)
Andrus, P. G. (M)
Anthony, G. E. (M)
Austen, B. G. (M)
Azbell, J. W. (M)
Bacon, J. (M)
Baeumler, H. W. (M)
Bailey, R. J. (A)
Baird, C. W. (A)
Bamhart, E. F. (M)
Battocletti, F. E. (M)
Bauer, W. (M)
Beer, A. C. (M)
Bettenhausen, L. H. (M)
Bishop, A. B., III (M)
Bitler, D. W. (M)
Blake, R. E. (M)
Blessing, H. L. (M)
Boehnker, C. H. (A)
Bonaloni, A. J. (M)
Bohannan, R. C. (M)
Boone, E. M. (F)
Borchers, N. L. (M)
Boyers, J. S. (SM)
Brannan, G. A. (A)
Brown, R. A. (M)
Bulman, W. E. (SM)
Burgess, J. Q. (M)
Caldecott, R. (SM)
Campbell, R. M. (M)
Chang, W. S. C. (M)
Chapman, C. M. (M)
Chen, S. N. C. (M)
Chope, H. R. (SM)
Chope, W. E. (SM)
Chu, T-S (M)
Clore, W. R. (SM)
Clymer, A. B. (M)
Cohen, D. (M)
Compton, R. T., Jr. (M)
Copeland, J. R. (M)
Cornetet, W. H., Jr. (M)
Crawford, R. W. (M)
Crooks, R. K. (SM)
Crouse, D. F. (M)
Damon, E. K. (SM)
Daniels, W. L., Jr. (M)
Davis, B. D. (M)
Dawirs, H. N. (SM)
Delsalane, R. L. (M)
Dennis, P. R., Jr. (M)
Distelzweig, F. J. (M)
Dobson, D. A. (M)
Dukes, J. R. (M)
Easterday, J. L. (M)
Eastwood, W. J. (A)
Elter, W. F. (A)
Ellis, R. S. (A)
England, S. J. M. (A)
Falkenbach, G. J. (SM)
Feibel, R. L. (M)
Fenton, R. E. (M)
Fragoiotti, J. (M)
Francisco, G. E., Jr. (SM)
Franke, W. C. (M)
Freundlich, J. J. (M)
Fritzsche, D. L. (M)
Gager, W. B. (M)
Gahm, W. L. (M)
Gamble, F. D. (M)
Garbacz, R. J. (M)
Garrious, N. F. (M)
Gay, J. W. (M)
Gibbs, D. E. (A)
Gilfert, J. C. (M)
Goetz, P. K. (M)
Goodman, A. R. (M)
Gorton, H. C. (SM)
Gray, J. W. (M)
Green, R. B. (M)
Guemsey, E. D. (M)
Gulcher, R. H. (M)
Haagen, W. F. (M)
Haas, C. J. (M)
Habermann, C. L. (M)
Hame, T. G. (SM)
Hamilton, T. A. (M)
Hanks, C. L. (M)
Hardman, W. E. (M)
Harmer, J. D. (A)
Haselwood, J. L. (M)
Hawkins, P. J. (M)
Hayden, J. R. (M)
Higoy, R. C. (SM)
Hoffman, R. B. (M)
Holt, J. F. (M)
Horava, A. P. (A)
Hornstein, M. B. (M)
Horvath, S. (A)
House, R. W. (SM)
Hover, P. B. (M)
Hunter, H. H. (M)
Jackson, A. J. (M)
Jackson, S. P. (SM)
Jaeger, J. H. (SM)
James, R. B. (M)
Jastram, P. S. (M)
Jenkins, C. E. (M)
Jenkins, J. L. (M)
Johanson, F. R. (M)
Johnson, E. W., Jr. (M)
Jones, E. A. (SM)
Joost, A. E. (M)
Josenhans, J. G. (M)
Kail, W. F. (M)
Kennaugh, E. M. (M)
Khan, A. A. (M)
Kirschbaum, H. S. (A)
Kisha, A. (M)
Klapp, S. T. (M)
Ko, H. C. (SM)
Kouvoumjian, R. G. (A)
Kramer, C. (A)
Kraus, J. D. (F)
Kreager, C. R. (A)
Kubs, R. E. (M)
Lackey, R. B. (M)
Lawrence, G. M. (M)
Leonard, J. D. (SM)
Levadi, V. S. (M)
Levis, C. A. (SM)
Linsk, L. (A)
Long, R. K. (M)
Looney, P. G. (A)
Luoma, J. E. (M)
Madewell, J. A. (M)
Marcus, T. J. (M)
Martin, P. T. (M)
Mathis, H. F. (SM)
Maxim, R. A., Jr. (M)
McDonald, C. L., Jr. (M)
McFarland, R. H. (M)
McFarland, R. S. (M)
McNichols, H. B. (A)
McWilliams, P. B. (A)
Mehrholz, J. I. (M)
Mendelson, D. A. (SM)
Merrill, R. L. (M)
Michaels, G. (A)
Milford, F. J. (M)
Miller, B. J. (M)
Milligan, N. P. (M)
Mitchell, J. P. (A)
Moffatt, D. L. (M)
Moll, M. (M)
Monter, G. C. (M)
Moore, D. P. (M)
Muirhead, R. B. (M)
Myers, O. C. (M)
Nafzger, L. H. (M)
Nash, R. T. (A)
Norris, G. A. (M)
Oppenheimer, S. L. (M)
Pano, T. C. (M)
Pattee, H. E. (A)
Peake, W. H. (M)
Perry, R. C. (M)
Peters, L., Jr. (SM)
Pierzchala, L. C. (M)
Pifer, P. M. (M)
Plugge, R. J. (M)
Poast, L. M. (M)
Pocta, J. W. (M)
Potts, B. C. (M)
Ramey, D. E. (M)
Reed, T. W. (M)
Reninger, N. W. (M)
Richmond, J. H. (SM)
Robertson, W. J. (M)
Roehm, J. D. (M)
Roller, R. F. (M)
Rosol, G. L. (M)
Ruck, G. T. (A)
Rudduck, R. C. (M)
Ruff, S. V. (A)
Ryan, J. F. (M)
Ryan, P. A. (M)
Sapp, E. R. (M)
Schooley, C. H. (M)
Schwenter, G. E. (A)
Sespico, F. M. (SM)
Sherwood, E. M. (M)
Sloan, C. B. (M)
Spell, R. W. (M)
Spero, A. F. (M)
Stedman, J. J. (M)
Steger, D. J. (M)
Stein, T. G. (M)
Stember, L. H., Jr. (M)
Stevens, R. H. (M)
Stevens, T. R. (A)
Stocker, E. K., Jr. (M)
Stone, E. W. (A)
Stoutenburg, D. V. (M)
Stuart, W. D. (M)
Sullivan, R. P. (M)
Swarner, W. G. (M)
Swartz, J. M. (M)
Tai, C. T. (SM)
Tamolin, G. R. (M)
Taylor, J. K., Jr. (M)
Thomas, A. C. (M)
Thurston, M. O. (SM)
Tice, T. E. (F)
Tischer, F. J. (SM)
Troyan, J. F. (M)
Truxhall, F. W. (M)
Tsu, R. (M)
Uhlfelder, L. P. (M)
Ulbelch, E. A. (M)
Upson, J. R. (M)
Van Sickle, R. G. (M)
Walter, C. H. (SM)
Warren, C. E. (SM)
Weaver, W. R., Jr. (M)
Weed, H. R. (SM)
Weimer, F. C. (SM)
Wendt, R. B. (M)
Wetherbee, J. K. (M)
Whitney, W. (SM)
Wilford, D. C. (M)
Williams, D. K. (M)
Williams, R. D. (M)
Wolf, F. A. (SM)
Wolfe, R. M. (A)
Yaw, D. F. (SM)
Yeager, L. R. (M)
Yereance, R. A. (SM)
Young, D. A. (M)
Young, G. W. (A)
Zimmer, C. C. (M)

Conneaut (ERI-1)
Dvorsky, A. L. (M)
Keskinen, A. R. (SM)
Morrell, G. A., Jr. (M)
Ryan, W. J. (M)

Crestline (AKR-4)
Coleman, R. H., Jr. (A)
Jackson, R. G. (A)

Cuyahoga Falls (AKR-4)
Burke, J. T. (SM)
Buynak, G. R. (M)
Cherveny, V. J. (M)
Chuma, N. (A)
Conner, C. D. (M)
Crosley, E. W., Jr. (M)
Davis, H. P. (M)
Diamantides, N. D. (M)
Dills, R. S. (M)
Evans, D. C. (M)
Fordham, C. E. (M)
Gibson, C. O. (A)
Grant, G. H. (M)

Hakes, T. H. (M)
Heilman, B. H. (A)
Hinks, W. L. (M)
Horwitz, G. (M)
Ingalls, R. S. (M)
Kelly, C. M. (SM)
Koch, R. F. (SM)
Kult, M. L. (SM)
Machan, R. D. (M)
Martin, T. A. (M)
Mason, D. F. (M)
Meneley, C. A. (SM)
Miller, R. E. (M)
Miller, R. F. (M)
Miller, W. W. (A)
Morrill, C. D. (SM)
Robinson, G. E. (M)
Roth, J. (M)
Shackelford, W. T., III (M)
Sibila, K. F. (SM)
Sicheri, C. R. (M)
Toman, W. J. V. (M)
Tompkins, F. G. (M)
Trakio, J. M. (A)

Dayton (DAY-4)
Adams, E. L. (SM)
Ahalt, C. A. (M)
Allen, F. W. (A)
Alphenaar, A. W. (M)
Althouse, J. M. (SM)
Amrhein, O. C. (M)
Anderson, J. R. (A)
Anderson, W. W. (M)
Anglin, D. (M)
Antzack, T. G. (M)
Archer, R. F. (M)
Arnold, W. S. (M)
Ashby, G. L. (M)
Augustin, O. E. (M)
Bahret, W. F. (M)
Ballard, J. W. (SM)
Barker, J. I. (M)
Barkley, M. M. (SM)
Bartman, H. M. (M)
Becker, R. H. (A)
Belitz, H. G. (A)
Bender, C. S. (M)
Bender, D. L. (A)
Benjamin, H. L. (M)
Bialer, M. (SM)
Biales, K. (A)
Biddle, W. G. (M)
Bierley, D. A. (M)
Bissonette, A. G. (M)
Black, J. D. (M)
Boario, W. R. (SM)
Bodo, J. (M)
Boedecker, H. F. (M)
Boettcher, B. K. (M)
Bolles, J. H. (M)
Bordewisch, J. F. (M)
Borgelt, E. H. (M)
Bornhorst, K. F. (M)
Bothyl, G. W. (M)
Boyle, H. G. (A)
Bradley, A. W. (A)
Branner, G. R. (M)
Braun, W. G. (M)
Brobst, P. L. (M)
Brown, A. C., Jr. (M)
Brown, F. M. (M)
Brown, G. T., Jr. (SM)
Brumfield, W. T. (M)
Bryan, C. R., Jr. (A)
Bryer, R. L., Jr. (A)
Bryson, V. E. (M)
Budde, E. V. (M)
Buhl, W. T. (M)
Bumeka, C. R. (M)
Burns, J. H. (M)
Butsch, L. M., Jr. (A)
Buxton, R. W. (A)
Byrd, E. W. (M)
Callahan, J. G. P. (SM)
Carbone, A. J. (M)
Cartwright, R. L. (M)
Carr, M. G. (M)
Caskey, O. G. (A)
Catanzarite, F. J. (SM)
Cavender, J. T. (SM)
Chandler, J. A. (SM)
Chandler, R. M. (M)
Chandler, W. M. (M)
Charbonneaux, W. A. (SM)
Charnock, L. J. (SM)
Cherpeski, R. P. (M)
Christian, R. E. (M)
Christianson, L. L. (M)
Christie, J. B. (M)
Clark, A. H. (M)
Clark, A. D. (M)
Clark, P. H. (SM)
Clark, R. R. (M)
Cogan, J. T. (M)
Combs, J. A. (M)
Compton, W. L. (M)
Conhaim, R. L. (A)
Conrad, C. G. (SM)
Cook, E. E. (M)
Cooney, T. R. (SM)
Cooper, E. H. (SM)
Copp, R. S. (M)
Correll, E. G. (M)
Couch, P. W. (A)
Courtney, R. A. (M)
Courtney, R. L. (M)
Cox, D. C. (M)
Coy, R. J. (A)
Cummins, S. E. (M)
Currie, J. D. (M)
Curtis, L. L. (A)
Cushing, W. J. (A)
Daubendick, A. W. (M)
Davis, C. H. (A)
Day, J. G. (M)
Dayton, M. S. (M)
Dean, R. F. (M)
Decker, E. E. (SM)
Deeken, J. W. (M)
De Fries, W. G. (M)
Degnan, J. M. (A)
De Luna, J. (SM)
Demarest, D. (M)
Dennis, J. L. (F)
Dicke, A. H. (M)
Dirting, L. C., Jr. (M)
Dombrosky, E. P. (M)
Dotto, J. D. (M)
Drozd, C. J. (A)
Dupaul, D. K. (A)
Dwyer, T. A. (M)
Ecker, H. A. (M)
Eckert, C. C. (SM)
Elcan, W. C. (M)
Falk, H. C. (M)
Farrell, T. C. (A)
Fedotin, L. S. (M)
Feist, W. E. (SM)
Ferguson, J. L. (M)
Finizio, F. P. (M)
Finochario, J. J. (M)
Fisher, P. A. (A)
Franklin, C. S. (SM)
Friedman, H. (M)
Fritschel, E. H. (SM)
Fitzpatrick, J. G. (A)
Flaherty, J. E. (M)
Fletcher, W. K. (M)
Forster, A. G. (M)
Fouse, G. T. (SM)
Framme, R. J. (SM)
Fulcher, J. A. (M)
Ganger, G. M. (A)
Gauvey, M. P. (M)
Geis, J. H. (M)
Georgi, J. P. (SM)
Gerdes, C. V. (A)
Gemer, R. J. (M)
Gibson, J. D. S. (M)
Gibbs, L. L. (M)
Giesy, L. H. (M)
Giffin, E. L., Jr. (A)
Gilbert, D. F. (SM)
Glass, W. (A)
Gildewell, J. J. (M)
Goff, R. L. (SM)
Goldman, A. (SM)
Goldman, C. C. (M)
Gould, W. B. (M)
Graebner, M. S. J. (M)
Granzow, D. B. (A)
Green, B. K. (M)
Green, J. E. (M)
Griffing, B. L. (SM)
Grillmeier, E. J. (A)
Grimes, W. H. (M)
Guest, T. W. (A)
Gustafson, D. W. (A)
Guzak, P. D. (A)
Hallman, L. B., Jr. (F)
Hammer, W. F. (M)
Hannay, B. E. (A)
Hanneman, D. A. (M)
Harding, G. A. (A)
Harmon, W. L. (M)
Harnett, R. J. (A)
Harris, F. (SM)
Harris, R. (M)
Hausen, D. K. (M)
Hauser, P. D. (SM)
Hayes, T. J. (M)
Haywood, A. L. (M)
Hazen, R. R. (M)
Hearsum, D. R. (M)
Heldenreich, J. (SM)
Heil, M. M. (M)
Helf, W., Jr. (SM)
Helldoerfer, C. S. (M)
Henderson, A. B. (SM)
Henneberger, C. B. (M)
Herbert, M. B. (M)
Herren, P. C., Jr. (M)
Herrin, R. C. (SM)
Herzog, W. F. (A)
Heyd, J. W. (F)
Heywood, W. W. (M)
Hiah, R. (M)
Hill, M. A. (M)
Hilsabeck, D. M. (M)
Hilt, W. M. (SM)
Hoeffel, J. D. (M)
Hollins, G. B. (M)
Holloway, C. L. (SM)
Holmes, C. W. (A)
Horrigan, J. S. (A)
Horton, W. L. (SM)
Hovey, W. J. (M)
Howe, J. C. (M)
Huckaby, J. H. (SM)
Hull, R. S. (SM)
Husmann, F. W. (M)
Huster, L. W. (M)
Hutchinson, J. H. (M)
Hutchinson, K. R. (M)
Ittelson, R. W. (SM)
Jackson, L. A. (A)
Jacobs, Y. (SM)
Jaffurs, C. C. (M)
James, R. L. (SM)
Janssen, A. H. (M)
Jardine, R. A. (M)
Javorsky, J. J. (A)
Jazwa, E. C. (M)
Jent, J. H. (M)
Johns, M. W. (M)
Johnson, D. A. (M)
Johnson, R. A. (M)
Johnston, E. F., Jr. (M)
Jones, F. A. (M)
Jones, L. K., Jr. (M)
Jones, O. D. (M)
Jones, R. C. (M)
Joyner, T. E. (M)
Kamo, F. S. (M)
Karabaich, F. (M)
Keeth, J. K. (M)
Kellogg, R. E. (M)
Kennedy, J. S. (M)
Keriakou, P. N. (M)
Kern, J. I. (M)
Kern, T. W. (M)
Kessler, C. W. (M)
Keto, J. E. (F)
Klenker, J. E. (M)
Kilheffer, L. D. (SM)
Kimball, G. W. (M)
King, H. B. (SM)
King, T. (M)
Kistner, R. L. (A)
Klingler, G. A. (SM)
Klingler, G. (A)
Knight, A. R. (SM)
Koesters, R. L. (M)
Krenzer, B. A. (M)
Kress, O. C. (A)
Krieger, A. E. (A)
Kupolin, F. (M)
Ladd, E. L. (A)
Landreman, G. R. (M)
Langston, G. A. (M)
Laureyns, G. A. (M)
Leland, H. E. (M)
Lewis, D. E. (M)
Liebson, S. H. (SM)
Liethen, F. E. (M)
Littell, C. C., Jr. (M)
Lloyd, L. H. (SM)
Locke, D. P. (M)
Lockwood, G. C. (M)
Long, G. A., Jr. (M)
Long, R. E. (M)
Lord, A. S. (M)
Lumpkin, R. C. (M)
Madden, J. R. (M)
Magill, J. J. (M)
Mahlmeister, T. G. (M)
Malogorski, E. C. (M)
Margeson, R. L. (M)
Markley, P. A., Jr. (M)
Martin, R. B. (M)
Martin, T. H. (M)
Matthew, R. E. (M)
Mauger, R. F. (A)
Mawdsley, R. L. (SM)
Maybell, J. L. (SM)
McAdory, R. W. (M)
McCann, G. R., Jr. (M)
McClellan, J. C. (A)
McCornick, R. E. (SM)
McGowan, R. J. (A)
Mc Ilrath, R. J. (A)
McIntosh, V. C. (M)
McKinley, H. L., Jr. (S)
McLaughlin, C. E. (M)
McLennan, M. A. (F)
McMillan, W. R. (M)
McRae, A. H. (SM)
McRitchie, K. (A)
Meeker, T. R. (M)
Menear, L. S. (M)
Metzger, J. A. (M)
Meuche, C. H. (M)
Meulemans, J. I. (M)
Meyers, D. V. (A)
Midgley, V. E. (A)
Miller, E. H. (A)
Miller, P. C. (M)
Milliron, J. R. (M)
Mitter, T. S. (M)
Moe, J. L. (M)
Montgomery, D. H. (M)
Moon, J. F. (A)
Moore, J. M. (M)
Moraff, H. (M)
Morrison, D. W. (SM)
Moorste, B. K. (M)
Moulton, W. S. (M)
Mountz, T. P., Jr. (M)
Moyer, D. F. (SM)
Mumma, R. E. (SM)
Myers, R. P. (M)
Nangle, W. O. (A)
Neff, F. G. (A)
Nickels, J. L. (M)
Nisenoff, N. (M)
Northrop, P. G. (M)
Notestine, D. D. (M)
O'Connor, M. J. (M)
Ogar, G. W. (M)
Overholser, W. E. (M)
Owen, H. W. (SM)
Oyler, E. M. (M)
Papalconomou, G. (M)
Pappas, M. J. (M)
Parker, A. P. (M)
Pasek, J. (A)
Peot, H. G. (M)
Perdzock, R. C. (M)
Perkins, P. E. (A)
Peters, A. L., Jr. (SM)
Petit, A. H. (SM)
Piety, E. W. (SM)
Pippenger, C. R. (M)
Pirie, F. E. (M)
Pitinsky, L. (M)
Planchak, E. (M)
Pleshek, L. J. (SM)
Pokorny, J. J. (SM)
Polishuk, P. (M)
Porter, L. E. (M)
Priddy, D. N. (M)
Pritchard, C. J. (M)
Purnell, M. V. (M)
Ramsey, J. T. (M)
Rawhouser, R. (SM)
Reynolds, E. E. (A)
Rhude, D. P. (M)
Richard, C. W. (SM)
Richard, P. R. (A)
Richert, R. L. (A)
Richmond, L. P. (SM)
Ricker, R. K. (M)
Rickey, K. L. (M)
Riopin, J. F., Jr. (SM)
Robins, K. E. (M)
Roester, L. (M)
Rohlinger, D. J. (M)
Root, L. W. (M)
Roschi, J. W., Jr. (A)
Rose, L. H. (SM)
Rosener, G. M. (M)
Rothammer, W. H. (SM)
Rounds, J. M. (A)
Ruble, H. E. (M)
Ruddell, E. E. (A)
Russ, F. J. (SM)
Russell, H. J. (M)
Ryan, F. A. (A)
Rychlik, R. F. (SM)
Rynda, T. C. (SM)
Sanderson, G. L. (M)
Sansom, F. J. (M)
Sarver, J. W. (M)
Sauer, R. J. (M)
Schantz, G. W. (M)
Scheer, G. H. (SM)
Schram, S. M., Jr. (SM)
Schreiber, E. J. (M)
Schwartz, N. F. (M)
Schwartz, S. J. (M)
Schwennesen, A. B. (M)
Scott, J. E. (SM)
Seaton, P. B. (SM)
Semkow, J. W. (A)
Senecal, T. L. (SM)
Seth, C. E. (M)
Shadburn, T. H. (M)
Shankland, D. G. (M)
Sheffs, J. F. (A)
Sides, J. D. (A)
Siek, J. R. (SM)
Siff, R. G. (A)
Simopoulos, N. T. (M)
Singer, J. E. (M)
Skolnik, S. (SM)
Smith, F. L. (M)
Smith, O. K. (M)
Smith, R. J. (A)
Smock, R. B. (M)
Snead, J. C. (M)
Snyder, A. R. (A)
Soerhoff, R. A. (A)
Soon, L. T. (M)
Sonsteard, A. M. (A)
Soule, B. L. (M)
Speake, A. C. (M)
Spieler, R. J. (M)
Springer, P. W. (SM)
Sproule, J. H. (SM)
Stahler, Y. E. (M)
Stanford, R. W. (M)
Stanley, E. R. (M)
Stanton, J. S. (M)
Stewart, J. (M)
Stewart, W. E. (SM)
Stinson, R. G. (M)
Stolzenbach, R. W. (SM)
Stouch, D. H. (M)
Sutton, A. W., Jr. (M)
Sutton, W. K. (A)
Swanson, A. W. (A)
Swift, R. E. (M)
Tai, J. (M)
Tarrants, G. (SM)
Taylor, C. E. (M)
Taylor, F. R. (M)
Temoyan, J. D. (M)
Temple, T. W. (A)
Teplitz, H. (M)
Thinnes, R. L. (A)
Thoms, R. (M)
Thome, E. D. (M)
Tokareff, P., Jr. (M)
Tomberg, S. (SM)
Toomey, P. J. (M)
Totten, J. E. (M)
Trageser, J. H. (M)
Trenkle, R. A. (SM)
Tucker, J. W. (A)
Turner, E. M. (SM)
Valentine, E. O. (SM)
Velesky, J. J. (M)
Vendely, B. (A)
Versic, C. (M)
Vetter, C. R. (A)
Walczy, R. J. (M)
Wall, J. R. (M)
Wamboldt, H. (M)
Warner, R. C. (A)
Warshawsky, L. M. (M)
Warwick, J. D. (M)
Wasicko, R. J. (M)
Watton, A., Jr. (SM)
Webb, D. E. (M)
Webb, W. C., Jr. (A)
Wehner, G. L. (M)
Weiser, R. V. (SM)
Weissman, N. (A)
Wheeler, R. A. (M)
Whelan, R. E. (A)
White, D. A. (M)
Wiegert, P. G., Jr. (SM)
Wieland, E. S. (SM)
Wilde, A. J. (SM)
Wilkinson, J. E. (M)
Williams, O. L., Jr. (M)
Wilson, C. C. (M)
Winters, W. D. (M)
Wooten, S. J. (A)
Worley, R. M. (M)
Wyse, D. S. (A)
Wyse, H. G. (A)
Yoshida, H. (M)
Young, J. E. (M)
Young, L. McC. (SM)
Zabetakis, S. G. (M)
Zacharias, R. A. (A)
Zalusky, C. W. (A)
Zander, T. A. (M)
Zieman, C. M. (M)
Zimmerman, R. F. (M)
Zingg, J. F. (M)
Zwissler, H. R. (A)

Delaware (COL-4)
Kreis, R. J. (M)

Deshler (TOL-4)
Colwell, R. E. (SM)

Doylestown (AKR-4)
Nuss, R. J. (A)

Dublin (COL-4)
Tracy, R. C. (M)
Wolfe, P. B. (M)

East Cleveland (CLE-4)
Corrigan, M. J. (M)
Louis, J. R. (M)
Neuron, E. (M)
Schubsach, R. (M)
Serota, R. M. (SM)
Tuttle, J. W. (M)
Viton, E. J. (M)
Ward, D. O. (M)
White, J. E. (M)

Eastlake (CLE-4)
Sawyer, B. (A)

Elmore (TOL-4)
Bay, R. J. (A)

Elyria (CLE-4)
Flnegold, I. (A)
Meill, E. J. (A)

Englewood (DAY-4)
Duckwitz, W. G. (SM)

Enon (DAY-4)
Flipor, P. D. (M)
Garman, D. F. (M)
Short, W. K. (M)

Euclid (CLE-4)
Businger, K. A. (M)
Calderhead, H. J. (SM)
Elze, R. P. (A)
Murray, J. E. (M)
Numi, L. J. (M)
Powell, J. D., Jr. (M)
Radke, C. E. (M)
Stevko, P. J., Jr. (M)
Thompson, R. A. (M)
Wurster, D. E. (M)

Fairborn (DAY-4)
Archer, C. J. (SM)
Avery, L. R. (A)
Baker, M. W., Jr. (M)
Behane, D. (A)
Benasutti, R. (A)
Benson, M. C. (SM)
Borgrees, G. T. (M)
Bowker, I. H. (M)
Brooks, R. D. (M)
Cheadle, H. R. (M)
Collier, C. (A)
Crosse, G. S. (A)
De Camp, P. W. (SM)
Diavatis, N. D. (A)
Eames, E. G. (M)
Etheridge, L. R. (M)
Glan, G. (SM)
Graves, D. J. (SM)
Green, W. M. (M)
Greenfield, W. D. (M)
Gregory, J. W. (A)
Hayes, O. E. (M)
Hines, C. A. (SM)
Hodson, W. T. (M)
Hovan, T. (M)
Hybstmann, V. L. (A)
Johnson, C. W. (M)
Kohlmann, H. P. (M)
Lazur, E. (M)
Lucas, G. R. (M)
Lynch, T. M. (M)
Marko, A. R. (M)

Matulka, D. D. (M)
Mayer, I. S. (SM)
McCann, J. D. (A)
McDowell, M. S. (A)
McElroy, G. A. (M)
McLaughlin, L. L. (M)
Parks, G. B. (M)
Peterson, L. S. (M)
Pflueger, W. W. (M)
Politzer, L. M. (M)
Price, L. R. (M)
Rizos, J. G. (SM)
Root, J. S. (A)
Schulherr, R. M. (SM)
Schivley, G. W. (M)
Schloss, J. K. (SM)
Siracuse, R. J. (M)
Sraders, C. (M)
Staples, E. B. (SM)
Taylor, P. B. (SM)
Vanderpool, H. D. (M)
Varga, M. J., Jr. (A)
Watren, P. J. (M)
Wilson, J. W. (M)
Wolaver, L. E. (A)

Fairview Park (CLE-4)
Atkisson, E. A. (M)
Gedeon, A. J. (M)
Hart, C. E. (M)
Hoff, H. B. (SM)
Nagy, L., Jr. (M)
Westbrook, R. D. (M)

Findlay (TOL-4)
Daymon, D. W. (M)
Lavender, J. S., Jr. (M)
Smith, E. C. (M)
Wells, D. H. (M)

Forest (TOL-4)
Hambrock, H. E. (M)

Fostoria (CLE-4)
Droll, T. F. (A)
Peck, J. L. (M)

Franklin (DAY-4)
Bryant, V. D. (M)

Fremont (TOL-4)
Hetrick, E. H. (M)
Leite, R. C. (M)
Swartzlander, G. W. (M)

Gahanna (COL-4)
De Myer, D. L. (M)
Hall, W. S. (M)
Mason, W. F. (M)
Mendenhall, W. S., Jr. (A)
Stropki, G. T. (A)

Galion (AKR-4)
Aro, E. (M)
Blashfield, W. H. (M)
Bright, J. R. (A)
Crissinger, W. W. (M)
Haferd, F. H. (M)
Haller, M. N. (A)
Jacobson, F. O. (A)
Kruger, B. (A)
Leppert, D. V. (M)
Ots, A. (M)
Reagan, W. E. (M)
Shireman, D. W. (M)
Svala, C. G. (M)
Tuzle, E. G. (A)
Van Voorhees, A. J. (M)

Garfield Heights (CLE-4)
Brough, H. R. (A)
Ericsson, O. E. (A)
Gregory, R. L. (M)
Hokes, F. R. (A)
Ryerson, H. R. (SM)
Schoeffler, J. D. (M)

Gates Mills (CLE-4)
Gardiner, R. A. (SM)
Saint-Amour, J. D. (A)

Genoa (TOL-4)
Spencer, N. K. (M)

Girard (AKR-4)
Kramer, R. E. (SM)

Glendale (CIN-4)
Browne, G. W. (M)
Schmittou, C. J. (M)

Granville (COL-4)
Clark, J. V. (M)
Knox, J. L. (M)

Grove City (COL-4)
Hassler, K. E. (M)

Groveport (COL-4)
Pratt, R. E. (A)

Hamilton (CIN-4)
Davis, J. S., Jr. (M)
Deveney, J. D. (A)
Marvin, I. E. (M)
Stein, J. L. (A)
Stump, A. M. (M)
Wear, J. (M)
Whittington, R. C. (M)
Winkeljohann, A. (M)

Hicksville (TOL-4)
Applegate, H. E. (SM)
Culler, D. M. (SM)

Hilliards (COL-4)
Burgener, R. C. (M)
Thompson, H. E. (A)

Hinckley (AKR-4)
Bidlack, C. S. (SM)
Simpson, P. A. (A)

Hudson (AKR-4)
Bachtell, R. S. (M)
Kuhns, D. A. (A)

Huron (CLE-4)
Wilber, B. E. (A)

Independence (CLE-4)
Homolha, C. J. (M)

Kalida (TOL-4)
Ellerbrock, R. G. (M)

Kent (AKR-4)
Ianussi, R. D. (A)
Rymer, R. W. (M)
Wills, R. H. (M)

Kettering (DAY-4)
Ashley, C. L. (M)
Boone, G. R. (M)
Brothers, A. L., Jr. (M)
Call, S. W. (M)
Clute, D. G. (SM)
Desch, J. R. (M)
Filcik, M. G. (M)
Foraker, C. M. (M)
Frey, J. C. (A)
Gerhard, W. J. (M)
Getty, J. N. (M)
Goff, N. G. (SM)
Grimm, F. W. (A)
Guenthner, F. K. (A)
Hedrick, W. E. (A)
Jacoby, G. R. (M)
Kearns, J. H., III (M)
Kinne, R. C. (SM)
Lyons, R. K. (M)
Marshall, C. J. (F)
Murray, P. R. (SM)
Myers, J. F. (M)
Nelson, N. A. (SM)
Siefker, R. G. (M)
Stimmel, R. G. (SM)
Strasser, R. A. (M)
Thomas, E. R. (SM)
Treleaven, W. A. (M)
Trumble, T. M. (M)
Waller, J. C. F., III (M)
Wallin, W. (M)
Wooton, R. M. (M)

Kings Mills (DAY-4)
Gregg, L. T. (A)

Kinoston (CIN-4)
Leasure, R. B. (M)

Lakewood (CLE-4)
Bellian, J. G. (M)
Benkelman, G. F. (SM)
Creswell, D. C. (A)
Flack, S. G. (M)
Green, F. P. (M)
Griffin, T. A., Jr. (M)
Hamman, G. B. (M)
Keating, D. A. (M)
Mattern, R. M. (M)
Mealey, C. W., Jr. (M)
Tasch, A. (SM)
Torsch, C. E. (SM)
Wagener, J. S. (SM)
Wells, M. (M)

LANCASTER (COL-4)
Christian, H. S. (M)
Gamble, E. H. (SM)
Gelder, J. G. (A)
Harshbarger, J. H., Jr. (M)
Heath, E. R. (M)
Hudson, R. S. (A)
Markwood, W. R. (A)

Lima (TOL-4)
Campbell, D. A. (M)
Gibbons, J. P. (M)
McIlvaine, D. K. (M)
Nizlolek, R. J. (M)
Schmieding, E. G. (M)
Smith, J. A., Jr. (M)

Lockbourne AFB (COL-4)
Knight, J. R. (SM)

Logan (COL-4)
Juergensmeier, W. F. (M)
Magle, R. (A)

London (COL-4)
Evans, E. C. (A)

Lorain (CLE-4)
Goodell, W. A. (M)
Herrick, R. H. (SM)
Huge, H. M. (M)
Kauffman, H. C. (M)
Mounce, C. O. (M)
Romoser, P. E. (M)
Szabo, L. R. (M)
Thiery, T. E. (A)

Louisville (AKR-4)
Boudler, A. G. (A)

Loveland (CIN-4)
Hancock, H. E. (SM)
Silverman, S. (M)
Standing, A. F. (SM)

Luckey (TOL-4)
Christen, R. E. (M)

Lyndhurst (CLE-4)
Borland, R. P. (M)
Germano, C. P. (SM)
Grasson, W., Jr. (M)
Kish, J. S. (M)
Koeblitz, W. E. (M)
O'Gara, J. J. (A)
Olson, B. (M)
Semenhuk, M. H. (A)
Stevens, H. E. (M)
Streater, J. W. (M)

Madeira (CIN-4)
Fahrenbruck, R. (M)
Meuleman, R. (SM)

Mansfield (AKR-4)
Bolen, N. E. (M)
Brain, T. M. (M)
Miller, K. W. (M)
Ryan, E. C. (M)
Stevens, W. C. (M)

Maple Heights (CLE-4)
Crail, A. C. (M)
Fahey, W. J. (M)
Flick, J. R. (M)

Marietta (PIT-4)
Clark, C. E. (A)
Kraft, G. R. (A)

Marion (AKR-4)
Brenton, G. P. (M)
Jenkins, D. B. (M)

Martins Ferry (PIT-4)
Daubenmeyer, H. L., Jr. (A)

Mason (DAY-4)
De Hoog, W., Jr. (M)
Lantzer, F. N. (M)
Raso, F. A. (M)

Massillon (AKR-4)
Knouff, R. J. (M)

Masury (AKR-4)
Vojtko, R. P. (M)

Maumee (TOL-4)
Chapman, L. B. (M)

Mayfield (CLE-4)
Spiller, H. A. (M)

Mayfield Heights (AKR-4)
Grossman, H. (A)
Hlavin, J. M. (M)
Karbo, D. J. (M)
Pitrone, J. A. (SM)
Reilly, E. J. (A)
Tencich, S. V. (M)

Medway (DAY-4)
Glancy, C. H. (M)
Gunning, M. E. (A)
Ridenour, P. W. (M)
Waugh, R. E. (M)

Mentor (CLE-4)
Baker, R. G. (M)
Beach, D. T. (A)
Schwartz, J. L. (A)

Mentor Village (CLE-4)
Hogan, J. R. (A)

Miamisburg (DAY-4)
Haney, C. W. (M)
Hood, W. L. (M)
Rogers, A. J. (SM)

Middleburg Heights (TOL-4)
Lungo, A. (M)

Middletown (CIN-4)
Andres, R. J. (M)
Braden, P. F. (A)
Johnson, R. E. (M)
Morris, W. T. (A)

Milford (CIN-4)
Bissonette, A. J. (SM)
Davis, T. E. (M)
Marsh, J. H., Jr. (A)
Youngingor, E. J. (M)

Minerva (AKR-4)
Dieringer, W. K. (M)

Minoo Junction (PIT-4)
Nagyoszy-Wolf, L. M. (M)

Mogadore (AKR-4)
Brown, D. L. (M)
Hann, D. D. (M)
Kimmel, H. E. (A)
Lee, W. C. (A)
Zeigler, E. S. (A)

Monroeville (CLE-4)
Cramer, R. F. (A)

Mount Healthy (CIN-4)
Feldman, R. F. (A)
Sigmon, R. E. (M)

Mount Vernon (COL-4)
Woodward, R. O. (M)

Munroe Falls (AKR-4)
Nickson, R. W. (A)

Newark (COL-4)
Rees, V. C. (A)
Stott, J. C., Jr. (M)

New Bremen (TOL-4)
Koeper, J. I. (M)

Newbury (CLE-4)
Kragle, R. J. (M)

New Carlisle (DAY-4)
Croner, A. J. (M)
Jeffers, G. N. (M)
Lewis, L. F. (A)
Maxim, W. A. (A)
Rogers, A. J. (M)
Sparks, R. S. (A)

New Lebanon (DAY-4)
Mitchell, J. N., Jr. (A)

North Canton (AKR-4)
Gray, D. W. (M)
Lauby, J. W. (M)
Miller, B. M. (M)
Miller, J. H. (M)
Shewchik, S. (A)
Sole, A. R. (M)
Stahl, M. D. (M)
Zumkehr, J. L. (A)
Zurcher, L. A. (SM)

Northfield (AKR-4)
Seib, W. D. (A)

North Olmsted (CLE-4)
Bossard, G. L. (M)
Dailey, R. (A)
Downer, E. W. (M)
Gehrke, F. H. (M)
Kammiller, N. A. (M)
Snyder, G. L. (M)

North Royalton (CLE-4)
Braschwitz, H. J. (M)
Hulme, W. P. (M)
Hutton, W. G. (SM)

Norwood (CIN-4)
Ambergor, F. G. (A)
Carter, S. A. (M)

Novelty (CLE-4)
Barr, J. R. (M)
Lynch, T. E. (M)

Oak Harbor (TOL-4)
Wott, H. W. (A)

Oak Hill (CIN-4)
Loftis, H. J. (M)

Oberlin (CLE-4)
Gilford, S. R. (M)
Howe, C. E. (M)
Young, M. L. (A)

Olmsted Falls (CLE-4)
Conger, C. C. (M)
Irwin, D. E. (M)
Shirer, D. J. (M)
Wolfe, A. R. (M)

Oregon (TOL-4)
Reynolds, F. L. (A)

Ottawa (TOL-4)
Goodkin, S. S. (M)
Schoonover, D. J. (M)
Weideman, R. J. (M)

Oxford (CIN-4)
Anderson, R. J. (M)
Teetzel, F. M. (M)

Parma (CLE-4)
Bloyd, J. E. (M)
Hansen, R. E. (A)
Hultzman, W. W. (M)
Lesh, M. A., Jr. (M)
Levisay, D. H. (M)
Manning, B. M. (A)
Meder, R. (M)
Prechtel, C. J. (M)
Sanderson, R. B. (A)
Schindler, R. W. (M)
Schultz, R. J. (M)
Sommer, R. A. (M)
Thayer, J. W. (M)
Tledt, M. C. (A)
Yambor, E. P. (M)

Parma Heights (CLE-4)
Foster, F. A. (A)
Hrubes, W. R. (A)
Krawczonek, W. M. (A)
Mason, N. O. (A)

Pataskala (COL-4)
Cooper, L. K. (M)
Miller, G. L. (M)

Peebles (CIN-4)
Grooms, W. G. (A)

Perrysburg (TOL-4)
Griss, C. H. (M)
Vollmer, C. B., Sr. (A)

Phillipsburg (DAY-4)
Share, G. E. (SM)

Pickerington (COL-4)
Brooke, E. F. (M)

Piqua (DAY-4)
Driver, C. B. (M)

Poland (AKR-4)
Wallen, A. C. (A)

Port Clinton (TOL-4)
Morgan, W. O. (A)

Powell (COL-4)
Schaeper, H. R. A. (M)

Ravenna (AKR-4)
Braden, W. v. (A)
Jennings, N. F. (A)

Reading (CIN-4)
Westmark, J. E. (M)

Reynoldsburg (CIN-4)
Butterworth, G. S. (M)
Forman, H. R. (A)
Forrest, J. G., Jr. (M)
Hufford, J. N. (M)
Kostolansky, V. A. (M)
Litterer, J. E. (M)
McKinley, R. (M)
Mysing, J. O. (M)
Telew, W. (M)
Tinkham, H. J. (M)

Ridgeway (TOL-4)
McQuown, R. E. (M)

Rocky River (CLE-4)
Kelley, J. J. (M)
Stover, F. J., Jr. (M)

St. Bernard (CIN-4)
Wood, J. J. (M)

St. Clairsville (PIT-4)
Skoff, J., Jr. (A)

Sandusky (CLE-4)
Derrick, W. A. (M)
Fraser, R. J. (A)
Freyberg, J. A. (A)
Hummer, E. W. (SM)
Kenyon, H. S. (SM)
Shumaker, R. (M)
Wild, J. H. (SM)

Shaker Heights (CLE-4)
Dennis, H. (SM)
Fields, I. L. (A)
Keithley, J. F. (SM)
McCarty, C. J. (M)
Miller, H. J. (M)
Pfaff, R. W. (M)
Seldman, S. M. (M)
Smith, R. E. (M)

Sheffield Lake (CLE-4)
Coffe, S. A. (M)

Shelby (AKR-4)
Day, J. H. (M)

Shreve (AKR-4)
Mulligan, R. C. (A)

Sidney (TOL-4)
Ulman, W. H. (M)

Silverton (CIN-4)
Bertram, M. A. (A)

Solon (CLE-4)
Davison, B. (M)

South Euclid (CLE-4)
Di Julius, J. R., Jr. (A)
Goodman, R. J. (A)
Louden, W. C. (M)
Manapan, W. W. (M)
Monroe, R. T., Jr. (A)

Peterson, W. V. (M)
Soeder, E. F. (A)

Springfield (DAY-4)
Beedy, R. M. (M)
Bell, A. L. (SM)
Carey, R. M. (M)
Cunningham, H. W. (A)
Davis, C. R. (SM)
Dieterle, M. W. (SM)
Jones, T. G., Jr. (SM)
Marous, J. J. (M)
Metcalf, W. W. (M)
Pingel, N. D. (M)
Rowe, N. L. (M)
Smith, L. A. (M)

OHIO

Stevens, R. D. (A)

Spring Valley (DAY-4)
Boling, H. E. (A)
Horst, W. R. (M)
Rench, C. F. (M)

Steubenville (PIT-4)
Canerls, A. T. (M)
McFeely, H. H. (SM)

Stow (AKR-4)
Andresen, G. J. C. (A)
Bendis, G. (M)
Bose, E. B. (M)
Fauss, G. C. (M)
Kane, C. G., Jr. (M)
Leach, H., Jr. (M)

Strongsville (CLE-4)
Mastrovitch, R. M. (M)

Sylvania (TOL-4)
Myers, O. J. (A)
Williams, R. B., Jr. (M)

Tallmadge (AKR-4)
Baggerman, G. L. (SM)
Bowen, R. V. (M)
Stonerook, T. D. (M)

Terrace Park (CIN-4)
Jordan, J. F. (F)

Thompson (CLE-4)
Stone, D. L. (A)

Tiffin (TOL-4)
Hartman, R. E. (A)

Tipp City (DAY-4)
Brode, R. L. (SM)
Brown, D. E. (M)
Gambill, C. C. (M)
Garrett, A. F. (M)
Peterson, T. A. (M)

Toledo (TOL-4)
Auldenheide, J. H. (M)
Beins, J. K. (M)
Bell, R. E. (M)
Bensman, R. W. (M)
Bitter, A. R. (SM)
Blomberg, P. E. (A)
Boudouris, A. (M)
Cameron, D. F. (M)
Chipman, R. A. (SM)
Comer, J. W. (M)
Cousino, R. E. (M)
Diehn, R. J. (A)
Douthett, W. W. (M)
Drescher, L. L. (M)
Eash, G. H. (A)
Ewing, D. J., Jr. (M)
Frewalt, E. W. (A)
Galambos, L. G. (M)
Gramlich, H. F. (A)
Grenier, G. H. (M)
Hanna, R. N. (M)
Hawley, F. S. (A)
Hedler, R. C. (M)
Hockenberger, F. R. (M)
Holmes, H. R. (A)
Johnson, W. E. (M)
Kearney, J. P. (SM)
Keck, M. W. (M)
Ketcham, A. R. (M)
Kirchenbauer, C. C. (SM)
Laker, F. J., Jr. (M)
Larson, R. G. (M)
Leuck, D. D. (M)
Loehrke, H. F. (SM)
Loo, W. (M)
Martin, O. J. (M)
McCormick, J. M. (SM)
Meeker, J. G. (M)
Melcher, R. J. (A)
Molloy, G. P. (SM)
Morrison, E. (A)
Murley, E. M., Jr. (M)
Neuert, H. L. (M)
Nixon, W. A. (A)
Orzechowski, R. L. (M)
Patay, J. J. (A)
Pierce, E. W. (M)
Richards, D. K. (M)
Rosencrantz, M. E. (M)
Rowe, H. N. (M)
Rynder, L. S. (M)
Sager, J. R. (M)
Schnell, W. S. (A)
Seike, H. K. (M)
Sheckler, L. D. (M)
Simonds, C. S. (M)
Stafford, J. H. (M)
Stokes, N. W. (A)
Szymkowiak, E. (A)
Voigt, E. H. (A)
Wiese, A. A. (M)
Wooster, W. H. (A)

Toronto (PIT-4)
Chadwick, R. V. (A)

Trotwood (DAY-4)
Atkind, I. (A)
Norman, P., Jr. (A)
Sadow, R. M. (A)
Weissman, S. (SM)

Troy (DAY-4)
Benedict, D. E. (A)
Schmidt, H. J. (M)

Twinsburg (AKR-4)
Howard, W. R. (M)

Uhrichsville (PIT-4)
Mrakovich, S. R. (M)

Union (DAY-4)
Apple, R. C. (M)
Learish, H. B. (SM)

Uniontown (AKR-4)
Birk, J. C., Jr. (M)
Butler, J. W. (M)
Hansburg, M. (M)
Thompson, R. B. (M)

University Heights (CLE-4)
Goldfarb, J. (A)
Roth, M. S. (M)
Seldner, K. (M)
Williams, H. C. (M)

Urbana (DAY-4)
Alty, R. L. (M)

Vandalia (DAY-4)
Harleman, T. W. (A)
Leffler, G. E. (A)
Mayer, J. M. (A)

Van Wert (FT-W-5)
Bates, E. L. (A)
Conley, W. H. (M)
Lindsay, J. T. (M)

Verona (DAY-4)
Hartman, M. L. (M)

Walbridge (TOL-4)
Corathers, C. N. (M)

Warren (AKR-4)
Atwood, W. L. (SM)
Biles, R. G. (M)

Warrensville Heights (CLE-4)
Davis, S. (M)
Kurkul, W. (SM)
Preschel, K. S. (M)

Waynesville (DAY-4)
Morin, R. W. (A)
Puterbaugh, W. H., Jr. (M)

West Alexandria (DAY-4)
French, R. W. (A)

West Carrollton (DAY-4)
Sonnanstine, E. H., Jr. (A)
Springer, L. D. (SM)

West Chester (CIN-4)
Rehmann, W. H., Jr. (M)

Westerville (COL-4)
Autery, R. M. (M)
Foulks, E. D. (M)
Harris, E. L. (M)
Huffman, D. L. (SM)
Kauffman, E. E., Jr. (M)
Pienkowski, E. C. (A)

Westlake (CLE-4)
Corwin, G. (M)
Fletcher, E. S. (SM)
Odell, M. P. (SM)
Seybold, J. F. (A)

West Richfield (AKR-4)
Bear, N. (A)

West Union (CIN-4)
Malone, W. D. (M)

Wickliffe (CLE-4)
Horvat, J. R. (A)
Knife, W. J. (M)
Maynard, D. L. (M)
McNeill, T. J. (A)

Willoughby (CLE-4)
Driscole, D. D. (A)
Hodina, E. G. (M)
Petrarca, T. (M)
Sommer, R. J. (A)

Willowick (CLE-4)
Feucht, R. W. (M)
Klosky, J. P. (M)
Mason, R. F. (A)

Wilmington (CIN-4)
Hart, W. J. (A)
Wadsworth, N. L. (M)

Woodville (TOL-4)
Loutzenhiser, C. F. (M)

Wooster (AKR-4)
Andrew, E. J. (A)
Mullen, H. P., Jr. (A)

Worthington (COL-4)
Adolph, E. H. (M)
Baechle, J. R. (M)
Clutter, E. C. (A)
Conlon, R. J. (M)

Cosgriff, R. L. (SM)
Davis, W. C. (SM)
De Vore, R. V. (M)
Kean, P. M., Sr. (A)
Keck, P. T. (A)
McMahill, D. W. (M)
Morrow, R. S. (M)
Olson, E. C. (M)
Orwig, E. O. (A)
Robison, M. M. (A)
Sisson, E. D. (M)
Spademan, C. F. (M)
Taylor, R. C. (M)
Van Buskirk, R. C. (M)
Whiteacre, R. E. (M)
Wyler, E. N. (M)

Wright-Patterson AFB (DAY-4)
Abbey, G. W. S. (M)
Bailey, T. W. (M)
Cherian, E. J. (M)
Childers, T. A. (M)
Coons, R. J. (M)
Corbin, M. W. (M)
Cummins, T. J. (SM)
Drogosz, D. W. (M)
Dukes, E. F., Jr. (A)
Funk, J. W. (A)
Garrett, E. T. (M)
Heavner, W. S. (SM)
Holden, J. M. (M)
Houpis, C. H. (M)
Jayson, R. M. (A)
Kabrisky, M. J. (M)
King, J. D. (A)
Kohlhaas, R. L. (M)
Kunkle, D. (M)
Lubelfeld, J. (M)
Maas, R. R. (M)
McMillan, L. D. (M)
Metscher, W. (M)
Monahan, A. E., Jr. (M)
North, R. L. (M)
Oliveros, C. G., Jr. (M)
Pulling, B. S. (SM)
Regulinski, T. L. (SM)
Roig, R. W. (M)
Schwartz, D. M. (M)
Scott, S. D. (M)
Smith, C. A. (SM)
Staas, P. C. (M)
Wilson, W. J. (M)
Wisniewski, S. J. (M)

Wyoming (CIN-4)
Bolenbaugh, R. K. (M)
Bruck, G. (SM)
Wahl, A. C. (M)
Zupansky, M. (A)

Xenia (DAY-4)
Anderson, C. W. (M)
Baker, W. W. (SM)
Barker, W. J. (M)
De Berry, D. R. (M)
Doran, R. J. (SM)
Doyle, C. E. (SM)
Holt, T. (M)
Horton, C. D. (M)
Kouri, F. G. (SM)
Kyle, F. W. (M)
Lapsins, U. (M)
Lisowski, E. M. (M)
Ludwig, G. L. (M)
Magee, T. H. (M)
Matson, R. D. (M)
Michaelson, B. L. (A)
Myszko, R. (M)
Noble, H. V. (F)
Noll, L. J. (M)
Nordlund, R. J. (SM)
O'Brien, W. R. (M)
Russell, B. W., Jr. (M)
Schoonover, W. C. (M)
Steenbergen, H. H. (A)
Williams, G. S. (A)

Yellow Springs (DAY-4)
Aschbacher, S. J. (M)
Bletzinger, P. (M)
Carr, D. L. (A)
Colbert, C. (SM)
Friz, W. (A)
Greene, C. K. (SM)
Kimball, D. E. (SM)
Nosker, P. W. (SM)
Obermayer, R. W. (M)
Otten, K. W. (M)
Spaid, W. L. (M)

Youngstown (AKR-4)
Chepsack, J., Jr. (M)
Dierlinger, F. A. (M)
Freisen, T. H. (M)
Housteau, C. M., Jr. (A)
Phillips, R. G. (A)
Renda, C. J. (A)
Resch, R. J. (M)
Small, J. P. (M)
Umbach, L., Jr. (M)
Williamson, W. P., III (M)
Wong, K. H. (M)

Zanesville (PIT-4)
Goodman, G. (M)
Hatfield, F. A. (A)

OKLAHOMA

Ada (OC-6)
Wilkes, L. D. (M)

Altus (OC-6)
Baucum, E. L. (A)
Buckle, G. J., Jr. (A)

Altus AFB (OC-6)
Studebaker, M. E. (M)

Alva (OC-6)
Magnuson, R. A. (M)

Bartlesville (TUL-6)
Bondurant, J. E. (M)
Brashear, R. T. (M)
Clardy, E. K. (M)
Fox, D. N. (M)
Freeman, L. R. (M)
Greening, J. P. (M)
Hensley, W. A. (M)
Jackson, G. A. (M)
Kindred, R. L. (M)
Piety, R. G. (M)
Renfro, C. I. (A)
Walker, J. F. (M)

Bethany (OC-6)
Bailey, J. T. (M)
Daunherty, W. M. (M)
Ely, D. H. (M)
Hill, W. M. (M)
Kanen, G. M. (M)
Kuether, Q. W. (M)
Miller, C. L. (M)
O'Neal, R. K. (A)
Potts, D. D. (M)
Worley, C. R. (A)

Broken Arrow (TUL-6)
Smith, D. (A)
Tompkins, H. S. (A)

Burns Flat (OC-6)
Romine, H. V. (M)

Catoosa (TUL-6)
Culver, J. F. (M)

Choctaw (OC-6)
Kovar, P. (SM)
Miller, J. W., Jr. (A)
Pulliam, J. G. (M)

Earlsboro (OC-6)
Hines, J. W. (M)

Duncan (OC-6)
Copland, G. V. (M)
Gray, C. R. (M)
Hulme, J. R. (M)

Edmond (OC-6)
Kearby, L. I. (M)

Enid (OC-6)
Garriott, O. K. (M)

Fay (OC-6)
Conner, J. B. (M)

Fort Sill (OC-6)
Novak, R. (A)

Frederick (OC-6)
Jones, J. D., Jr. (SM)

Lawton (OC-6)
Averre, C. W. (A)
Holley, J. E. (M)
Todd, D. A. (M)

Mangum (OC-6)
Patterson, J. E. (M)

McAlester (TUL-6)
Nichols, C. D. (M)

Midwest City (OC-6)
Boyd, W. L. (M)
Brooks, L. E. (M)
Cognati, E. S. (A)
Davis, A. C. (M)
Duff, J. B. (A)
Ferguson, J. W. (A)
Frey, W. A. (A)
Hedson, H. D. (A)
Hilmes, E. F. (M)
Holaday, D. F. (SM)
Howell, W. R., Jr. (M)
Hutton, J. E. (M)
Karstetter, W. H. (M)
Kimmell, H. W. (A)
Kirchoff, K. J. (M)
Lee, W. W. S. (A)
Lewis, H. G. (M)
McDonald, T. K. (SM)
Park, R. K. (M)
Payne, G. R. (A)
Rauscher, A. I. (M)
Redden, G. W. (SM)
Reid, K. L. (M)
Schlesinger, C. T. (M)
Shield, C. F., Jr. (M)
Thompson, W. R. (M)
Tillman, L. (M)
Weisiger, J. M. (M)

Muskogee (TUL-6)
Bishop, R. D. (M)
Hardesty, R. D. (M)

Norman (OC-6)
Althoff, D. D. (A)
Challenner, A. P. (SM)
Coubrough, J., Jr. (M)
Dorsett, L. G. (A)
Edwards, O. L. (A)
Farrar, C. L. (SM)
Foster, J. A. (M)
Gallagher, J. E. (A)
Gates, R. P. (M)
Glenn, L. R. (A)
Green, B. B. (M)
Hall, A. E. (M)
Harp, C. E. (SM)
Krehbiel, K. O. (M)
McKeel, W. J. (M)
Meador, M. E. (M)
Moore, R. E. (M)
Palmer, J. D. (M)
Peronard, O. L., J. (M)
Puckett, T. H. (M)
Stovall, H. E. (M)
Sweeney, J. P. (M)
Taylor, D. A. (A)
Tuma, G. (SM)
Vlay, G. J. (SM)
Warren, J. D. (M)
Watson, J. K. (M)

Oklahoma City (OC-6)
Adams, R. C. (M)
Albright, B. D. (M)
Allen, D. P. (M)
Ashby, R. H. (M)
Ashley, F. W. (M)
Ashworth, J. M. (M)
Bailey, J. E. (M)
Baker, J. R. (M)
Barker, M. W. (M)
Bastian, L. R. (M)
Battenburg, N. (M)
Beavin, M. J. (A)
Berry, G. P. (M)
Black, E. (M)
Bradley, B. W. (M)
Bradley, V. V., Jr. (M)
Bridge, G. W. (M)
Brown, R. W., Jr. (M)
Bryan, R. K. (M)
Cannon, W. P. (M)
Carter, J. K. (A)
Cherry, R. B. (A)
Clifton, J. L. (M)
Crippen, E. G. (M)
Cross, C. C. (M)
Daniels, C. L. (M)
Davison, B. D. (A)
Delbridge, J. D. (M)
Dick, C. W. (M)
Diggs, B. H. (M)
Dimick, C. V. (M)
Drumeller, C. C. (M)
Easum, C. M. (M)
Ebner, W. H. (M)
Elder, F. L. (M)
Fehrle, T. L. (M)
Fish, R. L. (M)
Fisher, D. L. (M)
Foster, E. W. (M)
George, D. L. (M)
Gibson, G. T. (M)
Gilmore, E. H. (M)
Glennon, R. E. (M)
Halliburton, J. V. (M)
Hammer, F. E. (M)
Hannan, C. V., III (A)
Hamden, L. W. (M)
Hart, C. O. (M)
Harvell, H. K. (A)
Herriott, J. K., Jr. (M)
Herrmann, F. (M)
Holt, G. W. (SM)
Jackson, J. H., Jr. (M)
Jackson, M. H. (M)
James, F. L. (A)
Johnson, H. B. (A)
Jones, B. H. (M)
Keefe, E. M. (M)
Kruger, K. W. (M)
Kuehne, A. (A)
Lagaly, G. B. (M)
Ledbetter, R. P. (M)
Le Fevre, F. W. (M)
Lindhom, P. H., Jr. (M)
London, J. J. (A)
Lyons, E. F. (M)
Marrinan, H. J. (M)
Mason, H. J., Jr. (M)
Maupin, C. E. (M)
McKinley, W. W. (SM)
Miller, I. S. (M)
Monkres, J. P. (A)
Moore, D. E. (M)
Morris, R. K. (M)
Morrow, J. M. (A)
Mueller, C. W. (SM)
Owen, B. D. (SM)
Phillips, H. E. (M)
Pickett, R. N. (M)
Ramsey, O. B., Jr. (M)
Rea, R. W. (M)
Reynolds, J. (M)
Ricciotti, S. (M)
Robbins, W. S. (M)
Roberts, B. J. (M)
Ross, B. L. (M)
Rotramel, W. T. (M)
Sala, K. E. (M)
Samford, H. L. (M)
Scally, P. J. (M)
Shaw, J. E. (M)
Shaw, M. E. (SM)
Sheaffer, C. F. (SM)
Snethen, J. A. (A)
Sober, V. (M)
Spooner, A. J. (M)
Sroufe, J. S., Jr. (A)
Steed, G. H. (M)
Stubbs, D. L. (M)
Swenson, H. T. (M)
Taylor, R. L. (SM)
Testerman, W. (M)
Thomas, M. W. (SM)
Tyler, R. S. (M)
Villines, F. S. (M)
Walker, S. I. (M)
Welch, P. G. (M)
Welling, W. J. (M)
Wilcox, P. M. (M)
Wilson, W. (A)
Wright, T. E. (M)
Zelinger, F. F. (M)
Zink, R. L. (A)

Okmulgee (TUL-6)
Gaggini, B. J. (M)

Owasso (TUL-6)
Hammond, J. (M)

Ponca City (TUL-6)
Bennett, C. L. (M)
Brown, G. J. (M)
Doty, W. E. N. (M)
Fair, D. W. (M)
Forsberg, E. (A)
Jarrell, L. E. (M)
Lindsey, S. E. (M)
Maris, R. H. (M)
Philbrick, G. D. (A)
Stephenson, E. B. (A)
Wann, L. D. (M)
Wilk, E. (M)

Pryor (TUL-6)
Merrill, J. C. (A)

Ringwood (OC-6)
Benton, H. B. (A)

Sand Springs (TUL-6)
Stullken, R. D. (A)

Seminole (OC-6)
Smith, G. L. (M)
Spears, C. F. (M)

Shawnee (OC-6)
Johnson, L. W. (M)
Jones, M. E. (M)
Wells, E. W. (M)
Wood, G. J. (A)

Stillwater (TUL-6)
Allen, E. (M)
Buck, R. F. (M)
Cameron, C. F. (M)
Fristoe, H. T. (SM)
Hallett, P. C. (M)
Horvath, M. J., Jr. (M)
Hughes, W. L. (M)
Jones, H. L. (SM)
Kobos, F. (A)
Labarthe, L. C. (M)
Lingelbach, D. D. (M)
Mueller, D. C. (M)
Penn, R. M. (M)
Walden, J. M. (SM)

Tahlequah (TUL-6)
Huang, S. S. H. (M)

Tinker AFB (OC-6)
Taucer, C. W. (M)

Tulsa (TUL-6)
Alexander, W. A. (M)
Atchison, R. L. (M)
Barnes, E. M., Jr. (M)
Born, W. T. (F)
Bowman, D. C. (M)
Brennan, J. J. (M)
Brodine, R. (SM)
Brooks, L. C. (M)
Buffum, C. E. (SM)
Burns, K. N. (M)
Bushnell, J. M., Jr. (M)
Care, W. G. (A)
Casey, J. L. (M)
Chapman, H. C. (M)
Cooley, J. A. (M)
Cooper, J. R. (SM)
Cordell, L. B. (M)
Cordell, R. L. (M)
Crom, C. L. (M)
David, W. O. (A)
Davis, D. R. (A)
Day, C. E. (M)
Deming, J. M. (A)
Dennis, J. R. (SM)
Dilmen, B. (M)
Donley, M. M. (A)
Dozier, H. S. (A)
Drahein, L. H. (M)
Dunn, C. S. (M)
Durham, E. R. (A)
Earthman, J. C. (M)
Ellis, R. M. (SM)
Enole, A. W. (M)
Ferguson, P. M. (M)
Field, H. S. (M)
Finn, R. S. (M)
Fisher, J. L. (A)
Fisher, R. B. (M)

Freeman, F. R. (M)
Furlow, D. B. (M)
Giles, C. S. (A)
Gladson, G. G. (M)
Graf, V. V. (M)
Green, G. C. (A)
Hadley, C. F. (SM)
Harper, F. N. (M)
Hart, R. N. (M)
Hawkins, J. E. (SM)
Heam, D. P. (M)
Hibbard, H. C. (M)
Hilburn, E. D. (A)
Hill, J. K. H. (A)
Holmes, E. J. (A)
Hooker, L. H. (M)
Hunsicker, W. R. (M)
Hussey, C. V., Jr. (M)
Hutchinson, H. M., Jr. (A)
Jacobs, G. G. (A)
Kammerzell, C. E. (A)
Keene, L. C. (SM)
Keller, B. H. (A)
Kenton, J. K. (M)
Koeppel, B. W. (M)
Lash, C. C. (SM)
Lineback, N. (SM)
Lynn, R. D. (M)
Mahone, E. H. (M)
Marshall, B. R. (A)
Martin, H. H., Jr. (A)
McCoy, B. F. (A)
Miller, J. W. (SM)
Mitchell, R. W., Jr. (M)
Moon, C. L. (A)
Newton, G. R. (SM)
Nichols, R. L. (A)
Nichols, W. R. (SM)
Norris, W. F. (M)
Olsen, K. B. (M)
Orsak, A. J. (A)
Peterson, G. (SM)
Phillips, H. W. (SM)
Pittenger, R. D. (M)
Reid, A. C. (M)
Reinking, W. C. (M)
Roe, E. O. (M)
Rollans, J. C. (M)
Schad, C. A. (M)
Seaman, W. E. (M)
Shelton, H. C. (A)
Silverman, D. (F)
Smith, L. H. (A)
Sorge, W. A. (M)
Stinchcomb, R. T. (A)
Stover, E. B., Jr. (M)
Stroup, R. E. (A)
Sweeny, A. C., Jr. (A)
Swift, G. (M)
Van Bey, L. (M)
Vitali, J. D. (M)
Vogt, C. O. (M)
Walker, J. V. (M)
Watson, G. E. (A)
Watson, R. E. (A)
Wattenbarger, W. W. (A)
Weldon, W. J. (A)
Westervelt, J. C. (M)
Wilcox, R. L. (M)
Willits, G. N. (A)
Wilson, R. C. (A)
Wood, G. A. (A)
Wood, J. K. (A)
Zarate, E. (A)
Zollie, J. M. (M)
Zongker, R. C. (M)

Vance AFB (OC-6)
McFarlane, A. J. (M)

Wagoner (TUL-6)
Harris, C. D. (A)

Wheatland (OC-6)
Hale, C. M. (M)

Yukon (OC-6)
Edlund, R. W. (M)

OREGON

Aloha (POR-7)
Walker, W. D. (M)
Yuen, J-N (M)

Baker (POR-7)
Thomas, J. W. (M)

Beaverton (POR-7)
Barr, D. D. (M)
Calnon, D. C., Jr. (M)
Colonias, J. S. (M)
Dallas, W. K. (SM)
Gasser, C. D. (A)
Goard, R. W. (A)
Harper, J. D. (A)
Hitchen, H. W. (A)
Jenkins, R. W. (M)
Kobbe, J. R. (M)
Long, V. L. (M)
Macpherson, C. H. (M)
Madinabeitia, C. S. (M)
Mecham, J. H. (M)
Passmore, F. X. (A)
Pyle, S. H. (M)
Rullman, R. G. (M)
Tinker, F. B. (M)
Trump, W. E. (M)

Cornelius (POR-7)
Strain, D. C. (SM)

Corvallis (POR-7)
Abbey, C. R. (M)
Albert, A. L. (F)
Amort, D. L. (M)
Ballard, B. J. (M)
Dunlap, C. R. (SM)
Felkert, G. S. (SM)
Haefer, J. A. (A)
Homes, D. F. (M)
Hunnicutt, A. L. (M)
Jensen, L. C. (A)
Kimlinger, R. J. (M)
Looney, J. C. (M)
Magnusson, P. C. (SM)
Michael, R. R. (M)
Moore, E. G., Jr. (M)
Oorthuys, H. J. (SM)
Peterson, D. E. (M)
Stone, L. N. (M)
Stone, S. A. (M)
Stuart, C. J. (M)
Weber, L. J. (M)
Yunker, E. A. (SM)

Eugene (POR-7)
Ballnt, J. E. (SM)
Hoppe, P. R. (A)
Surdam, E. L. (M)
Wilson, L. S. (M)

Forest Grove (POR-7)
Holce, T. J. (M)

Gresham (POR-7)
Nichols, J. S. (M)

Hillsboro (POR-7)
Grahan, E. H. (M)
Lucas, J. B. (A)
Myers, W. C. (M)
Parks, P. F. (M)

Hubbard (POR-7)
Shrock, R. A. (M)

Klamath Falls (POR-7)
Chitwood, P. H. (M)
Cramer, K. H. (A)
Du Wane, W. H. (M)
Grimes, W. P. (M)
Haun, R. A. (M)
Orrell, D. B. (M)
Tomlin, E. W., III (A)

La Grande (POR-7)
Cannon, T. W. (M)

McMinnville (POR-7)
Bennett, S. D. (SM)
Charbonnier, F. M. (M)
Garrett, L. F. (M)
Hipperson, J. R. (M)
Strayer, R. W. (M)

Medford (POR-7)
Walker, V. G. (M)

Milton-Freewater (POR-7)
Tyrrell, R. L. (A)

Milwaukie (POR-7)
Garvin, W. E. (A)
Guyton, W. V. (M)
Jackson, W. E. (M)

North Bend (POR-7)
Toohey, P. E., Jr. (M)

North Bend AFS. (POR-7)
Paradis, C. L. (M)

Oceanside (POR-7)
Linn, H. B. (M)

Oswego (POR-7)
Edens, G. E. (M)
Grigg, R. W. (M)
Lintner, P. D. (M)
Smith, D. E. (SM)

Pendleton (POR-7)
Byers, S. E. (A)

Philomath (POR-7)
Plunkett, D. T. (A)

Portland (POR-7)
Abney, L. J. (A)
Allen, W. M. (SM)
Austin, G. (A)
Bactowski, N. (A)
Beck, R. M. (M)
Beetem, J. M. (M)
BeLusko, J. V. (A)
Bishop, A. R. (M)
Bookwalter, L. S. (M)
Brandt, G. (M)
Broms, B. H. (A)
Brown, W. C. (A)
Carpenter, C. B. (SM)
Cassidy, J. J., Jr. (M)
Chambers, D. R. (M)
Corbett, H. L., Jr. (M)
Corbett, T. (M)
Crane, A. S., Jr. (M)
Craycraft, H. T. (A)
Cutting, W. A. (M)
Dahnke, J. L. (M)
Davis, E. A. (A)
Davis, K. E. (SM)
Davis, R. J. (SM)
Day, J. E. (A)
Deardorff, R. W. (F)
Delord, J. F. (SM)
DeVaul, W. E. (M)
Doel, D. (M)
Donoghue, J. J. (M)
Dubinski, G. A. (M)
Eggers, J. L. (M)
Ellison, G. C., Jr. (M)
Elssner, E. H. (M)
Erwin, J. A. (M)
Fox, R. A. (M)
Franzel, D. E. (M)
Gard, J. J., Jr. (M)
Gibson, C. B., Jr. (M)
Glover, M. H. (M)
Gordon, D. D. (A)
Gotcher, A. W. (A)
Griffith, J. W. (SM)
Groeger, E. R. (M)
Grossenbacher, A. C. (A)
Hashizume, G. K. (M)
Hazard, D. R. (M)
Heath, H. W. (M)
Hedrick, L. C. (SM)
Henderson, J. E. (A)
Herren, R. A. (M)
Hinze, J. C. (A)
Hollingsworth, K. M. (A)
Holtzman, M. (M)
Huber, S. J. (M)
Isaac, V. L. (A)
James, T. W. (M)
Johnson, D. E. (SM)
Johnson, R. M. (M)
Johnston, G. I. (M)
Konoch, L. R. (M)
Krausse, J. B. (A)
Lam, T. C. (M)
Leech, E. R. (M)
Liedtke, J. A. (M)
Lund, C. W. (SM)
Marihart, D. J. (M)
Marsh, W. E. (SM)
McCann, F. H. (SM)
McCutcheon, S. R. (M)
McDowell, D. E. (A)
McEdward, F. A. (M)
McFarland, B. N. (M)
Meissner, E. R. (SM)
Mendoza, D. C. (M)
Miller, F. E. (SM)
Miller, V. F. (M)
Moak, A. R. (M)
Morey, A. M. (M)
Morgan, M. L. (M)
Morin, L. A. (M)
Morrison, H. L. (M)
Moulton, C. H. (M)
Mulvey, J. A. (A)
Nelson, C. W. (M)
Newhouse, D. R. (M)
Nolan, C. A. (M)
Ofner, F. R., Jr. (A)
Olsen, R. M. (M)
Pailthorp, R. M. (M)
Paul, B. R. (M)
Perletti, P. V. (M)
Peterson, R. M. (M)
Pittard, F. L. (M)
Polits, W. J. (A)
Pooley, R. R. (M)
Poulin, R. A. (M)
Quinn, A. C. (M)
Raupach, R. C. (M)
Rhiger, R. R. (M)
Richardson, W. E. (M)
Riley, J. C. (SM)
Ritter, H. C. (A)
Roberts, M. L. (M)
Roos, W. K. (SM)
Roplequet, R. L. (SM)
Roth, J. G. (A)
Rutherford, W. E. (M)
Schmitt, G. W. (A)
Schmitt, W. L. (M)
Scott, E. D. (SM)
Shantz, C. J. (A)
Shelley, A. L. (M)
Singer, H. L. (M)
Singleton, H. C. (SM)
Skinner, G. C. (M)
Stanwood, M. E. (M)
Stemes, K. J. (M)
Stoll, J. L. (M)
Svehaug, O. C. (A)
Tabshy, S. J. (M)
Thomson, A. (M)
Tunuei, A. R. (A)
Tuttle, B. R. (M)
Tyle, A. B. (SM)
Vassallo, W. H. (A)
Voltum, H. (F)
Wane, W. M. (A)
Weiss, L. S. (M)
White, L. C. (M)
Wilhoit, D. I. (M)
Winkler, L. R. (M)
Winningstad, C. N. (M)
Woo, J. (M)
Worden, A. E. (M)
Zeldihack, D. F. (A)

Salem (POR-7)
Fulmer, A. L. (M)
Purbrick, R. L. (M)
Roake, T. C., Jr. (A)

Sherwood (POR-7)
Crawford, H. C. (A)

Long, L. A. (M)

The Dalles (POR-7)
Curtis, H. T. (M)
Epley, E. R. (A)

Tigard (POR-7)
Eliander, H. F., Jr. (M)
Hollister, B. L. (A)
Kidd, D. E. (M)
Webber, W. B. (M)

Toledo (POR-7)
McClure, H. W. (A)

PENNSYLVANIA

Abington (PHI-3)
Adams, K. (M)
Batliuk, R. A. (M)
Beck, C. (A)
Bethke, H. B. (M)
Booker, R. W. (M)
Boyle, J. A. (M)
Chang, S. Y. (M)
Dittrich, W. A. (A)
Goff, K. W. (A)
Gordon, J. P. (SM)
Lounsberry, E. P. (M)
Remich, J. E. (M)
Schwartz, H. F. (M)
Schwarz, J. B. (M)
Tarzian, V. (A)
Tonooka, S. (M)
Van Horn, J. E. (M)
Vantine, H., Jr. (SM)
Young, C. P. (SM)

Aliquippa (PIT-4)
Haluza, M. G. (A)
Ugoletti, L. S. (M)

Allentown (P-LV-3)
Allen, J. L., Jr. (M)
Anand, R. P. (M)
Bartholomew, C. Y., Jr. (M)
Bolez, E. C. (A)
Bostak, R. J. (M)
Bradford, C. E. (M)
Buehler, P. R. (M)
Chaplin, H. J. (A)
Cleinow, D. (M)
Cressman, R. N. (M)
Ford, G. T. (SM)
Hanlmann, A. M. (M)
Hansen, E. (M)
Hanson, F. E. (SM)
Herbert, N. J. (SM)
Hittinger, W. C. (A)
Kortvely, Z. J. (M)
Kraay, R. A. (SM)
Landis, R. B. (M)
Levien, F. H. (M)
McGrath, J. W. (SM)
Morton, K. L. (M)
Newhard, C. E. (M)
Paulsen, J. F. (SM)
Polak, R. P. (M)
Purcell, R. H. (SM)
Ronci, V. L. (F)
Rutter, V. E. (M)
Simpson, A. D. (SM)
Slemmer, W. M. (M)
Taylor, R. R. (M)
Tooker, H. A. (SM)
Vanderwal, N. C. (M)
Van Haste, W. (SM)
Waltz, M. C. (SM)
Warren, J. A. (M)
Watson, H. A. (M)
Whitner, R. A. (M)
Wiley, J. H., Jr. (M)
Young, C. S. (SM)
Ziegler, R. N. (M)
Zuk, P. (M)

Allison Park (PIT-4)
Joller, C. R. (A)
Mink, R. E. (M)
Sheopard, C. A. (M)
Sherwin, G. W. (A)

Altoona (PIT-4)
Hoerman, C. W. (M)
Rothrock, J. C. (M)
Schwartz, E. (M)

Ambler (PHI-3)
Anderson, E. A., Jr. (M)
Bielawa, H. W. (M)
Colussi, E. J. (M)
Conroy, J. F. (A)
Cronkite, R. O. (M)
Dosch, V. L. (M)
Gahagan, J. R. (M)
Gehman, P. A. (M)
Gruensfelder, K. (M)
Heacock, R. J. (A)
Hunicke, R. L. (SM)
Jensen, C. L. (SM)
Kitson, H., Jr. (SM)
Lachman, D. (M)
Leonard, J. F. (M)
Lex, R. G., Jr. (M)
Mauchly, J. W. (F)
McCarthy, C. S., Jr. (M)
Schoenberg, J. P. (M)
Simmons, C. D. (M)
Smith, F. P. (M)
Sommer, E. H., Jr. (M)
Stone, J. E. (M)
Swift, M. E. (SM)
Thornton, J. W. (M)

Vidro, E. F. (M)
Voorhoeve, E. W. (SM)
Watson, D. M. (M)
Wong, S. Y. (M)

Apollo (PIT-4)
Brouwer, N. L. (M)

Archbald (PHI-3)
Ling, R. F. (A)

Ardmore (PHI-3)
Coooa, P. L. (M)
Freedman, R. D. (M)
Fuller, L. C., Jr. (M)
Gittleman, A. B. (A)
Harris, P. P., Jr. (A)
Mayer, R. (SM)
Meyer, C. B. (M)
O'Brien, G. F. (M)
Queen, G. N., Jr. (M)
Rauch, R. M. (A)
Teres, B. W. (A)
Rochenbeber, N. (A)
Sowell, J. B. (M)
Weinberg, H. M. (M)
White, O. S. (M)

Ardsley (PHI-3)
Knieriem, H. W. (A)
Merrithew, H. W. (M)
Vasilevskis, H. S. (M)
Wheeler, E. B. (M)

Ashley (PHI-3)
Grohowski, J. A. (A)

Audubon (PHI-3)
Hart, J. W. (M)

Bakerstown (PIT-4)
Mag, A. (M)

Bala-Cynwyd (PHI-3)
Apple, L. S. (M)
Benjamin, J. M., Jr. (SM)
Bresson, J. (M)
Callender, E. M. (M)
Coleman, R. P. (M)
Dobkin, R. C. (A)
Eachus, I., Jr. (SM)
Friedman, M. (A)
Friend, A. W. (F)
Jordan, A. K. (M)
Kushner, E. E. (M)
Meehan, E. J., Jr. (M)
Messmer, W. J., Jr. (M)
Richards, J. R. (M)
Roberts, R. S., Jr. (M)
Roop, R. W. (SM)
Sorkin, C. S. (M)
Spencer, R. W. (M)
Steinberg, B. D. (A)
Sunstein, D. E. (F)
Young, R. T. (M)

Bangor (P-LV-3)
Drury, H. J. (M)

Bath (P-LV-3)
French, I. F. (M)
Moyer, E. P. (M)

Beaver Brook (PHI-3)
Kunetz, G. J. (M)

Beaver Falls (PIT-4)
Young, R. W. (A)

Bedminster (P-LV-3)
Moyer, L. K. (M)

Bellefonte (CP-4)
De Barber, J. P. (SM)
Giffin, F. W. (M)
Harvey, H. B. (M)
Lyon, C. M. (A)
Maris, E. H., Jr. (M)
Mundy, E. I. (A)

Belle Vernon (PIT-4)
Radock, C. (A)

Bellevue (PIT-4)
Myers, L. B. (M)

Bentleyville (PIT-4)
Vertar, J. A. (A)

Benton (WIL-4)
Cheng, A. (M)

Bernville (PHI-R-3)
Gantert, A. (A)

Berwyn (PHI-3)
Allen, W. W., Jr. (M)
Barnes, G. H. (A)
Brown, L. R. (SM)
Buck, J. H. (SM)
Kenosian, H. (M)
Michaels, C. J., Jr. (M)
Murray, K. W. (M)
Oliver, G. A. (M)
Parsons, T. W. (M)
Phelan, L. T. (A)
Rainey, R. O. (SM)
Rzyl, G. J. (M)
Reid, C. R. (SM)
Rohde, P. J. (M)
Schultz, M. A. (M)
Taylor, C. A. (SM)
Varallo, F. A. (M)
Williams, R. J., III (M)
Youtchelf, J. S. (M)

Bethel Park (PIT-4)
Augenstene, M. G. (M)
Grace, J. N. (M)
Papouschek, F. (M)
Sander, H. F. (M)
Schapoert, P. J. (M)

Bethlehem (P-LV-3)
Aihar, R. M. (M)
Allen, R. M. (M)
Brosious, D. R. (M)
Downing, H. L. (M)
Elder, H. E. (M)
Fisher, R. E. (M)
Fluck, M. F. (A)
Gobs, C. A., Jr. (A)
Hollabaugh, W. F. (M)
Karakash, J. J. (SM)
Kimura, F. S. (M)
Larky, A. I. (M)
Lisle, J. (M)
Long, T. P., Jr. (M)
McCracken, L. G., Jr. (SM)
Miller, S. G. (A)
Posivak, J. S., Jr. (M)
Soneki, J. H. (M)
Stauffer, R. E. (M)
Taylor, H. E. (M)
Trotta, J. (M)
Wagner, R. E. (M)
Wahl, A. (M)

Blairsville (PIT-4)
Bosted, N. P. (A)

Blawnox (PIT-4)
Belinsky, O. A. (A)

Blue Bell (PHI-3)
Chu, J. C. (M)
Dahlberg, R. S., Jr. (SM)
Deysher, J. B. (M)
Fisher, S. T. (M)
Frick, R. J. (M)
Howes, C. N. (M)
Kieslitch, W. G. (M)
Kovacs, J. J. (A)
Miller, W. C., Jr. (M)
Pamell, J. (M)
Pizzirani, A. A. (M)
Shanzer, H. M. (M)
Simon, W. (M)
Smock, W. W. (M)
Straub, G. H., Jr. (M)

Blue Ridge Summit (PHI-3)
Engle, G. E. (M)

Boalsburg (CP-4)
Ayres, D. T. (A)
Bates, J. K., Jr. (A)
Harris, D. E. (SM)
Kaprocki, F. E. (M)
Niessner, A. F. (M)
Ritter, V. H. (M)
Sechrist, C. F., Jr. (M)
Slear, L. S., Jr. (M)
Smitley, C. R. (A)

Brackenridge (PIT-4)
Monnier, H. E. (M)

Brackney (PHI-3)
Reese, R. E. (M)

Braddock (PIT-4)
Zygmunt, H. J. (M)

Bradford (EMP-4)
Atkinson, D. A. (A)
Bauer, P. A. (M)
Carlson, J. O. (M)
Cook, P. G. (M)
Craumer, H. S. (A)
Dawson, A. W. (M)
DiMarino, A. (M)
Dumstorf, T. A. (M)
Eveleth, J. H. (M)
Hunt, M. H. (M)
King, L. S. (M)
Lucy, C. J. (M)
Marafioti, J. J. (M)
McCann, R. W. (M)
McIntosh, K. S. (A)
McKnight, G. P. (SM)
Miller, I. C. (M)
Moshier, L. S., Jr. (M)
Murray, W. J. (A)
O'Brien, R. A. (M)
Riley, J. F. (A)
Sailer, E. (M)
Shaw, M. R. (M)

Bridgeport (PHI-3)
Kocher, W. J. H. (M)

Bridgeville (PIT-4)
Pettengill, G. W. (M)
Tury, S. F. (A)

Bristol (PHI-3)
Annett, M. E. (M)
Dolinski, J. W., Jr. (M)
Dove, J. B. (A)
Elton, H. A. (M)
Peters, D. B. (M)
Sheldon, H. W. (SM)

Chester (PHI-3)
Desantis, Z. S. (M)
Lind, E. N. (M)
MacWilliams, J. E. (M)
Root, W. E. (M)
Rosenblatt, H. L. (M)
Soengos, A. (M)

Chester Springs (PHI-3)
Dodge, H. S. (M)
Trumper, D. K. (A)

Cheswick (PIT-4)
Peters, J. E. (M)

Cheyney (PHI-3)
Mace, A. E. (A)

Chinchilla (PHI-3)
Ringland, R. S. (SM)

Churchville (PHI-3)
Hunka, G. W. (M)
Sysko, S. J. (M)

Clarendon (EMP-4)
Haines, H. M. (M)

Clarks Green (PHI-3)
Moeller, K. F. W. (M)

Clarks Summit (PHI-3)
Oschmann, R. G. (M)
Winkler, R. H. (M)

Clearfield (EMP-4)
Boyd, J. C. (SM)
Diehl, W. F. (F)
Wallace, R. P. (SM)

Clifton Heights (PHI-3)
Allen, G. P. (A)
Ellis, D. J. (M)
Lobel, D. J. (M)
Lombardini, P. P. (SM)
Werbickas, J. P. (A)
Wolle, J. E. (M)

Collegeville (PHI-3)
Burleigh, R. P. (M)
Graham, E. C. (M)
Smith, R. M. (A)
Strohmeyer, G. R. (M)

Collingdale (PHI-3)
Minahan, W. G. (M)

Colwyn (PHI-3)
Bradley, J. F. (M)

Conestvoga (PHI-L-3)
Landis, C. G. (M)

Conshohocken (PHI-3)
Blumenthal, E. I. (M)
Heagerty, W. F. (M)
Milliken, E. N. (M)
Ruf, F. C. (M)

Coopersburg (P-LV-3)
Webster, G. R. (M)

Coraopolis (PIT-4)
Cuccarese, E. A. (A)

Cornwells Heights (PHI-3)
Rife, E. F. (A)
Stookey, B. H. (M)

Coudersport (EMP-4)
Du Bois, A. F. (M)

Crafton (PIT-4)
Sippach, F. W., Jr. (M)

Crum Lynne (PHI-3)
Chang, Y. (M)

Cynwyd (PHI-3)
Follensbee, W. R. (A)
Kilpatrick, D. G. (SM)
Laurent, G. J. (SM)
Prywes, N. S. (M)

Dallas (PHI-3)
Menzel, H. W. (M)
Mohr, A. E. (M)

Danboro (PHI-3)
Cochlan, P. T. (A)
Pasicznyk, I. (M)

Darby (PHI-3)
Ross, W. F., Jr. (M)
Schanzenbach, G. P. (M)

Delphi (PHI-3)
Richard, C. D., Jr. (M)

Devon (PHI-3)
Bell, P. F. (M)
Bevington, J. R. (A)
Denk, W. E. (M)
Griffin, J. T. (M)
Hoberg, G. G. (SM)
Woodrow, G. V., Jr. (SM)
Zomber, G. L. (M)
Dickson City (PHI-3)
Grabowski, J. P. (M)
Srebro, F. P. (M)

Dillsburg (PHI-L-3)
Wolf, C. E. (A)

Donora (PIT-4)
Guyker, W. C., Jr. (M)

Downingtown (PHI-3)
Bittmann, E. E. (M)
Jensen, D. W. (M)

Doylestown (PHI-3)
Baker, H. C. (M)
Benecke, H. O. (SM)
Cogar, G. R. (M)
Cole, W. G. (M)
Davis, R. W., Jr. (SM)
McBride, W. J. (M)
Schweitzer, R. W. (M)
Smith, A. W. (A)
West, H. (M)

Dresher (PHI-3)
Davey, C. T. (M)
Feller, M. S. (A)

Drexel Hill (PHI-3)
Adler, D. G. (M)
Boyajian, M. M. (A)
Brooks, F. C. (M)
Buxton, P. R. (M)
Cleary, T. R. (M)
Dimmler, M. F., Jr. (M)
Dominiak, K. E. (M)
Finley, J. M. (M)
Free, A. L. (M)
Jones, R. E. (M)
Kley, R. C., Jr. (M)
Leake, W. B. (M)
Lewis, G. (M)
Ley, G. S. (SM)
Meyer, A. M. (M)
Moore, W. L. (M)
Morris, C. R. (M)
Muench, P. E. (M)
Mural, F. (M)
Rosenberg, H. (M)
Satin, N. J., Jr. (SM)
Schick, L. B. (M)
Schinagel, M. (M)
Schmitt, P. T. (A)
Sclambi, A. F., Jr. (M)
Stobbart, A. (M)
Stoughton, A. M. (M)
Velkers, G. D. (A)

Dry Run (PHI-3)
Worthington, F. M. (M)

Du Bois (EMP-4)
Bley, L.H. (M)
Kunst, A. F. (M)
McGarvey, H. J. (M)
Winters, W. J. (M)

Dunlo (PIT-4)
Cimba, J. (M)

Dunmore (PHI-3)
Kelly, J. F. (M)
Kinback, R. W. (M)
Reiner, C. (A)

Duquesne (PIT-4)
Laycak, J. F. (M)

Duryea (PHI-3)
Dobroski, J. E. (M)
Madera, A. J. (M)
Panick, R. J. (M)

East Lansdowne (PHI-3)
Ruggles, P. R. (M)
Williams, T. L. (M)

East McKeesport (PIT-4)
Queer, P. R. (A)

Easton (P-LV-3)
Berk, D. M. (M)
Carlson, R. F. (SM)
Conover, L. J. (SM)
Cosper, R. A. (M)
Duncan, J. R. (M)
Englehardt, W. K. (M)
Fellendorf, G. W. (M)
Gehardt, F. L. (M)
Hollander, A.M. (M)
Holler, R. F. (M)
Kressman, J. H. (M)
Krohn, P. L. (SM)
Lancaster, D. E. (M)
Slavics, J. W. (A)
Smith, C. R. (M)
Smith, F. W. (SM)
Volk, J. H. (M)
Waer, R. R. (M)
Ward, R. E. (M)

East Petersburg (PHI-L-3)
Hammersand, F. G. (M)
Morrell, A. M. (M)

East Pittsburgh (PIT-4)
Blewitt, D. D. (M)
Buckler, P. F. (M)
Fears, C. D. (M)

Ferguson, R. W. (M)
Harder, E. L. (SM)
Johnson, W. A. (M)
Lee, C. H. (M)
McDonald, J. (A)
Sanders, T. D. (M)
Sestrick, R. M. (M)
Steinbruegge, H. A. (M)

East Stroudsberg (PHI-3)
Peterson, J. R. (M)

Edwardsville (PHI-3)
Belensky, M., J., Jr. (A)
Korlishin, L. (A)

Elizabethtown (PHI-L-3)
Alger, P. B. (M)
Custer, H. M. (M)
Lerch, D. P. (M)
Orr, R. W. (M)

Elkins Park (PHI-3)
Anton, A. (M)
Blembaum, J. W. (A)
Brill, H. A. (M)
Caldwell, W. H. (SM)
Coultas, R. A. (A)
Gruen, H. (SM)
Herbert, E. J., Jr. (M)
Kaufmann, H. L. (M)
Kirsch, A. L. (SM)
Kraus, M. H. (M)
Krutter, H. (F)
Lawson, B. V. (M)
Levene, M. L. (M)
McLaughlin, T. C. (M)
Porter, H. F. (SM)
Pressman, A. (M)
Rath, H. B. (M)
Rojas, R. R. (M)
Rothschild, L. I., Jr. (SM)
Sink, J. A. (A)
Spiegel, H. (A)
Suckle, B. W. (A)
Swartz, M. D. (A)
Yaffe, M. (SM)
Zaslav, B. (A)

Ellwood City (PIT-4)
Powell, K. F. (A)

Emmaus (PHI-3)
Barker, K. R. (M)
Chittick, D. R. (M)
Cordan, C. F. (M)
Gingrich, C. C., Jr. (M)
Ruth, H. L. (A)

Emporium (EMP-4)
Ackman, C. W. (M)
Ackman, H. E. (SM)
Allgaier, W. A. (SM)
Baldwin, A. V. (SM)
Beeney, D. W. (M)
Berndahl, R. F. (A)
Bisso, R. J. (SM)
Boden, E. H. (SM)
Bossers, C. (SM)
Brunner, G. V. (SM)
Buescher, W. E. (SM)
Burwell, A. C., Jr. (SM)
Campbell, V. H. (SM)
Carlstrom, T. H. (SM)
Clark, J. H. (M)
Clausen, R. P. (SM)
Cooley, R. M. (SM)
Curry, G. T. (SM)
Detweiler, J. E. (A)
Dolnick, A. L. (SM)
Douglass, C. F. (SM)
Dresser, S. R., Jr. (M)
Erdle, P. J. (SM)
Fromell, H. J. (SM)
Gausman, T. E. (SM)
Goodman, H. L. (M)
Grubbe, V. P. (M)
Heitner, A. J. (M)
Hench, H. S., Jr. (M)
Hendrickson, C. C. (SM)
Herbert, H. W. (SM)
Kackauskas, J. J. (M)
Kalmer, H. V., Jr. (M)
Keeney, C. G. (M)
Kelley, D. J. (M)
Klees, E. C. (M)
Klinestiver, G. H., Jr. (M)
Lambert, R. L. (SM)
Lantzy, W. E. (A)
Maguire, L. R. (SM)
McClure, J. R. (SM)
McKain, J. L. (SM)
McNaughton, R. A. (M)
Metzler, F. A., Jr. (A)
Miller, R. C. (SM)
Mueller, W. P. (SM)
Musolino, J. M. (M)
Neuber, R. E. (SM)
Northrop, R. R. (M)
Northrup, R. M. (M)
Overmier, E. E. (SM)
Palen, H. A. (M)
Palmateer, R. E. (SM)
Peterson, A. W. (SM)
Petruna, J. G. (A)
Pope, L. A. (A)
Quint, G. L. (A)
Reitz, N. J. (SM)
Richardson, H. L. (M)
Rinehuls, N. F. (M)
Robbins, J. D. (SM)
Rodgers, J. C. (A)
Roland, J. T. (M)
Rolf, W. R. (SM)
Ross, V. C. (A)
Sassaman, P. H. (SM)
Schultz, A. J. (SM)
Schwender, L. D. (M)
Sember, W. J. (M)
Simon, P. R. (M)
Slinkman, R. W. (SM)
Snyder, V. D. (M)
Songer, L. J. (M)
Stumolf, H. G. (SM)
Vergason, D. L. (SM)
Walsh, R. J. (SM)
Zmuda, E. I. (M)

Erie (ERI-1)
Anderson, R. H. (M)
Blais, P. D. (A)
Blakeley, F. J. (M)
Davidson, A. R. (SM)
Ehrman, P. B. (M)
Fisch, A. (M)
Gluck, F. (SM)
Gray, R. B. (SM)
Greener, A. E. (M)
Herman, L. W. (M)
Herrick, H. S. (M)
Krainski, A. D. (M)
Lodge, A. (A)
Michael, R. N. (M)
Minnium, B. B. (F)
Nedreski, R. J. (A)
Page, R. S. (M)
Palmer, J. E. (M)
Presutti, B. D. (M)
Rochin, D. W. (A)
Smith, D. H. (M)
Steiner, P. E. (M)
Thomas, P. R. (A)
Vieira, J. E. (A)
Werner, G. L. (M)
Williams, R. H. (M)
Windsor, R. T. (M)
Wolfskill, J. M. (M)
Young, F. R. (M)

Ernest (PIT-4)
Husoskey, R. J. (M)

Exeter (PHI-3)
Morris, W. P. (A)

Export (PIT-4)
Bennett, A. I., Jr. (A)
Gwyn, C. B., Jr. (SM)
Putkovich, R. P. (A)

Exton (PHI-3)
Reisener, W. C., Jr. (M)

Fairless Hills (PHI-3)
Pulgdollers, E., Jr. (M)
Van Reymersdal, J. (M)

Fairview Village (PHI-3)
Coville, H. A. (SM)

Fallsington (PHI-3)
Maddox, J. A. (M)

Flourtown (PHI-3)
Bartels, H. C., Jr. (M)
Bruno, A. (M)
Chase, B. G. (A)
Kishpaugh, A. W. (M)
Linden, A. E. (SM)
Lynch, C. V., Jr. (M)
Marcus, H. M. (A)
Norpel, J. W. (M)
O'Brien, J. F., Jr. (M)
Perkins, H. A., Jr. (M)
Shih, W. (M)
Spindler, C. W., Jr. (SM)

Folcroft (PHI-3)
Sturgis, W. J., Jr. (A)

Folsom (PHI-3)
Donnelly, E. J. (M)
Kozikowski, J. L. (M)

Forest City (PHI-3)
O'Peka, F. J. (M)

Fort Washington (PHI-3)
Dawson, W. C. (M)
Harcar, A. R. (M)
Heckelman, T. J. (M)
Jacoby, M. (M)
Johnson, E. L. (M)
Kerbec, M. J. (M)
Mosher, R. M. (A)
Schantz, J. S. (M)
West, W. P. (SM)

Frackville (PHI-3)
Cooper, E. J. (M)

Freedom (PIT-4)
Swartz, F. E. (A)

Freeport (PIT-4)
Woodcock, R. E. (M)

Fullerton (P-LV-3)
Moyer, R. H. (M)
Scheirer, R. D. (M)

Furlong (PHI-3)
Horn, R. W. (A)
Gardenville (PHI-3)
Biggs, J. A. (M)

Gardners (PHI-L-3)
Tate, R. G. (A)

Gettysburg (PHI-L-3)
Wentz, G. W. (M)

Gibsonia (PIT-4)
Bell, D. C. (A)

Gladwyne (PHI-3)
Canfield, E. F. (M)
Eckert, J. P., Jr. (F)
Owings, J. L. (M)

Glassport (PIT-4)
Pudlak, A. (A)

Glen Mills (PHI-3)
De Prisco, C. F. (A)

Glen Moore (PHI-3)
Kelly, J. B. (M)

Glenolden (PHI-3)
Kutelmach, M. (M)
Miesse, C. E. (A)
Olson, H. H. (M)
Stott, H. B. (SM)

Glen Rock (PHI-L-3)
Gladfelter, A. E. (M)

Glenshaw (PIT-4)
Horlbeck, W. E. (M)
Komar, J. C. (M)
Springer, C. J. (A)
Suter, S. G. (M)
Van Nice, R. I. (SM)

Glenside (PHI-3)
Barol, H. C. (M)
Beardwood, J. T., III (M)
Churchill, R. F. (M)
Cianela, D. J. (M)
Ewer, M. H. (M)
Hall, R. W. (A)
Irwin, R. R. (A)
Jurenko, J. A., Jr. (M)
Landsman, B. (M)
Lazinski, R. H. (SM)
Lieberman, F. (M)
Mayher, R. J. (M)
Montgomery, A. P. (SM)
Nussbaum, R. D. (M)
Paup, R. E. (M)
Plotkin, I. (M)
Stapp, I. P. (M)
Stein, H. B. (SM)
Taylor, J. R. (M)
Van Basselaere, L. J. (M)
Wilson, H. R. (M)
Wood, H. O. (SM)

Greencastle (PHI-3)
Elliott, B. L. (M)
Key, B. G. (A)

Green Lane (PHI-3)
Robertson, G. C. (M)

Greensburg (PIT-4)
Baldwin, C. (SM)
Chick, R. F. (M)
Coury, C. H. (M)
Forbes, N. A. (M)
Lynch, R. D. (M)
Motto, J. W. (A)
New, T. C. T. (M)
Steinback, R. T. (M)

Greenville PIT-4)
Greene, R. L. (M)
Schomburg, W. K. (M)

Gwynedd (PHI-3)
Guzewicz, J. F. (A)

Gwynedd Valley (PHI-3)
Robinson, R. R. (A)

Hanover (PHI-L-3)
Myers, L. K. (M)
Rohrbaugh, P. A. (A)
Zinn, R. H. (A)

Harborcreek (ERI-1)
Challstrom, K. I. (M)

Harleysville (PHI-3)
Johnston, R. F. (M)
Rizzetto, D. J. (M)

Harrisburg (PHI-L-3)
Bowers, J. H. (A)
Dowling, E. C. (M)
Fuller, R. S. (M)
Helst, H. E., Jr. (A)
Holcombe, M. M. (SM)
Kelley, O. G. (A)
Peffer, R. M. (M)
Shuey, D. R., Jr. (M)
Stock, K. A. (M)
Wachtman, G. S. (SM)
Whitley, J. H. (A)

Hartsville (PHI-3)
Dymecki, J. W. (M)
Granger, B. W. (M)
Herrmann, D. C. (M)
Snook, J. E. (M)
Wullert, J. R. (SM)

Hatboro (PHI-3)
Archer, G. R. (M)
Baxter, K. W. (M)
Brooks, C. E. (M)
Brown, L. J., III (M)
Bryan, J. S. (M)
Bucks, R. M. (A)
Cramton, F. N. (A)
Dietz, W. J. (M)
Doerfel, H. V. (M)
Ettenhoffer, K. L. (M)
Fedde, G. A. (M)
Feildelman, L. A. (M)
Foley, T. J. (M)
Furey, R. J. (M)
Gleiter, W. C. (M)
Goldman, R. L. (M)
Harrison, R. K. (M)
Johnson, E. C. (SM)
Knouse, R. H. (M)
Koster, W. J. (M)
Krishnaswamy, P. B. (M)
Liebholz, S. W. (M)
Long, M. L., Jr. (SM)
Machuta, A. J. (SM)
Martin, H. B. (M)
McTague, J. P. (M)
McWilliams, C. R. (M)
Melmed, M. S. (M)
Miles, T. J. (SM)
Miller, R. L. (M)
Pilkington, R. R. (M)
Richter, H. K. (A)
Roschen, J. (M)
Saboe, J. (M)
Scott, C. F. (A)
Stampler, W. A. (M)
Steele, E. R. (M)
Suter, H. (SM)
Suphen, K. A. (M)
Swanson, C. I. (A)
Tiley, J. W. (SM)

Hatfield (PHI-3)
Barclay, F. T. (M)
Heckler, C. L. (A)
Insinger, R. H., Jr. (M)
Petruska, J. R. (M)
Smith, D. J. (M)

Haverford (PHI-3)
Benham, T. A. (SM)
Crawford, A. L., Jr. (SM)
Freeman, M. F. (M)
Mayer, H. C. (M)
Schwennesen, D. (M)

Havertown (PHI-3)
Andes, J. H. (A)
Apolito, P. L. (M)
Beck, J. J. (SM)
Brown, H. J. (M)
Consalvi, A. L. (SM)
Crockett, J. G. (SM)
Deacon, N. E. (M)
Denyer, D. B. (M)
Deveny, C. F., Jr. (M)
Dougherty, J. W. (M)
Edelman, R. D. (M)
Eschner, A. H. (M)
Ferri, J. F. (M)
Fulmer, J. W. (M)
Glidea, R. J. (M)
Gilligan, T. E., Jr. (M)
Hastings, J. A. (M)
Henry, A. T. (M)
Higgins, C. A. (A)
Huber, H. C. (M)
Koch, J. F., Jr. (SM)
Liston, J. (A)
Lund, G. E. (SM)
Meyer, S. (M)
Mitchell, S. M. (M)
Moore, J. H. (M)
Musilco, J. (A)
Palladino, J. A. (M)
Patchell, T. A. (M)
Powers, J. H., Jr. (M)
Reid, J. M. (M)
Robinson, C. W. (M)
Sachs, A. F. (M)
Satterthwaite, W. F. (M)
Sohon, H. (SM)
Wilson, R. G. (M)
Woesman, J. W. (SM)
Weil, C. F. (SM)
Wynne, J. J. (A)
Zappacosta, A. D. (SM)

Hazleton (PHI-3)
Bugalski, C. A. (M)
Gans, J. S. (A)
Osadchy, V. S. (M)
Steckerl, J. W. (M)
Walker, M. J. (M)

Hellam (PHI-L-3)
Megargel, L. R., Jr. (M)
Swengel, R. C. (A)

Hellertown (PHI-3)
Talheim, D. L. (M)

Hershey (PHI-3)
Smith, E. C. (M)
Thomas, J. E. (SM)
Holland (PHI-3)
Just, G. A. (A)
Kirk, D., Jr. (M)
Lambert, C. R. (M)
Schwartzberg, H. L. (M)

Hollidaysburg (PIT-4)
Kilgore, W. (M)

Holmes (PHI-3)
Beers, R. H. (M)

Homer City (PIT-4)
Weber, G. E. (M)

Homestead Park (PIT-4)
Cauley, T. K. (M)

Honesdale (PHI-3)
Driesse, W. H. (M)

Horsham (PHI-3)
Bell, R. R. (M)
Monteith, W. W. (A)
Tremblay, H. G. (A)

Huntingdon Valley (PHI-3)
Boothroyd, W. P. (F)
Borden, C. C. (A)
Brady, P. B. (SM)
Cogan, S. (M)
Conard, B. L. (M)
Erie, S. D. (M)
Everett, F. C. (M)
Focht, L. R. (M)
Forell, H. K. (A)
Freeland, E. C. (SM)
Gyllenhaal, P. R. (M)
Hayward, J. W. (M)
Jones, A. C. (M)
Klein, W. J. H. (A)
Leonard, W. D. (M)
Lorant, L. (SM)
Lynch, T. J. (M)
Matthews, A. C. (SM)
Merklinger, J. J. (M)
Moore, R. C. (F)
Munster, A. C. (SM)
Nelson, L. (SM)
New, R. (M)
Ostroff, A. (A)
Podell, E. J. (M)
Riebman, L. (SM)
Riester, H. A., Jr. (M)
Ruchlemann, H. E. (SM)
Schulze, H. E. (M)
Spieler, A. (M)
Thompson, M. L. (SM)
Vallette, C. N. (M)
Vaughan, T. J. (M)
Weinberg, I. (M)
Welsh, W. J. (M)

Hyde (EMP-4)
Montresor, R. L. (M)

Indiana (PIT-4)
Hitchcock, R. C. (SM)
Muldoon, R. P. (M)

Irwin (PIT-4)
Brook, A. (A)
Eastman, R. (M)
Jud, H. G. (M)
Kinder, H. R. (M)
Mucel, G. (M)
Nowak, T. P. (M)
Peldunas, A. P. (M)
Place, W. P. (M)
Shaw, G. D. (M)
White, C. W. (A)
Wissman, A. J. (M)
Wright, E. B. (M)

Ivyland (PHI-3)
Gonzalez, C. P. (M)
Ham, D. L. (M)
Lee, W. S. (SM)
Rogers, D. H. (M)
Schmoock, R. F. (M)

Jamison (PHI-3)
Hartley, J. R., Jr. (M)

Jeannette (PIT-4)
Kitchel, O. D. (M)

Jeffersonville (PIT-4)
Maguire, M. F. (M)

Jenkintown (PHI-3)
Caplan, N. (SM)
Clark, W. R. (SM)
Dahlke, H. E. (A)
Falman, F. W. (A)
Frear, W. (SM)
Hill, J. E. (M)
Husband, R. E. (M)
Koehler, J. F. (SM)
Lanagan, J. G. (A)
Liebscher, A. (SM)
McClarren, R. H. (SM)
Myers, A. S., Jr. (SM)
Namaroff, J. H. (SM)
Overdeer, R. H. (M)
Seoahban, A. H. (A)
Stewart, G. H., III (M)

Jermyn (PHI-3)
Jubinski, P. (M)

Jersey Shore (WIL-4)
Johnson, C. E. (M)

Johnstown (PIT-4)
Campbell, T. E. (A)
Friedman, M. I. (A)
Froehlich, J. P. (M)
Grumling, J. R. (M)
Kocsan, E. S. (M)
Mills, A. J. (M)
Rohde, F. S. (A)
Shostek, R. E. (M)
Smith, R. F. (M)
Sodano, R. D. (A)
Treimer, J. A. (M)
Vrooman, A. L. (A)

Johnsville (PHI-3)
Blount, L. A. (M)
Jesse, H. W. (M)
Kemp, J. C., Jr. (SM)
McCarty, W. F. (A)
Pickett, H. D. (A)
Polhemus, G. C. (M)
Sander, R. E. (M)
White, G. T. (M)
Yowell, G. M., Jr. (SM)

Karthaus (EMP-4)
Fraley, J. L. (M)
Szymanowski, H. W. (A)

Kennerdell (PIT-4)
Smith, S. A. (A)

King of Prussia (PHI-3)
Barker, R. R. (A)
Berkowitz, C. E. (M)
Berkowitz, M. (SM)
Blair, B. H. (M)
Bradley, W. E. (M)
Clemson, D. B. (M)
Cohen, K. J. (M)
Connaught, P. M. (M)
Galbraith, J. R. (M)
Gorman, D. F. (M)
Gregory, T. R. (M)
Hand, G. C., Jr. (M)
Hochman, S. (M)
Holeczy, A. A. (M)
Joos, J. W. (M)
Klein, R. J. (SM)
Kutner, N. H. (M)
Lally, V. E. (M)
Lannutti, A. P. (M)
Lesher, R. H. (M)
Levy, L. G. (M)
Longo, J. F. (M)
Luck, R. (M)
Marchetta, P. (M)
O'Hara, J. J. (SM)
Osbahr, B. F. (SM)
Ottaviano, A. V. (M)
Pro, F. P. (M)
Regan, J. V., Jr. (M)
Rosen, H. H. (SM)
Schneider, R. P. (SM)
Schumer, H. A. (M)
Shattuck, C. J. (M)
Smith, V. Z. (M)
Sweigart, A. S. (A)
Weaver, R. L. (M)
Webster, D. J. (M)
Wilson, C. E. (M)
Wishengrad, H. S. (M)
Wolfe, W. R. (M)
Wright, J. A. (M)

Kingston (PHI-3)
Ostrosky, R. G. (A)
Sakoski, C. (A)

Kittanning (PIT-4)
Golla, E. F. (SM)
Rupp, J. A. (M)

Kutztown (PHI-R-3)
Tawney, G. L. (SM)

Lafayette Hill (PHI-3)
Bloomsburgh, R. A., Jr. (M)
Clark, W. A. (M)
Crawford, C. S., Jr. (M)
Ford, D. W. (M)
Kinney, R. V. (A)
Lafferty, M. (M)
Ruff, J. A. (M)
Zuck, R. A. (M)

Lake Ariel (PHI-3)
Upright, D. E. (M)
Grimditch, W. H. (SM)

Lakeville (PHI-3)
Greenfield, J. C. (M)

Lancaster (PHI-L-3)
Almond, W. R. (M)
Ayer, R. B. (SM)
Bedrosian, P. G. (A)
Beidler, R. T. (M)
Bennett, W. P. (SM)
Bixler, R. T. (SM)
Block, F. G. (M)
Brackbill, C. R. (SM)
Burnett, C. E. (SM)
Carter, D. R. (M)
Comins, A. W. (SM)
De Molt, J. (SM)
Des Rochers, R. D. (M)
Doner, C. E. (M)
Dreyer, K. (SM)
Duckworth, G. W. (M)
Dyall, W. T. (SM)
E'Del, R. R. (M)
Enck, F. D. (SM)
Epstein, D. W. (F)
Evans, J. (M)
Ezard, L. A. (M)
Forman, J. M. (M)
Free, J. J. (M)
Freund, W. H. (M)
Gadbois, G. S. (M)
Gaylord, J. W. (M)
Grimm, A. C. (SM)
Hagmann, R. W. (SM)
Handel, R. R. (SM)
Harsh, M. D. (M)
Hazy, B. J. (M)
Heagy, J. F. (M)
Herman, L. C. (SM)
Hershenson, L. H. (M)
Hillegass, H. N. (M)
Hoover, M. V. (M)
Horst, R. L. (M)
Johnson, J. K. (SM)
Kaseman, P. W. (M)
Kitchen, R. F. (M)
Krallinger, R. E. (M)
Kuwabara, T. (M)
Mandell, G. E. (A)
Mark, J. T. (A)
Matheson, R. M. (M)
Mathiot, J. E. (M)
McNees, S. G. (M)
McNickle, R. E. (M)
Mengle, L. I. (M)
Miller, D. L. (M)
Miller, L. D. (M)
Moodey, H. C. (SM)
Morehead, A. L. (M)
Nekut, A. G. (SM)
Parker, W. N. (SM)
Perry, H. E. (M)
Pickard, J. B. (M)
Rahe, C. H., II (M)
Reed, R. E. (M)
Rogers, H. L. (M)
Rotow, A. A. (SM)
Rueggeberg, W. (M)
Scott, G. W., Jr. (SM)
Smith, C. P. (SM)
Sonntag, W. A. (M)
Spitzer, E. E. (F)
Stem, S. (M)
Stone, R. P. (SM)
Stoudenheimer, R. G. (SM)
Sweet, A. P., Jr. (M)
Trout, D. R. (M)
Uyeda, Y. (M)
Van Asselt, R. L. (SM)
Van Ormer, D. D. (M)
Veith, F. S. (SM)
Vine, B. H. (SM)
Walton, R. S. (M)
Warshaw, J. (M)
Weaver, J. P. (M)
Wenger, R. S. (SM)
Wood, W. H. (SM)
Yingst, T. E. (M)
Young, C. E., Jr. (M)
Zachariason, R. H. (SM)
Zorger, P. H. (SM)

Langhorne (PHI-3)
Cooley, C. C., Jr. (A)
Hobbs, L. L. (M)
Porter, C. R. (A)

Lansdale (PHI-3)
Bachman, C. S. (M)
Black, J. W., Jr. (M)
Bonk, P. J. (M)
Burns, J. F. (M)
Cangialosi, A. (M)
Carney, R. W. (M)
Cerva, C. H. (M)
Clarke, C. E. (M)
Conley, J. W. (M)
Doherty, W. E., Jr. (M)
Dougherty, F. J. (M)
Erkiss, J. A. (M)
Gable, N. P. (M)
Gray, C. R. (M)
Haimowitz, B. (M)
Halligan, J. W. (M)
Hearl, J. E. (A)
Hiller, G. (M)
Hirshon, J. M. (M)
Houpt, G. K. (M)
Humpherys, W. C. (A)
Ishler, H. K. (SM)
Levy, S. L. (SM)
Lyle, A. E. (SM)
Marks, B. G. (M)
Massey, W. S. (M)
McCotter, J. D., Jr. (SM)
Moll, W. H. (M)
Sanders, J. G. (M)
Schlegel, E. S. (M)
Schnable, G. L. (SM)
Sluss, J. A., Jr. (SM)
Smith, W. E. (M)
Snyder, M. G. (M)
Spiegel, P. (M)
Sutcliffe, C. H. (SM)
Taque, C. B., Jr. (M)
Tessler, N. A. (M)
Thornton, C. G. (SM)
Waite, G. C. (M)
Wurz, A. (M)

Lansdowne (PHI-3)
Ambrogi, J. N., Jr. (M)
Brumbaugh, J. M. (SM)
Holdsworth, R. M., Jr. (A)
Lowe, T. C. (M)
Pappas, C. (M)
Wise, B. (M)

Lansford (PHI-3)
Pispeky, S. (M)

Latrobe (PIT-4)
Albert, D. E. (M)
Amlinger, P. R. (M)
Guidos, B. W. (A)
Kuehn, R. T. (M)
Kuehn, T. J. (M)
Shaw, V. G. (SM)

Laureldale (PHI-R-3)
Crigler, F. W. (M)
De Frees, C. L. (M)
Embree, M. L. (A)
Loughery, G. B. (M)
Mackintosh, I. M. (M)
Miller, L. E. (SM)
Smith, G. J. (M)
Westberg, R. W. (A)

Lebanon (PHI-L-3)
Kiscadden, G. G. (M)

Lehighton (PHI-3)
Snyder, K. O. D. (M)

Lemont (CP-4)
Burkey, J. R. (M)
Perkins, D. M. (M)

Lemoyne (PHI-L-3)
Smiley, W. A. (M)

Lenoxville (PHI-3)
Kane, B. P. (M)

Leola (PHI-L-3)
Bowers, W. A. (M)

Levittown (PHI-3)
Abrams, J. J. (M)
Aires, R. H. (M)
Allison, R. L. (M)
Amodei, J. J. (M)
Auerbach, S. S. (A)
Azaren, D. (M)
Bamette, W. E. (A)
Bell, C. V. (M)
Bernstein, F. (M)
Bloss, R. C. (M)
Boardman, H. B. (M)
Boerschig, B. A. (M)
Boys, H. N. (M)
Bradshaw, G. V., Jr. (M)
Brautigam, E. H. (A)
Brechling, G. E. (M)
Bressler, J. (M)
Brittin, C. R. (M)
Brown, W. K. (M)
Busby, J. W. (M)
Butterton, R. B. (M)
Charton, S. (M)
Cohen, I. (M)
Coleman, A. H. (M)
Colodny, S. H. (SM)
Darling, D. C. (M)
Dunalef, C. (SM)
Dunn, T. E. (M)
Durham, A. F. (M)
Eby, J. A. (M)
Elgner, H. (SM)
Etkin, H. A. (SM)
Faust, E. J. (M)
Fenster, S. C. (M)
Fink, E. A. (SM)
Fox, E. C. (M)
Garber, H. N. (M)
Gardos, G. P. (M)
Garner, W. B. (M)
Given, W. H., III (M)
Glaz, G. (M)
Gleason, H. H. (SM)
Goldstone, B. J. (M)
Green, J. (M)
Greenberg, D. (M)
Greenfield, J. D. (M)
Haneman, W. J. (M)
Harry, J. B. (A)
Heinaman, H. B., Jr. (M)
Henderson, D. W. (M)
Hollander, M. (M)
House, H. J. (M)
Hsueh, C. Y. (M)
Jablonski, E. R. (M)
Jackson, W. K. (M)
Jessen, F. A., Jr. (M)
Jonas, G. J., Jr. (A)
Junker, E. S. (M)
Jurkevich, I. (M)
Kaskey, G. (SM)
Kaye, M. G. (M)
Krieg, S. (M)
La Brie, P. J. (M)
Lamnin, M. (M)
Lathrop, P. A. (SM)
Lawler, E. D. (M)
Lawler, R. L. (M)
Levine, S. A. (A)
Li, K. (M)
Mackleman, D. W. (SM)
Marx, S. H. (M)
Matulis, B. J. (M)
McDevitt, J. T. (A)
McGee, A. K. (M)
Miles, E. N. (M)
Miller, E. (M)
Miller, W. A. (M)
Mondress, M. (M)
Murr, R. H. (M)
Nachman, M. W. (M)
Ogawa, H. F. (A)
Pierce, W. B. (M)
Pitts, W. L. (SM)
Podolski, G. A. (M)
Potosky, M. (M)
Prensky, W. C. (M)
Raciti, S. A. (A)
Riley, P. J. (SM)
Rivitz, H. R. (M)
Robinson, L. R. (A)
Rosen, B. H. (M)
Rosenthal, H. (M)
Sakaguchi, T. Y. (M)
Saran, G. S. (M)
Schlichting, D. N. (M)
Shucker, S. (SM)
Slobins, M. (A)
Solomon, H. (A)
Soiro, G. H. (M)
Stein, F. E., Jr. (A)
Sullivan, F. J. (M)
Susskind, I. N. (M)
Szumila, A. D. (M)
Terrell, R. L. (M)
Timm, F. W. (A)
Titelsky, E. J. (M)
Trilling, T. R. (M)
Turner, R. J. (M)
Turtil, J. F. (M)
Urban, S. J., Jr. (M)
Uslin, L. T. (M)
Walberg, A. G. (M)
Weinberg, A. D. (A)
Weinheimer, F. E. (A)
Welsman, S. M. (M)
Wilcox, J. E. (M)
Winter, L. (M)
Wood, R. F., Jr. (SM)
Wydro, W. S. (A)
Yang, T. (M)
Zelger, K. K. (M)

Lewisburg (WIL-4)
Harris, M. E. (A)
Irland, G. A. (M)
Mathias, J. P. (A)
Walker, R. C. (M)
Webb, H. E. (SM)

Lewistown (WIL-4)
Gardner, G. F. (M)

Liberty (ELM-C-1)
Frutiger, W. A. (M)

Ligonier (PIT-4)
Walters, G. W. (M)

Linglestown (PHI-L-3)
Fritz, W. B. (A)

Lionville (PHI-3)
Lynch, J. T. (M)

Lititz (PHI-3)
Cooper, J. C. (M)
Sheffy, H. J. (M)

Lock Haven (WIL-4)
Cooney, T. D. (M)
Young, G. D. (A)

Lost Creek (PHI-3)
Mitchell, M. J., Jr. (M)

Lynnport (P-LV-3)
Klingaman, G. W. (M)

Macungie (P-LV-3)
Nelson, M. F. (A)

Malvern (PHI-3)
Balaklian, G. (A)
Bedrosian, S. D. (SM)
Briggs, T. H. (SM)
Bullock, A. J., Jr. (M)
Castillo, P. S., Jr. (A)
Ching, S. W. F. (M)
Coulson, E. F. (A)
Dowds, T. A. (M)
Fussell, R. L. (M)
Grafinger, A. B. (SM)
Harris, G. A. (M)
Holthentrichs, P. D. (M)
Hood, C. E. (SM)
Innes, F. T. (M)
Klein, R. S. (M)
Kozak, W. S. (M)
Mao, P-Y (M)
Murray, W. D. (SM)
Nistico, F. (M)
Parris, S. R. (M)
Perkins, C. C. (M)
Reiss, H. R. (M)
Skinner, N. W. (M)
Strawn, R. K. (M)
Ten Broeck, C. A. (M)
Urbanik, E. J. (M)
Weisenberger, A. J. (M)
Witherspoon, J. M. (SM)

Manheim (P-LV-3)
Mac Gregor, H. D. (M)

Manor (PIT-4)
Anderson, J. W. (A)

Maple Glen (PHI-3)
Currie, A. H. (M)
Harrer, R. E. (M)
Jamison, J. S. (M)
Wood, W. M. (A)

Marcus Hook (PHI-3)
Alexander, F. C., Jr. (SM)
Imboden, H. B. (SM)
Smith, O. J., III (M)

Mars (PIT-4)
Berninger, J. W. (A)

Martins Creek (P-LV-3)
Mahalick, S. V. (M)

Mayfield (PHI-3)
Farbanish, P. (M)

McKeesport (PIT-4)
Andrews, F. J. (M)
Douglass, H. H. (M)
Farkas, B. (M)
Levine, M. (M)
Miller, J. S. (A)
Morabito, R. A. (M)
Muzik, R. M. (M)
Vogt, W. G. (M)

Meadowbrook (PHI-3)
Bingley, F. J. (F)
Doleberg, C. E. (SM)
Etz, W. O. (M)
Fink, D. G. (F)
Forsyth, W. A., Jr. (M)
Greenwood, R. W. (M)
Lukens, R., Jr. (SM)
Rogers, T. E. (M)
Sheppard, C. B. (M)
Smith, J. F. (M)

Meadowlands (PIT-4)
Hanway, W. F. (M)

Meadville (PIT-4)
Brown, R. L. (M)

Mechanicsburg (PHI-L-3)
Edgerly, J. J. (SM)
Hill, B. C., Jr. (SM)
Malone, R. H. (M)
Miller, H. E. (A)
Ripple, J. R. (A)
Roderick, R. A. (A)
Sechrist, W. S. (A)

Mechanicsville (PHI-3)
Baldwin, R. I. (M)

Media (PHI-3)
Bargellini, P. L. (SM)
Bigelow, R. P. (A)
Celent, C. M. (M)
Coccoli, J. C. (M)
Gray, H. J., Jr. (M)
Hannan, G. F., Jr. (A)
Kinkead, W. K. (M)
Miles, M. W. (M)
Miller, A. F. (M)
Rhea, H. E. (M)
Salati, O. M. (SM)
Van Dam, A. (M)
Wagenseller, J. E. (A)
Ware, A. R. (M)

Melrose Park (PHI-3)
Epstein, H. (SM)

Mendenhall (PHI-3)
Stinger, H. J. (M)

Mercersburg (PHI-3)
Clutz, D. A. (M)

Merion (PHI-3)
Adamson, R. G. (M)
Colehower, C. H., Jr. (M)
Emurian, A. D. (SM)
Merriam, A. S. (M)
Stem, D. M. (M)
Whelihan, A. S. (M)

Merion Station (PHI-3)
Bonn, T. H. (SM)
Levin, R. G. (M)
Rubinoff, M. (SM)
Shapp, M. J. (SM)

Meyersdale (PIT-4)
Baer, W. E. (A)

Middletown (PHI-L-3)
Miller, J. C. (M)

Millersville (PHI-L-3)
Smith, E. M. (M)
Weaver, J. E. (A)

Mill Hall (WIL-4)
Schnering, C. J. (M)

Milton (WIL-4)
Seksinsky, J. J. (M)

Mohnton (PHI-R-3)
Fister, T. J. (A)

Olson, H. M. (M)

Monessen (PIT-4)
Bodola, M. J. (M)
Pansino, S. R. (M)

Monongahela (PIT-4)
Rockwell, R. R. (A)

Monroeville (PIT-4)
Allen, S. D. (M)
Boyd, J. J. (M)
Cilyo, F. F., Jr. (M)
Coleman, W. E. (M)
Collins, L. R. (A)
Diamond, H. (M)
Gillott, D. H. (M)
Hester, W. A. (M)
Kardos, L. F. (M)
Kikta, E. J. (M)
Locante, J. (M)
Lyman, R. C. (M)
McNamara, J. E. (M)
Merritt, T. D. (M)
Murray, R., Jr. (A)
Revay, A. W., Jr. (M)
Shaw, J. B. (M)
Utt, O. L. (SM)
Wright, W. L. (M)

Mont Clare (PHI-3)
Kaufmann, H. W. (M)

Montoursville (WIL-4)
Bennett, A. J. (A)
Daley, C. J. (A)
Dowden, W. M. (M)
Kazuk, W. F. (A)

Montrose (PHI-3)
Fiore, W. V. (M)

Morrisville (PHI-3)
Mislan, J. D. (M)

Morton (PHI-3)
Gasching, G. R. (M)
Hoffman, L. E. (M)
Lesko, J. (M)

Mountaintop (PHI-3)
Duncan, R. P. (M)

Mount Carmel (WIL-4)
Schneider, C. P. (A)

Mount Holly Springs (PHI-L-3)
Samuelson, W. H. E. (M)
Synder, J. R. (M)

Mount Joy (PHI-L-3)
Dock, S. J., Jr. (A)

Mount Penn (PHI-3)
Gateka, F. A. (M)
Odenweller, R. L. (A)

Mount Pleasant (PIT-4)
Hartley, W. A. (M)

Muncy (WIL-4)
Amey, G. B. (A)

Murrysville (PIT-4)
Baker, W. H. (M)
Caywood, W. P., Jr. (SM)
Decker, R. O. (M)
Jones, C. H. (SM)
Klotzbaugh, G. A. (SM)
Leone, H. A. (A)

Myerstown (PHI-L-3)
Sando, G. G. (M)

Nanticoke (PHI-3)
Kotulak, J. (M)

Narberth (PHI-3)
Brustman, J. A. (F)
Clapp, R. G. (SM)
Hurst, J. F. (M)
Lidz, S. (SM)
Tabor, L. P. (SM)
Van Cleef, H. H., Jr. (A)
Williamson, J. F. (M)

Nazareth (P-LV-3)
Kilpatrick, W. M. (M)

New Cumberland (PHI-L-3)
Berg, Q. (M)
Brucklacher, J. E., Jr. (M)
Cardona, R. (A)
Hanemann, H. A., Jr. (M)
Houck, G. R. (A)
Keat, J. E. (M)

Newfoundland (PHI-3)
Wohlfart, E. (A)

New Holland (PHI-L-3)
Fizz, R. A. (A)

New Hope (PHI-3)
Chadwick, P. S. (A)
Elvan, M. (M)
Goodwin, W. N., Jr. (F)
Senator, R. S. (M)
Vonderschmitt, B. V. (M)

New Kensington (PIT-4)
Hoch, F. R. (M)
Miller, R. B. (A)
Panian, F. C. (M)
Robl, R. F., Jr. (SM)
Yingling, G. B. (M)
Zubek, J. (M)

New Stanton (PHI-3)
Standart, C. S. (M)

Newton Square (P-LV-3)
Grant, R. W. (M)

Newtown (PHI-3)
Beck, K. H., Jr. (M)
Brown, J. N. (M)
Cushman, R. W. (M)
Ghebeles, G. C. (A)
Gould, D. F., II (M)
Jamison, W. H. (M)
MacFadyen, J. C. (M)
Naglak, L. A. (M)
Small, H. E. (M)
Yerkes, H. W. (A)

Newtown Square (PHI-3)
Bachofer, H. L. (A)
Bernheisel, E. R. (A)
Busch, J. G. (M)
Gariano, W. F. (SM)
Johnson, F. L. (M)
Kaufman, B. R. (M)
Livesay, R. (A)
Post, M. D. (SM)
Ryskamp, J. H. (M)
Schneider, S. (M)
Shawhan, E. N. (M)
Snyder, C. M. (A)
Thomason, J. F. (M)
Titus, C. H. (M)
Wetzel, L. D. (M)

Nicholson (PHI-3)
Hricko, R. M. (M)

Nicktown (PIT-4)
Hoppel, T. O. (M)

Norristown (PHI-3)
Alchelmann, F. J. (M)
Anderson, D. C. (M)
Anderson, R. F. (M)
Avellino, W. R. (M)
Barber, E. (A)
Bokros, P. (M)
Boscia, S. J. (M)
Cassel, L. E. (M)
Chudleigh, W. H., Jr. (SM)
Cramer, B. G. (M)
De Witt, K. I. (M)
Dubuc, G. J. (M)
Elsenmann, J. F. (M)
Fistal, M. S. (M)
Flannery, W. E. (M)
Ford, C. R. (M)
Gardner, L. M., Jr. (M)
Ivins, W. A. (A)
Jacoby, N. (M)
Kirkaldy, A. J., Jr. (A)
Lee, F. F. (SM)
Lifsey, J. A. (M)
Loeper, C. J. (M)
McCallister, J. P. (M)
Merritt, J. E. (M)
Murphy, J. V. (M)
Numberg, R. K. (M)
Oerter, G. W. (M)
Osisek, C. P., Jr. (M)
Ott, H. R., Jr. (M)
Paxson, R. F. (M)
Peszka, S. F. (M)
Pezely, S. J. (M)
Place, S. W. (M)
Rauchwerk, A. (M)
Rogers, R. F. (M)
Salamon, A. L. (M)
Sandoval, J. (A)
Schmidt, E. J. (M)
Snyder, F. B., Jr. (A)
Stauffer, R. F. (M)
Steiger, G. P. (M)
Swana, J. J. (M)
Tenney, R. F. (M)
Thomas, J. K., II (M)
Timlin, T. N. (M)
Turchi, D. J. (A)
Warner, H. (M)
Webb, D. T. (SM)
West, W. H. (M)
White, J. P. (M)
Williamson, J. V. (A)
Wykstra, E. A. (M)
Yeaton, R. B. (M)
Zelby, L. W. (M)
Zem, R. T. (M)

Northampton (P-LV-3)
Hvazda, M. C. (M)

North East (ERI-1)
McConaughy, D. L. (M)

North Hills (PHI-3)
Deemer, R. W. (M)
Stahl, R. W. (M)
Vick, A. J. (M)

Northumberland (WIL-4)
Ulp, W. E. (M)

North Wales (PHI-3)
Bergstrom, C. J. (A)
Booher, R. W. (M)
Burkart, D. P. (M)
Cockrell, J. L. (SM)
Daglian, J. S. (M)
Eynon, J. U. (M)
Foley, G. M. (SM)
Fraunfelder, J. A. (M)
Harple, K. G. (SM)
Henderson, F. C. (M)
Hitt, J. J. (M)
Hudson, W. J., Jr. (M)
Jakacki, W. B. (M)
Knipe, W. T. (M)
Machler, R. C. (SM)
Mullins, A. F. (M)
Oplinger, E. J. (M)
Stanwood, R. H. (M)
Williams, A. J., Jr. (F)

Norwood (PHI-3)
Biscardi, J. J. (M)
Sagan, E. R. (A)
Verchot, A. I. (M)

Oakford (PHI-3)
Hoffman, N. N. (M)

Oakmont (PIT-4)
Dimasi, L. A. (M)
Muffly, G. (SM)

Oley (PHI-R-3)
Franke, R. B. (A)

Olmsted AFB (PHI-3)
Bartley, J. P. (M)

Olyphant (PHI-3)
Thornton, J. P. (M)

Orefield (PHI-3)
Allerton, G. L. (SM)

Oreland (PHI-3)
Altemus, W. C. (M)
Bonanni, O. A. (M)
Comeau, C. P. (M)
Garden, M. (M)
Halsted, C. P. (A)
Jacobs, E. (M)
Keener, C. E. (SM)
Keiper, F. P., Jr. (M)
Koval, J. F. (M)
Lawrence, J. D., Jr. (M)
Lockhart, J. C. (M)
Loe, J. M. (M)
MacDonald, R. D. (A)
Maher, W. F. (A)
Mehr, E. J. (M)
Preston, G. W. (SM)
Straehley, E. H. (M)
Van Auken, B. A. (M)
Zebrowitz, S. (SM)
Zwart, C. (M)

Orrstown (PHI-3)
Gall, R. C. (A)

Oxford (PHI-3)
Mallalieu, F. R. (SM)

Palmerton (PHI-3)
Swanson, H. E. (M)

Paoli (PHI-3)
Asenlero, W. L. (M)
Bechert, T. E. (M)
Berta, J. A. (M)
Caldwell, R. P. (M)
Carberry, D. G. (M)
Carlson, P. N. (M)
Clark, E. G. (SM)
Disson, S. B. (SM)
Eble, B. B. (M)
Engelman, J. H. (M)
Fasko, E. A. (M)
Faulls, D. R. (M)
Fegley, K. A. (M)
Fissell, C., Jr. (A)
Foster, W. P. (M)
Freestone, H. T. (M)
Glaser, E. L. (SM)
Gluck, S. E. (M)
Hurst, S. R. (M)
Jones, R. E. (M)
Kolderup, L. E. (A)
Landrey, L. R. (SM)
Lauser, C. T. (M)
Lawson, A. C. (M)
Lohse, E. (SM)
Mikselt, G. L. (M)
Miller, K. L. (A)
Nordling, K. I. (A)
Overmiller, C. M. (M)
Phillips, W. W. (M)
Porter, J. R. (M)
Pugh, A. L., Jr. (SM)
Reese, H. E., Jr. (M)
Schott, J. C. (M)
Sledge, E. C. (SM)
Starr, D. A., Jr. (M)
Taylor, H. W. (SM)
Williams, P. R. (M)
Zimmer, K. J. (M)

Penn Argyl (P-LV-3)
Palmer, J. E. (M)

Penndel (PHI-3)
Robinette, S. L. (M)
Pennsylvania Furnace (PIT-4)
Swartz, J. A., Jr. (M)

Penn Valley (PHI-3)
Washburne, B. P. (M)

Perkasie (P-LV-3)
Bossard, C. L. (M)
Soltau, R. H. (M)

Perkiomenville (PHI-3)
Okada, R. H. (SM)

Philadelphia (PHI-3)
Abel, R. L. (M)
Abend, K. (M)
Adams, R. N. (M)
Adamson, P. R. (M)
Albright, R. B. (SM)
Alpert, D. (M)
Altemose, W. M. (M)
Altmann, W. T. (M)
Amatneek, K. V. (M)
Ames, M. E., Jr. (SM)
Anderson, J. C. (M)
Andress, P. M. (M)
Antharvedi, A. (A)
Aptaker, I. M. (M)
Arthur, G. R. (SM)
Auerbach, I. L. (F)
Azoff, I. (M)
Bachich, M. J. (M)
Bacon, J. R. (M)
Baker, L. (M)
Ballentine, D. G. (M)
Balsheim, H. (M)
Banks, J. (M)
Banks, M. G. (M)
Barney, L. W. (M)
Barofsky, M. (M)
Barfield, R. A. (M)
Barth, R. A. (M)
Bartik, W. J. (M)
Barton, R. H. (M)
Bash, I. F. (M)
Batey, R. W. (A)
Baumann, J. A. (A)
Beane, T. E. (M)
Beaver, M. W. (M)
Beckman, C. (M)
Beggs, G. E., Jr. (SM)
Belice, M. M. (A)
Beltramo, J. R. (A)
Belz, R. L. (M)
Benjamin, J. M., Jr. (SM)
Bennion, M. (M)
Benoliel, I. (SM)
Berger, D. (SM)
Berger, H. (M)
Berger, J. (M)
Berkowitz, R. S. (M)
Berliner, H. J. (A)
Bess, T. J., Jr. (M)
Beter, R. H. (SM)
Beyer, W. G. (M)
Biberman, D. M. (M)
Bien, F. I. (M)
Biracree, R. J. (A)
Birx, D. L. (SM)
Bixler, D. A. (M)
Block, I. E. (M)
Blum, T. (M)
Blumberg, D. F. (M)
Bluth, A. (M)
Boghosian, W. H. (M)
Bogusz, J. F. (M)
Bohn, J. L. (SM)
Bohrer, J. J. (SM)
Boonin, L. I. (A)
Boros, G. (A)
Bortman, J. S. (M)
Bossi, E. W. (M)
Brachman, R. J. (M)
Brady, J. A. (M)
Brainerd, J. G. (F)
Breisch, W. M., Jr. (M)
Brejcha, E. H. (M)
Breslow, A. J. (A)
Brett, F. S. (M)
Brisk, H. L. (A)
Brothers, J. T. (F)
Brunner, D. H. (M)
Bruzel, E. (M)
Buco, P. A. (A)
Buggy, R. V. (SM)
Burger, A. F. (M)
Burgett, M. I., Jr. (SM)
Burke, J. P. (M)
Buzby, J. A. (M)
Bycer, B. B. (SM)
Cades, S. (A)
Campbell, D. B. (M)
Campbell, E. R., Jr. (A)
Carapellotti, L. T. (SM)
Carlson, E. G. (M)
Carson, C. T. (SM)
Cassidy, E. C. (M)
Cathers, H. W. (A)
Cattafesta, W. M. (M)
Cawley, A. (A)
Chamberlin, N. K. (M)
Chamberlin, W. A. (M)
Chambers, C. C. (F)
Chance, B. (F)
Chang, S-C (M)
Chapline, J. D., Jr. (M)
Chase, C. T. (SM)
Chatten, J. B. (M)
Chong, C. F. (M)
Chow, W. F. (SM)
Chressanthis, A. G. (M)
Ciletti, V. J. (M)
Clair, F. F. (M)
Clark, F. R. (M)
Clark, L. K. (A)
Clark, W. R. (M)
Clasen, C. P. (M)
Clemson, D. M. (M)
Closson, L. E. (SM)
Coburn, J. M. (M)
Cohen, B. H. (M)
Comer, A. J. (A)
Conrad, M. (SM)
Conroy, M. J. (A)
Cooper, A. L. (A)
Cooperstein, B. D. (M)
Copestakes, J. E. (M)
Cottingham, J. H. (M)
Coyne, J. J., Jr. (A)
Creamer, E. M., Jr. (M)
Crist, L. W. (M)
Cross, C. (M)
Cummings, E. J. (M)
D'Agostino, M. V. (M)
Daigle, E. J., Jr. (M)
Dale, J. D. (M)
Daigleish, D. A. (A)
D'Ambrisi, A. S. (M)
D'Amico, J. R. (M)
Daniels, J. H. (M)
Darack, O. C. (A)
Davidson, W. N. (M)
Davis, J. A. (M)
Davis, R. P. (M)
Davis, S. (M)
Day, R. W. (M)
Deasy, R. D. (M)
De Coalsworth, C. G. (M)
Decrow, T. X. (M)
De Florio, R. A. (M)
Desal, G. R. (M)
Deutermann, A. R. (M)
Dever, F. J. (A)
Dever, J. A. (M)
Devlin, M. (M)
Diamond, W. J. (M)
Dibrell, J. W. (M)
Diem, G. W. (M)
Di Giacomo, J. J. (M)
Dinter, E. (M)
Di Polvere, E. J. (M)
Di Sabato, C. A. (M)
Divor, C. (M)
Dobson, J. J. (M)
Domboski, R. F. (M)
Donsky, L. (A)
Dorfman, J. C. (M)
Dorsam, T. J., Jr. (M)
Doto, N. J. (M)
Doviak, R. J. (M)
Drazdauskas, C. J. (M)
Dubin, F. (M)
Dumas, K. L. (M)
Dunn, E. B. (SM)
Dyal, J. O., Jr. (M)
Earnshaw, D. P. (SM)
Edelman, S. Z. (M)
Edwards, R. Q. (A)
Eichert, E. S. (SM)
Eisenberg, D. E. (M)
Eisenberg, M. (M)
Elfand, S. (M)
Elliott, L. D. (M)
Emerson, K. H. (SM)
Emery, E. J. (A)
Endres, R. O. (SM)
Engle, J. L. (M)
Epsetin, H. (M)
Estersohn, H. (A)
Ett, A. H. (SM)
Evalds, E. H. (A)
Evans, W. R., Jr. (M)
Fadely, J. K. (M)
Fath, G. E. (M)
Fariello, N. A. (M)
Farmar, F. E. (M)
Farr, K. E. (SM)
Farrell, R. J. (M)
Fasano, M. D. (M)
Faunce, N. P. (M)
Feldman, F. S. (A)
Feldmeier, J. R. (SM)
Fembach, M. (M)
Fidler, R. D. (M)
Fien, I. L. (A)
Fierstein, J. H. (M)
Fink, L., III (M)
Fisher, E. J. (M)
Fisher, F. (M)
Fitch, J. A. (M)
Flamebaum, M. (M)
Fleming, R. E. (M)
Flomenhoft, M. (M)
Flood, F. T. (M)
Fogarty, J. D. (M)
Follmer, W. C. (M)
Ford, R. (M)
Forrest, L. A., Jr. (A)
Forster, W. H. (SM)
Foster, F. N. (M)
Fow, B. F. (M)
Fowler, C. J. (SM)
Francisco, R. L. (M)
Frank, A. I. (M)
Freeman, S. (A)
Freund, R. E. (M)
Frezel, W. J. (M)
Fricke, C. A. (A)
Friedman, M. (M)
Friedrich, J. H. (M)
Frumkin, J. M. (M)
Fuchs, A. M. (M)
Gabel, R. J. (M)

Gaither, L. E. (SM)
Galbraith, F. D., Jr. (M)
Gandhi, O. P. (M)
Garfield, E. E. (A)
Gdowik, J. E. (A)
Geer, D. A. (A)
Gelb, H. A. (A)
Gelfand, R. (M)
Geller, R. H. (M)
Gelles, A. J. (A)
Gellhaus, K. M. (M)
Gerber, E. L. (M)
Geselowitz, D. B. (M)
Ghandhi, S. K. (SM)
Gilbert, W. E. (SM)
Gillies, J. H. (SM)
Giordano, M. J. (M)
Giova, F. N. (M)
Glace, K. (M)
Glaser, E. R. (M)
Glassman, I. (M)
Glazer, H. I. (M)
Glazer, I. (M)
Goldich, N. (A)
Goldman, A. (M)
Goldstein, I. E. (SM)
Goldstein, P. (A)
Gollub, R. (M)
Goodman, J. H. (M)
Goodman, R. M. (SM)
Goodwin, D. P. (M)
Gordon, L. H. (M)
Gordon, V. R. (M)
Gottesman, M. D. (M)
Gottlieb, M. (A)
Gradsky, L. (A)
Grande, F. M. (M)
Gravel, A. J. (M)
Green, R. S. (M)
Greenberg, S. N. (M)
Greff, H. (A)
Grieco, L. (M)
Griffin, E. H. (M)
Griffin, G. G. (A)
Gross, A. M. (A)
Grossman, S. (M)
Grumet, W. E. (M)
Gudis, R. S. (A)
Gutman, W. B. (M)
Guy, E. H. (M)
Haas, N. V. (M)
Hadley, A. M. (SM)
Hafler, D. (A)
Hahn, P. M. (M)
Haines, B. P. (SM)
Halfmann, E. S. (SM)
Hamilton, B. S. (M)
Hamilton, S. (SM)
Hardiman, E. R. (M)
Harewood, C. P. (M)
Hargens, C. W., III (SM)
Harley, T. J., Jr. (M)
Harris, H. H. (SM)
Hart, D. J. (SM)
Harvison, H. V., Jr. (M)
Hatton, R. W. (M)
Hattori, R. W. (M)
Haviland, R. P. (SM)
Hays, C. S. (M)
Hazeltine, A. V. (M)
Heck, J. C. (M)
Helfen, E. (M)
Hembree, W. A. (M)
Henderson, W. C., III (A)
Hendrixson, L. H. (M)
Henninger, J. H. (M)
Herrmann, J. E. (M)
Herschel, M. B. (A)
Hershfield, L. L. (M)
Heskett, H. (M)
Hill, W. C. (A)
Hilton, R. C., Jr. (M)
Hinden, A. (M)
Hirsch, M. (M)
Hobson, W. (A)
Hock, R. E. (M)
Hoffman, A. (M)
Hoffman, E. (A)
Holm, R. M. (A)
Honert, G. B. (A)
Hopper, G. M. (M)
Horn, C. H. (M)
Horton, R. L. (M)
Horvath, S. M. (A)
Howard, E. J. (M)
Hughes, A. D. (M)
Huie, D. L. (M)
Hunter, R. D. (M)
Hyams, I. (M)
Iadicicco, R. A. (M)
Inacker, H. F. (M)
Ingerman, P. Z. (M)
Isken, J. R. (M)
Jacobowitz, H. (M)
Jacobson, L. J. (M)
Jednacz, J. E. (M)
Johnson, N. (SM)
Johnston, G. R. (M)
Johnston, W. R., Jr. (A)
Jones, A. M. (M)
Jones, R. (M)
Joshi, A. K. (A)
Judevine, D. E. (A)
Jung, J. P. (M)
Jurskis, A. (M)
Kalos, S. (A)
Kaminsky, M. F. (M)
Kansas, R. (SM)
Kapeghian, A. (M)
Kappeler, W. H. (A)
Karr, C. H. (M)
Kashtan, S. (A)
Katz, A. S. (M)
Katz, H. H. (M)
Katz, S. (SM)
Kauders, R. M. (M)
Kauffmann, R. A. (M)
Keil, O. C., Jr. (M)
Kelca, M. M. (M)
Kenny, H. W. (A)
Kemus, A. (M)
Keroes, H. I. (M)
Kimel, H. (M)
King, F. N. (M)
King, W. C. (SM)
Klein, S. (M)
Klein, W. (A)
Klemas, V. (M)
Knaff, P. R. (A)
Knoll, J. W. (SM)
Knoll, J. F. (M)
Kobayashi, N. R. (M)
Kohn, S. (M)
Korn, W. (M)
Kosich, R. J. (M)
Kovach, J. F. (A)
Kraft, J. E. (M)
Kraft, M. A. (M)
Kranton, J. (M)
Kraus, C. R. (SM)
Kraus, F. A. (M)
Krembs, G. M. (M)
Krendel, E. S. (SM)
Kritikos, H. N. (M)
Kritzstein, S. G. (M)
Kropp, C. W. (M)
Ku, Y. H. (F)
Kugler, F. (M)
Kurtzo, L. E. (M)
Kusner, D. B. (M)
Kuzman, E. J. (M)
Kwiatkowski, J. M. (A)
Kyne, T. (M)
Lachocki, E. (A)
Lancaster, W. W. (M)
Landauer, W. I. (M)
Lane, A. L. (M)
Lannan, K. E. (A)
Latham, H. L., Jr. (SM)
La Verghetta, F. E. (M)
Lawson, R. A. (M)
Leader, R. (A)
Le Croissette, D. H. (M)
Leibovitz, P. T. (M)
Leitch, J. G. (SM)
Lemold, B. A. (A)
Lesbner, E. (M)
Levengood, L. J. (M)
Lewis, E. M., III (M)
Lieb, A. B. (M)
Lifson, B. S. (A)
Lindinger, J. L. (SM)
Ling, D. A. (M)
Linsky, E. F. (M)
Lipowitz, E. (A)
Lisanti, A. G. (A)
Liss, D. M. (M)
Little, L. J. (M)
Litzinger, J. E. (M)
Livezey, F. M. (M)
Lloyd, R. B. (SM)
Lo Casale, T. M. (M)
Lock, F. J., Jr. (M)
Locker, R. J. (M)
Loebe, L. V. (M)
Loftus, J. A. (M)
Loginow, S. (SM)
Longley, H. N., Jr. (M)
Lorber, H. (M)
Lukoff, H. (SM)
Macaluso, J. A. (M)
Macfadden, W. C. (M)
Maddox, J. L., Jr. (M)
Magasiny, I. P. (SM)
Magee, J. J. (M)
Maguire, H. T. (A)
Mah, L. (M)
Makers, D. T. (M)
Malcolm, R. W. (M)
Malczynski, J. R. (M)
Malkin, T. A. (M)
Malta, S. V. (M)
Manser, J. E. (A)
Mapp, H. S. (M)
Marcus, S. M. (M)
Marinace, R. G. (M)
Markowitz, R. S. (M)
Marks, E. I. (M)
Marple, M. O. (A)
Marsten, J. (F)
Martin, A. (A)
Martin, M. A. (M)
Martino, M. A. (M)
Martire, J. A. (M)
Masurat, G. (M)
Matthews, E. I., Jr. (M)
Mauger, R. S. (A)
May, K. S. (M)
McAllister, J. W. (M)
McBride, J. M. (M)
McCarron, F. J. (A)
McCarter, K. P. (A)
McClung, J. F. (A)
McDade, J. J. (M)
McDermody, R. A. (M)
McDowell, A. P., Jr. (M)
McKay, G. H. (M)
McKnight, B. (A)
McKnight, C. F. (A)
Mc Manus, V. J. (M)
McNames, L. D. (M)
McVey, N. J. (A)
Meehan, F. J. (M)
Meinken, K. C., Sr. (A)
Meiris, J. T. (M)
Meloff, M. (M)
Meyer, C. W. (M)
Meyer, W. T. (M)
Michaud, R. P. (M)
Michel, C. (M)
Mikolajczyk, W. J. (M)
Milewski, E. P. (A)
Miller, D. J. (M)
Miller, L. K. (A)
Mode, D. E. (SM)
Mogavero, C. (M)
Mooney, J., Jr. (M)
Mooney, W. J., Jr. (A)
Moore, C. J. (M)
Moore, T. W. (M)
Morris, L. C. (M)
Mosenkis, R. (M)
Moskowitz, N. (M)
Mozenter, M. J. (M)
Mroz, C. J. (SM)
Muckel, F. H. (M)
Murphy, E. G. (M)
Murphy, R. B. (A)
Murray, R. E. (M)
Murray, W. H. (M)
Myers, E. F. (M)
Naiman, M. L. (SM)
Nambiar, K. K. (A)
Natkin, H. B. (M)
Nelson, C. R. (SM)
Nelson, F. H. (M)
Neubauer, D. (A)
Neuber, H. K. (M)
Newman, E. L. (M)
Newmeyer, D. R. (M)
Nichol, A. V. (SM)
Nicholson, V. (A)
Nicol, S. F. (A)
Nolan, J. J. (A)
Norman, D. A. (M)
Norwitz, D. (M)
Nussbaum, M. (M)
O'Conor, J. S. (M)
Olevsky, B. (A)
O'Neill, M. J. (M)
Osborne, M. H. (A)
Ostroff, A. (M)
Palfas, E. D. (A)
Panas, J. F. (M)
Papendick, C. L. (M)
Park, S. H. (M)
Partin, M. E. (M)
Patterson, G. W. (F)
Paz, H. J. (M)
Peach, J. A. (M)
Pearce, C. T. (SM)
Pehlert, W. K., Jr. (M)
Perazzoli, E. H. (A)
Perles, A. H. (M)
Petersen, W. P. (M)
Peterson, E. F., Jr. (M)
Phillips, C. M. (M)
Piccione, S. W. (M)
Pierce, O. B. (A)
Platt, B. E. (A)
Plizak, B. T. (M)
Pober, J. (M)
Podietz, D. S. (M)
Polin, B. H. (M)
Polin, B. (M)
Poole, H. H. (M)
Porath, N. (M)
Porter, T. J. (M)
Powers, E. N. (M)
Preston, A. W., Jr. (M)
Price, B. L. (M)
Procopio, L. W., Jr. (M)
Profera, C. E., Jr. (M)
Raburn, L. E. (SM)
Rafia, P. E. (M)
Rambo, L. W. (M)
Randall, N. C. (M)
Rapp, A. K. (M)
Rath, G. (A)
Ratner, A. (M)
Rauzino, V. C. (A)
Ravitch, L. I. (M)
Read, M. E. (A)
Ree, J. (M)
Reese, E. H. (M)
Renick, N. D. (M)
Revesz, G. (M)
Reviere, R. P. (A)
Richardson, W. W. (M)
Richman, R. R. (M)
Richter, F. (M)
Riethof, T. R. (M)
Rivelli, P. A. (M)
Riviere, H. W. (M)
Roberts, W. S. (A)
Robinson, G. W. (A)
Robinson, M. E. (M)
Roche, G. B. (M)
Roede, J. B. (M)
Rogers, D. A. (M)
Rogers, R. S. (M)
Rohr, J. G. (M)
Rohrich, J. F. (A)
Rollins, M. M. (M)
Rolnick, M. A. (M)
Roman, A. F. (M)
Romanofsky, N. K. (M)
Rome, J. E. (M)
Rooney, J. D. (M)
Roseman, H. M. (M)
Rosenberg, N. A. (M)
Rosenfeld, R. (M)
Rosenstein, G. M. (A)
Rosenthal, D. (M)
Ross, I. L. (M)
Roth, H. H. (M)
Roth, P. F. (M)
Roth, R. L. (M)
Rothwarf, F. (M)
Rovins, J. J. (M)
Ruben, H. (SM)
Rubin, A. (M)
Rudin, B. (M)
Rudnick, J. J. (A)
Rudofsky, S. (A)
Ruston, H. (M)
Sands, L. G. (SM)
Sapinosa, R. J. (M)
Saponaro, A. J. (M)
Sarkisian, J. (A)
Satinsky, S. (M)
Saunders, J. (M)
Scarpello, M. J. (M)
Schaefer, H. W. (A)
Schaffer, H. H. (M)
Schierff, F. O. (M)
Schifreen, C. S. (A)
Schisselbauer, J. C. (M)
Schleifer, M. N. (M)
Schmechel, D. M. (M)
Schnitzer, A. (M)
Schock, H. E., Jr. (M)
Scholes, W. R. (A)
Scholtes, P. W. (M)
Schrader, R. H. (M)
Schutzwohl, V. K. (M)
Schwan, H. P. (F)
Schwartz, L. (M)
Schwartz, P. (M)
Seawell, W. N. (M)
Segal, B. (M)
Segal, R. J. (SM)
Self, E. (M)
Serafin, J. F. (M)
Shames, M. J. (M)
Shamlian, G. K. (M)
Shapiro, A. L. (M)
Shapiro, M. (M)
Sheffler, W. J. (M)
Shen, D. W. C. (SM)
Sherman, E. H. (SM)
Sherman, P. (M)
Sherr, S. I. (A)
Shienbloom, H. M. (A)
Showers, R. M. (SM)
Shrager, J. S. (M)
Shtrikman, S. (M)
Shulman, M. B. (M)
Shuman, B. H. (M)
Shwop, J. E. (M)
Sichel, A. T. (M)
Sickles, L., II (M)
Sidoriak, J. (M)
Silver, R. (M)
Silverstein, E. R. (M)
Simendinger, R. A. (M)
Sindhvananda, K. (M)
Sinusas, R. R. (M)
Slomko, G. (M)
Sipler, H. (M)
Sklaroff, M. (M)
Slampyak, S., Jr. (M)
Slavin, M. (M)
Slawek, J. E. (M)
Smith, B. J. (A)
Smith, B. G. (A)
Smith, D. B. (F)
Smith, G. R. (M)
Smith, L. E. (M)
Smith, R. F. (M)
Smith, R. C. (M)
Soltoff, B. M. (M)
Soltz, D. J. (M)
Songster, G. F. (M)
Soorenko, T. (M)
Sorius, A. (M)
Sos, J. (M)
Spadaro, P. C. (M)
Spady, R. J. (M)
Spector, E. N. (A)
Spielman, S. C. (SM)
Stanton, L. (M)
Starks, W. H. (SM)
Steele, R. W. (M)
Steelman, A. T., Jr. (M)
Stein, S. J. (SM)
Steinberg, M. (M)
Steinruck, C. F., Jr. (A)
Stella, A. J. (M)
Stern, F. (M)
Stiles, C. J. (M)
Stovall, J. R., Jr. (M)
Stranix, R. G. (M)
Sugalski, A. C. (A)
Sugarman, R. H. (SM)
Sun, H-H (M)
Sunshine, B. M. (M)
Sweeney, J. A. (A)
Szczyrbak, J. (M)
Szukalski, E. A. (M)
Talbot, G. S. (M)
Taylor, L. S. (M)
Teacher, C. F. (M)
Temny, R. M. (M)
Timlin, E. S. (M)
Tom, J. (M)
Tomar, R. M. (A)
Torrese, A. A. (SM)
Torrey, R. D. (M)
Trachtenberg, B. M. (M)
Trachtman, J. (M)
Tribolet, F. H. (M)
Trocky, E. V. (A)
Trost, J. C. (M)
Tucci, A. E. (M)
Turczyn, A. (A)
Tweedie, T. C., Jr. (M)
Ulmer, E. K. F. (M)
Urkowitz, H. (SM)
Ussler, W., Jr. (M)
Valesky, C. S. (M)
Valitski, W. F. (M)
Van Aller, W. H. (M)
Van Horn, J. C. (SM)
Varricchio, A. L. (M)
Veit, Q. F. (M)
Velasquez, J. J. (M)
Volpe, J. M. (M)
Waggoner, G. F. (SM)
Wagner, M. (A)
Waitkeneus, J. (SM)
Waltz, R. B. (M)
Warchaizer, S. E. (M)
Warner, E. H. (M)
Warren, S. R., Jr. (SM)
Warwick, R. E. (A)
Watson, B. (A)
Waynebern, C. S. (A)
Weigert, F. M. (A)
Weilerstein, I. M. (M)
Weinberg, P. T. (M)
Weiner, M. (M)
Weinger, R. (A)
Weinstock, S. (M)
Weinstock, W. W. (SM)
Weisman, S. (M)
Weiss, S. (M)
Weiss, S. (A)
Wellin, J. D. (M)
Welsh, J. J. (SM)
Whitby, L. S. (M)
White, A. A. (M)
White, F. J. (M)
White, R. E. (M)
Wightman, R. R. (M)
Williams, R. B. (M)
Williams, R. M. (M)
Wilsker, O. (M)
Wilson, L. D. (SM)
Winsor, P., III (SM)
Wisler, F. W. (M)
Witkin, E. (SM)
Woessner, W. J., Jr. (M)
Wojcik, J. J. (SM)
Wolin, L. (SM)
Wolstoncroft, J. C. (M)
Wood, R. F. (A)
Woodcock, V. E. (M)
Woods, L. J. (SM)
Wos, J. (A)
Wu, B. Y. K. (M)
Wu, H. H. (M)
Wyeth, F. H. (M)
Wyman, J. C. (M)
Yacyk, J. (M)
Yanishevsky, G. (M)
Yonan, H. B. (A)
Young, C-T (M)
Zacharczuk, D. (M)
Zacher, D. (M)
Zakarian, P. (M)
Zapacosta, J. A. (M)
Zeman, P. A. (A)
Zilberfarb, S. N. (M)
Zimmerman, B. L. (A)
Zimmerman, M. S. (SM)
Zuckswert, S. E. (M)
Zwirn, H. L. (M)
Zygmont, A. J. (M)

Phoenixville (PHI-3)
Carter, W. S., Jr. (M)
Fallows, R. P. (M)
Fresch, W. C. (M)
Hayes, H. J. (M)
Lynch, F. T. (M)
Menges, W. R. (M)
Ross, F. R. (A)
Tanguy, L. L., Jr. (M)

Pine Grove Mills (CP-4)
Durrwachter, H. W., II (M)
Farr, F., Jr. (M)
Griffin, W. D. (M)
Miller, N. B. (M)

Pineville (PHI-3)
Schreiner, W. (M)

Pipersville (PHI-3)
Holshouser, J. R., Jr. (M)

Pitcairn (PIT-4)
Gannon, G. F., Jr. (A)
Hedges, C. D., Jr. (M)
Heess, E. L. (M)
Jones, C. I. (M)
Keener, E. L. (SM)
Kuegler, G. K. (M)
Lin, H. C. (M)
Mulica, A. R. (M)
Phelps, G. H. (SM)
Ramey, R. A. (F)
Raymond, C. G. (A)
Rice, L. (A)
Taylor, M. E. (M)
Tyaack, F. H. (M)

Pitlock (PIT-4)
Shyhalla, N. (M)

Pittsburgh (PIT-4)
Amitay, N. (M)
Anderson, A. E. (M)
Angello, S. J. (F)
Aronson, M. H. (M)
Barron, F. E. (SM)
Basista, J., Jr. (M)
Baughman, G. W. (SM)

Bean, W. C. (M)
Benjamin, C. E. (M)
Bhavnani, K. H. (M)
Biel, D. T. (M)
Billetdeaux, A. C. (M)
Binstock, M. H. (M)
Bizon, A. M. (M)
Blackmon, H. (SM)
Blair, H. A., Jr. (M)
Boerio, A. H. (M)
Booker, C. A., Jr. (M)
Bossart, P. N. (F)
Boyer, J. L. (M)
Brashear, J. E. (A)
Brath, P. W. (M)
Bright, R. L. (M)
Brown, B. K., Jr. (A)
Bush, N. E. (M)
Calvert, J. F. (F)
Caplan, H. M. (A)
Carlan, A. J. (M)
Carothers, W. D., Jr. (M)
Castner, R. J. (A)
Chackan, H. G. (M)
Chandler, A. M. (A)
Chang, H-C (SM)
Cheek, R. C. (M)
Chen, K. (SM)
Church, C. H. (M)
Clark, R. G. (M)
Coates, R. S. (M)
Colclasser, R. A. (M)
Colker, J. (M)
Coltman, J. W. (F)
Corey, W. T. (M)
Cox, H. L., Jr. (M)
Crawford, E. M. (A)
Crawford, R. G. (M)
Crocker, J. W. (M)
Cunningham, R. C. (SM)
Davis, R. E. (SM)
De Klerk, J. (SM)
De Lange, T. J. (M)
Delgado, R. H. (M)
Della Pergola, G. C. (M)
Dolby, L. W., III (A)
Donohue, E. P. (M)
Downs, T. E. (M)
Duckett, E. J. (SM)
Dugan, J. F. (M)
Durgin, C. B. (M)
Eash, J. J. (M)
Eggers, C. W. (M)
Engel, F. A., Jr. (SM)
England, T. R. (M)
Evans, R. (M)
Fairman, J. F., Jr. (M)
Fekete, J. M. (A)
Feldman, J. M. (M)
Ferber, R. R. (M)
Feucht, D. L. (M)
Finzi, L. A. (SM)
Fischer, M. M. (M)
Fischer, R. L. (A)
Ford, D. J. (M)
Friedman, A. B. (A)
Fryling, C. V. (M)
Garrett, S. J. (M)
Geil, F. G. (M)
Germann, J. D. (A)
Gibson, F. C. (M)
Gilbert, C. W. (M)
Gogniat, T. (M)
Goldstein, R. P. (A)
Graul, T. A. (M)
Greenwood, J. H. (SM)
Hager, R. E. (M)
Hall, J. C. (M)
Hamilton, W. H. (SM)
Hansen, J. R. (SM)
Harper, E. B., Jr. (A)
Haun, R. D., Jr. (M)
Hayes, J. A. (A)
Herwald, S. W. (F)
Hofmeister, K. J. (M)
Hollandbeck, R. F. (M)
Hovey, B. K. (SM)
Huggler, L. R. (M)
Hutcheson, J. A. (F)
Hyypolainen, E. K. (A)
Jackson, A. H. (A)
Jones, D. H. (M)
Jordan, A. G. (M)
Jordan, N. A. (M)
Kadak, E. (M)
Kaiser, H. R. (SM)
Katz, D. N. (M)
Kaufman, W. M. (M)
Keay, F. W. (M)
Kenney, T. C. (SM)
Kellerer, R. L. (M)
Kieshauer, F. W. (M)
King, N. P. (M)
Knox, W. G. (A)
Konnerth, K. L., Jr. (M)
Krasik, S. (SM)
Larson, C. O. (SM)
Lavi, A. (M)
Lawson, T. R., Jr. (M)
Leahy, E. F. (M)
Leeds, J. V., Jr. (M)
Lempert, J. (SM)
Lenz, J. A., Jr. (M)
Li, C-C (M)
Libenschek, R. S. (A)
Lipchak, J. B. (M)
Lockhart, W. J. (A)
Logsdon, G. R. (A)
Lubich, J. W. (M)
Ludwig, J. G., Jr. (M)
Mack, M. C. (SM)
Madsen, C. J. (SM)
Magee, C. H. (A)
Maher, J. I. (M)
Malmberg, P. R. (M)
Marchetti, R. R. (M)
Margolis, S. G. (M)
Marsh, J. M. (M)
Marshall, S. C. (M)
Mathias, R. A. (SM)
McConnell, R. A. (SM)
McCreanor, R. A. (M)
McCreary, H. S., Jr. (A)
McIntosh, R. O. (SM)
McKinley, J. G., Jr. (A)
McShane, J. L. (M)
Melngailis, I. (M)
Miller, W. M. (M)
Milnes, A. G. (SM)
Mitchell, J. B. (M)
Mocharko, G. L., Jr. (M)
Mokrytzki, B. (M)
Moore, G. E. (M)
Morrison, C. O. (M)
Moss, A. I. (M)
Nagel, G. W. (SM)
Nathanson, H. C. (M)
Newell, W. E. (M)
Noggle, L. H. (M)
O'Donnell, J. J. (M)
O'Donnell, T. J. (SM)
Ong, C. J. (M)
Osbon, W. O. (M)
O'Shea, J. P. (A)
O'Shea, R. P. (M)
Osial, T. A. (SM)
Ott, R. R. (M)
Pack, J. L. (M)
Packer, B. S. (M)
Painter, W. C. (M)
Pakala, W. E. (SM)
Peters, H. D. F. (M)
Peters, L. J. (SM)
Philips, J. (M)
Pickholtz, L. (M)
Pittman, P. F. (M)
Pledger, E. R. (M)
Platt, J. A., Jr. (M)
Porterfield, C. P. (M)
Povejsil, D. J. (SM)
Ramage, W. W. (SM)
Rathbone, D. E. (M)
Rau, D. R. (M)
Rau, F. J. (M)
Reihing, J. V., Jr. (M)
Reynolds, M. T. (M)
Rhoads, D. O. (A)
Roberts, R. W. (M)
Rodgers, R. W. (SM)
Roelike, D. A. (M)
Rolly, L. P. (M)
Ross, E. J. (M)
Rude, P. A. (M)
Ruth, D. K. (A)
Sack, E. A., Jr. (M)
Saucedo, R. (M)
Schaeperkoetter, L. C. (M)
Schatz, E. R. (SM)
Schindler, D. G. (M)
Schiring, E. E. (M)
Schneeberger, R. J. (SM)
Schneider, H. L. (SM)
Schultz, M. A. (SM)
Schwindt, A. J. (M)
Seidel, R. A. (M)
Semin, R. J. (M)
Shafer, W. L. (A)
Shanks, W. D. (M)
Shoupp, W. E. (F)
Sines, W. U., Jr. (M)
Slepian, J. (F)
Smith, L. E. (M)
Smith, P. L., Jr. (M)
Smith, P. W. (M)
Snefsky, E. A. (M)
Soarrow, R. F. (M)
Stapelfeldt, R. (M)
Staubitz, E. J. (M)
Stein, R. G., Jr. (M)
Stephens, R. A. (M)
Stern, J. (A)
Stott, W. R. (A)
Strasser, A. (M)
Sverdrup, E. F. (M)
Sze, T. W. (A)
Sziklai, G. C. (F)
Taylor, K. A. (M)
Taylor, W. (M)
Teare, B. R., Jr. (F)
Thompson, B. L. (M)
Thompson, J. H. (SM)
Tunell, R. H. (A)
Twaska, V. M. (A)
Uleman, T. (SM)
Umbel, F. K. (M)
Unger, E. J. (M)
Vargo, M. S. (M)
Vogeley, C. E., Jr. (SM)
Voshall, R. E. (M)
Wagner, H. A. (SM)
Walchli, H. E. (SM)
Wallhausen, K. H. (M)
Werner, H. B. (M)
Wexler, C. H. (M)
Wieczorkowski, E. A. (M)
Williams, E. M. (F)
Williams, R. (M)
Wolfe, P. N. (M)
Wood, J. E. (M)
Wood, M. H. (SM)
Wyckoff, R. D. (F)
Yarussi, F. P. (A)
Young, F. J. (M)
Zeller, L. C. (M)
Zoffel, G. I. (M)

Pittston (PHI-3)
Loughney, T. M. (M)

Plymouth Meeting (PHI-3)
Applegarth, A. R., Jr. (SM)
Best, D. T. (M)
Broomall, J. M. (SM)
Buchsbaum, L. (M)
Chamow, M. F. (A)
Ginsberg, A. (M)
Ginsberg, E. M. (M)
Hauer, C. A. (M)
Hoffman, A. N. (M)
Koller, W. B. (M)
Krantz, F. H. (M)
Loev, D. (M)
Luscombe, C. F. (M)
Nead, B. G. (M)
Roush, J. E. (M)
Ryesky, A. (M)
Salasin, H. (M)
Smith, R. C. (M)
Warshaw, C. H. (M)

Portage (PIT-4)
Dorsch, F. E. (M)

Port Matilda (CP-4)
Seeley, R. M., Jr. (M)

Pottstown (PHI-3)
Binelli, W. D. (M)
Browne, J. D. (M)
Dahlin, E. B. (M)
Doyle, J. D. (A)
Hafner, H. F. (M)
Heimsness, O. D. (A)
Nace, C. E. (M)
Oscar, I. S. (A)
Steinmann, J. E. (M)
Trout, H. J., Jr. (A)

Prospect Park (PHI-3)
Groves, J. R. (M)

Prospectville (PHI-3)
Wall, D. J. (M)

Punxsutawney (EMP-4)
Cameratta, P. J. (M)

Quakertown (P-LV-3)
Anderson, A. E. (F)
Cole, W. P. (SM)
Hendricks, P. S. (M)
Moose, L. F. (M)
Porter, V. J. (M)
Shand, J. R. (M)

Radnor (PHI-3)
Bader, R. F. (M)
Bolgiano, D. R. (M)
Brenner, M. M. (M)
Crompton, R. H. (M)
Croteau, C. J. (M)
Engels, R. O. (M)
Garrison, P. A. (M)
Heckman, H. T. (SM)
Lachenbruch, D. (A)
Noyer, R. O. (SM)
Roberts, R. E. (SM)
Sumerlin, W. T. (SM)

Reading (PHI-R-3)
Ake, N. E. (M)
Bennett, W. F. (M)
Catchmark, J. (M)
Cieniewicz, L. B. (A)
Coldren, S. D. (A)
Daburlos, K. E. (A)
Eckton, W. H., Jr. (M)
Emery, L. D., Jr. (M)
Gable, J. R. (M)
Gibilisco, P. J. (M)
Greely, D. K. (A)
Hauck, H. S. (M)
Henrich, G. R. (A)
Herr, P. L. (M)
Hill, A. R. (A)
Hill, K. J. (M)
Holzinger, C. S. (M)
Hower, M. M. (M)
Johnson, K. H. (M)
Kons, J. B. (A)
Krufka, E. F. (M)
Lipscomb, R. F. (M)
Lundberg, R. H. (M)
Mill, A. F. (M)
Moyer, C. P. (A)
Myslinski, S. A. (M)
Pietruszynski, L. J. (M)
Pomeroy, R. C. (SM)
Rose, F. L. (M)
Schilling, R. G. (M)
Scull, E. W. (A)
Shockley, D. B. (A)
Sodomsky, K. F. (M)
Von Ohlsen, L. H., Jr. (M)
Wentzel, L. S. (A)
Wolfe, E. M. (A)
Zechman, W. N. (A)

Richboro (PHI-3)
Del Mar, D. (M)

Ridgway (EMP-4)
Cowles, R. J. (M)
Gausman, G. G. (M)
Kirkpatrick, D. N. (SM)

Ridley Park (PHI-3)
Dietze, H. O. (A)
Fritz, C. H. (M)
McCarty, C. E. (M)
Rowe, L. R. (A)
Sydnor, A. G. (A)

Rockwood PIT-4)
Henkels, H. W. (SM)

Rosemont PHI-3)
Abernethy, H., III (M)
Bistany, F. A. (A)
Giba, J. J. (SM)
Heid, J. P. (M)
Karniol, E. D. (SM)
Rooney, T. J. (M)
Soltz, B. (M)
Speakman, E. A. (F)
Stuart, R. M. (M)

Roslyn (PHI-3)
Bauer, J. E. (M)
Beaver, J. A., Jr. (M)
Burrows, J. W. (M)
Cheneryss, M. (SM)
Dietz, J. R. (M)
Douglass, F. W. (SM)
Fey, R. C. (M)
Grove, L. R. (M)
Hennessey, W. M. (M)
Krzywonos, S. M. (M)
Kuter, J. J. (M)
Lamonte, R. J. (M)
Lannamann, R. J. (A)
Moore, J. L. (M)
Sayer, T. C. (M)
Silverman, J. B. (M)
Stahl, R. A. (M)
Standeven, J. D. (M)
Todd, C. R. (M)
Vallilere, E. G. (A)
Yutz, R. W. (M)

Rouseville (PIT-4)
Swanson, W. A. (M)

Rushville (PHI-3)
Galetto, L. V. (M)

Rutledge (PHI-3)
Marshall, T., Jr. (M)

Rydal (PHI-3)
Boreen, H. I. (M)
Clarke, I. A. (M)
Ferrili, T. M., Jr. (SM)
Garkav, E. (M)
Hoffman, M. (M)
Lagore, J. A. (SM)
Sharpe, W. P., Jr. (M)

St. Davids (PHI-3)
Fischer, G. J. (M)
Karcher, R. W. (M)
Norris, R. M. (M)
Prednis, L. J. (M)

St. Mary's (EMP-4)
Bickmire, R. L. (SM)
Butler, E. W. (SM)
Dressel, H. (A)
Fritz, C. F. (A)
Fritz, H. U. (M)
Gamer, W. J. (A)
Hoffman, R. R. (SM)
Inge, E. F. (M)
Neff, A. K. (A)
Pierson, I. S. (M)
Simbeck, R. H. (M)
Snowdon, T. L. (SM)
Sorg, F. X. (M)
Speer, J. S., II (M)
Stock, W. R. (A)
Young, R. W. (M)

Saltforville (PHI-3)
McKenney, J. E. (M)

Saxonburg (PIT-4)
Cooper, R. W. (A)
Stuebgen, W. F. (A)

Sayre (ELM-C-1)
Ball, M. (A)
Franklin, B. A. (A)

Schwenksville (PHI-3)
Foster, L. E. (M)

Scottsdale (PIT-4)
Buzzard, G. K. (A)

Scranton (PHI-3)
Cooke, K. R. (A)
Fitzsimmons, J. W. (A)
Hartnett, J. D. (M)
Judkovics, M. (M)
Lahey, P. J. (M)
Leskauskas, F. C., Jr. (M)
Miller, W. A. (M)
Mumock, J. P. (M)
Quinn, J. M. (M)
Riese, J. A. (M)
Schiller, J. (M)
Schmidt, H. L. (M)
Smith, G. (SM)
Steier, H. P. (SM)
Stone, J. R. (M)
Thomas, W. F. (M)

Sewickley (PIT-4)
Balenbach, R. I. (M)

Sharon Hill (PHI-3)
Hustead, L. D. (M)

Sharon (PIT-4)
Barley, C. D. (M)
Bowers, P. R. (M)
Zahniser, R. M. (A)

Shenandoah (PHI-3)
Kulak, A. J. (M)

Shillington (PHI-R-3)
Gillette, M. M. (M)
Harlin, W. R. (M)
Lundberg, W. R. (M)
Radomski, J. J. (M)

Shippensburg (PHI-3)
Eschenmann, J. B. (M)

Shirleysburg (PIT-4)
Fogle, E. L. (M)

Shoemakersville (PHI-R-3)
Barry, D. E. (A)

Simpson (PHI-3)
Tarris, P. D. (M)

Sinking Spring (PHI-R-3)
Miller, R. C. (M)
Nester, A. L. (M)
Zechman, R. W. (A)

Smethport (EMP-4)
Francisco, S. G. (M)
Greenlaw, A. F. (M)

Solebury (PHI-3)
Algeo, B. C., Jr. (SM)

Somerset (PIT-4)
Mull, L. H. (M)

Somerton (PHI-3)
Donald, E. N. (M)
Pharo, E. W., Jr. (M)

Souderton (PHI-3)
Smith, H. B. (M)

Southampton (PHI-3)
Braun, P. F. (M)
Dempster, B. W. (M)
Dixon, G. P. (M)
Grzywacz, W. (M)
Lichtenfels, J. L. (M)
Oliver, W. G. (M)
Schroeder, A. C. (F)
Thompson, R. L. (M)

Springdale (PIT-4)
Bigley, J. D. (M)
Duris, M. W. (M)
Gayhart, M. F. (A)
Shearer, D. L. (M)

Springfield (PHI-3)
Brinton, J. H., Jr. (M)
Byers, A. C. (SM)
Cornelius, H. J. (A)
Denzler, C. D. (M)
Ebling, W. F., Jr. (M)
Glacopoullo, J. A. (M)
Gordon, R. B. (M)
Hahn, A. J. (M)
King, G. W. K. (M)
Laiming, H. J. (SM)
Marcott, C. M. (M)
Mattla, R. F. (A)
Miller, M. N. (M)
Mitchell, W. J., Jr. (A)
O'Neill, J. F. (M)
Russo, L. J. (M)
Schwartz, R. F. (SM)
Sylvester, R. A. (M)
Ware, W. E. (M)
Weiss, E. A. (M)

State College (CP-4)
Ackerman, C. L. (M)
Aldrich, D. H. (M)
Ammerman, C. R. (SM)
Baker, W. F. (SM)
Barber, K. F. (A)
Bastuscheck, C. P. (SM)
Baxter, F. C., Jr. (M)
Bender, R. M. (M)
Bloomquist, W. B. (M)
Bogar, J. E. (M)
Bringman, J. M. (M)
Brown, J. L., Jr. (SM)
Brownlee, R. R. (M)
Byers, H. K. (M)
Caldine, H. G. (M)
Callaghan, J. W. (SM)
Cannon, J. B., Jr. (M)
Carey, D. E. (M)
Chemeqa, J. (M)
Chubb, W. R., Jr. (M)
Clark, D. G. (M)
Crain, H. M. (SM)
Crossley, G. L. (SM)
Davies, J. E., Jr. (M)
Dean, J. C. (M)
Diamant, H. B. (M)

PENNSYLVANIA

Dickey, C. W. (M)
Divany, R. B. (M)
Eck, R. C. (M)
Elliot, W. A. (SM)
Endley, R. F. (M)
Ewing, R. W. (M)
Fasnacht, M. B. (A)
Felperin, K. D. (M)
Fleni, D. O. (M)
Files, W. D. (SM)
Finlon, F. P. (M)
Freed, P. J. (SM)
Gaudinsky, J. R. (M)
Gawryla, R. E. (M)
Geronimo, M. B. (M)
Getchonis, W. J. (M)
Goodwin, J. M. (M)
Hall, F. T., Jr. (M)
Hall, R. D. (M)
Harbolis, S. S. (M)
Hastert, D. D. (M)
Henman, R. J. E. (M)
Herlt, B. G., Jr. (M)
Herman, E. B. (SM)
Holter, D. H., Jr. (M)
Houser, W. G. (SM)
Howard, W. A. (M)
Hunter, R. P. (SM)
Huntington, W. J., Jr. (M)
Keller, E. W. (M)
Kelly, J. K. (M)
Kenly, T. F. (M)
Key, C. L., Jr. (SM)
Key, J. T., Jr. (M)
Kling, L. K. (A)
Krueger, D. (M)
Kufe, K. H. (M)
Kush, L. J. (M)
Lawther, J. M. (M)
Lee, H. S. (M)
Leiss, W. J. (SM)
Lemley, L. W. (M)
Levine, H. M. (M)
Lewis, J. O. (M)
Lopez, A. F. (SM)
Love, G. P. (M)
Lutton, B. W. (M)
Macalady, B. D. (M)
Marcus, R. B. (M)
Martinez, M. T., Jr. (M)
McCallum, R. G. (M)
McGinley, J. H. (M)
McKinney, D. W. (M)
McLucas, J. L. (SM)
Mentzer, J. R. (SM)
Milliken, M. P. (M)
Minor, L. C. (M)
Moore, F. B. (SM)
Moore, J. V. (A)
Moore, R. C. (M)
Musser, G. L. (SM)
Nearhoof, H. J. (SM)
Norris, R. S. (M)
Novak, M. J. (M)
Oblinger, J. T. (M)
O'Connor, H. C., Jr. (M)
Oelbermann, E. J. (SM)
Palmer, J. R. (SM)
Passow, R. L. (SM)
Perks, N. W. (M)
Pharo, L. C., Jr. (M)
Pich, J. J. (M)
Quinn, T. P. (M)
Reigel, E. W. (M)
Rentschler, M. B. (M)
Richardson, E. (M)
Rix, H. D. (SM)
Roeshot, L. (M)
Rowlands, R. D. (SM)
Ruff, G. A. (M)
Santaluca, A. J. (M)
Scheihing, F. A. (M)
Schmidt, E. W. (M)
Shaffer, J. D. (M)
Sharp, A. C. (SM)
Stewers, D. C. (M)
Skagerberg, W. A. (M)
Skipper, R. E. (SM)
Skudrzyk, E. J. (M)
Smith, J. P. (M)
Snackman, R. M. (M)
Taylor, J. G. (M)
Thompson, F. C. (SM)
Traucott, R. D. (M)
Vetter, A. R. (M)
Walker, J. P., Jr. (M)
Walsh, B. D. (M)
Watkeys, D. E. (M)
Welch, C. L. (M)
Wellington, T. C. (M)
Wolfe, R. E. (SM)
Wurst, J. W. (M)

Strafford (PHI-3)
Huber, R. D. (A)
Mathes, R. E. (F)

Strafford Wayne (PHI-3)
Pratt, T. B., Jr. (M)

Sunbury (WIL-4)
Weber, J. O. (M)
Young, R. H. (M)

Swarthmore (PHI-3)
Aberth, O. (A)
Barus, C. (SM)
Bowfer, D. L. (M)
Burtis, S. F., Jr. (M)
Heald, M. A. (M)
Johnson, F. M. (M)
Roberts, G. A. (M)
Shin, J. Y. J. (M)
Whittier, F. W. (M)

Swoyerville (PHI-3)
Gutch, G. J. (M)

Tamaqua (PHI-3)
Dignazio, L. A. (M)

Tarentum (PIT-4)
Ceschini, E. S. (M)
Naughton, J. D. (M)

Telford (PHI-3)
Hinds, J. L., Jr. (M)
Lawson, T. C. (M)
Robinson, S. A. (SM)

Throop (PHI-3)
Goodman, J. (M)

Tioga (ELM-C-1)
Cochrane, D. O. (M)

Tobyhanna (PHI-3)
Fuqua, H. G. (SM)
Jarecki, S. J. (A)
Piscatello, D. J. (M)
Woodward, J. W. (M)

Towanda (ELM-C-1)
Englsch, R. A. (M)

Trafford (PIT-4)
Breakey, G. A. (M)

Trevose (PHI-3)
Fath, J. P. (M)
Ziegler, R. A. (A)

Tunkhannock (PHI-3)
Snover, A. L., Jr. (M)

Turtle Creek (PIT-4)
Skinner, D. D. (M)
Trimble, W. C. (M)

Tyrone (PIT-4)
Kearney, H. B., Jr. (M)
Swayne, D. S. (M)

University Park (CP-4)
Atwater, H. A. (SM)
Bowhill, S. A. (SM)
Bulman, G. R. P. (M)
Ebaugh, P. (M)
Johnson, R. C. (A)
McLane, S. B., Jr. (M)
Pohts, W. F. (M)
Ross, W. J. (SM)
Schmerling, E. R. (SM)
Smith, R. M. (M)
Somayajulu, Y. V. (SM)
Strother, G. K. (M)
Walker, E. A. (F)
Waynick, A. H. (F)
Wilson, G. L. (SM)

Upper Darby (PHI-3)
Beane, J. M. (SM)
De Carlo, A. P. (M)
Dinackus, H. G. (M)
Fitzpatrick, J. F. (M)
Giacchino, G. J., Jr. (M)
Gumacos, C. (M)
Hopkins, V. A. (SM)
Killeen, J. F. (M)
Leavenworth, R. A. (M)
Leone, T. D. (A)
McCoy, C. T. (SM)
McFall, T. J. (M)
Mehan, A. J. (M)
Santaguida, C. (A)
Stajsmonti, I. (M)

Uwchland (PHI-3)
Loring, R. A. (M)
O'Connell, R. J. (A)
Robinson, C. W., Jr. (M)

Valley Forge (PHI-3)
Register, C. L. (SM)

Verona (PIT-4)
Bartholomew, R. R. (M)
Smith, N. S., Jr. (M)
Thompson, F. T. (SM)
Viener, A. H. (M)

Villanova (PHI-3)
Cecal, J. A. (M)
Chen, T. C. (SM)
Dilks, U. C. S. (SM)
Gabriele, T. C. (M)
Hedden, G. A., Jr. (A)
Klekotka, J. A. (M)
Mullen, A. J. (M)
Spencer, H. H. (M)
Stineman, J. W., Jr. (A)
Tate, R. V. (M)
Weiner, J. R. (SM)

Wallingford (PHI-3)
Freedman, J. N. (M)
Jayne, F. B. (SM)
Martin, J. L. (M)
Shallcross, D. H. (A)

Wapwallopen (PHI-3)
Nickett, G. R. (M)

Warminster (PHI-3)
Aurelius, K. P. (A)
Bachinsky, R. D. (M)
Barnett, G. F. (M)
Bearscove, K. O. (M)
Bicking, H. P. (M)
Brown, R. P. (M)
Buscher, D. G. (M)
Diaz, R. P. (A)
Espio, M. A. (M)
Francis, W. A. (M)
Godshall, M. M. (M)
Hazelwood, C. A. (M)
Hollich, S. E. (M)
Horwitz, J. D. (A)
Jackamonis, G. (A)
Karew, J. J. (M)
Kressler, R. R. (M)
Kuhnle, R. C. (A)
Massey, T. J., Jr. (M)
Schuler, R. G. (SM)
Senulis, R. E. (M)
Smithey, L. D. (M)
Sokol, S. (M)
Teklits, F. A. (M)
Twist, G. A. (M)
Woodside, H. F., Jr. (A)

Warren (EMP-4)
Barre, W., E. (M)
Loranger, J. A. (SM)
Thelin, D. H. (A)
Wanner, L. R. (M)

Warrington (PHI-3)
Clarance, A. L. (M)
Curtis, C. T. (M)
Griesbach, R. J. (M)
Hollinger, R. A. (M)
Michener, R. E. (M)

Washington (PIT-4)
Hofeld, J. G. (M)
Lolfredi, A. J. (A)
Paul, D. R. (M)
Tarsia, J. S. (A)

Waverly (PHI-3)
Mundell, K. C. (M)

Wayne (PHI-3)
Anderson, F. W. (SM)
Babcock, C. E. (M)
Bartlett, F. F. (M)
Bingham, H. W. (M)
Bowman, D. F. (SM)
Brown, E. O. (M)
Chow, C. K. (M)
Collins, H. B., Jr. (SM)
Crouse, R. T. (M)
D'Andrea, L. L. (SM)
Davis, H. U. (M)
De Wolf, J. B. (M)
Donecker, R. R. (A)
Ellis, D. M. (M)
Friedman, H. J. (M)
Goodman, S. I. (SM)
Graeter, R. J. (M)
Guyer, R. S. (A)
Hatch, B. D. (SM)
Janshego, S. W. (M)
Leisenring, J. G. (M)
Lenfest, G. C. (M)
Libby, E. C. (M)
Lolli, L. M. (M)
Lowrie, R. W. (M)
McCauley, C., Jr. (M)
McWilliams, G. R. (M)
Medkeff, R. J. (M)
Neumann, L. R. (M)
Niemann, E., Jr. (M)
Palmer, G., Jr. (SM)
Rivas, L. A. F. (A)
Schneider, W. M., Jr. (M)
Thomson, D. N. (M)
Thomson, E. T. (M)
Upham, S. W. (M)
Vincent, D. G. (M)
Wellard, C. L. (M)
Woo, W. G (SM)
Yoder, L. R. (A)

Weatherly (PHI-3)
Schramm, J. A. (M)

Wesleyville (ERI-1)
Brown, P. A. (M)

West Chester (PHI-3)
Craig, R. C. (M)
Fuller, J. B., Jr. (M)
Godwin, R. O. (M)
Green, R. E., Jr. (M)
Haner, L. P. (SM)
Hickey, J. E., Jr. (M)
Kieselbach, R. (M)
Lussler, R. R. (M)
Massey, C. L. (A)
McGrogan, E. P., Jr. (M)
Minglone, J. A. (M)
Newnham, A. G. (M)
Selin, W. L. (M)
Tracy, R. A. (M)
Veldhuis, I. A. C. (SM)
West, R. E. (SM)

West Conshohocken (PHI-3)
Bush, B. A., Jr. (M)
Dzwonczyk, J. G. (M)
Eckert, E. R. (M)
Robinson, I. E. (M)

West Hazleton (PIT-4)
Yesenofski, J. S. (M)

West Lawn (PHI-R-3)
Ellenberger, C. E. (M)
Hornberger, R. F. (M)
Woodward, R. F. (M)

West Middlesex (PIT-4)
Herr, C. E. (A)

West Mifflin (PIT-4)
Mayni, J. J. (M)

West Pittston (PHI-3)
Bruno, A. R. (M)

West Reading (PHI-R-3)
Peterson, K. E. (A)

West Whiteland Township (PHI-3)
Murtaugh, J. L., Jr. (M)

Whitemarsh (PHI-3)
Butt, S. P., Jr. (M)

Whitpain Township (PHI-3)
Spandorfer, L. M. (M)

Wilcox (EMP-4)
Wantuck, W. T. (M)

Wilkes-Barre (PHI-3)
Bates, G. P. (M)
De Matteis, W. M. (M)
Foley, W. M. (M)
Graytock, R. A. (M)
Groff, H. A. (M)
Katyl, R. H. (A)
Loughran, J. W. (M)
Middleton, W. W. (M)
Parise, J. D. (A)
Reid, J. F. (A)
Woyton, J. T. (M)

Williamsport (WIL-4)
Anderson, L. F. (M)
Bresee, W. H. (M)
De Gan, J. J. (M)
Foreman, R. J. (M)
Gehrke, F. E. (SM)
Gregor, T. P. (A)
Hartman, R. H. (M)
Horrigan, J. B. (M)
Hostetler, C. L. (M)
Jewart, D. M. (SM)
Kouglas, G. C. (A)
Lavo, H. J. (M)
Lincoln, B. R. (M)
McCarthy, F. J. (M)
Pennington, E. T. (M)
Petis, R. G. (M)
Pouy, R. H. (M)
Richart, D. H. (M)
Silbley, R. C. (M)
Teno, E. (A)
Wame, T. P., Jr. (SM)
Whitmore, E. J. (SM)

Willow Grove (PHI-3)
Affel, H. A., Jr. (SM)
Bates, F. E. (M)
Beatly, P. H. (M)
Bradshaw, J. L. (M)
Colocousis, J. (SM)
Dry, D. N. (M)
Eckersley, A. (SM)
Fishbeck, R. A. (M)
Flood, J. J., Jr. (M)
Florence, V. H. (M)
Franke, A. E. (M)
Fraser, R. S. (M)
Frost, R. T. (M)
Gatter, H. H. (M)
Godley, W. P. (A)
Harland, F. W. (A)
Hirschman, H. (M)
Hockeimer, H. E. (M)
Johnston, W. (M)
Kall, A. R. (M)
Kashihara, T. K. (M)
Kornfeld, M. (M)
Kornfeld, N. R. (M)
Lucke, W. N. (M)
Nuter, E. H. (M)
Nyser, H. J. (M)
Pacl, R. A. (M)
Purnell, G. W. (A)
Rude, R. T. (M)
Schreyer, F. J. (M)
Shulman, L. (M)
Sikina, T. V. (M)
Spelghts, M. T. (M)
Tillman, R. M. (M)
Tobe, S. S. (SM)
Weidknect, C. J., Jr. (M)
Zohn, R. L. (M)

Willow Street (PHI-L-3)
Butterwick, G. N. (M)

Windsor (PHI-L-3)
Arnold, P. H. (M)

Woodlyn (PHI-3)
Kashmar, E. J. (M)

Wrightstown (PHI-L-3)
Fisher, M. K. (M)

Wrightsville (PHI-L-3)
Bawduniak, J. J. (M)
Young, C. R. (A)

Wyncote (PHI-3)
Alexy, M. R. (SM)
Bembaum, B. (M)
Cooper, D. T. (M)
Craig, P. M. (F)
Dorris, R. C. (M)
Dunbar, R. C. (M)
Fox, B. (M)
Gonzalez-Correa, E. (M)
Kinnier, D. (M)
Kooo, W. S., Jr. (M)
Kusma, D. (SM)
Moore, W. J., Jr. (M)
Peltz, W. J. (SM)
Sher, N. (M)
Slocum, L. V. (M)
Smith, R. V. (SM)

Wynnewood (PHI-3)
Aitken, T. B. (M)
Appel, W. N. (A)
Blum, C. M. (A)
Cheng, T. (M)
Dolan, W. R. (M)
Fisher, J. F. (F)
Fulton, L. H. (A)
Geyer, R. E. (M)
Leas, J. W. (SM)
Meyerhoff, A. J. (SM)

Wyomissing (PHI-R-3)
Bang, R. L. (M)
Boynton, W. D. (M)
Davis, W. J. (M)
Farrell, R. B. (SM)
Feicht, R. B. (M)
Gehris, J. P. (M)
Huyett, W. I. (M)
Le Lacheur, R. M. (M)
McLaughlin, J. F. (M)
Prudhon, G. L. (SM)
Savadelis, J. C. (M)

Yardley (PHI-3)
Cook, E. G. (M)
Cook, G. W. (SM)
Edelman, F. H. (SM)
Emslie, N. M. (M)
Frank, U. A. (M)
MacDonald, H. E. (M)
Nauss, B. W. (M)
Schwartz, N. J. (M)

Yeadon (PHI-3)
Bordogna, J. (M)
Dillon, T. P. (A)
Haber, F. (M)
McBlain, W. L. (M)
Mekel, R. (M)
Molleri, J. T. (A)

York (PHI-L-3)
Beck, M. R. (M)
Bennett, R. D. (M)
Boyer, R. M. (A)
Boyer, W. H. (A)
Chronister, W. M. (M)
Dangl, J. R. (M)
De Frees, H. F. (M)
Evans, C. R. (M)
Eyster, B. A. (M)
Feder, J. H., Jr. (A)
Ford, C. J. (A)
Frost, E. L. (M)
Gleeson, E. J. (M)
Goodling, G. G., Jr. (M)
Haas, W. I. (M)
Haskins, G. E., Jr. (A)
Jensen, H. S. (M)
Kiger, L. L. (M)
Lease, D. A. (A)
Love, R. W. (M)
Lowe, F. B. (M)
Mattern, P. E. (M)
Parker, J. C., Jr. (M)
Pueschner, H. (M)
Raymond, R. E. (M)
Rust, W. F., Jr. (SM)
Sims, W. H., Jr. (M)
Staub, J. R. (A)
Stees, R. L. (M)
Stover, N. K. (A)
Tassia, J. P. (M)
Walker, H. (SM)
Weiner, E. G. (A)
White, D. L. (M)
Wildermuth, J. R. (M)

Youngwood (PIT-4)
Borneman, E. H. (SM)
Christian, A. M. (M)
Dermatis, S. N. (M)
Stelmak, J. P. (SM)
Stickler, M. G. (M)
Tallant, W. T. (M)

RHODE ISLAND

Barrington (BOS-1)
Beecher, A. E. (M)
Kirkland, R. E. (M)
Kroener, J. T. (SM)
Perry, F. G. (A)
Prior, T. K. (A)
Purdy, B. W. (M)
Skitzki, P. (M)

Vartanian, V. (M)

Bristol (BOS-1)
Pettenuti, A. J. (M)
Tingley, F. M. (M)

Centredale (BOS-1)
Harris, R. L. (A)

Cranston (BOS-1)
Abbenante, N. (M)
Genser, M. (A)
Guiorguiev, M. (A)
Kansas, T. P. (A)
Monopoli, R. V. (M)
Nash, S. (M)
Salk, D. (A)
Soscia, B. L. (M)
Thomas, R. B. (M)

Cumberland (BOS-1)
Bailey, L. E. (M)
Perry, M. F. (A)
Woodward, J. E. (A)

East Greenwich (BOS-1)
Basler, J. A. (A)
Bingham, R. C. (A)
Dunkel, A. M. (A)
Merriam, R. W. (M)
Wong, G. J. (M)

East Providence (BOS-1)
Henry, F. J. (M)

Edgewood (BOS-1)
Andeweg, F. J. (A)

Greene (BOS-1)
Hunsicker, R. K. (M)

Hoxsie (BOS-1)
Kunz, G. A. (M)

Johnstown (BOS-1)
Blender, M. I. (A)

Kingston (BOS-1)
Hill, R. F. (M)
Middleton, F. H. (M)
Polk, C. (SM)
Prince, M. J. (M)

Little Compton (BOS-1)
Rogers, R. F. (A)

Manville (BOS-1)
Pennucci, N. (M)

Middletown (BOS-1)
Bowen, C. H. (M)
Dixon, R. A. (M)
Ehrlich, S. L. (M)
Hale, H. D., Jr. (M)
Kwiatkowski, T. F. (A)
Miller, A. C. (SM)
Mulherin, E. M. (M)
Stoupis, T. (M)
Wilson, M. S. (M)
Woodruff, H. E. (M)

Narragansett (BOS-1)
Farrell, C. L., Jr. (A)

Newport (BOS-1)
Baer, E. W., III (M)
Bath, J. P. (M)
Bowerman, R. H. (M)
Brown, C. K. (M)
Delgado, R. (M)
Dolan, J. A. (M)
Fortin, R. J. (M)
Gabriel, L. J. (M)
Greichen, J. J. (A)
Honey, W. E. (M)
Ims, J. R. (M)
Mahoney, T. R. (M)
Mathison, W. W. (M)
Murphy, E. J. (M)
Paska, R. A. (A)
Pfeiffer, H. F. (M)
Ripple, E. C. (M)
Serotta, N. (M)
Sotiozy, C. S. (M)
Spears, W. K. (M)

North Kingston (BOS-1)
Mason, W. A. (M)
Smith, P. W. (A)

North Providence (BOS-1)
Lancia, T. (M)
Wiggins, E. F. (M)

North Tiverton (BOS-1)
Roy, J. R. (M)

Pawtucket (BOS-1)
Beckett, H. F. (M)
Brochu, M. J. (A)
Myers, J. E. (A)
Nichols, A. J. (A)
Rigby, J. B. (M)

Peacedale (BOS-1)
Taylor, I. M. (M)

Portsmouth (BOS-1)
Barry, C. J. (M)
Cyr, J. H., Jr. (M)
McCarty, F. H. (M)
Walker, C. E. (M)

Providence (BOS-1)
Anderson, G. P. (M)
Barlow, H. B., Jr. (M)
Blanchard, W. E. (M)
Bliss, Z. R. (A)
Cretella, J. P. (M)
Dandreta, W. (M)
Dutcher, B. C. (M)
Fain, G. (M)
Farnsworth, H. E. (SM)
Farrell, F. X. (M)
Gertz, N. (SM)
Halton, E. B. (M)
Hazeltine, B. (M)
Kodis, R. D. (SM)
Kornhauser, E. T. (SM)
Lal, D. C. (M)
Mann, H. L. (A)
Murtaugh, W. A. (M)
Streifer, W. (M)
Testa, E. (M)
Truell, R. (SM)
Verrecchia, T. A. (M)
Wagner, R. R. (M)
Ward, J. R. (M)
Zoglio, R. E. (M)

Quonset Point (BOS-1)
Casciato, A. C. (M)

Riverside (BOS-1)
Bushnell, R. R. (A)
Tam, N. K. H. (M)

Rumford (BOS-1)
Britto, J. D. (M)
Chick, B. B. (M)
Parker, G. I. (A)

Slatersville (BOS-1)
De Berardis, A. J. (M)

Tiverton (BOS-1)
Lizotte, O. A. (M)
Patenaude, N. H. (A)
Swinburn, A. H. (M)

Wakefield (BOS-1)
Mowbray, W. H. (A)

Warren (BOS-1)
Bowen, H. C. (M)

Warwick (BOS-1)
Coulters, D. F., Jr. (M)
Fiddes, G. B. (M)
Gordon, R. S. (M)
Jacobs, B. S. (M)
Klemer, B. H. (M)
Marsocci, A. A. (M)
Rogers, D. H. (M)
Rudert, J. R., Jr. (M)
Sherman, A. (M)
Thoresen, J. C. (A)

West Barrington (BOS-1)
Coppolino, L. S. (M)
Prior, T. C. J. (M)

Westerly (BOS-1)
Finocchiaro, E. C. (M)
Manfredi, C. C. (M)

West Warwick (BOS-1)
Blais, L. D. (M)

Woonsocket (BOS-1)
Garbis, F. (M)
Heilleman, D. L. (M)
Urrico, F. X. (M)

SOUTH CAROLINA

Aiken (S-CAR-3)
Cathey, L. (M)
Everett, W. W., Jr. (M)
Kirkland, D. (M)
Ross, J. D. (SM)
Rutledge, J. W. (M)

Anderson, (S-CAR-3)
Glaser, H. I. (M)

Cameron (S-CAR-3)
Halgler, J. L. (M)

Cayce (S-CAR-3)
Hafely, C. H. (A)

Charleston (S-CAR-3)
Alderman, E. L. (M)
Austin, F. A. (M)
Bailey, J. H. (M)
Benetler, L. E. (M)
Brooks, M. J. (M)
Coiner, J. A. (M)
Cory, I. W. (M)
Countryman, G. L. (SM)
Dutton, I. L. (M)
Feath, W. R. (M)
Fechter, G. B. (M)
Freeland, H. H. (M)
Goldberg, H. S. (M)
Herring, O. L., Jr. (M)
Jefferies, D. W. (M)
Kahn, A. I. (A)
Lackey, H. B. (M)
La Joie, Z. A. (M)
Miller, A. H. (M)
Puckhaber, H. H., III (M)
Rose, A. E., Jr. (M)
Roslund, T. A., Jr. (M)
Schlespegrell, J. R. (M)
Shoultes, D. P. (M)
Sikes, E. L. (A)
Sippach, R. W. (M)
Sterrett, D. S. (SM)
Waldo, W. A., Jr. (M)
Wilcox, E. J. (M)

Charleston Heights (S-CAR-3)
Isaac, G. F. (A)
McCarthy, M. F. (A)
Shimandle, J. G. (M)

Cheraw (S-CAR-3)
Akerman, B. (SM)
Evans, A. C. (A)

Clemson (S-CAR-3)
Brittain, J. E. (A)
Fitch, L. T. (M)
Hughey, J. P., Jr. (M)
Johnson, R. M. (M)
Martin, J. C. (M)
Thurston, J. N. (SM)
Whitehurst, C. H., Jr. (A)

Columbia (S-CAR-3)
Baxley, L. H., Jr. (M)
Cone, E. M. (M)
Fellers, F. G. (SM)
Ferris, W. R. (F)
Foster, L. W. (SM)
Grover, R. J., Jr. (M)
Lambert, R. D., Jr. (SM)
Litman, S. (SM)
Lowman, B. L. (M)
Moseley, S. T. (SM)
Parsons, J. H., Jr. (A)
Poteat, T. L. (M)
Reese, M. T. (M)
Roberts, W. H. (M)
Romanyszyn, M. T. (A)
Scott, A. L. (A)
Snyder, R. J. (A)
Stewart, B. L. (M)
Taylor, J. (SM)
Warr, G. H. (M)

Florence (S-CAR-3)
Bonner, J. T. (M)
Keys, R. T., Jr. (M)
Moore, B. E. (M)
Sellars, E. A. (SM)

Folly Beach (S-CAR-3)
Howell, J. E. (M)

Greenville (S-CAR-3)
Cassidy, R. J. (M)
Cox, T. L. (M)
Garrison, W. E. (M)
Greer, P. A. (SM)
Jones, D. B. (M)
Mills, C. W. (M)
Pace, M. W. (A)

Greenwood (S-CAR-3)
Duffie, J. E. (M)
Hawthorne, D. (A)
McCombs, J. W. (M)

Irmo (S-CAR-3)
Broodo, A. (M)
Warner, D. F. (M)
Yeamans, W. H. (M)

Isle of Palms (S-CAR-3)
Campbell, R. D. (M)
Lovell, W. A. (M)

Johns Island (S-CAR-3)
Peters, D. H. (M)

Lancaster (S-CAR-3)
Elliott, R. J. (M)

Lexington (S-CAR-3)
Harmon, L. R. (M)

Moncks Corner (S-CAR-3)
Volf, L. F. (A)

Mount Pleasant (S-CAR-3)
Gay, R. E. (M)
Mallard, E. P. (M)
Schneider, A. P. (M)

Myrtle Beach (S-CAR-3)
Hartle, L. U. (M)
Krampf, C. E. (A)
Stanley, D. S. (M)

North Augusta (S-CAR-3)
Cruse, J. H. (A)
Felder, A. A. (M)
Gill, J. P., Jr. (M)

North Charleston (S-CAR-3)
Cames, F. W. (M)
Cortright, P. W. (A)
Gatch, C. E. (A)
Hunter, H. L. (M)
Kledinger, J. W. (M)
Lathrem, L. R. (A)
McMasters, P. A. (SM)
Milton, D. V. (M)
Moreyn, H. J. (M)
Rogers, C. L. (M)
Thomason, J. G. (M)

Orangeburg (S-CAR-3)
Jackson, M. B. (A)
O'Cain, W. L. (A)

Shaw AFB (S-CAR-3)
Ruffino, N. E. (M)
Turner, R. F. (M)

Spartanburg (S-CAR-3)
Leach, R. E. (A)
Pippin, R. F., Jr. (M)
Wharton, W. E. (M)

Summerville (S-CAR-3)
Mathis, W. H. (M)

Sumter (S-CAR-3)
Coleman, D. T., Jr. (M)
King, M. B. (M)
Kothman, E. B. (A)
Pehoushek, J. W. (M)

West Columbia (S-CAR-3)
Bowers, C. W. (M)
Hirsch, C. B., Jr. (M)

SOUTH DAKOTA

Alpena (TC-5)
Brammer, R. G. (M)

Arlington (TC-5)
Dill, E. C. (M)

Brookings (TC-5)
Cheadle, J. N. (SM)
Essler, W. O. (M)
Klein, C. J. (M)

Canning (TC-5)
Graf, E. A. (M)

Ellsworth AFB (TC-5)
Burke, J. F. (M)
Wade, R. J. (M)

Freeman (TC-5)
Deissler, K. L. (A)

Pierre (TC-5)
Jones, M. G. (A)

Rapid City (TC-5)
Brancel, O. R. (M)
Isaac, J. D. (M)
Johnson, R. S. (M)
Kurtenbach, A. J. (M)
Mayer, F. N. (M)
McNeil, R. D. (M)
Miller, R. T. (A)
Nelson, E. A. (M)
Rinehart, B. H. (M)
Schultz, D. G. (M)
Spaulding, J. E. (M)
Strayer, R. N. (M)
Wise, C. C. (A)

Roslyn (TC-5)
Storley, C. L. (M)

Sioux Falls (TC-5)
Bunday, G. F. (A)
Froke, L. C. (A)
McKenna, W. E. (M)
Nelson, V. R. (M)
Pierce, M. E. (M)
Warren, L. C. (A)
Zimmerman, S. L. (M)

Vermillion (TC-5)
Bedwell, T. H. (M)
Graf, S. J. (M)

TENNESSEE

Alcoa (ATL-3)
Warren, M., Jr. (M)

Altamont (HUN-3)
Morgan, C. C., Jr. (M)

Arlington (HUN-M-3)
Boyd, I. H. (M)

Arnold AFS (HUN-3)
Grissom, J. L. (M)
Kingery, M. K. (M)

Bluff City (ATL-3)
Schell, J. H. (M)

Bristol (ATL-3)
Bernck, T. (M)
Bradlute, G. A., Jr. (M)
Chambers, W. M. (A)
Davidson, R. C. (M)
King, L. A. (SM)
Owen, W. A. (M)
Schack, R. H. (M)
Shackelford, H. L. (M)
Wirfel, W. M. (M)

Chattanooga (ATL-3)
Barnes, B. B. (A)
Bohr, E. T. (M)
Brady, L. J. (M)
Briscoe, H. R., Jr. (A)
Crozier, H. W. (M)
Gasell, J. A., Jr. (M)
King, T. R. (A)
Matthews, W. R. (M)
Meagher, A. W. (M)
Randall, F. L. (M)
Robinson, A. R. (M)
Smith, R. T. (A)
Terrell, J. M., Jr. (M)
Young, B. A. (M)

Clarksville (HUN-3)
Zapach, M., Jr. (A)

Clinton (ATL-3)
McMurray, C. S. (M)

Concord (ATL-3)
Devine, J. M. (A)

Cordova (HUN-M-3)
Downs, H. I. (M)

Dayton (ATL-3)
Warner, C. J. (A)

Fayetteville (HUN-3)
Kulberg, L. E. (M)
Morgan, R. L. (M)
Robinson, J. H. (M)
Thompson, A. W. (M)
Thompson, R. D. (A)

Fountain City (ATL-3)
Harter, J. A. (SM)
Oakes, L. C. (M)

Franklin (HUN-N-3)
Duke, C. R. (M)
Duncan, R. L. (SM)
Montgomery, W. C. (M)
Ragsdale, S. P. (M)

Gatlinburg (ATL-3)
Stanbery, J. F. (SM)

Greeneville (ATL-3)
Furman, O. G. (M)
Turski, S. (M)

Jefferson City (ATL-3)
Brown, J. H. (A)

Johnson City (ATL-3)
Gentry, R. O. (A)
Hunter, W. C. (M)

Kingsport (ATL-3)
Devaney, R. G. (M)
Henry, J. W. (SM)
Lingar, W. E. (M)
Rigg, R. W. (M)

Kingston (ATL-3)
Behr, B. C. (SM)
Hanauer, S. H. (M)

Knoxville (ATL-3)
Affel, R. G. (M)
Bodenheimer, B. E. (M)
Bradshaw, R. L. (M)
Craig, L. W. (M)
Dilworth, R. H., III. (M)
Eckel, J. R., Jr. (M)
Evans, R. C. (A)
Haynes, W. M., Jr. (M)
Horton, J. R. (M)
Lewis, T. A. (M)
Neff, H. P., Jr. (M)
Pierce, J. F. (SM)
Schede, R. W. (M)
Thompson, P. A. (M)
Tillman, J. D., Jr. (M)
Waugh, E. E. (M)
White, G. C. (M)
Williams, A. D. (A)

Lawrenceburg (HUN-3)
Beckham, R. H. (M)

Lenoir City (ATL-3)
Todd, J. H. (M)

Manchester (HUN-3)
Miller, W. A. (A)
Norman, C. F. (M)

Memphis (HUN-M-3)
Althaus, H. L. (M)
Babb, E. L. (A)
Bovaird, C. F. (A)
Bradshaw, J. C. (M)
Bray, J. W. (M)
Browning, J. W. (M)
Busler, L. F., Jr. (A)
Carney, G. (M)
Dornette, W. H. L. (M)
Fitzgerald, G. M., Jr. (A)
Frazier, M. B., Jr. (A)
Freymuth, J. J., Jr. (M)
Greene, M. A. (M)
Haas, I. J. (M)
Hawkins, L. E. (A)
Holbrook, T. C., Jr. (A)
Horton, H. C. (M)
Hulley, W. P. (M)
Kizer, D. F. (A)
Logan, E. W., Jr. (A)
Maice, L., Jr. (M)
McCrory, C. O., III (M)
McLin, J. T. (A)

TENNESSEE

Meyers, E. A., Jr. (M)
Parker, J. C., Sr. (SM)
Ray, C. D. (M)
Stewart, E. B. (A)
Walker, J. A. (M)
Weiland, E. H. (M)
Whitlock, P. J. (M)

Millington (HUN-M-3)
Cross, W. A. (M)

Morristown (ATL-3)
Sundeen, O. H. (M)

Nashville (HUN-N-3)
Allen, R. B. (M)
Arnold, T. G., Jr. (M)
Benson, R. W. (M)
Binns, F. D. (M)
Bradley, E. B. (M)
Bright, F. W. (M)
Burch, C. E. (M)
Burton, R. B. (A)
Campbell, J. S. (M)
Crouch, W. M. (M)
Dewitt, J. H., Jr. (F)
Dicker, P. E. (SM)
Dorris, C. G. (M)
Esslinger, G. H. (M)
Ewing, A., Jr. (M)
Genung, N. W. (M)
Hobbs, R. V. (M)
Holladay, A. M. (M)
Hucaby, R. L. (M)
Johnson, K. R. (M)
Kincaid, W. B., Jr. (M)
Lee, C. E., Jr. (A)
Maddox, W. V. (M)
McAllister, G. P. (M)
Mitchell, H. T. (M)
Montgomery, L. H., Jr. (F)
Pearsall, S. H. (SM)
Reynolds, G. A. (M)
Satterfield, R., Jr. (A)
Schumann, F. (SM)
Shelton, A. C. (SM)
Shultz, O. L. (M)
Stiffler, W. W., Jr. (SM)
Sutton, A. T. (M)
Williams, H. R. (M)
Wolfson, R. P. (M)
Word, J. A. (M)
Zeigler, R. H. (M)

Norris (ATL-3)
Dale, J. A. (SM)

Oak Ridge (ATL-3)
Anderson, J. L. (M)
Banta, H. E. (SM)
Burrus, W. R. (M)
Dahl, A. H. (M)
De Hart, S. B. (M)
Dunlap, J. L. (M)
Edwards, R. S. (M)
Emmer, T. L. (M)
Fairstein, E. (SM)
Fort, W. G. S. (M)
Groothuis, S. E. (M)
Henry, J. J. (M)
Henry, K. M., Jr. (A)
Henson, F. W. (M)
Hill, N. W. (M)
Holliday, J. H. (M)
Holt, G. A. (M)
Judish, J. P. (M)
Knowles, D. J. (SM)
Lovvorn, J. L. (SM)
Manning, F. W. (M)
Miller, P. D. (M)
Mosko, S. W. (M)
Ploa, J. C. (M)
Porter, F. K. (M)
Porter, F. M. (M)
Redford, J. L. (A)
Ritter, R. C. (M)
Roseberry, R. T. (A)
Shipley, E. D. (M)
Smith, H. F., Jr. (M)
Southern, A. L. (M)
Von Cook, K. (M)
Walker, C. S. (M)
Wilson, H. N. (M)
Worsham, R. E. (A)
Young, R. W. (M)
Ziegler, N. F. (M)

Old Hickory (HUN-N-3)
Hurt, A. B., Jr. (M)

Soddy (ATL-3)
Johnson, J. L. (M)

Sparta (ATL-3)
Haston, C. W. (M)

Trenton (HUN-3)
Palford, J. L. (M)

Tullahoma (HUN-3)
Bearden, D. W. (A)
Brewer, J. H. (M)
Choate, R. H. (M)
Cortner, A. H. (M)
Davis, B. M. (M)
Giltinan, T. L. (M)
Holt, D. C. (M)
Humphrey, R. L. (M)
Johnson, M. D. (M)
Kalsner, R. W. (SM)
McKee, M. L. (M)

TEXAS

Abilene (FW-6)
Bottom, V. E. (SM)
Henley, R. D. (A)
Tylka, J., Jr. (A)
Wehling, R. J. (M)

Alice (SA-A-6)
Cook, K. T. (M)
Smith, J. S. (A)

Alpine (SA-A-6)
Bowden, A. J. (A)

Amarillo (LUB-6)
Boatwright, F. V. (M)
Brumley, C. C. (A)
Farmer, P. E. (M)
Harris, H. W. (M)
Lowe, H. N. (A)
Martin, J. L. (M)
Patterson, J. M. (M)
Spitzer, C. R. (M)
Torrey, W. H. (A)

Arlington (FW-6)
Askew, W. J., Jr. (M)
Baker, M. F. (M)
Baldwin, R. A., Jr. (M)
Billingsley, J. D. (M)
Buehrle, C. D. (M)
Burch, J. J. (M)
Bushart, G. J., Jr. (M)
Calvin, C. C., Jr. (M)
Cash, F. L. (SM)
Cashat, S. D. (M)
Colfre, S. T. (M)
Davis, J. A., Jr. (M)
Davis, R. E. (A)
Ditto, J. C. (M)
Fischer, J. N. (M)
Gegon, P. H. (M)
Hankinson, F. K. (SM)
Hodge, R. B., Jr. (M)
Hoelle, W. D. (M)
Hutcheson, G. G. (SM)
Hutson, R. N. (M)
Jiles, C. W. (SM)
Jordan, C. F., Jr. (M)
Lanier, R. E. (SM)
Lassiter, E. M. (M)
Lowry, L. W. (M)
Lundberg, C. F. (M)
McConnell, J. W. (M)
Muery, R. W. (M)
Oster, R. E. (M)
Polimerou, L. G. (M)
Prior, R. R. (M)
Reynolds, G. N. (M)
Ritchie, C. A. (M)
Tardiff, R. J. (M)
Urbach, W. G., Jr. (M)

Austin (SA-A-6)
Adams, R. M. (M)
Anderson, C. D. (M)
Austin, M. E. (M)
Baltzer, D. J. (SM)
Barber, L. M. (M)
Barclay, J. N. (SM)
Barksdale, R. M. (M)
Block, E. H. (M)
Bond, R. A. (M)
Bostick, F. X. (M)
Britz, C. O. (SM)
Broman, W. N. (A)
Clardy, D. E. (M)
Coale, R., Jr. (M)
Cole, C. F., Jr. (A)
Cronenwett, W. T. (M)
Darmento, J. (M)
Davis, A. (SM)
Deam, A. P. (M)
Dickinson, R. M. (M)
Duesterhoeft, W. C., Jr. (SM)
Duff, B. M. (M)
Dwyer, S. J., III (M)
Erwin, J. D. (M)
Farmin, B. M. (SM)
Gantt, J. D. (M)
Garner, W., Jr. (M)
Glenn, A. J. (M)
Gribble, R. F. (M)
Hartwig, W. H. (SM)
Helmer, R. J. (M)
Hill, L. K. (M)
Hixson, E. L. (SM)
Hoffman, A. J. (M)
Hopkins, G. H., Jr. (M)
Kreuz, L. B. (SM)
La Coste, L. J. B. (M)
Lagrone, A. H. (F)
Lambert, C. C. (M)
Lane, R. N. (SM)
Lauderdale, D. M. (M)
Lowenberg, E. C. (M)
Martin, P. E. (M)
McCullough, C. E. (M)
McKinney, C. M. (SM)
McQuown, A. N., Jr. (SM)
Meharg, L. S. (M)
Mollenhauer, H. H. (A)
Opiela, A. D., Jr. (M)
Ratliff, H. S. (M)
Ripperger, E. A. (A)
Robertson, W. (A)
Rountree, J. G. (SM)
Schmidt, D. M. (M)
Smith, H. W. (SM)
Smith, S. E. (M)
Stockton, J. E. (M)
Stone, C. S. (M)
Straiton, A. W. (F)
Tolbert, C. W. (SM)
Trochta, R. (M)
Tucker, A. J. (M)
Tucker, E. A. (SM)
Tucker, W. E. (M)
Wallace, R. H. (M)
Wallis, W. R. (A)
Whitaker, T. N. (SM)
White, G. E. (SM)
Whitener, A. S. (M)
Willett, N. W. (SM)
Willman, J. F. (M)
Wright, J. R. (M)
Wukasch, E. O. (M)
Youngblood, W. A. (M)

Azle (FW-6)
Pryor, L. C. (A)

Ballinger (FW-6)
Vancil, B. I. (M)

Baytown (HOU-6)
Harding, J. H. (M)
Newton, C. J. V. (A)

Beaumont (B-PA-6)
Bartlett, H. W. (M)
Burgess, C. H. (M)
Bush, C. R. (M)
Cherry, L. B. (SM)
Coburn, E. D. (M)
Crum, F. M. (SM)
Cryer, J. E. (M)
Davis, V. E. (A)
Eckles, W. W., Jr. (M)
Ferguson, J. D. (M)
Haack, W., Jr. (A)
Hughes, B. F. (M)
Kennon, D. L. (M)
Kolak, C. S. (A)
Laughlin, C. E. (M)
Lawrence, T. B. (M)
Long, A. D. (A)
Montague, L. E. (A)
Morgan, J. G. (M)
Musick, A. L., Jr. (M)
Normand, A. J. (A)
Oliver, J. L. (M)
Otto, G. (A)
Petkovsek, J., Jr. (SM)
Portier, R. A., Jr. (A)
Scroggs, J. R. (M)
Shane, Z. G. (A)
Smith, H. K. (M)
Stockard, L. (M)
Straughn, W. L., Sr. (M)
Turk, G. L., Jr. (A)
Welch, H. E. (A)
Whitmeyer, L. J., Jr. (A)
Wilder, E. H. (M)
Wolfe, R. G. (M)

Beeville (SA-A-6)
Hanle, R. L., Jr. (M)

Bellaire (HOU-6)
Barnette, L. A. M. (SM)
Bednar, E. D. (M)
Borden, R. R. (M)
Brook, A. H. (M)
Causey, C. N. (M)
Cowles, L. G. (SM)
Crawford, D. (M)
Davidson, W. L. (M)
Day, L. B., Jr. (M)
Ghiselin, W. F., Jr. (M)
Hearne, S. M. (M)
Herzog, G. (F)
Hudson, J. L. (M)
Keyes, R. (M)
Lee, B. D. (SM)
Loofbourrow, R. J. (SM)
Lord, A. H. (A)
Maness, J. H. (M)
Mazzagatti, R. P. (SM)
Moore, S. D. (SM)
Noles, M. H. (M)
Peetz, G. E., Jr. (M)
Pitts, R. W. (M)
Schafer, E. L. (A)
Stafford, J. A. (M)
Stelzer, R. B. (SM)
Wilson, B. F. (M)

Bergstrom AFB (SA-A-6)
Pipino, L. L. (M)

Big Spring (LUB-6)
Graham, O. D. (M)
Hitzel, J. M. (M)
Maples, C. R. (M)

Borger (LUB-6)
Henderson, C. R. (M)
Smith, J. P. (M)

Blooming Grove (DAL-6)
Crocker, J. A. (M)

Breckenridge (FW-6)
McBeath, H. M., Jr. (A)

Brooks AFB (SA-A-6)
Dickey, J. R. (M)

Brownfield (LUB-6)
Spear, R. B. (M)

Brownwood (FW-6)
Inman, F. W. (M)

Bryan (HOU-6)
Barnard, H. M. (M)
Cox, W. B. (M)
Deegan, J. R. (M)
Druce, A. J. (M)
Fridel, G. E. (M)
Jones, J. B. (M)
Kilmer, R. E. (M)
Polaski, C. A. (M)
Ramos, D. (M)
Sosolik, F. J. (A)

Cameron (HOU-6)
Moore, F. D. (M)

Canyon (LUB-6)
Thompson, C. E. (M)

Carswell AFB (FW-6)
Fowler, A. F. (A)
Young, W. E. (M)

Castroville (SA-A-6)
Burges, E. G. (M)

Center (B-PA-6)
Riley, H. E. (A)

Channelview (HOU-6)
Bice, H. J. (A)

China (B-PA-6)
Seaberg, I. (M)

Cibolo (SA-A-6)
Seibel, H. (M)

Cleburne (FW-6)
Gardner, A. H. (SM)
Graham, H. L. (A)
McClanahan, M. E. (M)
McKelvy, M. J. (M)
Ryter, R. L. (SM)

Columbus (HOU-6)
Laurents, V. T. (A)

Commerce (DAL-6)
Farell, C. L. (M)
Sparkman, W. A., Jr. (M)

College Station (HOU-6)
Ball, B. J. (M)
Bhosale, S. G. (M)
Dillingham, H. C. (SM)
German, J. P. (SM)
Hallmark, G. D. (SM)
Hass, N. W. (M)
Hebert, J. O., Jr. (M)
Jonas, L. K. (M)
Rekoff, M. G., Jr. (M)
Rooks, E. N., Jr. (M)
Selot, M. (M)
Tatum, F. W. (SM)

Corpus Christi (SA-A-6)
Eckart, J. H. (M)
Le Blanc, L. F. (A)
Lockhart, H. B. (A)
Platt, R. T., Jr. (M)
Taylor, P. (M)
Zazvorka, J., Jr. (SM)

Cushing (B-PA-6)
Wilson, W. F. (M)

Dallas (DAL-6)
Abraham, R. P. (M)
Acker, W. M. (M)
Ackley, D. A. (M)
Adair, B. N. (A)
Adcock, W. A. (SM)
Albano, J. (SM)
Allan, R. E. (M)
Allison, G. D. (M)
Anderson, J. (SM)
Ankele, E. T., Jr. (M)
Armistead, H. G., Jr. (M)
Arnold, D. C. (SM)
Ashley, C. E. (M)
Atchley, J. Q. (M)
Aymond, E. F., Jr. (A)
Back, M. (M)
Bailey, W. R. (M)
Baker, H. C. (M)
Bandy, G. C. (M)
Banks, B. M. (M)
Barney, G. M. (M)
Barr, W. W. (SM)
Barry, D. T. (M)
Barton, J. R. (A)
Batts, B. F. (M)
Baum, R. E. (M)
Bazhaw, J. W. (M)
Becker, L. E. (M)
Beckhoff, G. (M)
Becklund, O. A. (SM)
Bennett, G. T. (SM)
Bentley, E. M. (M)
Berglund, J. F. (M)
Berglund, D. B. (M)
Bergman, R. A. (M)
Berkner, L. V. (F)
Bieger, W. H. (SM)
Blackwell, L. A. (M)
Blankenship, G. E. (M)
Blatt, J. D. (SM)
Boller, R., Jr. (M)
Bonin, E. L. (M)
Bonner, J. H. (M)
Boren, J. T. (A)
Bowman, W. W. (M)
Bowne, J. C. (M)
Boyd, R. S. (M)
Boyle, B. C. (M)
Boyles, A. E. (M)
Brachman, M. K. (SM)
Branham, D. W. (M)
Branum, M. C. (A)
Brawner, C. A., Jr. (SM)
Brower, W. C. (M)
Brown, B. G. (M)
Brown, C. F. (M)
Brown, K. C. (M)
Brown, L. E. (M)
Brown, P. L. (A)
Brown, R. L., Jr. (SM)
Brown, R. A. (A)
Brown, V. L. (M)
Brownlee, D. D. (M)
Brumley, A. R. (M)
Buchanan, R. A. (M)
Buchmeyer, H. W. (SM)
Buckner, R. P. (M)
Bullock, M. W. (SM)
Burdine, B. R. (M)
Burg, K. E. (M)
Burgen, J. G., Jr. (M)
Burkhalter, W. R. M. (M)
Bush, C. M. (M)
Buzard, R. S. (M)
Cadenhead, C. T. (M)
Call, P. D. (M)
Camp, H. E. (M)
Campbell, J. R. (M)
Campton, R. M., Jr. (A)
Cantwell, W. C. (M)
Cardwell, H. A. (M)
Carey, D. R. (A)
Carland, J. F. (SM)
Carleton, G. W. (M)
Carlton, A., Jr. (M)
Carney, P. E. (M)
Carpenter, J. R. (A)
Carr, W. B. (M)
Carter, A. W. (M)
Carter, D. J. (A)
Carter, T. F. (M)
Carvajal, R. L. (M)
Case, H. B. (M)
Chandler, J., Jr. (M)
Chang, C. M. (M)
Chapin, R. C. (M)
Chapman, A. B. (M)
Chenault, H. P. (A)
Cherry, K. G. (M)
Chew, F. E. (M)
Chick, D. R. (M)
Childress, C. B. (M)
Chun, M. E. (SM)
Clark, L. D. (M)
Clinger, A. H. (M)
Coats, R. P. (M)
Collier, G. A. (M)
Conn, R. L. (M)
Cooper, G. H., Jr. (A)
Cooper, J. W. (SM)
Corwin, T. L. (A)
Couch, V. V. (M)
Crabtree, W. A. (M)
Craoon, H. G. (M)
Crandell, C. F. (M)
Crank, J. B. (M)
Crawford, J. D. (M)
Cuesta, N., Jr. (SM)
Cullum, A. E., Jr. (F)
Cunningham, A. R. (M)
Cunningham, R. W. (M)
Currie, H. A., Jr. (M)
Daniell, C. M. (SM)
Dannemiller, J. R. (M)
Darsey, J. E. III (M)
Davis, C. F., Jr. (M)
Davis, D. A. (M)
Davis, R. G. (M)
Day, W. J. (M)
Deaderick, G. E. (M)
Dean, J. T. (M)
Delashaw, J. W. (M)
Delhom, L. A. (M)
Dew, W. M., Jr. (M)
De Weese, C. R. (M)
Dill, C. T. (A)
Dobbins, T. K. (M)
Dodd, C. L. (SM)
Doherty, J. E. (SM)
Dowell, K. P. (M)
Drefke, O. W. (M)
Drennan, J. B. (M)
Dunaway, R. M. (M)
Dunlap, J. T., Jr. (M)
Dunlap, R. H. (M)
Dunlop, D. D. (M)
Du Vall, R. M. (M)
Dyer, F. C. (M)
Earhart, C. E. (SM)
Ebensberger, A. C. (SM)
Edmonds, R. J. (M)
Edwards, T. S. (M)
Efird, M. A. (M)
Eikenburg, R. B. (M)
Elkins, C. C. B., Jr. (M)
Ellis, B. E. (M)
Elmore, C. M., Jr. (M)
Epstein, D. A. (M)
Evans, A. D. (SM)
Evetts, S. G. (SM)
Eyres, W. G. (SM)
Falconer, T. W. (M)

Farmer, C. R., Jr. (A)
Faulkner, J. R. (A)
Fells, W. E. (M)
Fennel, C. K. (M)
Fernandez, M. (SM)
Field, E. R. (M)
Finley, C. G. (M)
Fischer, D. G. (M)
Fisher, L. M. (M)
Fisk, W. J. (M)
Flath, E. H., Jr. (M)
Flynn, J. G., Jr. (SM)
Fontenote, W. J. (M)
Ford, J. W. (M)
Fortner, W. W. (SM)
Fox, C. H. (M)
Fox, J. B. (M)
Fox, K. R. (M)
Francis, T. L. (M)
Frauman, C. I. (M)
Friedrichs, C. C., Jr. (M)
Gaertner, R. F. (M)
Garrett, C. L. (M)
Geis, A. J. (M)
Geisel, F. J. (SM)
Geissinger, E. L. (M)
George, R. A. (M)
Germain, J. M. (M)
Gerrard, J. A. F. (SM)
Gibbs, T. E. (SM)
Gilder, E. E. (A)
Glover, L. L. (M)
Godbey, J. K. (SM)
Godsey, W. J. (M)
Goedjen, R. W. (A)
Goldsmith, R. C. (M)
Gorman, W. D. (M)
Gragert, W. J. (M)
Granberry, D. S. (SM)
Grantham, J. D. (M)
Gray, C. T. (M)
Grayson, C. A. (A)
Green, G. F., Jr. (M)
Green, J. A. (SM)
Greenberg, L. H. (M)
Griffin, E. H. (M)
Grover, L. L. (M)
Gudzin, M. G. (M)
Haefele, D. M. (M)
Haggerty, P. E. (F)
Hall, D. B. (M)
Hall, J. R. (SM)
Hallford, B. R. (M)
Hamilton, J. H. (M)
Haneman, V. S., Jr. (M)
Hansen, M. O., Jr. (M)
Harmon, F. L. (M)
Harmon, R. E. (M)
Harp, E. E. (M)
Harris, C. M. (SM)
Harrison, F. (SM)
Harrison, F. H., Jr. (SM)
Hasty, J. D. E. (SM)
Hatcher, J. L. (M)
Hayes, B. M. (A)
Head, C. D., III (M)
Headington, N. L. (M)
Heidt, R. C. (M)
Helbig, W. L. (M)
Henderson, R. P. (M)
Hendricks, J. B. (M)
Henrici, C. R. (SM)
Hensley, E. L. (M)
Herbst, A. O. (M)
Hewlett, T. N. (M)
Himmel, R. N. (M)
Hinkle, J. W. (M)
Hirschberg, J. K. (A)
Hodges, A. J. (M)
Hoehn, C. L., Jr. (M)
Holden, W. S. (M)
Holle, E. C. (M)
Holt, I. D. (M)
Hooker, B. C. (M)
Howard, G. M. (SM)
Howard, L. L. (SM)
Howell, K. B. (M)
Howes, R. B., Jr. (M)
Humke, F. O., Jr. (M)
Hunt, J. T. (A)
Hutchinson, N. D. (M)
Hylin, T. M. (M)
Ince, N. S. (M)
Ingram, J. H. (M)
Irwin, B. B. (M)
Irwin, C. B., Jr. (M)
Jacobson, R. E. (M)
Jackson, R. W. (SM)
Jaeger, W. S. (A)
Jenkins, E. A. (M)
Joel, H. C. (M)
Johnson, D. L. (M)
Johnson, K. M. (M)
Johnson, R. D. (A)
Johnson, W. M. (M)
Johnston, D. C. (M)
Jones, R. L., Jr. (A)
Jostrand, B. D. (A)
Joyce, W. F. (SM)
Jurek, W. M. (SM)
Kaiser, R. L. (M)
Kamena, J. G. (M)
Kantenberger, R. F. (A)
Kearley, R. I., Jr. (M)
Keener, R. F. (M)
Keiffer, E. G. (M)
Kelly, G. J. (A)
Kelly, J. J. (M)
Kelsay, W. D. (M)
Kendall, D. F. (M)
Kennedy, F. H., Jr. (SM)
Kennedy, J. L. (M)
Kenton, W. L. (A)
Kettler, E. W., Jr. (M)
Kettler, C. L. (M)
Keyser, A. R., Jr. (M)
Kilby, J. S. (M)
Kinsley, E. R. (M)
Kirksey, T. W. (M)
Kitchens, L. G. (M)
Koeljamans, G. D. (M)
Konitzer, E. W. (M)
Koppa, C. R. (M)
Kornfuehrer, G. R. (M)
Kosoris, S. (M)
Kost, C. R. (M)
Kreager, P. H. (M)
Kronlage, J. W. (M)
Kuehne, W. (SM)
Land, D. W. (M)
Langmack, C. E. (M)
Larrabee, R. W. (A)
La Taste, C. D. (M)
Lawler, C. E. (M)
Lawrence, J. H. (A)
Lawrence, L. J. (A)
Lawson, R. T. (A)
Ledford, R. E., Jr. (A)
Lee, C. (M)
Lee, R. E. (M)
Leedom, J. N. (M)
Lewis, M. T. (M)
Lincoln, C. F., Jr. (M)
Lineback, J. T. (M)
Linker, C. L. (M)
Lipscomb, E. W. (SM)
List, B. H. (M)
Little, W. A. (M)
Long, K. G. (A)
Long, W. G., Jr. (M)
Loper, G. B. (M)
Loposer, T. L. (SM)
Loras, J. (SM)
Lowry, J. H., Jr. (SM)
Lucas, C. H. (M)
Lupfer, W. C. (A)
Lynne, S. (M)
MacDonald, J. R. (F)
Mace, J. W. (M)
Macurak, A. (M)
Marcus, S. B. (M)
Martel, B. E. (SM)
Martin, D. O. (SM)
Martin, D. W. (M)
Martin, E. D., Jr. (M)
Martin, E. E. (M)
Martin, W. L. (M)
Martin-Vegue, C. A. (M)
Mason, A. E., Jr. (M)
Mather, D. I. (SM)
Matlack, N. C. (SM)
Matzen, W. T. (M)
Maxwell, K. D. (SM)
McAnally, D. G. (M)
McCole, J. F. (M)
McConoughey, S. R. (M)
McCord, A. R. (M)
McCormick, C. G. (M)
McCready, R. R. (M)
McCumber, W. H. (SM)
McDermott, E. (M)
McDonald, J. E. (M)
McDuffie, G. L. (SM)
McGahen, P. W. (M)
McGarrah, J. E. (M)
McIntyre, R. L. (M)
McKay, R. A. (M)
McKenna, R. G. (M)
McMillin, J. M., Jr. (M)
McMullin, T. J. (M)
McNatt, W. E. (M)
McNeely, J. S. (SM)
Meads, P. H. (M)
Medler, E. H. (SM)
Meinholdt, D. W. (A)
Meinstein, A. (M)
Melancon, N. J. (A)
Meredith, M. K. (M)
Meyer, C. J. (M)
Meyer, R. B. (M)
Michaelis, L. P. (M)
Miedke, R. C. (M)
Mierow, C. F. (M)
Milam, W. C. (M)
Miller, H. M. (M)
Millican, C. L. (M)
Millis, E. G. (M)
Mills, R. L. (M)
Mims, S. M., Jr. (M)
Mitchell, E. E. (M)
Mitchell, H. L. (M)
Mitchell, W. R. (M)
Moffitt, J. F. (M)
Monroe, T. C., Jr. (M)
Moore, J. E., Jr. (M)
Morgan, R. E. (M)
Morris, K. L. (M)
Morris, R. B. (M)
Morrison, E. J. (M)
Morrison, J. A., Jr. (M)
Morton, H. W. (M)
Moseley, T. B. (SM)
Moss, H. (SM)
Moxley, W. C., Jr. (A)
Mundell, D. P. (A)
Mut, S. C. (M)
Neal, C. M. (M)
Neathery, J. L., Jr. (M)
Neltzel, E. B. (M)
Nelson, J. E. (M)
Nelson, R. M. (M)
Newell, B. J. (A)
Niemeyer, J. M. (A)
Nilson, O. J. (A)
Ninke, D. A. (M)
Nipper, J. T. (M)
Norris, J. L. (M)
Norris, P. M. (M)
North, M. E. (M)
Norvell, E. W. (A)
Norvell, K. A. (M)
Nunley, W. (M)
O'Bryant, R. (M)
O'Connor, C. G. (M)
Ohrich, J. H. (A)
Olson, R. W. (F)
Oram, D. O. (M)
Orand, C. E. (A)
Orr, B. M., Jr. (M)
Orris, E. C. (M)
Orsinger, A. R. (M)
Osborn, W. F. (M)
Owens, H. L. (SM)
Owens, T. E., Jr. (SM)
Packard, D. C. (A)
Papoulias, V. P. (M)
Parsons, R. L. (SM)
Patrick, L. B. (M)
Patterson, J. W. (M)
Peacock, R. M., Jr. (M)
Pearson, S. N. (M)
Penisten, G. E. (M)
Penn, W. D. (SM)
Peterson, D. A. (SM)
Petritz, R. L. (M)
Phillips, J. B. (A)
Phillips, W. M. (M)
Pickering, W. L. (M)
Pilcher, W. B. (M)
Pittman, P. D., Jr. (M)
Poole, F. M. (M)
Potter, W. D. (M)
Presson, B. R., Jr. (M)
Pritchard, R. L. (F)
Rapp, R. N. (A)
Ratti, J. N. (M)
Redmond, W. G., Jr. (SM)
Reed, B. S. (M)
Reese, J. R. (M)
Reese, J. R. (M)
Reid, L. R. (M)
Renner, D. S. (M)
Retzlaff, D. (M)
Reynolds, B. C. (M)
Rice, J. A. (M)
Rice, L. W., Jr. (M)
Rich, E. A. (M)
Riley, E. C. (A)
Riser, H. N. (M)
Robel, R. B. (SM)
Roberts, E. L. (M)
Robinson, D. A. (A)
Robinson, G. C. (M)
Robinson, R. C. (M)
Romans, W. E. (M)
Rosentreter, E. W. (SM)
Ross, C. C. (M)
Rowe, W. E. (M)
Royalty, M. C. (M)
Ruhberg, D. L. (A)
Runyan, W. R. (M)
Russum, P. E. (M)
Rutherford, C. R. (M)
Samsle, G. A. (M)
Sanders, H. (SM)
Sapp, A. E., Jr. (M)
Sarrafian, G. P. (M)
Sartor, J. O., Jr. (M)
Satterwhite, G. D. (M)
Scammel, B. C. (M)
Scanlon, P. J. (M)
Schultz, R. H. (M)
Schwalm, C. M. (M)
Scouten, D. C. (M)
Seay, C. F., Jr. (SM)
Selby, P. (SM)
Sellers, D. F. (SM)
Service, C. W. (M)
Sessel, R. (M)
Severin, J. A. (M)
Sevin, L. J. (M)
Shannon, C. N. (M)
Sharp, F. B., Jr. (M)
Shealor, J. D. (M)
Sheffield, R. D. (M)
Shepherd, M., Jr. (SM)
Sherman, M. R. (M)
Shoemaker, C. E. (M)
Shuffler, R. M. (SM)
Simmons, A. C., Jr. (M)
Simonds, F. W. (M)
Simpson, J. D. (M)
Simpson, W. D. (M)
Sivewell, R. B. (A)
Skinner, B. S., Jr. (M)
Slabaugh, J. E. (M)
Slack, D. G. (M)
Slater, K. R. (M)
Smallwood, J. L. (M)
Smith, A. B. (A)
Smith, F. G., Jr. (SM)
Smith, G. A., Jr. (M)
Smith, H. F., Jr. (M)
Smith, H. J. (SM)
Smith, J. E. (A)
Smith, J. H. (M)
Smith, M. W. (M)
Smith, P. J. (M)
Smith, R. T. (M)
Smith, S. K. (M)
Smoot, R. L., Jr. (A)
Snipes, R. W. (A)
Sobey, A. E., Jr. (SM)
Somers, J. W. (M)
Sonnavilo, A., Jr. (M)
Sorkin, S. A. (M)
Sorrows, H. E. (A)
Southern, P. F. (M)
Spaulding, G. B. (SM)
Spencer, L. P. (A)
Spieker, L. J. (M)
Stanfield, J. W. (A)
Starr, J. K. (M)
Stein, A. J., Jr. (M)
Stephens, R. W. (M)
Stevens, B. A. (M)
Stewart, W. E. (M)
Stiedle, P. P. (M)
Storey, B. (M)
Stover, J. S. (M)
Strom, L. D. (M)
Strother, J. J. (M)
Stroup, R. M., Jr. (M)
Sullivan, O. J. (M)
Summers, G. C. (M)
Summers, H. S. (M)
Sustare, B. A. (M)
Swearingen, W. S. (M)
Tahu, G. J., Jr. (M)
Tatom, J. R. (M)
Tatom, W. C. (M)
Taylor, D. B. (M)
Taylor, H. L. (M)
Taylor, J. H. (M)
Teal, G. K. (F)
Thiede, H. T. (M)
Thomas, A. R., Jr. (M)
Thomas, C. T. (SM)
Thomas, O. E. (M)
Thompson, J. H., Jr. (SM)
Thomson, J. T., Jr. (M)
Thorne, C. R. (M)
Thurmond, F. S., Jr. (M)
Tisole, K. R. (M)
Tinton, D. G. (M)
Tittle, C. W. (SM)
Titus, G. W. (M)
Tooley, J. R. (M)
Towry, G. G. (M)
Travis, J. B., Jr. (M)
Trewitt, M. B. (M)
Trott, R. C. (M)
Tschudi, E. E. (M)
Tubb, G. E. (M)
Tucker, C. W. (M)
Tucker, D. J. (SM)
Tucker, R. W. (M)
Tullius, A. B. (M)
Tullius, R. F. (M)
Turpin, J. A. (M)
Vanderpool, C. L. (A)
Vandigriff, J. E. (M)
Van Voorhis, J. B. (M)
Varga, J. E. (M)
Vilbig, J. L., Jr. (SM)
Vincent, B. T., Jr. (M)
Volcansek, M. J., Jr. (M)
Wadel, L. B. (SM)
Walte, H. M. (A)
Wald, L. D. (M)
Walker, D. E. (M)
Walker, W. J. (M)
Wallace, P. P. (M)
Wallace, R. M. (M)
Wallis, T. F., Jr. (M)
Walls, D. M. (M)
Walston, J. A. (A)
Walters, C. C. (M)
Walters, R. K. (M)
Ward, P. W. (M)
Waters, W. F. (M)
Watson, C. D., Jr. (M)
Watson, L. C. (M)
Waugh, J. H., Jr. (M)
Weaver, S. M. (M)
Weaver, T. H. (M)
Webberman, M. M. (M)
Weber, R. L. (M)
Webster, R. R. (SM)
Wedel, E. L. (A)
Weed, K. F. (M)
Weedfall, R. W. (M)
Weeks, R. M. (M)
Weeks, R. R. (SM)
Weldon, J. O. (F)
Wells, E. R. (M)
Welnreich, G. F., Jr. (M)
Welch, A. B. (M)
Wetterau, L. C., Jr. (M)
White, C. A., Jr. (M)
White, F. J. (M)
White, G. W., Jr. (SM)
Whitehurst, J. D. (M)
Whitson, D. R. (M)
Wilhelm, E. S. (SM)
Wilkinson, J. D. (M)
Wilkinson, M. M. (M)
Willard, R. S., Jr. (M)
Willey, H. M. (SM)
Williams, C. S. (SM)
Williams, E. R., Jr. (M)
Williamson, V. R. (M)
Willis, G. D. (M)
Wills, R. V., Jr. (M)
Wilson, R. (M)
Winslow, J. (A)
Wissemann, H. J. (SM)
Witty, W. M. (SM)
Wolk, I. F. (A)
Woods, R. B. (SM)
Woolfolk, R. L. (SM)
Word, W. R. (M)
Worth, W. G., Jr. (SM)
Worthan, A. W. (SM)
Wright, T. A. (M)
Wulfe, R. F. (M)
Wunsch, D. E. (M)
Wyatt, A. E. (M)
Wyatt, E. Y. (A)
Wylie, S. W. (M)
Yaqol, L. A., Jr. (M)
Yancey, J. D., Jr. (M)
Yarbrough, A. D. (M)
Yeagley, F. W. (SM)
Youngblood, I. J. (SM)
Zapp, K. A. (A)
Ziemer, D. R. (M)
Zimmerman, C. W. (M)
Zimmerman, J. D. (M)
Zimmerman, M. (M)

De Kalb (SHR-6)
Harkey, T. J. (A)

Del Rio (SA-A-6)
Bosquez, R. D., Jr. (M)
Chernack, S. (A)
Cote, A. C. (M)

De Soto (DAL-6)
Wing, H. B. (M)

Devine (SA-A-6)
Anderson, W. L. (M)
Martin, C. F. (M)

Dickinson (HOU-6)
Thomason, E. M. (A)

El Paso (EP-6)
Alexander, W. R. (A)
Anderson, K. E. (A)
Atherton, T. A. (M)
Baird, J. K. (M)
Barnes, T. G. (SM)
Barto, R. C. (M)
Bayer, J. A. (A)
Beck, C. L. (A)
Beymer, E. H. (M)
Bigelow, G. F. (M)
Braddock, J. V. (M)
Bringelson, A. L. (M)
Brown, C. W., Jr. (M)
Brown, J. D. (A)
Brown, J. S. (M)
Bryant, A. D. (M)
Bulger, T. J. (A)
Carr, R. T. (A)
Cates, J. D. (M)
Chin, Q. (M)
Clatfelter, A. C. (SM)
Clelland, L. M. (M)
Coulter, G. W. (M)
Crawford, K. E. (M)
Crosson, J. W. (M)
Davis, E. A. (M)
Dean, E. A. (M)
De Busk, W. H. (M)
Dickson, J. C. (M)
Doss, D. R. (A)
Ekola, E. C. (A)
Fernstrom, C. H. (M)
Flottman, E. R. (M)
Francis, L. G. (M)
French, C. C. (M)
Galvaldon, A. L. (A)
Goldin, M. (M)
Goodwin, H. C. (A)
Guettler, P. L. (A)
Hardison, J. M. (M)
Harper, A. L. (A)
Hauffe, G. S. (M)
Healy, S. M. F., Jr. (M)
Howe, W. M. (M)
Hurd, C. D. (M)
Ingram, B. A. (M)
Itsines, N. J. (A)
Jabor, T. (M)
Jennings, S. V. (M)
Johnson, D. L. (M)
Jones, R. T. (A)
Jones, T. R., Jr. (M)
Kerins, J. H. (M)
Kleman, D. L. (M)
Klessling, E. H. (M)
Kitchen, F. J. (M)
Krivanich, M. A. (M)
Knuttel, G. A. (A)
Kuberski, O. C. (M)
Lane, J. F. (A)
Lentz, W. H. (M)
Lovitt, S. A. (A)
Loya, E. (A)
Lutener, O. C. (M)
Margulies, I. (M)
Marshall, S. V. (M)
Maury, J. H. (M)
Mayes, R. A. (A)
McCalla, T. M., Jr. (M)
McCollum, A. J. (A)
McCreary, J. T. (A)
McDonald, D. F. (M)
McGill, W. T. (M)
McGraw, J. E. (SM)
McKennon, L. W. (A)
McKenzie, J. (M)
McMasters, H. A. (M)
McNicol, D. C. (A)
Messina, J. (M)
Miller, W. E., Jr. (SM)
Miranda, H. A., Jr. (M)
Montez, J. (M)
Morgan, Z. K., Jr. (A)

Morrison, M. M. (M)
Nance, V. K. (M)
Napper, H. B. (M)
Palmer, C. W. (SM)
Pelling, U. H. (M)
Reeve, W. F. (M)
Reiser, W. (M)
Rhoden, V. C., Jr. (M)
Richards, H. E. (M)
Rieger, R. W. (M)
Robey, E. E. (A)
Rojas, A. M. (M)
Santa Ana, L. T. (A)
Savage, T. R. (M)
Sharp, R. L. (M)
Shiplett, K. E. (M)
Smith, J. T. (A)
Smith, K. W. (M)
Smith, L. C. (A)
Stuart, J. F. (SM)
Talbott, E. P. (SM)
Thompson, O. A. (A)
Thorne, H. W. (M)
Tilleman, W. A. (M)
Timmons, W. L. (A)
Toland, W. A. (M)
Truflinger, L. L. (A)
Turke, R. C. (M)
Van Gorder, M. (M)
Vilfroy, R. H. (A)
Waite, A. C., Jr. (M)
Walker, P. G., III (M)
Walton, K. J. (SM)
Watkins, R. I. (M)
Webb, L. G. (M)
White, W. L. (A)
Whiteley, G. C., Jr. (M)
Wilder, G. E. (M)
Zubizarreta, J. (M)

Fort Bliss (EP-6)
De La Torre, V. R. (A)
Laprad, Q. C. (M)
Rush, R. I. (M)
Vass, J. L., Jr. (A)
Wilson, D. W. (M)
Yuill, S. J. (M)

Fort Davis (EP-6)
Thompson, A. R. (M)

Fort Sam Houston (HOU-6)
Burke, A. L. (SM)
Gregal, J. (M)

Fort Worth (FW-6)
Absolom, R. H. (A)
Adams, W. A. (M)
Alexander, B. W. (M)
Allen, C. A., Jr. (M)
Allen, R., Jr. (M)
Allensworth, J. L. (M)
Atkins, G. T. (SM)
Babb, D. D. (M)
Bailey, G. E. (A)
Baker, B. R. (M)
Barr, E. W. (A)
Bateman, J. W. (M)
Baxley, W. E. (A)
Beasley, B. (M)
Bedunah, J. D. (M)
Begley, J. F. (M)
Bingham, C. R., Jr. (M)
Blackwell, W. A. (SM)
Blum, S. (SM)
Boatright, A. W. (M)
Bolleau, V. C. (M)
Bourland, H. M. (M)
Brock, W. P. (M)
Bronson, R. D. (M)
Brooker, E. G., Jr. (M)
Brooks, J. L. (M)
Brothers, J. E. (M)
Brunette, E. L. (M)
Brust, N. F. (M)
Bryan, K. W. (M)
Bunch, B. D. (A)
Bursey, R. E. (M)
Byars, B. R., Jr. (M)
Cantrell, W. E. (SM)
Carr, P. G. (M)
Case, E. E. (A)
Caudle, R. L. (A)
Chandler, S. B. (A)
Chervoz, P. L. (M)
Christian, H. C. (M)
Clark, L. T. (A)
Collup, D. E. (SM)
Condron, W. F. (A)
Conrad, R., Jr. (M)
Cook, A. B. (M)
Cox, E. R. (M)
Crittenden, L., Jr. (M)
Crotty, J. V. (SM)
Crumb, S. F. (SM)
Cyr, R. P. (M)
Daggett, D. H. (M)
Danner, O. G. (M)
Deering, C. S. (M)
Diffin, K. S. (M)
Dilworth, G. H. (M)
Dinsmore, J. T. (A)
Ditsler, W. F. (M)
Dodd, J. M., (M)
Donaldson, W. D. (A)
Drewett, J. D. (M)
Drews, G. E. (M)
Dunlap, K. H. (A)
Dunnuck, N. E. (A)
Du Toit, J. P. (M)
Eberhard, R. C. (M)
Ecklund, T. W. (M)
Egan, D. G. (SM)
Ellett, J. D. (M)
Elliott, J. E. (M)
Ellis, H. G. (M)
Errante, J. J. (M)
Falk, B. (M)
Felice, J. J. (M)
Fink, W. L. (M)
Finkboner, W. E. (M)
Finlayson, J. K. (M)
Fisher, M. C. (A)
Fleming, D. R. (M)
Fletcher, C. H. (M)
Ford, B. H., Jr. (M)
Foreman, D. E. (M)
Forester, J. R. (M)
Fowler, J. (M)
Frazier, L. C. (M)
Fuhrman, W. J. (M)
Funderburk, H. E. (SM)
Gandy, W. W. (SM)
Gentry, B. F. (M)
Gilmartin, T. (SM)
Googin, C. C. (M)
Green, P. C. (SM)
Greene, C. E. (M)
Greenlee, D. R. (M)
Grubbs, C. L. (M)
Hair, U. R. (A)
Hall, G. D. (M)
Hann, G. W. (M)
Hardin, B. A. (M)
Harman, D. G. (SM)
Haury, F. W., Jr. (M)
Hawks, R. B. (M)
Hawkins, W. K. (A)
Hawthorne, M. M. (M)
Hay, G. W. (SM)
Hayes, R. R. (M)
Heizer, L. E. (M)
Hill, H. H., Jr. (M)
Hines, R. L. (M)
Hites, W. H. (M)
Hodges, T. R. (A)
Hoque, W. T. (M)
Holliday, C. E. (A)
Holt, J. M. (M)
Holtkamp, L. A. (A)
Hudgens, L. L. (M)
Jackson, G. L. (M)
Johns, S. E., Jr. (M)
Kearse, G. P. (SM)
Keck, J. F. (A)
Kelly, B. A. (SM)
Keppler, C., III (M)
Kidd, L. H. (SM)
Kimbell, E. C. (M)
King, J. C. (A)
Kinyon, W. E. (M)
Knight, D. G. (M)
Koshi, D. M. (M)
Koski, J. I. (SM)
Kunselman, J. S. (A)
Lairmore, W. J. (SM)
Lanham, S. T., Sr. (SM)
Lanier, J. (M)
Latzler, E. E., Jr. (M)
Logsdon, H. E. (M)
Looney, G. R. (M)
Lott, J. C. (M)
Macune, C. W. (M)
Mallory, V. L. (SM)
Martin, W. E. (M)
Mayfield, S. A. (M)
McCully, W. L. (M)
McCutcheon, T. L. (M)
McDaniel, F. C. (M)
McDonnell, J. E. (M)
McDuff, B. G. (M)
McKenzie, J. R., Jr. (M)
McWhorter, L. C. (M)
Mehrwin, R. L. (M)
Michels, R. E. (A)
Miller, E. W. (M)
Mitchell, D. B. (M)
Moore, J. W. (M)
Morgenthaler, H. L. (A)
Mowery, D. K. (M)
Murphy, M. L. (M)
Neher, H. T. (SM)
Neshyba, S. J. (M)
Palmer, J. E. (M)
Perry, J. L. (M)
Peterson, W. E. (M)
Pickens, F. T., III (M)
Powell, S. C. (M)
Quirino, F. (SM)
Rackley, L. E. (SM)
Randal, J. M. (M)
Raney, A. B. (M)
Rankin, L. T. (A)
Read, J. H. (M)
Redman, P. J. (A)
Reeves, R. R. (M)
Roberts, P. L. (A)
Robertson, D. R. (M)
Robertson, G. H. (M)
Robinson, D. A. (M)
Robinson, T. P. (M)
Roderick, R. (SM)
Rodgers, V. P., Jr. (M)
Ross, D. R. (M)
Roy, F. J. (M)
Rushing, G. F. (M)
Rutman, S. M. (A)
Salls, A. E. (SM)
Seale, I. A. (M)
Serfass, B. R. (A)
Seymour, D. E. (M)
Shafer, L. (M)
Shaver, J. W. (M)
Sheppherd, M. F. (M)
Slack, J. R. (M)
Slagle, G. M., Jr. (M)
Smith, H. L. (A)
Smith, J. R. (M)
Smith, L. B. (M)
Smith, R. O. (A)
Snead, J. L., Jr. (M)
Sneed, C. O. (M)
Soniat, A. E. (M)
Spealrs, M. F. (M)
Spencer, J. L. (M)
Spradlin, J. D. (M)
Stanford, E. G. (M)
Standridge, H. (M)
Stanley, J. D. (A)
Stewart, G. W. (M)
Stoker, C. J. (M)
Stratton, J. W. (SM)
Sumner, G. C. (SM)
Terry, G. H. (A)
Theriot, I. J. (SM)
Thomasson, W. D. (M)
Tinkler, D. M. (M)
Travis, C. M. (SM)
Trimm, J. H. (M)
Tucker, B. J. (M)
Turner, A. G., Jr. (M)
Van Hoozer, C. H. (M)
Watkins, D. E. (M)
Watson, D. C. (M)
Watson, P. G. (M)
Watson, R. D. (M)
Watts, J. D. (M)
Webb, D. O. (M)
Webb, E. E. (SM)
Webb, V. C. (M)
Webber, E. O. (M)
Weidler, C. R. (M)
Weinworth, G. E. (M)
Weller, N. E. (M)
Williams, C. E. (M)
Wilson, C. T. (M)
Wolanski, H. S. (A)
Worley, E. B., Jr. (M)
Wren, B. W. (A)
Yandell, D. (M)
Young, E. D. (M)
Zuch, H. W. (M)

Galveston (HOU-6)
Lee, J. L. (M)
Matthews, J. A. (A)
Pearson, E. A. (M)

Garland (DAL-6)
Albertine, H., Jr. (SM)
Allen, W. D. (A)
Andreassen, H. N. (M)
Bickel, R. L. (M)
Bondy, M. A. (SM)
Bule, J. G. (M)
Burden, H. O., Jr. (M)
Cawood, J. L. (A)
Coleman, H. R. (M)
Da Silva, T. M. (M)
Davis, P. D., Jr. (SM)
Dubose, G. P. (M)
Evans, W. A., Jr. (M)
Faith, W. O. (SM)
Fumell, W. W., Jr. (SM)
Garrett, F. W. (M)
Gillett, J. D. (M)
Granger, F. P., Jr. (M)
Griffith, B. W., Jr. (SM)
Grubbs, C. E. (M)
Grubbs, W. C., Jr. (SM)
Hager, C. K. (SM)
Hand, R. L. (M)
Harmon, C. R. (M)
Henneke, H. L. (M)
Horn, C. E. (M)
Houston, R. H. (A)
Jackson, H. J. (A)
Kattawar, A. (M)
Kelly, W. T. (M)
Lamb, E. D. (M)
Langston, J. W. (M)
Logan, F. (M)
Lynn, J. C. (M)
MacKenzie, D. G. (M)
Marcucci, R. L. (M)
Marshall, L. C. (SM)
McCrum, K. W. (M)
McMurtrey, A. W., Jr. (SM)
Mitchell, W. D. (SM)
Morey, G. C. (M)
Parish, H. G. (M)
Parker, F. D. (M)
Parrish, O. C. (M)
Patterson, W. E. (M)
Rice, J. C. (A)
Riley, J. H. (A)
Salisbury, W. W. (F)
Sandefer, S. R. (A)
Sanford, A. L. (A)
Sediff, J. E. (M)
Shaw, J. D. (M)
Sneed, J. D. (M)
Spilman, J. C. (M)
Stanfield, C. F. (M)
Stanton, A. H. (SM)
Tackett, H. A. (SM)
Taylor, D. R. (M)
Thomas, T. C. (M)
Tinton, C. D. (SM)
Underbrink, G. P. (M)
Weeks, B. O. (M)
Welch, C. (M)
Whiteside, D. L. (M)
Whitten, J. R. (M)
Wible, P. E., Jr. (M)
Williams, B. M. (SM)
Williams, C. E. (M)
Yeager, D. L. (M)

Genoa (HOU-6)
Johnson, O. F. (M)

Georgetown (SA-A-6)
Brown, B. M. (M)

Grand Prairie (DAL-6)
Alberson, H. D. (M)
Anderson, R. P. (M)
Austin, T. D. (A)
Blanning, R. B. (M)
Chadbourne, H. D. (M)
Glenn, R. D. (M)
Howell, J. S., Jr. (A)
Morris, B. V. (M)
Romary, D. L. (M)
Tharp, C. U. (A)
Young, D. C. (M)

Grapevine (FW-6)
Blackshear, J. W. (A)
Donaldson, C. A. (M)
Donovan, J. J. (M)
McMurray, R. F. (M)

Greenville (DAL-6)
Johnson, D. M. (M)
Shuler, J. L. (M)

Hamilton (FW-6)
Sparks, E. C., Jr. (A)

Harlingen AFB (SA-A-6)
Harrill, J. W. (M)
Mozzini, L. M. (M)
Murdock, A. E. (A)
Summers, R. R. (M)

Henderson (SHR-6)
Daniels, T. E. (SM)

Hitchcock (HOU-6)
Hullett, V. T. (A)

Houston (HOU-6)
Adkins, E. E., III (A)
Allen, J. B. (M)
Anderson, W. L. (SM)
Anker-Goll, K. (M)
Armand, H. A. (SM)
Arthur, M. A. (SM)
Asbury, R. T. (M)
Atkinson, C., Jr. (M)
Atmar, R. L., Jr. (M)
Attall, G. (M)
Austin, F. M. (SM)
Badger, A. S. (SM)
Bailey, E. H. (A)
Baker, B. M. (SM)
Baker, J. H. (M)
Baker, L. E. (M)
Baker, R. L. (A)
Ball, D. F. (SM)
Ball, J. D. (M)
Bates, E. J., Jr. (M)
Beamguard, J. H. (M)
Beeman, K. R. (M)
Belk, J. H. (A)
Bender, J. C. (SM)
Benner, R. G. (A)
Beyer, A. R. (A)
Beyer, F. (A)
Beyer, J. A. (M)
Biggs, M. A. (A)
Blanchard, A. (SM)
Bodden, A. L., Jr. (A)
Boss, C. W. (A)
Bond, H. A. (SM)
Booker, J. L. (A)
Bowen, L. C., Jr. (A)
Bowers, W. E. (M)
Boyd, C. S. (A)
Braldwood, D. W. (M)
Bravenec, F. R. (M)
Brezik, F. J., Jr. (A)
Britton, H. L. (M)
Brock, F. A. (M)
Broderick, R. F. (M)
Brougher, R. M. (M)
Brown, C. R. (M)
Browne, W. J. (M)
Bryan, R. G. (M)
Buck, H. M. (SM)
Buckner, G. O., Jr. (SM)
Bucy, J. F., Jr. (SM)
Buechner, R. H. (SM)
Bulhon, J. J. M. (M)
Burrows, R. C. Jr. (M)
Burton, J. R. (M)
Busacker, J. W. (A)
Busby, W. R. (M)
Butamayer, D. K. (M)
Byers, E. G. (SM)
Byrnes, R. W. (A)
Campbell, J. R. (M)
Canzoneri, J., III (M)
Capers, J. L. (A)
Capian, H. (A)
Caplan, R. S. (SM)
Capote, L. C. (A)
Carter, J. H. (A)
Carter, W. H., Jr. (SM)
Chapman, C. W. (SM)
Childers, H. E. (SM)
Chimski, G. R. (SM)
Clerc, M. C. (M)
Coffman, J. E. (M)
Cohn, D. (A)
Coulter, T. W. (M)
Crawford, T. H. (M)
Crews, I. B. (M)
Crocker, C. W. (A)
Crook, T. N. (M)
Cummings, L. C., Jr. (M)
Cunningham, A. B. (M)
Curry, C. P. (M)
Dady, W. E. (M)
Dausman, R. H. (M)
Davis, A. Q., Jr. (M)
Davis, S. B. (A)
Deuel, J. P. (M)
Dewan, J. T. (M)
Dickson, F. H. (M)
Dixon, T. K., Jr. (M)
Donohoe, L. J. (A)
Dosher, R. T., Jr. (SM)
Douglas, J. E. (A)
Dowling, D. J. (M)
Drennan, H. J. (M)
Drisdale, T. B. (A)
Dunkel, J. R. (M)
Dunn, W. L. (A)
Dupree, E. M. (SM)
Eaton, F. M. (M)
Ebert, M. C. (A)
Edwards, W. H. (A)
Ehrlich, B. F. (M)
Ekerol, S. (A)
Elliott, L. E., Jr. (A)
Emerson, S. F. (A)
Emery, F. E. (M)
Engert, M. (M)
England, L. T. (A)
Erath, L. W. (M)
Eslinger, S. D., Jr. (A)
Espey, H. R. (M)
Fenglin, F. J. (SM)
Fenner, R. G. (M)
Flatow, T. (SM)
Forcier, N. E. (A)
Fossler, K. L. (M)
Fox, R. M. (M)
Francis, C. A. (M)
Frazier, L. J. (M)
Fritz, A. D. (A)
Frobese, C. W. (M)
Frosch, A. (M)
Gardner, D. H. (M)
Gass, F. G. (A)
Geddes, L. A. (SM)
Geery, P. W. (A)
Gillespie, T. F. (A)
Girala, A. S. (M)
Godfrey, R. M. (M)
Goff, W. H. (M)
Gollwitzer, L. H. (A)
Graham, M. (SM)
Green, J. W. (M)
Grice, C. F. (M)
Gundlach, E. E. (M)
Hackbarth, E. (M)
Hagen, H. B. (M)
Hall, H. H. (M)
Halbert, J. L. (M)
Hale, E. M. (SM)
Hallenburg, J. K. (SM)
Hanlon, E. G. (M)
Hanus, F. J. (A)
Harris, R. A. (M)
Hawkins, D. W. (M)
Hays, D. T. (A)
Hefer, F. W. (M)
Hegar, D. T. (M)
Heins, A. E. (M)
Heintz, K. O. (SM)
Helken, E. W. (M)
Henning, O. F. (M)
Herrod, R. A., Jr. (M)
Herzberg, A. K. (M)
Hickey, R. E. (M)
Hickman, D. M. (M)
Hill, H. B. (A)
Hill, W. F. (A)
Hilton, R. C. (M)
Hinds, M. H. (A)
Hiner, T. L. (A)
Hinnant, H. O. (M)
Hopkinson, E. C. (A)
Hougen, H. C. (M)
Hubbard, C. L. (M)
Huck, L. A. (A)
Huddleston, R. H., Jr. (A)
Hudgins, W. T., Jr. (M)
Huffman, C. H. (M)
Huhndorff, E. P. (M)
Hurlbert, L. L. (M)
Huston, O. H. (M)
Irwin, H. R. (M)
Jameson, J. P. (M)
Jasper, L. L. (A)
Jeanes, P. M. (A)
Johnson, R. M. (M)
Johnstone, C. W. (SM)
Jones, H. J. (SM)
Jones, T. L. (SM)
Josephson, B., Jr. (M)
Kaiser, G. B. (SM)
Kannenstein, F. M. (M)
Karr, K. L. (A)
Kaufman, S. (SM)
Keating, L. M. (M)
Keefer, D. E. (M)
Keeling, R. W. (M)
Keep, H. A. (A)
Kelley, W. B. (M)

Kelly, R. W. (SM)
Kobayashi, H. S. (M)
Kokesh, F. P. (M)
Kolb, R. H. (M)
Kriegel, H. C. (SM)
Lathrop, W. A. (A)
Le Moine, W. R. (M)
Limb, L. K. (M)
Leonardon, G. E. (M)
Luce, E. S. (M)
Lum, H. (A)
MacDonald, C. O. (M)
Mack, C. R. (A)
Madeley, P. E. (M)
Mann, R. W. (SM)
Marsh, G. E. (M)
Martin, S. A., Jr. (M)
Masterson, H. T. (M)
Mathis, J. D. (SM)
Matlock, D. E. (M)
Matteson, L. W., Jr. (A)
Matthews, C. R. (A)
Matthews, T. S. (M)
Mazurkiewicz, R. J. (M)
McCabe, L. L. (SM)
McClain, W. J. (M)
McConnell, H. E. (SM)
McCornick, K. C. (M)
McDonald, M. (M)
McGrath, H. E. (A)
McKay, G. C., Jr. (M)
McKee, F. E. (M)
McLean, B. C. (M)
McLin, W. R. (A)
McManis, L. B. (SM)
McMorris, A. H. (M)
Medlin, R. O., Jr. (M)
Mellliff, V. C., Jr. (M)
Melton, D. P. (M)
Menelaides, K. L. (M)
Merkouriadis, A. P. (A)
Meuler, W. R. (M)
Michaels, E. L. (SM)
Miles, H. L. (M)
Millar, H. D. (M)
Minton, W. C. (A)
Mitchell, J. L. (A)
Mitchell, J. L. (M)
Mitchell, M. B., Jr. (M)
Monkhouse, J. R. (M)
Montgomery, R. L. (M)
Moore, A. M. (M)
Morton, J. C., Jr. (A)
Moss, K. S., Jr. (M)
Mueller, E. P., Jr. (M)
Mullan, L. A. (M)
Murty, D. S. (M)
Nachlas, S. (A)
Nacke, C. C., Jr. (M)
Nance, B. J. (M)
Nelsen, H. H. (M)
Neuenschwander, E. F. (M)
O'Brien, D. D. (A)
Ording, J. R. (A)
Otis, D. C. (M)
Owen, R. E. (M)
Packard, J. C. (M)
Palmer, C. C. (M)
Palmer, O. M., Jr. (M)
Parker, G. W. (A)
Patterson, H. B., Jr. (M)
Paul, A. N. (M)
Pearson, J. B. (M)
Perry, R. R. (M)
Pfeiffer, P. E. (SM)
Phillips, F. S. (M)
Pierson, A. L., III (M)
Pittman, R. R. (M)
Plaoens, L. A. (M)
Platzer, B. A. (A)
Plumb, P. E. (A)
Poindexter, M. H. (A)
Rabson, T. A. (M)
Rank, W. B. (M)
Ransome, R. L. (M)
Reese, O. T. (M)
Reid, A. C. (M)
Reynolds, F. F., Jr. (M)
Reynolds, R. C. (A)
Rhodes, H. A. (M)
Rice, L. S. (A)
Richardson, J. G. (A)
Riquelmy, A. H. (A)
Robinson, J. C. (A)
Roby, J. W., Jr. (M)
Rodatus, E. J. (SM)
Rodd, F. R. (M)
Rogers, H. H., Jr. (M)
Rogers, W. F. (M)
Rust, W. M., Jr. (F)
Ryon, R. M. (SM)
Sadofsky, M. D. (M)
Salter, R. E. (M)
Samosel, T. K. (M)
Sasseen, J. H. (SM)
Savage, K. D. (SM)
Sawyer, W. G. (M)
Schmidt, F. P. (A)
Schmidt, H. (A)
Schmidt, P. S. (M)
Schmuck, R. H. (M)
Schneider, W. P. (M)
Schuster, N. A. (SM)
Schutz, T. C. (M)
Schwartz, R. J. (M)
Scott, C. B. (M)
Sears, H. A. (M)
Seixas, A. D. (A)
Seto, Y. J. (M)
Sharpe, M. O. (SM)
Sherrill, B. A. (M)
Stems, L. E. (M)
Silvus, H. S., Jr. (M)
Skellie, A. C. (M)
Slaughter, W. J. (SM)
Smith, F. C., Jr. (SM)
Smith, O. R. (SM)
Smith, S. B. (A)
Soukup, S. J. (M)
Spann, M. M. (M)
Sparks, D. J. (A)
Spence, D. W. (SM)
Spoor, W. A. (M)
Stanley, R. S. (M)
Stanphill, J. R. (M)
Steward, W. B. (SM)
Stone, O. L. (M)
Story, M. L. (A)
Stotler, D. E. (A)
Stroman, L. J. (M)
Suhler, S. A. (M)
Sundt, P. C. (M)
Tanguy, D. R. (M)
Tate, J. B. (M)
Taylor, A. D. (A)
Taylor, L. A. (SM)
Teal, E. E. (M)
Tharp, R. R. (M)
Thompson, R. R. (SM)
Thornhill, J. W. (SM)
Thornton, L. C. (A)
Thornton, M. K. (A)
Trimmler, W. W. (M)
Tullos, F. N. (M)
Turner, C. G. (SM)
Ulmer, J. G. (A)
Urquhart, E. H. (M)
Van Wambeck, S. H. (SM)
Vaughan, R. I. (A)
Vene, J. M. (SM)
Venker, D. P. (A)
Vogel, C. B. (M)
Walker, H. O., Jr. (M)
Wall, H. C. (A)
Walters, W. T. (M)
Waters, J. S. (M)
Watson, A. L. (M)
Watson, J. S. (A)
Watt, J. S. (SM)
Weidner, C. P. (A)
Welz, W. C. (M)
Wenzel, G. E. (M)
Westmoreland, P. E. (M)
Wheeler, H. T. (M)
White, G. (SM)
Widerstrom, F. W. (A)
Wilkinson, S. L. (M)
Williams, A. P. (M)
Williams, K. L. (M)
Wischmeyer, C. R. (F)
Witt, W. W. (M)
Woehst, K. H. (A)
Wofford, J. H. (M)
Wofford, W. D., Jr. (A)
Wright, F. E. (A)
Wright, J. L. (A)
Wrye, W. C., Jr. (M)
Zill, F. W. (M)

Hurst (FW-6)
Keplinger, M. (M)
Marchbanks, N. B., Jr. (M)
Stribling, J. L., Jr. (M)

Irving (DAL-6)
Atchley, B. K. (M)
Baker, T. J. (M)
Bodien, R. M. (M)
Breithaupt, J. J. (M)
Brewer, H. D. (A)
Butler, D. M. (M)
Chancey, W. L. (M)
Childs, P. B., Jr. (M)
Cleveland, A. R. (SM)
Curtis, G. D. (SM)
Dillon, P. (M)
Drinkwater, M. E. (M)
Flowers, B. R. (M)
Gluck, L. D. (M)
Gray, H. L. (M)
Harris, B. A. (M)
Harris, H. F. (M)
Haskins, D. E. (M)
Heithecker, L. F. (M)
Holly, L. C. (M)
Jones, J. F. (SM)
Jones, W. B. (M)
Jones, W. T. (M)
Krames, C. V. (SM)
Lewis, R. E. (M)
MacDonald, F. H. (M)
Mayberry, K. L. (M)
Merington, R. N. (A)
Norman, T. J., Jr. (SM)
Petrasek, A. C. (SM)
Rambie, G. S., Jr. (SM)
Ridgway, R. H. (M)
Schleicher, R. R. (M)
Skelton, C. W. (SM)
Smith, C. H. (M)
Stone, R. M. (SM)
Wood, J. H., Jr. (A)

Kermit (EP-6)
Hopper, W. L. (M)

Kerrville (SA-A-6)
Mason, A. F., Jr. (M)

Killeen (FW-6)
Kelley, W. C. (M)
Koehler, W. C. (M)
Rucks, A. J. (M)
Wiker, R. L. (M)
Kingsville (SA-A-6)
Balkanli, H. (M)
Guinn, J. R., Jr. (M)
Johnson, D. W. (M)
Korges, E. (M)
Rawls, H. F. (A)
Valdes, M. (M)

Kirbyville (B-PA-6)
Cunningham, R. E. (M)

La Porte (HOU-6)
Harrison, R. H. (M)

Laredo AFB (SA-A-6)
Benedict, D. F. (M)
Parsons, J. R. (M)
Steele, E. M. (A)

Longview (SHR-6)
Hill, D. L. (M)

Lubbock (LUB-6)
Bryant, R. S. (A)
Carver, D. H. (M)
Craig, J. P. (M)
Criswell, J. J. (M)
Easter, B. H. (M)
Estes, J. F. (A)
Fagan, J. R. (M)
Grigsby, L. L. (M)
Halbrooks, J. O. (A)
Hollingsworth, R. B. (A)
Houston, C. E. (SM)
Hutton, C. D. (A)
Joiner, J. B. (M)
Jones, L. D., Jr. (A)
Kilcrease, E. F. (M)
Lankford, I. C., Jr. (A)
Lee, R. F. (SM)
Meeks, R. D. (M)
Morrow, R. L. (A)
Paul, C. A. (A)
Pease, L. A. (M)
Seacat, R. H. (M)
Smith, C. D. (M)
Spuhler, H. A. (M)
Woodward, K. R. (M)

Lufkin (B-PA-6)
Hill, F. C. (M)
Saxon, M. (SM)

Marble Falls (FW-6)
McDonald, C. J. (M)

Marshall (SHR-6)
Morton, J. P. (M)

McAllen (SA-A-6)
Bishop, R. L. (A)
Smithgall, D. C. (A)

McCamey (SA-A-6)
Segars, L. K. (M)

McKinney (DAL-6)
Dale, R. J. (M)

McQueeney (SA-A-6)
King, C. B. (A)

Mesquite (DAL-6)
Bose, K. W. (M)
Busch, W. M. (M)
Faulkner, H. E. (M)
Helmer, A. R. (M)
Nieswiadomy, B. L. (M)
Puett, J. W. F. (M)
Smith, L. R. (M)
Wills, W. L. (M)

Midland (LUB-6)
Bell, J. R. (M)
Coleman, M. V., Jr. (M)
Dickey, B. B. (A)
Giles, J. R. (A)
King, V. G. (M)
Lowery, R. O. (M)
Markwardt, A. J. (M)
Maunder, E. R. (M)
St. Clair, R. A. (M)
Salt, S. D. (M)
Wood, M. A. (A)
Yates, T. (A)

Mineral Wells (FW-6)
Bohar, J. (M)
Buzbee, J. M. (M)
Cormier, R. E. (M)
Dunlavy, J. H., Jr. (A)
King, S. M. (A)
Lee, G. E. K. (M)
Minton, T. M., Jr. (M)
Mitchell, D. H. (SM)
Smith, T. D. (M)

Naples (SHR-6)
Tuck, N. W. (M)

Nederland (B-PA-6)
Dillasalin, V. L. (SM)
Hamilton, C. J., Jr. (M)

Odessa (LUB-6)
Blake, R. C. (A)
Schock, W. R. (A)

Orange (B-PA-6)
Jones, R. L. (M)
Keith, R. E. (M)

Pampa (LUB-6)
McQuigg, H. E. (M)

Pasadena (HOU-6)
Butts, T. M. (A)
Byrne, B. H. L. (A)
May, C. L. (M)
Stivers, R. B. (M)

Plano (DAL-6)
Baumgartner, V. E. (A)
Congdon, R. L. (SM)
Lowder, C. M. (M)
Pierce, J. T. (M)

Point Comfort (SA-A-6)
Conant, R. D. (M)

Ponder (FW-6)
Swafford, T. W., Jr. (M)

Port Aransas (SA-A-6)
Roberts, J. D. (A)

Port Arthur (B-PA-6)
Chiasson, A. T. (A)
Dolson, R. M. (M)
Knate, E. H. (A)
Monroe, W. M. (A)
Traviand, W. W. (M)

Port Isabel (SA-A-6)
Brand, J. (M)

Prairie View (HOU-6)
Kelly, G. E., Jr. (M)

Randolph AFB (SA-A-6)
Houghton, E. G. (SM)

Red River Arsenal (SHR-6)
Fischer, D. W., Jr. (A)

Richardson (DAL-6)
Abel, D. R. (M)
Adams, J. E. (M)
Adkins, A. W., Jr. (SM)
Alchholz, C. (M)
Allen, M. B. (M)
Antrim, G. H. (A)
Arnett, R. A. (SM)
Athans, M. (A)
Baker, G. T. (M)
Bark, D. A. (M)
Bass, J. E. (M)
Bates, L. D. (M)
Baum, F. L., Jr. (M)
Bebee, M. G. (M)
Behrnes, F. G., Jr. (M)
Berg, C. H. (A)
Blard, J. R. (M)
Bicksler, D. H. (M)
Biggs, J. A. (SM)
Blackman, B. A. (M)
Blackwell, W. C. (M)
Blount, J. F. (M)
Booth, R. (M)
Bradford, J. R., Jr. (M)
Braginton, P. R. (SM)
Braun, C. (A)
Brooks, F. E., Jr. (F)
Brown, J. M. (M)
Bruton, H. C. (SM)
Bryan, W. D. (M)
Buchanan, D. L. (M)
Byrd, D. M., Jr. (M)
Carter, R. C. (M)
Cate, G. M. (M)
Cheney, J. O. (M)
Christensen, T. P. (M)
Church, C. C. (M)
Clabaugh, G. E. (M)
Cleaver, N. E. (M)
Cole, J. E. (M)
Combs, C., Jr. (M)
Cook, C. R., Jr. (M)
Cook, L. (M)
Cooke, H. F. (M)
Corbin, C. D. (M)
Cox, J. R. (M)
Cox, R. H. (M)
Crandell, E. L. (M)
Cunningham, J. E. (M)
Cuthbert, T. R., Jr. (M)
Darroch, R. D. (M)
Davidson, K. W. (M)
Davis, D. K. (M)
Davis, M. E. (M)
Day, J. C. (M)
Dean, R. T. (M)
Delaney, J. S. (M)
Devoll, C. W. (M)
Dill, F. J. (M)
Donnell, W. F. (M)
Douglas, J. H. (M)
Ducote, B. A. (M)
Eddleston, J. H. (M)
Entsminger, P. W. (M)
Felthauer, H. E. (M)
Foote, R. S. (SM)
Forney, F. E. (A)
Fowler, W. L. (M)
Frase, L. E. (M)
Frost, E. S. (M)
Gage, R. G. (M)
Garon, A. J. (SM)
Gilbreath, B. F. (M)
Godbey, J. J. (M)
Green, A. W., Jr. (M)
Green, P. M. (SM)
Hadley, C. E. (M)
Hale, H. G., Jr. (M)
Hall, J. E. (A)
Halvorson, R. L. (M)
Hankinson, D. N. (M)
Hanna, G. W. (A)
Hern, H. D. (M)
Herndon, R. A. (M)
Hertel, P., Jr. (M)
Hiatt, E. V. (M)
Higginbotham, H. L. (M)
Hill, J. D., III (M)
Hinel, C. B. (M)
Hinkle, V. O., Jr. (M)
Holladay, J. A. (M)
Holmes, D. W. (M)
Hughes, L. E. (M)
Hull, J. E. (M)
Jones, D. B. (M)
Jones, J. W. (M)
Kaff, L. E. (M)
Keen, H. E. (M)
Kennedy, C. L., Jr. (M)
Kisner, H. L. (M)
Kunde, W. W., Jr. (M)
Lavergne, A. J., Jr. (M)
Lee, R. E. (SM)
Leming, T. L. (M)
Littlepage, C. R., Jr. (M)
Love, K. A. (A)
Lovelace, H. D. (M)
Lovelady, B. W. (M)
Luecke, G. N. (M)
Luthans, R. L. (A)
Magnuson, K. W. (M)
Makris, J. (M)
Mallett, A. J. (M)
Mansur, G. F., Jr. (M)
Marshall, K. R. (M)
Martin, J. W. (A)
Martin, W. R., Jr. (M)
Mason, J. S. (M)
McCaskey, A. E., Jr. (M)
McDowell, C. I., Jr. (M)
McKinley, G. D. (M)
McKinney, E. G. (M)
McLaughlin, C. R. (M)
Meadows, R. A. (M)
Mickey, L. W. (M)
Miller, K. H. (M)
Minter, J. J. (A)
Mitchell, A. T. (A)
Mitchell, R. M. (SM)
Mitschrich, W. C. (M)
Morris, B. W. (A)
Morrow, C. D. (M)
Muhm, R. E. (M)
Murdock, B. J. (SM)
Nall, A. E., Jr. (M)
Nichols, R. A. (M)
Nichols, R. H., Jr. (M)
Nickel, W. L. (M)
Ocnaschek, F. J. (SM)
Ohlen, G. M. (M)
Pacini, E. J. (M)
Pearson, W. B., Jr. (M)
Penn, E. J. (M)
Penn, T. C. (SM)
Perkins, A. D. (M)
Perkins, W. C. (M)
Perry, R. A. (M)
Peshock, M., Jr. (M)
Peterson, M. E. (M)
Phillips, M. J. (M)
Pierce, C. H. (M)
Pippenger, D. E. (A)
Powers, J. D. (M)
Price, J. F. (M)
Prickett, T., Jr. (SM)
Prier, H. W. (M)
Pritchard, J. P., Jr. (M)
Randolph, C. E. (M)
Reilly, F. N. (M)
Reisch, F. E. (M)
Reynolds, R. B. (M)
Ritchey, D. W. (M)
Rodden, W. H. (M)
Sawyer, F. L. (M)
Schreiner, M. P. (M)
Schuster, W. (M)
Scroggins, E. B. (M)
Seals, R. B. (SM)
Sebesta, G. H. (A)
Sebesta, J. R. (M)
Severin, E. O. (M)
Sharpe, T. W. (M)
Sherwood, J. R. (SM)
Shipman, V. D. (M)
Shockley, W. L. (SM)
Shurley, R. M. (M)
Silvonen, Y. T. (SM)
Sims, C. R. (M)
Slay, L. G. (M)
Smith, C. E. (M)
Smith, K. F. (M)
Sohner, H. K., Jr. (M)
Spieker, M. (M)
Stansbury, R. H. (M)
Stegall, M. D. (A)
Stewart, J. R. (SM)
Stewart, R. F. (M)
Stillwell, H. F. (SM)
Stone, W. A. (M)
Sullivan, W. A., Jr. (M)
Syptak, D. M. (M)
Taylor, J. L. (M)
Teddlie, E. A. (A)
Thompson, W. J. (M)
Tinch, C. S., Jr. (M)
Toombs, H. D. (M)

TEXAS

Turner, J. S. (SM)
Turvey, E. J. (M)
Vandenberg, D. E. (M)
Van der Wal, E. A. (M)
Veerman, W. H. (M)
Vergez, J. P., Jr. (M)
Vines, D. L. (M)
Wagner, R. J. (M)
Walker, M. C. (M)
Walser, R. J. (SM)
Ware, P. M., Jr. (M)
Watson, W. J. (M)
Wellby, D. O. (A)
Wendelbo, C. A. (M)
Wendlandt, C. W. (M)
White, R. T. (SM)
Whitfield, O. E. (M)
Wilcox, D. L. (M)
Williams, W. F., Jr. (M)
Wilson, E. C. (M)
Wilson, F. L. (M)
Winget, W. A. (M)
Wolff, E. A., Jr. (M)
Wollan, R. W. (SM)
Wright, W. W., Jr. (M)
Yaple, T. L. (M)

Richland Hills (FW-6)
Craig, J. C. (M)

San Angelo (SA-A-6)
Charlesworth, L. (M)
Cooper, T. M. (M)
Ray, C. H. (M)

San Antonio (SA-A-6)
Adams, R. M. (A)
Andrews, F. E. (A)
Arnold, J. B. (SM)
Avila, J. R. (A)
Balusek, A. J. (M)
Beckwith, J. E. (M)
Behrendt, H. B. (M)
Bergquist, A. O. (M)
Birdsong, L. F. (M)
Bristow, G. P., Jr. (M)
Brogan, F. A. (SM)
Brown, M. E. (M)
Buchanan, H. (M)
Burkholder, C. C. (M)
Cadena, D. G. (M)
Campbell, H. G. (A)
Canfield, R. D. (M)
Carmack, W. J. (A)
Case, B. (A)
Chamberlain, P. E. (M)
Clee, L. W. (A)
Cooper, J. H. (M)
Cooper, R. E. (M)
Cory, W. E. (SM)
Cotnam, J. L. (M)
Crites, C. R. (M)
Crockett, A. E. (M)
Cunningham, J. B. (A)
Darling, A. K. (M)
Dean, J. L. (A)
Donaldson, W. L. (SM)
Dubois, V. G., Jr. (A)
Duepner, F. (M)
Eaton, M. E., Jr. (M)
Edgerton, R. D. (M)
Edmonson, J. W. E. (M)
Egerton, W. G. (SM)
Egger, S. L. (M)
Elwell, R. W. (M)
Enderle, T. L. (SM)
Essington, L. B. (A)
Fitz Simon, D. E. J. (A)
Fountain, L. S. (M)
Fretz, O. G. (SM)
Gallagher, J. D. (M)
Gardiner, B. E. (A)
Germer, H. A., Jr. (M)
Gosch, V. E. (M)
Gower, S. G. (M)
Graf, C. R. (M)
Green, J. W. (A)
Gunkel, W. A. (M)
Hackett, R. E. (M)
Hallam, J. T. (M)
Hamm, W. J. (F)
Harrell, R. D. (M)
Hasbrook, A. F. (SM)
Hicks, B. (A)
Hornbrook, F. W. (M)
Ing, G. W. (SM)
Jackson, T. R. (M)
Jackson, W. J. (SM)
Jeffers, C. L. (F)
Johnson, J. B. (M)
King, J. D. (M)
Laenger, C. J., Sr. (M)
Lamb, H. O. (M)
Laster, C. C., Jr. (M)
Law, P. F. (M)
Liberto, E. A. (A)
Lincoln, J. P. (M)
Lovely, H. E. (M)
Lusk, E. C. (A)
Lynch, F. E. (M)
Matthews, K. B. (M)
Maxham, K. E. (M)
Mayne, W. H. (SM)
McConnell, J. W. (M)
Medina, C. R. (A)
Meiners, W. H. (A)
Menold, G. A. (M)
Meskill, W. D. (M)
Miller, C. M. (M)
Moore, J. D. (M)
Moreland, H. H. (M)
Morris, C. R. (M)

Owen, T. E. (M)
Parr, J. O., Jr. (SM)
Perry, H. J. (M)
Pool, E. B. (M)
Porter, J. B. (M)
Rhodes, M. H. (A)
Richey, E. O. (SM)
Rives, J. B. (SM)
Roland, F. M. (M)
Sears, D. (M)
Semmes, D. R. (M)
Sherrill, W. M. (M)
Siegel, H. A. (A)
Sikes, R. E. (SM)
Simpson, S. H., Jr. (SM)
Smith, R. J., Jr. (M)
Stenshoel, C. R. (M)
Stieren, J. (A)
Sullivan, M. C. (M)
Travers, D. N. (M)
Turner, H. C. (M)
Turner, R. A. (A)
Upham, W. C. (M)
Wangler, R. B. (M)
Wardwell, H. W. (M)
Watson, R. J. (M)
White, D. D. (A)
Wiggins, E. D. (M)
Wilkes, C. P. (M)
Wippermann, D. R. (M)
Woolley, R. E. (M)
Young, J. W., Jr. (A)
Zimmerman, L. O. (M)
Zumwalt, B. C. (M)

Schertz (SA-A-6)
Light, J. E., Jr. (M)

Seguin (SA-A-6)
Trone, G. R. (A)

Shepoard AFB (FW-6)
Curbow, J. E. (M)
Gunther, W. J. (A)
Pregeant, J. G. (M)

Sherman (DAL-6)
Trevilliam, R. A. (A)

Silsbee (B-PA-6)
Powell, J. W. (A)

Sinton (SA-A-6)
Mayer, E. G. (M)

Sour Lake (B-PA-6)
Collins, J. P. (M)

Sulphur Springs (DAL-6)
Pippin, T. M., Jr. (M)

Tarleton Station (FW-6)
Baker, L. T. (M)

Temple (FW-6)
Martin, B. A. (M)

Texarkana (SHR-6)
Dickinson, M. A. (A)

Texas City (HOU-6)
Chaloupka, M. J. (A)
Davidson, C. H. (SM)
Piker, J. S. (A)

Timpson (B-PA-6)
Cantrell, D. A. (M)

Tyler (DAL-6)
Godfrey, R. M. (M)

Vernon (FW-6)
Anderson, R. D. (M)

Victoria (SA-A-6)
Loborise, C. J. (M)
Murray, J. W. (M)
Scroggins, C. M. (M)

Waco (DAL-6)
Fulwiler, R. J. (A)
Schwetman, H. D. (SM)

Waxahachie (DAL-6)
Pitts, W. C., Jr. (M)

West Columbia (HOU-6)
Blair, R. S. (M)

Wharton (HOU-6)
Marquess, R. L. (M)

Wichita Falls (FW-6)
Adams, J. (A)
Brooks, K. L. (M)
Civello, J. R. (M)
Eichberger, R. (M)
Fenner, W. E. (M)
Fuller, M. M., Jr. (M)
Hamilton, H. F. (A)
Hassler, C. E. (M)
Hockett, F. D. (M)
Redmond, J. P. (M)
Sigler, G. A., Jr. (M)
Thomas, P. G. (M)
Wiley, H. T. (M)

Wylie (DAL-6)
Cooper, R. B. (A)

Foyer, D. R. (A)
Fraedrich, D. K. (M)
Gabriel, W. F. (SM)
Gallihugh, J. T. (A)
Garafola, J. R. (M)
Gephart, C. L. (M)
Gerlach, E. K. (M)
Gillooly, A. E. (M)
Gillis, L. C. (M)
Glass, R. (A)
Goeser, J. N. (SM)
Graham, K. J. (M)
Graves, C. J. (M)
Guinard, N. W. (SM)
Hancock, R. I. (A)
Harmon, W. R. (SM)
Headstrom, R. L. (SM)
Heisler, K. G., Jr. (M)
Heister, C. F. (SM)
Hewitt, G. J. (M)
Higgins, W. T. (M)
Hill, J. S. (SM)
Hill, M. E. (M)
Hinds, J. E., Jr. (M)
Hixon, R. N. (A)
Hopkins, A. F., Jr. (SM)
Howard, E. G. (M)
Huck, W. J., Jr. (M)
Humphrey, J. S. (A)
Hurlburt, R. W., Jr. (A)
Ide, J. M. (SM)
Jenkins, M. (M)
Johannes, J. M. (SM)
Johnson, C. D. (M)
Johnson, C. L. (M)
Johnson, H. B., Jr. (A)
Jones, M. L., Jr. (M)
Kaufman, J. W. (A)
Keith, R. M. (M)
Kelleher, K. S. (SM)
Kiebach, C. D. (A)
King, W. M. (M)
Klenk, J. L. (M)
Koll, A. J., Jr. (M)
Kozak, A. S. (A)
Kubilius, A. A. (M)
Lacy, E. A. (M)
Lang, M. R., Jr. (M)
Leete, C. E. (SM)
Littlejohn, H. S. (M)
Littlepage, C. M. (A)
Loque, H. L., Jr. (M)
Long, A. (A)
Longfellow, B. S. (M)
Love, F. B. (M)
MacLaren, E. W., Jr. (M)
Mallinson, F. C. (SM)
Malone, D. M. (M)
Marihugh, W. (M)
Marsolan, V. C. (SM)
Martin, A. L. (M)
Martino, J. P. (M)
McCann, B. J. (M)
McElroy, E. J. (M)
Melton, B. S. (SM)
Messer, A. M. (M)
Miles, P. D. (SM)
Miller, A. T. (A)
Mitselman, L., Jr. (M)
Mortague, H., III (M)
Montgomery, M. D. (M)
Moore, H. S. (SM)
Moore, R. T. (SM)
Morelli, M. (M)
Morrison, C. L. (M)
Morrow, C. M. (M)
Mullin, J. H. (M)
Myers, J. C. (SM)
Nabell, E. G. (A)
Nelson, M. W. (A)
Neuman, R. H. (A)
O'Brien, E. G. (M)
Overby, H. A. (SM)
Park, K. L. (M)
Parker, C. V. (SM)
Partello, P. E. (A)
Pavell, P. J. (M)
Peake, H. J. (SM)
Pendleton, D. W. (SM)
Percy, R. W. (M)
Perrino, S. R. (A)
Phillips, R. M. (M)
Phillips, W. P. (M)
Pichetto, P. B. (M)
Ports, D. C. (F)
Price, H. W., Jr. (M)
Raudenbush, J. E. (M)
Rayborn, H. C. (M)
Raybuck, C. B. (SM)
Ream, S. (M)
Rebman, J. A. (A)
Rector, C. (M)
Reiser, D. (M)
Robinson, R. F. (M)
Romer, W. J. (M)
Rowe, H. E. (SM)
Royce, R. K. (M)
Sabel, A. J. (SM)
Salmond, D. S. (SM)
Salsgiver, J. P. (A)
Sams, T. G. (M)
Sargent, R. S. (SM)
Schneider, R. J. (SM)
Schnoor, K. G. (M)
Scholl, G. S. (M)
Schwartz, M. E. (A)
Seddon, J. C. (F)
Shepard, D. H. (SM)
Smith, C. (A)
Smith, W. R., III (M)

Smolensky, S. M. (SM)
Solomon, D. L. (SM)
Spear, D. W. (M)
Spencer, D. F. (SM)
Stevens, R. C. (A)
Stewart, C. (SM)
Szabo, J. E. (M)
Tasaka, T. (M)
Taylor, W. B. (M)
Thomson, W. E. (M)
Tidball, F. E. (SM)
Trout, C. C. (M)
Tucker, J. W. (M)
Tucker, W. K., Jr. (A)
Varela, A. A. (SM)
Vaughn, J. E. (M)
Wallace, W. H. (M)
Warnek, R. G. (M)
Welhe, W. K. (SM)
Weinstein, A. (M)
Wenzinger, E. C. (M)
West, J. S. (M)
White, C. M. (M)
Worden, W. L. (A)
Wunderley, R. H. (M)
Young, M. P. (SM)
Young, P. J. (M)

Annandale (W-DC-3)
Black, L. (M)
Bouvy, J. W. (M)
Bradley, E. H. (SM)
Casey, C. J. (M)
Corbin, H. S. (M)
Croy, J. R. (M)
Curtis, C. V. (M)
Deaton, I. V. (M)
Dixon, J. T. (SM)
Ewin, W. H. (M)
Feild, S. C., Jr. (M)
Fletcher, R. (M)
Forss, J. W. (A)
Garlan, H. (M)
Germain, E. G., Jr. (M)
Glass, B. W., Jr. (M)
Hansen, M. E. (M)
Hearn, O. (SM)
Hershberger, W. D., Jr. (M)
James, F. B. (M)
Johnson, F. (SM)
Judd, J. E. (A)
Kerr, J. M., Jr. (M)
Lawrence, M. M. (M)
Miller, J. W. (M)
Nyberg, W. C. (A)
Olds, M. L. (M)
Phillips, L. A. (M)
Pike, E. H. (M)
Ray, J. (A)
Richman, H. R. (M)
Sherman, W. R. (SM)
Sinex, C. H. (SM)
Stilwell, D., Jr. (M)
Teachman, A. E. (SM)
Thompson, R. A. (A)
Torpey, G. J. (M)
Von Clemm, E. C. (M)
Watts, C. B., Jr. (M)
Williams, R. T. (M)
Willis, H. W. (SM)
Zushin, A. R. (M)

Arlington (W-DC-3)
Adams, T. M. (SM)
Alperin, N. I. (M)
Andon, C. A. (A)
Andrasco, C. J. (M)
Ankney, L. J. (M)
Armstrong, J. E. (M)
Atkinson, E. E. (M)
Aymar, E. (M)
Backus, W. A. (M)
Baker, H. L. (A)
Banks, C. R. (SM)
Bankson, H. D. (M)
Barnett, J. S. (M)
Batch, W. J. (M)
Batista, W. C. (A)
Baxter, L. M. (M)
Bennett, R. (F)
Bennett, S. A. (M)
Berghoefer, F. G. (M)
Bernard, J. T. (M)
Bernstein, H. E. (SM)
Bettis, W. E. (M)
Beyer, C. M. (SM)
Blagoi, B. E. (M)
Black, H. (M)
Black, J. G. (A)
Boehm, W. R. (SM)
Boggs, G. E. (M)
Boswell, R. A. (A)
Boyd, R. W. (A)
Bradley, M. R. (M)
Bridges, J. M. (F)
Broadwell, W. B. (M)
Brode, A. C. (M)
Brown, R. F., Jr. (M)
Brummett, E. P. (M)
Brunk, H. L., Jr. (M)
Buchak, K. (SM)
Buchanan, O. R. (A)
Burrous, W. W. (M)
Burgess, R. W. (M)
Burleson, M. M. (A)
Burris-Meyer, H. (SM)
Busch, C. R. (M)
Buster, C. F., Jr. (M)
Butts, R. S. (M)
Cahan, P. J. (M)
Calohan, W. C. (M)

Campbell, D. L. (A)
Campbell, J. S. (A)
Cernius, J. V. (M)
Chambers, C. W. (M)
Chase, C. S. (M)
Chasnov, B. (SM)
Childers, A. A. (SM)
Clark, R. L. (F)
Clifton, W. R. (M)
Cobb, C. A. (SM)
Cobb, M. W. (A)
Cochran, J. L. (SM)
Cohen, J. (SM)
Conn, M. L. (A)
Connaway, J. E. (M)
Cook, D. C. (A)
Cook, E. F. (SM)
Crigler, T. B. (A)
Crutchfield, A. E. (A)
Culo, J. C. (M)
Dalseide, C. S. (A)
D'Antonio, R. G. (M)
Davidson, W. P. (M)
Davis, C. H. (A)
Davis, T. R. (A)
De Marr, J. D. (M)
Dennison, B. H., Jr. (SM)
Desolas, E. P. (M)
De Vore, C. (SM)
Disney, J. S. (A)
Dixon, G. C. (SM)
Dodge, J. E. (M)
Dolle, W. C. (SM)
Dominic, P. C. (A)
Donald, B. L. (M)
Dove, P. S. (M)
Dreyfus, J. (SM)
Dutton, W. P. (M)
Ebken, A. F., Jr. (M)
Elwen, C. J. (SM)
Elder, W. E. (M)
Elliott, G. H. (M)
Engleman, C. L. (F)
Enos, R. M. (M)
Farrell, C. (M)
Fiedelman, C. (SM)
Fivel, M. J. (M)
Flint, R. B. (M)
Fortna, J. D. E. (M)
Freeman, J. T. (M)
Fulcher, R. W. (M)
Gallagher, J. G. (M)
Garcia, O. M. (M)
Garrett, W. O. (SM)
Gauss, H. (M)
Gaylord, F. E. (A)
Gehrke, W. C. (M)
Getman, G. A., Jr. (M)
Gibson, G. B. (SM)
Giles, R. C. (M)
Gillenwater, T. M. (SM)
Girard, E. J. (SM)
Gleason, D. H. (A)
Goetsch, E. A. (M)
Good, C. A., Jr. (M)
Gradel, R. (M)
Grant, H. W. (SM)
Graybill, H. R. (M)
Gregory, C. A. (SM)
Griffin, L. L. (M)
Gwaltney, C. M. (A)
Harding, N. D., Jr. (M)
Harker, D. R. (A)
Harkins, P. B. (SM)
Harrison, G. T., Jr. (M)
Harvey, D. T., Jr. (M)
Hedrick, C. E. (M)
Heebner, D. R. (M)
Hens, R. J. (M)
Heyden, J. F. (A)
Hibbs, H. H. (SM)
Hice, L. C. (A)
Hight, H. H. (M)
Hinman, W. S., Jr. (F)
Hochhalter, L. D. (A)
Hodge, J. D. (A)
Hoggarth, K. G. (A)
Hopkins, J. A., Jr. (A)
Hornedo, M. A. (M)
Huf, W. F. (M)
Husted, J. M. (M)
Hutton, D. B. (A)
Israel, F. (M)
Ivanovsky, A. (SM)
Jacks, S. T. (M)
Jacobson, W. H., Jr. (M)
Johansen, G. N. (SM)
Jolkovski, J. (M)
Jones, A. E. (M)
Kalwajty, F. T., Jr. (M)
Karp, A. L. (M)
Kawai, W. T. (M)
Kefalas, G. P. (M)
Kempf, R. F. (M)
Kensinger, G. L. (M)
Kersey, J. A. (SM)
King, L. H. (M)
Klise, K. W. (M)
Klotz, J. W. (M)
Knoop, A. M. (SM)
Koditek, G. W. (A)
Koffsky, D. N. (M)
Kosar, W. S., Jr. (M)
Krcek, J. A. (SM)
Kroger, M. G. (SM)
Kulesha, K. J. (M)
Kuun, A. (A)
Lambrecht, J. L. (M)
Lawson, A. A. (SM)

Lee, J. M. (SM)
Lepanto, P. J. (M)
Ligon, J. M. (M)
Lorenz, R. J. (M)
Lower, P. E. (M)
Manning, J. R. (M)
Martin, D. K. (SM)
Martin, E. T. (SM)
Martin, O. L. (M)
Martin, R. D. (SM)
Martin, T. J. (M)
McAdams, D. R., Jr. (M)
McCachren, W. S. (SM)
McClure, G. H. (SM)
McConnell, I. R. (M)
McKechnie, R. M., III (M)
McLaughlin, J. W. (SM)
McMichael, R. D. (M)
Mendus, W. M. (A)
Merchant, C. C. (M)
Messick, V. D. (A)
Metzger, E. E. (M)
Miller, J. L. (M)
Miller, R. F. (M)
Millies, F. G. (M)
Mittleman, J. (M)
Moffet, J. A. (M)
Montgomery, J. N., III (M)
Morrisey, J. A. (A)
Morse, N. A. N. K. (M)
Morscher, L. N., Jr. (SM)
Mullin, B. M. (M)
Muncy, J. H. (M)
Murphy, K. H. (A)
Murray, R. R. (SM)
Nelson, C. W., Jr. (M)
Newhouse, A. R. (M)
Niccolini, M. E. (M)
Noble, J. S. (A)
Nyhen, E. M. (M)
O'Connor, M. A., Jr. (M)
O'Keefe, R. W. (M)
Older, H. (A)
Oseanyan, P. C. (M)
Parker, M. L., Jr. (M)
Parris, D. S. (A)
Pefferman, E. B. (M)
Pendergraph, G. S. (A)
Penland, C. E. (M)
Penniman, I. B. (M)
Pennlwell, A. F. (M)
Perrott, T. A. (M)
Petit, A. F. (M)
Phelps, J. M. (SM)
Podnasky, R. W. (M)
Poling, A. C. (M)
Post, T. B. (A)
Potterton, R. L. (M)
Pressnall, J. R. (A)
Price, M. A. (SM)
Prins, D. W. S. (A)
Pros, J., Jr. (M)
Puemer, J. H. (M)
Quinn, F. S., Jr. (M)
Ramsey, J. L. (M)
Ratner, E. Z. (A)
Rawlez, L. (M)
Read, O. (A)
Rice, J. E. (SM)
Riehm, C. E., Jr. (M)
Rigdon, C. A. (M)
Rodgers, A. L. (M)
Rosenthal, S. (A)
Roy, L. B. (M)
Ryan, F. M. (F)
Sargent, C. J. (M)
Schaaf, R. H. (SM)
Schauers, C. J. (M)
Schmid, O., Jr. (M)
Scholetzky, J., Jr. (A)
Scofield, H. L. (SM)
Selby, H. A. (A)
Sergeant, R. C. (SM)
Sherer, L. M. (M)
Sherwood, R. M. (SM)
Shimel, N. K. (A)
Shue, J. S. (M)
Sindell, L. J. E. (M)
Sisco, H. W. (SM)
Skewis, W. H. (A)
Slack, E. G. (M)
Smith, D. L. (SM)
Smith, R. O. (SM)
Smith, T. F. (M)
Snead, W. L., Jr. (M)
Snyder, M. L. (A)
Soles, M. C. (M)
Solker, L. R. (A)
Stec, C. L. (SM)
Steed, J. B. (A)
Steohan, H. W. (M)
Stewart, J. M. (SM)
Stiman, J. P. (M)
Storch, L. J. (A)
Strothers, H. (M)
Sutton, B. L. (M)
Swafford, J. H. (A)
Tarquinio, R. V. (A)
Tate, J. P., Jr. (A)
Teele, K. L. (M)
Teschner, D. (M)
Thomasson, H. B. (M)
Trantham, W. C. (M)
Trequb, B. G. (M)
Trimble, D. C. (M)
Turkiewicz, J. M. (M)
Vance, R. T. (M)
Van Leunen, P., Jr. (A)
Van Valkenburgh, R. A. (M)
Veatch, J. P. (SM)

Voight, R. O. (SM)
Von Alven, W. H. (SM)
Walden, J. J. (M)
Wallace, J. L., Jr. (M)
Waller, S. L. (SM)
Walsh, J. P. (M)
Ware, J. N. (M)
Ware, M. (M)
Waters, R. W. (SM)
Weatherhogg, R. H. (A)
Wethe, V. I. (F)
Weiss, R. A. (SM)
Welch, W. (A)
White, C. E. (SM)
Whittemore, P. B. (SM)
Williams, E. A. (M)
Williams, L. L., III (M)
Wilson, G. F. (M)
Wilson, J. B. (A)
Wilson, W. H. (M)
Winters, G. E. (A)
Witting, E. G. (SM)
Woythal, J. M. (M)
Wulff, J. J. (A)
Yatman, T. (A)

Ashland (VIR-3)
Ryscuck, J. (M)

Bayside (VIR-3)
Bradbury, J. T. (M)
Enright, R. E. (M)
Lee, R. H. (SM)
Nicholson, J. E. (M)
Shonk, W. H., Jr. (M)

Bedford (VIR-3)
Shawl, W. C. (M)

Blacksburg (VIR-3)
Baker, V. H. (M)
Cullum, C. D., Jr. (M)
Dennison, B. L. (M)
Forehand, R. R. (A)
Gannett, D. K. (F)
Holt, C. A. (M)
Lee, C. (SM)
Skutt, H. R. (M)
Smith, R. T. (SM)
Stewart, A. W. (M)
Wright, R. R. (SM)

Bristol (VIR-3)
Black, J. E. (M)

Buckroe Beach (W-DC-3)
Moore, T. E. (M)

Burke (W-DC-3)
Irons, R. E. (A)
Parry, J. E. (M)

Cape Charles (VIR-3)
Brehm, C. M. (M)

Charlottesville (VIR-3)
Albee, R. B. (M)
Anderson, R. V. (M)
Ankney, S. M. (M)
Archbold, K. (M)
Arthur, R. J. (M)
Ballard, L. L. (M)
Blankenship, H. T. (M)
Blows, L. T. (M)
Bossieux, E. V., Jr. (M)
Brown, B. T., Jr. (M)
Burford, A. J. (M)
Butcher, R. B. (M)
Clevenger, J. E. (M)
Coburn, W. L. (M)
Deaner, H. W. (M)
Denman, E. (M)
Elmore, W. A. (M)
Evans, W. V., Jr. (M)
Flanigan, C. W. (SM)
Fisher, G. E. (M)
Fleming, R. F., Jr. (M)
Fosque, H. S. (M)
Fuller, H. P., Jr. (M)
Given, R. A. (M)
Grymes, J. R., Jr. (M)
Harris, O. R. (SM)
Harvey, G. L. (SM)
Hawranek, J. P. (M)
Haynes, K. L. (M)
Head, N. M., Jr. (M)
Hedrick, R. L. (M)
Hermansdorfer, J. E. (M)
Herrell, R. W. (M)
Humphris, R. R. (M)
Jones, G. D., Jr. (M)
Landes, H. S. (M)
Lassetter, W. L. (M)
Manning, J. D. (M)
Melnik, R. P. (M)
Moss, F. E. (M)
Purnell, L. S. (SM)
Quarles, L. R. (F)
Racey, R. M., Jr. (M)
Ramey, R. L. (SM)
Redfield, D. D. (M)
Roberts, J. M. (SM)
Roberts, W. W. (SM)
Rockett, F. H., Jr. (SM)
Russell, R. E. (M)
Siegel, C. M. (M)
Stavitski, L. X. (M)
Swygert, W. E., Jr. (M)
Teague, D. L. (M)

Frisby, W. L. (M)
Hill, R. W. (M)
Irwin, R. W., Jr. (A)
Leonard, C. E. (M)
Martin, S. T. (SM)
Sichel, F. J. M. (SM)
Tierney, J. W. (M)

Charlotte (B-NV-1)
Parlas, J. L. (SM)

Essex Junction (B-NV-1)
Beauregard, L. P. (A)
Faunce, N. J. (M)
Hogel, A. (M)
La Porte, G. L. (M)
Marcotte, R. A. (M)
Wyckoff, S. H. (M)

Jericho (B-NV-1)
Snowman, L. R. (M)

Montpelier (B-NV-1)
Neill, R. W. (A)

Northfield (B-NV-1)
Marsh, R. F. (SM)
Seal, P. M. (SM)
Webb, M. L. (M)

Rutland (BOS-1)
Church, H. V. (M)

St. Albans (B-NV-1)
Wright, H. E. (M)

Saxtons River (B-NV-1)
Robinson, D. (M)

Shelburne (B-NV-1)
Bundy, L. M. (M)

South Burlington (B-NV-1)
Dudevoir, W. G. (M)
Wheatley, D. M. (M)

South Woodstock (BOS-1)
Garceau, L. (SM)

Springfield (BOS-1)
Churchill, D. W. (M)
Gallup, G. B. (A)
Power, D. W. (M)
Ranney, A. F. (A)
Smith, A. E. (M)

Waterbury (B-NV-1)
Chase, W. C. (M)

Weston (BOS-1)
Boothby, L. W. (M)

Winooski (B-NV-1)
Hurd, J. M. (A)

VIRGINIA

Abingdon (VIR-3)
Krusberg, R. J. (M)

Alexandria (W-DC-3)
Alex, D. G. (M)
Alrick, R. D. (M)
Andrus, A. M. (M)
Antesberger, E. A. (A)
Ashenden, G. K., Jr. (M)
Ashley, D. S. (M)
Baechtold, R. D. (M)
Bailey, S. L. (F)
Ballard, J. L. (A)
Balwanz, W. W. (SM)
Bargh, P. F. (M)
Bates, J. F. (SM)
Bauer, R. E. (M)
Bawer, R. (SM)
Beers, R. F. (SM)
Beresford, H. E. (M)
Besancon, M. (SM)
Bickford, F. H., Jr. (A)
Blackburn, E. E. (M)
Blouch, D. H. (M)
Boland, A. F. (SM)
Boone, W. H. (SM)
Bowman, W. B. (A)
Briskman, R. D. (M)
Brooks, R. E. (A)
Busby, E. S., Jr. (M)
Carroll, L. O. (A)
Carson, J. O., Jr. (M)
Carterette, A. A., Jr. (SM)
Coleman, H. P. (M)
Collins, W. H. (M)
Colton, R. B. (F)
Coven, A. W. (SM)
Currin, R. A. (A)
Curry, A. R. (M)
Darcey, R. J. (M)
Davis, H. (F)
De Souza, D. A. (A)
Disenhaus, N. (SM)
Dressin, S. A. (M)
Dudley, D. D. (M)
Eckhardt, D. C. (M)
Eggleston, R. M. (M)
Ellsworth, R. T., Jr. (A)
Evans, J. P. (M)
Favret, A. G. (SM)
Firth, E. E. (SM)
Foreman, C. W. (SM)

Ballard, F. (M)
Balls, DeM. (M)
Barnes, F. N. (M)
Bray, G. L. (M)
Card, J. B. (M)
Carman, F. C. (M)
Carpenter, B. R. (M)
Christiansen, R. J. (M)
Clayton, V. E. (SM)
Conway, J. F., Jr. (M)
Cox, R. T. (M)
Cozzens, W. D'O. (M)
Dalley, J. E. (M)
Davis, T. D. (M)
Diehl, C. E. (M)
Fein, H. (M)
Ferre, R. C. (M)
Fisher, I. N. (M)
Folland, D. F. (SM)
Franevsky, M. (M)
Gates, F. Y. (M)
Gehmlich, D. K. (M)
Glantz, R. H. (A)
Green, D. J. (M)
Griffith, R. A. (M)
Grover, R. C. (M)
Grow, R. W. (SM)
Gulliford, J. R. (M)
Gunderson, A. L. (M)
Hall, J. E. (A)
Hanking, J. R. (M)
Harper, R. B. (M)
Harris, L. D. (SM)
Haycock, O. C. (SM)
Hayes, M. M. (M)
Heine, W. (M)
Hemsley, A. L. (M)
Higginson, T. W. (M)
Hilleary, H. W. (M)
Hing, K. T. L. (M)
Hoggan, M. J. (A)
Holihan, J. W. (M)
Hooper, J. S. (M)
Hottmann, R. H. (M)
Howell, N. E. (M)
Hubbard, J. J. (A)
Hunt, M. J. (M)
Hutton, L. G. (M)
Jessen, E. C. (M)
Johnson, C. C. (M)
Johnson, D. K. (M)
Johnson, W. L. (M)
Jones, A. S. (M)
Kalt, C. G. (M)
Kartchner, E. M. (M)
Katz, L. (M)
Kerr, W. B. (M)
Kumpfer, B. D. (SM)
Larsen, R. R. (A)
Leins, F. R. (M)
Longson, F. W. (M)
Mathews, A. C. (M)
Meyer, H. E., Jr. (M)
Meyer, K. G. (M)
Miller, D. (M)
Murphy, L. C. (M)
Myberg, J. E. (M)
Nicholes, G. H. (M)
Nielsen, R. D. (M)
Orr, M. W. (M)
Pedersen, K. A. (M)
Plete, G. H. (M)
Pound, E. F. (A)
Powers, J. T. (M)
Price, E. G. (M)
Redd, H. J. (M)
Robinson, W. H. (A)
Shaffer, M. R., Jr. (M)
Sines, G. E. (M)
Smart, M. J. (M)
Stimson, E. C., Jr. (M)
Thurber, L. R. (M)
Trinnaman, R. R. (A)
Tumblom, C. H. (M)
Vodak, A. W. (M)
Wagner, L. W. (M)
Warner, H. R. (A)
Watson, D. R. (M)
Wells, K. R. (M)
Wright, J. W. (F)

Sandy (SLC-7)
Atwood, K. W. (M)
Mitchell, L. K. (M)
Noffsinger, D. T. (A)
Skinner, R. L. (M)

Spanish Fork (SLC-7)
Hone, S. J. (M)

Tooele (SLC-7)
Ledford, W. L. (M)

Woods Cross (SLC-7)
Anderson, I. E. (M)
Urry, L. W. (M)

VERMONT

Bennington (BOS-1)
Engel, F. H. (SM)
Osgood, D. W. (M)
Peterson, R. C. (M)
Wagner, R. C. (M)

Brandon (BOS-1)
Scoskie, A. T. (A)

Burlington (B-NV-1)
Cloutier, M. P. (A)
Costigan, W. J. (M)
Davis, A. J. (M)
Eckels, A. R. (SM)

UTAH

Bountiful (SLC-7)
Anderton, C. W. (M)
Barneck, C. A. (A)
Bell, W. D. (M)
Cox, D. D. (M)
Crockett, I. L. (M)
Douglas, S. B. (M)
Fisher, C. E. (M)
Gray, C. S. (SM)
Hoffman, R. L. (M)
Moss, S. D. (M)
Nielsen, L. M. (M)
Ogden, K. L. (M)
Prisbrey, D. (A)
Reidel, R. L. (M)
Richardson, F. L. (M)
Strosnider, J. W. (M)
Willhard, W. J. (M)
Wilson, D. E. (M)
Wold, J. E. (M)

Brigham City (SLC-7)
Chiaretta, F. L. (M)
Gardner, T. W. (M)
Jensen, R. W. (M)
Jensen, S. D. (M)
Shortt, W. A., Jr. (M)

Centerville (SLC-7)
Quayle, R. J. (M)

Clearfield (SLC-7)
Brewer, L. R. (M)
Kartchner, K. A. (M)
Krajcovic, C. (A)

Hill AFB (SLC-7)
Barcelo, W. R. (M)

Hyrum (SLC-7)
Atkinson, A. L., D. (M)
Brown, F. R. (M)

Kaysville (SLC-7)
Kishimoto, T. H. (M)
Strong, R. W. (M)

Kearns (SLC-7)
Glover, K. H. (M)

Layton (SLC-7)
Loomis, F. E. (A)

Lehi (SLC-7)
Wing, G. J. (M)

Logan (SLC-7)
Brownell, F. P., Jr. (M)
Butt, N. C. (M)
Chadwick, D. G. (M)
Clark, C. (SM)
Cole, L. S. (SM)
Flnchum, W. A. (M)
Heybome, R. L. (M)
Horsley, G. S. (M)
Jones, W. L. (SM)
Rex, J. D. (M)
Wyatt, C. L. (M)

Magna (SLC-7)
Nuttall, W. D. (M)

Midvale (SLC-7)
Giorgio, F. (M)

Moab (SLC-7)
Widows, C. H. (A)

Murray (SLC-7)
Burgess, E. W. (M)
Graham, J. H. (M)
Hermansen, C. D. (M)
Judkins, C. D. (M)
Patterson, C. L., III (M)
Tew, D. E. (M)

North Salt Lake (SLC-7)
Davidson, B. G. (M)

Odgen (SLC-7)
Bean, R. C. (M)
Bergen, R. S. (M)
Lee, G. F. (M)
McMahon, W. D. (SM)
Rudd, F. S. (M)
Swientonlewski, E. J. (M)
Urie, H. G. (M)
Wardleigh, G. R. (M)

Provo (SLC-7)
Bartholomew, D. (M)
Monson, D. J. (M)
Parent, V. F. (M)
Woodbury, R. C. (M)

Roy (SLC-7)
Arrington, A. C. (M)
Billings, R. G. (M)
Hansen, Q. P. (M)

Salt Lake City (SLC-7)
Ahearn, J. M. (M)
Alley, C. L. (SM)
Anderson, D. K. (M)
Anderson, D. W. (M)
Anderson, J. E. (A)
Arbaney, V. A. (M)

Tolsch, I. H. (SM)
Towler, W. R. (M)
Updike, O. L., Jr. (M)
Voyt, G. A. (M)
Ward, J. W. (SM)
Welch, A. A. (M)
Westbury, T. J., Jr. (M)
White, E. J. (M)
Wright, P. W. (M)
Zentmeyer, J. E., Jr. (M)

Chester (VIR-3)
Joyner, C. H. (A)

Christiansburg (VIR-3)
Gordon, J. P. (M)

Clifton (W-DC-3)
Bowie, D. M. (M)
Carter, W. D. (M)
Clark, V. C. (SM)

Colonial Beach (VIR-3)
Poston, L. M., Jr. (M)

Crimora (VIR-3)
Bukoskey, R. M. (A)

Dahlgren (VIR-3)
Barnes, W. C. (M)
Gros, J. R. (M)
Manchee, R. W. (M)
Maxwell, M. S. (M)
Middlebrook, C. G. (M)
Olsen, R. T. (A)
Potter, R. R. (M)
Roble, C. W. (A)
Ryland, R. T., Jr. (M)
Shelley, D. L., Jr. (M)
Shelton, C. T. (A)
Tharp, T. H. (M)

Danville (VIR-3)
Lea, H. D. (M)
Lea, R. H. (A)
Motley, L. C. (M)
Peay, W. W. (M)

Denbigh (VIR-3)
Gustafson, A. J., Jr. (M)
Mason, C. D. (M)
Morton, R. W. (M)
Pasley, E. W. (A)
Stubblefield, R. L. (A)

Dumfries (W-DC-3)
Pyle, H. D. (M)

Dunn Loring (W-DC-3)
Griffin, P. W. (M)

Ellerson (VIR-3)
Jones, W. L. (A)
Spratley, J. B. (M)

Fairfax (W-DC-3)
Ambrose, T. J. (M)
Andrews, M. B. (M)
Bergen, S. (SM)
Bonham, L. L. (M)
Bradford, H. K. (M)
Brooks, F. A., Jr. (M)
Cave, E. L. (M)
Christie, C. B. (M)
Clarke, W. H. B. (M)
Coss, W. L. (M)
Derey, C. H. (M)
Downing, J. P., Jr. (M)
Ellington, T. D. (M)
Fischer, R. L. (SM)
Gartske, F. J. (M)
Geria, J. S. (M)
Goldwag, H. (M)
Hall, H. (SM)
Hoffman, R. L. (M)
Hoffmann, G. E. (M)
Irby, R. F. (SM)
Irving, R. (M)
Jacobellis, B. R. (M)
James, J. E. (M)
Kings, L. (M)
Koopenhaver, J. T. (M)
Levine, S. (M)
Lowrey, G. R., Jr. (M)
Martin, W. C. (M)
Metzger, W. (M)
Milbrodt, P. E. (M)
Murray, J. T. (M)
Pettingill, S. A. (M)
Phillips, C. C. (M)
Pratt, D. E. (M)
Provost, R. J. (M)
Purple, W. C., Jr. (M)
Ragsdale, R. D. (M)
Ritt, P. E. (M)
Scanga, J. A. (M)
Sharp, D. W. (SM)
Srygley, O. C. (SM)
Szczebak, E. J. (M)
Thompson, H. H. (A)
Thornwall, J. C. (M)
Tompas, R. P. (M)
Volk, C. M. (M)
Williams, R. E. (SM)

Falls Church (W-DC-3)
Allen, D. A. (A)
Allen, E. W., Jr. (F)
Anderson, W. L. (M)
Andrew, R. T. (M)
Atwell, R. G. (M)
Bademian, L. (M)
Bailey, D. C. (M)
Ballard, A. H. (SM)
Barbeau, A. R. (M)
Bartlett, G. W. (SM)
Baylor, W. R. (A)
Beveridge, H. N. (SM)
Bierach, K. F., Jr. (M)
Billheimer, C. R. (M)
Bodenhamer, R. B. (M)
Boland, C. E. (A)
Bolser, F. C. (SM)
Bowers, A. W. (M)
Brady, R. F. (SM)
Brandt, E. W., Jr., (A)
Broden, B. W. (M)
Brown, E. W., Jr. (M)
Brown, H. B. (M)
Brown, L. (M)
Brownfield, L. B. (M)
Buddenhagen, C. G. (M)
Burch, R. R. (M)
Caballero, J., Jr. (M)
Clarkson, T. (M)
Cleckner, D. C. (SM)
Colby, P. R. (SM)
Cole, R. I. (F)
Crenshaw, A. N., Jr. (M)
Davis, C. B. (SM)
Davis, F. E. (A)
Davis, J. N. (M)
Dawson, H. E. (A)
Dent, J. R. (M)
Detrick, D. M. (M)
Dettra, J. E., Jr. (M)
Dickinson, W. T. (M)
Diehl, E. J. (SM)
Dowling, K. T. (M)
Driese, E. C. (M)
Duda, A. M. (A)
Dulin, W. E. (M)
Dytrt, L. F. (M)
Edmonds, A. H., Jr. (A)
Ellis, R. E. (SM)
Emery, R. H. (SM)
Erdle, F. E. (M)
Ernst, A. A. (M)
Etter, W. A. (M)
Fama, C. S. (M)
Farago, J., Jr. (A)
Faux, W. H. (M)
Fawcett, K. J., Jr. (M)
Frederick, E. W. (SM)
Frey, S. W. (A)
Friedlander, A. T. (M)
Fuhr, W. H. (M)
Gennon, C. L. (M)
Glen, G. E. (M)
Goldin, M. (SM)
Gootee, T. E. (SM)
Gordon, H. L. (M)
Greer, J. W. (SM)
Groff, R. F. (A)
Guhne, R. D. (M)
Gutcheon, W. Y. (M)
Hagaman, B. G. (SM)
Halpern, P. H. (M)
Hamon, W. R., Jr. (M)
Haskins, R. L. (SM)
Hawkins, H. D. (M)
Heffernan, H. J. (A)
Helfron, W. G., Jr. (SM)
Henry, R. L., Jr. (M)
Hensell, R. L. (M)
Hill, R. T. (M)
Hixon, J. D. (M)
Hohos, J. A. (A)
Holbert, W. G. (M)
Hoopes, R. D. (A)
Horne, C. P. (M)
Hudson, H. K. (SM)
Huebner, D. A. (M)
Hundley, D. T. (M)
Jahoda, J. R. (SM)
James, W. G. (SM)
Janow, C. (A)
Johnson, L. R. (M)
Johnson, W. R. (M)
Johnston, W. H. (M)
Jones, S. R. (M)
Kindell, F. E. (M)
Knight, C. R. (SM)
Knutson, H. C. (M)
Kosloski, C. J. (A)
Kovski, J. J. (SM)
Krebs, R. O. (M)
Landfried, H. H. (M)
Leahy, C. J. (SM)
Lenert, R. W. (M)
Leopold, J. M. (A)
Lerner, L. (M)
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Logan, B. A., Jr. (M)
Maestri, A., Jr. (M)
Marangoni, J. G. (M)
Marcey, J. M., Jr. (M)
Marshall, E. L. (M)
Masters, R. W. (SM)
Masterson, J. T. (M)
Mathewes, J. K. (M)
Maton, G. L. (M)
Maxwell, W. P. (A)
May, C. D., Jr. (M)
McComber, C. A. (A)
McDowell, R. B. (SM)
McGill, J. A., Jr. (A)
McIntyre, R. T. (M)
McLean, J. W. (SM)
McMahon, J. H. (M)
McNamara, J. E. (M)
Mead, O. J., Jr. (SM)
Meara, V. T. (M)
Meloy, T. (SM)
Merchant, R. S. (M)
Mileson, D. F. (M)
Miller, R. E. (M)
Mitchell, J. H., Jr. (M)
Montague, N. C. (M)
Morriss, B. E. (M)
Morrow, C. W. (SM)
Munkasey, P. F. (M)
Myers, W. D. (A)
Nickell, R. S. (M)
Noble, L. V. (M)
North, W. L. (SM)
Parker, C. F., Jr. (SM)
Phelps, R., Jr. (A)
Plank, P. E. (M)
Proferes, N. J. (A)
Pullara, J. C. (M)
Quigley, H. D. (A)
Randall, H. (SM)
Ratliff, T. D. (M)
Renton, R. J. (M)
Rogers, W. H., Jr. (M)
Rowland, E. T. (M)
Rumble, A. R. (SM)
Rusche, C. L. H. (A)
Salford, L. F. (SM)
Sanders, N. D. (M)
Savarese, R. T. (A)
Scott, R. M. (SM)
Scott, S. R. (SM)
Shearer, H. W. (M)
Steber, H. F., Jr. (M)
Simoson, T. L. (M)
Sjoholm, E. M. (A)
Skrivseth, A. G. (SM)
Smith, B. D., Jr. (M)
Sobol, E. J. (A)
Sotak, J. W. (A)
Stevens, R. L. (A)
Stiles, R. G. (SM)
Strother, R. E. (M)
Stuermer, E. H. (SM)
Svedlow, D. (M)
Teare, E. H., Jr. (M)
Thrasher, P. M., Jr. (M)
Turf, L. (A)
Ubelhor, J. A. (M)
Uffelman, M. R. (M)
Vandivere, E. F., Jr. (M)
Vignali, J. A. (M)
Von Dohlen, H. W. (M)
Walker, L. F. (SM)
Ward, H. T., Jr. (M)
Webb, B. S. (M)
Weld, A. C. (M)
Whiteman, S. E. (A)
Whiting, W. K. (M)
Wickenkamp, F. W. (M)
Wilcox, H. E. (M)
Williams, J. H., Jr. (A)
Winter, R. E. (M)
Wright, C. M. (A)
Young, A. H. (M)
Young, R. C. (SM)

Fort Belvoir (W-DC-3)
Boennighausen, T. L. (M)
Daniels, W. H. (M)
Tinker, G. W. (M)

Fort Lee (VIR-3)
Dora, G. I., Jr. (A)
Hasker, L. (M)

Fredericksburg (VIR-3)
Brooks, F. E. (M)
Kuberry, R. W. (M)
Smith, J. G. (A)

Gainesville (W-DC-3)
Sedman, T. M. (A)

Great Falls (VIR-3)
Bugg, J. E. (SM)
Cooke, N. M. (SM)
Singer, C. H. (SM)

Hamilton (W-DC-3)
Gessner, R. J. (A)

Hampden-Sydney (W-DC-3)
Joyner, W. T., Jr. (M)

Hampton (VIR-3)
Anastos, S. (M)
Beckman, D. A. (M)
Boyer, W. J. (M)
Broome, D. R., Jr. (M)
Burton, W. G., Jr. (M)
Chapman, J. W. (M)
Chicoine, E. L. (M)
Cootes, J. G. (M)
Croswell, W. F. (M)
Dial, E. W. (M)
Faust, R. P. (M)
Green, C. H., Jr. (M)
Hardesty, C. A. (M)
Hastings, C. E. (F)
Hatfield, J. J. (M)
Holley, H. G., Jr. (M)
Holup, A. C. (M)
Howell, J. E., Jr. (M)
Kendall, B. M. (M)
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King, W. C., Jr. (A)
McDonough, J. J. (M)
Ohnesorge, T. E. (M)
Russell, J. A., Jr. (M)
Sachen, R. J. (M)
Seaford, R. P. (M)
Small, J. W., Jr. (M)
Smith, S. B. (M)
Stanwood, R. K. (M)
Stermer, R. L., Jr. (M)
Tiller, J. L., Jr. (M)
Tomberlin, J. L. (M)
Toy, D. H. (M)
Vavra, P. H. (M)
Wells, W. B. (M)
Winiger, A. G. (M)

Harrisonburg (VIR-3)
Braun, W. L. (SM)
Foley, J. M. (M)
Jackson, R. C. (M)
Jones, T. B., Jr. (M)

Herndon (W-DC-3)
Horn, H. J. (M)
Stone, W. M. (M)

Index (VIR-3)
Dennison, W. A. (M)

King George (VIR-3)
Payne, J. N. (M)

Langley AFB (VIR-3)
Bobola, R. E. (M)
Cotterman, J. D. (M)
Germann, E. F., Jr. (M)
Joyce, R. E. (A)
Leonard, W. F. (M)
Lippitt, M. W., Jr. (M)
Youngbluth, O., Jr. (M)

Leesburg (W-DC-3)
Alberts, W. S. (SM)
Burns, R. R. (M)
Carr, L. H. (M)
Detwiler, W. S., Jr. (M)
Lay, L. L. (M)
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Lexington (VIR-3)
Kwei, M. W. (M)

Lorton (W-DC-3)
Korb, A. (SM)

Lynchburg (VIR-3)
Andrus, O. F. N. (M)
Ball, R. M. (M)
Banyasz, B. A. (M)
Barnes, J. M. (M)
Blackburn, W. J. (M)
Bolton, F. R. (M)
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Buesing, R. T. (SM)
Bunday, D. L. (SM)
Bunger, J. W. (M)
Cardwell, B. B., Jr. (M)
Ceelen, P. A. J. (M)
Chaney, W. G. (SM)
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Cisler, M. C. (SM)
Clement, R. R. (M)
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Corbell, I. T., Jr. (SM)
Cox, J. L. (M)
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Dalton, W. D. (M)
Davids, H. (SM)
Demiris, G. M. (M)
Dixon, R. P. (M)
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Friedlein, J. G. (M)
Gallion, W. L. (M)
Giesselman, A. C. (SM)
Gifford, R. P. (M)
Gordon, R. T. (M)
Hannell, F. D. (M)
Hassel, E. W. (M)
Hawks, J. D. (M)
Hopkins, F. L. (SM)
Hudson, A. G. (M)
Jenkins, D. C. (M)
Johnson, M. E. (A)
Kenefake, E. W. (SM)
Kerker, R. (M)
Kious, G. A. (M)
Kluender, E. C. (SM)
Laitinen, W. R. (M)
Latker, A. C. (M)
Linker, J. B., Jr. (SM)
Lippard, J. H., Jr. (M)
Luh, J. E. (M)
Mark, R. C. (M)
Maynard, W. H. (A)
McCants, D. G. (M)
McCormick, J. A. (M)
McGee, A. A., Jr. (M)
McKee, T. A. (M)
Miller, H. J. (M)
Minichiello, R. (M)
Myers, R. T. (M)
Orth, J. T. (M)
Peifer, W. A. (A)
Peppiatt, H. J. (M)
Phillips, J. M., Jr. (M)
Pickett, R. T., III (M)
Pinkerton, D. C. (SM)
Pitzer, H. B., Jr. (M)
Poope, J. R. (M)
Portz, H. G. (M)
Powell, R. A. (A)
Pree, W. G. (SM)
Pressly, W. H., Jr. (M)
Ray, K. P. (M)
Rice, N. O. (M)
Roberts, D. M. (M)
Rose, G. D., Jr. (M)
Rothrock, T. H., Jr. (M)
Sain, W. C. (M)
Sanger, R. B. (A)
Schwan, A., Jr. (M)
Seamon, W. R. (M)
Shepherd, N. H. (SM)
Sherman, J. H., Jr. (M)
Smee, P. G. (SM)
Smith, J. (M)
Smith, J. S. (SM)
Smith, J. S., Jr. (M)
Smymos, G. J. (M)
Street, D. S. (M)
Strong, M. E. (M)
Svitek, G. A. (M)
Thomas, H. P. (F)
Tucker, A. A., Jr. (M)
Vadasz, A. J. (SM)
Van Aken, H., Jr. (A)
Vander Does, A. S. (M)
Wick, R. S. (M)
Wild, A. F. (A)
Williamson, R. H. (F)
Worthen, K. J. (SM)
Wrasman, P. A. (M)
Yeh, W. (M)

Lyndhurst (VIR-3)
McDonnell, R. L. (M)

Lynnhaven (VIR-3)
Eller, J. E., Jr. (SM)
Stoddert, T. M. (M)
Zaluski, J. P. (M)

Manassas (W-DC-3)
Becker, W. J. (A)
Westfall, W. L. (M)

Manassas Park (VIR-3)
Baxter, D. D. (M)

Marion (VIR-3)
Burner, L. C. (M)
Crispin, H. L. (M)
Meek, J. S. (M)

Marshall (W-DC-3)
Lencho, R. J. (M)

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Martin, J. D., Jr. (M)

McLean (W-DC-3)
Ankers, R. E., Jr. (M)
Bateman, R. (F)
Behme, A. E. (M)
Bell, W. S. (A)
Bouchey, S. H. (M)
Brown, D. H. (M)
Butler, J. E. (M)
Byrne, P. H. (A)
Came, E. B. (A)
Child, A. A. (A)
Collins, M. F. (SM)
Covell, W. G. (M)
Curtz, J. (M)
Davis, E. D. (A)
Dawson, J. B. (M)
Dean, W., Jr. (M)
Dee, H. E. (A)
De Hart, R. N. (M)
Dyke, E. (SM)
Ferry, R. N. (M)
Hall, R. W. (A)
Harding, K. C. (SM)
Heckel, R. D. (M)
Juncker, J. R. (M)
Levandosky, N. R. (M)
Martin, M. M. (M)
McCutchen, S. P., Jr. (SM)
Preston, W. L. (M)
Rogers, A. W. (F)
Rogers, G. J. (M)
Roll, J. L. (A)
Schuette, W. H. (M)
Seewald, E. C. (M)
Shoemaker, R. F. (A)
Smith, A. E. (SM)
Smith, J. M. (M)
Smoot, W. S., III (M)
Stokes, H. S. (SM)
Stotler, H. J. (M)
Strauss, R. (SM)
Sunde, D. H. (A)
Trenaman, J. I. (SM)
Tucker, G. L. (M)
Turnipseed, T. E. (M)
Vest, C. R. (M)
West, J. P. (SM)
Williams, B. D., Jr. (M)

Midlothian (VIR-3)
Sturm, F. L. (A)

Mount Holly (VIR-3)
Page, D. W. (M)

Mount Sidney (VIR-3)
Cain, M. F. (M)

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Phillips, M. L. (SM)

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Babcock, D. W. (A)
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Bjerke, J. O. (M)
Campbell, W. A. (M)
Franz, J. P., Jr. (M)
Fuhrmeister, P. F. (M)
Harkavy, V. M. (SM)
Harrington, R. F. (M)
Hatmaker, D. B. (M)
Howell, W. E. (M)
Hunter, W. W., Jr. (M)
Jackson, J. C. (M)
Jones, R. F. (M)
Krasnican, M. J. (M)
Leopold, L. (M)
McCreary, H. D. (M)
Ross, K. L. (M)
Shultz, L. R. (M)
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Thomas, H. C. (M)
Tunnell, W. A. (M)

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Bailey, A. B. (M)
Beck, F. E., Jr. (M)
Bein, G. E. (M)
Blagg, R. L. (M)
Burckhard, J. (A)
Butler, K. L. (M)
Calhoun, B. F. (M)
Christian, O. R. (M)
Clarke, W. E. (M)
Cole, P. P. (M)
Colmar, P. V. (SM)
Council, J. W. (M)
Cowie, D. G. (M)
Crabtreee, B. W. (M)
Crawford, J. K. (M)
Dame, A. M. (M)
Davis, E. E. (M)
Dean, K. B. (M)
De Jarnette, H. M. (M)
Dryer, H. M. (M)
Evernham, J. L. (M)
Foster, L. H. (M)
Geary, J. T. (M)
Graham, D. A. (M)
Hamilton, G. H. (SM)
Jennings, J. L. (A)
Jensen, P. A., Jr. (M)
Judson, J. F. (M)
Kasemkin, F. S. (M)
Keast, P. M. (M)
Kelly, W. J. (A)
King, S. O. (A)
Koontz, C. E. (M)
Lawless, J. H. (M)
Lindell, R. L. (M)
Logue, H. L., Jr. (M)
Mackie, R. D. (M)
Martin, W. P. (M)
Medley, R. C. (A)
Melzer, J. D. (M)
Moore, J. B., Jr. (A)
Myers, C. C., Jr. (M)
Negron, D., Jr. (M)
Ochseltree, S. L. (M)
Pasciuti, R. A. (M)
Paterson, R. C. (A)
Peffer, J. C. (SM)
Pegues, J. K. (SM)
Reiher, E. J. (M)
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Roman, R. (A)
Selby, D. F. (M)
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Sutherland, W. R. (M)
Tache, W. N. (M)
Thayer, W. D. (M)
Thompson, L. H. (A)
Thornton, P. J. (M)
Trahadias, P. N. (A)
Vam, S. P., Jr. (A)
Waters, T. F. (A)
Wilson, R. V., Jr. (M)

North Springfield (W-DC-3)
Anderson, R. J. (M)
Baxter, W. D. (M)
Brabant, C. E. (A)
Fine, F. (M)
Hill, R. B. (A)
Schumann, A. W. (M)
Sheldon, R. E. (M)
Shelton, J. P., Jr. (M)
Steil, J. P. (A)
Walker, S. B. (M)

Onancock (VIR-3)
Scott, D. L. (M)

Petersburg (VIR-3)
Clementa, J. R. (A)
Phoebus (VIR-3)
Cooper, W. N. (A)

Poquoson (VIR-3)
Burlock, J. (M)

Portsmouth (VIR-3)
Bell, J. S., Jr. (SM)
Cox, J. C. (M)
Crowson, R. D. (M)
Hoffman, G. R. (M)
Hopewell, H. L., Jr. (M)
Howerton, D. J. (M)
Jackson, A. M., Jr. (M)
Jenkins, R. G. (M)
Norcom, G. J. (M)
O'Connell, J. V. (A)
Shepherd, J. F. (M)
Sperry, G. T. (SM)
Williamson, D. E. (M)
Williamson, S. R. (M)

Purcellville (W-DC-3)
Ragsdale, M. M. (A)

Quantico (W-DC-3)
Carr, J. B., Jr. (M)
Ceniceros, J. (A)
Kyle, D. N. (M)

Quinton (VIR-3)
Black, J. H. (A)

Radford (VIR-3)
Wampler, E. L. (M)

Remington (W-DC-3)
Chilton, C. B. (M)

Richmond (VIR-3)
Bailey, R. C. (SM)
Batte, R. B. (M)
Broaddus, A. G., Jr. (A)
Canup, R. E. (SM)
Conte, T. M. (SM)
Cummings, R. F. (A)
De Ved, G. R. (M)
Golding, R. M. (A)
Gregory, C. A., Jr. (M)
Haun, J., Jr. (A)
Helms, J. M. (A)
Hobbs, W. E. (M)
Kyle, J. W. (M)
Lee, W. M. (M)
Martin, S. E. (A)
McArthur, C. S. (SM)
McKenney, M. S. (M)
Miller, A. G. (M)
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Neal, W. P., Jr. (A)
Nine, J. A. (M)
Peckens, D. F. (M)
Pettus, W. W., IV (M)
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Slough, C. M. (A)
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Thorpe, R. A. (M)
Toms, E. C. (M)
Vellines, W. E., Jr. (M)
Wilson, R. C., Jr. (M)
Wolfe, I. P. (A)
Woods, D. C. (M)
Yowell, J. M., Jr. (M)

Roanoke (VIR-3)
Branscom, G. A. (M)
Briggs, J. P. (A)
Crickenberger, D. T. (M)
Gillock, G. M. (M)
Guill, G. M., Jr. (A)
Johnson, H. L. (A)
Malloy, J. J. (M)
Oelsby, J. D. (SM)
Simpson, K. R. (M)
Thomas, J. E. D. (M)
Warden, J. B., Jr. (M)

Salem (VIR-3)
Bailey, F. M. (SM)
Hansen, J. A. (M)

Sandston (VIR-3)
Anderson, R. E. (A)
Rowand, G. E. (M)

Scottsville (VIR-3)
Whiteside, F. S. (A)

Snowville (VIR-3)
Collins, D. R. (M)
Gilkey, J. Y. (M)

Springfield (W-DC-3)
Adkisson, G. O. (M)
Alderson, W. S. (SM)
Baird, L. I. (M)
Bass, D. A. (M)
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Bell, W. E. (M)
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Devereaux, W. J. (M)
Facchine, F. B. (M)
Gale, M. (M)
Garner, W. G. (M)
Guy, L. S. (M)
Healy, M. J. (A)
Hocking, L. J. (M)
Isbell, C. E. (M)
Jaynes, F. H. (A)
Jennette, J. E., Jr. (M)
Johnston, E. C. (M)
Jones, R. C. (SM)
Keys, C. A. (A)
Linsey, E. M. (M)
Lynch, D. W. (M)
Mathews, W. C. (M)
Mayman, J. J. (A)
McAndrews, F. C. (SM)
McCaslin, L. B., Jr. (M)
McCown, J. R. (M)
Miller, J. H. (M)
Olsen, P. F. (M)
Parker, C. R. (A)
Pascola, A. N. (M)
Peake, F. E., Jr. (M)
Peeler, G. D. M. (M)
Probert, L. J. (A)
Pruitt, J. A. (M)
Reedy, T. M. (M)
Reese, M. R., Jr. (M)
Rose, J. (M)
Rudoloh, L. R. (M)
Shalaz, W. C. (SM)
Shinn, L. A. (M)
Smith, S. T. (SM)
Smith, T. H. (A)
Spencer, C. L. (M)
Spitz, D. C. (M)
Trott, J. E., Jr. (M)
Tucker, W. J., Jr. (M)
Walter, W. P. (A)
Wardrip, S. C. (M)
Wheinston, R. L. (M)
Wisniewski, L. R. (A)
Witherow, J. A. (M)
Wright, C. S. (SM)

Sterling (W-DC-3)
Burlingame, C. W. (M)
Richardson, R. M. (SM)

Suffolk (VIR-3)
Bangley, J. H., Jr. (A)

Tazewell (VIR-3)
Hill, J. T. (A)

Triangle (W-DC-3)
Smith, C. M. (A)

Upperville (W-DC-3)
Browne, L. B. (M)

Vienna (W-DC-3)
Aceto, L. J. (A)
Bird, G. T. (SM)
Brantly, R. S., Jr. (M)
Butcher, D. F. (M)
Carrick, R. L. (M)
Cole, B. M. (SM)
Compton, A. R. (M)
Csiszar, A. (M)
Cuthbertson, R. D. (M)
Dougherty, L. C. (M)
Dausend, J. P. (M)
Eskinzes, J. G. (A)
Fairchild, J. J., Jr. (M)
Falcone, J. (M)
Feineman, G. (M)
Gall, R. G. (M)
Gibbs, D. R. (M)
Gray, W. A. (SM)
Gumina, L. V. (A)
Hall, J. R. (M)
Hausfeld, J. R. (M)
Hedger, R., Jr. (A)
Karalow, G. T. (A)
McDonald, K. D. (M)
Meisinger, H. P. (SM)
Miller, H. J. (M)
Minor, R. E. (A)
Myers, R. F. (M)
Nye, J. W. (M)
Oliverson, M. (A)
Peterson, C. F. (M)
Poulter, H. M. (M)
Ravinsky, J. (A)
Schmid, P. E., Jr. (A)
Shaffer, L. R., Jr. (M)
Shanahan, J. C. (M)
Shumaker, J. L. (SM)
Smith, W. M. (SM)
Tumage, H. C. (M)
Tuttle, L. P., Jr. (M)
Webb, P. L. (M)
Wimmer, P. L. (M)
Wolfe, J. J. (A)

Virginia Beach (VIR-3)
Corkran, R. L., Jr. (M)
Du Val, C. N. (M)
Fadeley, J. H. (A)
Hickey, H. V. (M)
Kulpinski, R. J. (M)
Mikulski, S. S. (M)
Torello, A. P. (M)

Wallops Island (VIR-3)
Gray, J. W. (M)
Olander, E. E. (M)

Ware Neck (VIR-3)
Lawrence, H. M. (SM)

Warrenton (W-DC-3)
Gundy, G. L. (A)
Maloney, J. P. (M)
Williams, J. S. (M)
Woodside, C. S. (SM)
Young, T. M. (M)
Zura, E. A. (M)

Warwick (VIR-3)
Brummer, E. A. (M)
Comstock, A. L. (M)
McFall, C. H., Jr. (M)
Sawyer, R. S. (M)

Waynesboro (VIR-3)
Antonoplos, P. A. (A)
Campbell, R. C. (M)
Clark, D. B. (M)
Cockrell, W. D. (SM)
Cooper, B. (M)
Duncan, W. L. (A)
Hansen, W. O. (M)
Hathcock, J. S., Jr. (M)
Langley, L. W. (M)
Lyda, G. S. (M)
Meyer, L. L. (M)
Pfeiffer, J. H., Jr. (M)
Rossi, A. J. (M)
Swann, C. H. (M)
Thuresson, R. G. (A)
Trimyer, R. E. (A)
Wilson, T. M. (M)

West Springfield (W-DC-3)
Bell, J. W. (A)

Williamsburg (VIR-3)
Harrell, E. E. (A)
Kyle, H. C. (M)

Winchester (VIR-3)
Baughman, D. L. (M)
Garrett, L. F. (A)
Grace, G. M. (M)
Whitney, P. B. (SM)

Woodbridge (W-DC-3)
Baldwin, J. R. (M)
Combs, D. D. (M)
De Rosa, G. D. (A)
Emmons, G. T. (A)
Jaloway, D. W. (M)
O'Connor, T. M. (A)
Weber, H. P. (A)

Yorktown (VIR-3)
Duran, A. E. (M)

WASHINGTON

Aldenwood Manor (SEA-7)
Fitzsimmons, G. W. (M)

Auburn (SEA-7)
Hixenbaugh, A. F. (M)
Huber, W. (SM)
Lidovitch, S. B. (M)
Rasmussen, F. A. (M)
Thrush, T. W. (M)
Westbo, L. A., Jr. (M)

Bainbridge Island (SEA-7)
McCarty, E. W. (M)
Waterman, H. B. (M)

Belfair (SEA-7)
Osborn, N., III (M)

Bellevue (SEA-7)
Albright, D. L. (M)
Ambrose, J. (M)
Anderson, C. F. W. (SM)
Asphoim, L. R. (M)
Ausec, R. C. (A)
Banks, R. B. (M)
Bateman, C. D. (M)
Beckenstein, M. (M)
Bennett, J. R. (A)
Benton, B. M. (SM)
Bethel, H. W. (M)
Birch, J. S. (M)
Black, J. C. (M)
Boys, J. A. (SM)
Bril, D. H. (M)
Bronder, R. T. (SM)
Burge, D. L. (M)
Burgh, A. J. (M)
Burnett, W. A. (M)
Bush, B. E., Jr. (A)
Carmody, W. F. (M)
Chaffey, D. K. (M)
Charters, R. L. (M)
Cockrill, M. S. (M)
Crane, W. K. (SM)
Dalby, T. G. (M)
Deity, W. H. (M)
Downing, G. (M)
Dye, D. L. (M)
Fairfield, H. R. (M)
Ferguson, R. C. (M)
Folsom, J. A. (A)
Fonda, K. A. (M)
Foster, J. H. (M)
Furst, U. R. (SM)
Gearn, G. R. (M)
Gellert, M. E. (M)
George, J. A. (M)
Gerry, M. E. (SM)
Goss, W. (M)
Hall, R. B. (M)
Hamilton, W. R. (M)
Harder, D. (M)
Herr, M. D. (M)
Hisamoto, R. M. (M)
Hule, W. (M)
Iversen, A. J. (M)
Jessup, D. G. (M)
Johnson, K. L. (M)
Jones, L. E. (SM)
Kearl, J. A. (A)
Kendall, E. L. (M)
King, B. G. (M)
Knight, W. H. (M)
Kuzeja, C. (M)
Lane, R. G. (M)
Langecker, H. G. F. (M)
Lerchenmueller, W. (M)
Letwin, A. (M)
Lewis, R. O., Jr. (M)
Little, F. A. (SM)
Lundberg, R. M. (M)
Matava, S. J. (M)
McCarley, H. H. (SM)
Mendel, F. S. (M)
Metter, R. E. (M)
Montgomery, R. A. (M)
Noland, L. J. (M)
O'Hara, R. N. (M)
Olsson, E. A. (M)
Pigott, W. H. (M)
Plitz, F. (A)
Popovich, B. (SM)
Prindle, R. H. (M)
Robinson, R. B. (SM)
Rosenkranz, C. A. (A)
Rubendall, K. W. (M)
Shomer, J. E. (M)
Short, L. E. (M)
Smith, C. R. (SM)
Spencer, K. E. (M)
Stapleton, E. R. (M)
Steam, E. A. (M)
Stradling, D. G. (M)
Sullivan, J. K. (M)
Thompson, A. G. (M)
Thorpe, J. N. (M)
Turko, D. A. (M)
Unwin, A. M. (M)
Weimer, J. W. (M)
Westburg, V. B. (M)
Whipple, M. M. (M)
Wright, W. E. (M)
Zelencik, S. J. (M)

Bellingham (SEA-7)
Harper, E. E. (M)
Price, J. W. (M)

Bothell (SEA-7)
Beers, W. D. (A)
Curtis, W. L. (M)
Rama, L. C. (M)
Vermilion, E. E. (M)

Bremerton (SEA-7)
Funderburk, D. G. (M)
Gruwell, F. N. (M)
Helmark, H. A. (A)
Lyngstad, E. O. (M)
Mason, J. E. (M)
Pitts, H. L. (SM)
Rene, M. F. (M)
Richman, J. L. (M)
Roberts, M. E. (A)
Tetrick, C. J. (M)
Thorne, C. M. (M)
Tufts, W. F. (M)

College Place (SEA-7)
Bell, C. V. (M)
Brown, R. H. (M)

Deer Harbor (SEA-7)
Tippery, M. W. (M)

Des Moines (SEA-7)
Barnes, L. S. (M)
Bernsen, D. G. (M)
Kirkpatrick, R. L. (M)
Nielsen, R. G. (M)
Olson, D. S. (M)
Perkins, L. C. (M)
Tyras, G. (M)

East Wenatchee (SEA-7)
Frese, G. M. (SM)

Edmonds (SEA-7)
Bassett, D. M. (M)
Baxter, J. R. (M)
Brown, F. M. (M)
Christie, L. F., Jr. (M)
Cramer, J. F. (M)
Engstrom, W. C. (M)
Hale, R. S. (M)
Hall, D. R. (A)
Hall, T. G. (A)
Hauge, P. S. (M)
Jones, W. L. (M)
May, R. L. (M)
Ohlen, C. E. (M)
Sigmon, D. L. (M)
Staab, C. S. (M)
Wise, W. L. (M)
Zevenbergen, J. W. (M)

WASHINGTON

Ephrata (SEA-7)
Choate, W. C. (M)
Smith, P. E. (M)

Everett (SEA-7)
Asper, R. L. (M)
Helms, W. J. (M)
Powers, C. R. (M)
Trygstad, G. P. (M)

Fairchild AFB (SEA-R-7)
Paige, D. R. (M)
Stillman, G. E. (M)
Wehlander, E. O. (M)

Federal Way (SEA-7)
Erwin, R. L., Jr. (M)
Glass, J. L. (M)
Hartwell, S. A. (M)
Lantagne, R. E. (M)
Lipp, A. E. (M)
Milkie, R. W. (A)
Zanella, V. J. (M)
Zickgraf, J. H. (M)

Fort Lewis (SEA-7)
Swanson, M. J., Jr. (M)

Friday Harbor (SEA-7)
Taylor, C. C. (M)

Gig Harbor (SEA-7)
Berkheimer, R. H. (M)
Bice, M. H. (M)

Hoquiam (SEA-7)
Smading, R. E. (A)

Issaquah (SEA-7)
Harms, R. G. (M)
Hufford, M. R. (M)
Janes, H. P., Jr. (M)
Paschal, S. L. (M)

Kennewick (SEA-R-7)
Banister, W. C. (M)
Guyer, F. R. (M)
McPartland, J. O. (M)
Rastovich, M. (A)
Ratcliffe, C. A. (M)
Skaugset, R. L. (A)
Taylor, G. R. (A)
Thomas, J. P. (M)
Wildman, R. A. (M)
Wujek, J. H., Jr. (M)

Kent (SEA-7)
Battles, M. T., Jr. (M)
Duboff, R. (M)
Erlandsen, E. K. (M)
Froeschle, E. J., Jr. (M)
Haff, D. H. (M)
Hokenson, H. S. (M)
Kudish, H. (M)
Mech, D. R. (M)
Miller, G. E. (M)
Nunner, R. J. (M)
Pancratz, J. B. (M)
Rona, T. P. (SM)
Smith, J. K. (M)
Swain, C. W. (M)
Vassilakos, D. A. (M)
Williams, A. (M)

Kingston (SEA-7)
Daniel, R. A. (M)

Kirkland (SEA-7)
Anstett, F. D. (SM)
Austin, J. D. (M)
Bohn, A. L. (M)
Coughlan, G. B. (M)
Flint, D. C. (M)
Glaser, R. A. (M)
Niehaus, U. K. (A)
Sheldon, J. K. (A)
Smith, M. R. (M)

Lake Stevens (SEA-7)
Piquet, P. C. (M)
Stomberg, D. H. (M)

Larson AFB (SEA-7)
Baldwin, R. F. (M)
Planinac, J. W. (M)

Longview (POR-7)
Collins, E. H. (M)
Poehlmann, K. F., Jr. (M)

Lowell (SEA-7)
Johnson, S. E. (M)

Lynnwood (SEA-7)
Corbridge, L. R. (M)
Judd, L. R. (M)
Klitz, R. M. (M)
Pribbenow, F. C. (M)
Swinney, S. I. (A)

Mead (SEA-R-7)
Gray, R. D. (M)

Mercer Island (SEA-7)
Caldwell, R. R. (M)
Carman, D. M. (M)
Chang, C. (M)
Chen, P. F. (M)
Cowdrey, H. R. (A)
Doyle, E. J. (SM)
Franzel, R. T. (M)
Harris, R. E. (M)
Jones, J. D. (M)
Kaminoff, M. (M)
Koch, G. E. (M)
May, E. L. (M)
Maynard, J. E. (SM)
McKay, A. (M)
Moon, R. F. (M)
Moore, W. H. (SM)
Nelson, R. H. (M)
Perdue, R. E. (M)
Porad, B. L. (M)
Pyle, H. S. (SM)
Thompson, M. E. (M)
Wachter, W. J. (M)
Winder, D. E. (M)

Mesa (SEA-7)
Beus, S. W. (M)

Mineral (SEA-7)
Rowe, V. G. (M)

Moses Lake (SEA-7)
Carr, C. E. (A)
McCauley, R. J. (M)
Nash, J. H. (M)
Scheele, W. H. (M)

Mountain Terrace (SEA-7)
Daniels, T. M. (M)
Haugen, D. P. (M)

Mountlake Terrace (SEA-7)
Andersen, J. H. (M)
Gallwey, K. L. (M)
Manetsch, T. J. (M)
Prue, W. W., Jr. (M)

North Bonneville (SEA-7)
Dillsi, M. M. (M)

Oakesdale (SEA-R-7)
Russell, J. S. (A)

Oak Harbor (SEA-7)
Baker, N. C. (M)
Barnhart, R. W. (M)
Eldredge, R. K. (M)
Gates, H. K., Jr. (M)

Odessa (SEA-7)
Frandsen, A. M. A. (M)

Olympia (SEA-7)
Brown, C. M. (M)
Guiberson, M. D. (M)

Pasco (SEA-R-7)
Driver, G. E. (M)

Port Angeles (SEA-7)
Keller, N. E. (A)
Niemi, R. I. (A)
Oakes, G. K. (A)

Port Orchard (SEA-7)
Drew, D. H., Jr. (M)
Finke, W. H. (M)

Pullman (SEA-R-7)
Betts, A. L. (SM)
Brar, C. S. (M)
Craine, L. B. (M)
Dayot, V. D. (M)
Harbour, R. D. (M)

Raymond (SEA-7)
Hebish, G. J. (M)

Redmond (SEA-R-7)
Elliott, R. E. (A)

Renton (SEA-7)
Anderson, F. C. (M)
Ashland, R. F. (M)
Bealsto, R. J. (M)
Calvert, O. L. (M)
Carlson, B. L., Jr. (M)
Cockrill, W. C. (A)
Combs, M. E. (A)
Connell, J. L. (M)
Harley, T. P. (M)
Hughes, J. C., Jr. (M)
Hulse, B. T., Jr. (M)
Perin, J. W. (M)
Ransey, N. K. (M)
Rino, K. W. (M)
Taylor, D. E. (M)

Richland (SEA-R-7)
Alander, N. E. (A)
Althoff, P. C. (M)
Arndt, D. L. (M)
Barcroft, J. R. (M)
Brodaczynski, E. W. (A)
Brown, D. P. (M)
Brown, R. L., Jr. (M)
Canady, D. A. (M)
Cartmell, T. R. (M)
Connally, R. E. (M)
Crosetti, P. A. (M)
Forsberg, J. I. (A)
Frederick, C. L. (M)
Harvey, R. A. (SM)
Heiple, R. B. (M)
Hunter, D. O. (M)
Iverson, N. A. (M)
Kelly, P. R. (M)
Libby, H. L. (M)
Markillie, W. R. (M)
McClung, W. E. (A)
Meteelmann, C. (M)
Rising, F. L. (M)
Ruiz, A. L. (SM)
Sheen, E. M. (M)
Spanner, J. C. (M)
Spear, W. G. (SM)
Stiede, W. L. (M)
Upson, U. L. (M)
Waldkoetter, G. L. (A)
Wood, E. C. (M)
Wood, M. R., Jr. (M)

Seattle (SEA-7)
Abe, I. (M)
Aburano, P. F. (M)
Adam, W. B. (M)
Afker, M. J. (M)
Albert, J. A. (M)
Alexander, W. L. (M)
Allen, R. W. (M)
Alvi, S. M. S. (M)
Andermann, A. (M)
Andersen, R. P. (SM)
Andreika, J. T. (M)
Anfang, T. B. (M)
Aoyama, H. T. (M)
Appleford, L. R. (M)
Arlowe, H. H. (SM)
Armstrong, C. W. (M)
Asato, Y. (A)
Ashbaugh, F. E. (M)
Austin, C. N. (A)
Awerkamp, D. R. (M)
Bach, R. O. (SM)
Baker, C. A. (M)
Baker, D. W. (M)
Baker, J. A. (M)
Baker, R. G. (M)
Ballata, R. J. (M)
Banack, N. F. (M)
Barbee, G. S., Jr. (M)
Barger, S. D. (A)
Bark, R. S. (M)
Barlett, J. E. (A)
Barlow, H. S. (M)
Barlow, L. W. (M)
Barstad, S. (M)
Bartholomew, C. S. (M)
Bartlemay, J. M. (M)
Barton, D. K. (M)
Bastow, J. G., Jr. (M)
Battis, L. R. (M)
Baumgartner, D. L. (M)
Beals, E. L. (A)
Beauchamp, F. A. (A)
Beck, F. F. (M)
Beene, H. (M)
Belch, F. R. (M)
Belenski, J. D. (M)
Bergseth, F. R. (M)
Berzin, J. G. (M)
Bielka, P. W. (SM)
Biggs, A. W. (M)
Biggs, J. D., Jr. (SM)
Bily, J. J. (SM)
Bingham, W. R., Jr. (M)
Bjorkman, F. D. (M)
Bjorkstam, J. L. (A)
Black, F. H. (M)
Bloomfield, J. A. (M)
Boettcher, G. J. (M)
Bolton, D. J., Jr. (M)
Borchert, T. M. (M)
Bowles, T. J. (M)
Boyle, R. J. (M)
Boynton, P. M. (M)
Bradburn, W. C. (M)
Brady, T. L. (A)
Brandstrom, K. B. (M)
Breakey, E. P. (M)
Brill, R. W. (M)
Brock, R. L. (M)
Brown, R. A. (M)
Brown, T. S. (M)
Brune, F. A. (M)
Buldhaupt, L. F. (A)
Bull, W. A. (SM)
Bundy, D. H. (M)
Burke, J. D. (A)
Burleson, C. T. (M)
Bushman, F. W. (M)
Bystrom, A., Jr. (M)
Callahan, L. R., Jr. (M)
Callahan, M. J. (M)
Campbell, S. S. (M)
Cantrell, H. L. (M)
Carlberg, N. E. (M)
Carlsten, E. E. (M)
Chamberlin, W. C. (M)
Chase, L. I. (M)
Chase, R. F. (M)
Chen, D. (M)
Chen, H. C. (M)
Chen, P. P. (M)
Chin, T. (M)
Chinn, T. Y. (M)
Chopp, J. A. (A)
Christensen, W. G. (M)
Christoff, N. A. (M)
Churchill, J. H. (M)
Clark, D. G. (A)
Clark, L. G. (A)
Clark, R. N. (M)
Cochran, L. B. (SM)
Coe, R. J. (M)
Colandrea, A. W. (M)
Colombo, S. J. (M)
Consego, B. J. (M)
Cooley, W. W. (A)
Corey, P. J. (M)
Corpus, A. R. (M)
Craig, D. I. (A)
Creason, A. S. (M)
Currie, W. E. (M)
Curry, C. T. (M)
Dailey, J. M. (A)
Damey, R. A. (M)
Darnell, G. L. (M)
Davidson, T. K. (M)
Davies, W. R. (M)
Decano, M. (M)
Decker, D. A. (M)
De Faye, P. J. (M)
De Groot, E. B. (M)
Dempsey, J. P. (M)
Demuth, H. P. (M)
Dennis, D. L. (M)
Determan, J. H. (M)
Dettmann, J. R. (A)
Dhar, R. L. (A)
Domingos, H. (M)
Dooley, J. E. (M)
Dorband, A. E. (M)
Dorrateague, P. E. (M)
Dorwart, R. J. (M)
Doshay, L. (M)
Drake, R. S. (M)
Duggan, G. S. (M)
Duncan, J. A. (M)
Duryee, P. A. (A)
Early, E. W. (M)
Eastman, A. V. (F)
Eck, H. J. (M)
Ehrig, F. D. (M)
Eide, M. O. (M)
Eisenbach, M. E. (M)
Elgin, D. L. (M)
Ellerbeck, K. H. (M)
Elliott, H. R. (A)
Embree, R. R. (A)
Engstrom, D. E. (A)
Ercolini, J. E. (M)
Erdmann, P. R. (M)
Erskine, R. G. (M)
Erwin, E. V. (M)
Erwood, R. G. (M)
Esson, R. C. (A)
Evenson, H. J. (M)
Fancher, V. M. (M)
Fantin, P. J. (M)
Farey, L. (M)
Fargo, R. J. (M)
Farrens, D. G. (M)
Ferguson, R. E. (M)
Fisher, R. C. (SM)
Fisken, J. L. (A)
Fitch, J. L. (A)
Fluke, J. M. (M)
Folkestad, G. T. (M)
Foss, R. N. (M)
Foster, N. H. (SM)
Frederickson, A. A., Jr. (M)
Friedland, R. J. (M)
Frye, H. E. (M)
Gage, B. P. (M)
Gedaugas, J. (M)
Gee, H. P. S. (M)
Geisert, F. W. (M)
Gelbach, H. R. (M)
Glarola, A. J. (M)
Gilbert, D. M. (A)
Gilbert, R. E. (M)
Gill, C. C. (M)
Godo, E. (M)
Golde, H. (M)
Goldhaber, J. C. (M)
Goodwin, P. E. (M)
Graybeal, J. (A)
Grechny, N., Jr. (M)
Grimaldi, J. E. (M)
Groll, A. J. (M)
Guilford, E. C. (M)
Gulden, D. C. (M)
Gunby, G. C. (M)
Guy, A. W. (M)
Guyll, R. N. (M)
Hagenah, J. S. (M)
Halgrimson, D. N. (M)
Halstead, F. H., Jr. (M)
Hammer, E. D. (M)
Hammond, R. A. (M)
Hancock, R. L. (M)
Hansen, W. P., Jr. (A)
Hanson, G. H. (M)
Harrington, R. V. (M)
Harrison, A. E. (F)
Harrold, J. S. (M)
Harrold, W. T. (SM)
Hassell, B. M. (M)
Hasserjian, G. K. (M)
Hatfield, J. B. (M)
Hathaway, E. C. (M)
Havens, J. D. (M)
Hayashi, M. (M)
Healy, T. J. (M)
Hedberg, R. W. (M)
Heilborn, K. A. (A)
Heindsmann, T. E. (SM)
Hebert, E. C. (M)
Hermanson, K. P. (A)
Heurtley, C. A. (M)
Hill, R. V. (M)
Hill, W. R., Jr. (SM)
Hill, W. S. (M)
Hoard, G. L. (SM)
Hoard, R. F. (M)
Hochman, S. (M)
Hoglund, R. H. (SM)
Holman, F. S. (M)
Holmkvist, N. E. (M)
Holtman, R. F. (M)
Hong, L. K. Y. (M)
Hopfe, G. H. (A)
Horn, H. T. (M)
Hove, R. G. (M)
Howard, J. R. (M)
Howland, D. J. (M)
Hrabal, E. J. (M)
Hsu, C. C. (M)
Hu, A. Y. (M)
Hu, W. (A)
Hufford, G. (M)
Hughes, V. C. (M)
Huss, W. N. (M)
Iga, A. T. (A)
Illman, R. W. (M)
Isbell, D. E. (A)
Ishimaru, A. (M)
Jacks, H. G. (M)
Jahnke, M. K. (M)
Jauch, K. E. (M)
Johnson, J. F. (SM)
Johnson, O. E. (M)
Johnson, R. R. (M)
Jones, A. W. (M)
Jones, E. A. (A)
Jorgensen, S. W. (M)
Judd, C. W. (M)
Judson, H. H., Jr. (M)
Kalviste, A. (M)
Keith, J. L., Jr. (M)
Kellar, J. B. (M)
Keller, W. E. (M)
Kessler, K. L. (A)
Ketterling, G. W. (M)
Kiebutz, R. B. (M)
Kiebutz, R. B. (M)
Kilroy, J. (M)
Kimbark, E. W. (M)
Kindall, E. W. (M)
Kindred, J. C. (M)
Kiskaddon, W. V. (M)
Kroll, A. (M)
Kohl, P. H. (M)
Kostrey, M. J. (M)
Kraemer, B. J. (M)
Kramer, L. V. (M)
Krueger, J. R. (M)
Kunselman, G. F. (M)
Lahn, F. C. (M)
Lai, M. C. (M)
Laik, R. (M)
Lansinger, J. M. (M)
Lantor, I. (M)
Larson, G. L. (M)
Larson, L. A. (A)
Lavering, F. B. (M)
Laxdall, D. W. (M)
Leader, R. E. (M)
Ledray, W. (M)
Lee, D. E. (M)
Leitone, L. L. (A)
Lennstrom, C. O. (M)
Leonard, P. W. (A)
Leonard, T. H. (M)
Leone, M. (M)
Leuthold, D. H. (M)
Levinson, H. (M)
Lewis, L. J. (SM)
Libby, T. M. (F)
Lightfoot, F. M. (M)
Lillie, W. A. (M)
Lim, R. S. (A)
Linder, W. J. (M)
Linsey, R. J. Jr., (M)
Linnel, C. (A)
Liston, D. E. (M)
Loule, C. H. (M)
Loule, E. H. (M)
Lubatti, H. J. (M)
Lucey, W. E. (M)
Luna, A. H. (M)
Lund, W. W., Jr., (SM)
Lurz, R. F. (A)
Lytle, A. W. (M)
MacDougall, D. G. (M)
Madle, E. J. (M)
Major, M. D. (M)
Martin, G. H. (M)
Martin, J. L. (M)
Martin, P. E. (M)
Martin, R. E. (M)
Maxwell, R. L. (M)
McCaffrey, B. I. (M)
McClamrock, J. M. (M)
McClure, K. M. (M)
McCrory, H. O. (M)
McCrory, M. E. (M)
McIlroy, F. W. (M)
McInelly, R. M. (M)
McInturff, J. C. (M)
McIvor, B. H. (M)
McKay, W. M. (M)
McKittrick, W. (M)
McPherson, E. L. (M)
McRae, J. C. (M)
Mead, H. W. (M)
Mears, R. J. (M)
Meerdink, K. J. (M)
Merriam, D. P. (M)
Metz, P. R. (M)
Mickel, J. W. (M)
Miller, C. E. (A)
Miller, D. J. (M)
Miller, J. T. (M)
Miller, K. E. (M)
Miller, N. D. (SM)
Mitchell, G. W. (A)
Mobley, M. D. (M)
Moelter, A. (M)
Momenthy, A. M. (M)
Moreiock, W. J. B. (M)
Morgan, A. A. (M)
Morris, C. R. (M)
Moser, L. (M)
Mossman, F. B. (SM)
Mulkey, O. R. (M)
Munday, W. A. (M)
Murray, R. F. (M)
Nation, A. W. C. (M)
Neal, E. T. (M)
Neal, T. (M)
Nelson, J. K. (M)
Nelson, N. P. (M)
Nesbitt, W. E. (SM)
Newell, J. A. (M)
Nicolino, T. A. (M)
Niemi, L. T. (M)
Noges, E. (M)
Nordbo, O. J. (A)
Nordmann, F. M. (M)
Norin, T. L. (M)
Nutting, D. C. (M)
Ogasawara, T. B. (M)
Ogden, D. R. (M)
Olson, B. V. (M)
Omoth, M. J. (M)
Oncley, P. B. (M)
Oppelt, J. W. (M)
Ordonia, J. M. (A)
Orse, D. J. (M)
Orth, J. W. (A)
Osness, R. H. (M)
Osterhaug, J. E. (M)
Ostrom, C. W. (M)
Owens, J. R. (M)
Page, R. (M)
Paisley, M. R. (M)
Papich, M. G. (M)
Papp, G. E. (A)
Parks, H. F. (SM)
Parrott, J. E. (M)
Parsons, L. W. (M)
Pascual, R. A. (M)
Paterson, J. M. (M)
Payne, R. S. (M)
Pearson, R. E. (M)
Pedersen, R. E. (M)
Peedo, E. (M)
Perry, F. E. (M)
Peters, E. L. (M)
Peterson, J. H. (M)
Petrich, R. O. (M)
Peyton, E. E. (M)
Pfalzer, J. L. (M)
Pfau, K. A. (M)
Pierce, W. E. (SM)
Pitre, J. A. (M)
Plantz, V. C. (M)
Podorsek, J. (M)
Polcuch, A. F. G. (M)
Porter, B. C. (A)
Porterfield, H. D. (M)
Post, M. O. (A)
Pratt, L. M. (M)
Prentiss, G. K., Jr. (M)
Pyper, T. L. (A)
Quantz, R. G. (A)
Randall, H. L. (M)
Rao, N. N. (A)
Rauch, D. E. (M)
Reh, J. J. (M)
Reinke, E. E. (M)
Renfro, H. E. (M)
Retka, J. A. (M)
Reynolds, D. K. (SM)
Rice, R. W. (M)
Richards, G. O. (M)
Ritchey, O. W. (M)
Robbins, F. D. (M)
Roberts, B. J. (M)
Roberts, H. O. (M)
Roberts, W. F. (A)
Rogers, W. E. (SM)
Romberg, J. M. (M)
Ross, D. L. (M)
Roth, W. E. (M)
Rudzitis, A. (M)
Rumoza, W. R. (M)
Ruop, A. (M)
St. John, I. S. (M)
Sakahara, H. (M)
Schaper, E. (M)
Schomer, J. W. (A)
Schweizer, E. G. (M)
Scidmore, D. L. (M)
Scott, T. G. (M)
Scovill, J. M. (M)
Setera, D. G. (M)
Shalbetter, C. E. (M)
Sharp, B. M. (M)
Shaw, D. G. (A)
Sheppard, J. J., Jr. (M)
Shimada, K. (M)
Shimono, Y. (M)
Shipek, R. H. (M)
Shirrod, R. L. (M)
Shook, W. A. (A)
Shortt, A. J. (A)
Shultz, C. W. (A)
Siddons, W. J. (M)
Siegelmann, R. A. (M)
Simons, D. D. (M)
Simons, R. J. (M)
Sipoach, H. G. (M)
Sivertz, R. D. (M)
Skahill, B. J., Jr. (M)
Sleeper, W. H. (SM)
Sleeth, J. D. (M)
Small, R. E. (M)
Smith, E. L. (M)
Smith, G. D. (M)
Smith, K., Jr. (M)
Smith, K. C. (M)
Smithmeyer, L. P. (A)
Snyder, P. O. (M)
Sommer, D. J. (M)
Sorensen, D. F. (M)
Sowa, C. P. (M)
Speir, F. H. (SM)
Stachurski, S. (M)
Stampalia, I. J., Jr. (M)
Starks, J. C. (SM)
Stefanowicz, M. R. (A)
Stockman, R. R. (M)
Strandrud, H. T. (M)
Strauss, B. (M)
Strohecker, J. P. (SM)
Suinn, H. (M)
Sutherland, L. C. (M)
Swarm, H. M. (SM)
Swindlehurst, W. C. (A)
Swisher, B. F. (M)
Swisher, M. J. (A)
Szatrowski, Z. (A)
Szekely, G. S. (M)
Talcott, M. S. (M)
Tanaka, S. (M)
Tang, H. K. H. (M)
Tashiro, S. (M)
Tate, J. A. (SM)
Taylor, C. K. (M)
Taylor, D. B. (M)
Tenning, C. B. (M)
Terrell, W. R. (M)
Thiel, P. A. (M)
Thomas, A. O. (M)
Thomas, P. S. (M)
Thomasson, L. T. (M)
Thomson, K. J. (M)
Tighe, R. F. (A)
Todaro, C. N. (M)
Todd, H. C. (A)
Tolnie, J. R. (F)
Traub, L. A. (M)
Tsao, C. M. (M)
Tung, J. K. M. (M)
Turner, R. L., Jr. (M)
Uhlman, D. D. (M)
Upright, R. D. (M)
Urban, J. V. (A)
Urban, R. A. (M)
Vahrenkamp, R. H., Jr. (M)
Van Deventer, A. J. (M)
Van Over, W. E. (M)
Vanskyock, J. A. (M)
Van Valkenburg, W. P. (A)
Vincent, L. R. (A)
Visser, A., Jr. (A)
Voss, J. M. (M)
Wagner, W. J. (SM)
Walker, R. C. (M)
Walker, R. T. (M)
Walley, J. (M)
Wamsley, A. H. (A)
Welland, W. A. (M)
Weinstein, G. (M)
Weiss, R. R. (M)
Welch, D. R. (M)
West, E. A., Jr. (M)
Westerlund, K. I. K. (M)
Wetli, R. G. (M)
Whalen, J. E. (M)
Wieman, F. (M)
Willard, H. R. (M)
Williams, C. E. (F)
Willson, A. R. (SM)
Wisner, R. M. (SM)
Wood, F. P. (M)
Woodbury, J. W. (M)
Woodhouse, G. H. (M)
Wright, C. P. (M)
Wright, J. M. (M)
Yamauchi, T. T. (M)
Yee, J. S. (M)
Yesilin, A. A. (M)
Ziesenliss, F. H. (A)

Snohomish (SEA-7)
Bushby, E. W. (M)
Sterley, R. R. (M)

Spanaway (SEA-7)
Polone, R. W. (A)

Spokane (SEA-R-7)
Andrews, R. C. (M)
Coates, F. M. (M)
Cross, F. D. (A)
De Mar, W. D. (A)
Flickinger, W. J. (M)
Gorman, D. P. (M)
Green, D. I. (M)
Green, W. L. (M)
Lane, L. M. (M)
Lundberg, F. J. (SM)
Mac Lean, T. W. (M)
Metz, R. E. (M)
Miller, R. G. (M)
Reinhardt, R. G. (M)
Rue, K. M. (A)
Simmons, R. E. (M)
Storms, H. H. (M)
Suden, J. E. (M)
Switzer, W. H. (A)
Trebby, F. J. (M)
Weber, R. F. (M)

Wick, M. R. (M)

Startup (SEA-7)
Sackman, D. J. (A)

Sumner (SEA-7)
Hill, A. P. (M)

Tacoma (SEA-7)
Andrews, G. B. (M)
Backman, J. A. (A)
Barrows, J. H. (A)
Brostrom, K. E. (M)
Hamlin, D. R. (M)
Harrison, J. C. (A)
Kukowski, J. F. (M)
Lippincott, E. W. (M)
Mann, J. W. (A)
McDonough, D. M. (SM)
Olson, D. L. (A)
Perkins, M. G. (M)
Sorgenfrei, G. H. (M)
Swenning, W. A. (M)
Wagar, J. L. (M)
Williams, K., Jr. (M)
Wittenberg, E. C. (M)

Vancouver (POR-7)
Murdock, M. J. (M)
Roesler, R. W. (M)
Rogers, E. J. (M)
Wohlgemuth, D. G. (A)

Vashon (SEA-7)
Hearns, C. B. (M)
Jacomb, R. A. (M)
Patience, D. L. (M)

Vashon Island (SEA-7)
Caproni, G. A. (A)

Walla Walla (SEA-R-7)
MacLafferty, W. S. (A)
Wilken, B. W. (A)

Waukon (SEA-7)
Stark, J. A. (A)

Wenatchee (SEA-7)
Wallace, J. (SM)

Yakima (SEA-7)
Munger, R. E. (A)
Root, M. W. (M)
Spelman, F. A. (M)

Zenith (SEA-7)
Friddell, H. G. (M)

WEST VIRGINIA

Beckley (PIT-4)
Guerino, M. (M)
Tolos, G. (M)

Charleston (PIT-4)
Brick, G. R. (A)
Johnson, E. M. (SM)
Lawson, E. C. (M)
Malkins, R. E. (M)
Sinsel, P. W. (M)
Wolford, J. E. (A)
York, D. E. (A)

Charles Town (PIT-4)
Stone, S. I., Jr. (M)

Clarksburg (PIT-4)
Gaughan, W. J. (A)
Hough, R. D. (M)

Dunbar (PIT-4)
Mitchell, S. E. (A)

Fairmont (PIT-4)
Straight, P. E. (M)

Fort Seybert (PIT-4)
Youmans, A. B. (M)

Green Bank (PIT-4)
Drake, F. D. (M)
Findlay, J. W. (SM)
Hvatum, H. (M)
Orhaug, T. A. (M)
Vinokur, M. (M)
Waltman, W. B. (M)

Huntington (PIT-4)
Bromley, R. A. (A)
Clay, J. P. (M)
Hawes, J. G. (M)
Kilpatrick, L. E. (SM)
Miller, R. M. (A)
Shaw, J. L. (SM)
Tanner, J. E. (M)

Jan Lew (PIT-4)
Hardman, D. V. (M)

Keyser (PIT-4)
Crossland, E. G. (M)

Martinsburg (W-DC-3)
Reynolds, T. G., Jr. (A)
Ricketts, J. C. (M)
Samsky, B. S. (SM)
McMechen (PIT-4)
Pyle, G. D. (M)

Middlebourne (PIT-4)
Nichols, G. C. (A)

Montgomery (PIT-4)
Propps, J. M. (A)

Morgantown (PIT-4)
Barbe, E. C. (M)
Kreer, J. B. (M)
Selbert, C. B. (M)
Welland, F. A. (A)

Moundsville (PIT-4)
Jones, J. W. (M)
Rulong, C. P. (M)

Nitro (PIT-4)
Aliff, J. R. (M)
Rogers, L. J. (M)

Oak Hill (PIT-4)
Phillips, T. (M)
Thomas, R. R., Jr. (M)

Ona (PIT-4)
Pitts, M. J. (A)

Parkersburg (PIT-4)
Spence, R. C. (A)

Princeton (PIT-4)
Bailey, W. F. (M)

Ravenswood (PIT-4)
Ellison, B. P. (M)

St. Albans (PIT-4)
Drury, G. R. (A)
Fertig, R. B. (M)

South Charleston (PIT-4)
Smith, A. E. (M)
Thompson, W. R. (M)

Weirton (PIT-4)
Johnson, W. E. (M)
Mellis, J. G. (A)
Mellis, J. G. (A)

West Union (PIT-4)
Elefritz, J. F. (M)

Wheeling (PIT-4)
Ackermann, M. E. (A)
Levenson, D. W. (M)
Rollins, E. A. (M)
Sorsby, C. R. (A)
Winslow, R. B. (A)

White Sulpher Springs (PIT-4)
Ballard, R. L. (A)
Londis, J. J. (A)

Williamsburg (PIT-4)
Hanson, G. B. (M)

Zanesville (PIT-4)
Hunt, W. A. (M)
Iverson, F. A. (M)
Kirk, K. D. (M)
Thompson, C. O. D., Jr. (M)

WISCONSIN

Bancroft (TC-5)
Mayer, W. J. (M)

Amery (TC-5)
Haselhorst, D. D. (M)
Kruschke, E. A. (M)
Warhol, K. E. (M)

Antigo (TC-5)
Parfitt, R. J. (M)

Appleton (MIL-5)
Lewis, P. H. (M)
Schlafke, D. A. (A)
Stein, F. H. (M)

Ashland (MIL-5)
Huntsinger, F. P. (M)

Baraboo (MIL-5)
Halsted, J. E. (A)

Beloit (MIL-5)
Lesson, J. L. (M)

Brookfield (MIL-5)
Boehler, H. L. (A)
Eisele, E. J. (A)
Grube, J. C. (M)
Kasdorf, G. R. (M)
Lindemann, A. W. (M)
Lucas, R. M. (M)
Mereen, D. E. (M)
Ribbens, W. F. (M)
Rynning, A. (M)
Tschantz, L. G. (M)
Woods, K. C. (A)

Burlington (MIL-5)
Holmbeck, J. D. (SM)
Sherman, J. (A)

Butler (MIL-5)
Herndav, R. H. (M)
Kaetel, H. C. (M)
Kuckuck, C. L. (A)

Carrollville (MIL-5)
Colgan, A. R. (A)

Chippewa Falls (TC-5)
Peloquin, P. T. (A)

Colgate (MIL-5)
Allmaras, H. C. (M)

Cudahy (MIL-5)
Patrick, P. J. (A)
Rapp, R. L. (M)
Roberts, G. F. (M)

Custer (TC-5)
Schulist, J. B. (M)

Delafield (MIL-5)
Albert, C. C. (A)

Durand (MIL-5)
Dabel, D. J. (M)

East Troy (MIL-5)
Zirbel, J. P. (M)

Eau Claire (TC-5)
Jorgenson, T. O. (M)

Egg Harbor (MIL-5)
Lemere, J. P. (M)

Elm Grove (MIL-5)
Bailey, T. J. (A)
Evans, J. A. (M)
Horgan, J. D. (SM)

Ettrick (TC-5)
Erickson, G. P. (M)

Fond du Lac (MIL-5)
Jensen, K. S. (SM)

Fort Atkinson (MIL-5)
Anthes, J. (A)
Bloxham, R. L. (M)

Grafton (MIL-5)
Konig, V. A. Y. (A)
Rubinstein, H. W. (M)

Green Bay (MIL-5)
Sloan, A. C. (A)

Greendale (MIL-5)
Beutler, A. J. (M)
Bovich, E. J. (A)
Dahlmann, V. R. (A)
Fisher, R. D. (M)
Follen, R. J. (M)
Jomenuck, J. H. (M)
King, T. F. (M)
North, R. L. (M)
Raucher, W. L. (M)
Regis, R. J. (M)
Sabroff, R. R. (M)
Strandt, E. R. (M)
Taus, H. G. (M)
Wagner, R. M (M)
Weiss, A. A. (M)

Greenfield (MIL-5)
Mc Carter, O. T. (M)

Hales Corners (MIL-5)
Abboud, F. L. (A)
Baker, R. A. (M)
Bartholomew, J. F. (M)
Des Lauriers, E. D. (A)
Howell, J. F. (SM)
Kinney, T. W. (M)
Tyson, H. B. (A)
Whiteman, J. R. (M)

Hartland (MIL-5)
Harry, W. R. (M)

Janesville (MIL-5)
Brandt, R. W. (SM)
Keppert, C. D. (M)
Krug, W. H. (A)
Weckwerth, H. A. (M)
Williams, C. R. (M)
Ziehlke, R. J. (A)

Kenosha (CHI-5)
Schaefer, K. E. (M)
Bart, S. (M)
Harris, O. O. (A)
Helde, S. N. (A)
Klein, F. N. (M)
Kovachik, E. (A)
Osterlund, S. G. S. (M)
Reich, E. A. (M)
Turkish, M. C. (M)

La Crosse (TC-5)
Bruring, W. E. (M)
Leeman, A. (M)

Lake Mills (MIL-5)
Darsch, A. P. (M)

Lake Nebagamon (TC-5)
Caspers, G. E., Jr. (M)

Madison (MIL-5)
Ackerman, W. J. (M)
Asmuth, J. L. (M)

WISCONSIN

Benedict, R. R. (SM)
Birkemeier, W. P. (M)
Boehme, A. W. (M)
Bushnell, R. H. (M)
Croatt, L. A. (M)
Davidson, C. H. (M)
Dietmeyer, D. L. (M)
Duffendack, O. S. (F)
Emerson, R. E. (M)
Florence, F. J. (M)
Fontaine, A. B. (A)
Gilson, W. E. (SM)
Gjerstad, I. (M)
Goodwin, J. M. (M)
Greenbaum, L. A. (M)
Greiner, R. A. (M)
Gritzmacher, D. E. (M)
Hahn, N. G. (M)
Hariu, W. R. (M)
Haxby, R. O. (SM)
Heckman, D. W. (M)
Johnson, W. J. (M)
Kelley, W. V. (M)
Klinge, H. F. (M)
Koehler, G. (F)
Krueger, R. J. (A)
Levy, D. M. (M)
Mack, H. A. (A)
Marleau, R. S. (M)
McGrath, R. J. (M)
McNall, J. F. (M)
Murrish, C. H. (M)
Olson, R. E. (M)
Parent, R. J. (M)
Peterson, H. A. (SM)
Pierce, D. A. (M)
Reitan, D. K. (SM)
Richter, R. E. (M)
Rideout, V. C. (F)
Rogne, R. J. (M)
Ryan, H. T. (M)
Sadler, L. S. (M)
Scheibe, E. H. (SM)
Seldmore, A. K. (M)
Scott, T. M. (A)
Skiles, J. J. (M)
Slater, R. L., Jr. (M)
Swift, W. B. (M)
Szews, A. P. (M)
Tellefsen, H. E. (A)
Tiedemann, A. T. (M)
Van Bladel, J. G. (SM)
Vanko, J. A. (M)
Verstoppen, V. (M)
Walkington, W. G. (M)
Wickhem, R. J. (A)
Wolek, F. R. (M)
Young, C. E. (A)
Zamstorff, W. C. (M)

Manitowoc (MIL-5)
Heinzen, R. A. (M)

McFarland (MIL-5)
Pierce, R. L. (M)

Menasha (MIL-5)
Suess, K. H. (M)

Menominee Falls (MIL-5)
Berg, R. A. (SM)
Grosens, H. R. (M)
Richardson, R. E. (M)
Ruff, H. M. (A)
Smith, C. C. (M)

Mequon (MIL-5)
Runft, A. J. (M)

Merrill (TC-5)
Bartelt, C. H. (M)

Middleton (MIL-5)
Miller, J. B. (M)

Milton (MIL-5)
Harris, R. J. T. (M)
Haugen, M. G. (M)

Milwaukee (MIL-5)
Aaron, I. I. (A)
Adams, R. (M)
Albert, W. I. (M)
Appleman, C. G. (M)
Armstrong, J. F. (A)
Atwood, A. R. (A)
Baier, A. A. (A)
Baird, J. T. (M)
Baleman, O. R. (M)
Bamum, T. G. (M)
Baranger, J. P. (M)
Bartel, T. J. (M)
Baumeister, E. A. (M)
Beck, A. F. (M)
Bernstein, S. (SM)
Blendahl, F. A. (M)
Boehme, F. J. (M)
Bores, J. W. (M)
Brand, R. T. (M)
Brentner, H. C. (M)
Brezezinski, J. S. (M)
Briedis, G. (A)
Budny, B. R. (M)
Burkhalter, B. L. (A)
Butler, L. W. (M)
Bym, R. L. (M)
Calcut, P. P. (M)
Carroll, D. M. (M)
Cather, J. R. (M)
Clare, E. W. (A)
Connerton, B. J. (A)
Coogan, P. R. (M)
Cooke, E. R. (A)
Cordes, E. L. (M)
Cox, W. (A)
Crawford, F. L. (A)
Das Gupta, A. K. (A)
De Block E. T. (M)
Delsinger, J. J. (M)
Delfeld, F. R. (M)
Dobnick, O. X. (A)
Doyen, R. G. (A)
Doylen, D. H. (M)
Drozniakiewicz, D. L. (M)
Durand, E. L. (M)
Ebsen, M. E. (M)
Eckert, F. A., Jr. (M)
Eckl, J. J. (M)
Eichhorn, J. W., III (M)
Elliot, W. H. (M)
Erb, J. J. (M)
Ernst, R. F. (M)
Evans, R. E. (M)
Fitzgerald, R. R. (M)
Flaningam, L. A. (M)
Flood, F. F. (A)
Flueckiger, N. (A)
Fox, D. A. (M)
Foxwell, W. R. (M)
Gabriel, R. C. (M)
Gainer, W. P. (M)
Galles, W. B. (M)
Ganiere, H. C. (M)
Garber, B. E. (M)
Gardener, T. A. (M)
Garstang, W. W. (SM)
Gauthier, R. L. (M)
Geiger, L. C. (M)
Genthe, W. K. (M)
Gogolo, E. C. (SM)
Goudy, P. R. (M)
Gruszynski, R. T. (M)
Guenther, H. J. (M)
Gutmann, M. (M)
Haertel, D. G. (M)
Hamren, G. C. (A)
Hebal, W. H. (M)
Helgeson, V. L. (M)
Henden, H., Jr. (M)
Hetchler, L. F. (M)
Hinds, G. C. (M)
Hitt, B. L. (A)
Hogan, H. A. (M)
Hooson, R. W. (A)
Horvath, A. E. (M)
Hyman, S. P. (A)
Immekus, R. J. (M)
Ingold, R. W. (A)
Ishii, T. K. (M)
Jacobi, T. (M)
Jasinski, A. J. (M)
Jensen, M. W. (M)
Johnson, G. A. (M)
Johnson, R. J. (A)
Johnson, R. R. (A)
Johnson, R. W. (A)
Jordal, V. M. (M)
Jundi, T. (A)
Kaiser, E. H. (A)
Kark, R. H. (A)
Keller, W. H. (M)
Kelly, D. S. W. (SM)
Kelly, D. V. (M)
Kelsey, D. B. (M)
Khouri, A. S. (M)
Killmann, D. R. (M)
Knoone, H. S. (M)
Koenig, J. C. (M)
Kokall, F. P. (M)
Kooiania, A. A. (M)
Koons, J. M. (M)
Kronun, E. J. (M)
Krug, R. E. (A)
Krumik, S., Jr. (M)
Kumm, A. L. (M)
Kunde, P. J. G. (M)
Labby, W. R. (M)
Lade, R. W. (M)
Laeser, P. B. (SM)
Lagerman, A. J. (A)
Landowski, L. A. (A)
Laubenstein, A. E. (M)
Leaman, D. C. (M)
Leavitt, R. F. (A)
Lecus, C. M. (A)
Leicht, J. K. (M)
Lewis, L. D. (M)
Limpel, E. J. (M)
Lindquist, R. D. (A)
Lyon, T. I. (M)
Macheers, R. E. (M)
Maher, J. E. (M)
Mallary, J. R. (A)
Makowski, J. J. (M)
Matthews, R. B. (M)
Matthias, L. H. (M)
May, G. L. (M)
McCall, D. L. (M)
McComas, J. L. (M)
Meier, R. D. (M)
Merrill, H. S., Jr. (M)
Michaels, E. J. (M)
Michalak, E. M. (M)
Michel, A. N. (M)
Moeleone, J. (M)
Monty, B. E. (M)
Mrazek, D. A. (M)
Murphy, A. W. (A)
Myers, D. L. (M)
Napoleon, G. J. (M)
Neitzke, G. G. (A)
Nelson, J. W., Jr. (SM)
Norman, O. A. (M)
O'Connor, R. J. (M)
Ollenburg, M. A. (A)
Olson, F. L. (M)
Oppenheim, R. H. (M)
Orr, J. P. (M)
Pare, T. J. (A)
Peck, P. V. (M)
Peeters, L. J. (M)
Petzold, D. W. (M)
Pickl, T. J. (M)
Piontek, T. A. (A)
Pollock, J. J. (A)
Post, R. (A)
Pozorski, J. J. (M)
Preiser, W. J. (M)
Queever, L. (M)
Raab, P. V. (M)
Ragatz, E. C. (M)
Ranson, R. R. (SM)
Rebman, W. H. (M)
Richter, W. (F)
Ringle, R. B. (A)
Roberts, B. B. (M)
Rodewald, M. V. (M)
Rosin, R. J. (A)
Rowe, J. B., Sr. (M)
Rusch, P. H. (M)
Saari, L. V. (M)
Sackett, R. W. (M)
St. John, J. D. (M)
Schimmel, K. J. (A)
Schlaefer, B. J. (M)
Schlageter, G. A. (M)
Schlehh, G. J. (A)
Schleicher, F. (M)
Schlicke, H. M. (SM)
Schmit, C. M. (A)
Schreiter, S. F. (M)
Schuenzel, R. G. (M)
Schultz, D. J. (M)
Schutten, H. P. (M)
Sestak, A. T. (A)
Sherwood, E. T. (SM)
Shumacher, P. J. Jr., (M)
Sitzwohl, J. F., Jr. (M)
Smith, A. J. (A)
Smith, W. F., Jr. (M)
Snedeker, J. T. (A)
Snowdon, A. C. (M)
Spak, L. J. (A)
Sparacino, B. J. (A)
Stefancic, K. (M)
Stenz, D. J. (A)
Stomma, T. (M)
Straub, J. J. (A)
Sutinen, C. P. (SM)
Tackes, G. G. (A)
Talbot, V. R. (M)
Testerman, R. L. (M)
Thibideau, F. D. (M)
Torkildsen, R. A. (M)
Townsend, P. G. (M)
Trinkner, C. C. (A)
Trout, E. D. (M)
Uradnicek, R. K. (M)
Van Alstyne, A. (M)
Vander Heyden, W. H. (M)
Van Hecke, C. O. (A)
Van Zeeland, F. J. (SM)
Varner, D. S. (M)
Vebber, W. O. (M)
Veerkamp, N. B. (M)
Venzke, G. E. (M)
Voelker, A. H. (M)
Voith, R. J. (M)
Wagner, W. O. (M)
Warren, L. M. (A)
Weber, F. (M)
Weiss, J. B. (M)
Weitenmann, B. R. (A)
Weller, D. A. (SM)
West, B. M. (M)
Wiechmann, E. H. (M)
Wilson, R. F. (M)
Winn, W. C. (M)
Wolff, R. L. (M)
Wolniakowski, L. L. (A)
Wulliman, J. C. (A)
Young, H. S. W. (M)
You, A. G. (M)
Zwarra, H. J. (M)

Mosinee (TC-5)
Grambsch, R. J. (M)

Mukwonago (MIL-5)
Brown, H. W. (A)

Muskego (MIL-5)
Burg, G. M. (M)

New Berlin (MIL-5)
Beaudoin, L. W. (M)
Orr, D. W. (M)
Wolner, W. B. (M)

Oconomowoc (MIL-5)
Randall, A. E. (M)

Oconto (TC-5)
Ackerman, M. J. (M)
De Witt, C. P. (M)

Oshkosh (MIL-5)
Reifer, J. C. (M)
Swetlow, R. E. (M)
Williams, N. (M)
Wolf, J. N. (A)
Pardeeville (MIL-5)
Boss, W. O. (M)

Peshtigo (TC-5)
MacLaughlin, D. C. (A)

Racine (MIL-5)
Bahr, A. C. (M)
Due, R. C. (M)
Gehan, C. F. (M)
Hill, R. G. (A)
Kahn, H. R. (A)
Kohner, M. (SM)
McMillin, G. L., Jr. (A)
Putra, E. P. (A)
Rheaume, R. O. (M)
Slater, O. C. (A)
Soll, R. H. (M)
Sustachek, K. J. (A)
Van Horn, J. H. (SM)
Wilkerson, A. W. (A)

St. Francis (MIL-5)
Roback, D. J. (M)

Sauk City (MIL-5)
Kirchstein, J. E. (M)

Saukville (MIL-5)
Nunn, E. D. (M)

Sheboygan (MIL-5)
Curry, W. H., Jr. (A)
Gausman, R. A. (M)
Mayer, H. J. (M)

Shorewood (MIL-5)
Zelazo, N. (SM)

South Milwaukee (MIL-5)
Asnicar, D. V. (A)
Bautz, T. W. (M)
Birkhauser, W. E. (A)
Boutelle, J. O. (A)
Day, D. E. (A)
Dzierski, M. P. (M)
Jacobs, M. (M)
Kelsey, L. C. (A)
Lindermuth, G. (A)
Miller, R. W. (M)
Milner, G. (M)
Oberlander, L. E. (M)
Poco, R. J. (M)
Stapo, E. B. (M)
Zahn, P. E. (M)

Spooner (TC-5)
Edwards, P. E. (A)

Sun Prairie (MIL-5)
Wable, G. E. (A)

Thiensville (MIL-5)
Sielicki, A. J. (M)
Silverman, D. M. (M)

Tomahawk (TC-5)
Beneditz, N. F. (M)
McGinnis, H. J. (M)

Union Grove (MIL-5)
Harris, J. H. (M)

Walworth (MIL-5)
Richter, R. E., Jr. (A)

Waukesha (MIL-5)
Burton, J. T. (A)
Cummings, H. R. (M)
Koenig, E. C. (M)

Wausau (TC-5)
Ladwig, T. H. (A)
Zielesch, B. E. (M)

Wauwatosa (MIL-5)
Bailey, J. E. (M)
Bumt, S. S. (M)
Casson, A. J. (M)
Hawley, D. E. (M)
Kay, R. M. (M)
Kelley, J. P. (M)
Kruzik, M. J. (M)
Lawton, L. W., Jr. (M)
Lucas, A. C. (M)
Luedtke, R. L. (M)
Marlett, N. L. (A)
Pierrow, R. L. (M)
Schickedte, R. C. (M)
Schoonner, H. W. (M)

West Allis (MIL-5)
Brunks, G. (M)
Cope, R. A. (A)
Dalasta, D. (SM)
Ferris, L. S. (M)
Force, E. (M)
Houde, T. H. (M)
Lofy, F. J. (M)
Mass, E. H. (A)
Paulo, A. (M)
Paul, D. F. (A)
Reinke, H. J. (M)
Sherfey, W. O. (M)
Sill, F. J. (A)
Smith, C. C. L. (M)
Taylor, E. D. (M)

West Bend (MIL-5)
Babros, R. E. (M)
Gonring, J. F. (A)
Styve, O. W., Jr. (M)

West Depere (MIL-5)
Stangel, W. (M)

Whitefish Bay (MIL-5)
Bailey, H. (M)

Whitewater (MIL-5)
Lemke, C. R. (M)
Traub, J. L. (M)
Weinberg, B. L. (A)

Williams Bay (MIL-5)
Norman, E. B. (M)

Wittenburg (MIL-5)
Gjermundson, G. J. (M)

Wrightstown (MIL-5)
Salava, R. F. (M)

WYOMING

Casper (DEN-6)
Bruce, J. I. (M)
Fagerstone, D. V. (A)
Hathaway, D. L. (SM)
Jones, M. J. (A)
Rodda, M. K. (M)
Stalick, V. J., Jr. (M)
Young, W. R. (M)

Cheyenne (DEN-6)
Anderson, W. H. (A)
Arford, F. W. (M)
Boggess, J. W. (A)
Carson, E. L. (M)
Coleman, G. I. (A)
Dillinger, B. L. (M)
Eckerman, R. J. (M)
Fordham, V. C. (M)
Fowler, C. D. (M)
Griffin, J. W. (M)
Grove, W. C. (M)
Gustafson, G. R. (A)
Hallick, J. A. (A)
Jester, A. H., Jr. (M)
Koczan, F. J. (A)
Lay, P. D. (M)
Leichtweis, D. L. (M)
Lewis, P. L. (A)
Sandoval, A. B. (M)
Shelton, J. T. (M)
Sieverding, J. W. (A)
Solano, F. R. (M)
Stock, P. B. (A)
Turner, W. P. (A)
Wakefield, J. P. (M)
Wright, R. B. (A)

Egbert (DEN-6)
Kaser, L. O. (M)

Fort Warren AFB (DEN-6)
Hintz, H. F. (A)
Schmidt, H. W. (A)

Frannie (DEN-6)
Becker, L. L. (M)

Riverton (DEN-6)
Anderson, L. R. (A)

Laramie (DEN-6)
Hirengen, P. V. (M)
Long, F. M. (A)
Lonesdale, E. M. (SM)
Neumann, H. J. (M)
Rhodine, C. N. (M)
Strock, R. E. (A)

Rock Springs (DEN-6)
Montgomery, R. L. (A)

Sheridan (DEN-6)
Stanton, J. M. (M)

OVERSEAS MILITARY

APO New York
Abernathy, W. J. (M)
Acosta, H. A. (M)
Alala, C. M. (M)
Allard, L. C., JR. (M)
Allen, P. S. (M)
Allender, G. T. (M)
Alley, J. W. (M)
Altman, S. S. (M)
Anderson, R. W. (M)
Anthony, A. R. (M)
Armstrong, J. H. (M)
Arnold, R. D. (M)
Arrington, J. L., II (SM)
Bach, M. B., Jr. (M)
Baker, F. E. (A)
Baker, H. O., Jr. (A)
Baker, J. G. (M)
Barber, C. (M)
Basson, A. A. (A)
Baumgartner, J. H. (SM)
Bean, H. C., Jr. (M)
Beckwith, P. B. (M)
Belcher, M. H. (A)
Belton, W. J. (M)
Benedikty, E. (M)
Bennet, T. A. (M)
Berger, E. G. (M)
Bethge, C. E. (M)
Bess, J. F. (M)
Bills, A. E. (M)
Bjorklund, K. (M)
Blackerby, C. H. (M)
Blakley, D. H. (M)
Blow, T. C. (M)
Bolstridge, L. J. (M)
Borsody, B. F. (SM)
Bowler, J. A. (M)
Braun, M. E., Jr. (M)
Broemser, G. M. (M)
Brofft, A. W. (M)
Brooks, H. A. (A)
Brooks, H. B. (SM)
Brooks, N. S. (M)
Brown, D. E. (M)
Brown, H. M. (SM)
Busch, S. D. O. (M)
Calfrey, J. V., Jr. (M)
Campbell, R. G. (A)
Carroll, E. (A)
Carroll, W. D. (M)
Cervenka, F. J. (SM)
Chandler, G. P., Jr. (M)
Chang, G. M. (M)
Chapman, A. K. (M)
Cirielli, C. A. (M)
Clemons, J. K. (M)
Coddington, D. L. (M)
Colson, R. B. (M)
Combs, D. W. (M)
Cook, D. E. (M)
Cranston, R. B. (M)
Creacy, J. N. (M)
Criner, J. E. (M)
Curtis, R. W. (SM)
Dahlke, C. J. (A)
Dakin, M. H. (M)
Dausin, L. R. (M)
Davidson, R. L. (A)
Davis, E. H. (A)
De Martino, J. P. (A)
De Valve, R. H. (M)
De Witt, D. D. (M)
Diaz, E. (M)
Dickinson, D. B. (M)
Dickson, J. F. (M)
D'Louhy, G. J. (M)
Donovan, K. H. (A)
Drollinger, R. H. (M)
Dupree, J. E. (SM)
Dziuk, J. R. (A)
Edens, J. A. (A)
Elam, E. M. (M)
Elhoff, W. C. (M)
Eliopoulos, A. J. (M)
Emanovsky, A. E. (M)
Empey, C. H. (M)
Erdman, A. L. (A)
Estabrook, R. K. (A)
Evans, A. L. (A)
Fair, R. D. (M)
Felder, I. D., III (A)
Felsen, L. B. (SM)
Finn, E. L. (M)
Fiorelli, M. C. (M)
Forkner, E. G. (M)
Foster, W. F. (M)
Fouch, J. W. (M)
Fowler, L. D. (M)
Freeland, D. A. (M)
Fuchs, M. J. (M)
Fullilove, M. N. (M)
Galpin, J. B. (M)
Gamentsfelder, H. E. (M)
Gammon, C. (M)
Gane, C. E. (M)
Garber, J. F., Jr. (SM)
Garee, J. A., Jr. (M)
Genge, R. E. (M)
Gentry, E. B. (M)
George, L. G. (A)
Gerkin, F. A. (M)
Godwin, R. L. (M)
Goen, O. F. (SM)
Gompert, L. T. (M)
Good, F. R. (M)
Gossett, S. D. (A)
Goutos, A. (M)
Grady, J. H. (M)
Greenman, L. R. (M)
Gregory, C. M. (A)
Grey, R. (M)
Gilder, J. M. (M)
Hadwick, R. E. (M)
Haettenschwiller, D. L. (A)
Halek, S. J. (M)
Hall, C. M. (A)
Hall, W. W., Jr. (M)
Hancsak, R. P. (M)
Handleman, M. (M)
Handlon, R. A. (A)
Hanrahan, J. A. (M)
Hanson, R. L. (M)
Hardy, O. C. (M)
Harrington, R. R. (A)
Harrison, T. L. (A)
Hart, C. L. (A)
Hart, W. M., Jr. (M)
Helfner, H. (SM)
Helper, W. R. S. (M)
Henneke, J. T. (A)
Hessel, J. (F)
Hicks, J. M. (M)
Hill, J. W. (M)
Hollander, H. C. (M)
Hoover, R. E. (A)
Howard, D. F. (M)
Hunsuck, J. D. (M)
Huska, J. (A)
Inman, R. P. (M)
Inserra, J. S. (M)
Jensen, H., Jr. (M)
Jones, A. H. (M)
Joska, J. S. (M)
Juno, W. K. (M)
Kaedino, D. A. (M)
Kaiser, E. E. (M)
Kajiwara, K. (M)
Kane, L. P. (M)
Kasal, K. (M)
Keagy, R. B. (M)
Keenan, J. A. (M)
Kelley, K. H. (M)
Kelly, P. J. (M)
Kevorkian, G. (M)
King, R. A. (M)
Kirkland, F. B. (A)
Klucarich, S. (A)
Knausenberger, G. E. (M)
Kratsch, P. H. (M)
Krochmal, A. F. (M)
Kruse, E. S. (M)
Kubiszewski, R. J. (A)
Kush, J. J. (M)
Lackey, M. I. (A)
Lairmore, G. E. (A)
Lamar, K. (M)
Landry, S. G. (M)
Lasher, D. R. (M)
Lawrence, W. R. (A)
Lawyer, D. S. (M)
Leary, J. (A)
Lethem, D. B. (M)
Leogeut, A. G., Jr. (M)
Leon, K. E. (M)
Levine, J. I. (M)
Limmer, R. D. (M)
Loane, R. J. (M)
Longworth, R. A. (M)
Louderback, H. W., Jr. (M)
Lovell, D. E. (M)
Lucid, J. R. (M)
Luecker, G. (M)
Lumsden, J. C. (M)
Mabry, M. H. (A)
Macpherson, G. W. (A)
Madigan, J. A. (M)
Madsen, J. F. (M)
Mardigian, R. (M)
Marquez, A. (M)
Martens, R. W. (M)
Martin, A. J. (A)
Martin, D. (A)
Marvin, A. L., Jr. (M)
Maryeski, L. P. (M)
Masterson, R. A. (M)
Mayer, C. R. (M)
McAllister, J. A. (SM)
McCarron, D. J. (M)
McComic, J. R. (A)
McCoy, H. H. (A)
McKinney, D. J. (M)
McLain, T. E. (M)
McLean, M. H. (M)
McMurtrie, R. (M)
McPadden, G. E. (M)
McPherson, L. F. (M)
Mellion, H. I. (M)
Metzner, H. E. (M)
Miles, J. R., Jr. (M)
Miller, W. L. (M)
Mills, B. E. (SM)
Mindedal, J. (M)
Mitchell, S. G. (M)
Mitchell, W. E. (M)
Moceyunas, A. J. (M)
Monteith, R. B. (A)
Moorman, F. W. (SM)
Morgan, W. R. (A)
Mulder, H. E. (M)
Mullarkey, W. E. (M)
Murphrey, I. G. (M)
Needham, H. A. (M)
Nelson, D. R. (M)
Nelson, R. V. (M)
Newell, L. T. (SM)
Norton, W. N., Jr. (M)
Nothman, M. H. (M)
Olttinen, K. E. (A)
Ostlund, G. L. (A)
Ott, W. F. (M)
Overby, H. (SM)
Pansch, H. J. (A)
Papa, J. (M)
Patterson, R. J. (A)
Perry, J. W., Jr. (M)
Perry, L. F. (M)
Petersen, R. R. (M)
Phillips, W. F. (M)
Pieper, A. F. (A)
Pixton, J. R. (M)
Poppele, R. E. (M)
Ray, R. E. (M)
Reich, R. F. (M)
Retzbach, W. J. (A)
Ricciardelli, A. M. (SM)
Richard, J. E. (M)
Richers, E. E. (M)
Ritter, F. (M)
Roder, C. C. (M)
Roemer, J. S. (M)
Rollins, J., Jr. (M)
Rothermel, R. S. (M)
Rouge, L. J. D. (SM)
Russell, H. L. (M)
Sands, W. C. (M)
Saunders, R. G. (M)
Sauter, P. J. (A)
Saxton, A. W., Jr. (A)
Schmickley, J. H. (M)
Schneider, C. J. (M)
Sengel, P. A. (M)
Sharp, R. L. (M)
Shey, P. F. (M)
Shoemaker, H. L. (M)
Shutts, D. M. (M)
Sidon, A. P. (M)
Sigethy, R. (M)
Skinner, A. L. (M)
Sloman, F. A. (A)
Smith, B. M. (M)
Smith, M. O. (M)
Smullin, R. (M)
Snyder, N. (SM)
Soules, C. W. (M)
Spafford, L. J. (M)
Spear, L. (M)
Stadler, F. W. (M)
Stanford, G. E., Jr. (M)
Stangl, F. P. (SM)
Stinson, L. F. (SM)
Stolz, J. R. (A)
Stone, J. H. (M)
Sullivan, J. T. (M)
Sutherland, C. E. (M)
Sybenga, P. M. (M)
Taylor, P. G. (M)
Teeuw, J. W. (A)
Thelsz, G. F., Jr. (M)
Theroux, G. L. (M)
Thom, A. R. (SM)
Timmerman, F. (SM)
Todd, E. E. (M)
Toft, S. C. (M)
Toole, J. L., III (A)
Trio, R. E. (M)
Trofdon, F. H. (M)
Turner, T. B. (M)
Urbanski, L. J. (A)
Vesce, A. J. (A)
Vestal, E. E., Jr. (M)
Villines, W. M. (M)
Volpe, M. (M)
Voris, H. A., Jr. (M)
Wadehul, R. R. (M)
Wahle, J. J. (M)
Waldemar, L. A. (M)
Walsh, J. P. (M)
Ward, H. H., III (SM)
Waterman, H. H. (M)
Watlington, F. W. (M)
Waugh, A. C. (SM)
Weatherby, Y. D. (M)
Webb, D. D., Jr. (M)
Weeks, H. L. (M)
Wells, H. W. (F)
Wells, J. H., Jr. (M)
Westman, H. E. (M)
Wheeler, J. B., Jr. (A)
Whyte, K. E. (M)
Wilburn, B. A. (M)
Wilkins, D. E. B. (A)
Wille, E. A. (M)
Williams, A. C. (A)
Wilmot, R. D. (M)
Windsor, R. N. (A)
Wiseman, C. H. (M)
Wittig, W. L. (SM)
Wolfe, A. J. (A)
Wood, G. W. (SM)
Wood, P. W. (M)
Woolley, E. E. (M)
Wright, R. K. (A)
Wrigley, J. B. (M)
Wurdemann, W. H., Jr. (SM)

APO San Francisco
Akerberg, E. D. (M)
Aleksa, J. J. (M)
Anderson, R. A. (M)
Antosy, S. J. (M)
Atkinson, D. E. (M)
Avrit, R. C. (M)
Barker, L. R. (A)
Barkman, R. N. (M)
Barney, G. P. (M)
Bates, W. J. (M)
Beahr, A. W. (A)
Becker, S. D. (M)
Begasse, J. W. (M)
Berfanger, J. A. (M)
Betts, R. W. (M)
Blackwell, J. L. (A)
Blake, G. A. (SM)
Booth, G. H. (A)
Borlaug, P. V. (M)
Borlik, R. E. (M)
Boskino, J. K. (M)
Bowlby, R. E. (A)
Bravin, C. (A)
Brown, D. M. (M)
Brown, T. E. (A)
Bundy, C. W. (SM)
Buonanno, C. (A)
Busch, K. L. (M)
Cadby, G. G., Jr. (A)
Callahan, A. L. (M)
Camenter, A. B., Jr. (M)
Carr, B. A. (M)
Cattemole, G. B. (M)
Chambers, G. S. (M)
Chrestien, C. A. (A)
Christensen, G. S. (M)
Clark, D. B. (M)
Cook, J. D. (M)
Crawford, G. A. (M)
Curling, R. L. (M)
Dame, R. O. (M)
Davis, C. G. (A)
Delort, R. (M)
Dick, H. J. (M)
Diers, C. E. (M)
Dolan, B. A. (M)
Doran, J. W. (A)
Doughty, E. C., Jr. (M)
Duncan, H. H. (M)
Dwyer, L. A. (M)
Earle, J. L. (A)
Emery, R. M. (A)
Essary, W. D. (M)
Eustace, R. J. (M)
Fabianic, W. S. (M)
Faust, R. L. (M)
Fisher, R. L. (M)
Fleming, F. L., Jr. (M)
Flynn, F. A. (M)
Fitese, G. A. (M)
Gates, D. E. (M)
Geesey, F. M. (M)
Gilbo, A. W. (M)
Gladding, E. B. (SM)
Goch, S. J. (M)
Goldstein, B. L. (A)
Goss, J. (A)
Graham, D. N. (M)
Green, C. (A)
Guyton, J. A. (M)
Haag, S. J. (SM)
Haeckler, W. K. (M)
Hale, G. R. (M)
Hanna, D. L. (M)
Harada, S. (M)
Harding, P. (M)
Harmon, L. W. (M)
Hart, J. E. (M)
Hartman, A. G. (M)
Hodgskiss, W. L. (M)
Hoffman, L. E. (M)
Holmes, W. M., Jr. (M)
Horita, T. (A)
Humphreys, J. D. (M)
Iwai, K. G. (A)
Jackson, D. A. (M)
Johnson, J. G. (SM)
Jones, W. G. (A)
Jouvenat, J. M. (M)
Katz, P. (M)
Keasler, E. S., Jr. (M)
Kelly, D. R. (A)
Kennedy, W. J. (M)
Kibling, C. A. (M)
Kilbride, K. E. (M)
Kinnie, I. G. (M)
Klimpl, E. W. (M)
Knopf, J. F. (M)
Laine, L. C. (M)
La Rue, C.E. (M)
Lauts, R. T. (A)
Lenz, W. K. (M)
Lewis, P. A. (M)
Linder, I. W. (M)
Loewenstem, W., Jr. (M)
Madden, W. B. (M)
Manning, G. C. (M)
Mather, D. I. (SM)
McCarty, R. F. (M)
McCord, J. (M)
McDonald, W. W. (M)
McKnight, C. J. (M)
McPherson, L. F. (M)
McTaggart, T. J. (A)
Merkel, M. A. (A)
Miller, R. J. (M)
Monohan, L. P., Jr. (M)
Morgan, A. J. (M)
Mortenson, A. R. (M)
Muller, M. T. (M)
Nash, H. F., Jr. (M)
Neal, M. E. (M)
Neuendorff, W. C. (M)
Newcomb, H. W. (A)
Nichols, T. O., Jr. (A)
Nygaard, G. M. (M)
Olsen, J. C. (M)
Orzalli, J. B. (M)
Park, R. L. (M)
Parker, C. F. (M)
Parkkinen, M. (A)
Paul, B. W. (M)
Paul, H. C. (M)
Paules, G. E. (M)
Peeler, J. L. (M)
Pendleton, F. L. (M)
Peoln, G. R. (M)
Potter, W. W. (M)
Powell, R. I. (M)
Presender, R. E. (M)
Pryga, J. F. (A)
Reiff, G. A. (M)
Reilly, L. W. (M)
Rende, A. A. (M)
Rodgers, J. C. (M)
Rodgers, S. M. (M)
Rodin, H. C. (SM)
Rogers, D. E. (M)
Rothman, H. L. (A)
Roudebush, J. L. (M)
Royce, E. R. (M)
Rugoles, K. W. (A)
Sandler, B. (M)
Scheetz, R. E. (A)
Schwartz, J. J. (M)
Scott, L. D. (M)
Seaver, G. E. (A)
Seymour, H. A. (SM)
Shaffer, R. E. (A)
Shaver, W. M. (M)
Shea, E. T. (A)
Shelton, R. G. (M)
Shoemaker, F. J. (M)
Slergiej, E. S. (M)
Smith, A. J. (A)
Smith, C. M., III (M)
Smolak, J. P. (A)
Souder, G. H. (M)
Stewart, F. (M)
Stickney, C. W. (M)
Stiegelmar, L. R. (A)
Stobie, E. F. (M)
Stoer, F. T., Jr. (M)
Stute, R. A. (M)
Talley, R. P. (M)
Thomas, C. R. (A)
Tom, H. (M)
Townsend, N. L. (A)
Tufts, R. M. (SM)
Tupper, B. C. (M)
Vallandigham, W. W. (M)
Varnik, A. (M)
Weaver, W. C. (M)
Wehmeyer, C. H. (M)
Weil, H. M. (M)
Weiner, J. H. (M)
Wenger, D. B. (M)
Wenger, L. S. (SM)
Whelan, F. X., Jr. (A)
Wilson, H. D. (M)
Wingfield, E. A. (M)
Winter, H. (SM)
Woerz, M. W. (A)
Wolfe, D. C. (M)
Worley, A. R. (SM)
Yanagihara, F. T. (A)
Ziebell, D. H. (M)

APO Seattle
Bosley, H. L. (M)
Fedder, J. A. (M)
Gikas, G. N. (M)
Greystone, S. R. (M)
Kerrigan, D. J. (A)
Knight, R. M. (M)
McQueen, V. (M)
Owens, J. N. (A)
Ruhlin, R. R. (M)
Wassenberg, J. F. (M)
Watts, H. T., Jr. (A)
Witsiepe, R. E. (SM)

ALGERIA

Alger
Sarazin, A. (A)

ARGENTINA

Buenos Aires (BA)
Andrews, G. J. (SM)
Arbo, O. (A)
Barbieri, M. (M)
Bermudez, J. (A)
Bilotti, A. (A)
Blon, J. L. (SM)
Brandt, L. (M)
Canepa, J. A. (M)
Canese, O. R. (A)
Capra, E. L. (M)
Cassiet, A. H. (M)
Castro, S. (A)
Chuartzman, P. (A)
Cole, T. J. (A)
Comas, E. G. (M)
Conde, H. O. (A)
Coriat, J. L. (SM)
Cosentino, A. T. (F)
De Ridder, L. E. (M)
Diaz, J. O. (M)
Diaz De Vivar, P. D. (M)
Diez, A. (A)
Di Marco, A. (SM)
Endruhn, A. O. (M)
Falcone, J. A. (M)
Fernandez, O. C. (SM)
Flint-Halpern, M. (A)
Gamba, D. W. (SM)
Garrido, R. A. P. (A)
Gatti, R. A. (M)
Grant, I. C. (SM)
Guiral, R. L. (M)
Kirkscether, E. J. (SM)
Kline, L. (A)
Leibson, L. J. (A)
Lojkasek, T. (A)
Lozano, A. R. (M)
Lubary, E. A. R. (A)
Machain, L. R. (M)
Maget, R. V. X. (SM)
Marelli, R. V. (A)
Marquilus, M. (SM)
Martinez, P. J. (M)
Martinez-Vazquez, J. (M)
Mateos-Sidron, A. J. (M)
Mattiussi, O. A. (M)
Mauro, C. E. (M)
Nelstadt, R. B. (M)
Noviks, B. (M)
Novillo, H. L. (A)
Nucci, A. M. (M)
Pereyra, L. A. (SM)
Perez, J. M. (A)
Picard, A. (M)
Pinasco, S. F. (M)
Pluss, C. P. (SM)
Prevedel, H. V. (A)
Prodan, R. (A)
Radeglia, R. A. Y. (M)
Rawson, G. (A)
Ricci, A. J. (M)
Rocha, L. F. (M)

ARGENTINA

Rueda, J. V. (M)
Scholar, E. (M)
Schwartz, O. (M)
Schweimer, K. P. (M)
Silberman, F. J. (A)
Steiner, J. I. (SM)
Steube, F. R. (A)
Stofenmacher, A. (A)
Taola, A. (M)
Trench, J. A. (M)
Tufro, A. (SM)
Van Der Lee, A. C. (M)
Van Spankeren, G. H. (SM)
Westerkamp, J. F. (M)
Wojclechowski, V. (A)
Zollfrei, C. D. (M)

Caseros
Boquete, C. B. (M)

La Plata
Barcala, J. M. (SM)
Longchamps
Ciner, E. (M)

Martinez
Candido, J. V. (SM)

Moreno
Van Rees, G. A. (M)

Rio Negro
De Haro, F. ?. (A)
Ferro, O. H. G. (M)

Rosario
Malnieri, A. J. (M)

San Luis
Barbenza, H. G. (M)

San Martin
De Los Santos, A. N. (A)

San Miguel De Tcuman
De Zavalia, R. J. L. (A)
Frias, D. E. (SM)

Vincente Lopez
Henke, F. G. (M)

AUSTRALIA

AUSTRALIAN CAPITAL TERRITORY

Canberra
Brown, S. E. (A)
Carden, P. O'N. (A)
Coombs, J. S. (M)
Graf, G. R. (M)
Hibbard, L. U. (M)
Robertson, D. S. (A)
Wadsworth, B. F. P. (M)
Waugh, J. B. S. (M)

NEW SOUTH WALES

Ashfield
Honnor, W. W. (SM)

Beecroft
Hope, R. S. (M)

Bexley
Wardale, A. H. (M)

Blacktown
Hesse, C. M. (A)

Campbelltown
Brookes, C. H. P. (M)

Chippendale
Chandler, G. A. (A)
Dobbie, L. G. (SM)
Minnett, H. C. (M)
Ryan, R. D. (M)

East Lindfield
Thom, F. W. P. (SM)

Eastwood
Guertler, R. J. F. (SM)

Kensington
Harris, R. W. (A)
Laisk, E. (M)
Lampard, D. G. (M)

Lonqueville
Swire, B. E. (M)

Mosman
Wyles, D. G. (SM)

Northbridge
Holmes, W. H. (M)

Northwood
Goddard, B. R. (M)

Orange
Crouch, E. C. (A)

Penshurst
Hansen, I. C. (M)

Randwick
Chinn, H. R. (A)

Roseville
Fisk, E. (F)

Sydney
Aitchison, R. E. (M)
Bean, L. P. R. (SM)
Brooks, G. R. (M)
Bushby, T. R. W. (SM)
Fowler, A. (M)
Gruner, L. (M)
Gutmann, F. (SM)
Hooke, L. A. (SM)
Kirkham, P. (M)
MacDonald, J. A. (M)
Messerle, H. K. (SM)
Mingay, O. F. (SM)
Munro, G. H. (SM)
Parish, H. C. (M)
Williams, E. H. (M)

Turramurra
Cooper, B. F. (M)
Little, A. G. (M)
Stevenson, M. H. (SM)

Villawood
Hall, G. G. (M)

Yennora
Finney, K. L. (A)

QUEENSLAND

Brisbane
Beckett, F. J. (A)
Ham, G. (M)
Oliver, E. (M)
Wade, C. F. N. (SM)
Webster, H. C. (M)

Indooroopilly
Kennewell, E. M. (A)

SOUTH AUSTRALIA

Adelaide
Ellesworth, G. (SM)
Mudgway, D. J. (A)
Trehame, R. F. (A)
Weston, P. E. (M)
Willoughby, E. O. (M)

Beaumont
Davies, R. J. C. (M)

Clarence Park
D'Assumpcao, H. A. (M)

Salisbury
Jones, E. (A)

Walkerville
Hole, G. W. R. (M)

Woomera
Brooks, W. G. E. (M)
Paluka, J. R. (M)
Pickering, L. A. (M)

VICTORIA

Abbotsford
Court, G. W. G. (SM)

Blackburn
Hooper, E. M. (M)
Mackay, R. (A)

Brighton
Rubenstein, S. J. (M)
Warner, G. A. (M)

Chadstone
Vaux, L. J. (M)

Coburg
Williams, M. E. L. (SM)

Hawthorn
Crawford, G. H. (A)

Heidelberg
Brodribb, M. I. (M)

Ivanhoe
Chakanovskis, E. (A)

Kensington
Burrows, L. T. (M)

Melbourne
Brownless, S. F. (M)
Faudell, C. L. (SM)
Glover, A. J. G. (M)
Jacoby, A. (A)
Mair, R. B. (SM)
Skelton, T. H. (SM)
Watson, W. J. (A)

Parkville
Caro, D. E. (A)
Muirhead, E. G. (M)

Richmond
Webb, A. L. C. (M)

South Melbourne
McInnes, I. G. (SM)

Sunshine
Blakeley, W. C. (M)

Mount Waverley
Cox, L. V. (M)

WESTERN AUSTRALIA

Applecross
Baldock, A. R. (A)

Bellevue
Simrod, R. (A)

Nedlands
Billings, A. R. (SM)
Fall, J. V. (M)

Perth
Hatton, G. H. T. (A)
Hayman, W. G. (M)

AUSTRIA

Vienna
Barrett, A. E. (SM)
Buehler, J. H. (A)
Kudielka, V. W. (M)
Peterson, P. R. (M)
Zemanek, H. (M)

BAHAMAS

Nassau
Curling, A. E. (A)
Halkitis, J. A. M. (A)
Ingraham, K. R. (M)
Outten, S. S. (A)
Sherman, A. B. L. (M)

BELGUIM

Antwerp (BNL)
Chantrain, X. (M)
Collette, M. M. (A)
De Bruyne, P. (A)
Hanotte, P. E. (M)
Vlaeminck, N. J. C. (A)

Berchem (CM)
Fettweis, A. L. M. (M)

Brussels (BNL)
Belevitch, V. (F)
Bernaert, A. L. J. (A)
Bouchier, P. (SM)
Bourgeois, J. M. F. (A)
Bourquignon-Fanaey, G. (A)
Carentier, W. J. O. (M)
Coutrez, R. J. (SM)
Gewillig, M. R. (M)
Gonze, R. F. J. (M)
Hayes, T. D. (M)
Herbays, E. H. (SM)
Hoffmann, J. A. J. L. (SM)
Lund, R. E. (M)
Marique, J. (SM)
Murphy, B. (M)
Nelvynck, J. J. (M)
Van Dyck, E. A. (M)
Van Roy, J. (M)
Voltaggio, F., Jr. (SM)
Vorobeitchik, J. (M)

Charleroi (BNL)
Desirant, M. C. (SM)

Ghent (BNL)
Borreman, Y. M. (M)
Buys, W. L. (M)
Van Den Meersche, A. J. (SM)
Van Lantschoot, E. J. (M)

Kortrijk (BNL)
Vanwormhoudt, M. C. (M)

Louvain (BNL)
De Bock, A. H. (SM)
Jespers, P. G. A. (M)

Mons (BNL)
Cogneaux, M. (M)

Mortsel (BNL)
De Kerf, J. L. (M)

Putte (BNL)
Liekens, A. F. (A)

Wilrijk (BNL)
Deschuytere, L. C. (M)

BERMUDA

Hamilton
Hillier, R. J. (M)
Spershott, J. H. (M)

Paget
Amos, A. F. (A)

Warwick
Harries, J. H. O. (SM)

BRAZIL

Alagoas
Lisboa, M. H. D. A. (M)

Belo Horizonte
De Castro, E. M. (M)

Porto Alegre
Ely, R. S. (M)
Muller, F. R. (A)
Ritter, G. (A)

Rio De Janeiro
Amarante, A. J. D. (A)
Bonapace, H. (SM)
Caicoya, J. I. (M)
Chapin, C. J. (M)
Correa, A. D. C. (M)
Costa, H. (F)
Coutinho, E. O. (M)
Da Luz, A. F. H. B. P. (A)
Delvaux, P. (M)
De Medeiros, L. A. (M)
De Oliveira, A. M. (SM)
Do Rosario, L. R. (M)
Farmer, F. H. (M)
Ferreira, D. S. (M)
Frederico, J. C. B. (M)
Fuzesi, Z. (SM)
Garcia, J. R. (A)
Girard, P. A. (M)
Grant, F. W. (SM)
Guerbilsky, A. (M)
Guimaraes, G. S. C. (M)
Heininger, W. W. L. (SM)
Herz, G. (M)
Kresch, R. (M)
Lacombe, C. G. (A)
Leal, J. M. (A)
Maia, G. N. S. (M)
Maranhao, S. M. (A)
Martins, R. B. (M)
Miranda, E. D. S. (A)
Pareto Neto, J. V. (M)
Penido, E. (A)
Pereira, M. P. D. B. (M)
Portella, S. M. (M)
Pradal, H. A. (A)
Quacchia, G. M. (M)
Ribeiro, G. D. (A)
Ribeiro, H. S. C. (A)
Ribeiro, M. P. (M)
Schreyer, H. T. (M)
Silva, R. D. C. E. (A)
Sobral, J. M. (A)
Valverde, J. F. (M)
Vianna, A. C. (M)
Wiltgen, J. A. (SM)

Sao Paulo
Alens, N. (M)
Barros Barreto, L. A. (M)
Baumann, C. (SM)
Beaman, W. G. (A)
Belck, H. B. (M)
Boffi, L. V. (M)
Borda, J. A. (M)
Brandt, W. L. (M)
Brener, V. (A)
Cassignol, E. J. (M)
Chow, Y. (M)
Dantine, W. A. (M)
Da Rosa, A. V. (M)
De Arruda, P. R. (A)
De Macedo, A., Jr. (M)
De Miranda, S. M. (A)
De Palva Lopes, C. (M)
Fanta, P. (M)
Ferrer, G. G. (M)
Funari, B. (M)
Girardelli, L. R. L. (A)
Goldberger, E. (A)
Goldberger, N. (A)
Goldmann, R. D. (A)
Guimaraes, B. Q. (M)
Hertz, J. A. (M)
Hirschfeld, B. (SM)
Joste, S. V. (M)
Kaufmann, P. (A)
Kirschner, R. A. (M)
Kubelka, W. (M)
Leimer, A. A. (M)
Levy, G. I. (M)
Lignon, J. R. (A)
Magyar, P. E. (M)
Marsellian, R. F. (A)
Meyer, L. V. (A)
Muzzio, J. L. R. (A)
Paulin, J. P. (M)
Perini, J. (M)
Rios, L. G. (M)
Rittmeister, H. (M)
Rubin, L. (SM)
Senise, J. T. (M)
Sherman, F. L. (M)
Smit, J. (M)
Stamopoulos, C. D. (SM)
Stucken, H. (A)
Tissi, P. (A)
Tsao, F. A. (M)
Waeny, J. C. C. (M)
Woelz, A. L. (M)

BRITISH EAST AFRICA

KENYA

Nairobi
Pegrume, S. A. (M)

BRITISH GUIANA

East Coast Demerara
Tibbits, A. E. (A)

Rio Demerara
Greaves, H. A. (M)

BRITISH OCEANIA

FIJI ISLANDS

Suva
Peck, D. G. (M)

BURMA

Rangoon
Aung, U. T. (M)
Ba'thli, F. (M)
Kyi, M. A. (M)
Myint, A. (M)
Myint, T. (M)
Paw, M. T. (M)
Tun, U. T. (A)
Win, K. (A)

CANADA

ALBERTA

Anzac (NA-B)
Whyte, J. D. (A)

Ardrossan (NA-B)
Elwell, A. T. (A)

Bowness (SA-B)
Carlson, C. V. (A)

Calgary (SA-B)
Allan, W. K. (M)
Ball, E. T. (M)
Baumgart, G. C. (A)
Billedeau, V. A. (A)
Blank, J. A. (M)
Brownlee, B. P. (M)
Buckmaster, H. A. (M)
Bunko, W. (M)
Caldwell, L. W., Jr. (M)
Cole, A. M. (A)
Connor, E. C. (A)
Cook, R. E. (M)
Cooley, L. E. (A)
Davidson, B. A. (A)
Davis, A. P. (SM)
Dickson, F. J. (A)
Dubber, W. G. (A)
Evans, P. R. N. (A)
Fleming, G. I. H. (M)
Freek, W. L. (M)
Gill, A. L. (A)
Goodman, C. J. (M)
Gordon, L. (A)
Gordon, R. E. (M)
Griswold, A. L. (A)
Guthoff, G. H. (M)
Handford, G. B. (M)
Hansen, C. H. (A)
Hill, R. F. (A)
Hollingshead, G. W. (A)
Johnson, C. M. (M)
Johnston, C. W. (M)
Kelcey, M. F. (M)
Kerr, W. G. (A)
Kittlitz, N. E. (M)
Kittlitz, R. S. (M)
Lemke, R. L. (A)
Litchinsky, S. (M)
Lundrigan, E. G. (A)
Maberley, G. A. (A)
McBride, B. J. (A)
McDougall, S. B. (A)
McDowell, W. J. (M)
McKenzie, K. J., Jr., (A)
Meleshko, O. M. (A)
Moore, A. M. (A)
Moore, J. D. (M)
Nawata, T. (A)
Omura, J. M. (A)
Parkinson, G. E. (M)
Partin, W. (M)
Peters, R. R. (A)
Porochnuk, W. N. (M)
Sadler, G. L. (M)
Sandrelli, R. D. (A)
Sasso, E. F. (M)
Schafer, E. D. W. (M)
Schrack, F. G. (M)
Schulze, G. H. (A)
Sisko, J. R. (M)
Smith, M. F. (A)
Smith, R. E. (M)
Stuart, A. J. (M)
Traxler, H. A. (M)
Umbach, E. A. (A)
Vincent, L. P., Jr. (M)
Watt, K. M. (M)
Werbisky, C. E. (A)
White, G. H. (A)
Whittle, T. D. (A)
Wright, J. F. (A)
Zelonka, F. A. (M)

Calmar (NA-B)
Sych, J. A. (A)

Canmore (SA-B)
Medland, W. (A)

Cold Lake (NA-B)
Hunt, O. (M)
Stromsmoe, K. A. (M)

Edmonton (NA-B)
Arksey, G. W. (M)
Baker, L. R. (M)
Banks, K. M. (M)
Bassendowski, E. A. (A)
Bidulock, G. (M)
Burtch, N. (A)
Cable, R. P. (M)
Caldwell, A. (M)
Campbell, J. E. (SM)
Cary, S. L. (A)
Caspar, R. B. (A)
Christie, R. (A)
Cunningham, W. E. (M)
Dowhan, H. (M)
Ducey, R. J. (M)
Earnshaw, A. (M)
Fedoroshyn, S. C. (A)
Hall, T. W. (M)
Harwood, E. L. (M)
Hollingworth, F. (A)
Ingram, G. R. (A)
Iwaniuk, V. P. (A)
Johnson, R. A. (A)
Jull, E. V. (M)
Kemo, J. R. (M)
Kennedy, J. G. (A)
Kiss, F. V. (M)
Kleebaum, E. G. (A)
Kupnowicki, M. (A)
Leitch, J. G. (M)
Lines, E. G. (M)
Mac Donald, D. L. (SM)
Makepeace, F. G. (A)
Maltby, R. J. (M)
McGavin, C. B. (A)
McLean, R. A. (M)
McMahon, V. J. (M)
Metcalf, W. B. (M)
Neal, J. T. (M)
Nichol, A. C. (A)
Onyshko, S. (M)
Parent, L. E. (M)
Paterson, S. G. (M)
Peterson, D. A. (M)
Petrik, J. (A)
Porteous, J. W. (SM)
Powley, R. K. (A)
Rice, G. R. A. (A)
Royer, D. P. (A)
Rozak, L. W. (A)
Sacker, J. E. (M)
Scott, G. C. (M)
Scotten, E. C. (A)
Shelton, A. B. (M)
Skutle, G. O. (A)
Smith, A. O. (A)
Smith, O. A. (M)
Stein, R. A. (M)
Storms, W. A. (A)
Sutcliffe, R. F. (M)
Swiddle, J. E. (A)
Thorpe, P. P. (M)
Waddell, T. (A)
Wadson, T. E. (A)
Watts, M. A. (A)
Whitley, W. M. (A)
Williamson, W. R. (M)
Zowtiak, J. (M)

Granum (SA-B)
Johnson, N. P. (A)

Peace River (SA-B)
Gardner, R. J. (A)

Ponoka (NA-B)
Osterland, C. A. (A)
Taylor, E. L. (M)

Ralston (SA-B)
Clink, W. L. (M)

Red Deer (NA-B)
Bartley, G. A. (SM)
Jonkman, J. Y. (A)

St. Albert (NA-B)
Donovan, L. N. (M)
Usher, R. (M)

South Edmonton (NA-B)
Cole, D. R. (A)

Strathmore (SA-B)
Gomez, A. M. (M)

Trochu (SA-B)
Luoma, A. J. (A)

Youngstown (SA-B)
Edler, J. O. (M)

BRITISH COLUMBIA

Abbotsford (VAN-B)
Carter, R. F. (A)

Burnaby (VAN-B)
Aitken, R. (M)
Fraser, F. S. (M)
Kay, D. H. J. (SM)
Reagh, D. M. (A)

Castlegar (VAN-B)
Thorp, W. W. (M)

Dawson Creek (VAN-B)
Adams, R. (SM)
Hatlelid, J. G. (M)

Esquimalt (VAN-B)
Evans, D. J. (M)

Fort Nelson (VAN-B)
Jones, L. M. (M)

Fort St. John (VAN-B)
Magee, H. D. (A)

Holberg (VAN-B)
Treend, R. S. (A)

Kelowna (VAN-B)
Wyatt, T. E. (A)

Ladner (VAN-B)
Forder, A. F. (M)

Langley (VAN-B)
Granholm, B. W. (M)
Johnson, T. R. (M)

McBride (VAN-B)
Power, R. C. (A)

Mission City (VAN-B)
Kyashko, W. (A)

Mount Lehman (VAN-B)
Hepburn, J. T. (M)

Nanaimo (VAN-B)
Boston, N. E. J. (M)
Carswell, J. D. (A)
Inglis, J. B. (A)
King, F. W. (A)
Mac Intyre, E. R. (M)
Oliver, D. A. (A)
Pirart, M. A. (M)

Natal (VAN-B)
Sofko, G. J. (M)

New Westminster (VAN-B)
Butler, R. H. (A)
McConnell, B. (A)
Norstrand, R. B. (M)
Shiu, S. D. W. (M)

North Burnaby (VAN-B)
Newton, W. K. (M)
Saito, Y. (M)
Tracey, W. R. (M)

North Surrey (VAN-B)
Liggins, A. (M)
Ott, E. K. (A)
Walters, H. T. (A)

North Vancouver (VAN-B)
Alfreds, L. J. (SM)
Crawford, A. M. (M)
Elliott, D. T. (A)
Goldie, H. J. (M)
Greenwood, S. J. (A)
Hoyles, H. A. (M)
Lobb, R. H. M. (M)
Lynch, T. G. (M)
Maddison, R. R. (M)
Marlatt, C. D. (A)
McDonald, R. C. (A)
Morison, D. P. (M)
Neveroski, F. (M)
Niblock, P. A. (SM)
Norman, E. R. (A)
Racey, T. W. (A)
Ridsdale, R. E. (M)
Rose, E. G. (M)
Saperstein, M. J. (M)
Strachan, R. A. (M)
Wheeler, K. L. (A)
Willoner, G. (SM)
Wilson, C. M. (M)

Pender Harbours (VAN-B)
Payne, T. E. G. (A)

Penticton (VAN-B)
Locke, J. L. (M)
Paton, I. W. (A)

Port Moody (VAN-B)
Chisholm, E. (A)

Prince Ruppert (VAN-B)
Johnston, A. T. (A)

Read Island (VAN-B)
Taylor, A. H. (SM)

Richmond (VAN-B)
Barron, K. E. (M)
Eng, D. K. (M)
Matheson, C. D. (A)
Merry, H. C. (A)
Swenns, R. L. (A)
White, E. (M)

South Burnaby (VAN-B)
Bailey, F. C. (M)
Carey, W. H. (M)
Knight, G. M. (A)
Smith-Gander, N. C. A. (M)
Tripp, H. H (A)

Trail (VAN-B)
Baron, H. D. (A)
Gowans, W. K. (M)

Vancouver (VAN-B)
Bealle, D. F. (A)
Beddoes, M. P. (SM)
Black, D. T. (M)
Bohn, E. V. (A)
Bowers, F. K. (M)
Breeze, J. E. (SM)
Butterfield, L. A. (M)
Chandler, A. H. (M)
Chandler, G. C. (SM)
Clarkson, G. A. (M)
Clisch, D. F. (A)
Cockburn, B. K. (A)
Cole, R. A. (SM)
Corbett, T. H. (M)
Cringan, F. J. (M)
Crowson, D. B. (M)
Cuddeford, R. A. (M)
Cummings, W. M. (A)
Cushing, T. D. (M)
Day, C. A. (M)
Diamond, M. (M)
Eldridge, R. C. (M)
Eng, T. S. (M)
Englefield, C. G. (M)
Enolish, G. G. (M)
Frazer, E. J. (M)
Gray, J. S. (M)
Green, M. E. (SM)
Greenwood, D. B. (A)
Hale, D. R. (A)
Hale, S. T. (A)
Harrow, A. E. (A)
Hayes, R. (A)
Hewit, H. O. (A)
Hilton, B. C. (A)
Hings, D. L. (M)
Hird, E. V. (M)
Holmes, A. T. (M)
Humble, R. S. (A)
Hunter, G. B. (A)
Hunter, P. J. A. (M)
Kasvand, T. (M)
Kemp, E. J. C. (A)
Kersey, L. R. (M)
Klaus, E. F. (A)
Klok, B. (A)
Kohler, H. P. (A)
Kolbeins, E. N. (M)
Koskinen, S. N. (A)
Kruchio, P. (M)
Lam, K. C. (M)
Liang, J. D. S. (M)
Liebelt, A. (M)
Lumb, J. P. (A)
Marsh, R. A. (M)
McCarter, W. L. (M)
McCook, J. M. (M)
McDowell, G. E. (M)
McGarth, E. F. (A)
McLennan, D. E. (A)
Moore, A. D. (SM)
Noakes, F. (M)
Norman, R. O. (M)
Phillips, G. E. (A)
Potvin, L. H. (A)
Price, E. M. (A)
Pye, R. M. (A)
Reader, W. R. (M)
Rhodes, A. J. (M)
Robson, E. E. (M)
Scratchley, E. W. (M)
Seabrook, H. B. (M)
Skelding, J. A. (M)
Smith, C. R. (A)
Smith, J. N. (A)
Spencer, R. E. (A)
Spilsbury, A. J. (M)
Steele, C. G. (A)
Thompson, H. C. (A)
Thompson, W. H. (M)
Tupper, B. R. (F)
Valde, G. E. (M)
Varsh, L. A. (A)
Warren, G. D. R. (A)
Weeks, R. L. (M)
Whiteside, R. L. (A)
Wilmott, R. C. (M)
Wilson, L. M. (A)
Witt, J. J. (M)
Younger, G. M. (M)
Yuan, J. T. (M)

Vancouver Island (VAN-V-B)
Leney, G. A. (A)
Playfair, G. A. (M)

Vernon (VAN-B)
Carpenter, D. D. (SM)

Victoria (VAN-V-B)
Baxter, A. M. (M)
Bennett, R. A. (M)
Blyth, G. S. (M)
Boden, A. W. (M)
Brumwell, D. V. (M)
Chorlton, D. J. (M)
Clark, D. R. (M)
Darcus, R. J. (A)
Deane, J. (SM)
Evans, J. C. (A)
Hallas, H. G. B. (M)
Hickey, R. L. (M)
Madill, C. L. (M)
Mielen, R. V. (A)
Neale, D. A. (M)
Oxendale, J. L. (M)
Rogers, J. A. (M)
Spencer, S. B. (A)
Steward, A. G. (A)
Tupman, V. H. (M)
Weir, R. C. (M)

West Vancouver (VAN-B)
Bell, A. R. (M)
Bennett, W. F. (M)
Bonnett, J. D. W. (A)
Doble, R. N. (M)
Johns, J. G. (A)
Paxton, A. T. C. (M)
Reyda, D. C. (A)

Williams Lake (VAN-B)
Van Wagoner, R. C. (M)

CANADIAN ARMED FORCES

Canadian Armed Forces (MON-B)
Andree, A. D. M. (A)
Cadieux, J. P. (M)
Mann, W. R. (SM)
Thom, M. D. (M)

MANITOBA

Altona (WIN-B)
Pauls, J. J. (A)

East Kildonan (WIN-B)
Peter J. Thrasher (A)

Fort Garry (WIN-B)
Elliott, J. R. (A)
Haakonsen, H. M. (M)

Norwood (WIN-B)
Barschel, E. (A)

Portage La Prairi (WIN-B)
Vertrees, J. D. (A)

Rosenfeld (WIN-B)
Paetkau, W. (M)

St. Boniface (WIN-B)
Burdeny, D. G. (M)
Harrison, R. J. (A)
Nowell, J. H. (A)
Philpott, G. W. (M)
Shemansky, D. E. (M)
Welbers, J. A. L. (M)

St. James (WIN-B)
Allen, D. E. M. (M)
Elliott, G. M. (M)

Selkirk (WIN-B)
Tinkler, E. B. (A)

Transcona (WIN-B)
Denyer, J. H. N. (M)
Halchuk, R. A. (M)
Lelte, A. N. (A)

Winnipeg (WIN-B)
Bamstable, F. H. (M)
Blica, R. S. (A)
Body, H. T. (SM)
Bridges, E. (M)
Buchmeier, H. P. G. (M)
Bullock, W. R. (M)
Caboon, R. D. (F)
Carey, D. G. (A)
Cobb, A. G. (M)
Cooke, I. (M)
Cross, I. F. (SM)
Culbert, W. F. (A)
Dusang, E. B. (M)
Enns, E. (M)
Fast, W. A. (M)
Foster, K. C. (M)
Froese, A. (M)
Fyfe, M. G. (M)
Galpin, W. H. (M)
Glasing, H. R. (SM)
Grausdin, P. (A)
Hackett, F. J. (M)
Hadden, D. L. (M)
Heathfield, W. J. (A)
Herrington, L. H. (M)
Hooper, A. W. (M)
Hopper, C. J. (M)
Horner, S. G. L. (F)
Jell, R. M. (A)
Jex, J. F. (A)
Johnson, R. A. (M)
Johnston, W. A. R. (M)
Kalta, F. R. (M)
Kirk, G. R. (M)
Kobewka, P. (M)
Konopasek, F. (M)
Kosty, W. G. (A)
Love, G. (M)
MacDonald, P. A. (SM)
Maguire, R. T. (M)
Marquart, R. G. (M)
Marzotto, E. J. (A)
McLaren, G. A. (A)
McMath, J. P. C. (SM)
McQuaid, A. C. (A)
Mestery, S. J. (A)
Middleton, L. (M)
Murphy, B. F. (M)
Musick, M. P. (M)
Nattress, I. A. (M)
Newcombe, R. P. (M)
Newey, D. K. (M)
Noakes, J. F. (A)
Oakes, D. A. (M)
Paleshnuik, J. A. (A)
Prentice, M. L. (M)
Punshon, R. L. (M)
Raber, M. B. (M)
Robinson, A. J. (M)
Roddick, J. H. (M)
Rolston, J. G. (M)
Roulston, A. M. (A)
Roulston, K. I. (SM)
Royko, W. (M)
Saunders, M. G. (M)
Sawka, M. H. (M)
Shapera, G. H. (A)
Shaver, H. B. (A)
Simister, R. M. (M)
Sloker, G. H. (A)
Stinson, A. W. (M)
Stroud, E. L. (M)
Sutton, W. B. (A)
Taylor, D. F. (M)
Tiller, R. W. (A)
Tinkler, R. F. (M)
Trencher, J. W. (M)
Wallace, G. R. (M)
White, T. J. (M)
Williams, N. L. G. (M)
Williamson, K. H. (M)
Willis, P. W. (M)
Windrick, P. F. (M)
Wormell, H. T. (SM)
Yankewicz, W. W. (M)

NEW BRUNSWICK

Bathurst (MON-B)
Cote, J. A. (A)

Chatham (MON-B)
Myles, D. H. (A)

Fredericton (MON-B)
Bailey, C. O. C. (M)
Batt, W. H. (M)
Collier, R. J. (M)
Fullarton, H. J. (M)
George, D. A. (M)
Kamas, J. A. (M)
Lauber, D. H. (M)
Scott, R. N. (M)
Smolinski, W. J. (M)
Wasson, W. D. (M)

Moncton (MON-B)
Grant, D. J. (M)
Lyon, W. D. (M)
Risteen, H. C. (M)

Sackville (MON-B)
Smith, H. M. (SM)

St. John (MON-B)
Bishop, J. G. (M)

NEWFOUNDLAND

Corner Brook (NEW-B)
Ryde, C. H. (M)

Gander (NEW-B)
Higgins, G. S. (A)

Norris Arm (NEW-B)
George, D. L. (A)

St. John's (NEW-B)
Au, G. D. (M)
Bedingfield, J. F. (A)
Bunt, R. H. (M)
Cocker, J. H. (A)
Dorsett, D. T. (M)
Facey, J. W. (M)
Gaskell, W. M. (A)
Gladden, M. (M)
Hierlihy, O. G. (M)
Isaacs, H. A. J. (A)
Jerrett, A. C. (M)
Lippert, R. J. (M)

ARGENTINA

Rueda, J. V. (M)
Schclar, E. (M)
Schwartz, O. (M)
Schweiner, K. P. (M)
Silberman, F. J. (A)
Steiner, J. I. (SM)
Steube, F. R. (A)
Stofenmacher, A. (A)
Tapia, A. (M)
Trench, J. A. (M)
Tufro, A. (SM)
Van Der Lee, A. C. (M)
Van Spankeren, G. H. (SM)
Westerkamp, J. F. (M)
Wojciechowski, V. (A)
Zolfirel, C. D. (M)

Caseros
Boquete, C. B. (M)

La Plata
Barcala, J. M. (SM)
Longchamps
Ciner, E. (M)

Martinez
Candido, J. V. (SM)

Moreno
Van Rees, G. A. (M)

Rio Negro
De Haro, F. ?. (A)
Ferro, O. H. G. (M)

Rosario
Mainieri, A. J. (M)

San Luis
Barbenza, H. G. (M)

San Martin
De Los Santos, A. N. (A)

San Miguel De Tucuman
De Zavalia, R. J. L. (A)
Frias, D. E. (SM)

Vincente Lopez
Henke, F. G. (M)

AUSTRALIA

AUSTRALIAN CAPITAL TERRITORY

Canberra
Brown, S. E. (A)
Carden, P. O'N. (A)
Coombs, J. S. (M)
Graf, G. R. (M)
Hibbard, L. U. (M)
Robertson, D. S. (A)
Wadsworth, B. F. P. (M)
Waugh, J. B. S. (M)

NEW SOUTH WALES

Ashfield
Honnor, W. W. (SM)

Beecroft
Hope, R. S. (M)

Bexley
Wardale, A. H. (M)

Blacktown
Hesse, C. M. (A)

Campbelltown
Brookes, C. H. P. (M)

Chippendale
Chandler, G. A. (A)
Dobbie, L. G. (SM)
Minnett, H. C. (M)
Ryan, R. D. (M)

East Lindfield
Thom, F. W. P. (SM)

Eastwood
Guertler, R. J. F. (SM)

Kensington
Harris, R. W. (A)
Laisk, E. (M)
Lampard, D. G. (M)

Lonqueville
Swire, B. E. (M)

Mosman
Wyles, D. G. (SM)

Northbridge
Holmes, W. H. (M)

Northwood
Goddard, B. R. (M)

Orange
Crouch, E. C. (A)

Penshurst
Hansen, I. C. (M)

Randwick
Chinn, H. R. (A)

Roseville
Fisk, E. (F)

Sydney
Aitchison, R. E. (M)
Bean, L. P. R. (SM)
Brooks, G. R. (M)
Bushby, T. R. W. (SM)
Fowler, A. (M)
Gruner, L. (M)
Gutmann, F. (SM)
Hooke, L. A. (SM)
Kirkham, P. (M)
MacDonald, J. A. (M)
Messerle, H. K. (SM)
Mingay, O. F. (SM)
Munro, G. H. (SM)
Parish, H. C. (M)
Williams, E. H. (M)

Turramurra
Cooper, B. F. (M)
Little, A. G. (M)
Stevenson, M. H. (SM)

Villawood
Hall, G. G. (M)

Yennora
Finney, K. L. (A)

QUEENSLAND

Brisbane
Beckett, F. J. (A)
Ham, G. (M)
Oliver, E. (M)
Wade, C. F. N. (SM)
Webster, H. C. (M)

Indooroopilly
Kennewell, E. M. (A)

SOUTH AUSTRALIA

Adelaide
Ellesworth, G. (SM)
Mudgway, D. J. (A)
Trehame, R. F. (A)
Weston, P. E. (M)
Willoughby, E. O. (M)

Beaumont
Davies, R. J. C. (M)

Clarence Park
D'Assumpcao, H. A. (M)

Salisbury
Jones, E. (A)

Walkerville
Hole, G. W. R. (M)

Woomera
Brooks, W. G. E. (M)
Paluka, J. R. (M)
Pickering, L. A. (M)

VICTORIA

Abbotsford
Court, G. W. G. (SM)

Blackburn
Hooper, E. M. (M)
Mackay, R. (A)

Brighton
Rubenstein, S. J. (M)
Warner, G. A. (M)

Chadstone
Vaux, L. J. (M)

Coburg
Williams, M. E. L. (SM)

Hawthorn
Crawford, G. H. (A)

Heidelberg
Brodribb, M. I. (M)

Ivanhoe
Chakanovskis, E. (A)

Kensington
Burrows, L. T. (M)

Melbourne
Brownless, S. F. (M)
Faudell, C. L. (SM)
Glover, A. J. G. (M)
Jacoby, A. (A)
Mair, R. B. (SM)
Skelton, T. H. (SM)
Watson, W. J. (A)

Parkville
Caro, D. E. (A)
Mulrhead, E. G. (M)

Richmond
Webb, A. L. C. (M)

South Melbourne
McInnes, I. G. (SM)

Sunshine
Blakeley, W. C. (M)

Mount Waverley
Cox, L. V. (M)

WESTERN AUSTRALIA

Applecross
Baldock, A. R. (A)

Bellevue
Simrod, R. (A)

Nedlands
Billings, A. R. (SM)
Fall, J. V. (M)

Perth
Hatton, G. H. T. (A)
Hayman, W. G. (M)

AUSTRIA

Vienna
Barrett, A. E. (SM)
Buehler, J. H. (A)
Kudielka, V. W. (M)
Peterson, P. R. (A)
Zemanek, H. (M)

BAHAMAS

Nassau
Curling, A. E. (A)
Halkitis, J. A. M. (A)
Ingraham, K. R. (M)
Outten, S. S. (A)
Sherman, A. B. L. (M)

BELGUIM

Antwerp (BNL)
Chantrain, X. (M)
Collette, M. M. (A)
De Bruyne, P. (A)
Hanotte, P. E. (M)
Vlaeminck, N. J. C. (A)

Berchem (CM)
Fettweis, A. L. M. (M)

Brussels (BNL)
Belevitch, V. (F)
Bernaert, A. L. J. (A)
Bouchier, P. (SM)
Bourgeois, J. M. F. (A)
Bourguignon-Famaey, G. (A)
Carpentier, W. J. O. (M)
Coutrez, R. J. (SM)
Gewillig, M. R. (M)
Gonze, R. F. J. (M)
Hayes, T. D. (M)
Herbays, E. H. (SM)
Hoffmann, J. A. J. L. (SM)
Lund, R. E. (M)
Marique, J. (SM)
Murphy, B. (M)
Neirynck, J. J. (M)
Van Dyck, E. A. (M)
Van Roy, J. (M)
Voltaggio, F., Jr. (SM)
Vorobeitchik, J. (M)

Charleroi (BNL)
Desirant, M. C. (SM)

Ghent (BNL)
Borreman, Y. M. (M)
Buys, W. L. (M)
Van Den Meersche, A. J. (SM)
Van Lantschoot, E. J. (M)

Kortrijk (BNL)
Vanwormhoudt, M. C. (M)

Louvain (BNL)
De Bock, A. H. (SM)
Jespers, P. G. A. (M)

Mons (BNL)
Cogneaux, M. (M)

Mortsel (BNL)
De Kerf, J. L. (M)

Putte (BNL)
Liekens, A. F. (A)

Wilrijk (BNL)
Deschuytere, L. C. (M)

BERMUDA

Hamilton
Hillier, R. J. (M)

Spershott, J. H. (M)

Paget
Amos, A. F. (A)

Warwick
Harries, J. H. O. (SM)

BRAZIL

Alagoas
Lisboa, M. H. D. A. (M)

Belo Horizonte
De Castro, E. M. (M)

Porto Alegre
Ely, R. S. (M)
Muller, F. R. (A)
Ritter, G. (A)

Rio De Janeiro
Amarante, A. J. D. (A)
Bonapace, H. (SM)
Caicoya, J. I. (M)
Chapin, C. J. (M)
Correa, A. D. C. (M)
Costa, H. (F)
Coutinho, E. O. (M)
Da Luz, A. F. H. B. P. (A)
Delvaux, P. (M)
De Medeiros, L. A. (M)
De Oliveira, A. M. (SM)
Do Rosario, L. R. (M)
Farmer, F. H. (M)
Ferreira, D. S. (M)
Frederico, J. C. B. (M)
Furesi, Z. (SM)
Garcia, J. R. (A)
Girard, P. A. (M)
Grant, F. W. (SM)
Guerbilsky, A. (M)
Guimaraes, G. S. C. (M)
Heininger, W. W. L. (SM)
Herz, G. (M)
Kresch, R. (M)
Lacombe, C. G. (A)
Leal, J. M. (A)
Mala, G. N. S. (M)
Maranhao, S. M. (A)
Martins, R. B. (M)
Miranda, E. D. S. (A)
Pareto Neto, J. V. (M)
Penido, E. (A)
Pereira, M. P. D. B. (M)
Portella, S. M. (M)
Pradal, H. A. (A)
Quacchia, G. M. (M)
Ribeiro, G. D. (A)
Ribeiro, H. S. G. (A)
Ribeiro, M. P. (M)
Schreyer, H. T. (M)
Silva, R. D. C. E. (A)
Sobral, J. M. (A)
Valverde, J. F. (M)
Vianna, A. C. (M)
Wiltgen, J. A. (SM)

Sao Paulo
Alens, N. (M)
Barros Barreto, L. A. (M)
Baumann, C. (SM)
Beaman, W. G. (A)
Belck, H. B. (M)
Boffi, L. V. (M)
Borda, J. A. (M)
Brandt, W. L. (M)
Brener, V. (A)
Cassignol, E. J. (M)
Chow, Y. (M)
Dantine, W. A. (M)
Da Rosa, A. V. (M)
De Arruda, P. R. (A)
De Macedo, A. J. Jr. (M)
De Miranda, S. M. (A)
De Palva Lopes, C. (M)
Fanta, P. (M)
Ferrer, G. G. (M)
Funari, B. (M)
Girardelli, L. R. L. (A)
Goldberger, E. (A)
Goldberger, N. (A)
Goldmann, R. D. (A)
Guimaraes, B. Q. (M)
Hertz, J. A. (M)
Hirschfeld, B. (SM)
Joste, S. V. (M)
Kaufmann, P. (A)
Kirschner, R. A. (M)
Kubelka, W. (M)
Leimer, A. A. (M)
Levy, G. I. (M)
Lignon, J. R. (A)
Magyar, P. E. (M)
Marsellan, R. F. (A)
Meyer, L. V. (A)
Muzzio, J. L. R. (A)
Paulin, J. P. (M)
Perini, J. (M)
Rios, L. G. (M)
Rittmeister, H. (M)
Rubin, L. (SM)
Senise, J. T. (M)
Sherman, F. L. (M)
Smit, J. (M)
Stamopoulos, C. D. (SM)
Stucken, H. (A)
Tissi, P. (A)
Tsao, F. A. (M)
Waeny, J. C. C. (M)
Woelz, A. L. (M)

BRITISH EAST AFRICA

KENYA

Nairobi
Pegrume, S. A. (M)

BRITISH GUIANA

East Coast Demerara
Tibbits, A. E. (A)

Rio Demerara
Greaves, H. A. (M)

BRITISH OCEANIA

FIJI ISLANDS

Suva
Peck, D. G. (M)

BURMA

Rangoon
Aung, U. T. (M)
Ba'hli, F. (M)
Kyi, M. A. (M)
Myint, A. (M)
Myint, T. (M)
Paw, M. T. (M)
Tun, U. T. (A)
Win, K. (A)

CANADA

ALBERTA

Anzac (NA-B)
Whyte, J. D. (A)

Ardrossan (NA-B)
Elwell, A. T. (A)

Bowness (SA-B)
Carlson, C. V. (A)

Calgary (SA-B)
Allan, W. K. (M)
Ball, E. T. (M)
Baumgart, G. C. (A)
Billedeau, V. A. (A)
Blank, J. A. (M)
Brownlee, B. P. (M)
Buckmaster, H. A. (M)
Bunko, W. (M)
Caldwell, L. W., Jr. (M)
Cole, A. M. (A)
Connor, E. C. (A)
Cook, R. E. (M)
Cooley, L. E. (A)
Davidson, B. A. (A)
Davis, A. P. (SM)
Dickson, F. J. (A)
Dubber, W. G. (A)
Evans, P. R. N. (A)
Fleming, G. I. H. (M)
Freek, W. L. (M)
Gill, A. L. (A)
Goodman, C. J. (M)
Gordon, L. (A)
Gordon, R. E. (M)
Griswold, A. L. (A)
Gutkolf, G. H. (M)
Handford, G. B. (M)
Hansen, C. H. (A)
Hill, R. F. (A)
Hollingshead, G. W. (A)
Johnson, C. M. (M)
Johnston, C. W. (M)
Kelcey, M. F. (M)
Kerr, W. G. (A)
Kitlitz, N. E. (M)
Kitlitz, R. S. (M)
Lemke, R. L. (A)
Litchinsky, S. (M)
Lundrigan, E. G. (A)
Maberley, G. A. (A)
McBride, B. J. (A)
McDougall, S. B. (A)
McDowell, W. J. (M)
McKenzie, K. J., Jr., (A)
Melashko, O. M. (A)
Moore, A. M. (A)
Moore, J. D. (M)
Nawata, T. T. (A)
Omura, J. M. (A)
Parkinson, G. E. (M)
Partin, W. (M)
Peters, R. R. (A)

Porochnuk, W. N. (M)
Sadler, G. L. (M)
Sandrelli, R. D. (A)
Sasso, E. F. (M)
Schafer, E. D. W. (M)
Schrack, F. G. (M)
Schulze, G. H. (A)
Sisko, J. R. (M)
Smith, M. F. (A)
Smith, R. E. (M)
Stuart, A. J. (M)
Traxler, H. A. (M)
Umbach, E. A. (A)
Vincent, L. P., Jr. (M)
Watt, K. M. (M)
Werbisky, C. E. (A)
White, G. H. (A)
Whittle, T. D. (A)
Wright, J. F. (A)
Zelonka, F. A. (M)

Calmar (NA-B)
Sych, J. A. (A)

Canmore (SA-B)
Medland, W. (A)

Cold Lake (NA-B)
Hunt, O. (M)
Stromsmoe, K. A. (M)

Edmonton (NA-B)
Arksey, G. W. (M)
Baker, L. R. (M)
Banks, K. M. (M)
Bassendowski, E. A. (A)
Bidulock, G. (M)
Burtch, N. (A)
Cable, R. P. (M)
Caldwell, A. (M)
Campbell, T. G. (A)
Cary, S. L. (A)
Caspar, R. B. (A)
Christie, R. (A)
Cunningham, W. E. (M)
Dowhan, H. (M)
Ducey, R. J. (M)
Eamshaw, A. (M)
Fedoroshyn, S. C. (A)
Hall, T. W. (M)
Harwood, E. L. (M)
Hollingworth, F. (A)
Ingram, G. R. (A)
Iwaniuk, V. P. (A)
Johnson, R. A. (M)
Jull, E. V. (M)
Kemp, J. R. (M)
Kennedy, J. G. (A)
Kiss, F. V. (M)
Kleebaum, E. G. (A)
Kupnowicki, M. (A)
Leitch, J. G. (M)
Lines, E. G. (A)
Mac Donald, D. L. (SM)
Makepeace, F. G. (A)
Maltby, R. J. (M)
McGavin, C. B. (A)
McLean, R. A. (M)
McMahon, V. J. (M)
Metcalf, W. B. (M)
Neal, J. T. (M)
Nichol, A. C. (A)
Onyshko, S. (M)
Parent, L. E. (M)
Paterson, S. G. (M)
Peterson, D. A. (M)
Petrik, J. (A)
Porteous, J. W. (SM)
Powley, R. K. (A)
Rice, G. R. A. (A)
Royer, D. P. (A)
Rozak, L. W. (A)
Sacker, J. E. (M)
Scott, G. C. (M)
Scotten, E. C. (A)
Shelton, A. B. (M)
Skutle, G. O. (A)
Smith, A. O. (A)
Smith, O. A. (M)
Stein, R. A. (M)
Storms, W. A. (A)
Sutcliffe, R. F. (M)
Swiddle, J. E. (A)
Thorpe, P. P. (M)
Waddell, T. (A)
Wadson, T. E. (A)
Watts, M. A. (A)
Whitley, W. M. (A)
Williamson, W. R. (M)
Zowtiak, J. (M)

Granum (SA-B)
Johnson, N. P. (A)

Peace River (SA-B)
Gardner, R. J. (A)

Ponoka (NA-B)
Osterland, C. A. (A)
Taylor, E. L. (M)

Ralston (SA-B)
Clink, W. L. (M)

Red Deer (NA-B)
Bartley, G. A. (SM)
Jonkman, J. Y. (A)

St. Albert (NA-B)
Donovan, L. N. (M)
Usher, R. (M)

South Edmonton (NA-B)
Cole, D. R. (A)

Strathmore (SA-B)
Gomez, A. M. (M)

Trochu (SA-B)
Luoma, A. J. (A)

Youngstown (SA-B)
Edler, J. O. (M)

BRITISH COLUMBIA

Abbotsford (VAN-B)
Carter, R. F. (A)

Burnaby (VAN-B)
Aitken, R. (M)
Fraser, F. S. (M)
Kay, D. H. J. (SM)
Reagh, D. M. (A)

Castlegar (VAN-B)
Thorp, W. W. (M)

Dawson Creek (VAN-B)
Adams, R. (SM)
Hatlelid, J. G. (M)

Esquimalt (VAN-B)
Evans, D. J. (M)

Fort Nelson (VAN-B)
Jones, L. M. (M)

Fort St. John (VAN-B)
Magee, H. D. (A)

Holberg (VAN-B)
Treend, R. S. (A)

Kelowna (VAN-B)
Wyatt, T. E. (A)

Ladner (VAN-B)
Forder, A. F. (M)

Langley (VAN-B)
Granholm, B. W. (M)
Johnson, T. R. (M)

McBride (VAN-B)
Power, R. C. (A)

Mission City (VAN-B)
Kyashko, W. (A)

Mount Lehman (VAN-B)
Hepburn, J. T. (M)

Nanaimo (VAN-B)
Boston, N. E. J. (M)
Carswell, J. D. (A)
Inglis, J. B. (A)
King, F. W. (A)
Mac Intyre, E. R. (M)
Oliver, D. A. (A)
Pirart, M. A. (M)

Natal (VAN-B)
Solko, G. J. (M)

New Westminster (VAN-B)
Butler, R. H. (A)
McConnell, B. (A)
Norstrand, R. B. (M)
Shiu, S. D. W. (M)

North Burnaby (VAN-B)
Newton, W. K. (M)
Salto, V. (M)
Tracey, W. R. (M)

North Surrey (VAN-B)
Liggins, A. (M)
Ott, E. K. (A)
Walters, H. T. (A)

North Vancouver (VAN-B)
Alfreds, L. J. (SM)
Crawford, A. M. (M)
Elliott, D. T. (A)
Goldie, H. J. (M)
Greenwood, S. J. (A)
Hoyles, H. A. (M)
Lobb, R. H. M. (M)
Lynch, T. G. (M)
Maddison, R. R. (M)
Mariatt, C. D. (A)
McDonald, R. C. (A)
Morison, D. P. (M)
Neveroski, F. (M)
Niblock, P. A. (SM)
Norman, E. R. (A)
Racey, T. W. (A)
Ridsdale, R. E. (M)
Rose, E. G. (M)
Saperstein, M. J. (M)
Strachan, R. A. (M)
Wheeler, K. L. (A)
Willoner, G. (SM)
Wilson, C. M. (M)

Pender Harbours (VAN-B)
Payne, T. E. G. (A)

Penticton (VAN-B)
Locke, J. L. (M)
Paton, I. W. (A)

Port Moody (VAN-B)
Chisholm, E. (A)

Prince Ruppert (VAN-B)
Johnston, A. T. (A)

Read Island (VAN-B)
Taylor, A. H. (SM)

Richmond (VAN-B)
Barron, K. E. (M)
Eng, D. K. (M)
Matheson, C. D. (A)
Merry, H. C. (A)
Swenns, R. L. (A)
White, E. (M)

South Burnaby (VAN-B)
Bailey, F. C. (M)
Carey, W. H. (M)
Knight, G. M. (A)
Smith-Gander, N. C. A. (M)
Tripp, H. H. (A)

Trail (VAN-B)
Baron, H. D. (A)
Gowans, W. K. (M)

Vancouver (VAN-B)
Bealle, D. F. (A)
Beddoes, M. P. (SM)
Black, D. T. (M)
Bohn, E. V. (A)
Bowers, F. K. (M)
Breeze, J. E. (SM)
Butterfield, L. A. (M)
Chandler, A. H. (M)
Chandler, G. C. (SM)
Clarkson, G. A. (M)
Clisch, D. F. (A)
Cockburn, B. K. (A)
Cole, R. A. (SM)
Corbett, T. H. (M)
Cringan, F. J. (M)
Crowson, D. B. (M)
Cuddeford, R. A. (M)
Cummings, W. M. (A)
Cushing, T. D. (M)
Day, C. A. (M)
Diamond, M. (M)
Eldridge, R. C. (M)
Eng, T. S. (M)
Englefield, C. G. (M)
English, G. G. (M)
Frazer, E. J. (M)
Gray, J. S. (M)
Green, M. E. (SM)
Greenwood, D. B. (A)
Hale, D. R. (A)
Hale, S. T. (A)
Harrow, A. E. (A)
Hayes, R. (M)
Hewit, H. O. (A)
Hilton, B. C. (A)
Hings, D. L. (M)
Hird, E. V. (M)
Holmes, A. T. (M)
Humble, R. S. (A)
Hunter, G. B. (A)
Hunter, P. J. A. (M)
Kasvand, T. (M)
Kemp, E. J. C. (A)
Kersey, L. R. (M)
Klaus, E. F. (A)
Klok, B. (A)
Kohler, H. P. (A)
Kolbeins, E. N. (M)
Koskinen, S. M. (A)
Kruchio, P. (M)
Lam, K. C. (M)
Liang, J. D. S. (M)
Liebelt, A. (M)
Lumb, J. P. (A)
Marsh, R. A. (M)
McCarter, W. L. (M)
McCook, J. M. (M)
McDowell, G. E. (M)
McGarth, E. F. (A)
McLennan, D. E. (A)
Moore, A. D. (SM)
Noakes, F. (M)
Norman, R. O. (M)
Phillips, G. E. (A)
Potvin, L. H. (A)
Price, E. M. (A)
Pye, R. M. (A)
Reader, W. R. (M)
Rhodes, A. J. (M)
Robson, E. E. (M)
Scratchley, E. W. (M)
Seabrook, H. B. (M)
Skelding, J. A. (M)
Smith, C. R. (A)
Smith, J. M. (A)
Spencer, R. E. (A)
Spilsbury, A. J. (M)
Steele, C. G. (A)
Thompson, H. C. (A)
Thompson, W. H. (M)
Tupper, B. R. (F)
Valde, G. E. (M)
Varah, L. A. (A)
Warren, G. D. R. (A)
Weeks, R. L. (M)
Whiteside, R. L. (A)
Wilmott, R. C. (M)
Wilson, L. M. (A)
Witt, J. J. (M)
Younger, G. M. (M)
Yuan, J. T. (M)

Vancouver Island (VAN-V-B)
Leney, G. A. (A)
Playfair, G. A. (M)

Vernon (VAN-B)
Carpenter, D. D. (SM)

Victoria (VAN-V-B)
Baxter, A. M. (M)
Bennett, R. A. (M)
Blyth, G. S. (M)
Boden, A. W. (M)
Brunwell, D. V. (M)
Chorlton, D. J. (M)
Clark, D. R. (M)
Darcus, R. J. (A)
Deane, J. (SM)
Evans, J. C. (A)
Hallas, H. G. B. (M)
Hickey, R. L. (M)
Madill, C. L. (M)
Mielen, R. V. (A)
Neale, D. A. (M)
Oxendale, J. L. (M)
Rogers, J. A. (M)
Spencer, S. B. (A)
Steward, A. G. (A)
Tupman, V. H. (M)
Weir, R. C. (M)

West Vancouver (VAN-B)
Bell, A. R. (M)
Bennett, W. F. (M)
Bonnett, J. D. W. (A)
Doble, R. N. (M)
Johns, J. G. (A)
Paxton, A. T. C. (M)
Reyda, D. C. (A)

Williams Lake (VAN-B)
Van Wagoner, R. C. (M)

CANADIAN ARMED FORCES

Canadian Armed Forces (MON-B)
Andree, A. D. M. (A)
Cadieux, J. P. (M)
Mann, W. R. (SM)
Thom, M. D. (M)

MANITOBA

Altona (WIN-B)
Pauls, J. J. (A)

East Kildonan (WIN-B)
Peter J. Thrasher (A)

Fort Garry (WIN-B)
Elliott, J. R. (A)
Haakonsen, H. M. (M)

Norwood (WIN-B)
Barschel, E. (A)

Portage La Prairi (WIN-B)
Vertrees, J. D. (A)

Rosenfeld (WIN-B)
Paetkau, W. (M)

St. Boniface (WIN-B)
Burdeny, D. G. (M)
Harrison, R. J. (A)
Nowell, J. H. (A)
Philpott, G. W. (M)
Shemansky, D. E. (M)
Welbers, J. A. L. (M)

St. James (WIN-B)
Allen, D. E. M. (M)
Elliott, G. M. (M)

Selkirk (WIN-B)
Tinkler, E. B. (A)

Transcona (WIN-B)
Denyer, J. H. N. (M)
Halchuk, R. A. (M)
Lelte, A. N. (A)

Winnipeg (WIN-B)
Bamstable, F. H. (M)
Blica, R. S. (A)
Body, H. T. (SM)
Bridges, E. (M)
Buchmeier, H. P. G. (M)
Bullock, W. R. (M)
Cahoon, R. D. (F)
Carty, D. G. (A)
Cobb, A. G. (M)
Cooke, I. (M)
Cross, I. F. (SM)
Culbert, W. F. (A)
Dusang, E. B. (M)
Enns, E. (M)
Fast, W. A. (M)
Foster, K. C. (M)
Froese, A. (M)
Fyfe, M. G. (M)
Galpin, W. H. (M)
Gissing, H. R. (SM)
Grausdin, P. (A)
Hackett, F. J. (M)
Hadden, D. L. (M)
Heathfield, W. J. (A)
Herrington, L. H. (M)
Hooper, A. W. (M)
Hopper, C. J. (M)
Horner, S. G. L. (F)
Jell, R. M. (A)
Jex, J. F. (A)
Johnson, R. A. (M)
Johnston, W. A. R. (M)
Kalta, F. R. (M)
Kirk, G. R. (M)
Kobewka, P. (M)
Konoposek, F. (M)
Kosty, W. G. (A)
Love, G. (M)
MacDonald, P. A. (SM)
Maguire, R. T. (M)
Marquart, R. G. (M)
Marzotto, E. J. (A)
McLaren, G. A. (A)
McMath, J. P. C. (SM)
McQuaid, A. C. (A)
Mestery, S. J. (A)
Middleton, L. (M)
Murphy, B. F. (M)
Musick, M. P. (M)
Nattress, I. A. (M)
Newcombe, R. P. (M)
Newey, D. K. (M)
Noakes, J. F. (A)
Oakes, D. A. (M)
Paleshnuik, J. A. (A)
Prentice, M. L. (M)
Punshon, R. L. (M)
Raber, M. B. (M)
Robinson, A. J. (M)
Roddick, J. H. (M)
Rolston, J. G. (M)
Roulston, A. M. (A)
Roulston, K. I. (SM)
Royko, W. (M)
Saunders, M. G. (M)
Sawka, M. H. (M)
Shapera, G. H. (A)
Shaver, H. B. (A)
Simister, R. M. (M)
Sloker, G. H. (A)
Stinson, A. W. (M)
Stroud, E. L. (M)
Sutton, W. B. (A)
Taylor, D. F. (M)
Tiller, R. W. (A)
Tinkler, R. F. (M)
Trencher, J. W. (M)
Wallace, G. R. (M)
White, T. J. (M)
Williams, N. L. G. (M)
Williamson, K. H. (M)
Willis, P. W. (M)
Windrick, P. F. (M)
Wormell, H. T. (SM)
Yankewicz, W. W. (M)

NEW BRUNSWICK

Bathurst (MON-B)
Cote, J. A. (A)

Chatham (MON-B)
Myles, D. H. (A)

Fredericton (MON-B)
Bailey, C. O. C. (M)
Batt, W. H. (M)
Collier, R. J. (M)
Fullarton, H. J. (M)
George, D. A. (M)
Kamas, J. A. (M)
Lauber, D. H. (M)
Scott, R. N. (M)
Smolinski, W. J. (M)
Wasson, W. D. (M)

Moncton (MON-B)
Grant, D. J. (M)
Lyon, W. D. (M)
Risteen, H. C. (M)

Sackville (MON-B)
Smith, H. M. (SM)

St. John (MON-B)
Bishoo, J. G. (M)

NEWFOUNDLAND

Corner Brook (NEW-B)
Ryde, C. H. (M)

Gander (NEW-B)
Higgins, G. S. (A)

Norris Arm (NEW-B)
George, D. L. (A)

St. John's (NEW-B)
Au, G. D. (M)
Bedingfield, J. F. (A)
Bunt, R. H. (M)
Cocker, J. H. (A)
Dorsett, D. T. (M)
Facey, J. W. (M)
Gaskell, W. M. (A)
Gladden, M. (M)
Hierlihy, O. G. (M)
Isaacs, H. A. J. (A)
Jerrett, A. C. (M)
Lippert, R. J. (M)

Mac Gray, M. D. (M)
Marshall, D. R. J. (M)
Mulloy, F. A. (A)
Saper, B. M. (M)
Tibbett, J. E. (M)
Witherstone, E. D. (M)

Stephenville (NEW-B)
Kaltenbach, R. F. (M)

NORTHWEST TERRITORY

Fort Simpson (NA-B)
Brown, L. J. (A)

NOVA SCOTIA

Antigonish (NON-B)
Clarke, E. M. (M)

Amdale (MON-B)
Currie, V. J. (A)

Dartmouth (MON-B)
Storm, A. C. (A)
Tanton, J. E. (A)

Greenwood (MON-B)
Andersen, P. M. S. (M)
Firlotte, J. L. (M)
Lumley, J. N. C. (M)
White, G. L. (M)
Williams, G. L. (M)

Halifax (MON-B)
Burchill, G. H. (M)
Fowlie, W. D. (M)
Greig, A. W. (M)
Heffler, A. J. (A)
Mac Williams, A. R. (A)
Martlieu, C. H. D. (A)
Mohammed, A. (M)
Murray, C. W. (A)
Robertson, J. J. C. (M)
Scott, P. J. (A)
Tynan, J. M. C. (M)
Vavasour, K. E. (M)
Wilson, R. W. (M)
Wood, W. (A)

Lunenburg (MON-B)
Conrad, D. L. (M)

Middleton (MON-B)
Gaulin, R. J. (A)

Shelburne (MON-B)
Kent, M. P. (A)

Sydney (MON-B)
Paris, A. P. (M)

Wolfville (MON-B)
Tilleton, J. G. (M)

Woodlawn (MON-B)
White, W. R. (A)

ONTARIO

Agincourt (TOR-B)
Butler, C. A. (M)
Cummings, V. J. (M)
Jones, G. E. (M)
Kuffuk, A. (M)
Maine, A. E. (M)
Rethoret, R. H. (M)
Shack, A. G. (M)

Ajax (TOR-B)
Bayly, B. D. F. (F)
Philp, H. F. (A)

Aimonte (OTT-B)
Maynard, L. A. (M)
Reid, J. N. (A)

Alvinston (L-SWO-B)
Jackson, R. B. (A)

Ancaster (HAM-B)
Fromanger, A. L. (M)
Gomard, P. (M)
Jewell, G. S. (M)
Jeynes, W. E. (M)
Olson, E. (SM)
Ruse, E. (M)
Smith, C. J. (M)
Wiffin, R. F. (M)
Wilder, J. C. (M)
Yakymyshyn, M. M. (M)

Amprior (OTT-B)
Boire, P. C. (M)
Wassink, B. J. (A)
Zuidhof, A. (M)

Aurora (TOR-B)
Morris, D. V. (A)
Walker, E. A. (A)

Baden (KW-B)
Gingerich, R. R. (A)

Barrie (TOR-B)
Baxter, E. G. (M)
Paulin, W. P. (M)

Belle River (L-SWO-B)
Cheveller, J. P. P. (M)

Belleville (BAY-B)
Ashton, W. H. (A)
Attridge, D. M. (A)
Baker, D. S. M. (M)
Baxter, G. I. (A)
Bell, G. L. (M)
Benger, W. C. (SM)
Blacker, H. L. (SM)
Burkett, K. V. (M)
Burns, A. R. (A)
Carlson, D. E. (A)
Clarke, W. E. (M)
Coombs, C. W. (M)
Cowan, D. J. (M)
Deas, W. (M)
De Paul, V. A. (M)
Desmond, N. T. (M)
Duke, A. M. (M)
Field, G. C. (M)
Fort, D. E. (M)
Frederick, H. V. (M)
Galbraith, R. J. (M)
Hanna, J. L. (A)
Heaven, W. H. (SM)
Hunt, C. A. (A)
Jamroz, A. (M)
Jardine, D. G. (M)
Jarvis, J. A. (SM)
Johns, D. M. (A)
Johnson, M. E. (M)
Jones, A. F. H. (A)
Kostashuk, S. S. (M)
Lind, E. P. (M)
Lund, D. M. (M)
Martin, N. (M)
Mitchell, T. E. (M)
Moore, N. A. (M)
Naismith, E. G. (M)
Nellischer, J. E. (M)
Pascal, E. E. (M)
Revill, A. D. (SM)
Rickards, C. E. (M)
Robb, A. S. (SM)
Romaniuk, E. (M)
Rye, E. F. (A)
Sillitoe, S. (M)
Smith, R. L. (SM)
Waller, M. J. (SM)
Wamboldt, G. L. (M)
Whitten, G. J. (M)
Williamson, R. (SM)

Bells Corners (OTT-B)
Davies, N. G. (M)
Dure, J. D. (M)
Green, E. W. (M)
Gruno, R. S. (M)
Hamilton, J. A. R. (A)
Hyndman, W. H. (M)
Lynch, J. A. M. (SM)
McIntyre, B. J. (M)
Molozzi, A. R. (M)
Nishizaki, T. (M)
Van Leeuwen, C.J.T. (M)
Wesbrook, G. E. (A)

Bloomfield (BAY-B)
Woods, W. T. (A)

Brampton (TOR-B)
Cox, H. G. (A)
Gracey, T. G. (M)

Brantford (HAM-B)
Braund, G. E. (A)
Brillinger, R. F. (M)
Carnegie, J. A. (A)
Hochner, S. V. (A)
Maksymowicz, W. J. (A)
McConnachie, W. A. (A)
Moore, D. G. (A)
Williams, J. K. (M)

Brockville (OTT-B)
Hinton, J. W. (A)
Leeder, W. F. (A)
Macintosh, R. H. (M)
White, J. E. (M)

Bronte-Oakville (HAM-B)
Ticknor, A. E. (M)

Burlington (HAM-B)
Beaumont, G. F. (SM)
Cockle, E. S. (M)
Flood, F. M. (A)
Heys, D. M. (M)
Kassner, J. (A)
Le Grand, A. J. (A)
Merritt, H. J. (M)
Moes, G. (M)
Musselman, J. A. (M)
Stonelake, D. A. (M)
Vaughan, P. P. (M)
Webb, H. H. (M)
Williams, C. M. (M)

Byron (LON-B)
Warr, R. J. (M)

Camp Borden (QUE-B)
Wylie, A. (A)

Carleton Place (OTT-B)
Levers, P. D. (M)
Mills, F. W. (M)

Carlingwood (OTT-B)
Dalzell, T. D. (M)

Caro (OTT-B)
Hayday, W. A. (A)

Carrying Place (BAY-B)
Turney, G. M. (A)

Chalk River (OTT-B)
Cowper, G. (SM)
Goulding, F. S. (SM)
Jones, A. R. (M)

Chippawa (HAM- B)
Sinko, J. P. (A)

Clarkson (TOR-B)
Beattie, D. (M)
Heidebrecht, L. E. (M)
MacGregor, R. J. (A)
Miles, A. G. (A)
Sipila, O. A. (A)

Clinton (LON-B)
Abbott, F. J. (A)
Doyling, V. G. (A)
Hopkins, J. A. (M)
Lowe, A. W. (M)
Senior, R. N. (M)
Sharkey, W. J. (M)
Sher, M. (M)

Coburg (BAY-B)
Williamson, D. B. (SM)

Coldwater (TOR-B)
Parker, D. L. (M)

Cooksville (TOR-B)
Best, D. R. (A)

Copper Cliff (TOR-B)
Leask, R. D. (M)
Maki, A. E. (A)
Stickles, D. (A)

Cornwall (OTT-B)
Clarke, S. P. (SM)
Hamilton, W. D. (M)
Lapetina, R. A. (A)

Cumberland (OTT-B)
Bechthold, G. H. (A)

Deep River (OTT-B)
Allen, V. H. (M)
Brown, J. C. (M)
Greenaway, H. M. (A)
Harland, J. P. (A)
Hayter, D. M. (M)
Ichil, D. H. (M)
Tomlinson, R. B. (M)

Dixie (TOR-B)
Easton, K. J. (SM)

Don Mills (TOR-B)
Adams, R. L. (SM)
Anto, H. (M)
Breckenridge, A. G. (M)
Brown, R. W. (SM)
Eastwood, G. C. (M)
Flynn, M. W. (M)
Fryer, K. N. (M)
Gillies, G. A. (M)
Greenwood, R. L. (M)
Heldman, J. H. (A)
Kelk, G. F. (M)
Lee, G. (A)
Low, A. R. (M)
Manthey, E. S. (M)
Millen, T. I. (SM)
Pipe, G. E. (M)
Robinson, J. D. (M)
Robinson, W. A. (M)
Simoni, A. (M)
Stevens, A. (A)
Vaillillee, B. D. (A)

Dorchester (LON-B)
Moore, D. (M)

Downsview (TOR-B)
Armstrong, H. D. (M)
Brodsky, S. (A)
Casciato, L. (M)
Cohen, H. A. (M)
Freedlander, S. (A)
Geary, B. H. (M)
Kennedy, H. G. (A)
Lewis, D. H. (M)
Liss, I. M. (M)
Martin, F. J. (M)
McCloskey, A. (A)
Pisovich, C. D. (A)
Richardson, J. R. (M)
Stephenson, W. R. (M)
Stong, R. A. (A)
Tilston, W. V. (M)
Williams, N. A. (SM)
Yablo, S. (M)

Dundas (HAM-B)
Cannon, E. T. (A)
Wright, D. F. (M)

Dwight (TOR-B)
Maschmann, F. H. (A)

Eastview (OTT-B)
Clark, J. G. (M)
Storr, J. W. (M)

Eganville (OTT-B)
Lemke, M. F. (M)

Erindale (TOR-B)
Davies, B. E. (M)
Sharf, W. A. (A)
Tucker, D. C. (M)

Etobicoke (TOR-B)
Knott, J. G. (M)
Rocholl, H. C. (M)
Shenton, W. E. (M)

Fenwick (HAM-B)
Austin, J. A. (A)

Fonthill (HAM-B)
Smith, R. G. (A)

Fort Erie (HAM-B)
Waud, E. C. (M)

Fort William (TOR-B)
Andrews, G. R. (M)

Galt (KW-B)
Semple, C. E. C. (M)
Sweet, J. L. (A)

Gananoque (OTT-B)
Olive, G. W. (F)

Georgetown (HAM-B)
Matthies, J. G. (M)
Prust, P. (A)

Gilford (TOR-B)
Gent, L. F. T. (M)

Goderich (LON-B)
Estwick, S. M. (M)
Hurst, R. V. (M)

Gormley (TOR-B)
McWhirter, D. A. (M)

Guelph (KW-B)
Armstrong, A.S.(M)
Brown, R. M. (A)
Clegg, G. M. (A)
Irwin, G. J. (SM)
Lacey, J. D. (M)
Mackay, F. S. (SM)
Robinson, C. A. (M)
Shute, J. A. (A)

Hagersville (HAM-B)
Berger, H. (M)

Haliburton (TOR-B)
Dawson, H. W. (A)

Hamilton (HAM-B)
Ames, F. H. (A)
Anderson, J. W. (M)
Bohay, J. A. (M)
Cambey, L. A. (M)
Campbell, C. K. (M)
Cantlon, C. F. (SM)
Cheek, W. A. (M)
Connor, J. J. (A)
Coolsma, S. F. (M)
Dean, W. W. H. (SM)
Edwards, F. H. (M)
Erwin, E. R. (A)
Geldart, W. J. (M)
Gladwin, A. S. (M)
Harris, L. R. (M)
Harris, O. E. (A)
Heal, G. L. (A)
Hill, J. H. (M)
Hore, H. B. (A)
Humbert, V. J. (A)
Kelterborn, W. H. (SM)
Kubien, S. J. (A)
Litwin, J. D. (A)
Lucyk, J. (M)
Lyons, K. C. (M)
Martin, R. H. (A)
Minchel, C. C. (M)
Pal, G. L. (M)
Prinsen, H. W. (M)
Rapp, E. (A)
Sandler, A. A. (SM)
Sievert, A. H. (SM)
Silke, A. G. (A)
Smith, B. A. (A)
Sparrow, J. (M)
Steele, D. M. (A)
Tam, C. (A)
Walker, M. L. (M)
Watts, T. O. (M)
White, E. W. (M)
Wilk, J. (SM)

Hanover (HAM-B)
Grein, A. E. (A)

Hawkesbury (OTT-B)
Dean, J. G. (M)
Turpin, F. P. (A)

Huntsville (TOR-B)
Fisher, D. E. (M)

Ingleside (OTT-B)
Britney, O. L. (M)

Islington (TOR-B)
Allen, G. Y. R. (SM)
Allee, R. Y. (M)

Balmer, P. D. (SM)
Brammanis, A. (M)
Collins, G. S. (M)
Davis, W. B. (M)
Mackie, A. S. (M)
Mathers, F. F. (A)
Moorhouse, K. G. (A)
Provan, R. J. (M)
Tipple, H. L. (M)
Wedgewood, R. S. (M)
Wood, A. E. (M)

Kenora (TOR-B)
Zibens, G. (A)

Kettleby (TOR-B)
Borth, L. A. (M)

Kingston (BAY-B)
Broughton, M. B. (M)
Campling, C. H. R. (M)
Chisholm, R. M. (M)
Dignum, R. (M)
Elliott, A. R. (M)
Gouin, W. P. (M)
Harrower, G. A. (M)
Hay, J. D. (M)
Hetherington, F. E. (M)
Hooker, C. E. (M)
Pederson, E. C. B. (M)
Pollock, H. S. (A)
Robinson, B. A. (M)
Ross, K. W. (M)
Shine, G. L. (A)
Stewart, H. H. (SM)
Wegman, W. G. (M)

Kirkland Lake (TOR-B)
Chapman, K. G. (M)

Kitchener (KW-B)
Albrecht, J. (A)
Clark, W. B. (SM)
Cowan, D. D. (M)
Cox, G. M. (SM)
Dankwardt, R. W. (M)
Duvall, J. M. (M)
Enns, E. G. (A)
Feilchenfeld, M. M. (M)
Gamble, J. W. (A)
Giverin, W. (M)
Guzik, S. W. (M)
Hass, Z. K. (SM)
Kuhn, J. (A)
Kurz, W. (M)
Lalka, W. S. (A)
Love, S. F. (M)
Marsland, J. W. (A)
Marsland, L. H. (M)
Mason, E. W. (A)
Mosher, F. M. (A)
Oddson, J. K. (M)
Ritz, E. A. (A)
Sernik, J. J. (M)
Shingles, R. D. (A)
Smallwood, S. G. (A)
Takacs, F. (M)
Thomas, E. A. (M)
Turchan, P. J. (A)
Washburn, J. C. (M)

Lansing (TOR-B)
Fisher, G. W. (A)

Leaside (TOR-B)
Brereton, R. L. (M)
Webster, C. G. (M)

London (LON-B)
Armstrong, J. L. (M)
Atkinson, P. H. (M)
Bach, J. R. (SM)
Beninger, G. J. (A)
Blackwell, J. H. (SM)
Brouwer, J. J. (A)
Brule, R. J. (M)
Cassar, C. J. (A)
Davis, K. J. (A)
Dearle, R. C. (SM)
Downs, E. E. (M)
Dubnicoff, E. (M)
Fallona, J. P. (M)
Ferguson, A. F. (M)
Foster, G. L. (M)
Fulford, J. A. (M)
Garner, H. D. (A)
Graham, B. (SM)
Haight, W. J. (A)
Hay, D. R. (SM)
Hiller, R. R. (A)
Hosker, G. R. (M)
Jackson, N. B. (M)
Jamain, E. R. (M)
Jeffery, J. (A)
Johnston, R. W. (M)
Johnston, S. N. A. (A)
Koehler, R. A. (M)
Luke, R. W. (M)
Moeys, G. L. (A)
Nunn, W. A. (A)
Oliver, W. L. (M)
Parsons, G. W. (M)
Prodger, A. (A)
Prothero, J. W. (M)
Rumbold, D. G. (A)
Ruth, C. G. (M)
Stewart, T. W. W. (M)
Stokes, S. J. (A)
Strik, W. L. (M)
Suchard, D. G. (M)

Thomson, E. A. (A)
Tull, E. H. (SM)
Warder, J. C. (M)
Watson, J. C. (M)
Webber, B. D. (A)
Wilton, R. (SM)

Lorne Park (TOR-B)
Grossman, J. S. (M)
Teng, T. (A)

Maidstone (L-SWO-B)
Hrischenko, G. (A)

Manotick (OTT-B)
Stahlberger, W. C. (M)

Maple (TOR-B)
Pile, J. H. (A)

Markham (TOR-B)
MacGregor, A. R. (A)

Milton (HAM-B)
Amis, T. E. (A)

Mount Forest (KW-B)
Stickan, F. (A)

Newmarket (TOR-B)
Filley, Jr., W. H. (M)
Posnikoff, P. W. (M)

New Toronto (TOR-B)
Lott, J. E. (A)

Niagara Falls (HAM-B)
Goertzen, J. (A)
Kindy, D. P. (A)
Lamont, H. R. (A)
Somerville, D. W. (M)

North Ottawa (OTT-B)
Henshaw, C. H. (A)

Novar (TOR-B)
Hodgson, A. E. (A)

Oakville (HAM-B)
Fekyt, D. P. (A)
Goldberger, R. (M)
Maskell, R. F. (A)
Paddon, J. W. (SM)
Taylor, W. H. (A)

Orangeville (TOR-B)
Wray, D. G. (A)

Orillia (TOR-B)
MacQuarrie, R. C. (A)

Oshawa (TOR-B)
Gray, G. E. (A)
Kerr, R. L. (M)
Marchand, W. C. (M)

Ottawa (OTT-B)
Adey, A. W. (M)
Ahrens, R. H. (M)
Aksim, V. E. (SM)
Andrews, A. G. (M)
Anglin, F. M. (A)
Anthony, F. (A)
Archard, R. C. (A)
Arvyle, J. V. (M)
Arvisais, G. J. (M)
Aylesworth, A. B. (M)
Ayukawa, K. (M)
Bazart, J. G. (A)
Baker, H. C. (M)
Ballard, B. G. (F)
Barnes, D. C. (A)
Barrett, W. A. C. (M)
Baxter, J. H. (M)
Baynham, G. E. (M)
Beauchesne, L. A. (M)
Bell, A. C. (M)
Belyea, J. L. (SM)
Bennett, J. R. G. (SM)
Bennett, L. F. (M)
Berlinquette, G. E. (M)
Bhattacharyya, B. K. (A)
Birta, L. G. (M)
Blair, F. D. (A)
Blevis, B. C. (M)
Blore, W. E. (M)
Borlase, W. H. (M)
Boulding, J. D. R. (M)
Bowen, R. R. (M)
Bower, D. R. (M)
Boyd, G. M. (M)
Bradley, J. H. (SM)
Brahan, J. W. (M)
Bresee, C. W. (M)
Brooks, G. C. (M)
Broten, N. W. (M)
Brown, H. C. (M)
Brown, R. K. (M)
Brown, W. C. (A)
Brunton, H. W. (M)
Bulger, G. E. (A)
Byers, V. J. (SM)
Cairns, F. V. (M)
Caldwell, F. F. (M)
Card, M. L. (SM)
Cardis, R. M. (M)
Carriere, J. M. (M)
Carroll, D. V. (SM)
Carroll, F. W. (M)
Castleman, D. H. (M)
Caton, W. A. (M)
Chapman, J. H. (SM)
Chapman, R. (A)
Chown, B. F. (M)
Christensen, P. S. (M)
Chrome, J. T. (M)
Chrzanowski, J. T. (M)
Clark, R. F. (M)
Clemence, C. R. (M)
Clerke, B. C. (M)
Coburn, G. S. (M)
Coffey, L. E. (M)
Cole, W. A. (SM)
Coll, D. C. (M)
Collins, W. C. (A)
Comach, S. I. (M)
Conway, W. R. (M)
Cooper, J. E. (M)
Cooper, R. J. G. (A)
Cope, L. G. (A)
Corbett, H. L. (M)
Corbett, L. V. (M)
Couzens, D. T. (M)
Covington, A. E. (SM)
Cox, G. C. (M)
Cox, L. G. (M)
Craven, J. H. (M)
Crutchlow, L. G. (M)
Cumming, W. A. (SM)
Cummins, A. F. (A)
Dashney, D. R. (M)
Davidson, D. W. (A)
Davies, F. T. (SM)
Davis, W. A. (M)
Day, A. G. (M)
Day, J. W. B. (M)
Des Brisay, A. W. Y. (M)
Dietiker, W. (M)
Dix, C. G. (M)
Doherty, L. H. (SM)
Doucet, D. W. (M)
Duff, G. C. (A)
Dunn, A. F. (M)
Duston, R. F. (M)
Elliott, R. E. (M)
Else, J. (M)
Evans, G. (M)
Ewen, G. M. (A)
Farkas, J. (M)
Feier, J. A. (M)
Field, G. S. (F)
Field, P. A. (SM)
Ford, J. G. (M)
Forster, B. D. (M)
Foster, F. K. (M)
Francis, C. J. (SM)
Franklin, C. A. (M)
Fraser, D. (A)
Fraser, J. S. (A)
Freeman, R. E. (SM)
Friend, R. C. (M)
Funke, E. R. R. (M)
Gall, F. (M)
Gilmore, J. P. (M)
Glinski, G. (F)
Goldstein, M. (A)
Gooderham, D. (M)
Grainger, G. E. (M)
Grant, D. A. (M)
Grundy, D. P. (M)
Grzebien, B. (M)
Hafer, R. A. (M)
Haney, W. L. (SM)
Hanna, G. F. (M)
Harris, L. H. (M)
Hatton, W. L. (M)
Hazell, J. (A)
Heal, J. A. (M)
Henderson, D. J. (A)
Henderson, D. P. (M)
Henderson, J. P. (SM)
Henderson, J. T. (F)
Hendry, A. (M)
Herniston, J. A. (A)
Hewitt, A. R. (M)
Hewitt, D. S. (A)
Hicks, R. L. (M)
Holmes, W. H. (M)
Hood, R. T. (A)
Hoops, J. A. (M)
Horwood, J. L. (M)
Hudson, A. C. (M)
Hunt, A. B. (SM)
Hunt, F. R. (M)
Hurd, R. A. (M)
Ireland, G. C. (M)
Irvine, G. W. (M)
Itenson, V. A. (M)
Ives, W. J. (A)
Jaques, S. W. (A)
Jelalfke, P. (A)
Jewell, L. (SM)
Jino, V. C. (A)
Johnson, E. F. (M)
Johnson, W. G. (M)
Jones, A. W. (M)
Jones, R. H. (M)
Jones, S. G. (M)
Josephy, W. (M)
Jurkus, A. P. (A)
Kalra, S. N. (SM)
Karabonik, A. (A)
Kelsey, E. S. (SM)
Kendall, W. S. (M)
Kendry, B. A. M. (M)
Kennedy, T. E. (M)
Kenney, J. R. (M)
Kerr-Wilson, G. A. (M)
King, V. C. (A)
Klein, E. J. (M)
Kneen, H. V. (A)
Knights, S. F. (SM)
Korczynski, W. F. (M)
Kowalik, H. (M)
Kramer, N. H. (M)
Lacey, W. K. (A)
La Ferriere, P. J. (M)
Lake, G. T. (M)
Lang, K. (A)
Langille, R. C. (SM)
Lavrench, W. (M)
Lecoco, D. S. (M)
Lee, A. (A)
Leman, J. F. (M)
Lemay, R. B. (M)
Levy, M. M. (SM)
Lindamood, J. M. (A)
Lindsey, G. R. (M)
Lomas, E. G. (SM)
Lougheed, D. G. (M)
Loutit, J. A. (M)
MacKenzie, D. A. (M)
MacKinnon, K. A. (F)
Mah, H. W. (M)
Mahmud, M. (M)
Makow, D. M. (SM)
Manning, R. P. (M)
Marchand, J. R. (M)
Mason, L. J. (M)
Mason, N. E. (M)
Matte, G. (M)
Mawdsley, J. S. (M)
May, J. L. (M)
McCormick, G. C. (M)
McCuaig, N. E. (M)
McGrail, J. J. (M)
McIntosh, B. A. (M)
McIntosh, J. A. (A)
McKinley, D. W. R. (F)
McLaren, G. D. (A)
McLeish, C. W. (SM)
McNamara, A. G. (M)
Medd, W. J. (M)
Meek, J. H. (M)
Mervyn, G. (M)
Mes, J. J. A. F. (M)
Miedzinski, J. (SM)
Miller, B. G. (M)
Miller, G. A. (SM)
Modley-Jones, H. S. (A)
Moore, D. A. (M)
Moore, L. R. (M)
Motil, J. M. (M)
Munsall, A. G. (M)
Myhill, D. A. (M)
Nasmyth, P. W. (M)
Neal, G. (M)
Nelson, L. E. (M)
Nevitt, H. J. B. (SM)
Nickerson, M. L. (M)
Nikkel, R. F. (M)
Nixon, F. G. (A)
Norton, J. A. (M)
Olivero, M. A. (M)
Oulmet, J. A. (F)
Park, F. R. (SM)
Patterson, C. F. (SM)
Pedersen, B. (M)
Pedersen, B. O. (M)
Penner, R. J. (M)
Penstone, S. R. (M)
Perry, E. G. (M)
Petersons, O. (M)
Pettersen, G. W. E. (M)
Phillips, L. W. (A)
Poole, E. C. (SM)
Potter, J. D. (M)
Pratt, C. M. (M)
Presentey, S. M. (SM)
Primich, R. I. (M)
Pritchard, J. R. (M)
Puller, J. K. (M)
Punchard, J. C. R. (F)
Putnaerglis, R. (SM)
Quarmby, A. (A)
Raine, H. R. (M)
Rantz, R. D. (M)
Rapp, F. J. (M)
Real, R. R. (M)
Redhead, P. A. (SM)
Relche, H. (SM)
Richards, R. S. (M)
Richardson, W. G. (F)
Riopelle, K. F. (M)
Riordon, J. S. (M)
Riordon, R. C. (M)
Ristic, D. (M)
Robinson, H. (M)
Robinson, P. A. (A)
Robinson, R. C. (A)
Rogers, T. F. (M)
Rosebrugh, R. K. (M)
Rowe, W. A. (M)
Rowlatt, J. H. (M)
Rowley, H. (M)
Roy, O. Z. (M)
Royer, G. M. (M)
Ruedy, R. (A)
Rywak, J. (SM)
Sandoz, O. A. (SM)
Sangster, R. (M)
Sawatzky, P. (M)
Schliebener, G. K. (A)
Schwelb, O. (A)
Seaman, E. A. (M)
Searle, W. M. (A)
Sheffield, A. G. (SM)
Shepertycki, T. H. (M)
Sheppard, R. (M)
Sheppard, R. D. B. (SM)
Shurben, W. E. (A)
Simoson, F. W. (M)
Smith, A. E. (M)
Smith, F. E. (A)
Smith, J. N. (A)
Smith, W. B. (SM)
Smyth, H. R. (SM)
Somers, H. (M)
Soucy, C. I. (SM)
Stanlforth, A. (SM)
Steel, W. A. (F)
Steele, K. A. (M)
Stephen, W. T. (M)
Stevens, E. E. (M)
Stock, E. H. (A)
Stone, D. G. (M)
Stone, S. A. (M)
Sturrock, J. K. (M)
Tahirali, G. W. (M)
Tanner, R. H. (F)
Tatlock, J. F. (A)
Tennuci, J. E. (A)
Thain, R. S. (SM)
Theodossiou, M. D. (A)
Thom, D. C. (M)
Timmers, A. G. W. (M)
Toy, N. D. (A)
Trohon, B. L. (M)
Trojanowski, M. S. (M)
Ujimoto, K. V. (M)
Van Der Maas, G. J. (A)
Venier, G. O. (M)
Vice, D. G. (M)
Vogan, E. L. (M)
Von Baeyer, H. J. (F)
Vroom, D. R. (A)
Walsh, B. R. (M)
Warr, G. J. (A)
Waterfield, J. W. (M)
Watson, G. D. (SM)
Weaver, W. A. L. (A)
Webb, E. L. R. (SM)
Webb, P. R. W. (M)
Webster, R. E. (A)
Weir, W. J. (A)
Welsh, W. (M)
Weston, B. R. (A)
White, R. A. S. (M)
White, W. E. (SM)
Whitford, B. G. (M)
Wightman, B. A. (M)
Wilcox, D. A. (A)
Willing, W. R. (M)
Willows, D. J. (M)
Wilmot, R. D. (M)
Wilson, W. J. (M)
Wilson, W. R. (SM)
Winacott, E. L. (M)
Wlochowicz, R. (M)
Wolfe, J. L. (M)
Wong, J. Y. (SM)
Wright, R. (SM)

Painswick (TOR-B)
Warnica, I. H. (A)

Palmerston (KW-B)
Forster, J. S. (A)

Paris (HAM-B)
Archer, E. A. (A)

Peterborough (BAY-B)
Flemons, R. S. (SM)
Grosso, J. E. (M)
Jablonsky, W. (M)
Klingbeil, H. N. (M)
Long, R. S. (A)
MacKelvie, J. S. (SM)
Young, J. A. I. (M)

Pickering (TOR-B)
Brimbecom, R. J. (M)

Port Arthur (TOR-B)
Hunter, W. C. (M)

Port Credit (TOR-B)
Eaton, G. F. (M)
Eicher, E. D. (M)
MacLachlan, D. T. (M)
Macumber, M. G. (A)
Purvis, W. J. (M)

Port Dalhousie (TOR-B)
Davey, S. W. (A)

Port Hope (TOR-B)
Taylor, W. (M)

Port Rowan (LON-B)
Martin, J. D. (M)

Preston (KW-B)
Barsony, C. L. (M)

Ravenna (KW-B)
Flegehen, G. D. A. (A)

Renfrew (OTT-B)
Belanger, J. P. (M)
Cowan, N. J. (A)
Muller, W. J. (M)

Rexdale (TOR-B)
Barringer, A. (A)
Freen, P. (M)
George, J. N. S. (A)
Goodacre, B. (M)
Hynes, K. W. (M)
Lockyer, J. E. (M)
Mackett, L. J. (M)
Murphy, W. L. (A)
Pointon, C. G. (A)
Ritchie, D. K. (SM)
Sadler, J. A. (A)
Saville, H. G. (M)
Thomson, J. M. (SM)
Zuk, P. (M)

Richmond (OTT-B)
Ling, T. G. (M)

Richmond Hill (TOR-B)
Bull, T. R. (M)
Crean, G. A. (A)

Ridgetown (L-SWO-B)
MacLulich, D. A. (SM)

Ridgeville (HAM-B)
Green, C. H. (A)

Riverside (L-SWO-B)
Barnes, E. M. (M)
Buller, B. H. (A)
Le Blanc, R. J. (A)
Seidler, H. G. (A)

Rockcliffe (OTT-B)
Bayer, M. B. (M)
Fawcett, G. M. (SM)
Sugimoto, M. (M)

Roslin (BAY-B)
Hutson, G. E. (A)

Russell (OTT-B)
Snyder, J. S. (A)

St. Catharines (HAM-B)
Bastings, R. L. (A)
Coyne, B. D. (A)
Kocsis, N. L. (A)
McGee, H. R. (M)
Ormston, F. N. (A)
Strychalski, A. J. A)

St. Thomas (LON-B)
Mac Donald, R. D. (M)
Onn, W. R. (M)

Sault Ste Marie (TOR-B)
Clements, J. D. (A)
Levasseur, J. R. A. (M)
McRae, D. W. (A)

Scarborough (TOR-B)
Andrews, D. S. (A)
Baby, J. (M)
Bull, R. A. (A)
Chan, B. L. (M)
Davidson, J. W. (M)
Doig, W. J. (M)
Ebersole, J. A. D. (A)
Gouley, H. O. (A)
Graham, H. E. (M)
Hase, A. M. (M)
Hull, S. E. (A)
James, W. E. (M)
Johnston, K. S. (A)
Jordan, E. A. (M)
Kerridge, E. L. (M)
Konn, A. (M)
Koster, J. A. (M)
Lazenby, T. W. (A)
Miller, J. E. C. (M)
Miyasaki, K. (A)
Morfitt, D. C. (M)
Noble, D. E. (M)
Otsuki, J. S. (M)
Pepnik, H. O. (M)
Poldne, O. (M)
Preziosi, F. W. (M)
Pugh, W. H. (M)
Rawley, J. W. (M)
Reilly, W. B. (A)
Rippin, D. W. (M)
Ryland, V. N. (M)
Ryll, E. (M)
Sands, J. S. (M)
Schultz, R. M. (M)
Swift, R. R. (A)
Thomas, S. D. (A)
Turner, R. J. A. (SM)
Van Steinburg, C. E. (M)
Ward, G. F. (M)
Wilson, A. E. (A)
Wooff, G. F. B. (M)

Simcoe (HAM-B)
Austin, A. M. (A)

Smith Falls (OTT-B)
Warner, C. W. (A)

Stittsville (OTT-B)
Knowles, J. E. (A)
Rowe, G. C. (SM)

Stoney Creek (HAM-B)
Dean, A. L. (M)
Parker, H. J. (A)

Stouffville (TOR-B)
Dulmage, H. B. (SM)

Streetsville (TOR-B)
Mighton, R. E. (A)

Sudbury (TOR-B)
Donato, J. (A)
Leclaire, R. C. A. (M)
Martin, R. O. (A)

Mazzuchin, G. (A)
McKee, W. H. (M)

Sutton West (TOR-B)
Bridgman, J. M. (M)
Whitney, W. M. (M)

Swansea (TOR-B)
Bow, A. (A)

Thistletown (TOR-B)
Buckles, F. G. (M)
Kingsnorth, A. (SM)
Smith, K. C. (M)
Wootten, E. J. (M)

Thornhill (TOR-B)
Poulter, R. C. (SM)
Stoddart, T. W. H. (M)
Watson-Watt, R. (F)
Willcocks, R. C. (A)

Timmins (TOR-B)
Amendola, B. (A)
Mott, E. D. (A)

Trenton (BAY-B)
Beck, A. W. (M)
Killen, D. G. (M)
Pfeiffer, J. T. (M)
Taylor, S. L. (A)
Walsh, J. J. (M)

Unionville (TOR-B)
Fischer, E. J. (M)

Toronto (TOR-B)
Agnew, J. M. (M)
Anderson, W. H. (M)
Annett, J. C. (M)
Arnold, C. P. C. (A)
Atherton, D. L. (A)
Bain, J. D. (SM)
Bain, J. R. (SM)
Baldwin, C. O. (M)
Baldwin, J. H. (SM)
Banner, W. G. (M)
Bannister, D. R. (M)
Barclay, A. P. H. (SM)
Barratt, N. T. (M)
Beardwood, W. T. A. (M)
Beaudoin, D. P. (M)
Berman, S. (A)
Berrevoets, J. (M)
Berry, F. G. (M)
Bhargava, R. P. (M)
Black, R. G. (A)
Blackwood, G. W. (M)
Blois, W. G. (M)
Boll, K. E. (A)
Bond, S. (M)
Bond, W. K. J. (M)
Brach, E. (M)
Bradbury, W. C. (M)
Bratsberg, W. P. (M)
Bridgland, C. J. (SM)
Brooks, J. S. (M)
Brophy, R. M. (SM)
Brunn, G. F. (M)
Bullock, R. G. (M)
Burke, A. C. (M)
Byers, H. G. (SM)
Cary, F. C. (M)
Cass, R. S. (A)
Chambers, J. D. (M)
Cherrington, B. E. (M)
Chisholm, D. J. (A)
Choat, W. F. (M)
Clarke, J. W. (A)
Clayton, R. S. (A)
Coish, H. D. (M)
Conway, J. C. (M)
Cook, R. H. (M)
Cook, R. (M)
Cox, R. E. (A)
Coxall, N. (SM)
Crossan, G. W. (M)
Dallyn, H. E. (A)
Dargevics, A. J. (A)
Davis, G. W. L. (M)
Dawson, H. S. (SM)
Deacon, F. W. (A)
De Kanwin, P. R. (M)
Dennett, L. J. (M)
Dimnin, A. J. (M)
Dmitrevsky, S. (M)
Dmytrasz, W. (A)
Doherty, P. R. (A)
Doolan, F. E. (A)
Dunkl, F. S. (A)
Dunn, J. R. (M)
Dunn, W. G. (M)
Dutton, I. R. (M)
Dworkin, A. E. (M)
Dyjack, L. C. (A)
Eisen, D. M. (M)
Erler, K. A. (A)
Evis, F. A. (M)
Falconer, K. F. (M)
Fisher, A. M. (A)
Fitzallen, J. H., Jr. (M)
Ford, F. A. (SM)
Ford, J. S. (M)
Forde, D. (M)
Franklin, D. G. (A)
Gajdemski, F. P. (A)
Gallaher, J. F. (SM)
Gandy, L. D. (M)
Geduld, G. E. (A)
Geiger, D. G. (SM)
Gelb, M. D. (M)
Ghonaimy, M.A.R. (M)
Green, L. P. (A)
Gregson, J. H. (M)
Hallam, P. A. (M)
Hames, A. L. (M)
Hamilton, H. E. S. (M)
Hansen, B. C. (A)
Haraldsen, K. (M)
Hardcastle, G.W. (A)
Harris, D.A. (A)
Harris, D.L. (M)
Head, W. G. (A)
Heath, F. J. (SM)
Heenan, P. J. (A)
Henderson, V. L. (SM)
Herring, J. (A)
Hobbs, F. B. (M)
Holm, H. R. (A)
Hooper, J. F. (M)
Howat, M. R. (M)
Hunter, J. B. (M)
Isserstedt, S. G. (M)
Jackson, H. W. (SM)
Jagger, C.E. (M)
Japp, L. G. (M)
Jones, R. (M)
Kasner, I. I. (A)
Katchky, M. (M)
Keltz, L. F. (A)
Kembley, L. G. (A)
Kemp, G. K. (M)
Kemp, R. H. (A)
Kerfoot, J. H. (M)
King, C. A. (A)
Klican, E. (A)
Knowlton, K. R. (M)
Kozlowski, W. J. (A)
Kraav, J. (M)
Kravetz, A. J. (M)
Krenko, J. W. (A)
Kupeczek, F. W. (A)
Kusmierak, M. (M)
Lauterer, P. W. (A)
Leavens, D. H. (A)
Lewis, R. G. (M)
Liepins, G. J. (M)
Llewellyn-Thomas, E. (M)
Long, R. G. (M)
Lonestaffe, J. R. (M)
Lower, W. M. (M)
Lowry, C. A. L. (M)
MacKenzie, K. (M)
MacLeod, R. A. (A)
Mairs, L. A. (M)
Maloff, A. (M)
Manning, J. V. R. (A)
Marek, E. (A)
Martens, G. O. (M)
Martinsons, G. V. (M)
Matthews, J. N. (A)
Maxwell, J. (A)
McAteer, J. (A)
McCord, J. T. (A)
McCurdy, G. E. (M)
McDonnell, P. J. (M)
McFadden, H. W. (M)
McGregor, B. H. (M)
McIntyre, R. G. (M)
McLaughlin, R. H. (M)
McLeod, W. D. (M)
Meszaros, A. L. (A)
Mitchener, H. G. (M)
Montemurro, H. R. A. (M)
Mori, M. R. (A)
Morris, F. M. (M)
Muller, S. N. (A)
Murray, R. L. A. (A)
Murton, C. B. (A)
Nohr, L. H. (M)
Norton, R. J. (M)
Nylin, M. E. (M)
Oakes, C. R. (M)
O'Beirne, H. (M)
Ormiston, J. W. (A)
Ovenell, B. (M)
Ozawa, P. V. (M)
Paisley, P. P. (M)
Paisley, S. R. (M)
Parker, T. A. (A)
Paterson, D. J. (M)
Patterson, M. C. (M)
Paul, W. (M)
Pearce, R. G. (A)
Pickering, J. N. (M)
Pimenoff, V. J. (M)
Pollock, H. L. (M)
Poole, G. (A)
Pounsett, F. H. R. (F)
Price, E. G. (M)
Price, H. (SM)
Price, L. M. (F)
Pryzdial, E. F. (A)
Putz, H. R. (M)
Quigley, G. T. (SM)
Rajamani, V. S. (M)
Remeikis, A. A. (A)
Rennie, J. C. (SM)
Rennie, J. M. (A)
Richaur, F. F. (M)
Richter, E. (M)
Ridout, J. R. (A)
Rogers, H. Z. (M)
Rojenko, P. (A)
Rosenthal, A. L. (SM)
Roy, D. R. (M)
Sandison, T. A. (SM)
Schiller, H. D. (M)
Schofield, W. D. (M)
Scott, C. R. (A)
Scott, J. V. (M)
Sekiguchi, T. (M)
Seljak, A. A. (M)
Sharp, V. S. (A)
Shearing, C. G. (M)
Shewchuk, P. D. (M)
Shoemaker, H. F. (SM)
Shutt, S. (M)
Sinclair, G. (F)
Siosyss, A. P. (M)
Slemon, G. R. (SM)
Sluyter, E. (A)
Smedmor, G. (A)
Smith, E. D. (A)
Smith, R. W. (M)
Smith, W. R. (M)
Smokorowski, L. F. (M)
Soanes, S. V. (M)
Sproule, D. W. (A)
Spurn, O. C. (A)
Stankovic, J. P. (A)
Staslak, E. A. (M)
Stein, A. (A)
Stein, H. H. (M)
Stevenson, T. (A)
Stewart, G. L. (SM)
Stewart, R. A. (M)
Stocks, J. R. (A)
Story, R. (M)
Straka, M. K. H. (M)
Swan, C. B. (M)
Swan, E. O. (SM)
Sweeny, T. V. (M)
Sydiaha, R. W. (M)
Taraleshkov, B. M. (M)
Taylor, M. K. (SM)
Taylor, R. B. (A)
Thibodeau, D. L. (M)
Tomico, N. (M)
Topping, F. V. (SM)
Tuchak, W. G. (A)
Turner, K. A. (M)
Tustin, F. C. (A)
Vali, E. (M)
Vellinga, P. A. (M)
Verhovnik, V. J. (A)
Vicary, R. G. (M)
Vriesen, K. S. (M)
Wainright, W. G. (A)
Ward, R. F. (A)
Warhurst, R. P. (A)
Weedon, G. F. C. (A)
Wells, R. J. (M)
Whyte, J. R. (M)
Wilkinson, C. G. (A)
Willer, M. D. (M)
Williams, R. (M)
Wilson, R. W. (M)
Wong, R. D. C. (A)
Wood, W. A. (SM)
Wywlorski, M. (A)
Yen, J. L. (M)
Zaludek, J. (A)
Zanatta, R. E. (A)
Zelding, I. (A)

Vineland (HAM-B)
Gillard, W. H. (M)
Pond, J. F. (M)

Wallaceburg (L-SWO-B)
Lawson, R. (A)

Waterdown (HAM-B)
Chapman, C. N. (SM)
Krawczyk, W. M. (A)
Pynn, R. D. (SM)
Van Marle, J. C. (M)

Waterloo (KW-B)
Anthes, R. G. (SM)
Dufault, G. J. (M)
East, T. W. R. (SM)
Ellis, J. B. (M)
Flumerfelt, L. R. (M)
Grey, W. J. (M)
Kadish, J. E. (SM)
Keeler, J. S. (M)
Kesavan, H. K. (M)
McCarron, J. J. (M)
McConachie, B. S. (SM)
Morgulis, I. A. (M)
Myers, B. R. (SM)
Reesor, G. E. (M)
Roe, P. H. (M)
Shewchun, J. (M)
Vetter, W. J. (M)
Wei, L. Y. (M)
Woon, P. Y. (M)

Wellandport (HAM-B)
Matys, S. J. (M)

West Hill (TOR-B)
Gladys, S. J. (M)

Weston (TOR-B)
Beasley, B. C. (M)
Beechey, D. F. (M)
Dunlop, D. P. (M)
Fanjoy, E. M. (M)
Jorgenson, G. T. (M)
McGovern, J. R. (M)
McLean, D. J. (M)
Meredith, C. C. (M)
Mulholland, G. C. (A)
Naylor, R. W. (SM)
Purcer, L. F. (A)
Sawitzki, N. (M)
Smith, J. E. (A)
Strain, E. M. (M)
Watson, J. P. (M)
Williams, H. S. (A)

Whitby (TOR-B)
Matthews, R. P. (SM)
Willowdale (TOR-B)
Ainlay, A. (SM)
Alden, R. T. (M)
Armitage, G. G. (SM)
Baldwin, J. D. (M)
Barker, N. G. F. (M)
Bedingham, G. M. (M)
Crouch, M. B. (M)
Eakins, J. R. (A)
Elliott, A. W. D. (M)
Fredericks, M. J. (A)
Giffin, P. A. (A)
Gloster, R. G. (A)
Goldman, S. J. (M)
Hackbusch, R. A. (F)
Hanic, J. M. (A)
Huyenholtz, E. H. (SM)
Jordan, J. L. (M)
Leaver, E. W. (M)
Le Page, R. W. (A)
Maddock, A. W. (A)
Mounce, G. R. (M)
Nightingale, A. J. (M)
Palin, E. L. (SM)
Penrose, R. M. (M)
Piechota, A. (M)
Purdy, T. W. (M)
Qua, E. W. (M)
Richards, G. A. (M)
Rowe, I. H. (M)
Simmonds, L. C. (M)
Simpson, J. R. (M)
Taylor, A. K. (M)
Tennent, B. (SM)
Ussher, T. H. (M)
Van Dyk, T. (M)
Yachimec, P. (M)
Young, R. A. (A)

Windsor (L-SWO-B)
Campbell, L. L. (M)
Clark, R. A. (M)
Clark, S. M. (M)
Elvidge, R. E. (A)
Fletcher, H. R. (A)
Hitzeroth, E. J. (M)
Jackson, C. M. (M)
Kiss, J. A. (A)
Margita, G. M. (A)
Ruse, W. A. (M)
Tuba, W. C. (A)
Turik, M. (A)
Varga, N. A. (M)
Walker, G. B. (M)

Woodbridge (TOR-B)
Jones, L. H. (A)

Woodstock (TOR-B)
Hulse, R. W. (M)

PROVINCE OF QUEBEC

Ancienne Lorette (QUE-B)
Cobb, W. B. (A)

Asbestos (MON-B)
Laxson, R. G. (M)

Aylmer East (OTT-B)
Belrose, J. S. (M)
Chaudhry, K. G. (M)
Signore, S. S. (M)
Sturrock, R. F. (M)
Terrell, D. S. (M)

Bagotville (QUE-B)
Shannon, F. (M)

Baie d'Urfe (MON-B)
Booker, C. C. (A)
Rankin, T. G. (SM)
Roloff, W. T. (M)
Wighton, J. J. (M)

Beaconsfield (MON-B)
Allen, R. E. (M)
Bell, J. W. (F)
Chipps, G. E. (M)
Dobridge, R. W. (M)
Kipp, C. F. (M)
Mitchell, W. (M)
Sarpeant, F. W. (M)
Therlault, E. E. (M)
Toye, J. M. (M)

Beaconsfield West (MON-B)
Turnbull, J. A. (M)

Beauerepaire (MON-B)
Lisle, J. R. D. (M)
Penton, R. E. (SM)

Bedford (MON-B)
Patrick, K.R. (SM)

Beloeil (MON-B)
Harley, R. L. (A)

Brownsburg (MON-B)
Desrochers, G. L. (M)

Canadiac (QUE-B)
Barcelo, P. O. (A)

Cartierville (MON-B)
Lurion, E. (M)

Chamy (QUE-B)
Lacroix, D. R. (M)

Chateauguay Basin (MON-B)
Davies, K. P. (M)

Chateauguay Centre (MON-B)
Oliver, R. A. (A)

Chicoutimi (QUE-B)
Aubry, Y. C. (M)

Chomedy (MON-B)
Hings, H. J. (M)

Cote St. Luc (MON-B)
Pascal, J. (A)
Pullan, E. (M)

Dollard-Des-Ormeaux (MON-B)
Bousfield, J. A. T. (SM)

Donnacona (QUE-B)
Julien, G. (M)

Dorval (MON-B)
Bartnikas, R. (M)
Coughlin, F. J. (A)
Courville, L. (M)
Cox, J. R. G. (SM)
Floyd, F. J. (M)
Gelhar, W. O. (M)
Gould, T. C. (A)
Halfyard, R. (M)
Hodgson, A. (M)
Kossatkine, I. (A)
Lawton, B. (M)
Lees, K. C. (A)
MacDonald, A. G. (M)
MacLennan, N. D. (M)
Murphy, P. E. (M)
Price, M. (M)
Scott, R. (SM)
Silberberg, N. (M)
Sweiman, E. D. (M)
Whittaker, J. A. (M)
Wilson, J. L. (M)

Drummondville (MON-B)
Marceau, J. P. (SM)
McWilliam, E. A. (M)
Mechas, N. G. (A)
Pavette, R. (M)
Saunders, L. E. (M)

Duvernay (MON-B)
Kager, G. H. (M)

Faberville (QUE-B)
Neville, A. H. (M)
Tibershien, C.M.J., Jr. (M)

Gaspe (QUE-B)
Trepanier, G. (A)

Giffard (QUE-B)
Lortie, A. L. (M)

Granby (MON-B)
Henry, R. A. (M)
Jungbluth, E. J. (M)
Tourant, F. E. (M)

Grosses Roches (QUE-B)
Millar, R. B. (M)

Hampstead (MON-B)
Read, I. E. (M)

Hudson Heights (MON-B)
Summers, L. I. (M)

Hull (OTT-B)
Frechette, L. P. (M)
Oltheten, J. B. (M)

Iberville (MON-B)
Hyman, W. R. (M)

Ile Perrot (MON-B)
Martin, R. E. (A)

Isle Bigras (MON-B)
Clarkson, L. (M)

Jacques Cartier (QUE-B)
Patterson, R. McM. (M)

L'Abord-a-Plouffe (MON-B)
Aston, J. P. (SM)
Brunel, A. (M)
Smith, G. C. (M)
Weyzze, D. W. (M)

Lachine (MON-B)
Brodeur, R. (M)
Cagney, T. A. (M)
Isaac, V. E. (M)
Milne, A. F. (A)
Multhead, C. R. (SM)
Oulton, G. R. (M)
Pavlasek, T. J. F. (SM)
Pinnell, J. E. (SM)
Purse, K. G. (M)
Schofield, E. (A)
Walker, A. S. (M)
Woltowich, B. E. (M)

Lakeside (MON-B)
Livis, M. J. (A)

La Salle (MON-B)
Halliday, R. E. (A)
Moore, E. J. (M)

Lauzon (MON-B)
Gonthier, A. G. (A)
Pelletier, R. M. (A)

Lauzon Levis (QUE-B)
Douglas, F. G. (M)

Laval Des Rapides (MON-B)
Ludtke, J. U. (A)

Laval Islands (MON-B)
Johnson, A. B. (M)

Laval West (MON-B)
Herwaarden, F. Van (M)

Lonqueuil (MON-B)
Alway, V. J. (M)
Paquette, A. (A)
Tromanhauser, E. A. (M)

Louiseville (MON-B)
Beland, B. (M)

Marieville (MON-B)
Billoeq, R. E. (A)

Mascouche (MON-B)
Dixon, G. L. (M)

Montreal (MON-B)
Adams, C. B. (A)
Adkar, C. K. (M)
Adler, E. L. (M)
Agnew, J. A. (M)
Allinson, M. V. (A)
Amey, G. X. (M)
Angers, D. (M)
Apostolakis, A. (A)
Archambault, G. (M)
Argue, T. A. (M)
Arsenault, L. (M)
Babcock, T. J. (M)
Bachynski, M. P. (SM)
Baily, F. A. A. (M)
Bantin, W. F. (M)
Barrow, F. A. (M)
Barry, A. (A)
Bar-Urian, M. (M)
Bates, D. (M)
Baudot, J. A. (M)
Baumans, H. W. (M)
Baylis, G. F. (M)
Beaulieu, J. W. R. (M)
Beer, W. J. (A)
Belanger, J. P. (A)
Belliveau, J. H. (A)
Bellringer, C. C. E. (M)
Beresford, A. C. (M)
Berkovits, G. (M)
Bernier, J. C. (SM)
Berridge, B. M. (M)
Berube, J. P. G. (A)
Bethune, R. (M)
Bird, L. T. (M)
Birol, H. (M)
Blanchet, R. (A)
Boag, J. C. (M)
Bohm, J. (M)
Bourbonnais, P. J. (M)
Breton, A. Y. (M)
Brinkmeier, G. J. (M)
Brown, D. L. J. (M)
Bryden, J. E. (M)
Buck, L. G. (SM)
Bulzert, H. (M)
Campbell, A. F. (M)
Campbell, C. J. (M)
Campbell, J. A. (SM)
Capra, E. L. (A)
Cardella, O. (M)
Carrick, W. E. (M)
Carruthers, W. E. (M)
Chalekian, J. (A)
Challis, W. L. (M)
Chapman, S. J. (M)
Chol, K. K. F. (M)
Clapo, R. O. (M)
Clarke, H. W. (M)
Clement, L. J. J. (A)
Conroy, J. M. (SM)
Cook, W. S. (A)
Coolen, J. G. (M)
Coppack, K. N. (M)
Curtis, R. H. (M)
Cutting, A. B. (M)
Czobor, S. E. (M)
Dasko, G. J. (A)
Davidson, G. K. (SM)
De Grandpre, J. L. (M)
De La Goutte, J. (A)
Delbridge, W. A. (M)
Demers, P. (M)
Derzai, M. (M)
Desjardins, A. A. (A)
Dicks, J. L. (M)
Dickson, G. H. (A)
Doctor, L. L. (A)
Dolby, P. W. (A)
Doucet, M. (A)
Douglas, J. C. (M)
Drevet, C. (A)
Dube, J. J. (M)
Dubreuil, E. J. (M)
Dumas, L. (M)
Durrant, R. W. (A)
East, L. A. W. (SM)
Engert, K. G. (M)
Ernstsohn, F. A. K. (M)
Fabiszewski, H. (M)
Farnell, G. W. (SM)
Ferenczy, M. (M)
Fillon, L. J. (A)
Fisher, C. B. (M)
Fisher, F. S. (M)
Fisher, S. T. (SM)
Flom, M. (M)
Fodor, N. J. (A)
Foldes, P. (M)
Fong, T. T. (A)
Fortin, C. (A)
Frenette, C. (M)
Frenette, R. H. (M)
Gagnon, P. M. (M)
Gaherty, W. D. (M)
Gamus, A. (M)
Garrison, G. J. (M)
Gauthier, G. M. (M)
Gavsie, F. F. (SM)
Gilmer, D. R. (M)
Ginsberg, G. (A)
Ginsburg, I. (A)
Glasheen, P. V. (M)
Grant, J. M. (SM)
Gravel, J. J. O. (M)
Groome, G. R. (M)
Groome, G. L. (A)
Guitian, J. E. (A)
Haeberlin, R. O. W. (M)
Hall, J. S. (M)
Hallbrecht, D. G. (M)
Hamel, Y. R. (M)
Hamilton, H. A. (M)
Hanna, F. M. (SM)
Harris, K. B. (SM)
Harris, W. P., Jr. (M)
Harrison, B. M. (A)
Hatzidakis, K. (M)
Hauck, H. G. (M)
Haworth, I. F. (A)
Hayes, J. E. (F)
Heckman, D. E. (M)
Heckman, G. R. (M)
Hillier, A. H. (M)
Ho, P. Y. (M)
Hobbs, N. M. (M)
Hodge, N. H. (M)
Homa, D. M. (M)
Horrigan, E. W. (SM)
Howard, D. J. (M)
Howes, F. S. (F)
Hryhoriiw, W. (M)
Inkson, I. A. (M)
Jackson, J. E. (SM)
Jackson, R. W. (SM)
Jamieson, F. C. (M)
Jamshedji, J. S. (M)
Janssens, E. L. (SM)
Johnston, T. W. (M)
Jones, E. W. (M)
Jutting, W. C. V. B. (M)
Kahn, I. (M)
Katz, L. (M)
Kaufman, H. (M)
Kenedi, R. (M)
Keyes, L. A. (M)
Kinnear, D. R. (M)
Knitel, E. J. M. (SM)
Knott, R. S. (M)
Knox, D. F. (M)
Knox, J. B. (F)
Koblin, S. (A)
Komlos, S. G. (M)
Konrad, J. E. (M)
Kuchman, R. (A)
Kousement, J. (A)
Kubina, S. J. (M)
Kurdyla, N. (M)
Kydd, J. G. (A)
Laporte, J. M. (M)
Lavallee, P. (M)
Lavoie, L. (M)
Lazaroff, L. (A)
Lee, H. C. (M)
Lee, K. (M)
Lee, P. J. L. (M)
Leeson, F. D. (M)
Legault, E. G. (M)
Leinwand, J. J. (M)
Lesperance, B. J. (M)
Leung, T. C. (M)
Lindsay, R. A. (M)
Litwin, M. M. (M)
Lukacs, P. (M)
Lunn, H. J. (M)
MacDonald, F. X. (M)
MacKay, C. J. E. (M)
MacLean, T. M. (A)
MacPherson, M. F. (M)
Mahoney, J. A. (M)
Malcolm, F. W. (SM)
Maloleposzy, V. (M)
Mar, J. S. J. (M)
Marcotte, J. (M)
Margolick, F. H. (SM)
Marquis, L. Y. (A)
McDonald, D. J. (SM)
McGuire, C. H. (SM)
McGuire, J. (M)
McLean, M. D. (M)
McNeil, B. T. (M)
Mentke, S. H. (M)
Methot, P. R. (A)
Meunier, J. L. (M)
Mierzwinski, J. (A)
Migneault, G. B. (M)
Milborne, H. S. (M)
Miroshnichenko, A. (M)
Mockler, T. P. (A)
Moen, H. P. (M)
Morrison, A. D. (M)
Morrison, W. B. (M)
Mowbray, D. R. (A)
Mui, D. Y. H. (M)
Murphy, F. D. (M)
Nacar, A. M. (M)
Nachfolger, N. (M)
Nadon, L. (A)
Nagami, T. T. (A)
Nakamachi, P. Y. E. (M)
Negoro, T. (M)
Nelson, W. A. (M)
Nesvadba, V. V. (A)
Nichols, W. A. (F)
Noah, D. J. (M)
Noel, A. J. M. (A)
Norak, E. (A)
O'Gorman, A. L. (M)
Ohmura, H. (A)
Olding, N. R. (SM)
Ornstein, W. (A)
Overton, D. A. (M)
Oxley, A. B. (F)
Pauch, J. E. (M)
Paul, K. R. (M)
Pedrosa, J. B. (M)
Perron, J. V. (M)
Perryon, P. (A)
Phipps, G. A. (A)
Pilbe, R. (M)
Provost, Y. (A)
Pscheidt, K. (A)
Pugsley, J. D. (M)
Quinn, S. F. (M)
Rasmussen, F. H. (M)
Reed, N. D. (M)
Reeves, R. (M)
Reid, K. G. (M)
Rondeau, J. P. (M)
Rosh, S. (A)
Ruden, J. (M)
Rumstein, A. (A)
Salvin, S. (A)
Sauchuk, J. M. (M)
Sauve, W. A. (M)
Schlaak, R. C. (M)
Schmidt, P. J. (M)
Schneider, R. S. (A)
Schon, F. K. K. (SM)
Schwartz, H. H. (SM)
Schwartz, H. H. (M)
Sekelj, P. (SM)
Sherman, B. N. (M)
Shkarofsky, I. P. (M)
Shoub, B. (M)
Skybyk, D. (A)
Smith, F. A. (SM)
Sochianopoulos, A. A. (M)
Soukup, Z. (M)
Starker, H. H. (A)
Steeves, D. M. (A)
Steinmetz, N. (M)
Stewart, J. M. (M)
Stovman, J. A. (M)
Sullivan, T. (M)
Sumner, H. C. (M)
Swain, H. J. (M)
Szot, H. J. (M)
Taagepera, A. (A)
Tamagi, T. T. (M)
Tang, D. (A)
Tateishi, G. (M)
Teany, A. R. (M)
Tepper, B. (M)
Thomas, A. (M)
Toczylowski, H. S. (SM)
Tol, J. M. (M)
Trawinski, B. S. (M)
Tucker, R. L. (M)
Turcotte, G. (M)
Turton, E. P. (M)
Valin, R. E. (M)
Vanderboom, J. (M)
Vanderwalle, J. F. (M)
Vejins, M. (A)
Venn, B. A. (M)
Vogel, N. (SM)
Wachholz, E. (M)
Wagner, S. (SM)
Wall, E. (M)
Wallace, R. J. (SM)
Walsh, D. (A)
Warren, F. G. R. (SM)
Weaver, J. H. (M)
Webb, P. P. (M)
Weintraub, G. (M)
Westerberg, B. H. (A)
White, K. M. (M)
Whitehead, J. R. (SM)
Wilburn, C. D. (M)
Wilkinson, H. E. (A)
Wilson, D. S. (A)
Wilson, S. S. (M)
Winkel, D. J. (M)
Wong, D. D. P. (M)
Wong, E. Y. C. (M)
Woonton, G. A. (F)
Woosey, S. (M)
Zakaib, L. J. (M)
Zelinger, G. (SM)
Zimmerman, H. (M)
Zonmers, O. (M)
Zuran, J. J. (M)

Mount Royal (MON-B)
Hall, S. S. (A)

Ottenburn Heights (MON-B)
Doutre, B. G. (M)

Outremont (MON-B)
Gentner, R. F. (A)
Pinsky, C. (A)
Rolaand, S. F. (M)
Slaven, L. (M)

Parent (MON-B)
Forbes, J. M. (M)
Dewar, D. W. (M)

Pierrefonds (MON-B)
Dunn, E. J. (M)
Heybroek, C. J. (A)
Kassner, M. H. (M)
Morford, R. V. (A)
Secord, A. H. (M)
Sibley, G. B. (M)
Van Leeuwen, A. (M)

Pointe Claire (MON-B)
Anderson, D. A. (SM)
Cameron, B. G. (M)
Collins, J. A. (M)
Crook, K. F. (M)
Curtis, R. W. (M)
Dewey, D. L. (M)
Gordon, K. I. (M)
Gregory, A. H. (M)
Haberl, J. F. (M)
Holm, F. H. (M)
Klvistik, O. (M)
Lee, F. B. (SM)
Lovas, A. (SM)
Mackenzie, D. G. (M)
McIntyre, R. J. (M)
Muller, R. A. (SM)
Ruoq, H. H. (SM)
Russell, D. F. (M)
Russell, W. D. (M)
Skinner, C. W. (SM)
Wells, A. F. (M)
Whittaker, J. F. (M)
Williamson, R. B. (M)
Wisenden, G. A. (M)

Port Alfred (QUE-B)
Gagnon, L. A. (M)

Prevel (QUE-B)
Wesolowski, M. (A)

Quebec City (QUE-B)
Bartello, T. C. (A)
Boulet, L. (SM)
Boutin, J. J. (A)
Caron, J. Y. (M)
Chinnick, R. F. (M)
Clayton, J. O. (A)
Corbeil, M. J. (M)
Cote, P. (A)
Courtenay, T. H. (M)
Cummins, J. A. (M)
Friedmann, E. (A)
Gagne, R. E. (M)
Gosselin, L. (A)
Guevremont, J. U. (M)
Hansen, A. K. (SM)
Laflamme, A. K. (M)
Laurie, K. A. (M)
Lefebvre, R. A. (M)
Legare, G. (A)
L'Heureux, L. J. (M)
McKinnon, D. J. G. (M)
Moir, L. E. (M)
Morewood, H. W. (M)
Nedeau, A. G. (M)
Oakson, G. (A)
Park, K. R. (A)
Pouliot, J. A. (M)
Rondeau, B. R. (M)
Routledge, N. (A)
St. Onge, J. L. (M)
Sutsees, W. J. (M)
Wildi, T. (M)

Rimouski (QUE-B)
Dore, G. (M)
Quellet, A. (M)
Zement, K. H. (M)

Rosemere (MON-B)
Dingwall, R. A. (M)
Hemming, G. (A)

Roxboro (MON-B)
Fisher, G. T (M)
Kendall, R. V. (M)

Ste. Anne De Bellevue (MON-B)
Birman, G. (M)

St. Bruno (MON-B)
Boisvert, C. (M)
Davis, J. F. (M)
Despins, L. J. (A)
Kingan, A. J. (M)

St. Eustache Sur Le Lac (MON-B)
Alcock, A. C. (A)
Colberg, G. H. (M)
Gorman, H. (A)
Hendrick, G. B. (M)
Holburn, R. I. (M)

Ste. Foy (QUE-B)
Baril, J. C. (M)
Beaulieu, J. A. (M)
Belak, M. J. (M)
Bernier, J. G. (M)
Dumas, J. E. (M)
Fortin, G. J. E. (M)
Hamlett, D. W. (M)
Larsen, R. S. (M)
Lebel, G. N. (A)
Letarte, M. (M)
MacAulay, G. D. (M)
Park, W. J. (M)
Regniere, J. P. (M)
Roy, P. M. (A)
Thistle, W. G. (M)
Vaillancourt, R. M. (M)

Ste. Genevieve (MON-B)
Bailey, P. H. G. (M)

St. Hillaire Station (MON-B)
Wood, H. H. (M)

St. Hubert (MON-B)
Elsler, C. J. (A)
Gregory, F. A. (M)

St. Hyacinthe (MON-B)
Leclerc, J. G. (A)

St. Jerome (MON-B)
Rinfret, C. J. (M)

St. Lambert (MON-B)
Barrie, W. H. (M)
Boutin, A. J. J. (M)
Ferris, H. A. (SM)
Hammond, R. E. (SM)
Matthews, H. W. (M)
Roach, C. L. (M)
Watson, D. J. (M)

St. Laurent (MON-B)
Assaaard, P. U. (M)
Atkins, W. R. (M)
Brown, A. E. (M)
Cahn, P. R. G. (M)
Fisher, L. (A)
Hanna, D. C. (M)
Hazan, P. L. (M)
Jensen, J. A. (M)
Kubik, P. (A)
Lahaye, C. (M)
Lewis, R. (M)
Lumsden, R. B. (SM)
Papoas, N. J. (SM)
Patton, R. J. (M)
Rawlins, W. A. (M)
Salmon, R. L. (A)
Smith, W. J. (M)

Ste. Rose De Laval (MON-B)
Prins, J. W. (M)
Robinson, H. A. (SM)

St. Sauveur Des Montagnes (MON-B)
Jaderholm, H. W. (M)

Schefferville (QUE-B)
French, R. (A)

Sept Iles (QUE-B)
Kohlstadt, H. M. (M)
Massicotte, L. D. (M)

Sherbrooke (MON-B)
Denis, G. (M)
Gilbeau, L. E. (M)

Sillery (QUE-B)
Boisvert, M. (M)
Du Berger, P. (M)
Gagnon, R. (M)
Galbraith, D. S. (M)

Ste. Therese De Blainville (MON-B)
Farmer, E. W. (SM)

Sylvestre (MON-B)
Warun, P. (M)

Terrebonne (MON-B)
McKeon, R. M. (M)

Town of Mount Royal (MON-B)
Desaulniers, R. R. (M)
Foster, J. H. (A)
Hoodsoith, R. R. B. (SM)
Jackson, K. A. (SM)
Pentz, R. W. (M)
Tello, J. M. (M)

Trois Rivieres (QUE-B)
Audet, H. A. (M)
Goulet, P. E. (M)
Laperriere, J. J. (M)

Valois (MON-B)
Bonneville, S. (SM)
Williams, F. F. (M)

Vercheres (MON-B)
Julien, M. J. R. (A)

Verdun (MON-B)
Galouchko, A. (M)
Oldfield, P. (M)

Victoriaville (MON-B)
Langlois, C. M. (M)

Ville D'Anjou (MON-B)
Medweth, W. D. (M)

Ville La Salle (MON-B)
Pinnell, S. E. A. (M)

CANADA

Ville Lemoyne (MON-B)
Zenner, G. (M)

Ville St. Laurent (MON-B)
Mairet, G. F. (A)
Oakes, H. S. (A)
O'Neill, G. A. (M)
Robbins, M. A. (M)
Sankey, C. (M)
Shaw, W. C. (A)

Ville St. Michel (MON-B)
McIlroy, C. J. (M)

Wakefield (OTT-B)
Hutcheson, J. G. R. (M)

Westmount (MON-B)
Capper, A. N. (M)
Christman, W. I. (M)
Dorey, J. D. (A)
Griffith, W. F. (M)
Heines, J. M. H. (SM)
MacKinnie, G. B. (M)
Raynsford, R. P., Jr. (M)
Smith, P. D. P. (M)

Yamachiche (MON-B)
Bird, C. H. R. (M)

SASKATCHEWAN

Grenfell (REG-B)
McLean, D. W. P. (A)

Limerick (REG-B)
Hanson, O. W. (M)

Lisieux (REG-B)
Prefontaine, G. P. (A)

Lloydminster (REG-B)
Phillipowich, S. G. (A)
Sawtell, J. E. (A)

Lockwood (REG-B)
Ritz, E. W. (A)

Meadow Lake (REG-B)
Weese, D. E. (M)

North Battleford (REG-B)
Sebulsky, E. (A)

Prince Albert (REG-B)
Cameron, E. A. (M)
Hansen, D. R. (A)
Horne, J. A. (A)

Regina (REG-B)
Beuker, G. H. (M)
Brock, G. A. (A)
Cozine, L. V. (A)
Dean, H. C. (A)
Ferguson, G. E. (A)
Funk, J. A. (M)
Gjernes, E. M. (A)
Hawley, K. T. (M)
Hockin, W. J. (M)
Kaldor, H. (M)
Lee, S. F. (M)
McBride, L. E. (M)
McGuffin, J. W. (M)
McKay, W. (M)
Meyer, L. S. (M)
Savage, M. C. (A)
Smith, S. K. (M)
Sundeen, P. G. (M)
Un, K. C. K. (M)

Saskatoon (REG-B)
Baker, K. D. (M)
Black, H. D. (A)
Breadfoot, L. (M)
Cobbold, R. S. C. (M)
Cognard, R. (M)
De Kat, B. C. (A)
Devries, J. M. (M)
Green, F. D. (M)
Hiebert, E. A. (A)
Holmlund, B. A. (M)
Kavadas, A. D. (M)
Michalenko, A. (M)
Moody, N. F. (SM)
Moorcroft, D. R. (M)
Ratz, H. C. (SM)
Rempel, R. H. (A)
Wacker, A. G. (M)

Yorkton (REG-B)
Beck, N. K. W. (A)
Scheirer, D. A. (A)

YUKON TERRITORIES

Watson Lake (NA-B)
Svrcek, L. (A)

Whitehorse (NA-B)
Parent, L. E. (M)

CANAL ZONE

Balboa
Gorham, J. N. (M)
Roth, M. C. (M)

Cristobal
Brannan, F. T. (A)

Curundu
Adams, C. W. (A)

Fort Amador
Earl, E. O. (A)

CEYLON

Colombo
Gnanalingam, S. (M)
Weerasinha, M. A. W. (M)

Panadura
Adikaram, K. B. (A)

CHILE

El Salvador
Ribbeck, C. S. (A)

Santiago
Amestica, F. H. (A)
Cerda, H. E. (SM)
Davidovits, A. T. (M)
De La Quintana, J. (M)
Del Rio, J. (A)
Isely, F. C. (SM)
Llanos, H. G. (A)
Roman-Valenzuela, A. F. (A)
Rubio, J. C. (M)
Vallarino, A. D. (M)

Valparaiso
Falardo, P. C. (A)
Feick, W. (SM)

Vina Del Mar
Aedo, E. M. (A)
Brito Infante, J. M. (A)
Mendez, M. R. (A)

REPUBLIC OF CHINA

TAIWAN

Pan Geo
Wang, C-C (M)

Taipei
Bourret, P. L. (M)
Chou, T-L (M)
Ong, H-Y (M)
Yang, C-M (M)

COLOMBIA

Bogota (COL)
Amore, I. (M)
Arce, H. (M)
Badillo, J. (A)
Botero, H. (M)
Clavijo-J, L. G. (M)
Diaz, A. G. (A)
Eriksson, J. I. (SM)
Errante, E. P. (M)
Estevez, C. L. (M)
Fric, M. (A)
Gabrilunas, K. B. (A)
Garbrecht, F. S. (M)
Gonzalez, J. E. (M)
Hernandez, J. D. (A)
Isherwood, C. F. (M)
Lopez, J. E. M. (M)
Medellin, H. (M)
Ochoa, A. S. (M)
Pick, L. M. (M)
Plazas, B. I. (M)
Prada, A. (M)
Quitter, W. M. (M)
Reyes, J. H. (A)
Reynolds, J. (A)
Rocha, A. T. (A)
Torres-Calvez, C. A. (M)
Villegas, A. (SM)
Ward, G. M. (M)
Williams, J. H. (M)

Bucaramanga (COL)
Gomez, L. (M)

Cartagena (COL)
Alzata, B. (M)
Ospina, A. (M)

Medellin (COL)
Nassar, J. E. (M)
Orozco, G. C. (M)
Vieco, G. B. (M)

Valle (COL)
Ramirez-Saenz, A. (M)

BELGIAN CONGO

Leopoldville
Gysbers, J. R. (A)
Rouche, N. (M)

COSTA RICA

San Jose
Carazo G., L. E. (A)
Reyes, C. M. (M)
Vargas V., A. (A)

DEVONSHIRE

Paignton
Macnee, D. H. (SM)

Teignmouth
Belsher, H. (M)

DORSETSHIRE

Blandsford Camp
Ball, L. F. (M)

Broadstone
Cox, R. J. (M)

Weymouth
Fry, D. W. (F)

ESSEX

Barking
Bulgin, A.F., M.B.E. (SM)

Chelmsford
Anderson, E. W. (SM)
Bannister, B. R. (M)
Cafferata, H. (M)
Chandra, A. N. (M)
Churchman, A. (M)
Cooper, V. J. (M)
Corkhill, R. E. (M)
Deeley, A. R. (M)
Evans, V. O. (A)
Forte, S. S. (M)
Helsdon, P. B. (M)
Levialdi, S. W. (M)
Parker, J. W. (M)
Walker, R. K. (A)
Warren, K. A. J. (A)
Young, A. J. (M)

Chigwell
Bulgin, R. A. (M)

Colchester
Howe, F. R. (M)

Dunmow
Harrison, E. (M)

Harlow
Allen, A. (M)
Ash, E. A. (M)
Barber, P. F. (M)
Harris, K. E. (SM)
Hart, C. J. (M)
Preece, K. E. (M)

Ilford
Bridges, W. A. (M)
O'Brien, D. (M)

Loughton
Larman, E. C. (M)

Nine Ashes
Cade, C. M. (SM)

Romford
Godbold, B. C. (M)
Pitts, W. J. (M)
Stott, H. T. (SM)

Shenfield
Boff, A. F. (M)

Southend-On-Sea
Clark, J. E. (SM)
Spratt, J. A. H. (M)

Theydon Bois
Roberts, R. S. (SM)

Thorpe Bay
Rodwell, W. E. (A)

GLOUCESTERSHIRE

Bristol
Ackroyd, J. (M)
Griffin, R. E. (M)
Leeson-Magry, A. J. (A)
McLauchlan, D. J. A. (M)
Summers, L. E. A. (M)

Brockworth
Sniedze, O. A. (A)

Cheltenham
Fisher, E. C. (M)

Kingswood
Evans, R. I. (M)

HAMPSHIRE

Andover
Connerton, C. D (SM)
Cook, K. L. W. (A)

Baughurst
Noyes, J. G. (M)

Christchurch
Hooper, J. L. (A)

Emsworth
Boden, T. W. (M)

Fareham
Lorimer, N. D. (M)

Farnborough
Hobday, S. W. (M)
Reid, D. G. (M)

Gosport
Gibbon, C. P. H. (M)

Havant
Stuart-Monteith, G. (M)
Rzymowski, E. (A)

Hythe
Jezierski, E. C. J. (A)
Thomas, P. R. (M)

New Milton
Gibbons, P. L. W. (SM)

Portchester
Rouse, F. W. D. (A)
Rouse, J. A. (A)

Portsmouth
Bettinson, S. F. (M)
Silvester, D. D. (M)

Romsey
Roberts, A. R. V. (M)

Southampton
Gambling, W. A. (SM)

Tadley
Abercrombie, S. D. (SM)

Totton
Nowicki, J. R. (M)

HERTFORDSHIRE

Aldenham Near Watford
Johnston, D. L. (M)

Barnet
Bental, L. J. (M)
Capelli, M. P. (M)
Wrede, D. F. (M)

Bishops Stortford
Wall, P. K. (SM)

Boreham Wood
Laverick, E. (SM)

Broadwater
Parfrey, W. M. J. (M)

Bushey
Lywood, D. W. (M)

Chandlers Ford
Pratt, R. L. (M)

East Barnet
Stocker, G. A. (M)

Harpenden
Chaffey, R. (M)
Knight, D. J. (M)

Hatfield
Millward, M. A. (M)

Hemel Hempstead
Hornby, F. R. (A)

Hertford
Parker, A. H. (M)

Hitchin
Sowerby, J. M. (M)

Hoddesdon
Lyons, C. L. (SM)

Letchworth
Cartwright, J. R. (M)
Lewis, F. J. (M)

Radlett
Hedges, T. C. (M)
Howse, H. A. G. (SM)

Rickmansworth
Davidson, I. A. (M)

Standon
Voyner, Z. F. (M)

Stevenage
St. Clair, A. M. (M)
Schotten, H. G. (M)

Tring
Silson, R. G. (A)
Tooley, M. D. (M)

Waltham Cross
Deal, A. W. (M)

Ware
Hicks, B. W. (M)

Watford
Larkin, M. W. (M)

Welwyn Garden City
Grenly, M. (A)

Smith, A. A. (M)

KENT

Beckenham
Crowley, H. J. (A)

Bexley
Herdman, T. L. (M)

Bexley Heath
Bugeja, A. A. (M)

Bickley
Denis, R. F. (M)

Chrislehurst
Fischbacher, R. E. (SM)
Simmons, B. D. (M)

Dover
Smye-Rumsby, B. A. A. (M)

Edenbridge
Pugh, M. D. (M)

Fawkham
Scully, C. T. (SM)

Gillingham
Mackrill, D. R. (A)

Hayes
Binyon, B. (SM)
Higham, E. H. (M)
Kiryluk, W. (M)
Stoner, C. R. (M)

Orpington
Harrison, K. W. (SM)
Lawrence, E. (SM)
Saraga, W. (SM)
Vedy, L. G. (A)

St. Mary Cray
Eckersley, P. P. (F)

Sevenoaks
Van Hasselt, M. (SM)

Sidcup
Ashbridge, N. (F)
Haylock, G. V. (M)
Spagnoletti, P. H. (M)

LANCASHIRE

Accrington
Bleasdale, J. (A)

Liverpool
Chalmers, D. (A)
Endbinder, M. (M)
Herniman, E. H. (M)
McKenna, M. F. (M)
Watkinson, F. (A)

Manchester
Bowden, B. V. (SM)
Brown, R. H. (M)
Cobb, J. W. (M)
Fahmy, M. N. I. (M)
Jackson, W. (F)
Newman, P. M. (M)
Williams, F. C. (F)

Prescot
Muir, L. M. (A)

Roby
Kirk, J. G. (M)

Southport
Panagakis, H. (M)

Ulverston
Oxley, R. F. (SM)

Warrington
McDermott, H. R. (A)

Wythenshaw
Searby, N. H. (SM)

LEICESTERSHIRE

Leicester
Cutteridge, O. P, D. (SM)

LINCOLNSHIRE

Grimsby
Boggett, D. M. E. (A)
Rush, D. (M)

Lincoln
Cooper, J. D. (M)

MIDDLESEX

Ealing
Taylor, R. W. (M)

Enfield
Daruvala, D. J. (M)
Lee, E. M. (SM)
Oldham, C. A. (A)
Ramji, S. (M)
Rantzen, F. B. (SM)
Sly, R. J. (A)

Hampton
Clark, K. (A)

Harrow
Dawe, F. W. (M)
Montgomery, A. W., Jr. (F)

Hayes
Addie, R. W. (M)

Hounslow
Hughes, R. (M)
O'Hanlon, D. M. V. (M)
Sullivan, R. W. J. (SM)

Kenton
Espley, D. C. (F)

London
Abel-Harry, C. B. (M)
Adorian, P. (F)
Barak, D. (M)
Barlow, D. (M)
Barlow, H. N. (F)
Barrett, J. (M)
Bearup, T. W. (SM)
Bedford, L. H. (F)
Bevan, P. A. T. (SM)
Birch, D. A. (M)
Bishop, H. (F)
Black, C. P. (A)
Boyle, H. (M)
Brown, A. C. (M)
Brown, J. (SM)
Brown, R. C. (M)
Bryant, G. H. (M)
Bunyan, S. A. (A)
Bunzl, T. F. (M)
Bury, G. J. (M)
Cattanes, E. (SM)
Chrees, S. T. (M)
Cotton, A. F. R. (SM)
Cotty, W. F. (A)
Cowley, R. I. (SM)
Crosfield, J. F. (M)
Dawes, E. J. (SM)
Dent, F. D. (A)
Dumert, V. (M)
Earp, C. W. (SM)
Ellis, L. W., Jr. (M)
Evans, S. B. (SM)
Evans, W. C. A. (M)
Faulkner, H. (F)
Finney, R. (M)
Flack, W. I. (SM)
Fleming, P. A. (SM)
Fleming-Williams, B.C.(SM)
Florentin, J. J. (M)
Foster, H. G. (SM)
Gann, G. D. (M)
Godfrey, S. S. (A)
Greig, J. (SM)
Griffiths, W. H. F. (SM)
Hanson, J. V. (M)
Hassan, A. M. (M)
Heaton-Armstrong, L. J. (SM)
Hogg, F. L. (SM)
Holland-Martin, C. G. (M)
James, I. J. P. (SM)
Jasper, F. H. C. (M)
Jesty, L. C. (F)
Jones, A. H. (M)
Khan, A. H. (A)
Khan, M. R. (M)
Lamont, K. (M)
Lawson, A. N. (M)
Lawson, C. J. V. (M)
Layzell, L. M. (M)
Lee, C. H. (M)
Lindsay, P. A. (M)
Marzolini, R. G. A. (M)
Meyer, L. W. (SM)
Mirk, D. B. (SM)
Morant, A. J. (M)
Munns, E. F. (M)
Nadarajah, S. S. (A)
Oberai, A. S. (M)
Page, D. F. (M)
Parker, J. S. (SM)
Payne, C. E. (M)
Pocock, H. S. (SM)
Rastorgueff, V. (M)
Roberts, S. J. (M)
Robertson, A. A. (M)
Rollett, J. M. (M)
Rose, A. (M)
Ross, G. M. (M)
Schwartz, H. F. (M)
Scott, J. C. W. (F)
Seeley, C. E. T. (M)
Shelley, B. J. (M)
Simpson, J. S. (M)
Sivaonanasunderam, T. (M)
Spooner, F. E. (M)
Starr, A. T. (SM)
Starr, C. H. (SM)
Strono, C. E. (F)
Symons, F. J. W. (M)
Thomas, H. A. (SM)
Trim, R. M. (M)
Troutbeck, W. H. (M)
Ullrich, E. H. (F)
Valder, F. L. (M)
Van Messel, J. (M)
Voelcker, H. B., Jr. (M)
Williams, G. M. E. (M)
Wilson, A. G. (M)

North Harrow
Davies, M. C. (M)

Pinner
Thurnell, D. P. (SM)

Potters Bar
Cripps, G. A. (M)
Neill, S. F. M. (SM)

Staines
Hollister, R. H. (A)
Warr, H. J. J. (M)

Stanmore
Harvey, J. R. (SM)
Russell, C. R. (M)

Sunbury-On-Thames
Arndt, W. F. (SM)
Coffee, R. A. (M)
Irvin, J. L. (A)

Teddington
Vaswani, P. K. T. (M)

Twickenham
Gill, A. J. (F)

Wembley
Rubenstein, G. (M)
Wood, K. P. (M)

Wembley Park
Bray, W. J. (A)

NORFOLK

Gorleston-On-Sea
Rayment, K. I. (A)

Great Yarmouth
Dyson, A. A. (M)

Norwich
Clayton, E. G. (A)

Stradbroke
Mieville, L. C. V. (M)

Thurne
Read, A. H. (SM)

Wymondham
Williamson, J. A. (M)

NORTHHAMPTONSHIRE

Kingsthorpe
Benham, C. M. (M)
Kaye, J. B. (M)

Kislingbury
Gardner, F. (M)

NORTHUMBERLAND

Newcastle-On-Tyne
Hare, J. (M)
Hodgson, C. C. V. (M)

NOTTINGHAMSHIRE

Beeston
Morris, D. J. (M)
Pollard, J. R. (M)

Stapleford
Clewes, A. B. (A)

University Park
Symonds, F. W. (M)

OXFORDSHIRE

Oxford
Alcock, A. J. (M)
Lichtenberg, A. J. (M)

SHROPSHIRE

Wolverhamoton
Taylor, D. H. J. (M)

SOMERSETSHIRE

Bath
Fairfax, O. M. (SM)

Bradford-On-Tone
Walters, R. G. (A)

Chew Magna
Jackson, W. R. (SM)

Straton-On-The-Fosse
Smith, C. W. (M)

Weston-Super-Mare
McCall, D. R. (M)

Yeovil
Thorne, P. J. (M)

STAFFORDSHIRE

Rugeley
Kannan, S. (M)

Stoke-On-Trent
Gautby, H. R. B. (A)

Odense
Andersen, K. T. (M)

Roskilde
Christiansen, E. M. (A)
Hansen, G. K. F. (M)

Struer
Christensen, K. H. (A)
Jensen, S. E. (M)

Tollose
Christensen, P. (M)

Vedbaek
Gudmandsen, P. E. (M)
Konradsen, F. (M)

DOMINICAN REPUBLIC

Ciudad Trujillo
Knight, A. G. (A)

ECUADOR

Quito
Edeline, W. E. (M)
Horvath, A. (SM)
Jacobson, H. P., Jr. (SM)
Lintz, H. E. (M)
Rota, L. (M)
Schlicher, K. G. (M)
Turrell, P. T. (M)

EGYPT

Alexandria (EGY)
Ahmed, A-L (M)
El-Sabbagh, H. H. (SM)
Mostafa, A. E-S (SM)
Salem, I. A. (M)

Cairo
Abdin, M. R. (M)
Abu-Zeid, M. M. (M)
Afifi, M. S. (M)
Ayas, M. H. (M)
Constantinidis, G. (A)
Elssa, H. A. (M)
El Demerdache, A. R. M. (M)
El Harty, A. K. (M)
El Kashlan, E. I. (M)
El Kotoury, A. S. (M)
El-Moety, A. M. (A)
El-Said, M. A. H. (SM)
Hassan, B. (M)
Ibrahim, A. M. (M)
Ismail, M. A. W. (M)
Mahmoud, A. A. (M)
Mahmoud, H. M. (M)
Makar, R. T. (M)
Mikhail, S. L. (SM)
Reda, M. S. (M)
Sobhy, M. I. (M)

EL SALVADOR

San Salvador
Appell, O. H. (M)
Gelferman, R. F. (M)
Rahn, R. H. (M)
Richardson, A. S. (M)

ENGLAND

BEDFORDSHIRE

Bedford
Kendall, J. T. (SM)
Provost, A. N. (M)

Leighton Buzzard
Crowley, H. R. (M)

Luton
Butler, J. S. (M)
Youle, E. (M)

BERKSHIRE

Abingdon
Cooke-Yarborough, E.H.(M)
Roberts, G. (M)
Wells, F. H. (F)
Westwood, D. (M)

Ascot
Sowerbutts, D. (M)

Bracknell
Reeves, R. J. D. (SM)
Wood, J. (M)

Maidenhead
Brinker, C. S. D. (M)

Maidens Green
Stubbs, W. (SM)

Newbury
Brooke, H. A. (SM)

Old Windsor
Mac Leod, W. A. (M)

Reading
Aldridge, E. E. (M)

Cresswell, J. V. (M)
Harris, A. (M)
Parry, R. V. (SM)
Simons, A. H. (SM)

Sunningdale
Barton, F. S. (F)
Taylor, R. H. (M)

Sunning Hill
Kelliher, M. G. (M)

Workingham
Falcon, G. L. (M)
Parrott, E. A. (M)

BUCKINGHAMSHIRE

Amersham
Mist, R. F. (A)

Bletchley
Blackwood, D. (M)
Deards, S. R. (M)

Denham
Duell, A. N. (A)

Gerrards Cross
Diver, F. G. (SM)
Morton, H. B. (M)
Pearce, A. F. (SM)

Great Missenden
Reyner, J. H. (SM)

High Wycombe
Ludgate, F. E. (SM)
Simmonds, J. C. (A)

Iver
Rhys-Jones, J. E. (SM)

Newport Pagnell
Boswell, I. I. (A)

Slough
Ratcliffe, J. A. (F)
Rose, S. P. (A)
Wilkins, A. F. (F)

Stoke Poges
Ireland, G. R. (M)
Mace, D. G. W. (SM)
McLea, F. C. (SM)

Wavendon
Pearce, G. E. (A)

Wolverton
Bentley, J. W. C. (SM)

CAMBRIDGESHIRE

Cambridge
Beck, A. H. W. (F)
Coop, J. E. (SM)
Dalgleish, J. W. (SM)
Fuller, D. Q. (M)
Germany, L. W. (M)
Havranek, W. C. R. (M)
Jones, J. D. (SM)
Lubbock, J. K. (M)
Nelms, G. L. (M)
Oatley, C. W. (SM)
Pound, J. P. (M)
Rao, J. (M)
Sander, K. F. (M)

Fulbourn
Hatton, T. (M)

Stapleford
Elvy, M. T. (SM)

CHESHIRE

Birkenhead
Ho, C. F. (A)

Cheadle
Fielding, E. A. (M)
Roberts, W. G. F. (SM)

Mellor
White, G. J. (M)

Wallasey
Brisbar, P. J. (A)

West Kirby, Wirral
Morris, I. G. (M)

CORNWALL

Penzance
Inglis-Smith, P. B. (A)

CUMBERLAND

Carlisle
Topping, J. (M)

Maryport
Elliott, I. (A)

ENGLAND

Walsall
Hardcastle, C. (M)
Whitehead, E. A. N. (M)

SUFFOLK

Brockford
Thomas, W. D. (A)

SURREY

Addlestone
Osbourn, E. W. (M)

Banstead
Smith-Rose, R. L. (F)

Belmont
Brown, S. R. (M)

Camberley
Rowe, J. H. (M)
Stainthorpe, R. L. (M)

Chertsey
Walton, J. H. (M)

Chessington
Bovill, A. W. (M)
Briggs, R. H. (M)

Cobham
Gardiner, D. J. (M)

Coulsdon
Clemeti, C. J. (M)

Croydon
Ringham, G. B. (SM)

Dorking
Davies, D. L. (SM)

East Acton
Jones, E. E. (M)

East Molesey
Hersch, W. (M)

Epsom
Butler, L. H. (A)

Esher
Reeves, R. (SM)
Whittey, T. (M)

Farnham
Clarke, G. F. (A)
Dawes, T. J. (A)
Parsons, A. N. (M)

Guildford
Williams, R. C. G. (SM)

Horley
Godfrey, R. M. (SM)

Kingston-On-Thames
Kinross, R. I. (M)

New Malden
Hills, W. J. (M)
McLendon, C. R. (M)

Ottershaw
Carr, E. (A)

Peaslake
Egan, D. F. (SM)

Reigate
Eddison, H. T. D. (A)

Richmond
Head, J. E. (M)
Shoobridge, M. J. (M)

Salfords Redhill
Roberts, D. A. E. (M)

South Croydon
Carpenter, R. E. H. (SM)

Surbiton
Kerr-Waller, R. D. (M)

Sutton
Wood, H. R. A. (M)

Tadworth
Somerville, T. (SM)

Virginia Water
Hutcheson, P. (M)
Webster, A. (M)

Walton-On-Thames
Budge, R. K. (A)
Kumar, R. (M)

Weybridge
Baker, R. H. (SM)
Hansford, I. V. (M)
Pitman, D. A. (M)

Woking
Dale, L. (M)
Gabriel, R. P. (M)

Woldingham
Gooday, R. A. H. (SM)

Worcester Park
Walker, T. H. (M)

SUSSEX

Burgess Hill
Turner, H. (SM)

Ferring by Sea
Havranek, W. A. (M)

Goring-By-Sea
Smale, J. A. (F)

Hastings
Mortlock, A. (M)

Hurstpierpoint
Stubbs, R. F. (M)

Littlehampton
Moon, C. D. (A)

Worthing
Payne, L. S. (F)

WARWICKSHIRE

Coventry
Bardell, J. D. (A)
Berlet, R. J. L. (M)
Opoku, N. K. (M)
Wilson, R. (A)

Kenilworth
Boyer, F. A. (SM)
Keen, A. W. (SM)

Leamington Spa
Montgomerie, G. A. (A)

Rugby
Hibberd, R. G. (SM)
Hulme, F. H. (M)

Solihull
Maskell, W. A. C. (SM)
Walker, H. (SM)

WILTSHIRE

Devizes
Savage, W. B. (M)

Salisbury
Kimber, W. A. (M)

Swindon
Blair, R. G (M)
James, J. R. (M)
Potok, M. H. N. (M)
Pratt, G. W. (M)
Ringrose, J. W. (M)

WORCESTERSHIRE

Birmingham
Allen, W. S. (SM)
Jones, H. H. (A)
Li, Y-L (M)
Morrow, R. E. (SM)
Truscott, D. N. (M)

Evesham
Smith, C. (A)
Sturley, K. R. (SM)

Great Malvern
Dummer, G. W. A. (SM)

Malvern
Carter, R. H. A. (SM)

YORKSHIRE

Bradford
Greenwood, S. W. (M)
Patchett, G. N. (M)

Doncaster
Morris, A. A. (M)

East Yorkshire
Toombs, J. (M)

Harrogate
Brady, E. (A)

Leeds
Brayshaw, G. S. (SM)
Schofield, A. (M)

Rotherham
Smith, E. G. (M)

Sheffield
Bassham, G. W. (SM)
Benson, F. A. (M)
Cullen, A. L. (SM)
Hallm, M. A. (M)

Shipley
Villpsons, J. (M)

Walshford
Simms, T. C. (A)

Yarm-On-Tees
Bloom, M. S. (M)

ETHIOPIA

Addis Ababa
Abaderash, T. K. W. (A)
Desta, B. (M)
Goulin, P. L. (M)
Kraemer, E. H. (M)
MacFarlane, J. T. (M)
Mehta, B. B. (M)

FINLAND

Aland
Gronstrand, T. L. (A)

Helsinki
Luoto, U. A. (M)
Tiuri, M. E. (M)

Hyvinkaa
Ivars, R. E. (M)

Otaniemi
Kanerva, O. (A)

FRANCE

ALPS MARITIMES

Annecy
Friedrichs, G. (M)

Vence
Behm, L. F. (A)

ARDENNES

Tarze
Oudard, A. (A)

CORREZE

Brive
Roncier, R. (M)

GIRONDE

Bordeaux
Duhamel, J. P. (A)

ISERE

Grenoble
Mayer, F. P. (SM)
Namian, P. P. (A)

LOIRET

Checy
Delvigne, A. F. (A)

MEURTHE ET MOSELLE

Pont-A-Mousson
Lemetre, R. J. (M)

NIEVRE

Garchy
Haubert, A. (SM)

NORD

Jeumont
Ducastel, G. (M)

RHONE

Lyon
Biolley, E. J. M. (M)
Dejardin, G. L. (SM)

SEINE

Anthony
Fromageot, A. P. A. (SM)
Musson-Genon, R.P.A.(SM)

Bagneux
Cauvin, G. A. (SM)

Bobigny
Calon, A. E. (A)

Boulogne-Billancourt
Bergman, C. W., Jr. (M)
Boje, D. Q. (M)
Schwartz, A. J. (A)
Sourlau, P. J. (M)
Williams, R. E. (M)
Zitzman, K. F. (SM)

Bourg-La-Reine
Gauvenet, A. J. (A)

Cachan
Bernard, P. R. (M)

Chatenay Malabry
Boudouris, G. (SM)

Clamart
Blassel, P. P. (M)

Clichy
Warin, M. (A)

Colombes
Cosnard, F. F. (A)

Duprez, J. L. (M)

Courbevoie
Masson, C. M. (A)

Fontenay-Aux-Roses
Grivet, P. A. (A)
Korman, M. M. (SM)
Surdin, M. M. (SM)

Gentilly
Beurel, J. (A)

Issy-Les-Moulineaux
Goudet, G. (F)
Voge, J. P. (SM)

Levallois
Gandin, P. (A)

Malakoff
Besson, P. (M)

Montreuil
Nadler, M. (M)

Montrouge
Zwobada, R. L. (SM)

Nanterre
Frankel, J. (A)

Neuilly
Leball, P. E. (M)
Lochard, J. C. (M)

Nogent-Sur-Marne
Clavier, P. J. (M)

Pantin
Churg, E. (A)

Paris
Alqralin, P. R. (F)
Aisberg, E. (SM)
Angot, A. M. (SM)
Babin, F. J. (SM)
Baconnet, J. (M)
Balan, J. C. (M)
Becker, J. P. (M)
Berterottiere, R. L. (M)
Berthaud, M. C. (M)
Bloch, R. M. (A)
Bodez, P. M. (M)
Boutry, G. A. (SM)
Brachet, C. (SM)
Bricaud, J. M. (SM)
Brodin, J. (A)
Busquet, P. R. (M)
Camus, P. A. (M)
Chauchat, J. N. (M)
Chiron, B. P. (M)
Cohen, R. (A)
Cornett, J. R. (M)
Courtillot, E. P. (SM)
David, P. B. (SM)
De Bozas, G. D. B. (M)
Deloraine, E. M. (F)
Deschamps, R. A. (SM)
Dreyfus, P. L. (A)
Escutier, C. G. (M)
Fabricant, P. (M)
Faisal, H. G. (SM)
Flouquet, J. (A)
Fuks, A. (A)
Gaschi, J. F. (M)
Gerten, N. (M)
Ghertman, J. (A)
Gille, J. C. (M)
Girard, J. L. M. (SM)
Guyot, L. F. (A)
Hirsch, H. R. (M)
Hoffman, R. B. (SM)
Horwinski, E. R. (M)
Israel, R. (A)
Jarleton, P. (SM)
Karamberis, G. (M)
Kelton, M. R. (M)
Labin, E. (SM)
Labin, E. (SM)
Laederich, C. (A)
Lehmann, G. J. (SM)
Lemoyez, M. J. (A)
Lestel, J. H. (M)
Levy, L. (M)
Libchaber, J. A. (M)
Lupoe, R. (M)
Luther, M. L. (M)
Mandel, P. (SM)
Martin, A. V. J. (SM)
Mercier, J. M. (SM)
Molsson, A. A. (SM)
Mozieres, H. (A)
Ortusi, J. A. (SM)
Pernice, J. R. (SM)
Ponte, M. J. H. (F)
Robin, G. (M)
Saonard, F. R. (M)
Salmet, G. (A)
Sirel, M. (M)
Sokoloff, B. A. (A)
Spenting, F. E. (M)
Stevenson, L. A., Jr. (M)
Van Rennes, A. B. (SM)
Vassy, E. J. (A)
Williams, J. R. L. (M)

St. Mande
Laurens, A. (M)

Sceaux
Weill, H. (M)

Suresnes
Gutton, M. H. (SM)

SEINE-ET-OISE

Bellevue-Meudon
Mass, J. (M)

Brunoy
Quenot, J. (A)

Chatou
Gilotaux, P. (M)
Magne, P. C. (M)

Chaville
Saintesprit, G. L. (SM)

Fontainebleau
Morgan, S. G. (M)

Garches
Muller, J. J. (A)

La Varenne St. Hilaire
Halbguerax, M. E. (M)

Le Vesinet
Piel, G. J. (M)

Louveciennes
Sauvanet, M. M. (SM)

Marcoussis
Klein, G. J. P. (M)

Mareil-Marly
Berline, S. D. (SM)

Orsay
Doehler, O. (SM)
Guenard, P. R. G. (F)
Guilbaud, G. L. (M)
Lebland, A. F. (M)
Paulfuel, P. C. (SM)
Victor, C. P. A. (A)

Palaiseau
Moussette, G. E. (M)

Port Marly
Mourier, G. (SM)

Rueil Malmaison
Barret, J. P. (M)

St. Cloud
Champeix, R. P. (SM)
Deschamps, J. D. (M)
Goublin, R. O. (A)

St. Germain-En-Laye
Baron, J. (M)
Beurtheret, C. A. (SM)
Raymond, F. H. (SM)

Sevres
Sulzer, H. G. (M)

Taverny
Comte, G. N. (M)

Vaucresson
Chauvierre, M. (SM)

Versailles
De Coligny, C (M)
Durand, P. A. (M)
Oswald, J. R. (A)
Prache, P. M. (M)

Villebon Sur Yvette
Ferrier, P. A. (A)

GERMANY

BADEN

Backnang
Koch, E. L. (SM)

Stuttgart
Pilaty, R. (M)
Ramsayer, K. H. (A)
Sun, S-F R. K. (SM)
Unbehaugen, R. (M)

Ulm Donau
Bank, H. (M)
Bruck, L. (SM)
Bruckmann, H. P. (SM)
Dahlke, W. E. (SM)
Franz, K. O. (SM)
Herrmann, G. M. (SM)
Hess, H. A. (M)
Runge, W. T. (SM)
Schletzel, R. J. (M)

BAVARIA

Erlagen
Mayr, J. (A)

Landshut
Schuh, C. F. (A)

Munich
Baier, T. E. J. (M)

Fischer, K. (A)
Gottzein, E. (M)
Gross, F. F. (A)
Klamka, N. (M)
Kleen, W. J. (F)
Knoll, M. (SM)
Mostafa, K. (A)
Mueller, R. A. (A)
Peters, J. F. (SM)
Pfefke, G. F. (SM)
Piltoy, H. T. (SM)
Rohde, L. (F)
Ruger, J. F. (M)
Saal, R. S. (SM)
Schultz, J. J. (M)
Schuster, B. F. (M)
Trauboth, H. H. (M)
Tsui, F. F. (M)
Von Trentini, G. (SM)
Vilbig, F. (SM)
Wille, H. (SM)

Neu-Ulm
Kotowski, P. (A)
Prichodjko, A. (M)

Nurnberg
Ghosh, S. (A)
Pieplow, H. (SM)
Unger, E. (M)

Oberpfaffenhofen
Ulbricht, G. (M)

Pullach
Henrici, J. (SM)

Seeshaupt
Wildhagen, G. A. (SM)

BREMEN

Bremen
Busch, C. W. (M)
Grassell, K. (A)
Lutz, F. A. (M)

HAMBURG

Hamburg
Joetten, K. K. F. (M)
Mathieu, G. A. (F)
Severin, H. K. F. (SM)

HESSE

Bad Homburg
Paehr, H. W. (SM)

Biblis
Symons, W. E. (M)

Darmstadt
Conrad, D. A. (M)
Moller, R. (F)
Ramberg, E. G. (F)
Zinke, O. (SM)
Walther, A. (SM)

Frankfurt Am Main
De Vos, J. M. (M)
Fuehrer, H. H. (M)
Niemann, D. A. (A)

Lampertheim
Loback, L. L. (M)
Phillips, R. H. (M)

Ruesselsheim-Main
Pfeifer, E. (A)

Wetzlar
Uebermuth, H. W. (M)

Wiesbaden
Brod, F. W. (A)
Heimann, W. (M)
Schnupp, P. (A)

HOLSTEIN

Malente
Kuhnke, H. (SM)

LOWER SAXONY

Gottingen
Meyer, E. W. (SM)

Hannover
Klotz, E. W. K. (SM)
Schonfeld, W. H. (M)

Hildesheim
Funck, H. E. (A)

RHEINLAND

Mainz
Hedgecock, N. E. (M)

Porz-Rhein
Riepka, H. C. (SM)

RHEIN PHALZ

Alsenborn
Andrae II, P. H. (M)

WEST GERMANY

Berlin
Fock, H. W. (A)
Gundlach, F. W. (SM)
Heyne, H. H. (SM)
Hore, K. (M)
Nestel, W. (SM)
Ruhrmann, A. A. (SM)
Zickermann, C. A. (SM)

Braunschweig
Garud, G. N. (M)
Unger, H-G (SM)

WESTPHALIA

Aachen
Swamy, A. (M)

Bensberg-Cologne
Stoney, W. E. (M)

Duesselfort
Buetow, M. (A)
Wosnik, J. (SM)

Koln-Mulheim
Horn, H. (F)

WURTTEMBERG

Boeblingen
Demere, R., Jr. (M)

Karlsruhe
Rothe, H. (F)

Konstanz
Gurtsch, F. R. (A)
Kleinsteuber, W. G. (SM)

GREECE

Athens
Aristogenis, G. S. (A)
Basbas, L. T. (M)
Cassapoglou, C. B. (M)
Gogos, A. C. (M)
Ilias, D. (M)
Kariambas, N. (A)
Katsaounis, P. C. (A)
Markenscoff, A. C. (M)
Myroyannis, A. J. (M)
Pampoucas, T. V. (M)
Papadopoulos, D. A. (SM)
Perpinias, A. E. (M)
Pezopoulos, K. N. (SM)
Soldatos, G. (M)
Theodoropoulos, W. N. (M)
Tsintzas, G. S. (A)
Vergis, M. (A)

Canea
Icilshakis, M. A. (M)

Piraeus
Leftheris, J. P. (M)

Thessalonike
Chryssopoulos, T. (A)

GUAM

Agana
Goodwin, C. E. (A)
Houser, C. R. (A)
Riley, F. J. (A)

GUATEMALA

Guatemala City
Pokorny, V. J. (M)
Whitehead, J. (M)

HAITI

Port-Au-Prince
Michel, R. (A)

HONG KONG

Hong Kong
Braude, A. N. (M)
Chen, Y. C. (A)
Cheung, W. S. H. (M)
Dale, P. R. (M)
Kwan, S. W. (M)
Loh, S. C (M)
Luk, Y. K. (M)
Monfon, L. (M)
More, H. Y. H. (M)
Pau, R. C. M. (M)
Ping, C. (M)
Shum, Y. S. (A)
Talbot-Jones, R. V. (M)
Tsang, S. F. S. F. (A)
Yuan-Yung, Y. (M)

Kowloon
Cheng, C. C. (A)
Chui, T. Y. (M)
Fung-Fai, L. (A)
Lee, T. Y. (M)
Piu, C. (A)
Shih, S. L. (M)
Toya, N. (M)
Wing, L. H. (M)
Wu, R. S. (M)

HUNGARY

Budapest
Dallos, A. (SM)
Egri, E. (A)
Gergely, G. J. (SM)

ICELAND

Reykjavik
Amar, G. (M)
Bjarqmundsson, I. (A)
Halldorsson, S. (M)
Thorkelsson, S. (A)

INDIA

ANDHRA PRADESH

Ananatapor (IND)
Rao, V. V. L. (SM)

Bapatla (IND)
Narendra, U. R. R. (M)

Hyderabad (IND)
Nair, K. K. (M)
Raju, D. V. S. (M)
Sastry, V. L. N. (A)
Vithal, D. V. R. (M)

Kakinada (IND)
Subrahmanyam, G. (M)

Peddapuram (IND)
Ramalingasama, K. (M)

Secunderabad
Eugene, A. F. (SM)
Rao, H. J. (M)

Vijayawada (IND)
Sankar, M. S. (A)

Visakhapatnam
Kurma, V. R. (M)

Waltair (IND)
Rao, K. R. (M)

ASSAM

Gauhaty (IND)
Mahant, M. C. (M)

BIHAR

Chakradhanpur (IND)
Venkataraman, M. P. (M)

Dhanbad (IND)
Garg, J. M. L. (M)
Mishra, J. (A)
Sinha, M. (M)
Sinha, V. P. (A)

Patna (IND)
Sen, K. K. (M)

Ranchi (IND)
Chetty, G. N. (M)
Roy, K. M. (M)
Shankar Shukla, R. (M)

BOMBAY

Ahmadabad (IND)
Kotadia, K. M. (SM)
Taneja, S. P. (M)

Baroda (IND)
Contractor, S. N. (M)
Sen, S. M. (M)

Bombay (IND)
Agarwal, S. P. (A)
Bengalli, N. K. (M)
Billimoria, R. P. (M)
Dastidar, P. R. (A)
Dastur, J. B. (A)
Gandhi, C. D. (M)
Ganguly, S. K. (M)
Ghose, A. K. (M)
Husein, A. E. (M)
Kantebet, S. R. (F)
Katre, V. S. (A)
Kuchela, K. S. (M)
Lakhanpal, D. D. (SM)
Langguth, P. O. (SM)
Marathe, D. H. (SM)
Merchant, V. V. (A)
Mirchandani, I. T. (A)
Motwane, H. V. (A)
Pai, M. V. (A)
Phatak, R. K. (SM)
Prabhakar, A. (M)
Ramachandra, M. (M)
Rangwalla, A. A. (M)
Shouri, J. C. (M)
Shroff, T. R. (A)
Sukhadia, P. U. (M)
Vachha, R. P. (A)
Wadia, B. H. (M)

Colaba (IND)
Kamat, D. S. (M)
Kamat, V. Y. (M)

Doha (IND)
Vasantharajan, M. N. (M)

Jogeshwre
Telang, V. S. (M)

Fort Bombay (IND)
Kohli, F. C. (M)

Girgaum (IND)
Vaishampayan, R. K. (M)

Poona (IND)
Furtado, A. W. (M)
Joshi, S. B. (A)
Mishra, S. (A)
Phatak, S. Y. (A)
Row, D. P. (SM)
Singh, S. (A)
Virkar, D. V. (SM)

Sangli (IND)
Kanitkar, G. C. (A)
Raju, T. A. (M)

Thana (IND)
Chaturvedi, G. N. (A)

DELHI

Delhi (IND)
Bhatt, N. B. (SM)
Jain, P. L. (M)
Ramabhadran, S. (A)
Raman, S. (M)
Wadhwa, L. K. (M)

New Delhi (IND)
Deobhakta, P. N. (A)
Gadadhar, N. V. (M)
Gokarn, G. D. (SM)
Joshi, M. V. (SM)
Kasturirangan, S. (M)
Kumar, V. (M)
Matange, N. D. (SM)
Nanda, N. G. (M)
Narayanan, M. A. (M)
Ramamurthy, T. V. (A)
Rao, K. L. (M)
Subramanian, C. S. (M)
Subrahmanyan, T. R. (M)
Tandan, R. K. (M)
Thacker, M. S. (A)

KERALA

Maramon
Philip, J. (A)

Palghat
Panikkar, R. S. (M)

Trivandrum (IND)
Nair, P. R. (A)

MADHYA PRADESH

Bhilai (IND)
Sardesai, S. N. (M)

Indore (IND)
Kalani, P. S. (M)
Sarkar, N. (M)

Jabalpur (IND)
Chaurasia, H. K. (M)
Ghose, A. (M)
Mithal, G. K. (M)
Pal, P. C. (M)
Pandya, R. N. (M)
Sarwate, V. V. (SM)

Nagpur (IND)
Joshi, M. G. (M)

Seoni (IND)
Agrawal, J. P. (M)

MADRAS

Annamalainagar (IND)
Vijayaraghavan, K. (M)

Coimbatore (IND)
Murti, V. G. K. (M)

Madras (IND)
Chauhan, M. V. (M)
Gangadharan, G. (A)
Jayaraman, S. N. (A)
Krishnan, V. (A)
Logan, S. (A)
Patel, S. N. (M)
Pattabiraman, J. (SM)
Ponnuraj, H. S. (M)
Radhakrishnan, T. (A)
Ramachandran, D. N. (A)
Ramani, R. V. (A)
Ravi, S. (M)
Sitharaman, M. R. (A)
Sreenivasan, K. (SM)
Swaminaathan, K. (A)
Thangavelu, K. S. (M)

Madurai (IND)
Mohamed, M. K. (M)

Nungambakam (IND)
Belgamvala, M. K. (A)

MYSORE

Bangalore (IND)
Aiya, S. V. C. (SM)
Baliga, B. V. (SM)
Chatterjee, R. (M)
Chatterjee, S. K. (M)
Chidambaram, R. (M)
Joglekar, P. J. (M)
Kumar, A. (M)
Nagarala, N. S. (M)
Naidu, M. K. R. (M)
Prakash, K. S. S. (A)
Rajagopal, E. S. (A)
Ramachandran, C. V. (M)
Ramachandran, P. (M)
Rao, P. L. S. (M)
Satyam, M. (M)
Shenoy, R. P. (M)
Sonde, B. S. (M)
Subramaniam, C. R. (M)
Subrahmanyam, V. (M)
Suryan, G. (M)

Cochin (IND)
Ponnappa, B. M. (M)

Dharwar (IND)
Paramasivayya, G. S. (M)

ORISSA

Sambalpur (IND)
Rath, S. (M)

PUNJAB

Ambala (IND)
Bhashyam, S. R. (SM)

Faridabad (IND)
Balasundaram, N. (SM)
Laul, A. K. (A)

RAJASTHAN

Ajmer (IND)
Toshniwal, G. R. (SM)

Pilani (IND)
Agarwala, S. S. S. (M)
Chatterjee, A. K. (SM)
Handa, J. R. (A)
Jain, J. D. (M)
Krishnaswamy, V. (A)
Mukerji, M. M. (SM)
Singh, A. (SM)

TRICHINOPOLY PRADESH

Pudukkottai (IND)
Venkataraman, S. (M)

UTTAR PRADESH

Agra (IND)
Barry, H. M. S. (A)

Aligarh (IND)
Alhashmi, H. A. (SM)

Allahabad (IND)
Krishnaji (SM)
Swarup, P. (M)

Dehra Dun (IND)
Singh, R. V. (M)

Kanpur (IND)
Pawnday, S. K. (M)

Lonavla (IND)
Nair, B. K. S. (M)

Lucknow (IND)
Chakravarti, S. P. (SM)
Joshi, C. P. (SM)
Madan, M. P. (SM)
Saxena, A. P. (M)

Roorkee (IND)
Bhattacharjee, D. K. (A)
Das, P. N. (SM)

WEST BENGAL

Calcutta (IND)
Banerjee, A. (M)
Basu-Mallik, D. N. (M)
Chatterjee, S. D. (SM)
Chowdhury, S. (M)
Krishnaswami, M. S. (M)
Mukherjee, B. (A)
Nag, B. (A)
Raha, H. N. (M)
Sen, B. M. (M)
Seshadri, G. (A)
Sharma, I. S. (A)
Sircar, A. K. (A)
Sweet, C. M. (M)
Verma, J. K. D. (M)

Howrah (IND)
Bose, B. K. (M)

Kharagpur
Chatterjee, B. (M)
Emery, W. L. (SM)
Ghosh, A. K. (M)
Ghosh, S. R. (A)
Mullick, S. K. (A)
Rajagopalan, P. K. (A)

INDONESIA

INDONESIA

Bandung
Hammond, S. B. (SM)
Karsa, K. (M)
Liong, L. K. (M)

Djakarta
Arifin, Z. (SM)

IRAN

Teheran
Bassin, M. (A)
Clement, P. F. (M)
Farman-Farmaian, C. (M)
Mueller, E. H. (SM)
Nuban, E. (M)

IRAQ

Baghdad
Al-Rubayi, N. A. (M)
Boghossian, A. B. (M)

Kirkuk
Odell, H. A. (M)

IRELAND (NORTHERN)

ANTRIM

Ballymena
Smyth, W. (A)

Belfast
Allen, T. P. (SM)
Kellway, B. J. (SM)
McBride, J. M. W. (SM)
McFadden, M. H. (M)
Ryan, W. D. (M)

IRELAND (REPUBLIC OF)

DUBLIN

Blackrock
Ferguson, J. D. (SM)
O'Donnell, J. G. (M)

Dublin
Poole, H. H. (A)
Williams, K. F. (M)

Terenure
Seale, E. G. (A)

ISRAEL

Bat-Yan (ISR)
Ilani, A. (M)

Beersheba (ISR)
Mahler, Y. (M)

Doar Na Galil Hamaravi (ISR)
Kasovich, M. (M)

Haifa (ISR)
Baneth, M. (A)
Elazari, H. (A)
Fuchs, A. (M)
Galil, U. (M)
Gutmann, A. (M)
Horowitz, M. (M)
Joselevich, M. (M)
Kluger, I. A. (M)
Lipschitz, G. G. (M)
Nathan, A. (SM)
Navot, I. (A)
Ollendorff, F. (F)
Paz, I. M. (M)
Ravid, E. (M)
Rosen, D. (A)
Seider, M. (M)
Sturiesi, B. E. (A)
Zaks, Z. W. (A)

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Orbach, S. (M)
Reichbach, M. (M)
Schorr-Kon, J. J. (M)
Stern, A. (M)
Weinman, J. (SM)

Kfar Shmaryahu (ISR)
Bronstein, D. (M)

Kiryat Bialik (ISR)
Amariglio, I. (A)
Nizan, A. (M)

Kiryat Hayim (ISR)
Yehuda, K. (A)

Kiryat Motzkin (ISR)
Bar-David, I. (M)
Bar-Lev, A. (A)
Bonenn, Z. (M)
Brandman, Z. I. A. (A)
Burwin, E. (A)
Fischmann, A. F. (M)
Haran, E. N. (M)
Lehman, M. (M)
Marlin, A. (M)
Mor, R. (A)
Schoen, T. E. (M)
Shamir, J. (A)
Shekel, J. (SM)
Tkatsh, M. (M)
Wulkan, A. A. (A)

Nes Ziona (ISR)
Rosenfeld, P. (A)

Petach-Tikva (ISR)
Ronen, M. J. (M)

Ramat Gan (ISR)
Bier, D. (M)

Ramat Hasharon (ISR)
Licht, G. L. (A)

Ramath-Hen (ISR)
Maidan, D. (A)

Rehovoth (ISR)
De Roos, R. (M)
Fischler, H. (M)
Frei, E. H. (M)
Gamzon, R. R. (M)
Kanter, M. (A)
Riesel, H. (A)
Scheidlinger, Z. (M)
Seidman, A. (M)
Sivan, J. (M)
Suss, J. T. (M)
Tepper, L. (M)

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Boksenbaum, E. (M)
Caspi, E. (A)
Danziger, R. R. (M)
Dayagi, N. (M)
Deutsch, M. (M)
Gabor, P. R. (M)
Hellinger, H. R. J. (M)
Kamil, T. (A)
Katzir, L. (A)
Kelmer, Y. (M)
Kimche, S. (M)
Lemer, T. (A)
Levy, N. (M)
Lubin, S. (SM)
Meltzer, G. (M)
Pikarsky, J. (A)
Rubin, M. M. (M)
Samuel, S. (M)
Schaerf, M. (M)
Sold, U. (M)
Sorek, A. (M)
Swery, J. S. (M)
Tamir, U. (M)
Waffle, W. M. (M)
Weisblitzer, J. (M)
Winter, Z. (A)
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Nagai, K. (M)
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Konomi, M. (A)

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Birkenhead, W. (M)
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Fujii, T. (A)
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Fukushima, K. (A)
Fumeno, I. (A)
Fuse, T. (M)
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Hayashi, R. (A)
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Ieiri, S. (A)
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Egsart, G. J., Jr. (M)
Gaubeca, J. B. (M)
Guarnona, L. F. (M)
Gutierrez, E. D. (SM)
Hernandez, D. (M)
Higuera-Mota, H. R. (A)
Hodgson, A. D. (SM)
Horn, C. W. (F)
Huymans, L. E. (A)
Jimenez E. (M)
Joaquin, D. S. (A)
Lepe-Ramos, F. (M)
Marenco, E. G. (M)
McGee, W. F., Jr. (SM)
Mendez, E. D. (M)
Montes, G. R. (A)
Muzquiz, G. C. (SM)
Nieto, J. V. (A)
Nunez, C. (M)
Ocampo-Guerra, H. L. (A)
Ramirez E. (M)
Rodriquez, M. F. (M)
Rodriquez Villa, A. (A)
Roseman, D. (A)
Sais, P. A. (A)
Sanchez, J. M. (A)
Spoor, T. A. (M)
Van Lieshout, L. J. A. (SM)
Vazquez, M. (A)
Wenzel, P. H. (A)
Whidden, G. H. (M)
Yanofsky, L. G. (M)

MORELOS

Guautitlan
Yovanovich, J. M. (A)

NUEVO LEON

Monterrey
Buchwald, C. E. (SM)
Diaz Noriega, J. M. (M)

VERACRUZ

Poza Rica
Ebergenyi, A. (A)

MOROCCO

Marrakech
Nadaud, C. A. (M)

Rabat
Hildebrandt, A. E. (M)

Tangier
Mellard, D. (A)

NETHERLANDS

Amstelveen (BNL)
Sirks, J. C. (M)

Amsterdam (BNL)
Abdel-Nour, K. (M)
Bijl, A. (M)
Broersma, C. B. (SM)
Lehmann, W. K. (M)
Schering, D. C. (M)
Schotel, G. (SM)
Van Duyne, D. M. (M)
Van Wijngaarden, A. (SM)
Varekamp, J. F. (M)

Baarn (BNL)
Plantelidt, F. J. (M)

Badhoevedorp (BNL)
Elenbaas, A. R. (M)

Blaricum (BNL)
Slezen, G. J. (SM)

Delft (BNL)
Ensing, L. (M)
Eykhoff, P. (M)

Dwingeloo (BNL)
Muller, C. A. (SM)

Eindhoven (BNL)
Alma, G. H. P. (SM)
De Miranda, J. R. (SM)
Greefkes, J. A. (SM)
Haantjes, J. (SM)
Heljboer, R. J. (M)
Hoving, L. (M)
Lammerts, C. A. (M)
Mishra, N. K. (A)
Nijenhuis, W. (SM)
Oolman, A. (SM)
Rinia, H. (F)
Schouten, J. F. (SM)
Stumpers, F. L. H. M. (SM)
Sugaya, H. (M)
Tellegen, B. D. H. (F)
Ten Haaf, F. E. L. (M)
Van Der Burgt, C. M. (SM)
Van Overbeek, A. J. W. M. (SM)
Van Weelden, J. L. (A)
Verschuur, J. J. (M)
Zijlstra, P. (SM)

Geleen (BNL)
Van Der Grinten, P. M. (M)

Hilversum (BNL)
Graaff, B. (M)
Leunis, J. (M)
Palinx, A. W. M. (SM)
Poulsen, S. W. I. (M)
Unk, J. M. (SM)
Van Hall, J. N. (SM)

Huissen (BNL)
Breimer, S. (M)

Laren (BNL)
Luiofs, W. (SM)

Meerveldhoven (BNL)
Gradus, H. H. J. M. (M)

Nijmegen (BNL)
De Miranda, H. A. (M)
Van Egmond, A. J. L. (M)
Van Vessem, J. C. (SM)
Samrel, J. A. (M)

NIGERIA, FEDERATION OF

Noordwijk (BNL)
Goldbohm, E. (SM)

Oegstgeest (BNL)
Byvoet, J. A. (M)
Hekster, S. (M)

Rotterdam (BNL)
Apell, B. A. N. C. (M)
Neubauer, F. R. (SM)

Ryswyk (BNL)
Janssen, T. A. M. (M)

The Hague (BNL)
Angeloooulos, T. A. (M)
Amann, J. A. (M)
Aust, A. T. (SM)
Barrow, B. B. (SM)
Bartholome, P. J. (M)
Blake, K. W. (SM)
Bloemsma, J. (SM)
Bobyn, E. J. (SM)
Boxma, Y. (SM)
Browne, S. (SM)
Clark, R. G. (SM)
Cutler, P. H. (M)
De Lobao, F. J. C. (M)
De Voogt, A. H. (M)
Evers, J. (A)
Goldmann, A. S. (A)
Gratama, S. (A)
Hagen, C. (A)
Hansen, V. G. (M)
Hatzikostandis, G. (M)
Heaton, A. R. (SM)
Heeroma, H. H. (M)
Houtsmuller, J. (SM)
Janssen, J. M. L. (SM)
Jones, N. T. (M)
Kaya, P. (A)
Krinos, J. D. (M)
Long, L. E. (SM)
Metzelaar, W. (SM)
Nanni, B. (M)
Op Den Orth, J. M. (SM)
Piket, J. (SM)
Scholz, M. P. E. (M)
Schurr, P. M. E. (SM)
Stieber, A. (SM)
Van Der Oord, S. M. (M)
Van Rhee, L. A. (A)
Van Schooneveld, C. (M)
Van Soest, J. L. (SM)
Voot, I. M. (M)
Williams, H. P. (SM)
Wirth, H. J. (SM)

Utrecht (BNL)
Bekkering, D. H. (SM)
Corsmit, A. F. (A)
Wouters, H. M. (M)

Vooburg (BNL)
Van Berkel, P. L. M. (M)

Voorschoten (BNL)
Gobel, W. (M)

Wassenaar (BNL)
Van Duuren, H. C. A. (F)
Van Dyl, B. (SM)

NETHERLANDS ANTILLES

Curacao
Van Haaren, R. H. C. (SM)

St. Martin
Dovale, H. R. (A)
Tibbetts, D. R. (SM)

NEW ZEALAND

NORTH ISLAND

Auckland
Betson, C. (A)
Crawford, W. C. (A)
Davenport, E. (SM)
Mayo, L. E. (A)
Spackman, I. H. (A)

Gisbonne
Paulson, E. J. (M)

Wellington
Tan, P. K. (A)

NICARAGUA

Managua
Guerrero, M. A. (M)
Robinson, H. E. (M)

NIGERIA, FEDERATION OF

Enugu
Okoronkwo, K. (M)

Lagos
Fisk, B. C. (A)
Rowe, J. M. (M)

NORWAY

NORWAY

Bekkestua
Nickelsen, J. C. (M)

Bergen
Bakken, O. (M)
Dahl, H. (SM)
Hilis, P. T. (SM)
Mack, E. (M)
Wessel-Berg, T. (A)

Lillestrom
Eggestad, M. (M)
Haglors, T. (A)
Hedemark, R. (A)
Jaeger, T. C. (A)
Lied, F. (A)
Monrad-Krohn, L. (A)

Ljan
Eliassen, K. E. (A)

Oslo
Bostad, J. (M)
Gaudernack, L. F. (SM)
Haraldsen, H. P. (M)
Hisdal, B. J. (M)
Hvinden-Haug, L. H. (M)
Kulvik, E. (SM)
Nost, B. (A)
Rorholt, B. A. (M)
Scheel, C. F. (M)
Steinsto, O. (M)

Skedsmokorset
Holm, C. (A)

Trondheim
Engvik, S. B. (M)
Solsnes, L. B. L. (A)
Tangvik, S. (M)

OKINAWA

RYUKYU

Naha
Inami, T. (M)
Onaga, K. (M)
Sakumoto, I. (M)

PACIFIC AREA

Wake Island
Paice, K. M. (A)

PAKISTAN

EAST PAKISTAN

Dacca
Ahmed, W. (SM)
Walluzzaman, K. M. (M)

WEST PAKISTAN

Karachi
Ahmad, R. (SM)
Ahmed, S. (A)
Ayoob, A. S. (SM)
Chagla, H. R. (M)
Farooq, M. O. (M)
Hasan, S. (M)
Khan, A. H. (A)
Rafi, M. A. (M)
Rauf, A. (M)
Sathar, S. A. (SM)
Yousafi, K. N. (M)

Lahore
Van Spankeren, D. (M)

Peshawar
Mirza, A. L. (A)

Rawalpindi
Haq, S. (M)

PANAMA, REPUBLIC OF

Panama
Chu, M. (A)
Lamoreo, F. A. (A)
Larson, A. G. (M)
Rivera-Cardona, B. A. (M)

PARAGUAY

Asuncion
Bixby, H. O. (SM)

PERSIAN GULF

QATAR

Doha
Cook, G. J. (M)

PERU

Ilo
Berrevoets, G. J. (A)

Lima
Anderson, E. R. (M)
Gonzalez, A. M. (M)
La Pierre, V. M. (SM)
Pera, C. A. (M)
Pereyra, A. A. (A)
Teodori, D. C. (A)
Woodman, R. F. (M)

Talara
Sekimotto-Pinillos, R. A. (M)

PHILIPPINES

Baqui City
Aquinaldo, P. A., Jr. (M)
Glover, F. N. (M)

Manila
Aquinaldo, J. A. (A)
Bentley, A. D., Jr. (M)
Carreon, D. G. (M)
De Luzuriaga, E. R. (M)
Hidalgo, M. T. (M)
Lim, M. (M)
Picornell, J. J. (M)
Reynolds, R. A. (A)

San Juan
Ozaeta, E. H. (A)

Quezon City
Yogore, M. G. (M)

POLAND

Warsaw
Auerbach, J. E. (A)
Barwicz, W. (A)
Czechowski, A. (A)
Groszkowski, J. (M)
Klemozycki, L. (A)
Ryzko, S. (A)
Smolinski, A. K. (SM)
Wojnar, A. (A)

PORTUGAL

Lisbon
Chubbuck, E. L. (M)
Da Cunha, A. M. C. (M)
De Bivar, A. M. B. (SM)
De Figueiredo, R. J. P. (M)
Esten, P. W. (SM)
Fernandes, A. A. D. (M)

Porto
Vrooman, D. H. (A)

PORTUGUESE EAST AFRICA

MOZAMBIQUE

Lourenco Marques
Davis, D. A. (M)

PUERTO RICO

Arecibo
Gordon, W. E. (F)
Talpey, T. E. (M)

Bayamon
Boyd, L. K. (SM)

Cayey
Polachowski, B. A. (M)

Guanica
Feyloo, M. A. (M)

Guayama
Blondet-Bloise, L. (A)

Hato Rey
Castaner, A., Jr. (A)
Finol, A. (M)
Hester, F. A. (SM)
Lorenzi, J. R. R. (M)
Nieves, R. A. (A)
Serra, M. A. (A)

Isla Verde
Montana, F. V. (A)
Robinson, R. A. (SM)

Juana Diaz
Cumming, E. J. (A)

Mayaguez
Copson, D. A. (M)
Dueno, B. (M)
Flol, L. E. (M)
Fischbach-Nazario, H. (M)
Garcia De Quevedo, J. L. (SM)
Mercado, T. (M)

Playa Ponce
Castillo, E. A. (A)

Ponce
Perez-Bracetti, F. L. (M)

Puerto Nuevo
Martin, A. L., II (M)

Rio Piedras
Arce-Blanco, R. (M)
Mercado, C. R. (A)
Werner, W. C. (M)
Wood, J. F. (M)

Roosevelt
Wiggins, A. M. (SM)

San Juan
Acosta, R. J. (M)
Castanera, J. R. (M)
Jones, T. L. (M)
Lanigan, D. F. (M)
Negroni, J. A. (M)
Perry, R. P. (A)
Rodriguez-Gonzalez, R. H. (M)
Salas, R. E. (M)
Siddall, W. D. (M)

Santurce
Arzuaga, J. (M)
Bindner, J. T. (SM)
Malinovsky, K. V. (M)
Mayo, G. A. (A)
Muniz-Mayol, F. (M)
Petersen, R. L. (M)
Romero-Garcia, E. (M)
Wynne, M. P. (M)

Vieques
Thomasson, F. L. (A)

Villa Neurez
Cifuentes-Marrero, V. (M)

RHODESIA & NYASALAND

NYASALAND

Lilongwe
Davies, K. J. (M)

Zomba
Nolan, H. J. (M)

NORTHERN RHODESIA

Kitwe
De Wet, S. M. (M)

SOUTHERN RHODESIA

Salisbury
Miles, V. G. (M)
Paterson-Jones, E. A. (SM)
Reeves, J. M. (M)
Smuts, M. N. (A)
Stevenson, K. (M)

RUMANIA

Bucharest
Tanasescu, T. A. (SM)

SAUDIA ARABIA

Dhahran
Barnes, L. (M)
Davidson, R. E. (M)
Everett, S. L. (M)
Orseth, M. M. (M)
Rieg, R. V. (M)

SCOTLAND

AYRSHIRE

Carcluie
Rodger, J. B. (A)

EAST LOTHIAN

North Berwick
Oliphant, A. J. (M)
Oliphant, W. D. (SM)

FIFE

Dundee
Sandor, L. K. (M)

Rosyth
Welling, A. J. (A)

LANARKSHIRE

Glasgow
Chamberland, E. (A)
Eaton, J. C. (M)
Maclean, D. J. H. (M)
Weaver, C. (M)

MIDLOTHIAN

Edinburgh
Bruce, D. C. (M)
Conner, C. I. (M)
Mascall, A. L. (M)
Norton, A. E. (A)
Pringle, R. W. (SM)
Small, J. E. (M)

RENFREWSHIRE

Greenock
Tait, J. S. R. (A)

SINGAPORE

Sinapore
Dyson, G. N. (M)
Geasley, M. (M)
Ho, L. (M)
Hock, T. C. (M)
Saunter, H. D. (M)
Tan, Y. S. (M)
Thompson, J. G. (M)
Whitley, R. H. (M)

SOUTH ATLANTIC

Ascencion Island
Bruce, J. R. (M)

SPAIN

Barcelona
Lopez, F. C. G. (A)
Zobel, E. V. (M)

Cartagena
Sauras, P. P. (M)

Madrid
Colino, A. (SM)
Escolano, M. (M)
Espinosa, M. (SM)
Herrero, M. C. (SM)
Lara, A. (M)
Millan, A. (M)
Ortiz-Pradere, J. A. (M)
Sowell, P. W. (M)

Palafrugell
Owen, K. (M)

SWEDEN

Arboga
Olsson-Seffer, R. (A)

Bjornstorp
Gyllenkrok, T. (A)

Bofors
Gertzell, S. G. (A)

Bromma
Ferner, E. J. U. (A)

Djursholm
Nyberg, S. L. (A)

Enskede
Edsman, K. S. (M)
Magnusson, B. (M)

Falun
Holm, L. (M)

Gothenburg
Aurell, C. G. P. (M)
Ekelof, S. (SM)
Gamstorp, B. O. (M)
Hellstroem, P. G. (A)
Heyman, B. C. (M)
Lundwall, B. H. (A)
Olving, S. (M)
Roll, A. (M)
Tengblad, R. G. (M)
Wannerskog, C. A. (M)

Haegersten
Person, L. B. (M)
Scheftelowitz, H. (A)

Jakobsberg
Morup, B. (M)

Lidingo
Bjork, N. A. N. (M)
Dalen, G. S. (M)
Fredrikson, K. V. M. (M)
Friden, S. G. (A)
Grandqvist, C. E. (F)
Gustafsson, L. (M)
Martensson, I. (M)
Norrelgen, G. A. (A)
Pellback, I. (M)
Scholdstrom, R. K. O. (A)
Solders, P. G. (A)
Stalberg, N. G. (M)
Stannow, J. C. (A)
Westerhult, B. C. O. (A)

Linkoping
Bergstrom, R. G. (A)
Hakansson, P. O. E. (A)
Heligren, G. P. (M)
Jiewertz, B. (M)
Knutsson, B. K. J. (M)
Lindstrom, G. (M)
Perers, O. F. (M)

Ludvika
Faxo, E. L. (A)

Malmo
Ljungman, N. H. (M)
Romell, G. D. R. (M)

Molkom
Andersson, L. G. L. (M)

Molndal
Hoglund, J. B. (M)
Larsson, L. H. (M)
Yngvesson, V. K. O. (M)

Norrkoping
Braune, E. H. J. (M)
Nilsson, B. N. A. (A)

Orebro
Hartman, D. A. B. (M)

Roslags-Nasby
Liss, G. S. (M)
Markesjo, G. A. (A)
Wahren, P. (A)

Saltsiobaden
Lundgren, E. H. (A)

Solna
Carter, I. P. V. (A)
Elovsson, K. S. (A)
Kinberg, C. (A)
Mueller, H. E. (M)

Stockholm
Anjou, L. A. (M)
Ahlgren, S. I. (A)
Alfven, H. O. G. (F)
Algottson, L. (A)
Andersson, K. N. (A)
Aslund, N. R. D. (A)
Backmark, N. (M)
Behr, K. E. (A)
Blomberg, K. H. (F)
Brundin, B. H. E. (A)
Ehnborg, A. V. (A)
Ejewall, L. A. (A)
Enander, B. N. (M)
Fagerlind, S. G. (A)
Granier, S. G. (SM)
Grondstra, J. W. (M)
Haard, B. (M)
Hansson, H. W. (M)
Houbaer, A. J. (A)
Jacobson, B. (A)
Karlstedt, L. (A)
Katzelf, K. (M)
Kruse, O. S. N. (M)
Laurent, T. (SM)
Lofgren, E. O. (SM)
Nelson, R. H. (M)
Nethso, O. (A)
Norrby, H. J. (A)
Ohrvik, S. O. (A)
Olszanski, H. H. P. (M)
Overby, S. L. (SM)
Palmblad, B. (A)
Persson, T. P. (A)
Ramskold, O. S. H. (A)
Richter, H. F. (A)
Sem-Sandberg, S. (M)
Silvers, C. H. V. (SM)
Sparrendahl, G. E. W. (A)
Stemme, E. (A)
Styren, K. (M)
Sundquist, A. (M)
Tandan, S. P. (M)
Tonner, S. J. A. (M)
Tornquist, J. R. (M)
Von Utfall, J. C. J. (M)
Vos, M. (SM)
Wahlstrom, G. (A)
Warring, S. E. (M)
Weidstam, E. (SM)
Werthen, H. L. O. (M)
Wikland, T. E. (A)

Stocksund
Feichtinger, A. F. (M)

Tyreso
Arosenius, L. T. H. (A)

Uprosala
Calni, V. (M)
Muller-Hillebrand, D. (M)
Tove, P. A. (M)

Vallingby
Olsson, C. O. (M)

Viggbyholm
Stomberg, A. V. (M)

SWITZERLAND

Adliswil (GEN)
Wohler, G. O. (M)

Ambri (GEN)
Celio, T. (M)

Baden (GEN)
Epprecht, G. W. (M)

Basel (GEN)
Fenyves, F. L. (SM)
Huber, P. K. (A)
Thalmann, V. (A)
Winter, R. A. (M)

Bern (GEN)
Bachmann, A. E. (SM)

Diggelmann, H. (M)
Gerber, W. (M)
Lang, G. J. (M)
Ott, F. J. (M)
Racine, J. R. (A)

Burodorf (GEN)
Menzl, H. U. (M)

Feldmeilen (GEN)
Margna, C. R. (M)

Frauenfeld (GEN)
Baumer, H. S. (M)

Fribourg (GEN)
Fortini, M. M. (M)
Liggans, C. E. (A)
Nordby, K. S. (A)
Simpson, B. H. (M)

Geneva (GEN)
Bruland, R. V. (M)
Cheretakis, A. P. (A)
Doolittle, W. P. (M)
Dubret, F. (M)
Embrechts, A. C. (SM)
Gayer, J. H. (SM)
Goldberg, R. (A)
Gracie, J. A. (SM)
Gregorian, R. P. (M)
Gross, G. C. (F)
Hayes, L. W. (F)
Hilderbrand, H. H. (A)
Jorgensen, F. V. (A)
Langenegger, P. B. (A)
Lanostolle, P. M. (SM)
Menzel, W. (SM)
Mulder, P. B. (M)
Mussard, M. E. (A)
Petermann, L. A. (SM)
Sarwate, M. B. (SM)
Smith, R. (A)
Sundaram, P. S. M. (SM)
Sundaram, V. (SM)
Svoboda, I. J. J. (M)
Westerberg, G. E. (M)

Glattsbugg (GEN)
Halsey, J. E. (A)

Guemligen (GEN)
Moll, K. W. (M)

Hegnau (GEN)
Gloor, B. (M)

Kilchberg (GEN)
Kaufmann, P. (M)
Schlaeppi, H. P. (M)

Kloten (GEN)
Holtz, R. F. (SM)

La Neuveville (GEN)
Villars, C. P. (M)

Lausanne (GEN)
Demieville, H. (M)
Malamud, E. I. (M)
Roch, A. A. (M)

Mannedorf (GEN)
Brumm, I. G. (M)

Munchenbuchsee (GEN)
Anselmi, S. C. (M)

Neuchatel (GEN)
Bonanomi, J. (M)
Christeler, A. (M)
Kartaschoff, P. (M)
Scherrer, I. (M)
Wellinger, R. P. (M)

Nussbaumen (GEN)
Mueller, A. V. A. (M)
Schonsleben, M. W. (A)
Weiss, H. (A)

Riehen (GEN)
Strohmeier, W. (M)

St. Gallan (GEN)
Bucher, K. H. (A)

Urdorf (GEN)
Braun, A. F. (M)

Uster (GEN)
Gibas, H. A. S. (SM)

Vaud (GEN)
Kulo, E. I. (M)
Lebel, J. D. (M)

Wabern (GEN)
Kilchenmann, K. (M)
Schoeberlein, W. (M)

Wellingen (GEN)
Garatti, U. R. (M)
Neck, H. (M)
Snedkerud, O. T. (A)

Wettswil (GEN)
Molinari, H. A. (M)

Windisch (GEN)
Hagger, H. J. (M)

Winterhur (GEN)
Druey, W. (SM)

Wueren Lingen (Gen)
Staub, F. (A)

Zollikerberg (GEN)
Keller, J. (A)
Schiess, G. (M)
Stutz, T. D. J. (M)
Sulzer, R. F. (M)

Zug (GEN)
Kistler, R. J. (M)
Mollfors, H. G. (M)
Weber, G. C. (A)

Zurich (GEN)
Angehrn, T. W. (M)
Baumann, E. (SM)
Baumgartner, R. H. (A)
Bertelsen, B. I. (M)
Borgnis, F. E. (SM)
De Quervain, A. P. (M)
Diehl, W. (M)
Furrer, F. E. (M)
Gallo, M. A. (SM)
Gaumann, T. (M)
Guanella, G. (SM)
Guggenbuhl, W. (SM)
Gunthard, H. H. (M)
Gurewitsch, A. M. (SM)
Hohermuth, H. U. (M)
Karolus, A. (SM)
Klein, A. L. (M)
Koller, R. (M)
Kriner, J. I. (A)
Meisling, T. H. (SM)
Nalos, E. J. (SM)
Oertli, E. H. (A)
Oswalt, H. (M)
Proebster, W. E. (A)
Ruth, L. C. (M)
Schneider, M. V. (M)
Shah, R. R. (M)
Speiser, A. P. (SM)
Strohschneider, W. (SM)
Strutt, M. (F)
Stuber, R. (M)
Tank, F. (F)
Walder, E. (M)

SYRIA

Damascus
Mahalingam, N. (SM)

TAHITI

Papeete
Baker, G. R. (M)

TANGANYIKA

Dar Es Salaam
Greig, C. (M)

TASMANIA

Hobart
Roberts, R. E. (M)

THAILAND

Bangkok
Bintasan, L. (M)
Chitinanda, P. (M)
Kengpol, A. (M)
Makino, Y. (M)
Pricha, S. C. (A)
Tantraporn, V. (A)
Utaisen, S. (M)

TURKEY

Ankara
Esmer, M. (M)

Istanbul
Apaydin, P. (A)
Ataman, A. (M)
Erkanli, H. T. (A)
Hananel, M. D. (A)
Ozker, T. (SM)
Urgoren, F. (A)

Izmir
Septekin, T. (A)

UNION OF SOUTH AFRICA

CAPE OF GOOD HOPE

Athlone Cape Province
Karodia, A. M. (A)

Cape Town
Dunbar, J. (A)
Gilmour, R. R. (SM)
Lennox, C. H. (M)

Kimberley
Morris, H. R. (M)

NATAL

Durban
Chapson, E. (A)
Phillips, W. E. (SM)
Poole, D. O. (M)
Thomson, H. J. (M)

TRANSVAAL

Boksburg
Jacobs, A. J. (M)

Johannesburg
Bichara, M. R. E. (A)
Brickhill, G. A. (A)
Jamieson, R. T. (M)
Lichtenstein, A. H. (A)
Van Gooh, W. D. (M)
Silbermann, H. (SM)
Sive, F. (A)
Suttner, R. (M)

Pretoria
Malan, D. G. (M)
Zawels, J. (SM)

Wolmaransstad
Lipschitz, S. (M)

URUGUAY

Montevideo
Carbonell, J. R. (M)
Elices, F. J. (M)
Guimaraes, A. (A)
Larranaga, G. A. (M)
Moran, W. F. (M)
Sapelli, W. J. (A)

U.S.S.R.

Leningrad
Shmakov, P. V. (A)

Moscow
Alkulin, M. S. (SM)
Boroditch, V. S. (SM)
Bourdoun, G. D. (SM)
Denisenko, I. N. (A)
Eflmov, E. A. (A)
Ermakov, V. I. (SM)
Fedorovitch, E. (SM)
Furdujev, V. V. (SM)
Govladinov, V. A. (SM)
Kazanski, G. P. (SM)
Kostamjanz, B. A. (A)
Lichushin, I. P. (SM)
Martiushov, K. I. (A)
Novakovsky, S. V. (SM)
Pistolkors, A. A. (SM)
Pokrovski, A. G. (SM)
Shokin, A. I. (A)
Siforov, V. (SM)
Sorokin, A. A. (A)
Strelchenko, N. N. (SM)
Timofeev, P. V. (SM)
Topuria, Z. V. (SM)
Zahvatoshin, K. V. (A)
Zernov, D. V. (SM)

VENEZUELA

Altamira
Gula-Monasterio, A. E. (M)
Salz, H. (A)

Caracas
Alamo-Segovia, J. A. (M)
Applewhite, V. C. (M)
Arreaza, R. G. (M)
Briceno, H. D. (A)
Charfole, R. O. (A)
De La Roca, G. R. M. (M)
De Mello, W. (SM)
Elquezabal, I. I. (M)
Gooding-Dalrymple, C.E. (M)
Graham, F. A. (M)
Hussein, N. A. (A)
Jacir, E. B. (A)
Jimenez-Michelena, L. G. (SM)
Key-Tejera, E. G. (A)
Lopez, A. (SM)
Pachano, P. I. (A)
Perez-Bellsario, H. (M)
Ponte, F. B. (M)
Sanchez-Finistauri, M. (A)
Siblesz, G. M. (A)
Suarez-Flamerich, O. (M)
Suez-Gutierrez, J. (M)
Tomadin, R. C. (M)
Soux, L. B. (M)
Stephens, T. L. (M)
Torrealba, J. (M)
Vicens, A. (A)
Vurgait, M. (A)
Wartes, L. M., Jr. (A)
Wehrman, R. J. H. (A)
Wenzel, G. E. (A)

Caripito
Persons, C. O. (M)

Judibana
Long, J. L. (M)

Maracaibo
Bijl, P. C. J. (SM)
Carter, J. (M)
Christie, G. A. (A)
Gonzalez, H. A. (A)
Grove, R. E. (M)
McClead, D. A. (M)
Unger, J. H. (SM)

Maracay
Cantero, F. D. A. (A)

Merida
Huerta, A. F. (M)

Petare
Mireles, A. (M)

Puerto Ordaz
Dobbs, C. I. (SM)
Kroll, W. H. O. (M)

San Tome
Fonseca, N. J. (M)

Sucre
Nikken, P. H. G. (SM)

VIETNAM

Saigon
Fozdar, J. K. (M)

WALES

Colwyn Bay
Whale, G. S. (M)

WALES, NORTHERN

Swansea
Chiplunkar, V. N. (M)

Anglesey
Childs, P. D. R. (M)
Evans, T. (A)

Bangor
Price, T. E. (A)

WEST INDIES FEDERATION

BARBADOS

Bridgetown
Thorogood, R. R. (A)

GRENADA

Windward Island
Smith, R. A. (M)

JAMAICA

Cross Roads
Gauntlett, G. A. R. (M)

Kingston
Dixon, A. E. (A)
Samuels, R. P. (M)
Shing, A. I. (A)
White, R. A. (A)

TRINIDAD

Curepe
Woonsam, J. L. (M)

Point Cumana
Wyrick, R. F. (M)

Port of Spain
Borde, E. H. (A)
Duncan, A. J. H. (A)
Kerr, J. L. (M)

San Fernando
Bell, R. J. (M)

YUGOSLAVIA

Belgrade
Horvat, R. D. (SM)
Kalic, D. D. (A)

Ljubljana
Bremsak, F. (M)
Furlan, J. (A)

Zagreb
Albert, V. R. (M)

NOTES

HELPFUL HINTS
for using the IRE DIRECTORY

A few minutes' study of the basic layout of the IRE DIRECTORY will help you to find the information for which you are looking more quickly and more accurately. At first glance, the IRE DIRECTORY may seem to be confusing, but by using the various portions of the book as listed below, you will find your way around easily, and will discover that it is actually a very simple arrangement, and a much more logical one than a purely alphabetical terminology listing.

PINK SECTION at the front of the products and firms section contains a terminology index listing every product, major and minor, for which a list of manufacturers is given. Class numbers refer you to the class in which the listings for that product occur. Following this alphabetical index is a copy of the questionnaire which is sent to the firms who have furnished us with product information. A quick look through this questionnaire will help greatly in understanding the product arrangement. At the top of this first page of the pink section is a small index referring you to the opening page of the complete-data spread section, the alphabetical directory, and each of the three product directories.

THE COMPLETE DATA SPREAD SECTION contains product advertisements of great usefulness to the reader. Most of these advertisements are two pages or more, and all of them contain complete information on the products manufactured by the advertising firms—specifications, prices, illustrations, and suggested applications.

ALPHABETICAL DIRECTORY OF MANUFACTURERS contains a list of 5508 firms representing the majority of buying and selling power in the radio-electronic industry. Each firm listing contains the complete mailing address and telephone number for the firm. Following the state name in the firm address, a list of code numbers is given. These numbers refer to the 112 major products listed in the book (for quick reference to the meaning of the codes, use the questionnaire form in the pink section). Following the telephone number is the year in which the firm was founded, the total number of employees, the number of IRE members employed, and the net radio-electronic sales during the last fiscal year.

THE THREE DIRECTORIES OF PRODUCTS ARE:

1. Complete Equipment
2. Components
3. Materials and Services

This breakdown into three directories saves you from traveling through many products in which you are not interested at the moment, and helps you to turn immediately to the listings for the type of product you want, following a straight line to your destination. Use the Machol edge index at the top of the first page of the pink section to locate immediately the first page of the appropriate directory, then use the Machol edge index at the beginning of each directory to find the specific product you want. You don't even have to know the page number—the index will find it for you automatically!

112 MAJOR PRODUCTS are listed within these three Directories. Each product listing contains a number of sub-headings so that you may know specifically what each firm makes. To interpret the code numbers shown after each firm's listing, consult the first page of that product class, where the sub-headings are defined. You will note that advertisements are positioned throughout the book in the most appropriate listing section, so that the advertisement for a relay manufacturer will appear in the relay section, to help you with further information on his product. Every advertiser's listing shows you where his advertisement may be found, and you will derive more value from this book if you consult these advertisements for facts you cannot find in the listings.

COMPLETE ADDRESS LISTINGS are given only for advertisers in the product listings. If you wish to locate the address and telephone number for any other firm, it will be necessary to use the alphabetical directory.

THE DISTRIBUTION DIRECTORY is the last section in the book. This section contains a list of 2353 manufacturers representatives, distributors and jobbers, grouped geographically.

TRADE-NAME INDEX: A list of registered & "coined" trade-names submitted to IRE by manufacturers.

ADVERTISER'S INDEX appears just inside back cover.

While extraordinary care is taken in compiling information for the IRE DIRECTORY (and making it the standard, accurate reference volume for the industry) IRE cannot accept responsibility for inadvertent mistakes or omissions.

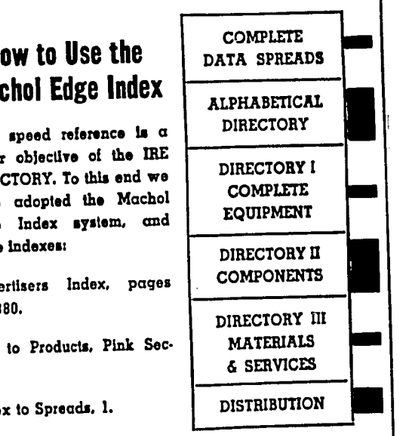
How to Use the Machol Edge Index

High speed reference is a major objective of the IRE DIRECTORY. To this end we have adopted the Machol Edge Index system, and these indexes:

Advertisers Index, pages 874-880.

Key to Products, Pink Section.

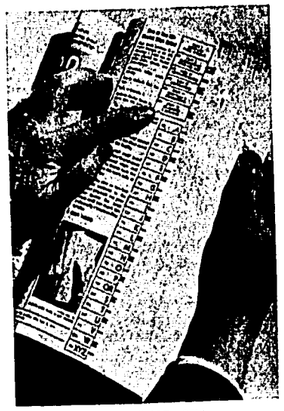
Index to Spreads, 1.



Detailed Machol edge indexes will be found on the first page of the alphabetical Directory and each of the three major product Directories. The Machol system will help you find both alphabetical and product sections swiftly.

HOW TO USE

1. Bend the Directory almost double with the front cover page on the outside.
2. Hold in your right hand with your four fingers near to the bound edge and your right thumb near the middle of the open side of this page.
3. From the heavy or light line symbol adjacent to the subject you seek, run your eyes across the page edges until you reach the horizontally corresponding symbol.
4. OPEN THERE!



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1962 Edition prepared by The Advertising Department of the Institute of Radio Engineers, 72 W. 45th St., New York 36, N.Y.
William C. Copp, Mgr.; Lillian Petranek, Asst.; Carl Maier, Production; Hugh R. M. Keays, Research.

Alphabetical Index of Products

Product	Class No.
—A—	
AC to DC converters	$53
AF test equipment	$35
ATR & TR tubes	$86
abrasives	$94
absorbers, microwave	$103
absorption wattmeters	$37
acceleration switches	$80
accelerators, particle	$22
accelerometers	$83
acoustic materials	$103
acoustic test equipment	$36
acoustical engineers	$95
adapter sockets	$78
adapters, coaxial	$66
adapters, SSB	$29
adapters, stereo	$26
adhesive labels & tapes	$97
admittance meters, RF	$38
aging racks	$36
air-conditioning equipment	$99
air filters	$90
air-navigation computers	$8
air-particle detectors	$22
air-speed indicators	$61
air-supported radomes & towers	$44
air-traffic control equipment	$2
airborne cameras	$14
airborne displays	$2
airborne intercoms & PA equipment	$30
airborne radar equipment	$25
airborne receivers	$1
airborne recorders	$1
airborne selective-calling equipment	$20
airborne transmitters	$1
aircraft air-conditioning & pressurization equipment	$99
aircraft alarm equipment	$4
aircraft antennas	$44
aircraft communications equipment	$1
aircraft cooling devices	$54
aircraft microphones	$65
aircraft—missile navigation & test equipment	$2
airport communications equipment	$1
airport receivers	$1
airport transmitters	$1
alarm equipment, automatic	$4
alarms, sonar	$18
alignment tools	$111
alloys	$104
altimeters	$2
alumina	$92
aluminum	$104
amateur equipment	$3
amateur-type antennas & rotators	$44
ammeters	$61
ammeters, tong-test	$40
amplifiers—all types	$43
amplifiers, computer	$43
amplifiers, infrared	$17
amplifiers, servo	$77
analog computers	$8
analog control equipment	$4
analog-digital control equipment	$4
analog flight-simulation	$2
analog recorders	$28
analog to pulse conversion devices	$10
analog transmitters	$34
analysis, pulse	$23
analyzers, AF distortion & noise	$35
analyzers, AF spectrum	$35
analyzers, bio-medical	$40
analyzers, chemical	$40
analyzers, gas	$40
analyzers, microwave spectrum	$37
analyzers, nuclear	$22
analyzers, RF spectrum	$38
analyzers, reactor	$22
analyzers, servo	$40
analyzers, vibration	$36
anemometers	$40
annunciator displays	$63
anode connectors	$52
anodes	$105
antenna cable	$91
antenna feeds	$66
antenna filters	$59
antenna-pattern recorders	$28
antenna-pattern testers	$41
antenna-radome test	$2
antenna tuners	$88
antennas & accessories	$44
antimony	$104
arc-resistance testers	$41
arms, phonograph	$68
asbestos	$101
assemblies, cable	$91
assemblies, dial	$97
assemblies, printed	$50
assemblies, slip-ring	$52
assemblies, switching	$80
assembly, contract	$96
astronomical camera recorders	$14
attenuators—all types	$45
audio amplifiers	$43
audio analgesia	$5
audio frequency test equipment	$35
audio readout devices	$9
audio-visual aids, educational	$13
audiometers	$5
auditory trainers	$13
automatic central data systems	$8
automatic control equipment	$4
automatic impedance plotters, microwave	$37
automation engineers	$95
autopilots	$2
—B—	
backward-wave tubes	$86
baffles	$79
ball bearings	$97
ballasts	$86
bases, tube & semiconductor	$105
baths	$99
batteries—all types	$46
battery-chargers	$99
beacons	$1
beacons, sonar	$18
bearings	$97
bellows	$83
benches, test & work	$90
beryllia	$92
beryllium	$104
beta gages	$22
binistors	$76
binocular inspection	$14
bio-medical analyzers	$40
bio-medical cameras	$14
bio-medical computers	$8
bio-medical controls, temperature	$4
bio-medical equipment	$5
bio-medical spectrophotometers	$40
bio-medical transducers	$83
biological telemetry	$5
bismuth-telluride	$102
black body sources	$17
blank disks	$70
blocks, terminal	$81
blood flowmeters	$5
blood-pressure-recorders	$5
blower motors	$67
blowers & fans	$47
boards	$97
boards, plotting	$28
bobbins, ceramic	$92
bobbins—glass, metal, paper	$97
bobbins, plastic	$106
bolometers, microwave	$37
bonding compounds	$94
book publishers	$108
boosters, TV	$43
boxes, metal & plastic	$90
brackets, lamp	$63
braid, wire	$91
brakes, servo	$77
brazing machinery	$99
brazing services	$109
brazing tools	$111
breadboard equipment	$40
breadboards	$97
breakers, circuit	$80
bridges	$6
broadcast antennas	$44
broadcast equipment	$26 & $42
broadcast receivers	$26
broadcast transmitters	$42
brushes, motor	$97
builders, custom	$96
builders, prototype	$96
buoys, radio	$18
bushings	$97
—C—	
CRT's	$86
cabinets—all types	$90
cabinets, relay-rack	$93
cable—all types	$91
cable clips	$97
cable connectors	$52
cable testers	$41
calculators, electronic	$8
calibrators, instrument	$40
calibrators, telemetering	$34
calibrators, television	$39
calibrators, time & voltage	$23
calorimeters, microwave	$37
cambric materials	$101 & $112
cambric tubing	$112
camera control equipment	$32
camera lenses, television	$32
camera recording equipment	$14
cameras, airborne	$14
cameras, bio-medical	$14
cameras, environmental	$14
cameras, instrumentation	$14
cameras, oscilloscope	$23
cameras, processing	$14
cameras, television	$32
cameras, X-Ray	$14
cans	$97
capacitance bridges	$6
capacitance decades	$12
capacitance standards	$31
capacitor sockets	$78
capacitor testers	$41
capacitors, fixed	$48
capacitors, variable	$49
capital investment services	$109
caps, tube & semiconductor	$105
carbon resistors	$74
card readers	$9
cardiac equipment	$5
carrier current equipment	$7
cases, instrument & meter	$90
cases, transit	$90
castings	$96
castings, unfinished waveguide	$66
cathode followers	$35
cathode-ray electron tubes	$86
cathode tubing	$105
cauterizing equipment	$5
cavities	$66
cells, fuel	$58
cells, load	$83
cells, standard	$31
central data systems, automatic	$8
centrifuges	$99
ceramic bobbins	$92
ceramic capacitors, fixed	$48
ceramic components	$92
ceramic cores	$55
ceramic custom fabrication	$92
ceramic electron tubes	$86
ceramic envelopes	$105
ceramic ferrites	$92
ceramic materials, insulation	$101
ceramic transducers	$83
ceramics	$92
cesium	$104
chambers, flight simulation	$2
chambers, ionization	$22
chambers, test & environmental	$36
changers, record	$68
changers, sample	$22
character generators	$9
chargers, battery	$99
charts, graphic-recorder	$28
chassis	$93
chassis, etched or screened prewired	$50
chassis, solder-dipped prewired	$50
checkout & ground-support equipment	$2
chemical analysis equipment	$40
chemical membranes	$46
chemical production controls	$4
chemicals—all types	$94
chemicals, fluorescent & luminescent	$94
chemicals, fungicidal	$94
chemicals, printed-circuit	$94
chemicals, production	$94
chemicals, semiconductor	$94
chokes—all types	$51
choppers	$53
chromatographs, radio	$22
circuit-breaker testers	$41
circuit-breakers	$80
circuit sockets	$78
circuit testers	$41
circuits—all types	$50
circuits, printed & packaged	$50
circulators	$66
citizen-band transceivers	$20
clad metals	$104
clamps	$97
clamps, tube & semiconductor	$105
clean-rooms	$90
cleaning compounds	$94
cleaning equipment, ultrasonic	$99
clips, cable	$97
clips, diode	$78
clips, miscellaneous	$97
clips, test	$62
clips, transistor	$78
clock motors	$67
clocks, computational	$10
closed-circuit cameras	$32
closed-circuit monitor equipment	$21
closed-circuit storage-reproducer units & telephone-line equipment	$26
closed-circuit studio equipment	$32
closed-circuit television equipment	$26, $32, $42
closed-circuit transmitters	$42
clutches, magnetic	$77
coating machinery	$99
coatings—all types	$94
coaxial cable	$91
coaxial components	$66
coaxial connectors	$52
coaxial couplers	$66
coaxial relays	$73
coaxial switches	$80
coil testers	$41
coil-winding machinery	$99
coil-winding services	$109
coils—all types	$51
collimators	$40
colorimeters	$40
columbium	$104
combustion controls	$4
command receivers	$1
communications equipment, aircraft & airport	$1
communications equipment, amateur	$3
communications equipment, automatic central data	$8
communications equipment, microwave	$19
communications equipment, mobile & emergency	$20
communications equipment, point to point	$24
communications equipment, receivers	$26
communications equipment, shipborne	$18
communications equipment, single sideband	$29
communications equipment, telemetering	$34
communications equipment, transmitters	$42
communications, telegraph & teleprinter	$33
commutator circuits	$50
commutator switches	$80
commutators, telemetering	$34
comparators, go/no-go	$4
composition capacitors	$48
compounds—all types	$94
compounds, cleaning	$94
computer accessories	$9
computer amplifiers	$43
computer circuits	$50
computer memories	$10
computer simulation	$40
computer subsystems	$10
computers—all types	$8
computers, educational	$13
computing services	$109
condensers	$48, $49
conductive coatings	$94
conelrad equipment	$20
conelrad monitors	$21
conelrad receivers	$26
cones, speaker	$79
connectors—all types	$52
consoles	$90
consoles, television-studio	$32
consulting engineers	$95
contacts	$80
contract fabrication	$96
control equipment, automatic	$4
control equipment, camera	$32
control equipment, geophysical	$16
controls, servo	$77
converters	$53
converters, analog to digital	$9
converters, card to tape	$9
converters, digital to analog	$9
converters, energy	$58
converters, frequency-shift	$33
converters, static	$15 & $53
converters, tape to card	$9
converters, tape to tape	$9
converters, thermionic	$58
coolants	$94
cooling devices	$54
copper	$104
cord-sets	$91
cord & tape lacing	$97
core, solder	$110
core testers	$41
cores—all types	$55
cost-estimating services	$109
cotton materials	$101
counter tubes	$86
countermeasure tubes	$86
counters—all types	$11
counting equipment, automatic	$4
couplers, directional	$66
couplings, flexible & rigid shaft	$97
couplings, microwave	$66
couplings, miscellaneous	$97
couplings, servo	$77
crimping tools	$111
crossbar switches	$80
cryogenic circuits	$50
cryogenic cooling-devices	$54
cryogenic memories	$10
cryostats	$82
crystal filters	$59
crystal furnaces	$98
crystal holders	$56
crystal mixers	$66
crystal mounts (microwave)	$66
crystal ovens	$56
crystal-slicing machinery	$99
crystal sockets	$78
crystal testers	$41
crystals—all types	$56
crystals, ferrimagnetic	$100
crystals, scintillation	$22
current governors	$72
custom fabrication, ceramic	$92
custom fabrication, semiconductor	$102
custom fabricators & builders	$96
cutting heads	$70
cutting machinery	$99
cutting styli	$70
—D—	
DC to AC converters	$53
data-processing scanners	$14
data-recorders, telemetering	$34
data-reduction equipment	$9
data reproduction, electro-optical	$14
data-sheet publishers	$108
data-storage mechanisms, telemetering	$34
data synchronizers	$9
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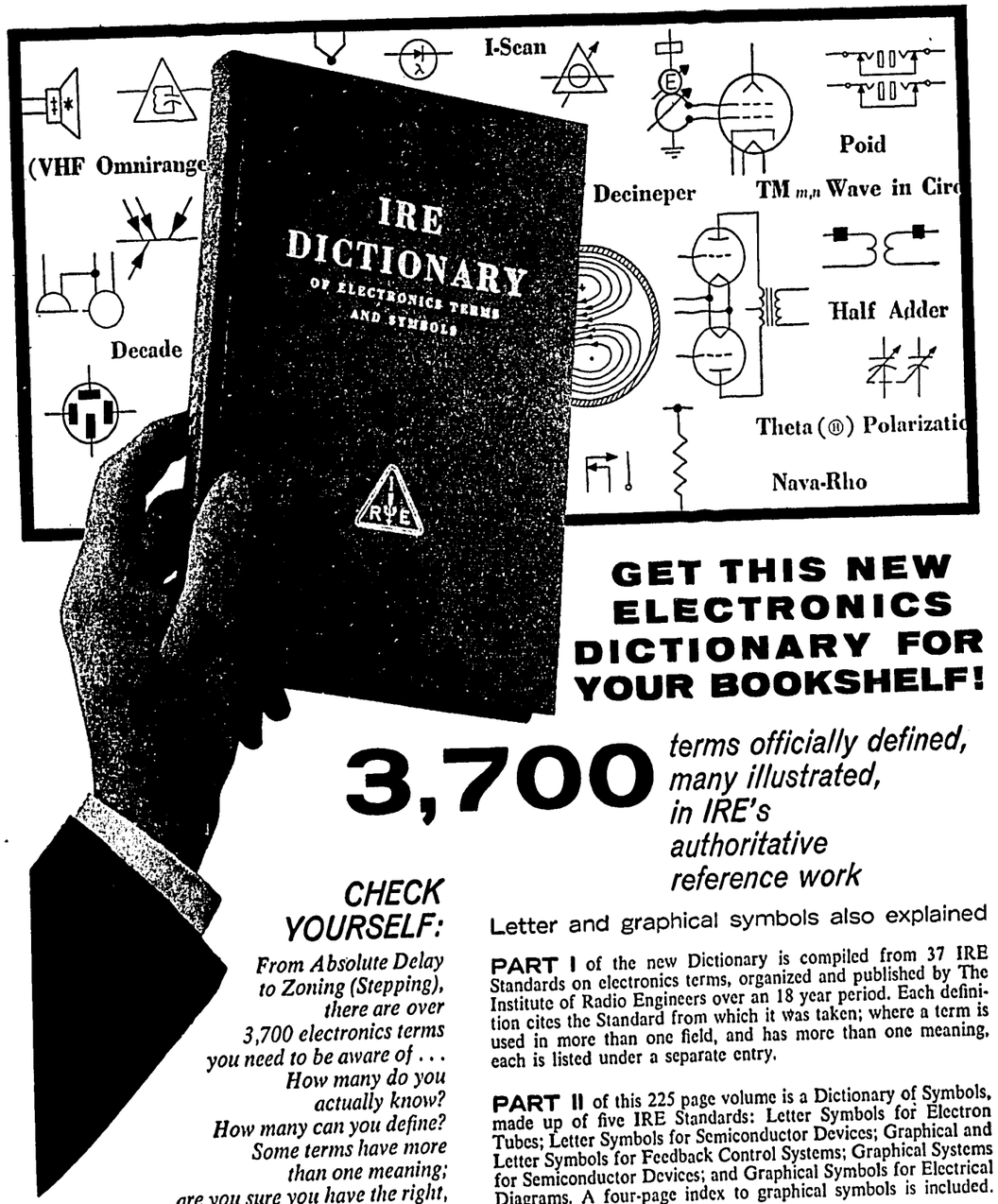

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NOTES

1962
IRE DIRECTORY

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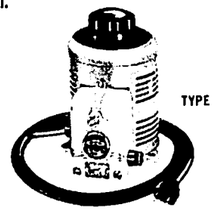

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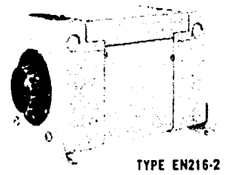

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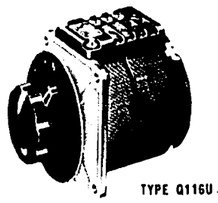

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RATINGS AND SPECIFICATIONS

10B SERIES

INPUT Volts	INPUT Cycles	OUTPUT Volts	Const. Current Load Max. Amps.	Const. Current Load Max. KVA	Const. Impedance Load Max. Amps.	Const. Impedance Load Max. KVA	TYPE	Ship. Wt. Lbs.
Single Phase								
120	60	0-132	1.0	0.132	1.0	132	2PF10	33
120	50/60	0-120	1.75*	0.21	2.5	30	10B	24
120	60	0-132	1.75*	0.23	1.75*	23		
240	50/60	0-240	1.75	0.42	2.5	60	10B2	56
240	60	0-264	1.75	0.46	1.75	46		
Three Phase								
120	50/60	0-120	1.75	0.36	2.5	52	10B2	56
120	60	0-132	1.75	0.40	1.75	40		
240	60	0-240	1.75	0.73	2.5	1.0	10B3	83

21 SERIES

INPUT Volts	INPUT Cycles	OUTPUT Volts	Const. Current Load Max. Amps.	Const. Current Load Max. KVA	Const. Impedance Load Max. Amps.	Const. Impedance Load Max. KVA	TYPE	Ship. Wt. Lbs.
Single Phase								
120	50/60	0-120	3.75	0.45	5.5	0.66	21	6
120	50/60	0-140	3.75	0.53	3.75	0.53		
240	50/60	0-240	3.75	0.90	5.5	1.3	21-2	12
240	50/60	0-280	3.75	1.0	3.75	1.0		
Three Phase								
120	50/60	0-120	3.75	0.78	5.5	1.1	21-2	12
120	50/60	0-140	3.75	0.91	3.75	0.91		
240	50/60	0-240	3.75	1.6	5.5	2.3	21-3	17
240	60	0-280	3.75	1.8	3.75	1.8		

116-216 and 117-217 SERIES†

INPUT Volts	INPUT Cycles	OUTPUT Volts	Const. Current Load Max. Amps.	Const. Current Load Max. KVA	Const. Impedance Load Max. Amps.	Const. Impedance Load Max. KVA	TYPE	Ship. Wt. Lbs.
Single Phase								
120	50/60	0-120	7.5	0.90	10.0	1.2	116	12
120	50/60	0-140	7.5	1.0	7.5	1.0		
120	60	0-120	10.0	1.2	13.0	1.6	117T	12
240	50/60	0-240	3.0	0.72	4.5	1.1	216	12
240	50/60	0-280	3.0	0.84	3.0	.84		
240	60	0-240	4.0	1.0	6.3	1.5	217T	12
240	50/60	0-240	7.5	1.8	10.0	2.4	116T2	24
240	50/60	0-280	7.5	2.1	7.5	2.1		
240	60	0-240	10.0	2.4	13.0	3.1	117T2	24
480	50/60	0-480	3.0	1.4	4.5	2.2	216T2	24
480	50/60	0-560	3.0	1.7	3.0	1.7		
480	60	0-480	4.0	1.9	6.3	3.0	217T2	24

116-216 and 117-217 SERIES† (contd.)

INPUT Volts	INPUT Cycles	OUTPUT Volts	Const. Current Load Max. Amps.	Const. Current Load Max. KVA	Const. Impedance Load Max. Amps.	Const. Impedance Load Max. KVA	TYPE	Ship. Wt. Lbs.
Three Phase								
120	50/60	0-120	7.5	1.6	10.0	2.1	116T2	24
120	50/60	0-140	7.5	1.8	7.5	1.8		
120	60	0-120	10.0	2.1	13.0	2.7	117T2	24
240	50/60	0-240	3.0	1.2	4.5	1.9	216T2	24
240	50/60	0-280	3.0	1.5	3.0	1.5		
240	60	0-240	4.0	1.7	6.3	2.6	217T2	24
240	50/60	0-240	7.5	3.1	10.0	4.2	116T3	36
240	60	0-280	7.5	3.6	7.5	3.6		
240	60	0-240	10.0	4.2	13.0	5.4	117T3	36
480	50/60	0-480	3.0	2.5	4.5	3.7	216T3	36
480	60	0-560	3.0	2.9	3.0	2.9		
480	60	0-480	4.0	3.3	6.3	5.2	217T3	36

EN116-EN216 and EN117-EN217 SERIES

INPUT Volts	INPUT Cycles	OUTPUT Volts	Const. Current Load Max. Amps.	Const. Current Load Max. KVA	Const. Impedance Load Max. Amps.	Const. Impedance Load Max. KVA	TYPE	Ship. Wt. Lbs.
Single Phase								
120	50/60	0-120	6.5	.78	10.0	1.2	EN116	15
120	50/60	0-140	6.5	.91	6.5	.91		
120	60	0-120	8.5	1.0	12.5	1.5	EN117	15
240	50/60	0-240	2.6	.62	4.0	.96	EN216	15
240	50/60	0-280	2.6	.73	2.6	.73		
240	60	0-240	3.5	.84	5.2	1.2	EN217	15
240	50/60	0-240	6.5	1.6	10.0	2.4	EN116-2	28
240	50/60	0-280	6.5	1.8	6.5	1.8		
240	60	0-240	8.5	2.0	12.5	3.0	EN117-2	28
480	50/60	0-480	2.6	1.2	4.0	1.9	EN216-2	28
480	50/60	0-560	2.6	1.5	2.6	1.5		
480	60	0-480	3.5	1.7	5.2	2.5	EN217-2	28
Three Phase								
120	50/60	0-120	6.5	1.4	10.0	2.1	EN116-2	28
120	50/60	0-140	6.5	1.6	6.5	1.6		
120	60	0-120	8.5	1.8	12.5	2.6	EN117-2	28
240	50/60	0-240	2.6	1.1	4.0	1.7	EN216-2	28
240	50/60	0-280	2.6	1.3	2.6	1.3		
240	60	0-240	3.5	1.5	5.2	2.2	EN217-2	28
240	50/60	0-240	6.5	2.7	10.0	4.2	EN116-3	39
240	60	0-280	6.5	3.2	6.5	3.2		
240	60	0-240	8.5	3.5	12.5	5.2	EN117-3	39
480	50/60	0-480	2.6	2.2	4.0	3.3	EN216-3	39
480	60	0-560	2.6	2.5	2.6	2.5		
480	60	0-480	3.5	2.9	5.2	4.3	EN217-3	39

FOOTNOTES { *Rating is 2.0 amperes when mounted on a metal panel.
†Also available with open construction for back-of panel mounting (suffix U when ordering). Prefix O if square frame is desired instead of round frame on open construction (U) types.

THE SUPERIOR ELECTRIC COMPANY

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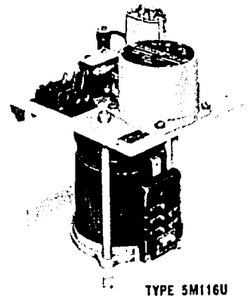
POWERSTAT® *Variable Transformers*



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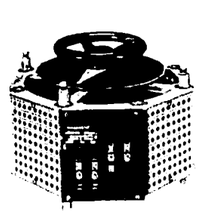

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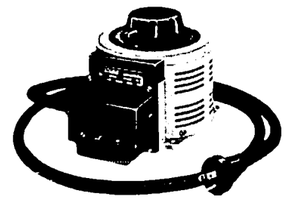

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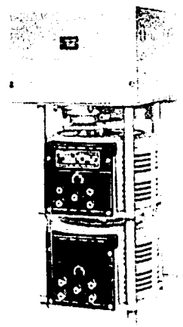

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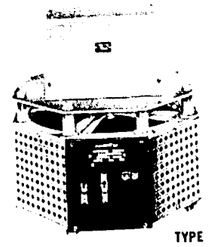
TYPE 136



TYPE 5M1156C

126-226 SERIES**

INPUT Volts	INPUT Cycles	OUTPUT Volts	Const. Current Load Max. Amps.	Const. Current Load Max. KVA	Const. Impedance Load Max. Amps.	Const. Impedance Load Max. KVA	TYPE	Ship. Wt. Lbs.
Single Phase								
120	50/60	0-120	12.5	1.5	18.0	2.2	126	17
120	50/60	0-140	12.5	1.8	12.5	1.8		
240	50/60	0-240	6.0	1.4	9.0	2.2	226	17
240	50/60	0-280	6.0	1.7	6.0	1.7		
240	50/60	0-240	12.5	3.0	18.0	4.3	126-2	32
240	50/60	0-280	12.5	3.5	12.5	3.5		
480	50/60	0-480	6.0	2.9	9.0	4.3	226-2	32
480	50/60	0-560	6.0	3.4	6.0	3.4		
Three Phase								
120	50/60	0-120	12.5	2.6	18.0	3.7	126-2	32
120	50/60	0-140	12.5	3.0	12.5	3.0		
240	50/60	0-240	6.0	2.5	9.0	3.7	226-2	32
240	50/60	0-280	6.0	2.9	6.0	2.9		
240	50/60	0-240	12.5	5.2	18.0	7.5	126-3	49
240	60	0-280	12.5	6.1	12.5	6.1		
480	50/60	0-480	6.0	5.0	9.0	7.5	226-3	49
480	60	0-560	6.0	5.8	6.0	5.8		

136-236 SERIES**

INPUT Volts	INPUT Cycles	OUTPUT Volts	Const. Current Load Max. Amps.	Const. Current Load Max. KVA	Const. Impedance Load Max. Amps.	Const. Impedance Load Max. KVA	TYPE	Ship. Wt. Lbs.
Single Phase								
120	50/60	0-120	20.0	2.4	25.0	3.0	136	25
120	50/60	0-140	20.0	2.8	20.0	2.8		
120	50/60	0-120	40.0	4.8	50.0	6.0	136-2B	52
120	50/60	0-140	40.0	5.6	40.0	5.6		
240	50/60	0-240	9.0	2.2	12.5	3.0	236	25
240	50/60	0-280	9.0	2.5	9.0	2.5		
240	50/60	0-240	20.0	4.8	25.0	6.0	136-2	52
240	50/60	0-280	20.0	5.6	20.0	5.6		
480	50/60	0-480	9.0	4.3	12.5	6.0	236-2	52
480	50/60	0-560	9.0	5.0	9.0	5.0		
Three Phase								
120	50/60	0-120	20.0	4.2	25.0	5.2	136-2	52
120	50/60	0-140	20.0	4.8	20.0	4.8		
240	50/60	0-240	9.0	3.7	12.5	5.2	236-2	52
240	50/60	0-280	9.0	4.4	9.0	4.4		
240	50/60	0-240	20.0	8.3	25.0	10.4	136-3	76
240	60	0-280	20.0	9.7	20.0	9.7		
480	50/60	0-480	9.0	7.5	12.5	10.4	236-3	76
480	60	0-560	9.0	8.7	9.0	8.7		

LW136 SERIES††

INPUT Volts	INPUT Cycles	OUTPUT Volts	Max. Amps.	Max. KVA	TYPE	Ship. Wt. Lbs.
Single Phase						
120/240	50/60	15-0-15	3.5-0	.52	LW136	25
120/240/480	50/60	30-0-30	3.5-0	1.0	LW136-2	52
120/240	50/60	45-0-45	3.5-0	1.6	LW136-3	76
120/240	50/60	0-30	2.5-0	.75	LW136	25
120/240/480	50/60	0-60	2.5-0	1.5	LW136-2	52
120/240	50/60	0-90	2.5-0	2.2	LW136-3	76
Three Phase						
120/240	50/60	0-30	2.5-0	1.3	LW136-2	52
120/240	50/60	0-30	4.3-3	2.2	LW136-3	76
120/240	50/60	0-52	2.5-0	2.2	LW136-3	76
240/480	60	0-35	4.3-3	2.6	LW136-3	76
240/480	60	0-60	2.5-0	2.6	LW136-3	76

1156C—1256C SERIES††

INPUT Volts	INPUT Cycles	OUTPUT Volts	Max. Amps.	Max. KVA	TYPE	Ship. Wt. Lbs.
Single Phase						
120	50/60	0-140	45.0	6.3	1156C	79
120	50/60	0-140	90.0	12.6	1156C-2P	160
120	50/60	0-140	135.0	18.9	1156C-3P	280
120	50/60	0-140	180.0	25.2	1156C-4P	410
120	50/60	0-140	270.0	37.8	1156C-6P	615
240	50/60	0-280	28.0	7.8	1256C	79
240	50/60	0-280	45.0	12.6	1156C-2S	152
240	50/60	0-280	56.0	15.7	1256C-2P	160
240	50/60	0-280	84.0	23.5	1256C-3P	280
240	50/60	0-280	90.0	25.2	1156C-4PS	390
240	50/60	0-280	112.0	31.4	1256C-4P	410
240	50/60	0-280	135.0	37.8	1156C-6PS	595
240	50/60	0-280	168.0	47.0	1256C-6P	600
480	50/60	0-560	28.0	15.7	1256C-2S	152
480	50/60	0-560	56.0	31.4	1256C-4PS	390
480	50/60	0-560	84.0	47.0	1256C-6PS	595
Three Phase						
120	50/60	0-140	45.0	10.9	1156C-2D	152
120	50/60	0-140	90.0	21.8	1156C-4D	390
120	50/60	0-140	135.0	32.7	1156C-6D	595
240	50/60	0-280	28.0	13.6	1256C-2D	152
240	60	0-280	45.0	21.8	1156C-3Y	225
240	50/60	0-280	56.0	27.2	1256C-4D	390
240	50/60	0-280	84.0	40.7	1256C-6D	595
240	60	0-280	90.0	43.6	1156C-6Y	575
480	60	0-560	28.0	27.2	1256C-3Y	225
480	60	0-560	56.0	54.3	1256C-6Y	575

FOOTNOTES { †Requires also one paralleling choke type T5000.
**126-226 and 136-236 Series also available with open construction for back-of panel mounting (suffix U when ordering).
††LW136 Series ratings are for use as low voltage isolated output transformer. Also permits connection for use as limited range transformer or as a line corrector. Full connections and ratings in Catalog P255G.
§§1156C and 1256C Series also available with maximum output voltage equal to line voltage (suffix L when ordering).

For details, circle #3 on Reader Service Card

POWERSTAT® *Variable Transformers*

40-VOLT SERIES

Designed to meet the high current, low voltage requirements of low voltage power supplies and a wide range of transistor circuit applications. For single phase operation.

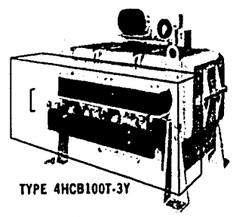
TYPE 10B-40 · TYPE 21-40 · TYPE 116U-40

40-VOLT SERIES

INPUT VOLTS	INPUT CYCLES	OUTPUT VOLTS	OUTPUT MAX. AMPS.	OUTPUT MAX. KVA	TYPE	SHIP. WT. LBS.
Single Phase						
40	60	0-40	6.0	0.24	10B-40	3.3
			15.0	0.6	21-40	6
			25.0	1.0	116U-40	11

H-C SERIES

High current, high efficiency types featuring a new variable transformer design concept with helical coils and patented re-entry rings. Extremely fine voltage division. 3 phase only.



TYPE 4HCB100T-3Y

H-C SERIES

INPUT VOLTS	INPUT CYCLES	OUTPUT VOLTS	OUTPUT MAX. AMPS.	OUTPUT MAX. KVA	TYPE	SHIP. WT. LBS.
240	60	0-270	200	93.5	2HC200T-3Y*	1830
240	50/60	0-240	200	83	2HC200LT-3Y*	
240	60	0-270	360	168	2HCB200T-3Y†	
240	50/60	0-240	360	149	2HCB200LT-3Y†	
480	60	0-540	100	93.5	4HC100T-3Y*	
480	50/60	0-480	100	83	4HC100LT-3Y*	
480	60	0-540	200	187	4HCB100T-3Y†	
480	50/60	0-480	200	166	4HCB100LT-3Y†	

*Convection cooled †Forced-air cooled

LINE CORRECTORS, OIL-COOLED, EXPLOSION-PROOF

Special use types to meet the requirements of a wide range of applications.

LINE CORRECTOR TYPE LC2106C

OIL-COOLED TYPE O-116

EXPLOSION-PROOF TYPE X-116

LINE CORRECTOR SERIES

INPUT VOLTS	INPUT CYCLES	OUTPUT VOLTS	OUTPUT MAX. AMPS.	OUTPUT MAX. KVA	TYPE	SHIP. WT. LBS.
Used as Line Correctors — SINGLE PHASE						
95-135	50/60	115	17.5	2.0	LC2102C	55
95-135	50/60	115	52.0	6.0	LC2106C	80
95-135	50/60	115	130.0	15.0	LC2115C	200
195-255	50/60	230	32.5	7.5	LC2207C	85
205-250	50/60	230	120.0	27.5	LC2728C	205
400-520	50/60	460	15.0	6.6	LC2407C	85
400-520	50/60	460	40.0	17.6	LC2418C	205
Used as Line Correctors — THREE PHASE						
195-255	50/60	230	25.0	10.0	LC3210TC	211
195-255	50/60	230	34.0	15.0	LC3215TC	226
195-255	50/60	230	50.0	20.0	LC3220TC	241
195-255	50/60	230	113.0	45.0	LC3245TC	615
195-255	50/60	230	175.0	70.0	LC3700C	795
400-520	50/60	460	16.0	12.5	LC3412TC	200
400-520	50/60	460	22.0	17.5	LC3417TC	215
400-520	50/60	460	33.0	25.0	LC3425TC	230
400-520	50/60	460	66.0	50.0	LC3450TC	580
400-520	50/60	460	100.0	75.0	LC3475TC	630
420-500	50/60	460	131.0	100.0	LC3410OTC	630

When units of the LC series are used as limited range adjustable transformers, the input voltage is the output voltage shown in the above chart and the output voltage is the input voltage shown in the above chart.

OIL-COOLED

INPUT VOLTS	INPUT CYCLES	OUTPUT VOLTS	OUTPUT MAX. AMPS.	OUTPUT MAX. KVA	TYPE	SHIP. WT. LBS.
120	50/60	0-120	15.0	1.8	O-116	32
120	50/60	0-140	15.0	2.1		
120	50/60	0-140	30.0	4.2	O-1126	100
240	50/60	0-240	6.0	1.4	O-216	32
240	50/60	0-280	6.0	1.7		
240	50/60	0-280	18.0	5.0	O-1226	105

OTHER TYPES AVAILABLE ON SPECIAL ORDER

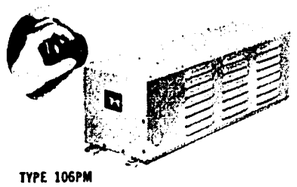
EXPLOSION-PROOF

INPUT VOLTS	INPUT CYCLES	OUTPUT VOLTS	OUTPUT MAX. AMPS.	OUTPUT MAX. KVA	TYPE	SHIP. WT. LBS.
120	50/60	0-120	7.5	0.90	X-116	47
120	50/60	0-140	7.5	1.0		
120	50/60	0-140	12.0	1.7	X-1126	142
240	50/60	0-240	3.0	0.72	X-216	47
240	50/60	0-280	3.0	0.84		
240	50/60	0-280	6.0	1.7	X-1226	142

other variable voltage controls

STATROL Magnetic Amplifiers

Essentially a two-stage magnetic amplifier remotely controlled by a small indicating potentiometer. Completely static device containing no moving parts, relays or tubes.



TYPE 106PM

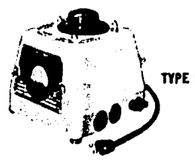
STATROL MAGNETIC AMPLIFIERS

INPUT VOLTS	INPUT CYCLES	OUTPUT VOLTS	OUTPUT MAX. AMPS.	OUTPUT MAX. KVA	TYPE	SHIP. WT. LBS.
Single Phase						
120	60	0*-120	25	3.0	103PM	92
			50	6.0	106PM	142
			83	10.0	110PM	202
			125	15.0	115PM	260

*Nominal zero (12 volts maximum)

VOLTBOX® A-C Power Supplies

Compact, versatile instruments containing all the necessary components necessary for tests involving a-c voltage.



TYPE UC1M

VOLTBOX® A-C POWER SUPPLIES

INPUT VOLTS	INPUT CYCLES	OUTPUT VOLTS	OUTPUT MAX. AMPS.	OUTPUT MAX. KVA	TYPE	SHIP. WT. LBS.
120	50/60	0-140	7.5	1.0	UC1M	17
240	50/60	0-280	3.0	0.84	UC2M	17

OTHER TYPES AVAILABLE ON SPECIAL ORDER

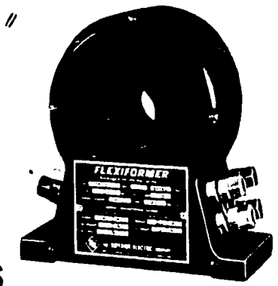
THE SUPERIOR ELECTRIC COMPANY

For details, circle #4 on Reader Service Card

FLEXIFORMER® *Packaged Transformer Primary*

"Do-it-yourself" THE TRANSFORMER

- A SOURCE OF A-C VOLTAGE
- A CURRENT TRANSFORMER
- 150 VA AND 1000 VA TYPES



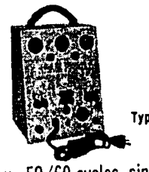
TYPE TP150

A FLEXIFORMER Packaged Transformer Primary is a self-contained toroidal primary coil encased in durable high impact plastic. Colored SUPERIOR 5-WAY Binding Posts for connections are integrally mounted. When used as a source of a-c voltage, the center opening permits hand-threading the correct number of secondary winding turns to obtain the desired output voltage. When used as a current transformer, the FLEXIFORMER winding is shunted by an ammeter which indicates the current flow in a conductor hand-threaded through the center opening. Can be portable or fastened permanently

AS A SOURCE OF A-C VOLTAGE					AS A CURRENT TRANSFORMER					
NOMINAL PRIMARY VOLTS*	CYCLES	MAX. VA	VOLTS PER SECONDARY TURN	REG. AT MAX. OUTPUT	INPUT/ OUTPUT RATIO	MAX. PRIMARY AMPS.†	MAX. SECONDARY AMPS.†	ACCURACY AT 60 CYCLES	TYPE	SHIP. WT. LBS.
120	50/60	150	0.3	25%	400/1	400	1.0	1%	TP150	6
120	50/60	1000	0.75	10%	160/1	800	5.0	1%	TP1000	24

*Maximum 175 volts at 60 cycles, 145 volts at 50 cycles.
†Ratings for continuous duty. Double for intermittent duty but with reduced accuracy.

POWERSTAT® *Decade Line Corrector*



Type DLC1005

INPUT: 120 v., 50/60 cycles, single phase
OUTPUT: 5.0 amperes maximum

OUTPUT RANGE	DIAL #1	DIAL #2	DIAL #3
LINE CORRECTOR*	90%, 110%	99%, 101%	99.9%, 100.1%
VARIABLE LOW VOLTAGE SUPPLY*	10%, 0-10%	1.0%, 0-1.0%	0.1%, 0-0.1%

*Percent of line voltage

Can be used as either a variable low voltage supply or as a line corrector. Essentially consists of three POWERSTAT variable transformers individually connected to three buck-boost fixed-ratio transformers. SUPERIOR 5-WAY binding posts with jumpers are provided and arranged so that outputs can be inserted in the line or removed as desired. The output voltage adjustments can be made in any combination or individually as desired.

EXEL *Loading Reactor*

Type LR2

120 volts, 60 cycles
2.0 amperes at 120 volts
Inductive reactance 60 ohms
D-C resistance 4.0 ohms
Inductance 0.16 henrys

Designed to provide a convenient inductive load which can be made adjustable when used in conjunction with a POWERSTAT variable transformer. Used primarily for testing apparatus at various lagging power factors, i.e., to simulate an inductive load. Essentially consists of a gapped, strip-wound silicon steel toroid core, wire-wound and imbedded in epoxy compound. Entire assembly enclosed in a self-contained, durable, high grade phenolic case having two SUPERIOR 5-WAY binding posts for connections. At 60 cycles, the EXEL has essentially a linear current curve from 0 to nominal 2.0 amperes for continuous duty and up to 3.0 amperes for intermittent duty.

VARICELL® adjustable *A-C/D-C Power Supply*

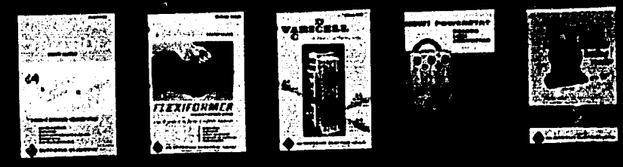
Type V4050-3

A-C INPUT: 240 v., 50/60 cycles, 3-phase (Primary delta connected); 480 v., 50/60 cycles, 3-phase (Primary wye connected)

A-C OUTPUT: 0-25 v., 40 amps., 3-phase (Secondary delta connected); 0-50 v., 25 amps., 3-phase (Secondary wye connected)

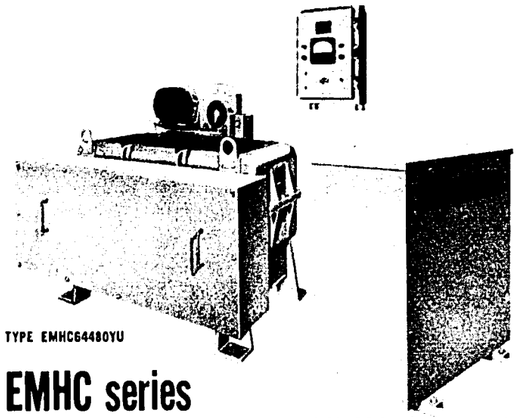
D-C OUTPUT: 0-35 v., 50 amps. (Secondary delta connected); 0-60 v., 30 amps. (Secondary wye connected)

Provides a source of adjustable low a-c or d-c voltage from a-c power lines. Essentially consists of a 3-phase, low voltage POWERSTAT variable transformer combined with a static d-c power supply. Power supply uses highly efficient silicon rectifier cells connected for full-wave 3-phase operation. The a-c and d-c outputs cannot be simultaneously loaded or externally interconnected. The a-c output can be used either single or three-phase.



For details, circle #5 on Reader Service Card

STABILINE® automatic VOLTAGE REGULATORS



TYPE EMHC64480YU

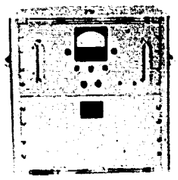
EMHC series

For heavy duty applications up to 480 KVA. Maintain a constant output voltage regardless of line or load changes. Feature zero waveform distortion, efficiency as high as 99%, rapid correction of output voltage variations, wide input range of 380-520 volts, insensitivity to magnitude and power factor of load, no effect on system power factor, full control circuit protection. Patented re-entry rings and helical coils on H-C Series POWERSTAT Variable Transformer component permit extremely fine, stepless voltage adjustment with very low voltage drop.

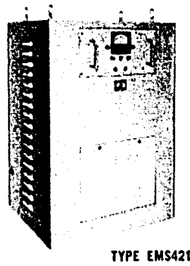
NOMINAL OUTPUT VOLTAGE	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE (adjustable)	MAXIMUM OUTPUT AMPERES	RATED OUTPUT KVA	CORRECTION RATE (sec./volt)	TYPE
For 50/60 Cycle, Three Phase Operation						
460	380-520	440-480	300	240	.28	EMHC64240YU
			600	480	.28	EMHC64480YU

EMT series

Electro Mechanical Transistorized types in ratings from 2 to 100 KVA. Control circuit is completely transistorized. Speed of response sufficiently fast for most applications.



TYPE EMT4115



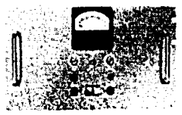
EMS series

Electro Mechanical Transistorized types for single or three phase duty with ratings from 25 to 275 KVA. Several types available with individual line control for greater application flexibility.

TYPE EMS42100

EMK series

Electro Mechanical high speed, high accuracy assemblies in ratings of 2.5/5.0 KVA. Accuracy ±1.0% of nominal output voltage.



TYPE EMK4105R

RATINGS AND SPECIFICATIONS

EMT SERIES

NOMINAL OUTPUT VOLTAGE	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE (adjustable)	MAXIMUM OUTPUT AMPERES	RATED OUTPUT KVA	CORRECTION RATE (sec./volt)	TYPE
For 50/60 Cycle, Single Phase Operation						
115	95-135	110-120	17.5	2.0	.075	EMT41021
	95-135	110-120	52.0	6.0	.075	EMT41068§
	105-125	110-120	104.0	12.0	.15	EMT4112B*§
	95-135	110-120	130.0	15.0	.125	EMT4115
120	108-137	110-120	35.0	4.2	0.1	EMT4104
						EMT4104U
						EMT4104UT
230‡	195-255	220-240	32.5	7.5	.083	EMT4207
	205-250	220-240	120.0	27.5	.111	EMT4228B
240‡	228-256	220-240	35.0	8.4	0.1	EMT4104
						EMT4104U
						EMT4104UT
460	400-520	440-480	15.0	6.6	.041	EMT4407
	400-520	440-480	40.0	17.6	.041	EMT4418
For 50/60 Cycle, Three Phase Operation						
230‡	195-255	220-240	25.0	10.0	.083	EMT6210Y
			38.0	15.0	.083	EMT6215Y
			50.0	20.0	.083	EMT6220Y
			113.0	45.0	.25	EMT6245Y
			175.0	70.0	.25	EMT6270D
460	400-520	440-480	16.0	12.5	.041	EMT6412Y
			22.0	17.5	.041	EMT6417Y
			33.0	25.0	.041	EMT6425Y
			66.0	50.0	.125	EMT6450Y
			100.0	75.0	.125	EMT6475Y
460	420-500	440-480	131.0	100.0	.188	EMT64100Y

EMS SERIES

NOMINAL OUTPUT VOLTAGE	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE (adjustable)	MAXIMUM OUTPUT AMPERES	RATED OUTPUT KVA	CORRECTION RATE (sec./volt)	TYPE
For 60 Cycle, Single Phase, 2 Wire, Single Control Operation						
115	103.5-126.5	110-120	833	100	.65	EMS41100
230**	218.5-241.5	220-240	435	100	.22	EMS42100**
For 50/60 Cycle, Single Phase, 3 Wire, Individual Line Control Operation						
240/120	204-276/102-138	230-250/115-125	104	25	.06/.03	EMS14225
	204-276/102-138	230-250/115-125	250	60	.06/.03	EMS14260
	228-252/114-126	220-240/110-120	417	100	.21/.10	EMS14210D††
For 50/60 Cycle, Three Phase, Single Control Operation						
230**	203-257	220-240	339	135	.28	EMS62135Y**
460	445-495	440-480	230	180	.30	EMS64180Y
			347	275	.30	EMS64275Y
For 50/60 Cycle, Three Phase, Individual Line Control Operation						
208/120	177-239/102-138	191-217/115-125	250	90	.08/.14	EMS6290Y
	165-233/95-135	191-217/115-125	525	190	.22/.37	EMS62190Y††

EMK SERIES

NOMINAL OUTPUT VOLTAGE	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE (adjustable)	MAXIMUM OUTPUT AMPERES	RATED OUTPUT KVA	CORRECTION RATE (sec./volt)	TYPE
For 50/60 Cycle, Single Phase Operation						
115	95-135	110-120	21.5	2.5	.02	EMK41051
	105-125	110-120	43.0	5.0	.04	

See Footnotes on Facing Page

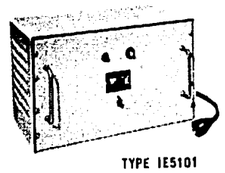
THE SUPERIOR ELECTRIC COMPANY

For details, circle #6 on Reader Service Card

STABILINE® automatic VOLTAGE REGULATORS

IE series

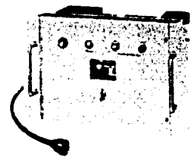
Instantaneous Electronic types have no moving parts. Hold output voltage to within ±0.1% for wide line variations, within ±0.15% for any load current change or power factor change from .5 lagging to unity.



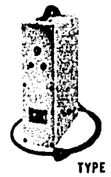
TYPE IE5101

TM series

Tubeless Magnetic types have no tubes, transistors or moving parts. Response time for ordinary line and/or load changes is within ½ second; accuracy is within a 1.0 volt bandwidth. Waveform distortion is 4% or less.



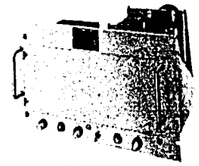
TYPE TM7101R



TYPE IET51002

IET series

Instantaneous Electronic Transistorized types in ratings from 0.25 to 1.0 KVA. Output voltage remains within a 0.5 volt bandwidth for any and all variations in line voltage, load current and load power factor.



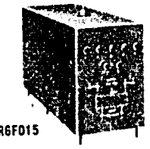
TYPE EM4108MCR

MILITARIZED

1.0 KVA Instantaneous Electronic and 8.0 KVA Electro Mechanical types meet requirements of specification MIL-E-4158B. All fit standard 19" relay rack.

MR series

Provide the constant RMS voltage required to maintain proper tube filament temperature. Response time will not exceed 0.6 second under most adverse line or load changes.



TYPE MR6F015

400 CYCLE

Instantaneous Electronic types in ratings of 1.0 and 5.0 KVA. Maximum waveform distortion is 3.5% under all input line and most load conditions. Other 400 cycle types listed under MR Series and Militarized types.

TYPE IEH5101R

RATINGS AND SPECIFICATIONS

IE SERIES

NOMINAL OUTPUT VOLTAGE	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE (adjustable)	MAX. OUTPUT AMPS	RATED OUTPUT KVA	TYPE
For 60 - 10% Cycle Operation					
115	95-135	110-120	7.2	0.75	IE51207
			4.5	0.5	IE5105
			9.5	1.0	IE5110
			22.0	2.5	IE5125
			43.5	5.0	IE5150
			87.0	10.0	IE51100
230	195-255	220-240	3.1	0.75	IE52075
			7.2	1.5	IE52150
			9.5	2.0	IE52200
			11.0	2.5	IE52250
			22.0	5.0	IE52500
			43.5	10.0	IE52100
For 50 - 10% Cycle Operation					
115	95-135	110-120	4.5	0.5	IE5105*
			8.5	1.0	IE5110*
			43.5	5.0	IE5150*
230	195-255	220-240	7.2	1.5	IE52150*
			9.5	2.0	IE52200*
			11.0	2.5	IE52250*
			22.0	5.0	IE52500*

IET SERIES

NOMINAL OUTPUT VOLTAGE	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE (adjustable)	MAX. OUTPUT AMPS	RATED OUTPUT KVA	TYPE
For 60 - 5% Cycle Operation					
115	95-135	110-120	7.2	0.25	IET51021
			4.5	0.5	IET51051
			8.5	1.0	IET51101

TM SERIES

NOMINAL OUTPUT VOLTAGE	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE (adjustable)	MAX. OUTPUT AMPS	RATED OUTPUT KVA	TYPE
For 60 - 5% Cycle Operation					
115	95-135	110-120	8.5	1.0	TM7101
			43.5	5.0	TM7105

MR SERIES

NOMINAL OUTPUT VOLTAGE	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE (adjustable)	FREQUENCY (cycles)	LOAD RANGE IN AMPERES	RATED OUTPUT	TYPE
6.3	120V RMS ±10%	6.3 V.S.	60 ±10%	0.5-2.5	12V 16	MR6F015
6.3	120V RMS ±10%	6.3 V.S.	400 ±5%	2.5-8.2	50 VA	MR6F025

IEH 400 CYCLE TYPES

NOMINAL OUTPUT VOLTAGE	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE (adjustable)	MAX. OUTPUT AMPS	RATED OUTPUT KVA	TYPE
For 400 - 5% Cycle Operation					
115	95-130	115-125	8.5	1.0	IEH5101R
			43.5	5.0	IEH5105R

MILITARIZED TYPES IE5101MR AND IEH5101MR

NOMINAL OUTPUT VOLTAGE	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE (adjustable)	MAX. OUTPUT AMPS	RATED OUTPUT KVA	TYPE
For 60 - 5% Cycle Single Phase Operation					
120	105-135	115-125	8.3	1.0	IE5101MR
For 400 - 5% Cycle Single Phase Operation					
120	105-135	115-125	8.3	1.0	IEH5101MR

MILITARIZED TYPE EM4108MCR

NOMINAL OUTPUT VOLTAGE	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE (adjustable)	MAXIMUM OUTPUT AMPERES	RATED OUTPUT KVA	CORRECTION RATE (sec./volt)	TYPE
For 45-66 Cycle Single Phase Operation						
120	105-125††	115-125	66.6	8.0	0.1	EM4108MCR

†Also available as rack models (suffix R when ordering)
††For 60 cycle operation only.
*Can also be operated on an input range of 95 to 135 volts with a rating of 52.0 amperes, 6.0 KVA and a correction rate of .075 seconds per volt.
**Can also be operated at nominal 208 volts output with proportional changes in input and output voltage ranges.
‡Units can be converted for 208 volt operation by simple tap changes. Input and output voltage ranges change in proportion.
‡‡At 120 volt input. Shifts proportionally with output voltage setting.
§Also available as rack (suffix R when ordering) or wall mounted (suffix W when ordering) models.

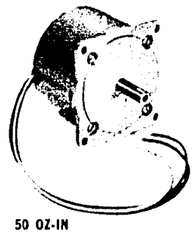
FOOTNOTES (all charts)

For details, circle #7 on Reader Service Card

SLO-SYN® *Synchronous Motors*

- **INSTANT STARTING, STOPPING, REVERSING**
- **72 RPM SHAFT SPEED WITHOUT GEARS**
- **CAN BE USED AS D-C STEPPING MOTORS**
- **START AT FULL RATED TORQUE**

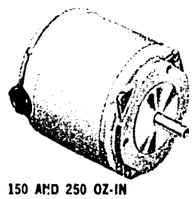
A SLO-SYN Synchronous Motor is a permanent magnet type a-c motor having instant start, stop and reverse characteristics and a basic shaft speed of 72 RPM with 60 cycles applied. Adaptable for use as a d-c stepping motor or incremental positioning device that can be stepped 200 times per revolution of the motor shaft. Compact and economical, has almost negligible overshoot, no ratchets or detents. A single-pole, three-position switch can give complete forward, reverse and "off" control because the motor has three leads only. Starts or stops in less than 0.025 second or approximately 1.5 cycles. No need for mechanical or electrical braking; stops in less than 5° of motor shaft rotation. Starting and operating currents are nearly identical; no excessive inrush current when motor is turned on. All types have lubricated-for-life bearings.



50 OZ-IN

TYPES SS50 AND SS50M

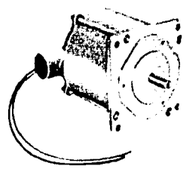
Well-suited for limited space applications, actuating selector switches, tape handling, process timing. Militarized type SS50M meets or exceeds applicable military specifications. Planetary gear types available.



150 AND 250 OZ-IN

TYPES SS150, SS152, SS150M, SS250 AND SS252

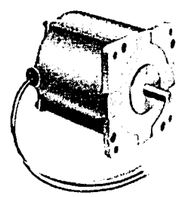
Types SS150 and SS152 can be ordered with resistor and capacitor integrally mounted in an enclosure on the end of the motor (suffix RC when ordering). Militarized type SS150M meets or exceeds applicable military specifications. Planetary gear types available.



250 OZ-IN

TYPE X250

Explosion-proof. Underwriters' Laboratories Approved for Class 1, Group D service. Provides safe operation in areas where a small arc or spark could cause an explosion.



1000 OZ-IN

TYPE X1000

Explosion-proof. Built to conform with Class 1, Group D specifications. Ideally suited for "on-off" a-c servo duty and heavy duty applications.

TORQUE (Oz-In)	VOLTS	MAX. AMPS.	RESISTOR	CAPACITOR	TYPE	APPROXIMATE WEIGHT (Pounds) NET	SHIPPING
50/60 CYCLES, 1 PHASE, 72 RPM @ 60 CYCLES							
50	120	0.3	250 ohms ±5%, 25 W	2.6 mfd ±6%, 330 VAC	SS50 / SS50M	3	3.5
150	120	0.4	250 ohms ±5%, 25 W	3.75 mfd ±6%, 330 VAC	SS150 / SS150M	6.5	8
150	240	0.2	1200 ohms ±5%, 25 W	1.0 mfd ±6%, 660 VAC	SS152	6.5	8
250	120	0.6	150 ohms ±5%, 50 W	6.5 mfd ±6%, 330 VAC	SS250 / X250	6.5 / 7.75	8 / 9
250	240	0.3	750 ohms ±5%, 50 W	1.75 mfd ±6%, 660 VAC	SS252	6.5	8
1000	120	3.0	65 ohms ±5%, 160 W	30.0 mfd ±5%, 330 VAC	X1000 †	22	25

†For 60 cycle operation only.

PLANETARY GEAR TYPES

Standard types having specially-designed planetary gear assemblies are available. The speed reduction assembly is completely enclosed in a dust proof housing mounted on the shaft. end of the motor. The load is evenly distributed over three nylon gears thereby reducing the possibility of tooth damage. The self-lubricated nylon gears provide quiet operation and long life. The planetary gear shaft is ball bearing mounted. When ordering, the basic type number must be suffixed with the desired planetary gear assembly number. For example, type SS50-P1.

PLANETARY ASSEMBLY SUFFIX	GEAR RATIO	APPROX. SPEED* (RPM)	OUTPUT TORQUE: BASIC TYPES SS50 SS50M	BASIC TYPES SS150 SS150M SS152	BASIC TYPES SS250 SS252	BASIC TYPE X250
P1	4-1/3	16.6	120 oz-in	400 oz-in	650 oz-in	650 oz-in
P2	21-2/3	3.32	600 oz-in	2000 oz-in	—	2000 oz-in
P3	108-1/3	0.665	2000 oz-in	2000 oz-in	—	2000 oz-in
P4	541-2/3	0.133	2000 oz-in	2000 oz-in	—	2000 oz-in
P5	2708-1/3	0.027	2000 oz-in	2000 oz-in	—	2000 oz-in

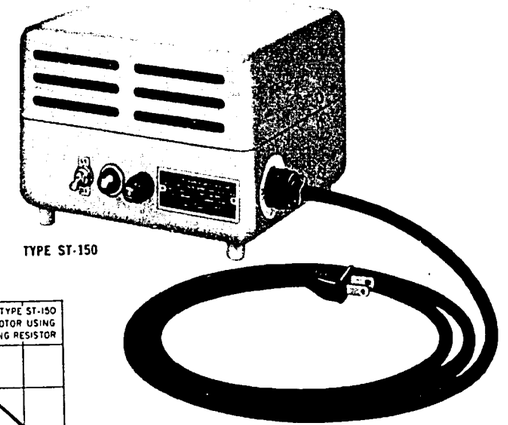
*Exact speed may be calculated from basic motor speed (72 RPM) and given ratio.

THE SUPERIOR ELECTRIC COMPANY

For details, circle #8 on Reader Service Card

SLO-SYN® *Translator*

SLO-SYN Translator type ST-150 is a pulse-to-step converter designed for use with bifilar SLO-SYN Synchronous Motor types SS50-1009 and SS150-1010. It converts low-level signal pulses or square waves into the correct switching sequence needed to drive the SLO-SYN motor at 200 discrete steps per revolution. Internal power supply allows alternate operation from an external shorting switch if desired. Power input is 120 volts a-c, 0.5 ampere. SLO-SYN Translators are used in programmed positioning, remote positioning, indexing and indicating applications.



TYPE ST-150

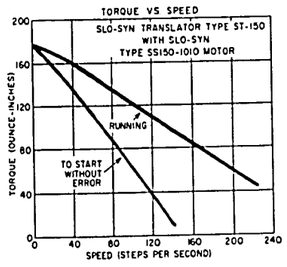


FIGURE 1

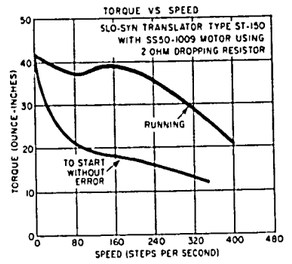
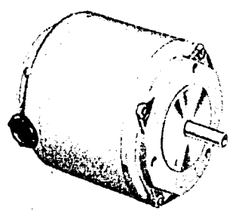


FIGURE 2

Figure 1 shows the torque vs. speed characteristics of a SLO-SYN Synchronous Motor type SS150-1010 operating with a SLO-SYN translator type ST-150. Figure 2 shows the characteristics when used with a type SS50-1009 motor (a 2 ohm ±5%, 25 watt minimum dropping resistor is required).

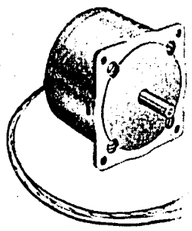
BIFILAR SLO-SYN SYNCHRONOUS MOTORS-RATINGS FOR STEPPING APPLICATIONS

TYPE	D C VOLTS	AMPERES PER WINDING	APPROXIMATE WEIGHT (Pounds) NET	SHIPPING
SS50-1010	2	1.1		
SS50-1009	5.5	1.1		
SS50-1008	8	.65		
SS50-1011	11	.53		
SS50-1012	16	.33		
SS150-1010	2	0.5		
SS150-1009	7.5	1.1		
SS150-1011	11	1.25		
SS150-1012	16	.75		
SS250-1008	8	1.25		
SS250-1011	11	1.25		
SS250-1012	16	.75		



SS150 AND SS250 TYPES

Bifilar and Four-Lead



SS50 TYPES*

BIFILAR SLO-SYN Synchronous Motors are used for d-c stepping applications where the use of push-pull circuitry and a center-tapped power supply is not possible or where increased torque at high stepping speeds is required.

*Bifilar types have five leads.

SLO-SYN® *Synchronous Motors*

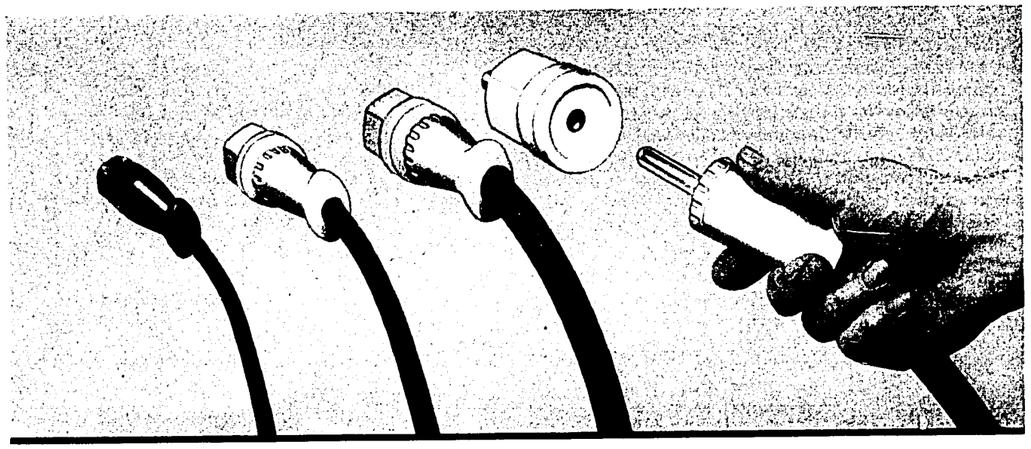
FOUR-LEAD SLO-SYN SYNCHRONOUS MOTORS-RATINGS FOR STEPPING APPLICATIONS

TYPE	D C VOLTS	AMPERES PER WINDING	APPROXIMATE WEIGHT (Pounds) NET	SHIPPING
SS50-1012	2.5	1.1		
SS50-1011	11.5	0.75		
SS50-1002	20.5	0.5		
SS50-1014	50.5	0.25		
SS150-1007	2.5	1.1		
SS150-1018	7.5	1.25		
SS150-1715	17.5	0.5		
SS150-1025	35.0	0.35		
SS250-1010	3.0	5.3		
SS250-1009	8.0	2.0		
SS250-1008	16.0	1.0		
SS250-1007	32.0	0.50		

FOUR-LEAD SLO-SYN Synchronous Motors are designed to provide the flexibility needed for use with equipment requiring isolated windings with no common connection.

For details, circle #9 on Reader Service Card

SUPERCON® *Electrical Connectors*



Current carrying parts gold-plated • Simplified, quick assembly

Socket and pin types of single conductor plugs and receptacles are offered. Plugs have a functionally designed grip for handling ease and convenience. Wiring connection to the same plug can be either soldered or solderless. Two cable-fastening screws are provided which permit a range of cable sizes to be accommodated by the plug. All socket plug grips and 25 and 250 ampere pin plug grips are of a simple, two-piece threaded construction for quick assembly. The 50 and 100 ampere pin plugs are assembled by a single nut after cable connection. All plastic parts of a receptacle are molded of the same color nylon to permit more rapid and accurate circuit identification on both the front and back of the panel when installed. Six colors are available.

	PIN PLUGS				SOCKET PLUGS			
COLOR	25 AMPERE TYPES	50 AMPERE TYPES	100 AMPERE TYPES	250 AMPERE TYPES	25 AMPERE TYPES	50 AMPERE TYPES	100 AMPERE TYPES	250 AMPERE TYPES
BLACK	PP25GB	PP50GB	PP100GB	PP250GB	PS25GB	PS50GB	PS100GB	PS250GB
YELLOW	PP25GY	PP50GY	PP100GY	PP250GY	PS25GY	PS50GY	PS100GY	PS250GY
RED	PP25GR	PP50GR	PP100GR	PP250GR	PS25GR	PS50GR	PS100GR	PS250GR
BLUE	PP25GBL	PP50GBL	PP100GBL	PP250GBL	PS25GBL	PS50GBL	PS100GBL	PS250GBL
GREEN	PP25GGN	PP50GGN	PP100GGN	PP250GGN	PS25GGN	PS50GGN	PS100GGN	PS250GGN
WHITE	PP25GWT	PP50GWT	PP100GWT	PP250GWT	PS25GWT	PS50GWT	PS100GWT	PS250GWT
PANEL HOLE:	3/16 MAX. 11/16	1/4 MAX. 1	1/4 MAX. 1 3/16	1/4 MAX 1 9/16	3/16 MAX. 11/16	1/4 MAX. 1	1/4 MAX 1 3/16	1/4 MAX 1 9/16
BLACK	RS25GB	RS50GB	RS100GB	RS250GB	RP25GB	RP50GB	RP100GB	RP250GB
YELLOW	RS25GY	RS50GY	RS100GY	RS250GY	RP25GY	RP50GY	RP100GY	RP250GY
RED	RS25GR	RS50GR	RS100GR	RS250GR	RP25GR	RP50GR	RP100GR	RP250GR
BLUE	RS25GBL	RS50GBL	RS100GBL	RS250GBL	RP25GBL	RP50GBL	RP100GBL	RP250GBL
GREEN	RS25GGN	RS50GGN	RS100GGN	RS250GGN	RP25GGN	RP50GGN	RP100GGN	RP250GGN
WHITE	RS25GWT	RS50GWT	RS100GWT	RS250GWT	RP25GWT	RP50GWT	RP100GWT	RP250GWT

SOCKET RECEPTACLES — PIN RECEPTACLES

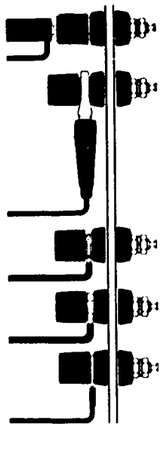
THE SUPERIOR ELECTRIC COMPANY

For details, circle #10 on Reader Service Card

SUPERIOR 5-WAY® *Binding Posts*

● 5 WAYS TO CONNECT ● GOLD-PLATED BRASS PARTS ● RANGE OF COLORS

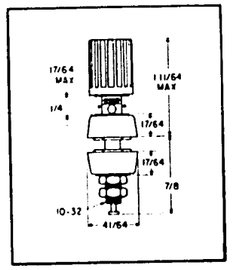
Fluted Nut With LEXAN* Polycarbonate Resin



These are the *original* SUPERIOR 5-WAY Binding Posts in a new functionally styled design. They combine the long life, stable electrical contact, corrosion resistant, fast soldering characteristics of gold-plated brass with those of Lexan polycarbonate resin: low loss and power factor, high voltage insulation, superior heat resistance, non-sink dimensional stability, non-corrosiveness. The selection of six attractive colors and five ways to connect – plus the solder tip – provides wider use flexibility. Rated for a current capacity of 30 amperes and a working voltage of 1000 volts. Can be mounted in a single keyed or nonkeyed ½" hole in panels from 1/16" to ¼" thick. Fluted types with nickel-plated brass parts are available on special order.

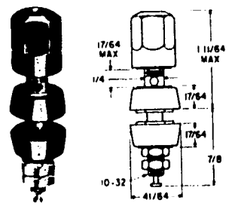
*Lexan is the General Electric Company trademark for its polycarbonate resin.

TYPE DF31BC



COLOR	FLUTED NUT TYPE
RED	DF31RC
BLUE	DF31BLC
GREEN	DF31GNC
WHITE	DF31WTC
BLACK	DF31BC
YELLOW	DF31YC

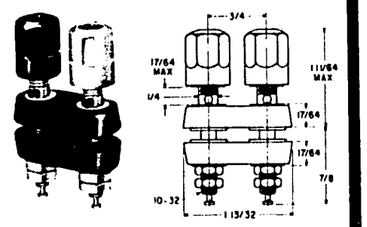
HEX NUT



TYPE DF30BC

COLOR	RED	BLUE	GREEN	WHITE	BLACK	YELLOW
HEX TYPE	DF30RC	DF30BLC	DF30GNC	DF30WTC	DF30BC	DF30YC

DOUBLE ASSEMBLY

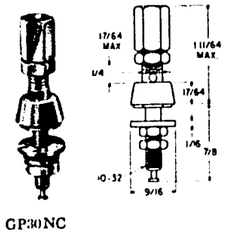


TYPE DF30-2-BWTC

COLOR OF NUTS	WHITE & BLACK	BLACK & BLACK	RED & BLACK
DOUBLE ASSEMBLY TYPE	DF30 2 BWTC	DF30 2 BBC	DF30 2 BRC

INSULATORS AVAILABLE IN BLACK ONLY

ALL METAL GROUNDING



TYPE GP30NC

Finely machined brass, nickel-plated and polished. Panel grounding collar has "D" type shoulder for locking in keyed panel hole if desired. Design complements other hex shaped SUPERIOR 5-WAY Binding Posts.

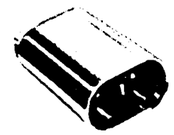
DUB-L-PLUG *Dual Electrical Connectors*

DUB-L-PLUG Dual Electrical Connectors are designed for making safe, rapid connections to binding posts mounted on ¾" centers. All conducting metal parts are gold-plated. Completely recessed integral banana plugs prevent accidental shorting; captive black and white thumbnuts facilitate circuit and polarity identification.

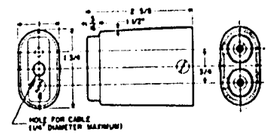
NYLON BODY COLOR	INSULATED TYPE	SHIELDED/ INSULATED TYPE
BLACK	IPG2BC	SPGK2BC
RED	IPG2RC	—
WHITE	IPG2WTC	—
BLUE	IPG2BLC	—
YELLOW	IPG2YC	—
GREEN	IPG2GNC	—

SHIELDED/INSULATED

Has sturdy, die-cast chrome-plated case, removable grounding banana plug, black nylon body.



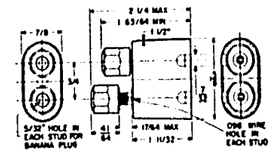
TYPE SPGK2BC



INSULATED TYPES

Have wire slots to permit stacking if desired. Available with bodies in choice of six colors.

TYPE IPG2BC



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PRODUCES TOTAL RELIABILITY

Infinitesimal Mechanical Variation due to *Exclusive* Automation Processes

plus *Exclusive* Glass Alkyd Molded Permanence

plus *Exclusive* Full Silver Coverage on Contact Surface

equals **NEW CTS NON-DRIFT COMPACT SELECTOR SWITCHES**

Formerly manufactured by Trolex Corporation, now a part of CTS. 1⅛" diameter 12-position indexed rotary switches are designed primarily for low power exacting military and commercial RF, VHF and UHF circuit applications. Series 212 surpasses MIL standards.

CTS®

UNPRECEDENTED SWITCH UNIFORMITY FROM ENTIRELY NEW AUTOMATED MANUFACTURING CONCEPT

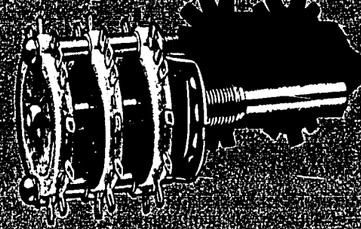
- Drift virtually eliminated by molding terminals into exact, immovable, permanent position in stator, entirely by machine . . . making all switches identical in each production run. Machine exactitude replaces human error and variations, eliminating the wider tolerances characteristic of hand assembly.
- Delicate switch parts are not exposed to breakage; many parts are not even handled.
- Superior insulation due to repetitive exactness in terminal spacing and molded glass alkyd material.
- Heat from soldering cannot loosen terminals.
- Natural design barrier prevents solder from flowing into circuit elements during soldering.

[illegible]

Molded glass alkyd stator won't break or crush during ordinary handling or if accidentally dropped. Terminals cannot be dislodged or moved. Both stationary and movable contacts are enclosed for additional safety and handling convenience.

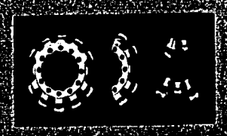
LONGER LIFE CONTACTS

- After 1,200,000 index operations, life tests reveal virtually no change in rotor contact resistance.
- 1000% *more* silver than used by most commercial switches has been *evenly* applied at actual point of contact by exclusive process. (See Sketch). Optional solid sterling silver contacts and stator available for additional contact performance.
- Rotor contacts are double-wiping and self-cleaning.
- Stator contacts are integral with terminals.



NOW! NEWLY TOOLED CLUSTER AND 3-FINGER CONTACTS

Offered for numerous additional circuits not previously available. The tremendous range of options makes most configurations without special tooling.

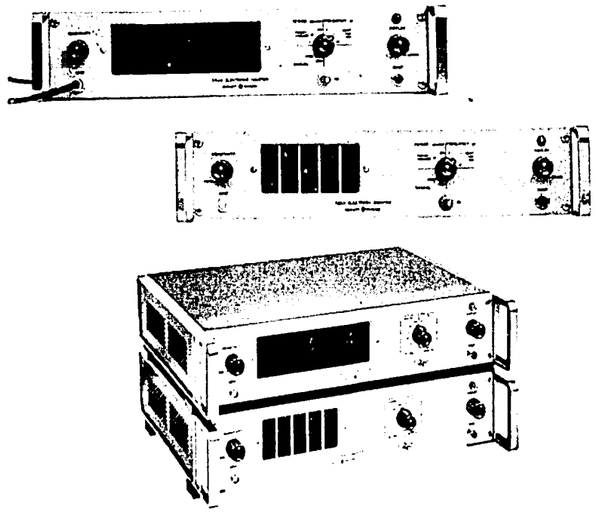


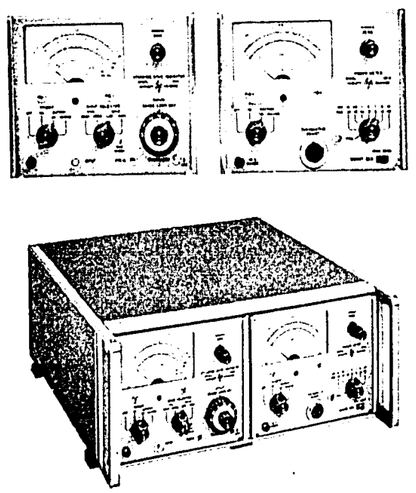
OTHER FEATURES

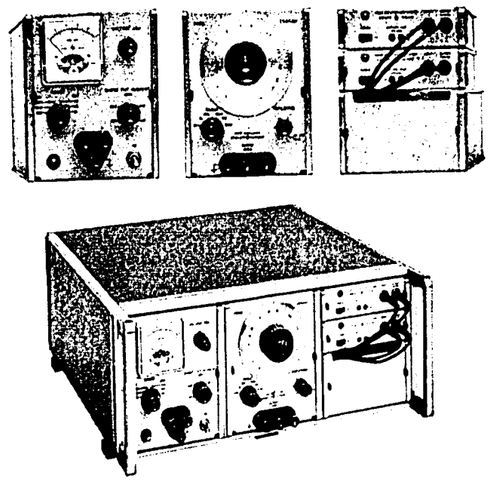
- Series 212 is available in numerous combinations with CTS variable resistors and power snap switches.
- Condensed assembly. Wafers can be stacked adjacent to each other. No spacers required.
- Non-toxic combustion fumes—an important advantage in submarine or similar closed space applications.
- Exclusive balanced detent mechanism has 2 dissimilar detent forms for definite feel and long pull in.
- New balanced lever arm and star wheel detent assembly free from end and side thrust for extremely long life and accurately controlled torque. Optional at extra cost.

Founded CTS® 1896

CTS Corporation [illegible]







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1961 SHORT FORM CATALOG

HEWLETT-PACKARD COMPANY
PALO ALTO, CALIFORNIA

New– and only from hp

Space - saving, ultra - convenient Universal Modular Instruments

Stack 'em up on your bench, rack 'em in a system, use singly, or rack mount with new pressure-actuated tilt slides.

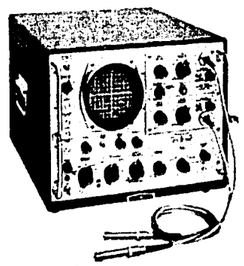
Depending on the instruments' basic configuration, you can mount them in modules of one, two or three per rack width, or stack and nest them neatly on your bench.

Now the ultimate in physical convenience and versatility is mated with traditional hp accuracy, dependability and long service life.

Many new hp instruments in this catalog are offered in this remarkable packaging. Other instruments now in development will also use it.

Here's a real saving of bench or rack space, plus the pleasure of light weight and easy access.

Complete coverage — easy-to-use, versatile "BIG SCREEN" oscilloscopes, DC to 1,000 MC



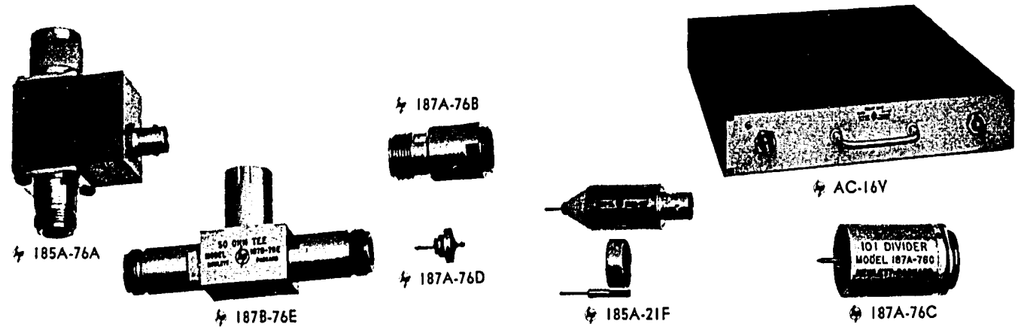
hp 185B with 187B

DC to 1,000 MC

- Measuring ease for nanosecond region
- Bright, clear 5" scope trace, even at low repetition rates
- Less than 0.4 nanosecond rise time

Here's fatigue-free viewing of repetitive short pulses requiring a bandwidth up to 1,000 MC. With the hp 185B Sampling Oscilloscope, the 3 db point is beyond 800 MC, rise time less than 0.4 nsec. hp 187B Dual Trace Amplifier permits comparison of two high-speed phenomena simultaneously for highly accurate time measurements. Vertical sensitivity 10 mv/cm to 200 mv/cm, vernier to 3 mv/cm. Dynamic range, 3 mv to 2 v peak. 100,000 ohm probes minimize circuit loading. Horizontal sweep 0.1 nsec/cm (with expander) to 10 μsec/cm. Delayed sync pulse available on front panel for triggering circuits under test. X-Y recorder output, time and amplitude calibrators, beam finder. hp 185B, $2,300.00; hp 187B, $1,000.00.

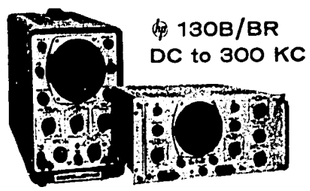
hp 185B Oscilloscope Accessories for Maximum Flexibility



Overall versatility of the 185B Oscilloscope and 187B Dual Trace Amplifier is increased with a wide variety of accessories. In addition to the 185A-21A Sync Probe furnished with the scope, 4 divider probes are available: 185A-21C, D, E and F have division ratios (when terminated by 50 ohms) of 5, 10, 50 and 100 to 1 respectively, $40.00 each. Two hp 187A-76A BNC adapters are furnished with the 187B, permit connection to BNC fittings, $8.00 each additional adapter. hp 187A-76B Type N connector is a straight-through connection, $10.00. hp 187A-76C 10:1 Divider, permits viewing of signals as large as 20 v peak-to-peak, $40.00. hp 187A-76D Blocking Capacitor permits observation of signals ± 600 v from ground, $3.50. hp 187B-76E 50-ohm T connector permits scope probe to monitor signal on a 50-ohm transmission line, may be used to terminate the line in its characteristic impedance while observing the signal with the scope, $35.00. hp AC-16V Delay Line, $200.00, bandpass 1 GC, delay 120 ns, and hp 185A-76A Sync Take-off, $50.00, permits 185B scope to be synchronized from signal to be viewed. hp 908A 50-ohm Coaxial Termination, SWR 1.05 or less, dc to 4,000 MC. $35.00.

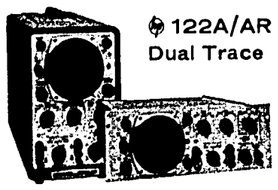
Or Meet Your Requirements With These Other

hp 130B/BR DC to 300 KC



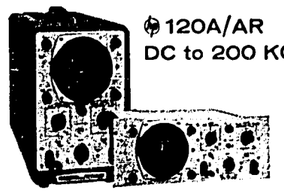
hp 130B/BR combine big scope performance with 1 mv sensitivity and the convenience of "universal" automatic trigger. Models 130B/BR have similar horizontal and vertical amplifiers with sensitivity 1 mv/cm to 125 v/cm. Input circuits balanced on 6 most sensitive ranges; sweeps 1 μsec/cm to 12.5 sec/cm, triggers from signal, line or external voltage. Includes x5 magnifier for all internal sweeps increasing fastest sweep time to 0.2 μsec/cm. hp 130B (cabinet) or 130BR (rack) $650.00.

hp 122A/AR Dual Trace



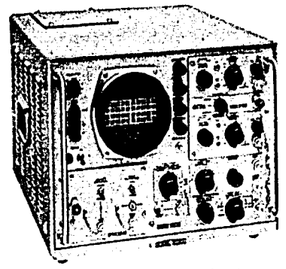
Model 122A/AR is a dual trace, 200 KC oscilloscope providing two separate traces for simultaneous study; single trace when desired. Twin vertical amplifiers, alternate and chopped presentation, differential input, automatic syncing and x5 sweep expansion. 15 calibrated sweeps; vernier extends slow sweep to 0.5 sec/cm, expander extends fast sweep to 1 μsec/cm. Sensitivity 10 mv/cm to 100 v/cm. Horizontal amplifier sensitivity 0.1 v/cm to 100 v/cm. hp 122A (cabinet) or 122AR (rack mount), $675.00.

hp 120A/AR DC to 200 KC



Ideal for industrial or production line work as well as daily lab jobs, Model 120A/AR has the hp universal trigger circuit, 15 calibrated sweeps in 1-2-5 sequence, sweep speeds 5 μsec/cm to 0.5 sec/cm, "times-5" sweep expansion on all ranges, high sensitivity calibrated vertical amplifier. Compact Model 120AR is only 7" high. Utmost dependability, rugged construction. hp 120A (cabinet) or 120AR (rack). $450.00.

For details, circle #14 on Reader Service Card



hp 170A with 162A, 166A plug-ins

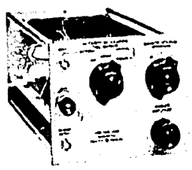
DC to 15 MC; DC to 30 MC

- Militarized for rugged dependability
- Dual plug-in versatility
- Conventional controls for ease of operation

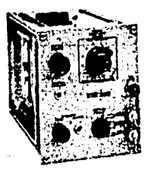
hp 160B, dc to 15 MC, and hp 170A, dc to 30 MC, are militarized oscilloscopes offering rugged dependability under a wide range of environmental conditions. Dual plug-in system increases their versatility, yet saves you from buying instrumentation you do not need. Conventional controls insure ease of operation. Premium components, careful design and construction guided by exacting MIL specifications assure long life. 24 calibrated sweep times, 0.1 μsec/cm to 5 sec/cm, ± 3% accuracy. 7 step magnifier increases fastest sweep to 0.02 μsec/cm. Internal, line voltage or external trigger, horizontal sensitivity 0.1 v/cm to 10 v/cm; vernier to 25 v/cm. hp 160B, $1,850.00 (cabinet or rack mount); hp 170A, $2,150.00 (cabinet or rack mount). Vertical plug-in required.

Multi-Purpose Plug-in Versatility for Your 160B/170A Scopes

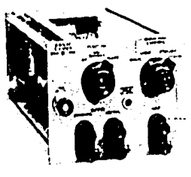
hp 162A Dual Trace Amplifier permits viewing two phenomena simultaneously. Sensitivity to 20 mv/cm. Offers differential input for common mode rejection. $350.00.



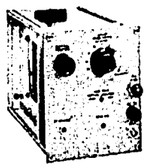
hp 166B Time Mark Generator permits easy time measurements by providing intensity modulated time markers on 160B/170A scope trace. Range, 10 μsec, 1 μsec, and 0.1 μsec intervals, accuracy ± 0.5%. $130.00.



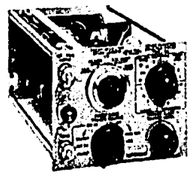
hp 162D High Gain Amplifier provides 5 mv/cm sensitivity with differential input for high common mode rejection. $225.00.



hp 166C Display Scanner provides output to duplicate on X-Y recorder any repetitive wave appearing on 160B/170A CRT trace. Resolution with permanent records higher than CRT or a photograph. $300.00.

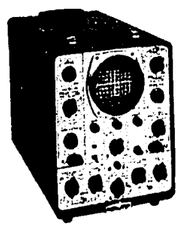


hp 162F Fast Rise Preamplifier offers 12 nsec rise time and dc to 30 MC bandpass (3 db points) with 170A, 23 nsec rise time and dc to 15 MC bandpass with 160B. Sensitivity, 50 mv/cm. $145.00.



hp 166D Sweep Delay Generator allows you to make detailed examinations of complex signals or pulse trains. Permits viewing expanded waveform segment while still retaining presentation of earlier portions of the waveform. Delay time 1 μsec to 10 sec; delaying sweep, 2 μsec/cm to 1 sec/cm in 1, 2, 5 and 10 sequence, 18 calibrated ranges. Delayed length, 0 to 10 cm. $325.00.

Bench-Proven hp Oscilloscopes, Accessories



hp 150A DC to 10 MC

The hp 150A Oscilloscope offers sweep rate 0.02 μsec/cm to 15 sec/cm, 24 sweeps 0.1 μsec/cm to 5 sec/cm, 3% accuracy. Sweep magnifier, vernier, internal, line voltage or external triggering, $1,300.00. Plug-in accessories, which vastly increase the versatility of this scope include; hp 151B High Gain Amplifier, 5 mv/cm, dc to 10 mc, $200.00; hp 152B Dual Trace Amplifier, dc to 10 mc, $250.00; hp 153A High Gain Differential Amplifier, 1 mv/cm, $150.00; hp 154A Voltage/Current Amplifier, 5 mv/cm, 1 ma/cm, $430.00. Plug-in required.

hp 196A Oscilloscope Camera

This, the most convenient recording camera available, views full 10 cm graticule width, provides object-to-image size ratio 1 to 0.9 (1:1 optional). One-hand mounting, multiple picture setting, *f*-stop and shutter easily accessible while camera is mounted. Permits viewing image with both eyes while photographing. Uses Polaroid® Land Camera back. Wollensak 3" f/-1.9 lens. 7 shutter speeds 1/100 to 1 sec. 9 lbs. $440.00.

hp AC-115B Oscilloscope Testmobile for hp scopes. 4" rubber tired wheels, heavy chrome tube construction, tilts scope to 30° in 7½° increments, folds for storage, shipping. $85.00.

hp AC-21 series probes available for use with hp scopes include AC-21A, 10:1 division, $30.00; AC-21C, 50:1 division, $30.00; hp AC-21F Current Probe, 1 mv/ma, $100.00; hp AC-21J Low Frequency Probe, $9.00.

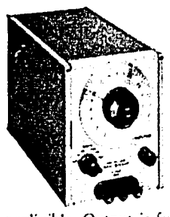
For details, circle #15 on Reader Service Card

Oscillators – 0.008 to 10,000,000 cps

Hewlett-Packard now offers 13 high quality, fast and accurate oscillators, each an exceptional value and each engineered to do a specific job best. Each incorporates the famous resistance-capacity circuit pioneered by hp. This circuit makes possible instruments that are highly stable, wide range, compact and portable; instruments that are extremely simple to operate and require no tedious re-setting or adjustment during operation.

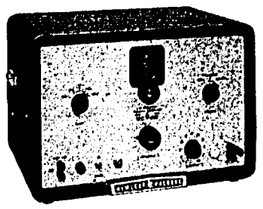
Instrument	Primary Uses	Frequency Range	Output	Price
-hp- 200AB	Audio tests	20 cps to 40 KC	1 watt/24.5 v	$165.00
-hp- 200CD	Subsonic through ultrasonic audio and ultrasonic tests	5 cps to 600 KC	160 mw or 10 v/600 ohms; 20 v open circuit	195.00
-hp- 200J	Interpolation, frequency measurements	6 cps to 6 KC	160 mw/10 v	350.00
-hp- 200SR	Driving -hp- 739AR Frequency Response Test Set	5 cps to 600 KC	3 v rms into 50 ohms	230.00
-hp- 200T	Telemetry, carrier current tests	250 cps to 100 KC	160 mw or 10 v/600 ohms; 20 v open circuit	500.00
-hp- 201C	High quality audio tests	20 cps to 20 KC	3 w or 42.5 v/600 ohms	250.00
-hp- 202A	Low frequency tests	0.008 to 1200 cps	28 mw or 30 v p-p/4000 ohms	550.00△
-hp- 202C	Servo equipment tests, measurements	1 cps to 100 KC	160 mw or 10 v/600 ohms	300.00
-hp- 204B	Reliable audio work in lab or field, battery powered	5 cps to 500 KC	10 mw (2.5 v rms) into 600 ohms; 5 v rms open circuit	275.00
-hp- 205AG	High power audio tests, gain measurements	20 cps to 20 KC	5 watts	600.00△
-hp- 206A	High quality, high accuracy audio tests	20 cps to 20 KC	+ 15 dbm	800.00△
-hp- 233A	Carrier oscillator—current tests	50 cps to 500 KC	3 w/600 ohms	650.00
-hp- 650A	Wide range video tests	10 cps to 10 MC	15 mw/3 v	550.00△

△ Rack mounted instruments $15.00 less.



NEW! hp 204B Portable Oscillator

Use it on the bench—carry it *anywhere!* This new portable oscillator is fully transistorized, battery or optional AC operation. Internal heat is small; warmup drift is negligible. Output is fully floating, isolated from both power line ground and chassis. Balanced and unbalanced loads, and loads referenced either above or below ground, can be driven by this versatile oscillator. Low impedance circuits drive the 600 ohm output, effectively isolating the oscillator stage; 204B maintains excellent frequency stability even with rapidly changing loads. Output is flat within ± 3% at all settings of dial and range switch. Designed in the new hp instrument module packaging. AC operation optional at extra cost. hp 204B, with batteries, $275.00.

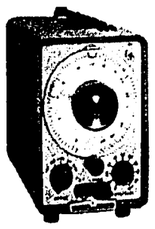


hp 202A Function Generator

Multi-purpose source of transient-free test voltages from 0.008 cps to 1,200 cps. Continuously variable through 5 bands; offers exceptional stability (within 1%) and distortion less than 1% to 100 cps. Sine, square or triangular waves may be selected by a front panel switch; the 30 volt peak-to-peak output is constant for all wave forms and over full frequency range. hp 202A, $550.00△.

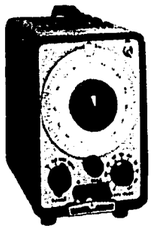
hp 650A Test Oscillator

Covering 10 cps to 10 MC, hp 650A is a highly stable, wide band instrument for audio, supersonic, video and rf measurements. Output is flat within 1 db full range; voltage range is 0.00003 to 3 v. In addition to 600 ohm impedance, voltage divider provides a 6 ohm impedance. Distortion less than 1% to 100 KC. $550.00△.



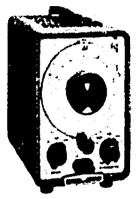
hp 200CD Audio Oscillator

This wide range oscillator, 5 cps to 600 KC, spans the range from sub-sonic to radio frequencies, covered in five overlapping decade bands. Accurate frequency setting on the large easy-to-read dial is provided by 85 dial divisions. Distortion rating is less than 0.5% below 500 KC. Output waveform purity is independent of load. hp 200 CD, $195.00.



hp 200AB Audio Oscillator

Useful for audio tests, the versatile hp 200AB Oscillator covers its range, 20 cps to 40 KC, in four overlapping bands. Like the hp 200CD it has highest stability and accurate tuning circuits. Low impedance operating levels plus superior insulation guarantee long years of trouble-free dependability. Operation is simple; just three controls; no zero setting necessary. hp 200AB, $165.00.



hp 201C Audio Oscillator

This high power oscillator offers an output of 3 watts or 42.5 v into 600 ohms over the frequency range 20 cps to 20 KC. Response is ± 1 db full range, attenuator adjusts output 0 to 40 db in 10 db steps, provides either low impedance or constant 600 ohm impedance. hp 201C, $250.00 (cabinet), hp 201CR, $255.00 (rack mount).

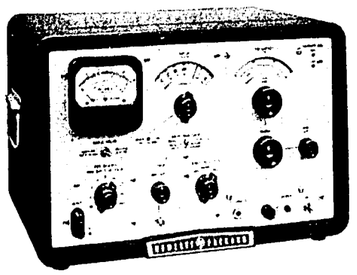
hp 202C Low Frequency Oscillator

Providing excellent waveform throughout its broad frequency range, 1 cps to 100 KC, the hp 202C is especially convenient for measurements in the subsonic, audio and ultrasonic regions. Distortion less than 0.5%, hum voltage less than 0.1%, short recovery time < 5 sec. at 1 cps. hp 202C, $300.00 (cabinet), hp 202CR, $305.00 (rack mount).

For details, circle #16 on Reader Service Card

Distortion, Wave Form Analyzers – 20 cps to 50 KC

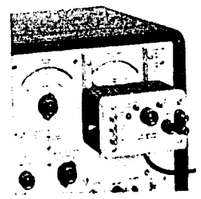
hp 302A Wave Analyzer



Completely transistorized, advanced instrument provides direct, accurate wave component measurement without calibration or stabilization. Relative or absolute measurements from 20 cps to 50 KC, hum free, needs no warmup, very sharp acceptance circuits plus AFC. May be battery operated (18 to 28 volts). $1,800.00△.

Instrument	Primary Uses	Frequency Range	Characteristics	Price
-hp- 302A	Wave form analysis	20 cps to 50 KC	Direct reading, no calibration needed	$1,800.00△
-hp- 330B	Measures total audio distortion	20 cps to 20 KC	Includes input amplifier, VTVM	450.00△
-hp- 330C	For AM, FM broadcast measurements	20 cps to 20 KC	Special VU meter to meet F.C.C. requirements	475.00△
-hp- 330D	For AM, FM broadcast measurements	20 cps to 20 KC	AM detector and VU meter to meet F.C.C. requirements	525.00△

△ Rack mounted instruments $15.00 less.

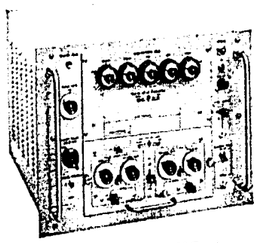


NEW! hp AC-97C Sweep Drive

hp AC-97C motor accessory converts hp 302A to a sweep oscillator-tuned voltmeter for automatic frequency response measurements. Mounts on 302A or adjustable bench stand. Sweeps all or any part of the 302A range automatically; has fast sweep for covering frequency spectrum rapidly, slow sweep for high resolution plot. hp AC-97C, $275.00.

Pulse, Square Wave and Digital Delay Generators

hp 218AR Digital Delay Generator



hp 218AR is ideally suited for pulse simulation and time measurement in radar, loran, pulse code systems, etc. Suitable for military use, it provides two precision time intervals or pulse delays, independently adjustable from 1 to 10,000 μsec in 1-μsec steps. Intervals may be initiated either internally, 10 cps to 10 KC, or externally, 0 cps to 10 KC. Accuracy is ± 0.1 μsec ± 0.001% of the selected value; total jitter does not exceed 0.02 μsec. Sync pulse, timing comb output provided. For maximum versatility and simplicity, output pulses are generated in the hp 219 series plug-in drawer units, shown below. hp 218AR, $2,000.00.

Plug-ins Increase Versatility of hp 218AR

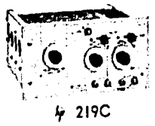
hp 219A Dual Trigger Unit. Supplies positive trigger pulses, 50 volts, 0.1 μsec rise time from 50-ohm source. Pulse A at T_0 or T_1 as selected by switch. Pulse B at T_2. $100.00.

hp 219B Dual Pulse Unit. Produces two high-power positive or negative pulses, continuously adjustable from 0.2 to 5 μsec and from 0 to 50 volts. Leading edge can be set for start or end of selected time interval. $450.

hp 219C Digital Pulse Duration Unit. Produces high-power output pulse with digitally controlled delay and duration. Pulse available in both polarities at once; continually adjustable from 0 to 15 volts from 90-ohm source, 0 to 90 volts from 500-ohm source. $350.00.

hp 219A

hp 219B

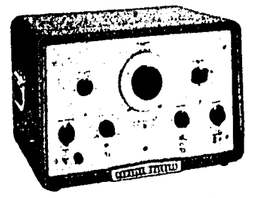


hp 219C

hp 211A Square Wave Generator

Here is a versatile, wide-range instrument especially designed for testing video and audio amplifiers, networks and oscilloscopes, for modulating signal generators and measuring time constants. Model 211A, 1 cps to 1 MC, offers simple control of electronic switches, is convenient for indicating phase shift, frequency response, transient effects or deflection polarity. Two separate outputs: 3.5 v peak into 75-ohm impedance circuit for TV measurement, and 27 v peak into 600-ohms for high level work; output amplitudes independently controlled. Operates free-running or externally synchronized with positive-going pulse or sine wave of 5 v minimum amplitude. hp 211A, $325.00 (cabinet); hp 211AR, $330.00 (rack mount).

hp 212A Pulse Generator



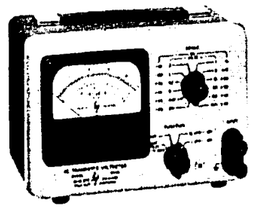
Popular hp 212A provides continuously variable, high-power positive or negative "fast pulses" of superior wave form: 0.02 μsec rise time and decay, "flat" top and minimum overshoot. Pulse lengths continuously variable 0.07 to 10 μsec, has direct reading pulse length control, provides pulses of 50 watts peak power. Low impedance permits delivery of accurate pulses over a long distance. Repetition rate is variable, 50 to 5,000 pps, controlled internally or externally. Synchronizing pulse available before or after output pulse. Especially useful in radar, TV and nuclear work. hp 212A, $600.00 (cabinet); hp 212AR, $585.00 (rack mount).

For details, circle #17 on Reader Service Card

405BR/CR Automatic DC Digital Voltmeter

Automatic range and polarity selection give you literally "touch and read" measuring convenience. Covers 0.001 v to 1,000 v, accuracy ±0.2% of reading ±1 count. Unique stability virtually eliminates jitter in the last digit. Floating input, analog-to-digital conversion and, with the 405CR, digital recorder output. Front-panel switch to hold ranges. Just 7" high. 405BR, $850.00; 405CR, $925.00.

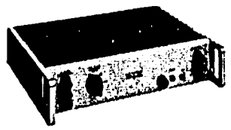
403A Transistorized AC Voltmeter



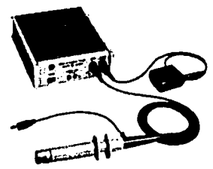
Battery-operated, portable, weighs less than 5 lbs., covers 1 cps to 1 MC, 100 μv to 300 v rms (max. full-scale sensitivity 1 mv). Also reads db direct, −72 to +52 db. Noise less than 3% of full scale (6% on lowest range). Accuracy ±3% to 500 KC, ±5% to 1 MC. Input impedance 2 megohms. 400 hours battery life, $275.00.

400D Vacuum Tube Voltmeter

Moderately priced precision vacuum tube voltmeter, offering high long-term stability. Covers 1 mv to 300 v full scale, 12 ranges, 10 cps to 4 MC. Accuracy ±2%, 20 cps-1 MC, input impedance 10 megohms, $250.00.

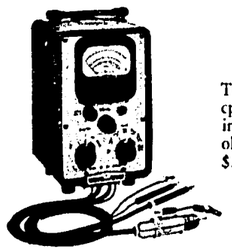


Instrument	Primary Uses	Frequency Range	Voltage or Current Range	Input Impedance	Price
-hp- 400D	Wide range ac measurements High sensitivity	10 cps to 4 MC	0.001 to 300 v 12 ranges	10 megohms 15 pf shunt	$250.00
-hp- 400H	High accuracy wide range ac measurements	10 cps to 4 MC	0.001 to 300 v 12 ranges	10 megohms 15 pf shunt	325.00
-hp- 400L	Log voltages, linear db measurements	10 cps to 4 MC	0.001 to 300 v 12 ranges	10 megohms 15 pf shunt	325.00
-hp- 403A	Battery-operated portable; fast, accurate, hum-free ac measurements	1 cps to 1 MC	0.001 to 300 v 12 ranges	2 megohms 40, 20 pf shunt	275.00
-hp- 405	Direct voltage measurement. Automatic range, polarity	dc	0.001 v to 1,000 v (accuracy ±0.2% of reading ±1 count)	11 megohms to dc	See left
-hp- 410B	Audio, rf, VHF measurements; dc voltages; resistances	dc; ac—20 cps to 700 MC	1.0 to 300 v 7 ranges	dc—122 megohms; ac—10 megohms/ 1.5 pf	245.00
-hp- 411A	Millivolt, db readings to kilomegacycle range	500 KC to 1 GC	10 mv to 10 v, 7 ranges	——	450.00
-hp- 412A	Precision voltage, current, resistance measurements	dc	1 mv to 1,000 v 1 μa to 1 amp	10 to 200 megohms, depending on range	400.00
-hp- 413A	dc null meter, dc voltmeter, amplifier	dc	1 mv to 1,000 v 13 ranges	10 to 200 megohms, depending on range	350.00
-hp- 425A	Read μv, μμa; 100 db amplifier; medical, biological, physical, chemical	dc voltages as 100 db amplifier	10 μv to 1 v 11 ranges	1 megohm ±3%	500.00
-hp- 428A	Clip-on milliammeter eliminates direct connection, circuit loading	dc	3 ma to 1 amp, 6 ranges	——	500.00
-hp- 428B	Similar to 428A, wider range, recorder output for dc to 300 cps	dc on meter, dc to 300 cps on recorder	1 ma to 10 amps, 9 ranges	——	550.00
-hp- 456A	Current measurements on meters, scopes	60 cps to 4 MC	1 ma to 1 amp rms	——	190.00
-hp- 457A	ac-to-dc converter	50 cps to 500 KC	0 to 300 v rms 4 decade ranges	1 megohm 30 pf shunt	On req.
-hp- 738AR	Voltmeter Calibrator	dc pos. or neg. 400 cps sine wave	300 μv to 300 v	Works into 3 to 10 megohms	875.00
-hp- 739AR	Frequency response test set	300 KC* to 10 MC *(5 cps with -hp- 2005R)	3 v output	——	525.00



456A AC Current Probe

Permits measurement of current on indicating meters such as 400 D/H/L or oscilloscopes. This current probe clamps *around* wire under test, needs no physical connection, does not load circuit. Range 1 ma to 1.5 amps peak, accuracy ±1% at 1 KC, response ±2%, 100 cps to 3 MC, ±5%, 60 cps to 4 MC, −3 db at greater than 20 MC, $190.



410B Vacuum Tube Voltmeter

This all-purpose voltmeter covers 1 to 300 v full scale, 20 cps to 700 MC, also serves as dc VTVM with 122 megohms input resistance, or ohmmeter covering 0.2 ohms to 500 megohms. Input capacity 1.5 pf, input impedance 10 megohms. $245.00 (cabinet), $265.00 (rack mount).

457A AC-to-DC Converter

Now you can make high accuracy ac measurements to 500 KC with a dc digital voltmeter. 457A also can be used with 405CR Digital Voltmeter and 560 series Digital Recorders to provide permanent records in printed digital form. Covers 0 to 300 v rms in 4 decade ranges, 50 cps to 500 KC. Accuracy ±0.3% to 50 KC, ±0.75% to 500 KC, ± 1 mv. Input impedance 1 megohm. Price on request.

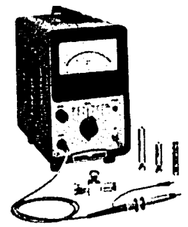
INDIVIDUALLY CALIBRATED VOLTMETERS at no increase in cost!

Now individual calibration of meter scales used in standard instruments gives you commercial instrument accuracy approaching that of lab standards! No longer are preprinted approximate scales used. What the voltage actually is — you read! With a servo system, *each* calibration line on *each* instrument is located precisely and *then* printed.

This new standard of accuracy assures you that *each* voltmeter scale is calibrated to meet the exact characteristics of its *individual* meter movement. Scale tracking error is eliminated, and you get improved performance at the same moderate price. Further, this calibration and inspection procedure automatically rejects faulty meter movements. Tracking characteristics of each meter movement are determined over its entire range, and rigid tolerance control assures optimum performance.

These are the first commercial voltmeters in which the meter tracking error is eliminated. Individually calibrated voltmeters are described below. With the meter that meets your requirement you are assured of improved performance, with this source of error eliminated — plus all the other advantages you expect in instruments: dependability, ruggedness, convenience. They're yours at no increase in cost. Individually calibrated meters are included on all voltmeters on this page and on the 428B clip-on DC Milliameter.

411A 1 GC Millivoltmeter

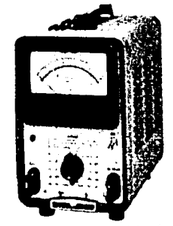


Here's unique versatility in an rf voltmeter offering millivolt sensitivity and two easy-reading linear voltage scales in 1-to-3 ratio. Range 10 mv to 10 v full scale rms, 500 KC to 1 GC, usable indications to 4 GC! Also, db scale from −42 to +33 db for gain measurements. Five probe tips increase versatility. Galvanometer recorder output. photoelectric chopper gives noise-free, drift-free low voltage readings. $450.00.

413A DC Null Voltmeter

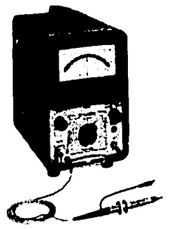
New 413A is a null meter, dc voltmeter, amplifier in one versatile instrument. As a voltmeter, measures 1 mv to 1,000 v end scale, 13 ranges, 2% accuracy and virtually drift-free operation. Input impedance 10 to 200 megohms, depending on range. Input isolation allows operation 500 v dc or 130 v ac from ground. As amplifier, gain 0.001 to 1,000 in 13 steps. Low noise, high ac rejection. $350.

400H/L Vacuum Tube Voltmeters



You get 1% accuracy with 400H, 1 mv to 300 v full scale, 12 ranges, 10 cps to 4 MC. Big 5" mirror scale. 400L has true logarithmic voltage scale, 5" linear db scale, accuracy 2% constant percentage of reading. Input impedance, both models, 10 megohms. In the 400L range switching in 10 db levels plus the 12 db scale provides the wide overlap desirable in decibel level measurements. 400H, $325.00; 400L, $325.00.

425A DC Microvolt-Ammeter



High sensitivity, high stability microvolt meter; end scale voltages of 10 μv to 1 v in 11 ranges. Also reads currents of 10 μμa to 3 ma in 18 steps, 1-3-10 sequence. Accuracy ±3% on all ranges. Drift is less than 4 μv per day referred to input terminals. Input impedance 1 megohm ±3% on all voltage ranges. Also usable as a 100 db amplifier, up to 1 v out from signals as small as 10 μv, ac rejection at least 3 db at 0.2 cps and 60 db at 60 cps and above. $500.00.

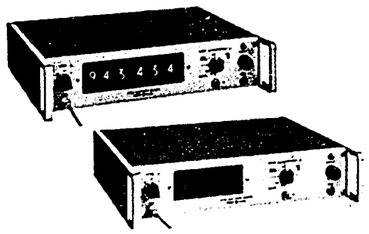
412A Precision Volt - Ohm - Ammeter

A precision multi-purpose instrument, the Model 412A measures dc voltage 1 millivolt to 1,000 volts full scale, 13 ranges. Accuracy ±1% full scale, all ranges. Measures currents 1 microampere to 1 ampere with ±2% accuracy, full scale (13 ranges). As an ohmmeter, Model 412A measures 0.02 ohms to 5,000 megohms. Extremely low noise and drift. Instrument also provides recorder output. 412A, $400.00.

428A/B Clip-On DC Milliammeters

Radical approach to current measurements means no breaking leads, no dc connections, no soldering. "Current transformer" probe clamps *around* wire, measures by sampling magnetic field around the wire. Measures dc current in the presence of strong ac. 428A covers 3 ma to 1 amp, 6 ranges; 428B covers 1 ma to 10 amps, 9 ranges, has recorder output to measure from dc to 300 cps. Accuracy ±3%. 428A, $500.00; 428B, $550.00.

New hp Solid State Electronic Counters, Accessories



Continuous, non-blinking display

Faster repetitive counts

Solid-state dependability

Wide temperature range

BCD Output

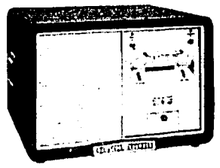
These four new hp counters are solid state instruments with maximum counting rates of 300 KC or 1.2 MC and a choice of Nixie or new staggered columnar readouts. Unique display storage gives continuous readout of most recent measurement, even while instrument is gated for new count. Counter "inactive" time independent of gate time for higher sampling rate. 0.1 v sensitivity. Measures frequency, period, multiple period average, ratio. Input impedance 1 megohm.

Counter	Max. Counting Rate	Registration	Frequency Measurement			Period Measurement				Ratio Measurement			Price
			Range	Accuracy	Reads In	Range	Accuracy	Reads In	Periods Averaged	Reads	Range	Accuracy	
5212A	300 KC	5 digits columnar	2 cps to 300 KC	± 1 count ± time base accuracy	KC with positioned decimal	2 cps to 10 KC in single period; up to 300 KC in multiple period average	± 10 μs ± time base accuracy ± trigger error ÷ periods averaged	Milliseconds with positioned decimal	1, 10, 10^2, 10^3, 10^4, 10^5	$(f_1 \div f_2) \times$ period multiplier	f_1: 100 cps to 300 KC (1 v rms into 1,000 ohms) f_2: Same as period	± 1 count of f_2 ± trigger error of f_2	$ 975.00
5512A	300 KC	5 digits Nixie											1,175.00
5212A	1.2 MC	6 digits columnar	2 cps to 1.2 MC			2 cps to 10 KC in single period; up to 1 MC in multiple period average	± 1 μs ± time base accuracy ± trigger error ÷ periods averaged	Milliseconds and microseconds with positioned decimal			f_1: 100 cps to 1.2 MC (1 v rms into 500 ohms) f_2: Same as period		1,300.00
5512A	1.2 MC	6 digits Nixie											1,550.00

hp 5275A Time Interval Counter

New! 10 nanosecond resolution in automatic measurements of information previously unavailable in digital form. hp 5275A is ideal for measuring very short time intervals between events represented by suitable electrical pulses. Range 10 nsec to 0.1 sec. Accuracy ± 10 nsec ± time base accuracy. External 1 MC time base required. Input impedance 50 ohms. Price on request.

hp 101A 1 MC Oscillator, designed specifically as a time base for hp 5275A Counters, offers low-cost versatility for many other applications. $5/10^8$ stability, output of 1 v min. into 50 ohm load. 100 KC output optional. hp 101A, $500.00.



New hp 562A Digital Recorder

New, solid-state digital recorder has data storage for each print wheel. Prints up to 5 lines/sec with 2 millisecond data transfer. Plug-in logic cards available to provide choice of input codes. Can accept input from two unsynchronized sources. hp 562A, 11-digit printer with six BCD (1-2-2-4) logic cards (12th print wheel, additional logic cards, analog output optional). $1,600.00 to $2,100.00, depending on options.

New hp 580A Digital-Analog Converter provides outputs for strip chart or X-Y recorders, both potentiometer and galvanometer types. Automatic zero-shift for "on-scale" records at all times; extremely high resolution, accuracy. hp 580A. Price on request.

New hp Frequency/Time Standard Systems, Components

5 parts in 10^{10}/day long term stability! 1 part in 10^{10} typical short term stability!*

New standards of spectral purity, accuracy, reliability!

Accuracy and extreme reliability are the outstanding features of these hp frequency/time standard systems, which include a frequency standard, frequency divider and clock and a standby power supply, in addition to a comparison device. A receiver and an oscilloscope are used to make time comparisons with hf signals broadcast from WWV and similar stations. A receiver and electronic counter are used for vlf comparisons. Suitable for shipboard, mobile and field as well as laboratory use, the transistorized systems are compact and rugged. They are suitable for satellite navigation systems, missile and satellite timing-tracking and single sideband communications.

*averaged over 1 sec intervals and under reasonably constant environmental conditions

New hp 103AR/104AR Quartz Oscillators

Long term stability, 5 parts in 10^{10}/day; typical short term stability, 1 part in 10^{10}/day averaged over 1 sec intervals. Provide 1 MC and 100 KC outputs. hp 104AR also provides 5 MC output of extreme spectral purity. hp 103AR, $2,500.00; hp 104AR, $3,250.00.

New hp 114BR Time Comparator

Used in conjunction with hp 113BR, allows time comparison to be made without changing clock setting, increases speed and flexibility. Time difference between standard time signal and 113BR tick can be resolved to ± 10 μsec. hp 114BR $1,200.00.

hp 113BR Frequency Divider and Clock

Makes possible increased accuracy from frequency and time standard systems by generating precise, adjustable time signals with accuracy determined by driving oscillator. Permits accurate comparisons between local standards and hf or vlf broadcasts. hp 113BR, $2,750.00.

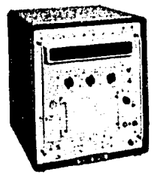
New hp 724BR, 725AR Standby Power Supplies

Automatically assume load and warn when ac power fails, assure continuous operation of frequency/time standard system. hp 724BR, including battery, $850; hp 725AR, including battery, price on request.

For details, circle #20 on Reader Service Card

Dependable hp Vacuum Tube Counters, Accessories

hp 524C/D Electronic Counters



Bright, steady readout, crystal oscillator stability of 5 parts in 10^8 per week and plug-in versatility are yours with these popular hp counters. hp 524C offers Nixie readout, hp 524D columnar readout. Read frequency 10 cps to 10.1 MC over any of 5 selected intervals; period from 0 to 100 KC. 7 plug-in units increase frequency range to 510 MC, increase sensitivity to 10 mv, provide time interval and phase angle measurements and 10,000 period average measurements. See table, right. hp 524C, $2,400.00; hp 524D, $2,150.00.

hp 523C/D Electronic Counters

All-purpose counter measuring frequency 10 cps to 1.2 MC, time interval 1 μsec to 27.8 hours, period 0.00001 cps to 100 KC. Stability 2/1,000,000 per week. Results displayed in sec, msec, μsec or KC; automatic decimal. Usable with external 100 KC standard. hp 523C, Nixie readout, $1,575.00; hp 523D, columnar readout, $1,310.00.

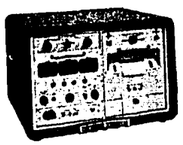
hp 522B Electronic Counter

A low-cost precision instrument covering 10 cps to 120 KC. All-purpose counter easily used by unskilled personnel. Measures frequency, period and time interval, is direct reading in cps, KC, seconds or milliseconds. hp 522B, $915.00 (cabinet); hp 522BR, $900.00 (rack mount).

hp 521 Industrial Counters

hp 521 series Counters measure frequency, random events per unit of time; with transducers, they measure rps, speed, weight, pressure, etc. 521D (shown) 1 cps to 120 KC (4 places), input min. 0.2 v rms; input attenuator adjusts sensitivity 0.2 to 100 v rms; input impedance 1 megohm. Characteristics of other 521 models similar to 521D. See table at right for details, prices.

hp 560A/561B Digital Recorders. 570A/571B Digital Clocks



hp 560A provides permanent record of all types of test data, also gives unique analog output for graphic recording of very small data variations. 560A operates from single-line voltage-coded decimal, delivered with 6 plug-in comparators for 6-digit presentation, additional comparators (to eleven) may be plugged in at any time. hp 561B requires 10-line coded decimal entry operates from hp 405CR Digital Voltmeter, frequency counters or relays, stepping switches, beam switching tubes. Models 570A/571B digital clocks (570A shown installed) mount in 560A/561B respectively and add time-of-day information to other data recorded by 560A/561B. hp 560A (with 6 comparators), $1,325.00; hp 561B, $1,150.00; hp 570A (for 560A), $1,050.00; hp 571B (for 561B), $950.00. hp 565A Digital Printer (for custom systems), $640.00.

Instrument	Primary Uses	Frequency Range	Characteristics	Price
-hp- 100E Frequency Standard	Establish standard frequencies; calibrate, measure time	6 sine 10 cps to 1 MC; 4 pulse, 10 cps to 10 KC	Stability $5/10^{10}$ per week Timing comb.	$ 925.00■
-hp- 103AR Quartz Oscillator	Establish standard frequencies; calibrate, measure time	Sine 1 MC, 100 KC; separate 100 KC for driving -hp- 113BR	Stability $5/10^{10}$ per day, long term	2,500.00
-hp- 104AR Quartz Oscillator	Establish standard frequencies; calibrate, measure time	Sine 1 MC, 100 KC; separate 100 KC for driving -hp- 113BR; 5 MC of high spectral purity	Stability $5/10^{10}$ per day, long term; extreme spectral purity	3,250.00
-hp- 113BR Frequency Divider, Clock	Adjust freq. standards; comparisons	100 KC input	1 pps tick output for comparison with www, etc.	2,750.00
-hp- 500B Frequency Meter	Rapid frequency measurements	3 cps to 100 KC	9 ranges ±2% accuracy. Input 0.2 to 250 volts	300.00
-hp- 500C Tachometer Indicator	Rpm measurements	180 to 6,000,000 rpm	Similar to 500B but calibrated in rpm	300.00
-hp- 506A Optical Tachometer Pickup	Rps and rpm measurement	300 to 300,000 rpm	Phototube and light source; output 1 v rms	150.00
-hp- 508A-D Tachometer Generator	Shaft speed measurement	A, 15-40,000 rpm; B, 30-30,000; C, 40-25,000; D, 50-5,000	A, 60 cycles/rev.; B, 100/; C, 120/; D, 360/	125.00
-hp- 520A Nuclear Scaler	For counting high-rate pulses	Capacity 100 counts in 2 decades. 10,000,000 pps counting rate	100:1 divider for operation of low speed scalers	700.00△
-hp- 521A Industrial Electronic Counter	Measure frequency, speed	1 cps to 120 KC 220 KC optional, add $35.00	Direct reading, accurate within ±1 count ±0.1%, 4 place registration	475.00
-hp- 521C Industrial Electronic Counter	Measure frequency, speed	1 cps to 120 KC 220 KC optional, add $35.00	Direct reading, accuracy within ±1 count ±0.01%, 5 place registration	650.00
-hp- 521D Industrial Electronic Counter	Measure frequency, speed	1 cps to 120 KC 220 KC optional, add $35.00	Same as 521A except has Nixie readout	750.00
-hp- 521E	Measure frequency, speed	1 cps to 120 KC 220 KC optional, add $35.00	Same as 521C except has Nixie readout	950.00
-hp- 521G	Measure frequency, speed, elapsed time	1 cps to 1.2 MC	Direct reading, accuracy ±1 count ±0.1% 5 place registration	700.00
-hp- 522B Electronic Counter	Frequency, period, time interval measurements	10 cps to 120 KC 220 KC optional, add $35.00	Direct reading, stability 10 parts per million per week	915.00△
-hp- 523C	Frequency, period, time interval	10 cps to 1.2 MC	Direct reading, stability 2 parts per million per week. Nixie readout, 10-line code arrangement	1,575.00■
-hp- 523D Electronic Counter	Frequency, period, time interval	10 cps to 1.2 MC	Direct reading, stability 2 parts per million per week	1,310.00■
-hp- 524C Frequency Counter	Frequency, period, measurements	10 cps to 10.1 MC (Freq.) 0 cps to 100 KC (Period)	Direct reading, no interpolation; stability $5/10^8$ per wk. Nixie readout	2,400.00■
-hp- 524D Frequency Counter	Frequency, period, measurements	10 cps to 10.1 MC (Freq.) 0 cps to 100 KC (Period)	Direct reading, no interpolation; stability $5/10^8$ per wk.	2,150.00■
-hp- 525A Frequency Converter	Extends 524 range to 100 MC; increases basic sensitivity	10 cps to 100 MC	Accuracy same as basic counter; 0.1 v rms min. input	250.00
-hp- 525B Frequency Converter	Extends 524 range from 100 to 220 MC; high sensitivity	100 MC to 220 MC	Accuracy same as basic counter; 0.2 v rms min. input	300.00
-hp- 525C Frequency Converter	Extends 574 range to 510 MC; high sensitivity	50 KC to 510 MC	Accuracy same as basic counter; min. input: 20 mv rms, 50 KC to 10.1 MC; 100 mv rms, 100 to 510 MC	425.00
-hp- 526A Video Amplifier	Increases 524 sensitivity to 10 millivolts	10 cps to 10.1 MC	Accuracy same as basic counter; 10 mv rms min. input	200.00
-hp- 526B Time Interval Unit	Measures interval 1 μsec to 100 days	1 μsec to 10^7 sec	Resolution to 0.1 μsec	200.00
-hp- 526C Period Multiplier	Period measurement	Extends range of 524 to measure 10,000 periods	Greater accuracy in period measurement	225.00
-hp- 526D Phase Unit	Phase angle measurement	1 cps to 20 KC	Reads in time units, resolution to 0.1 μsec	750.00
-hp- 540B Transfer Oscillator	Microwave measurement with counter accuracy	to 18 GC	Ideal for use with -hp- counters, frequency converters, mixers	850.00△

△ Rack mounted instruments $15.00 less. ■ Rack mounted $25.00 less.

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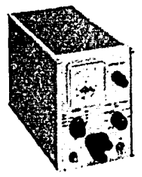
Regulated and Klystron Power Supplies

723A Power Supply



Ideal dc power supply, 0 to 40 v dc, 0 to 500 ma, for systems applications where remote voltage programming is desired. Load regulation, less than 20 mv change from 0 to 500 ma; less than 10 mv change for ± 10% line voltage change. Either positive or negative terminal may be grounded, or several units operated in cascade. Three modular units can be placed in one rack mount adapter. $225.00.

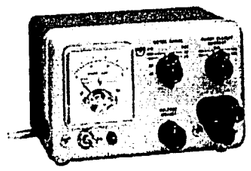
722AR/726AR Transistor Power Supplies

722AR is a dependable, transistorized, fully regulated dc power supply; continuously variable 0 to 60 v dc, 0 to 2 amps. Three-terminal output for either positive or negative grounding. Load regulation, less than 5 mv change for 0 to 2 amp change. Special safety circuit limits output current to pre-set value. Front-panel meters monitor output without external equipment. Slide switch at rear selects local or remote sensing. Low power consumption, easy-to-use controls. $525.00 (rack mount).

726AR DC Power Supply, Similar to 722AR, provides 0 to 45 v output, is programmable by external resistance connectors. $500.00 (rack mount).

Instrument	Primary Uses	Characteristics	Price
-hp- 711A Laboratory Power Supply	General purpose regulated dc supply for lab and field use	0 to 500 volts @ 100 ma	$250.00
-hp- 712B Power Supply	Same as 711A	0 to 500 volts @ 200 ma —300 v @ 50 ma, 0 to —150 v @ 5 ma	390.00△
-hp- 715A Klystron Power Supply	Regulated beam, reflector source for low power klystrons	—250 @ 30 ma to —400 volts @ 50 ma; 0 to —900 v @ 10 μa	325.00
-hp- 721A Transistor Power Supply	Powering transistors, similar applications	0 to 30 v, 150 ma	145.00
-hp- 722AR Transistorized Power Supply	Powering transistors, banks of tunnel diodes	0 to 60 v, 0 to 2 amps	525.00
-hp- 723A DC Power Supply	General purpose, medium power low voltage supply; can be programmed remotely	0 to 40 v, 500 ma	225.00
-hp- 726AR DC Power Supply	Highly accurate testing of systems or transistor circuits; remote sensing, programming	0 to 45 v, 0 to 2 amps	500.00

△ Rack mounted instruments $15.00 less.

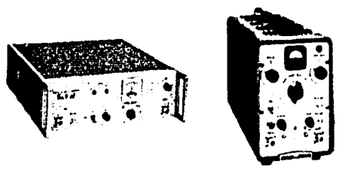


721A Transistor Power Supply

Compact, versatile, completely transistorized. Regulated supply, 0 to 30 v, continuously variable. 150 ma maximum output. Load regulation, 0 to 150 ma, 0.3% or 30 mv, whichever is greater. Positive overload protection with front panel switch prevents damage to transistors, etc. $145.00.

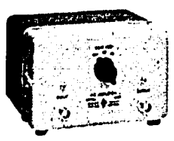
General Purpose Traveling-Wave, Wide Band Amplifiers

Traveling-Wave Tube Amplifiers



offers Traveling-Wave Tube Amplifiers for all frequencies 1 to 12.4 GC. New 489A, 491C, 493A, 495A are high power, broad band, low noise amplifiers using PPM focusing. Provide at least 1 watt output for 1 mw input over their full frequency range. 490B, 492A and 494A are low level, high gain amplifiers for amplitude, pulse, phase or FM modulation. See table for prices.

466A AC Amplifier



General-purpose transistorized instrument amplifier offering standard gains of 20 and 40 db, ± 0.2 db at 1000 cps. Distortion less than 1%, 10 cps to 100 KC. Frequency response ± 0.5 db 10 cps to 1 MC, output 1.5 v rms across 1500 ohms, noise 75 μv rms, referred to input; input impedance 1 megohm with 20 pf shunt. Battery powered, 150 hours operation; or ac driven. Weight just 3 lbs. $150.00. Specify battery or ac operation.

Instrument	Primary Uses	Frequency Range	Characteristics	Price
-hp- 450A Amplifier, Stabilized	General purpose lab amplifier	10 cps to 1,000,000 cps	20 and 40 db gain, frequency response ±½ db	$ 160.00
-hp- 460AR Amplifier, Wide Band	Wide band, pulse amplification	20 KC to 120 MC	20 db gain, rise time 0.003 μsec	225.00
-hp- 460BR Amplifier, Fast Pulse	Pulse amplification high output	20 KC to 120 MC	15 db gain, 125 peak volts	275.00
-hp- 466A ac Amplifier	General purpose lab amplifier	10 cps to 1 MC	20, 40 db gain; freq. response ±0.5 db	150.00
-hp- 489A Traveling-Wave Tube Amplifier	High power "L" band amplification	1 to 2 GC	30 db gain; μsec rise time; 1 watt output	1,970.00
-hp- 490B Traveling-Wave Tube Amplifier	Amplification throughout "S" band	2 to 4 GC	30 db gain; μsec rise time; 10 mw output	1,400.00
-hp- 491A Traveling-Wave Tube Amplifier	High power "S" band amplification	2 to 4 GC	30 db gain; μsec rise time; 1 watt output	1,400.00
-hp- 491C Traveling-Wave Tube Amplifier	High power "S" band amplification	2 to 4 GC	30 db gain; μsec rise time; 1 watt output	1,970.00
-hp- 492A Traveling-Wave Tube Amplifier	Amplification through most of "G" and "J" bands	4 to 8 GC	30 db gain; μsec rise time; 20 mw output	1,500.00
-hp- 493A Traveling-Wave Tube Amplifier	High power "G" and "J" band amplification	4 to 8 GC	30 db gain; μsec rise time; 1 watt output	2,900.00
-hp- 494A Traveling-Wave Tube Amplifier	Amplification throughout "X" band	7 to 12.4 GC	30 db gain; μsec rise time; 20 mw output	1,800.00
-hp- 495A Traveling-Wave Tube Amplifier	High power "X" band amplification	8.2 to 12.4 GC	30 db gain; μsec rise time; 1 watt output	2,900.00

Microwave Impedance Measuring Equipment

415C Standing Wave Indicator

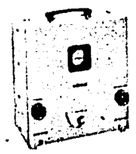
Designed to use with bolometers or crystals. Increased resolution gives full scale expansion for any 2.5 db increment; no "blind" spots. Single frequency operation, 1,000 cps ± 2% (others on special order); ±2% front-panel adjustment for ease in matching source modulator. Readings in SWR or db. Low noise level, 0.1 μv sensitivity (full scale). Optional battery pack. Price on request.

415B Standing Wave Indicator for all waveguide and coaxial slotted sections. Single frequency operation 1,000 cps ±2%. Readings in SWR or db. Low noise level, 0.1 μv (full scale) sensitivity, 60 db calib. attenuator. $200.00.

416A Ratio Meter

Automatically combines forward and reverse signals and displays their ratio directly, irrespective of common amplitude variations. Contains rf power monitor indicating proper power level. Rear terminal signal available to operate oscilloscope or recorder. Suitable for single and swept frequency operation. $550.00△.

803A VHF Bridge



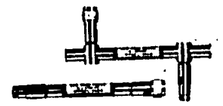
Provides direct impedance measurements in vhf range, 2 to 2,000 ohms, −90° to +90° phase angle. Wide frequency range 52 to 500 MC; makes measurements down to 5 MC and up to 1,000 MC. Fast, simple to use. $900.00.

417A VHF Detector

Super-regenerative (AM) receiver covering all frequencies from 10 to 500 MC in 5 bands. Designed for use with 803A Bridge. 5 μv sensitivity full range. Single frequency control, reads direct in MC. $400.00.

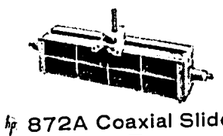
Instrument	Primary Uses	Frequency Range	Characteristics	Price
-hp- 360A-D Low Pass Filters	Eliminates harmonic voltages from uhf systems	Cut-off frequencies A- 700 MC C-2,200 MC B-1,200 MC D-4,100 MC	50 db rejection at 1.25 cutoff freq.	See below
-hp- 415B Standing Wave Indicator	SWR indicator or null indicator	1,000 cps ±2%	0 to 70 db attn. Max. sensitivity 0.1 μv	$200.00
-hp- 415C Standing Wave Indicator	SWR indicator or null indicator	1,000 cps ±2%	Full scale expansion for any 2.5 db increment; Max. sensitivity 0.1 μv	On req.
-hp- 416A Ratio Meter	Reflection coefficient measurements	1,000 cps ±4%	Continuous swept frequency presentation; accuracy ±3%	550.00△
-hp- 417A VHF Detector	VHF bridge detector (for -hp- 803A)	10 to 500 MC	Approx. 5 μv sensitivity	400.00
-hp- 803A VHF Bridge	Measurement of vhf impedance, SWR	52 to 500 MC	2 to 2,000 ohms impedance −90° to +90° phase angle	900.00
-hp- 805C Coaxial Slotted Section	Measurement of SWR	500 to 4,000 MC	For Type N Connectors flexible cables	525.00
-hp- 805D Coaxial Slotted Section	Same as above	Same as above	For rigid 7/8" RG44/U line	600.00
-hp- 806B Coaxial Slotted Section	Same as above (mounts in 809B)	3,000 to 12,000 MC	For Type N Connectors flexible cables	200.00
-hp- 839B Universal Probe Carriage	G, C, J, H, X, M and P810 Waveguide Sections Supports 806B section also		Accepts 442B, 444A probes	175.00
-hp- 814B Universal Probe Carriage	Supports K and R 815B Waveguide Slotted Sections		Accepts Untuned Probe 446B	225.00
-hp- 872A Coaxial Slide-Screw Tuner	Correcting discontinuities, flattening waveguide, coax systems	500 to 4,000 MC	Correctable SWR: 10; insertion loss: 1 db or less	525.00

△ Rack mounted instruments $15.00 less.



360 Low Pass Filters

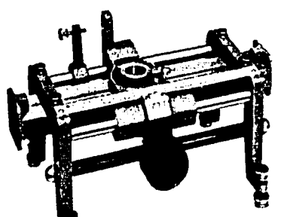
Low pass filters speed microwave measurements by eliminating harmonics, permitting transmission at single, known frequency only. Particularly necessary in slotted line, filter characteristic, receiver response, similar measurements. Table above gives cut-off frequency; insertion loss not over 3 db; nominal impedance 50 ohms. 360A, B, $60.00. 360C, D, $50.00.



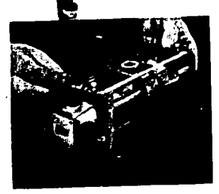
872A Coaxial Slide-Screw Tuner

Covers 500 to 4,000 MC range. Tuner consists of -developed slab line and precision probe carriage. Insertion quickly and easily varied with micrometer drive; line position may be read directly on a recessed scale. Probe travel at least ½ wavelength at 500 MC. Correctable SWR: 10. $525.00.

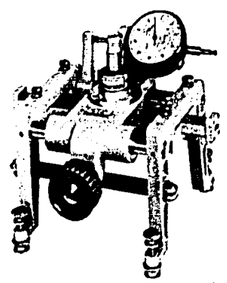
809B/814B Universal Probe Carriages



809B and 810B



Quick, easy waveguide interchange



814B, 815B, 446B

Models 809B and 814B are precision-built mechanical assemblies operating, respectively, with 810B and 815B series slotted sections. Combination of the 809B carriage and 810 slotted sections covers 2.6 to 18.0 GC. Combination of 814B carriage and 815B series sections covers 18.0 to 40.0 GC. For prices see table above.

On either carriage, waveguides can be interchanged in seconds for real savings on engineering time. Only one probe is required for each carriage to cover full frequency range. Manufacture is of highest quality to assure positive mechanical positioning of interchangeable waveguides and precise installation of mating probes (see table, "Waveguide Test Equipment"). 809B has a vernier scale reading to 0.1 mm and is equipped for dial gauge mounting. 814B has a dial read directly to 0.01 mm.

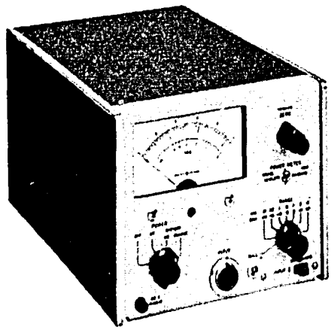
810B Slotted Sections. 810 B, for mounting in 809B carriage, is a flanged, waveguide section with accurately machined slot. Slot is tapered at ends to minimize reflection. Available in 7 waveguide bands, 3.95 through 18.0 GC.*

S810A. Complete slotted section assembly including probe carriage. In 2.6 to 3.95 GC (S-band) size only.*

815B Slotted Sections. For mounting in 814B carriage. Available K and R bands, 18.0 to 40.0 GC. These sections are accurately machined so that they are quickly and easily interchanged, and precisely positioned.*

*For prices, see Waveguide Test Equipment table.

Microwave Power Measuring Equipment



Now! End tedious zero setting with new 431A Power Meter

At last, continual zero setting for your power measurements is a thing of the past! This new power meter, which measures 10 μw to 10 mw full scale, lets you use one zero setting, good for hours, on all ranges—even on the 10 μw range! Drift is less than 2 μw/°C! The 431A gives you additional sensitivity of 10 db over previously available instruments. In addition to its 7-range μw-mw calibration, the 431A also reads in dbm, −30 to +10. Direct-reading accuracy is ±3% on all ranges. Operates with new temperature-compensated thermistor mounts, 478A, 486A (below). 431A, $345.00.

478A Thermistor Mount

New 478A Thermistor Mount for coaxial systems, 10 MC to 10 GC without tuning, is truly temperature - compensated, contains two thermistor pairs for use with dual bridge 431A Power Meter. SWR less than 1.5, high accuracy, drift-free operation. $145.00.

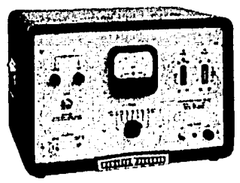
486A Thermistor Mount

New 486A truly temperature - compensated thermistor mount permits X-band power measurements, 8.2 to 12.4 GC without tuning; SWR less than 1.5. For use with 431A Power Meter. High accuracy, new convenience. $145.00.

Instrument	Primary Uses	Frequency Range	Characteristics	Price
-hp- 393A Coaxial Attenuator	Accurate, variable attenuation to 120 db	500 to 1,000 MC	Direct-reading in high-power systems	$ 420.00
-hp- 394A Coaxial Attenuator	Accurate, variable attenuation to 120 db	1,000 to 2,000 MC	Direct-reading in high-power systems	420.00
-hp- 430C Microwave Power Meter	Measurement of rf power	Depends on Bolometer Mount -hp- mounts, 10 MC to 40 GC	0.02 to 10 mw ±5% accuracy	250.00
-hp- 431A Microwave Power Meter	Measurement of rf power	10 MC to 12.4 GC	Stable, temperature-compensated	345.00
-hp- 434A Calorimetric Power Meter	Measurement of rf power	dc to 12.4 GC	Direct reading, no barretters, thermistors or terminations; CW, pulsed	1,600.00△
-hp- 476A Universal Bolometer Mount	Measurement of rf power (with 430B/C)	10 to 1,000 MC	No tuning required SWR less than 1.25	85.00
-hp- 477B Coaxial Thermistor Mount	Measurement of rf power (with 430C)	10 MC to 10 GC	No tuning required SWR less than 1.5	75.00
-hp- 478A Thermistor Mount	Measurement of rf power (with 431A)	10 MC to 10 GC	Drift-free, SWR less than 1.5	145.00
-hp- 485 Waveguide Detector Mount	Measurement of rf power	2,600 to 12,400 MC	Full coverage of waveguide band	See Table Waveguide Equipment
-hp- 486A Thermistor Mount	Measurement of rf power (with 431A)	8.2 to 12.4 GC	Temperature compensated, SWR less than 1.5	145.00
-hp- 487B Waveguide Thermistor Mount	Measurement of rf power	3,950 to 40,000 MC	Full coverage, no tuning, 1.5 SWR except K/R487B 2.0	See Table Waveguide Equipment
-hp- 765D Dual Directional Coupler	Reflectometer and rf power measurements	250 MC to 1 GC	Directivity 35 db flat coupling	200.00
-hp- 761D Dual Directional Coupler	Reflectometer and rf power measurements	1 to 4 GC	Directivity 30 db flat coupling	185.00
-hp- 764D Dual Directional Coupler	Reflectometer and rf power measurements	216 to 450 MC	Coupling attenuation* 20 db, directivity 30 db	160.00
-hp- 765D Dual Directional Coupler	Reflectometer and rf power measurements	450 to 945 MC	Coupling attenuation* 20 db, directivity 30 db	160.00
-hp- 766D Dual Directional Coupler	Reflectometer and rf power measurements	940 to 1,975 MC	Coupling attenuation* 20 db, directivity 26 db	150.00
-hp- 767D Dual Directional Coupler	Reflectometer and rf power measurements	1,900 to 4,000 MC	Coupling attenuation* 20 db, directivity 26 db	150.00

*Power handling capacity all 764/767 series couplers 50 watts CW, 10 Kw peak.
△ Rack mounted instrument $15.00 less.

434A Calorimetric Power Meter



Simply connect and read powers 10 mw to 10 watts, dc to 12.4 GC. No barretter, thermistor needed, no external terminations or plumbing. Measures CW or pulsed power. Two simple controls. DC input impedance 50 ohms ± 5 ohms at Type N input jack; input SWR less than 1.5 full range, less than 1.3 to 5 GC. Accuracy, without correction, within 5% full scale. Response time less than 5 sec. for full scale deflection. Direct reading in watts and dbw, compact, entirely self-contained. $1,600.00 (cabinet); $1,585.00 (rack mount).

430C Microwave Power Meter

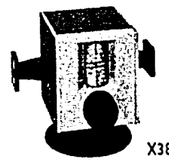
No computations! Provides instantaneous, automatic power readings *direct* in dbm or mw at all frequencies for which there are suitable bolometer mounts. For CW measurements, uses either 1/100 amp. fuse or Sperry 821 barretter. Also measures CW or pulsed power with negative coefficient thermistor. Provides up to 16 ma bias current. Operates with mounts in adjacent table. Range 0.02 to 10 mw. $250.00.

477B Coaxial Thermistor Mount

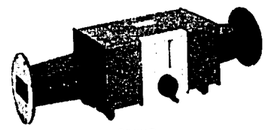
For frequency range 10 MC to 10 GC. SWR less than 1.5. Thermistor element is 200 ohm negative. No tuning required; not susceptible to burnout. $75.00. (including thermistor).

For details, circle #24 on Reader Service Card

382B/C Broadband Precision Waveguide Attenuators

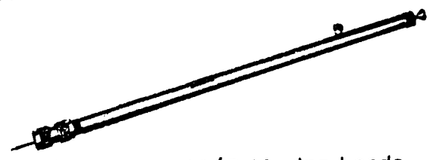


X382B



S382B

Dielectric loading in new S382B/C, X382B/C produces long electrical length for high accuracy with short physical dimension, provides new convenience. Calibrated range, 0 to 60 db. 0 to 90° degree-of-rotation scale allows you to set incremental attenuation accurately. SWR less than 1.15 over entire range of attenuation and frequency. S382B. $600.00; S382C, $650.00; X382B, $295.00; X382C, $345.00.



906A, 914A/B Moving Loads

Model 906A, 1 to 12.4 GC (SWR less than 1.05), a coaxial moving load which, with the popular 914A/B waveguide series, provides moving load coverage 1 to 40 GC. 906A, $250.00; 914A/B series, $50.00 to $250.

382A Precision Attenuators

Popular 382A series precision attenuators are now available in "K" and "R" bands, 18.0 to 40.0 GC. "K," "R" band attenuators are of new, space-saving design (see photo). Direct reading, one-control tuning, high power handling capacity. Attenuation 0 to 50 db full range, independent of frequency. Phase shift constant with attenuation. For prices see table next page.

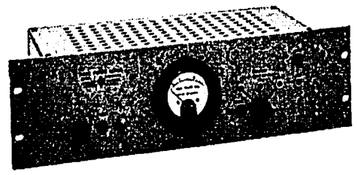
764D-767D Dual Directional Couplers

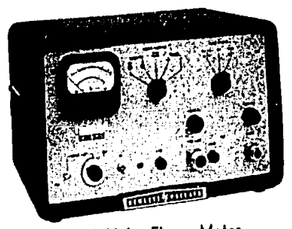
High directivity dual coaxial couplers make reflectometer measurements practical in vhf and uhf coax systems. Flat response, high power capacity, low insertion loss. Four models, covering 216 to 4,000 MC collectively, 764D/765D, $160; 766D/767D, $150.

760D/761D Dual Directional Couplers

Ideal for reflectometer systems, flat to ±0.5 db over 4-to-1 frequency range. Directivity 35 db (760D) and 30 db (761D). 760D, 250 MC to 1 GC, $200.00; 761D, 1 to 4 GC, $185.00.

Noise Measuring Equipment





342A Noise Figure Meter

344AR Noise Figure Meter

This automatic, transistorized instrument *reliably and continuously measures noise figure on operating radars.* Its fast meter response lets you optimize noise figure during operation. Its high sensitivity (noise source can be decoupled 20 db from transmitter line) minimizes system degradation and effectively extends radar range. High sensitivity also permits measuring high noise figures (to 40 db) such as those found in TWT's. The instrument is militarized for dependability in all environments.

Model 344AR is used with a remote modulator and noise source so that high voltage slip-rings on antennas are unnecessary. 1 MC bandwidth, 25 or 30 MC input, designed for pulse rep rates of 90 to 500 pps but usable with most jitter repetition systems. Sampling techniques permit use with high repetition rate radars.

Required gain between 344AR and noise source is 35 db ± 5 db. Input impedance is 75 ohms, return loss 20 db, 20 to 40 MC. Accuracy (excluding excess noise accuracy) is ± 0.5 db, 0 to 5 db; ± 1 db, 5 to 10 db; ± 2 db, 10 to 15 db. Simple front panel calibration remote metering if desired. Optional alarms indicate noise figure above preset level, or failure in noise source current. 344AR, $1,600.00 *(Approximately. Depends on options and modifications.)*

340B/342A Noise Figure Meters

General-purpose instruments making possible, in minutes, receiver and component alignment jobs that once took hours. Simplifies accurate alignment; encourages better maintenance; better performance.

340B automatically measures, continuously displays IF or rf amplifier noise figure at 30 or 60 MC; other freq. on order. $715.00 (cabinet); $700.00 (rack).

342A, similar, operates on 30, 60, 70, 105, 200 MC. 30 MC and 4 other frequencies between 38 and 200 MC on order. $815.00 (cabinet); $800.00 (rack). Also available with 21.4 mc I. F.

(NOTE: Models 340B, 342A and 344A not available in Western Europe.)

343A VHF Noise Source, temperature-limited diode broadband source, 10 to 600 MC, 5.2 db excess noise, $100.00.

345B IF Noise Source, 30 or 60 MC (others to order); 4 impedances, 5.2 db excess noise. $100.

347A Waveguide Noise Source, Argon gas discharge tubes in waveguide section 15.2 ± 0.5 db excess noise; for frequencies 2.6 to 18.0 GC, $200.00 to $300.00.

349A UHF Noise Source. 400 to 4,000 MC, wider range with correction; 15.2 ± 0.5 db excess noise, $325.00. H01 349A same as 349A except 18.2 ± 0.5 db excess noise. $325.00.

For details, circle #25 on Reader Service Card

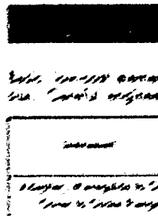
Microwave Test Equipment to 40 GC

hp now covers the entire frequency range of microwave instrumentation required. Each unit covers entire range of its waveguide size. Careful engineering brings these microwave units higher quality, greater reliability, simpler, more convenient operation.

Instrument	Symbol	WR-975 2.60 - 3.95 GC	WR-770 3.30 - 4.90 GC	WR-650 3.95 - 5.85 GC	WR-510 4.90 - 7.05 GC	WR-430 5.85 - 8.20 GC	WR-340 7.05 - 10.0 GC	WR-284 8.20 - 12.4 GC	WR-229 10.0 - 15.0 GC	WR-187 12.4 - 18.0 GC	WR-159 15.0 - 22.0 GC	WR-137 18.0 - 26.5 GC	WR-112 22.0 - 33.0 GC
Attenuator, Waveguide to Coax		2.60 to 3.95 GC	3.30 to 4.90 GC		4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC	8.20 to 12.4 GC					
Attenuator, Waveguide to Waveguide													
Attenuator, Fixed, Precision													
Attenuators:													
Variable, 0 to 70 db		2.60 to 3.95 GC	3.30 to 4.90 GC	3.95 to 5.85 GC	4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC	8.20 to 12.4 GC					
Variable, 0 to 120 db		2.60 to 3.95 GC	3.30 to 4.90 GC		4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC						
Fixed, 10, 20, 30 db		2.60 to 3.95 GC	3.30 to 4.90 GC	3.95 to 5.85 GC	4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC	8.20 to 12.4 GC					
Calibrated Variable		2.60 to 3.95 GC	3.30 to 4.90 GC	3.95 to 5.85 GC	4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC	8.20 to 12.4 GC	10.0 to 15.0 GC	12.4 to 18.0 GC	15.0 to 22.0 GC	18.0 to 26.5 GC	22.0 to 33.0 GC
Detector, Crystal	420A/B						420A/B	420A/B	420A/B	420A/B	420A/B	420A/B	420A/B
	420A/B												
	420A/B												
		2.60 to 3.95 GC	3.30 to 4.90 GC		4.90 to 7.05 GC								
		2.60 to 3.95 GC	3.30 to 4.90 GC		4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC						
Directional Coupler:													
Variable, Broad Band, 10	4276 B	2.60 to 3.95 GC	3.30 to 4.90 GC		4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC	8.20 to 12.4 GC	10.0 to 15.0 GC	12.4 to 18.0 GC	15.0 to 22.0 GC	18.0 to 26.5 GC	22.0 to 33.0 GC
Directional Coupler, Fixed				3.95 to 5.85 GC									
Slotted Section	5264 B		3.30 to 4.90 GC		4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC	8.20 to 12.4 GC	10.0 to 15.0 GC	12.4 to 18.0 GC	15.0 to 22.0 GC	18.0 to 26.5 GC	22.0 to 33.0 GC
Directional Couplers:													
Fixed, 10 db, 1, 2, 3, 6 db		2.60 to 3.95 GC	3.30 to 4.90 GC		4.90 to 7.05 GC								
Variable, 1 to 6 db		2.60 to 3.95 GC	3.30 to 4.90 GC		4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC	8.20 to 12.4 GC	10.0 to 15.0 GC	12.4 to 18.0 GC	15.0 to 22.0 GC	18.0 to 26.5 GC	22.0 to 33.0 GC
Hybrid Junction, Waveguide		2.60 to 3.95 GC	3.30 to 4.90 GC	3.95 to 5.85 GC	4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC	8.20 to 12.4 GC	10.0 to 15.0 GC	12.4 to 18.0 GC	15.0 to 22.0 GC	18.0 to 26.5 GC	22.0 to 33.0 GC
Hybrid Junction, Waveguide												18.0 to 26.5 GC	22.0 to 33.0 GC
Mixer, Wide Band		2.60 to 3.95 GC	3.30 to 4.90 GC	3.95 to 5.85 GC	4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC	8.20 to 12.4 GC	10.0 to 15.0 GC	12.4 to 18.0 GC	15.0 to 22.0 GC	18.0 to 26.5 GC	22.0 to 33.0 GC
Mixer, Tuned													
Termination, Low Power	910 B	2.60 to 3.95 GC	3.30 to 4.90 GC	3.95 to 5.85 GC	4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC	8.20 to 12.4 GC					
Termination, High Power	911 B												
Mixing Unit	940 B	2.60 to 3.95 GC	3.30 to 4.90 GC	3.95 to 5.85 GC		5.85 to 8.20 GC	7.05 to 10.0 GC	8.20 to 12.4 GC	10.0 to 15.0 GC	12.4 to 18.0 GC	15.0 to 22.0 GC	18.0 to 26.5 GC	22.0 to 33.0 GC
Modulator, Reflection													
Multiplier, Varactor		2.60 to 3.95 GC	3.30 to 4.90 GC	3.95 to 5.85 GC	4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC	8.20 to 12.4 GC	10.0 to 15.0 GC	12.4 to 18.0 GC	15.0 to 22.0 GC	18.0 to 26.5 GC	22.0 to 33.0 GC
Multiplier, Varactor, Doubler													
Phantom Mount	940 B	2.60 to 3.95 GC	3.30 to 4.90 GC	3.95 to 5.85 GC	4.90 to 7.05 GC	5.85 to 8.20 GC	7.05 to 10.0 GC	8.20 to 12.4 GC					
Short Back Plate	4028 B					All Frequencies							
Short Back Plate, Tuned					4.90 to 7.05 GC					12.4 to 18.0 GC			
Waveguide Clamp, Quick		Model 25 each, 21.5%						Model 25 Clamp, $2.50 each, all bands					

1 For use with Harmonic Mixers. 2 For use with Harmonic Mixers. *Complete assembly including carriage. †Adapts to 809B Carriage.
‡Includes Termination, 10 db Pad. **4.90 to 8.20 GC, 3.95 to 7.05 GC, 3.30 to 5.85 GC. ††Includes Termination; Doubler for square law characteristics. ‡‡Provides 40 db Variable Range Attenuator in 1/2-4/12 for 8 bands and 1/2-8/12 for 9 bands. §Specify by adding suffix "C" to model number; i.e., 420BC. ¶¶Model 25 Band 15-21 GC 2.50 ea.

532/536A Frequency Meters



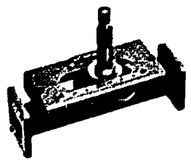
Comparable wide band, direct reading convenience are offered by 532 series, 3.95 to 40 GC, and the new 536A, 1 to 4 GC, Frequency Meters. The meters comprise high Q resonant cavity tuned by choke plunger; no sliding contacts. Resonance indicated by approx. 1 db dip in output. The 532 series meters are for waveguide application, the 536A for coaxial. 532 series, $175.00 to $325.00; 536A, $500.00.

281A Waveguide-Coax Adapters

For convenient transition between waveguide and coax systems. Each unit covers a full waveguide range with SWR less than 1.25. Type N coax fitting (female). AN-waveguide flange. For S, G, J, H and X bands, 2.6 to 12.4 GC, $25.00 to $50.00.

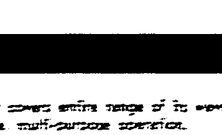
487B Thermistor Mounts

For fast, accurate waveguide power measurements. Each unit covers full range of its waveguide frequency. No tuning needed, SWR 1.5 max., except K and R bands, SWR 2.0 max. Max. power 10 mw. Rugged construction, high temperature coefficient thermistors virtually eliminate burnout. For S, G, J, H, X, M, P, K and R bands, 2.6 to 40.0 GC. $75.00 to $225.00.



870A Slide-Screw Tuners

For flattening waveguide systems, matching, etc. Probe position and penetration adjusts to setup reflection canceling existing reflection. Precision lead screw or micrometer varies probe insertion; vernier adjusts probe position. Corrects SWRs of 20 with accuracy of 1.02 SWR. For S, G, C, J, H, X, M, P, K, R, bands, 2.6 to 40.0 GC. $125.00 to $300.00.



420A/B Crystal Detectors

Employs a silicon crystal to detect rf signals in Type N coaxial lines. Covers frequencies 10 MC to 12.5 GC, sensitivity approx. 0.1 v/mw, frequency response = 3 db full range. Uses modified 1N26 crystal, max. SWR 3. $50.00 each. Also available in matched pairs as 420B, $150.00 pair.

444A/446B Untuned Probes

444A is modified crystal (1N76 or 1N26) plus small antenna in convenient housing. Probe penetration easily variable; may be locked in position. No tuning needed; sensitivity superior to most elaborate single or double tuned probes. Range 3.0 to 18GC; fits ¾" bore. *New 446B*, for 814 Probe Carriage, similar but covers K and R bands, 18.0 to 40.0 GC. 444A, $40.00. 446B, $145.00.

For details, circle #26 on Reader Service Card

Signal Generators and Doublers–50 KC to 40 GC

Frequency Doublers to 40 GC

Operating on harmonic generation principles, new 938A and 940A Frequency Doubler Sets provide output from 18 to 26.5 GC and 26.5 to 40.0 GC respectively. The Doublers can be driven by 626A or 628A Signal Generators, 686C and 687C Sweep Oscillators or by klystrons. The input signal may be CW, pulsed or swept; thus Doublers retain flexibility of driving instrument. Output approx. 0.5 to 1 mw with Signal Generators; input power 100 mw max. Output monitor accuracy ± 2 db. 100 db attenuator accurate within ± 2% of reading or 0.2 db. 938A, $1,500.00. 940A, $1,500.00.

606A Standard Signal Generator

Ultra-modern; 50 KC to 65 MC. Output 3 v full range, continuous attenuation to 0.1 μv. MO-PA circuit with full feedback loop provides constant output full range. Low distortion, broad modulating capabilities. Typical speed, ease of operation; occupies ¼ bench space normally needed for generators of this frequency range. $1,350.00.

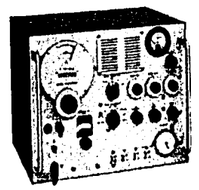
Instrument	Frequency Range	Characteristics	Price
-hp- 606A	50 KC to 65 MC	Output 0.1 μv to 3 v. Modulation bandwidth dc to 20 KC, low drift and noise, low incidental FM, low distortion.	$1,350.00△
-hp- 608C	10 to 480 MC	Output 0.1 μv to 1 v into 50 ohm load. AM, pulse, or CW modulation. Direct calibration	1,100.00■
-hp- 608D	10 to 420 MC	Output 0.1 μv to 0.5 v. Incidental FM less than 0.001%	1,200.00■
-hp- 612A	450 to 1,230 MC	Output 0.1 μv to 0.5 v into 50 ohm load. AM, pulse, CW or square wave modulation. Direct calibration	1,300.00■
-hp- 614A	800 to 2,100 MC	Output 0.1 μv to at least 0.163 v into 50 ohm load. Pulse, CW or FM modulation. Direct calibration	1,950.00■
-hp- 616B	1,800 to 4,200 MC	Output 0.1 μv to 0.223 v into 50 ohm load. Pulse, CW or FM modulation. Direct calibration	1,950.00■
-hp- 618B	3,800 to 7,600 MC	Output 0.1 μv to 0.223 v into 50 ohm load. Pulse, CW FM or square wave modulation. Direct calibration	2,250.00■
-hp- 620A	7,000 to 11,000 MC	Output 0.1 μv to 0.223 v into 50 ohm load. Pulse, FM or square wave modulation. Direct calibration	2,250.00■
-hp- 626A	10 to 15.5 GC	Output +10 dbm to —90 dbm. Pulse, FM, or square wave modulation. Direct calibration	3,400.00■
-hp- 628A	15 to 21 GC	Output +10 dbm to —90 dbm. Pulse, FM, or square wave modulation. Direct calibration	3,400.00■

△ Rack mounted instruments $15.00 less. ■ Rack mounted instrument $20.00 more.

608D VHF Signal Generator

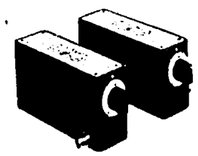
10 to 420 MC. Highest stability. Low incidental FM or frequency drift. Calibrated output 0.1 μv to 0.5 v throughout range. Built-in crystal calibrator provides frequency check accurate within 0.01% each 1 and 5 MC. Master-oscillator, intermediate and output amplifier circuit design. Premium quality performance, direct calibration, ideal for aircraft communications equipment testing. $1,200.00.■

608C VHF Signal Generator. High power (1 v max.) stable, accurate generator for lab or field use. 10 to 480 MC. Ideal for testing receivers, amplifiers, driving bridges, slotted lines, antennas. $1,100.00■



626A/628A SHF Signal Generators

Instruments bringing high power, wide range, convenience and accuracy 10 to 21 GC range. Frequencies, output voltage directly set and read. Output 10 to 20 db better than previous spot-frequency sets; SWR better than 1.2 at 0 dbm and lower. Internal pulse, FM or square wave modulation; also external pulsing or FM'ing. 626A, 10 to 15.5 GC, $3,400.00.■ 628A, 15 to 21 GC, $3,400.00.■



355A/B Precision Attenuators

Useful as components or lab instruments, 355A/B together provide 0-132 db attenuation in 1 db steps, dc to 500 MC. 355A or 355B, $125.00.

350A/B Attenuators, 110 db attenuation in 1 db steps, 5 watts power capacity, high accuracy; dc to 100 KC. 350A (500 ohm) or 350B (600 ohm), $110.00 (cabinet); 350AR or 350BR, $115.00 (rack mount).

Swept Frequency Oscillators

686C Electronic Sweep Oscillator

Covers all or part of X-band with flexible, *quiet* electronic sweep. Simple to operate, direct reading, adjustable sweep width and rate, 10 mw output minimum, frequency sweep linear with time. Has slow sweep for recorders; fast for oscilloscope; single sweep manually started or externally triggered, external FM, AM modulation. $2,900.00△.

Instrument	Frequency Range	Characteristics	Price
-hp- 682C	1.0 to 2.0 GC	Electronically swept; variable sweep rate, width. Output 10 mw, SWR 3.1 or less Pulse, square wave, FM, AM modulation All models offer leveled output	$3,090.00△
-hp- 683C	2.0 to 4.0 GC		3,000.00△
-hp- 684C	4.0 to 8.1 GC		2,900.00△
-hp- 686C	8.2 to 12.4 GC		2,900.00△
H01 686C	7.0 to 11.0 GC		3,000.00△
-hp- 687C	12.4 to 18.0 GC		3,400.00△

△ Rack mounted instruments $15.00 less.

Data subject to change without notice. *Prices f.o.b. factory.*

For details, circle #27 on Reader Service Card

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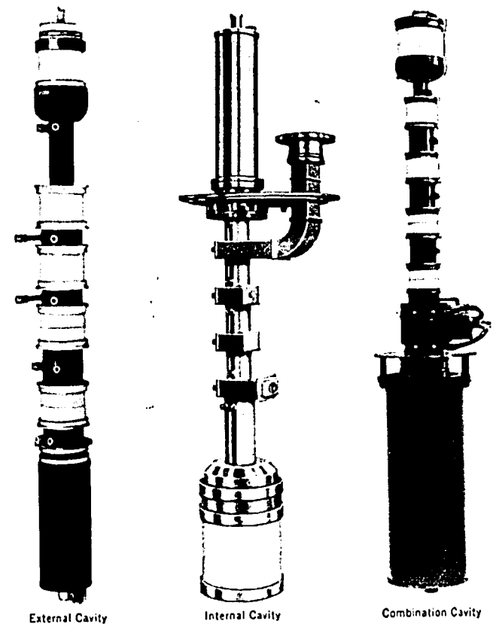


External Cavity — Internal Cavity — Combination Cavity

EIMAC POWER AMPLIFIER KLYSTRONS

and Key Accessories

At Eimac you'll find the most advanced amplifier klystrons anywhere. For Eimac is the only manufacturer designing klystrons three ways to best meet specific performance requirements: internal cavity, external cavity and combination cavity. That's why these tubes are now in widespread use in high power applications the world over. And watch for klystrons to come—the result of Eimac's unmatched tube-making skills and complete developmental facilities.

POWER AMPLIFIER KLYSTRONS

	OEM Price	TYPICAL OPERATION Output Power, Watts CW	Output Power, Watts Pulse	Power Gain db	Frequency Range Mc	MAXIMUM RATINGS Beam Voltage Volts	Beam Current Amps
3K2500LX	$ 2,000.00	1000	—	25	980-1200	7000	0.6
3K2500SG	2,500.00	1000	—	25	1700-2400	7000	0.6
3K3000LQ	2,000.00	2000	—	25	610- 985	10,000	0.75
3K50,000LA	3,570.00	10,000	12,000†	25	400- 600	20,000	2.5
3K50,000LF	3,570.00	10,000	12,000†	25	570- 720	20,000	2.5
3K50,000LQ	3,570.00	10,000	12,000†	25	720- 985	20,000	2.5
3K210,000LQ	20,000.00	75,000	—	13	755- 985	30,000	8.0
3KM3000LA	2,100.00	2000	—	30	375- 585	10,000	0.75
3KM4000LT	2,200.00	—	40,000	30	960-1215	28,000	6.0
3KM50,000PA	9,300.00	20,000	—	30	225- 400	30,000	2.75
4K50,000LQ	3,195.00	10,000	—	55	720- 985	20,000	2.5
4KM3000LR	2,200.00	2000	—	45	610- 985	10,000	0.75
4KM50,000LA3	3,595.00	10,000	—	50	400- 630	20,000	2.5
4KM50,000LR	3,195.00	10,000	—	50	755- 985	20,000	2.5
4KM170,000LA	17,500.00	75,000	—	45	325- 500	35,000	5.0
5K210,000LQ	20,000.00	75,000	—	45	755- 985	30,000	10.0
6K50,000LQ	7,000.00	6000	—	30	720- 980	20,000	2.5
4KMP10,000LF	9,150.00	—	400,000	55	570- 630	70,000	22.5
4KM50,000LF	3,595.00	10,000	—	45	610- 790	20,000	2.5
4KM50,000LQ	3,195.00	10,000	—	50	610- 985	20,000	2.5
4KM100LA	6,500.00	35,000	—	45	470- 610	20,000	6.0

TEST LOADS

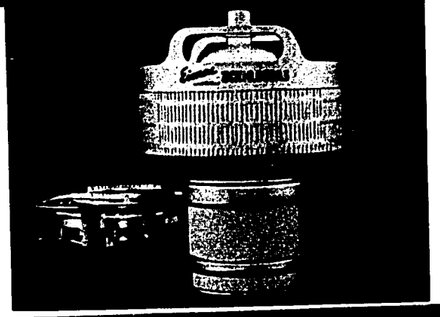
	OEM Price	Frequency	Dissipation	Max. VSWR
WL-110	$ 825.00	0.45 -1.20 kmc/s	15 kw	1.28:1
WL-120	825.00	0.5 -1.20 kmc/s	20 kw	1.15:1
WL-130	875.00	0.35 -1.20 kmc/s	20 kw	1.10:1
WL-140	925.00	0.225-1.20 kmc/s	20 kw	1.15:1
WL-150	2,500.00	0.25 -0.75 kmc/s	100 kw	1.10:1
WL-160	2,700.00	0.20 -0.75 kmc/s	100 kw	1.12:1
WL-200	900.00	1.70 -2.40 kmc/s	24 kw	1.10:1
WL-210	2,500.00	0.75 -1.00 kmc/s	100 kw	1.20:1
WL-220	3,200.00	0.39 -0.46 kmc/s	150 km	1.13:1

Specify
EIMAC POWER KLYSTRONS
for
Dependable, Long-Life Performance

Prices and specifications subject to change without notice. Write for complete specifications on any tube to: Amplifier Klystron Division, **EITEL-McCULLOUGH, INC.,** *San Carlos, California.*

THERE'S MORE: *For Eimac Power Grid Tubes, Eimac Microwave Tubes, turn the page.*

For details, circle #29 on Reader Service Card



EIMAC POWER GRID

At Eimac you'll find the most *complete* line of power grid tubes available today: triodes, tetrodes, pulse modulators, diodes, zero-bias tubes, ceramic tubes, glass tubes. And there are more to come! Continuing Eimac projects are ever increasing the scope of power grid tube capabilities.

DIODES AND RECTIFIERS

	User Price	Filament Voltage Volts	Filament Current Amps	Peak Inverse Voltage Volts	Peak Plate Current Amps	Average Plate Current ma	Plate Dissipation Watts
2-01C	$ 18.50	5.0	0.35	1,000	0.010	1	0.1
2-25A	20.00	6.3	3.0	25,000	1.0	50	15
2-50A	23.00	5.0	4.0	30,000	1.0	75	30
2-150D	39.00	5.0	13.0	30,000	3.0	250	90
2-240A	43.00	7.5	12.0	25,000	4.0	500	150
2-450A	113.00	7.5	26.5	30,000	8.0	1000	450
2-2000A	228.00	10.0	25.0	75,000	12.0	750	1200
250R	38.50	5.0	10.5	60,000	2.5	250	150
253	37.00	5.0	10.0	15,000	2.5	350	100
8020(100R)	21.50	5.0	6.5	40,000	1.5	100	60
2X1000A	127.50	26.5	2.2	25,000	25.0[4]	1250[4]	1000
2X3000F	168.00	7.5	51.0	25,000	20.0	3000	3000
KY21A	26.75	2.5	10.0	11,000	3.0	750	.....
RX21A	25.75	2.5	10.0	11,000	3.0	750	.....
322	26.00	6.3	1.0	800	4.8[4]	125[6]	100

PULSE MODULATORS

	User Price	Plate Dissipation Watts	Plate Voltage Volts	Plate Current ma	Grid Dissipation Watts	Screen Voltage Volts	Screen Dissipation Watts	Filament Voltage Volts	Filament Current Amps	Amplification Factor
4PR60A	$ 100.00	60	20,000	18,000[3]	.....	1500	8	26.0	2.25	.....
4PR60B	110.00	60	20,000	18,000[3]	.....	1500	8	26.0	2.25	.....
4PR65A	35.00	65	15,000	1000[3]	5	2000	10	6.0	3.5	.....
4PR125A	50.00	125	18,000	1800[3]	5	2000	20	5.0	6.5	.....
4PR250C	188.00	250	50,000	4000[3]	5	2000	25	5.0	14.5	.....
4PR400A	60.00	400	20,000	4000[3]	10	2500	35	5.0	14.5	.....
4PR1000A	145.00	1000	30,000	8000[3]	25	2500	75	7.5	21.4	.....
3CPL500A8	1570.00	500[4]	120,000	5000[3]	25[4]	.....	....	7.5	5.5	700
6C21	82.50	300	30,000	15,000[3]	50	.....	....	8.2	17.00	30

AIR SYSTEM SOCKETS

	User Price	Tube	Screen By-Pass Capacitor uuf	Special Characteristics
SK-300	$105.00	4CX5000A	none	
SK-300A	107.15	4CX5000A; 4CW10,000A; 4CX10,000D	none	
SK-400	17.50	4-400A; 4-250A; 4-125A; 4X500F	none	
SK-410	6.00	3-400Z; 4-250A; 4-400A; 4PR250C; 4PR400A	none	
SK-500	20.00	4-1000A	none	
SK-510	6.00	3-1000Z; 4-1000A; 4PR1000A	none	
SK-600	11.50	4X150A; 4X150D; 4X250B; 4X250F; 4CX250B; 4W300B	2700	No terminals grounded.
SK-602	11.50	4X150A; 4X150D; 4X250B; 4X250F; 4CX250B; 4W300B	2700	No terminals grounded. (Special SK-600)
SK-610	12.00	4X150A; 4X150D; 4X250B; 4X250F; 4CX250B; 4W300B	2700	Cathode terminals grounded.
SK-620	12.00	4X150A; 4X150D; 4X250B; 4X250F; 4CX250B; 4W300B	1100	No terminals grounded. Screen by-pass capacitor plastic sealed.
SK-630	18.50	4X150A; 4X150D; 4X250B; 4X250F; 4CX250B; 4W300B	1100	Cathode terminals grounded. Screen by-pass capacitor plastic sealed.
SK-640	5.25	4X150A; 4X150D; 4X250B; 4X250F; 4CX250B; 4W300B	none	No terminals grounded.
SK-650	8.50	4X150A; 4X150D; 4X250B; 4X250F; 4CX250B; 4W300B	none	Cathode terminals grounded.
SK-655	6.00	(Screen by-pass capacitor for use with SK-650)	1100	Plastic sealed.
SK-700	21.50	4CX300A	1100	No terminals grounded.
SK-710	21.50	4CX300A	1100	Cathode terminals grounded.
SK-711	26.50	4CN15A; 4CX125C; 4CX300A	1100	Cathode terminals grounded.
SK-740	10.00	4CX300A	none	No terminals grounded.
SK-760	10.00	4CX300A	none	Integral chimney. No terminals grounded.
SK-770	10.00	4CX300A	none	Integral chimney, screen terminals grounded.
SK-800A	56.00	4CX1000A, 4CW2000A	1500	No terminals grounded.
SK-810	56.00	4CX1000A, 4CW2000A	1500	Cathode terminals grounded.
SK-890	65.00	4CX1000A, 4CW2000A	1500	Cathode grounded. Screen isolated.
SK-900	68.50	4X500A	650	
SK-1300	64.50	3CX10,000A1; 3CX10,000A3; 3CX10,000A7; 3CW20,000A1; 3CW20,000A3; 3CW20,000A7	none	No terminals grounded.
SK-1400	93.00	4CX3000A	1800	

CHIMNEYS

	User Price
SK-306	$ 6.50
SK-406	8.50
SK-416	6.00
SK-506	15.00
SK-516	11.00
SK-606	.75
SK-626	.75
SK-636A	7.00
SK-806	8.50
SK-906	11.50
SK-1306	6.50
SK-1406	6.50

For details, circle #30 on Reader Service Card

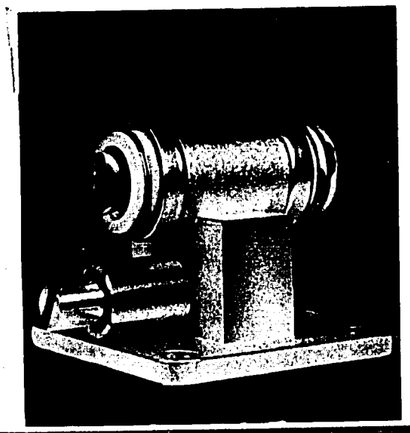
TUBES and Accessories

		User Price	Plate Dissipation Watts	MAXIMUM RATINGS: Plate Voltage Volts	MAXIMUM RATINGS: Plate Current ma	MAXIMUM RATINGS: Grid Dissipation Watts	MAXIMUM RATINGS: Screen Voltage Volts	MAXIMUM RATINGS: Screen Dissipation Watts	ELECTRICAL CHARACTERISTICS: Filament Voltage Volts	ELECTRICAL CHARACTERISTICS: Filament Current Amps	ELECTRICAL CHARACTERISTICS: Amplification Factor
TETRODES	4-65A	$ 28.50	65	3000	150	5	400	10	6.0	3.5	.....
	4-125A	36.00	125	3000	225	5	400	20	5.0	6.5	.....
	4-250A	46.50	250	4000	350	10	600	35	5.0	14.5	.....
	4-400A	48.00	400	4000	350	10	600	35	5.0	14.5	.....
	4-1000A	132.00	1000	6000	700	25	1000	75	7.5	21.0	.....
	4CN15A	55.00	15	2500	.....	2	400	12	6.0	3.0	.....
	4CW2000A	220.00	2000	3000	1000	0	400	12	6.0	12.5	.....
	4CW10,000A	575.00	10,000	7500	3000	75	1500	250	7.5	75.0	.....
	4CX125C	55.00	125	2500	250	2	400	12	6.0	2.7	.....
	4CX250B	39.00	250	2000	250	2	400	12	6.0	2.6	.....
	4CX250K	64.00	250	2000	250	2	400	12	6.0	2.6	.....
	4CX250F	39.00	250	2000	250	2	400	12	26.5	0.56	.....
	4CX250M	92.50	250	2000	250	2	400	12	26.5	0.57	.....
	4CX250R	55.50	250	2000	250	2	500	12	6.0	2.6	.....
	4CX300A	55.00	300	2500	250	2	400	12	6.0	2.7	.....
	4CX1000A	156.00	1000	3000	1000	0	400	12	6.0	12.5	.....
	4CX3000A	400.00	3000	7000	2000	50	1000	175	10.0	45	.....
	4CX5000A	495.00	5000	7500	3000	75	1500	250	7.5	75.0	.....
	4CX10,000D	550.00	10,000	7500	3000	75	1500	250	7.5	75.0	.....
	4W300B	57.00	300	2000	250	2	400	12	6.0	2.6	.....
	4W20,000A	1950.00	20,000	8000	15,000	60	1500	200	10.0	30.0[9]	.....
	4X150A	25.00	250	2000	250	2	400	12	6.0	2.6	.....
	4X150D	28.00	250	2000	250	2	400	12	26.5	0.57	.....
	4X150G	58.00	250	2000	250	2	400	12	2.5	7.0	.....
	4X250B	39.35	250	2000	250	2	400	12	6.0	2.6	.....
	4X250F	39.35	250	2000	250	2	400	12	26.5	0.57	.....
	4X500A	128.50	500	4000	350	10	500	30	5.0	13.5	.....
	7580	45.00	250	2000	250	2	500	12	6.0	2.6	.....
PENTODE	4E27A/5-125B	$ 50.00	125	4000	200	5	750	20	5.0	7.50	.....
TRIODES	2C39A	$ 22.50	100	1000	125[1]	2	.....	.....	6.3	1.0	100
	2C39WA	32.00	100	1000	125[1]	2	.....	.....	6.3	1.0	100
	3-400Z	52.00	400	4000	400	20	.....	.....	5.0	14.5	200
	3-1000Z	140.00	1000	6000	800	50	.....	.....	7.5	21.3	200
	3C24	16.00	25	2000	75	7	.....	.....	6.3	3.0	24
	3CPN10A5	32.00	10	3500[3]	3000[3]	2	.....	.....	6.0	1.0	100
	3CX100A5	32.00	100	1000	125[1]	2	.....	.....	6.0	1.0	100
	3CX100F5	34.00	100	1000	125[1]	2	.....	.....	26.5	0.22	100
	3CW20,000A1	560.00	20,000	7000	4000	100	.....	.....	7.5	100.0	5.5
	3CW20,000A3	560.00	20,000	7000	4000	250	.....	.....	7.5	100.0	20
	3CW20,000A7	720.00	20,000	7000	4000	500	.....	.....	7.5	100.0	200
	3CX10,000A1	460.00	10,000	7000	4000	100	.....	.....	7.5	100.0	5.5
	3CX10,000A3	460.00	10,000	7000	4000	250	.....	.....	7.5	100.0	20
	3CX10,000A7	650.00	10,000	7000	4000	500	.....	.....	7.5	100.0	200
	3W5000A1	235.00	5000	6000	2500	50	.....	.....	7.5	51.0	5
	3W5000A3	225.00	5000	6000	2500	150	.....	.....	7.5	51.0	20
	3W5000F1	243.00	5000	6000	2500	50	.....	.....	7.5	51.0	5
	3W5000F3	230.00	5000	6000	2500	150	.....	.....	7.5	51.0	20
	3X2500A3	200.00	2500	6000	2500	150	.....	.....	7.5	51.0	20
	3X2500F3	205.00	2500	6000	2500	150	.....	.....	7.5	51.0	20
	3X3000A1	210.00	3000	6000	2500	50	.....	.....	7.5	51.0	5
	3X3000F1	215.00	3000	6000	2500	50	.....	.....	7.5	51.0	5
	3X3000F7	260.00	3000	5000	2500	225	.....	.....	7.5	51.0	200
	25T	18.50	25	2000	75	7	.....	.....	6.3	3.0	24
	35T	21.50	50	2000	150	15	.....	.....	5.0	4.0	39
	35TG	36.00	50	2000	150	15	.....	.....	5.0	4.0	39
	75TH	30.00	75	3000	225	16	.....	.....	5.0	6.25	20
	75TL	30.00	75	3000	225	13	.....	.....	5.0	6.25	12
	100TH	23.50	100	3000	225	20	.....	.....	5.0	6.3	38
	100TL	23.50	100	3000	225	15	.....	.....	5.0	6.3	14
	152TH	75.00	150	3000	450	30	.....	.....	5 or 10	12.5 or 6.25	20
	152TL	75.00	150	3000	450	25	.....	.....	5 or 10	12.5 or 6.25	12
	250TH	38.50	250	4000	350	40	.....	.....	5.0	10.5	37
	250TL	38.50	250	4000	350	35	.....	.....	5.0	10.5	14
	304TH	64.50	300	3000	900	60	.....	.....	5 or 10	25 or 12.5	20
	304TL	64.50	300	3000	900	50	.....	.....	5 or 10	25 or 12.5	12
	450TH	75.00	450	6000	600	80	.....	.....	7.5	12.0	38
	450TL	75.00	450	6000	600	65	.....	.....	7.5	12.0	18
	592/3-200A3	46.00	200	3500	250	25	.....	.....	10.0	5.0	25
	750TL	150.00	750	10,000	1000	100	.....	.....	7.5	21.0	15
	1000T	150.00	1000	7500	750	80	.....	.....	7.5	15.5	35
	1500T	279.00	1500	8000	1250	125	.....	.....	7.5	24.0	24
	2000T	387.00	2000	8000	1750	150	.....	.....	10.0	23.5	23

Prices and specifications subject to change without notice. Write for complete specifications on any tube to:
Power Grid Tube Division, **EITEL-McCULLOUGH, INC.,** *San Carlos, California.*

THERE'S MORE: *For Eimac Microwave Tubes, other products, turn the page.*

For details, circle #31 on Reader Service Card



EIMAC MICROWAVE TUBES

At Eimac you'll find microwave devices that have set new performance standards everywhere. And behind the scenes, Eimac Microwave Engineers are hard at work opening new frontiers, developing new tube types.

				MAXIMUM RATINGS				ELECTRICAL CHARACTERISTICS		
		User Price	Output Power	Resonator Voltage Volts	Resonator Dissipation Watts	Cathode Current ma	Reflector Voltage Volts (Typical)	Heater Voltage Volts	Heater Current Amps	Frequency Range Mc
REFLEX KLYSTRONS	1K015CA[2]	$595.00	70 mw	350	15	50	—250	6.3	0.8	5400-6000
	1K015CG[1]	618.00	70 mw	350	15	50	—250	6.3	0.8	5400-6000
	1K125CA[1]	530.00	1.25 w	1000	125	110	—285	6.3	1.5	3700-4400
	1K125CB[1]	530.00	1.8 w	1000	125	110	—335	6.3	1.5	4400-5000
	1K75CH[2]	810.00	0.2/1.0 w	550/750	75	35/60	—150/—350	6.3	1.5	4300±50
	1K75CL[1]	810.00	0.2/1.0 w	550/750	75	35/60	—150/—350	6.3	1.5	4300—0+75
	1K75CK[1]	810.00	0.2/1.0 w	550/750	75	35/60	—150/—350	6.3	1.5	4300±50
	1K20XD[1]	475.00	75 mw	300	20	40	—150	6.3	1.0	10,000-10,700
	1K20XK[1]	475.00	75 mw	300	20	40	—150	6.3	1.0	9200-10,000
	1K20XS[1]	475.00	75 mw	300	20	40	—150	6.3	1.0	8500-9200
	X-821[1]	On request	0.1/1.0 w	400/750	16/75	40/100	—150/—200	6.3	1.0	10,500-13,200

		User Price	Output Power	Anode Voltage (Volts)	Injection Anode Voltage (Volts)	Cathode Current (ma)	Injection Anode Current (ma)	Heater Voltage (AC or DC)	Heater Current (AC or DC)	Frequency Range Mc
VOLTAGE-TUNABLE MAGNETRON	X747[2]	$780.00	100 mw	600-2000	0-500	3-20	0-1	6.3	1.0	450-1150

		OEM Price	Output Power	Beam Voltage	Small Signal Gain	Cathode Current	Focusing	Heater Voltage	Heater Current	Frequency Range Mc
TRAVELING WAVE TUBE	EM-778[3]	$2900.00	1.0 w	2850-3000	60db	25 ma	PPM	6.3	0.6a	5000-11,000

OTHER PRODUCTS

PREFORMED CONTACT FINGER STOCK — A prepared strip of silver-plated spring material, slotted and formed into a series of fingers designed to make sliding contact.

Single Edge	Width	Double Edge	Width	Klystron Types	Width
CF-100	17/32"	CF-200	13/16"	CF-700	17/32"
CF-300	31/32"	CF-400	1 11/32"	CF-800	13/32" x 3/4"
CF-500	1 3/8"	CF-600	2 1/4"		
CF-900	31/64"				

Used as contact between klystrons and externally-tuned cavities.

HEAT-DISSIPATING CONNECTORS

Type	Hole Diameter
HR-1	.052
HR-2	.062
HR-3	.072
HR-4	.102
HR-5	.127
HR-6	.367
HR-7	.127
HR-8	.575
HR-9	.569
HR-10	.510

SK-604A TUBE EXTRACTOR — A spring-steel extractor for use with the 4X150 series, 4X250 series, 4CX250 series, and 2C39 series tubes.

VACUUM SWITCHES — Single-pole double-throw switch within a high vacuum adaptable for high-voltage switching. Contact spacing .015". Switch will handle R-F potentials as high as 20 Kv. In D-C switching will handle approximately 1.5 Amps. at 5 Kv.

Type	Coils
VS-2	12V
VS-4	24V
VS-5	
VS-6	

100IG IONIZATION GAUGE — For measuring pressures from 10^{-3} to less than 10^{-8} mm of mercury.

HV-1 DIFFUSION PUMP — Triple-jet, air-cooled vacuum pump of the oil-diffusion type. Capable of reaching an ultimate vacuum of 4×10^{-7} mm of mercury when used with suitable forepump.

[1]Waveguide Output Fitting
[2]Coaxial Output Fitting
[3]Pulse
[4]Convection liquid cooled
[5]Cathode Current
[6]Pulse-clipper service only
[7]TV Peak-Synchronizing Level
[8]Plus 2250 watts bombarder power

Prices and specifications subject to change without notice. Write for complete specifications on any microwave tube to:
Microwave Tube Division, **EITEL-McCULLOUGH, INC.,** *San Carlos, California.*
Plants also in San Bruno, California; Salt Lake City, Utah.

LAMBDA

REGULATED POWER SUPPLIES

Guaranteed Five Full Years

Every Power Supply sold by Lambda since 1953 has been covered by the most complete Power Supply guarantee offered by any manufacturer. Experience has shown that Lambda Power Supplies give constant trouble-free performance year after year. This guarantee assures you that the Power Supply you buy today, built to Lambda's high standards, will perform satisfactorily under heavy-duty service.

Market Surveys Rank Lambda First

For the sixth consecutive year a survey conducted by a leading electronic publication proves that engineers prefer Lambda Power Supplies by a vast majority over other manufacturers' equipment. Lambda's 41.8 per cent preference is more than 2½ times higher than the second place manufacturer.

LAMBDA'S NEW PLANT, Huntington, L. I., N. Y., has been specifically designed for the efficient and economical manufacture of Power Supplies. Lambda's 76,000 sq. ft. plant contains expanded engineering, manufacturing, quality control, and other staffs plus new, modern equipment and facilities to assure you the best quality Power Supply equipment available.

LAMBDA ELECTRONICS CORP.

515 BROAD HOLLOW ROAD • HUNTINGTON, L.I., NEW YORK • 516 MYRTLE 4-4200

New

LAMBDA Transistorized REGULATED POWER SUPPLIES

0 - 34 VDC 5, 10 and 20 Amp
20 - 105 VDC 2, 4 and 8 Amp
75 - 330 VDC 0.8, 1.5 and 3 Amp

CONVECTION COOLED
No Blowers or Filters
Maintenance Free

Highly efficient, radiator type heat sinks eliminate internal blowers, maintenance problems, risk of failure, moving parts, noise and magnetic fields. Units are rated for continuous duty at 50°C ambient.

EASY SERVICE ACCESS

Dual-deck, swing-out back construction provides simple and fast service access without the need to remove unit from rack. All major component terminals are accessible from rear.

REMOTE SENSING

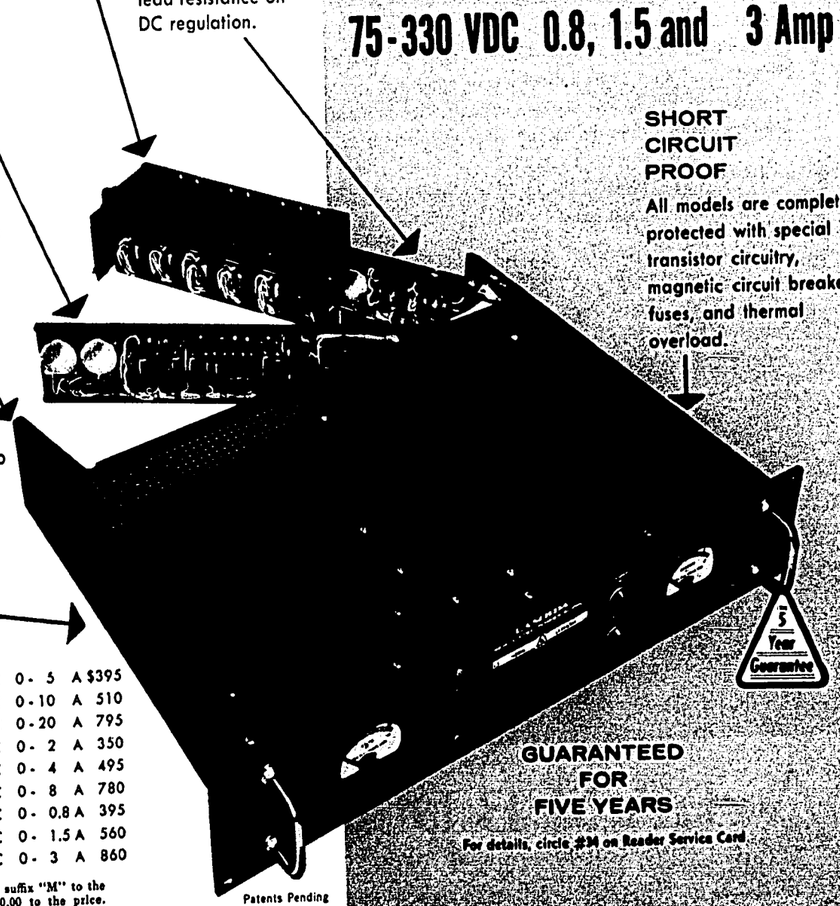
Provision is made for remote sensing to eliminate effect of power output lead resistance on DC regulation.

NO VOLTAGE SPIKES OR OVERSHOOT

Lambda's design prevents output voltage overshoot on "turn on, turn off," or power failure.

MIL QUALITY

Hermetically-sealed magnetic shielded transformer designed to MIL-T-27A quality and performance. Special, high-purity foil, hermetically-sealed long life electrolytic capacitors.



SHORT CIRCUIT PROOF

All models are completely protected with special transistor circuitry, magnetic circuit breakers, fuses, and thermal overload.

5 Year Guarantee

GUARANTEED FOR FIVE YEARS

For details, circle #34 on Reader Service Card

LA 50-03A	0 - 34 VDC	0 - 5 A	$395
LA100-03A	0 - 34 VDC	0 - 10 A	510
LA200-03A	0 - 34 VDC	0 - 20 A	795
LA 20-05B	20 - 105 VDC	0 - 2 A	350
LA 40-05B	20 - 105 VDC	0 - 4 A	495
LA 80-05B	20 - 105 VDC	0 - 8 A	780
LA 8-08B	75 - 330 VDC	0 - 0.8 A	395
LA 15-08B	75 - 330 VDC	0 - 1.5 A	560
LA 30-08B	75 - 330 VDC	0 - 3 A	860

For metered models add the suffix "M" to the model number and add $30.00 to the price.

Patents Pending

SPECIAL FEATURES

- Convection cooling — no internal blowers
- Ambient 50°C
- Specially designed, high efficiency radiator heat sinks
- Protected by magnetic circuit breakers
- Short-circuit-proof
- Excess ambient thermal protection
- Special transistor circuitry provides independent protection against transistor complement overload
- Remotely programmable by simple use of external resistor over the DC vernier range
- Remote sensing
- No voltage spikes or overshoot on "turn on, turn off," or power failure
- Excellent regulation . . . low output impedance . . . low ripple
- Fast transient response
- Hermetically-sealed transformer—designed to MIL-T-27A
- Special, high-purity foil, hermetically sealed long-life electrolytic capacitors
- All transistor — no tubes
- Constant current operation (consult factory)

COMPLETE SPECIFICATIONS OF LAMBDA LA SERIES

DC OUTPUT (regulated for line and load)

Model	Voltage Range [1]	Current Range [2]	Price [3]
LA 50-03A	0- 34 VDC	0- 5 AMP	$395
LA100-03A	0- 34 VDC	0-10 AMP	510
LA200-03A	0- 34 VDC	0-20 AMP	795
LA 20-05B	20-105 VDC	0- 2 AMP	350
LA 40-05B	20-105 VDC	0- 4 AMP	495
LA 80-05B	20-105 VDC	0- 8 AMP	780
LA 8-08B	75-330 VDC	0- 0.8 AMP	395
LA 15-08B	75-330 VDC	0- 1.5 AMP	560
LA 30-08B	75-330 VDC	0- 3 AMP	860

[1] *The DC output voltage for each model is completely covered by four selector switches plus vernier control. The DC output voltage is the summation of the minimum voltage plus the voltage steps and the continuously variable DC vernier.*

[2] *Current rating applies over entire voltage range.*

[3] *Prices are for unmetered models. For metered models add the suffix "M" and add $30.00 to the price.*

CONTINUOUSLY VARIABLE VERNIER OR PROGRAMMABLE VOLTAGE BANDS:

LA 50-03A LA100-03A LA200-03A	LA20-05B LA40-05B LA80-05B	LA 8-08B LA15-08B LA30-08B
VDC	VDC	VDC
0- 4	20- 30	75-105
2- 6	25- 35	90-120
4- 8	30- 40	105-135
6-10	35- 45	120-150
8-12	40- 50	135-165
10-14	45- 55	150-180
12-16	50- 60	165-195
14-18	55- 65	180-210
16-20	60- 70	195-225
18-22	65- 75	210-240
20-24	70- 80	225-255
22-26	75- 85	240-270
24-28	80- 90	255-285
26-30	85- 95	270-300
28-32	90-100	285-315
30-34	95-105	300-330

Regulation (line) ..... Less than 0.05 per cent or 8 millivolts (whichever is greater). For input variations from 105-140 VAC.[4]

Regulation (load) ..... Less than 0.10 per cent or 15 millivolts (whichever is greater). For load variations from 0 to full load.

Transient Response ..... Output voltage is constant within regulation specifications for step function:

(line) ..... line voltage change from 105-140 VAC or 140-105 VAC.[4]

(load) ..... load change from 0 to full load or full load to 0 within 50 microseconds after application.

Ripple and Noise ..... Less than 1 millivolt rms with either terminal grounded.

Polarity ..... Either positive or negative terminal may be grounded.

Temperature Coefficient .. Less than 0.025 %/°C

Internal Impedance .....

LA 50-03A less than .008 ohms	LA 80-05B less than .015 ohms
LA100-03A less than .004 ohms	LA 8-08B less than .5 ohms
LA200-03A less than .002 ohms	LA 15-08B less than .25 ohms
LA 20-05B less than .06 ohms	LA 30-08B less than .15 ohms
LA 40-05B less than .03 ohms	

AC INPUT ..... 105-140[4] VAC, 60 ± 0.3 cycle[5]

LA 50-03A ..... 360 watts [6]	LA 80-05B ..... 1350 watts [6]
LA100-03A ..... 680 watts [6]	LA 8-08B ..... 415 watts [6]
LA200-03A ..... 1225 watts [6]	LA 15-08B ..... 760 watts [6]
LA 20-05B ..... 390 watts [6]	LA 30-08B ..... 1450 watts [6]
LA 40-05B ..... 710 watts [6]	

[4] *Except for Models LA50-03A, LA100-03A, and LA200-03A which have AC input voltage of 100-130 VAC. 105-140 VAC available upon request at moderate surcharge.*

[5] *This frequency band amply covers standard commercial power line tolerances in the United States and Canada. For operation over wider frequency band, consult factory.*

[6] *With output loaded to full rating and maximum input voltage.*

AMBIENT TEMPERATURE AND DUTY CYCLE ..... Continuous duty at full load up to 50°C (122°F) ambient.

OVERLOAD PROTECTION:

Electrical ..... Magnetic circuit breaker front panel mounted. Special transistor circuitry provides independent protection against transistor complement overload. Fuses provide internal failure protection. Unit cannot be injured by short circuit or overload.

Thermal ..... Thermostat, manual reset, rear of chassis. Thermal overload indicator light front panel.

INPUT AND OUTPUT CONNECTIONS: ..... Heavy duty barrier terminal block, rear of chassis. 8 foot, 3 wire detachable line cord.

METERS ..... Voltmeter and ammeter on metered models.

CONTROLS:

DC Output Controls ..... Voltage selector switches and adjustable vernier-control rear of chassis.

Power ..... Magnetic circuit breaker, front panel.

Remote Programming ... Provision for remote programming over DC vernier bands.

Remote Sensing ..... Provision is made for remote sensing to eliminate effect of power output lead resistance on DC regulation.

Constant Current ..... Consult factory.

PHYSICAL DATA:

Mounting ..... Standard 19" Rack Mounting.

Size

LA 50-03A, LA20-05B, LA 8-08B 3½" H x 19" W x 14½" D
LA100-03A, LA40-05B, LA15-08B 7" H x 19" W x 14½" D
LA200-03A, LA80-05B, LA30-08B 10½" H x 19" W x 16½" D

Weight

LA 50-03A, LA20-05B, LA 8-08B 55 lb Net 85 lb Ship. Wt.
LA100-03A, LA40-05B, LA15-08B 100 lb Net 130 lb Ship. Wt.
LA200-03A, LA80-05B, LA30-08B 140 lb Net 170 lb Ship. Wt.

Panel Finish ..... Black ripple enamel (standard). Special finishes available to customers' specifications at moderate surcharge. Quotation upon request.

For details, circle #35 on Reader Service Card

LAMBDA LT SERIES

Regulated Power Supplies - Transistorized

New Prices Effective April 1, 1963

LT 1095M (with meters):	0-32 VDC, 0-1 AMP	$265.00
LT 2095M (with meters):	0-32 VDC, 0-2 AMP	325.00
LT 1095 (without meters):	0-32 VDC, 0-1 AMP	235.00
LT 2095 (without meters):	0-32 VDC, 0-2 AMP	295.00

Patents Pending

CONDENSED DATA:

Regulation: *Line* Better than 0.15% or 20 millivolts (whichever is greater). For input variations from 105-125 VAC.
Load Better than 0.15% or 20 millivolts (whichever is greater). For load variations from 0 to full load.

Transient Response: *Line* Output voltage is constant within regulation specifications for step-function line voltage change of plus (+) 10 volts or minus (—) 10 volts within the limits of 105-125 VAC.
Load Output voltage is constant within regulation specifications for step-function load change from 0 to full load or full load to 0 within 50 microseconds after application.

Ripple and Noise: Less than 1 millivolt rms.

AC Input: 105-125 VAC, 50-400 CPS.

Size: LT 1095....3½" H x 19" W x 14⅜" D.
LT 2095....3½" H x 19" W x 14⅜" D.

LAMBDA COM-PAK® SERIES

Regulated Power Supplies - Tube Type

C 280 (without meters):	0-200 VDC, 0- 200 MA	$184.50
C 281 (without meters):	125-325 VDC, 0- 200 MA	159.50
C 282 (without meters):	325-525 VDC, 0- 200 MA	169.50
C 480 (without meters):	0-200 VDC, 0- 400 MA	259.50
C 481 (without meters):	125-325 VDC, 0- 400 MA	244.50
C 482 (without meters):	325-525 VDC, 0- 400 MA	259.50
C 880 (without meters):	0-200 VDC, 0- 800 MA	340.00
C 881 (without meters):	125-325 VDC, 0- 800 MA	315.00
C 882 (without meters):	325-525 VDC, 0- 800 MA	360.00
C 1580 (without meters):	0-200 VDC, 0-1500 MA	550.00
C 1581 (without meters):	125-325 VDC, 0-1500 MA	575.00
C 1582 (without meters):	325-525 VDC, 0-1500 MA	650.00

Prices are for unmetered models. For metered models, add the suffix "M" to the model number and add $30 to the unmetered model price.

Patents Pending

CONDENSED DATA:

Regulation: *Line* Better than 0.15% or 0.3 Volt (whichever is greater). For input variations from 105-125 VAC.
Load Better than 0.25% or 0.5 Volt (whichever is greater). For load variations from 0 to full load.

Transient Response: *Line* Output voltage is constant within regulation specifications for step-function line voltage change of plus (+) 10 volts or minus (—) 10 volts rms within the limits of 105-125 VAC.
Load Output voltage is constant within regulation specifications for step-function load change from 0 to full load or full load to 0.

Ripple and Noise: Less than 3 millivolts rms.

AC Input: 105-125 VAC, 50-400 CPS.

AC Output: (unregulated)..6.5 VAC (at 115 VAC Input).[1]
C 200 Series..10 AMP; C 400 Series..15 AMP; C 800 Series..20 AMP; C 1500 Series..30 AMP.
[1]Allows for voltage drop in connecting leads. Isolated and ungrounded.

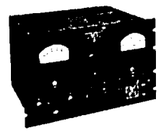
Size: C 200 Series.5¼" H x 19" W x 14⅜" D.
C 400 Series.5¼" H x 19" W x 14⅜" D.
C 800 Series.7" H x 19" W x 14⅜" D.
C 1500 Series.8¾" H x 19" W x 14⅜" D.

For details, circle #36 on Reader Service Card

⚠ GUARANTEED FOR FIVE YEARS

OTHER RACK MODELS

Condensed Data



MODEL 50R

Patents Pending

"500 MA" SERIES MODEL 50R
0-500 VDC 0-500 MA
0-50, 0-200 VDC bias Price.....$420.00

DC OUTPUT No. 1 (regulated for line and load)
VDC Range ...0-500 MA Range ...0-500
(continuously variable) (over entire VDC range)

Line Regulation ..... 0.15% or 0.1V.
Load Regulation .... 0.5% or 0.3V.
Internal Impedance .. Less than 2 ohms.
Ripple and Noise .... Less than 8 MV rms.
Polarity ..... Ground either terminal.

DC OUTPUT No. 2 (regulated for line only)

VDC Range	Internal Impedance	MA Range
0- 50 (no load)	3,300 ohms	Bias, High Imped.
0-200 (no load)	17,500 ohms	

Line Regulation ... Better than 0.1%.
Ripple and Noise . Less than 5 MV rms.
Polarity ..... Pos. terminal connected internally to neg. terminal of DC output No. 1.
AC Input ..... 100-125 VAC, 50-60 CPS.
Ambient Temperature Continuous duty, full load to 40°C ambient.
Size ..... 10½" H x 19" W x 14¼" D.

MODEL 32M

Patents Pending

"300 MA" SERIES
100-200, 200-325 VDC 0-300 MA

Models	VDC Range	MA Range	Price Metered (M)	Price Unmetered
32, 32M	200-325	0-300	$169.50	$139.50
33, 33M	100-200	0-300	184.50	154.50

Line Regulation .... Better than 1%.
Load Regulation .... Better than 1%.
Internal Impedance . Less than 4 ohms.
Ripple and Noise ... Less than 10 MV rms.
Polarity ..... Ground either terminal.
AC Input ..... 105-125 VAC, 50-400 CPS.
Overload Protection . AC and DC fuses.
Size ..... 10½" H x 19" W x 9¼" D.

MODEL 29M

Patents Pending

"100 MA" SERIES
100-200, 200-325 VDC 0-100 MA

Models	VDC Range	MA Range	Price Metered (M)	Price Unmetered
28, 28M	200-325	0-100	$89.50	$59.50
29, 29M	100-200	0-100	99.50	69.50

Line Regulation ..... Better than 1%.
Load Regulation..... Better than 1%.
Internal Impedance .. Less than 10 ohms.
Ripple and Noise
Models 28, 28M.. Less than 10 MV rms.
Models 29, 29M.. Less than 5 MV rms.
Polarity ..... Ground either terminal.
AC Input ..... 105-125 VAC, 50-400 CPS.
Ambient Temperature Continuous duty, full load to 50°C.
Overload Protection.. AC fuse.
Size ..... 5¼" H x 19" W x 8" D.

PORTABLE AND BENCH MODELS

Condensed Data

MODEL 71

Patents Pending

PORTABLE MODEL 71
0-500 VDC 0-200 MA
0-50, 0-200 VDC bias Price.....$310.00

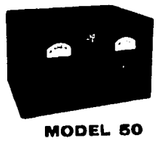
DC OUTPUT No. 1 (regulated for line and load)
VDC Range...0-500 MA Range...0-200
(continuously variable) (over entire VDC range)

Line Regulation .. 0.15% or 0.3V.
Load Regulation.. 0.15% or 0.3V.
Internal Impedance Less than 4 ohms.
Ripple and Noise . Less than 5 MV rms.
Polarity ..... Ground either terminal.

DC OUTPUT No. 2 (regulated for line only)

VDC Range	Internal Impedance	MA Range
0- 50 (no load)	5,500 ohms	Bias, High Imped.
0-200 (no load)	25,000 ohms	

Line Regulation... Better than 0.1%.
Ripple and Noise . Less than 5 MV rms.
Polarity ..... Pos. terminal connected internally to neg. terminal of DC output No. 1.
AC Input ..... 105-125 VAC, 50-60 CPS.
Ambient Temperature Continuous duty, full load to 40°C.
Size..... 13" H x 8¾" W x 14½" D.

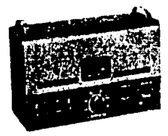


MODEL 50

Patents Pending

BENCH MODEL 50
0-500 VDC 0-500 MA
0-50, 0-200 VDC bias Price.....$440.00

Size..... 12½" H x 22" W x 15" D.
For ratings, see data listed under Model 50R.



MODEL 25

Patents Pending

PORTABLE MODELS 25, 26
100-200, 200-325 VDC 0-100 MA

Model	VDC Range	MA Range	Price
25	200-325	0-100	$69.50
26	100-200	0-100	79.50

Line Regulation ..... Better than 1%.
Load Regulation .... Better than 1%.
Internal Impedance .. Less than 10 ohms.
Ripple and Noise.... Less than 10 MV rms for Model 25.
Less than 5 MV rms for Model 26.
Polarity ..... Ground either terminal.
AC Input ..... 105-125 VAC, 50-400 CPS.
Ambient Temperature Continuous duty, full load to 40°C.
Overload Protection . AC and DC fuses.
Size ..... 8" H x 14" W x 6" D.

For details, circle #37 on Reader Service Card

⚠ LAMBDA ELECTRONICS CORP.

CHECK LIST OF LAMBDA REGULATED D.C. POWER SUPPLIES

Model	Voltage Range (VDC)	Current Range	Regulation Ripple (Table I)	6.3 VAC Output (Amps)	Internal Impedance (Ohms) Less Than	Meters	Output Voltage Control	Output Terminals	Size (Weight (Table II)	Price (U.S. and Canada) F.O.B. Factory Huntington, N. Y.
REGULATED POWER SUPPLIES — RACK MOUNTING										
TRANSISTORIZED										
LT-100S	0-32	0- 1 AMP	A	—	0.05	None	Rear	Rear	S-1	235.00
LT-100SM	0-32	0- 1 AMP	A	—	0.05	2½" rect	Rear	Rear	S-1	263.00
LT-200S	0-32	0- 2 AMP	A	—	0.025	None	Rear	Rear	S-1	295.00
LT-200SM	0-32	0- 2 AMP	A	—	0.025	2½" rect	Rear	Rear	S-1	325.00
LA-30-83A	0-34	0- 5 AMP	B	—	0.008	None	Rear	Rear	S-2	395.00
LA-30-83AM	0-34	0- 5 AMP	B	—	0.008	2½" rect	Rear	Rear	S-2	425.00
LA-100-83A	0-34	0-10 AMP	B	—	0.004	None	Rear	Rear	S-3	510.00
LA-100-83AM	0-34	0-10 AMP	B	—	0.004	3½" rect	Rear	Rear	S-3	540.00
LA-200-83A	0-34	0-20 AMP	B	—	0.002	None	Rear	Rear	S-4	795.00
LA-200-83AM	0-34	0-20 AMP	B	—	0.002	3½" rect	Rear	Rear	S-4	825.00
LA-29-65S	20-185	0- 2 AMP	B	—	0.06	None	Rear	Rear	S-2	350.00
LA-29-65SM	20-185	0- 2 AMP	B	—	0.06	2½" rect	Rear	Rear	S-2	380.00
LA-40-65S	20-185	0- 4 AMP	B	—	0.03	None	Rear	Rear	S-3	495.00
LA-40-65SM	20-185	0- 4 AMP	B	—	0.03	3½" rect	Rear	Rear	S-3	525.00
LA-80-65S	20-185	0- 8 AMP	B	—	0.015	None	Rear	Rear	S-4	790.00
LA-80-65SM	20-185	0- 8 AMP	B	—	0.015	3½" rect	Rear	Rear	S-4	810.00
LA- 8-66S	75-330	0- 8 AMP	B	—	0.50	None	Rear	Rear	S-2	395.00
LA- 8-66SM	75-330	0- 8 AMP	B	—	0.50	2½" rect	Rear	Rear	S-2	425.00
LA-15-66S	75-330	0- 1.5 AMP	B	—	0.25	None	Rear	Rear	S-3	560.00
LA-15-66SM	75-330	0- 1.5 AMP	B	—	0.25	3½" rect	Rear	Rear	S-3	590.00
LA-30-66S	75-330	0- 3 AMP	B	—	0.15	None	Rear	Rear	S-4	860.00
LA-30-66SM	75-330	0- 3 AMP	B	—	0.15	3½" rect	Rear	Rear	S-4	890.00
TUBE REGULATED										
C-25S	0-250	0- 200 MA	C	10A	6	None	Rear	Rear	S-5	184.50
C-25SM	0-250	0- 200 MA	C	10A	6	3½" rect	Rear	Rear	S-5	214.50
C-25S1	125-325	0- 200 MA	C	10A	6	None	Rear	Rear	S-5	159.50
C-25S1M	125-325	0- 200 MA	C	10A	6	3½" rect	Rear	Rear	S-5	189.50
C-25S2	325-525	0- 200 MA	C	10A	6	None	Rear	Rear	S-5	169.50
C-25S2M	325-525	0- 200 MA	C	10A	6	3½" rect	Rear	Rear	S-5	199.50
C-45S	0-250	0- 400 MA	C	15A	3	None	Rear	Rear	S-5	259.50
C-45SM	0-250	0- 400 MA	C	15A	3	3½" rect	Rear	Rear	S-5	289.50
C-45S1	125-325	0- 400 MA	C	15A	3	None	Rear	Rear	S-5	244.50
C-45S1M	125-325	0- 400 MA	C	15A	3	3½" rect	Rear	Rear	S-5	274.50
C-45S2	325-525	0- 400 MA	C	15A	3	None	Rear	Rear	S-5	259.50
C-45S2M	325-525	0- 400 MA	C	15A	3	3½" rect	Rear	Rear	S-5	289.50
C-85S	0-200	0- 800 MA	C	20A	1.5	None	Rear	Rear	S-6	340.00
C-85SM	0-200	0- 800 MA	C	20A	1.5	3½" rect	Rear	Rear	S-6	370.00
C-85S1	125-325	0- 800 MA	C	20A	1.5	None	Rear	Rear	S-6	315.00
C-85S1M	125-325	0- 800 MA	C	20A	1.5	3½" rect	Rear	Rear	S-6	345.00
C-85S2	325-525	0- 800 MA	C	20A	1.5	None	Rear	Rear	S-6	340.00
C-85S2M	325-525	0- 800 MA	C	20A	1.5	3½" rect	Rear	Rear	S-6	390.00
C-150S	0-200	0-1500 MA	C	30A	0.75	None	Rear	Rear	S-7	550.00
C-150SM	0-200	0-1500 MA	C	30A	0.75	3½" rect	Rear	Rear	S-7	580.00
C-150S1	125-325	0-1500 MA	C	30A	0.75	None	Rear	Rear	S-7	575.00
C-150S1M	125-325	0-1500 MA	C	30A	0.75	3½" rect	Rear	Rear	S-7	605.00
C-150S2	325-525	0-1500 MA	C	30A	0.75	None	Rear	Rear	S-7	650.00
C-150S2M	325-525	0-1500 MA	C	30A	0.75	3½" rect	Rear	Rear	S-7	680.00
25	200-325	0- 100 MA	D	3A	10	None	Rear	Rear	S-8	59.50
25M	200-325	0- 100 MA	D	3A	10	3½" rect	Rear	Rear	S-8	69.50
26	100-200	0- 100 MA	E	3A	10	None	Rear	Rear	S-8	69.50
26M	100-200	0- 100 MA	E	3A	10	3½" rect	Rear	Rear	S-8	99.50
32	200-325	0- 300 MA	D	2 @ 5A	4	None	Rear	Rear	S-8	139.50
32M	200-325	0- 300 MA	D	2 @ 5A	4	3½" rect	Rear	Rear	S-8	169.50
33	100-200	0- 300 MA	D	2 @ 5A	4	None	Rear	Rear	S-8	154.50
33M	100-200	0- 300 MA	D	2 @ 5A	4	3½" rect	Rear	Rear	S-8	184.50
50R	0-500	0- 500 MA	F	2 @ 5A	2	4½" rect	Front	Fr & rear	S-10	420.00
	0-50	Bias	G		3,300					
	0-200	High Imped.	H		17,500					
REGULATED POWER SUPPLIES — PORTABLE AND BENCH										
25	200-325	0-100 MA	D	3A	10	None	Front	Front	S-11	99.50
26	100-200	0-100 MA	E	3A	10	None	Front	Front	S-11	79.50
50						See Model 500 above			S-12	440.00
71	0-500	0-250 MA	J	2 @ 5A	4	3½" rect	Front	Front	S-13	310.00
	0-50	Bias	K		8,500					
	0-200	High Imped.	L		25,000					

TABLE I
DC OUTPUT VOLTAGE REGULATION, RIPPLE

	REGULATION		
	Line (min to max) Rated	Load (min to max) Rated	Ripple, rms (millivolts)
	Less than	Less than	Less than
A	0.15% or 20MV	0.15% or 20MV	1MV
B	0.05% or 15MV	0.10% or 8MV	1MV
C	0.15% or 0.3V	0.25% or 0.5V	3MV
D	1%	1%	10MV
E	1%	1%	5MV
F	0.15% or 0.1V	0.5% or 0.3V	8MV
G	0.1%	unregulated	2MV
H	0.1%	unregulated	5MV
J	0.15% or 0.3V	0.15% or 0.3V	5MV
K	0.1%	unregulated	2MV
L	0.1%	unregulated	5MV

TABLE II
SIZES AND WEIGHTS

	Size H x W x D (Inches)	WEIGHT Net (lbs)	Shipping (lbs)
S-1	3½ x 19 x 14⅛	35	65
S-2	3½ x 19 x 14⅛	55	85
S-3	7 x 19 x 14⅛	100	130
S-4	10½ x 19 x 16½	140	170
S-5	5¼ x 19 x 14⅛	53	80
S-6	7 x 19 x 14⅛	84	100
S-7	8¾ x 19 x 14⅛	120	140
S-8	5¼ x 19 x 8	19	23
S-9	10½ x 19 x 8¼	42	52
S-10	10½ x 19 x 14¼	90	140
S-11	8 x 14 x 8	19	23
S-12	12½ x 22 x 15	110	150
S-13	13 x 8¾ x 14½	49	85

GENERAL SPECIFICATIONS

TESTING Every Lambda power supply is electrically tested to meet every electrical catalog specification. There is a large safety margin between published maximum specifications and factory test limits. This tolerance is incorporated in the specifications to allow for normal industrial component deviations. Tube replacements may be made with any equivalent tubes meeting E.I.A. specifications.

INPUT 105-125 VAC, 50-400 CPS, single phase. Exceptions: Models 50, 50R and 71—105-125 VAC, 50-60 CPS, LA Series—105-140 VAC on 20-105 VDC and 75-330 VDC Models; and 100-130 VAC on 0-34 VDC Models; 60 ± 0.3 cycle. For operation over wider frequency band, consult factory.

DC OUTPUT *Voltage Range:* Continuously variable over ranges specified, except where otherwise noted.

Current Range: The current ranges given apply to the entire DC output voltage range, and over entire AC input voltage range, no "de-rating" is necessary.

Polarity: Either positive or negative terminal may be grounded.

AC OUTPUT The AC output is unregulated, isolated and ungrounded. It has a value of slightly higher than 6.3 V (when fully loaded) at an input of 115 VAC. This value allows for voltage drop in connecting leads. Dual outputs may be connected in series or parallel.

DUTY CYCLE Continuous duty at full load.

METERS Where meters are indicated, a separate voltmeter and milliammeter are provided.

OVERLOAD PROTECTION Ample protection is provided against external overload and internal failure conditions by means of fuses.

Circuit breakers of the magnetic, "trip-free" type are employed in Models 50, 50R, 71, LT and LA series, as protection against external overloads. And in the LT and LA series, the transistor complement is independently protected by special transistor circuitry.

STYLE Rack Models are designed for mounting on standard 19" relay racks.

Bench Models are provided with compact, specially-designed, ventilated cabinets equipped with carrying handles. The power supply units may be removed from their cabinets for mounting in standard relay racks (except Models 25, 26 and 71).

RATINGS AND COMPONENTS All components used are of the highest quality and are operated well within manufacturers' ratings. Hermetically sealed, oil-filled capacitors are used exclusively, except in LT series and LA series, where special high purity foil, long-life electrolytics are used. Hermetically sealed transformers designed to MIL-T-27A are used in the LA series, LT series and Com-Pak series. Ample safety factors are provided in the design to insure the long life, and the dependable, trouble-free operation so desirable in industrial and laboratory applications.

All specifications and prices subject to change without notice.

SEND FOR NEW LAMBDA CATALOG—61

LAMBDA ELECTRONICS CORP.

515 BROAD HOLLOW ROAD • HUNTINGTON, L.I., NEW YORK • 516 MYRTLE 4-4200

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NATIONAL SEMICONDUCTOR CORP.—SILICON TRANSISTORS

NPN EPITAXIAL TRANSISTORS

TYPE	mW FREE AIR DISSIPATION	°C MAX. OP. TEMP.	VOLT BV_{CBO}**	VOLT BV_{CEO}**	VOLT BV_{EBO}**	CURRENT GAIN-AC	CURRENT GAIN-DC	mA COLLECTOR CURRENT	mc $f_{\alpha b}$**	mc f_T**	VOLT V_{CE}††	μA I_{CBO}††	μμf C_{ob}††	PHYS. PACKAGE
NS381	300	175		20	5		20-60				.25	0.1	5	TO-18
NS382	300	175		20	5		40-120				.25	0.1	5	TO-18
NS383	300	175		12	5		20-60				.15	0.1	5	TO-18
NS384	300	175		12	5		40-120				.15	0.1	5	TO-18
2N743	300	175		12			20-60				.35		5	TO-18
2N744	300	175		12			40-120				.35		5	TO-18
2N1248•	30	150	6	6	1		15		50			0.1	10	TO-5

NPN MESA TRANSISTORS

2N332	150	175	45		1	9-22		25	1		1	2	30	TO-5
2N332A	500	175	45	45	4	9-22		25	2.5		1	0.5	15	TO-5
2N333	150	175	45		1	18-40		25	1		1	2	30	TO-5
2N333A	500	175	45	45	4	18-40		25	2.5		1	0.5	15	TO-5
2N334	150	175	45		1	18-90		25	8		1	2	30	TO-5
2N334A	500	175	45	45	4	18-90		25	8		1	0.5	15	TO-5
2N335	150	175	45		1	36-90		25	1		1	2	30	TO-5
2N335A	500	175	45	45	4	36-90		25	2.5		1	0.5	15	TO-5
2N336	150	175	45		1	76-333		25	1		1	2	30	TO-5
2N336A	500	175	45	45	4	76-333		25	2.5		1	0.5	15	TO-5
2N337	125	150	45	30	1	19 min.	20-55	20	10		1.5	1	3	TO-5
2N338	125	150	45	30	1	39 min.	45-150	20	20		1.5	1	3	TO-5
2N756	500	200	45	45	6			100	50		1	0.2	8	TO-18
2N756A	500	200	60	60	6	12-22		100	50		1	0.1	8	TO-18
2N757	500	200	45	45	6			100	50		1	0.2	8	TO-18
2N757A	500	200	60	60	6	18-40		100	50		1	0.1	8	TO-18
2N758	500	200	45	45	8			100	50		1	0.2	8	TO-18
2N758A	500	200	60	60	8	18-90		100	50		1	0.1	8	TO-18
2N759	500	200	45	45	8			100	50		1	0.2	8	TO-18
2N759A	500	200	60	60	8			100	50		1	0.1	8	TO-18
2N760	500	200	45	45	8			100	50		1	0.2	8	TO-18
2N760A	500	200	60	60	8	76-333		100	50		1	0.1	8	TO-18
2N761	500	200	50	30	6	19 min.	20-55	100	50		1	0.2	8	TO-18
2N762	500	200	50	30	6	39 min.	45-150	100		200	1	0.1	5	TO-18
2N752	500	200	85	45	8					30	1	1	10	TO-5
2N1564	600	175	80	60	5	20-50				60	1	1	10	TO-5
2N1565	600	175	80	60	5	40-100				60	1	1	10	TO-5
2N1566	600	175	80	60	5	80-200				30	1	1	10	TO-18
2N734	500	175	80	60	5	20-50				60	1	1	10	TO-18
2N735	500	175	80	60	5	40-100				60	1	1	10	TO-18
2N736	500	175	80	60	5	80-200					1.5	0.5	20	TO-5
2N541	200	200	15	15	2	80-200					1.5	0.5	20	TO-5
2N542	200	200	30	30	2	80-200					1.5	0.5	20	TO-5
2N543	200	200	45	45	2	80-200							12	TO-5
2N1247	30	150	6	6	2		15	5					8	TO-5
2N560	500	200	60	60	8		20 min.	100		60	0.5	0.1	8	TO-18
2N742	500	200	60	60	8		20 min.	100		60	0.5	0.1	8	TO-18
2N702	300	175	25	25	5		20-60	100		70	0.5	0.5	6	TO-18
2N703	300	175	25	25	5		40-100	100		70	0.5	0.5	6	TO-18
2N706	300	175	25	20	5		15 min.			200	0.6	0.5	6	TO-18
2N706A	300	175	25	20	5		20-60			200	0.6	0.5	5	TO-18
2N706B	300	175	25	15	5		20-60	50		200	0.4	0.5	5	TO-18
2N753	300	175	25	20	5		40-120			200	0.6	0.5	5	TO-18
2N696	600	175	60	40	5		20-60			40	1.5	1	35	TO-5
2N697	600	175	60	40	5		40-120			50	1.5	1	35	TO-5
2N698	600	175	120	80	5		20 min.			40	5	2	20	TO-5
2N699	600	175	120	80	5		40-120			50	5	2	20	TO-5
2N1420	600	175	60	40	5		100-300			50	1.5	1	35	TO-5
2N717	400	175	60	40	5		20-60			40	1.5	1	35	TO-18
2N718	400	175	60	40	5		40-120			50	1.5	1	35	TO-18
2N720	400	175	120	80	5		12-36				5	2	20	TO-18
2N497	800	175	60	60	8		12-36				5	10		TO-5
2N498	800	175	100	100	8		30-90				5	10		TO-5
2N696	800	175	60	60	8		30-90				5	10		TO-5
2N697	800	175	100	100	8						5	10		TO-5
2N1149	150	175	45		1	9-20		25	1		1	2	7	TO-22
2N1150	150	175	45		1	18-40		25	1		1	2	7	TO-22
2N1151	150	175	45		1	18-90		25	8		1	2	7	TO-22
2N1152	150	175	45		1	36-90		25	1		1	2	7	TO-22
2N1153	150	175	45		1	76-333		25	1		1	2	7	TO-22
2N1154	750	150	50		1	9 min.		60	1		6	5		TO-22
2N1155	750	150	80		1	9 min.		50	1		5.25	6		TO-22
2N1156	750	150	120		1	9 min.		40	1		4	8		TO-22
2N1245	750	150	60		1	9-30		60	1		7	1		TO-22
2N1246	750	150	60		1	25-90		60	1		7	1		TO-22

61-6

•• Minimum †† Maximum • Low Noise

NATIONAL SEMICONDUCTOR CORP.—SILICON TRANSISTORS

PNP ALLOY TRANSISTORS

	mW	°C	mA	VOLT	VOLT	VOLT			mc	μA	OHM	μμf	
	FREE AIR DISSIPATION	MAX. OP. TEMP.	COLLECTOR CURRENT	BV_{CBO}**	BV_{CEO}**	BV_{EBO}**	CURRENT GAIN-AC	CURRENT GAIN-DC	FREQ. CUTOFF**	I_{CBO}††	r_{CS}††	C_{ob}††	PHYS. PACKAGE
2N923	150	200	100	40	25	40	12-30		.8	.025	100	25	TO-18
2N924	150	200	100	40	25	40	24-60		.8	.025	100	25	TO-18
2N925	150	200	100	50	40	50	10-24		.8	.025	100	25	TO-18
2N926	150	200	100	50	40	50	20-55		.8	.025	100	25	TO-18
2N927	150	200	100	70	60	70	8-22		.8	.025	100	25	TO-18
2N928	150	200	100	70	60	70	18-55		.8	.025	100	25	TO-18
2N327A	385	160	50	50	40	20		9-22	.7 typ	0.1	60	15*	TO-5
2N328A	385	160	50	50	35	20		18-44	.7 typ	0.1	50	15*	TO-5
2N329A	385	160	50	50	30	20		36-88	.7 typ	0.1	40	15*	TO-5
2N1024	150	150	100		15	15	9-		1	.025	100	7*	TO-5
2N1025	150	150	100		35	35	9-18		1	.025	100	7*	TO-5
2N1034	250	160	50	50	40	20	9-22		.2 typ	1.0	62	15*	TO-5
2N1035	250	160	50	50	35	20	18-40		.3 typ	1.0	62	15*	TO-5
2N1036	250	160	50	50	30	20	36-88		.5 typ	1.0	62	15*	TO-5
2N1037	250	160	50	50	35	20	25*		.3 typ	1.0	62	15*	TO-5
2N1220	150	150	100	30	25	20		9-	2	0.1	30	18	TO-5
2N1221	150	150	100	30	25	10	18-		5	0.1	30	15	TO-5
2N1222	150	150	100	30	25	10	9-		2	0.1	30	18	TO-5
2N1223	150	150	100	40	40	10	6-		2 typ	0.1	30	15*	TO-5
2N1228	400	160		15	15	15	14-32		1.2 typ	0.1	20	10*	TO-5
2N1229	400	160		15	15	15	28-65		1.2 typ	0.1	20	10*	TO-5
2N1230	400	160		35	35	35	14-32		1.2 typ	0.1	20	10*	TO-5
2N1231	400	160		35	35	35	28-65		1.2 typ	0.1	20	10*	TO-5
2N1232	400	160		60	60	60	14-32		1 typ	0.1	20	10*	TO-5
2N1233	400	160		60	60	60	28-65		1 typ	0.1	20	10*	TO-5
2N1234	400	160		110	110	110	14-32		.9 typ	0.1	20	10*	TO-5
2N1275	250	160	50	100	80	60		9-25	7 typ	1.0	60	110	TO-5
2N1439	400	200	100	50	50	50	5-12		.5	.025	100	25	TO-5
2N1440	400	200	100	60	50	60	9-22		1	.025	100	25	TO-5
2N1441	400	200	100	50	35	50	18-36		1	.025	100	25	TO-5
2N1442	400	200	100	50	30	50	30-65		1	.025	100	25	TO-5
2N1443†	400	200	100	50	15	50	50-		1	.025	100	25	TO-5

	mW	°C	mV	VOLT	VOLT	VOLT	nA	nA	nA	nA	OHM	pf	
	FREE AIR DISSIPATION	MAX. OP. TEMP.	ΔV_{O}††	BV_{CBO}**	BV_{CEO}**	BV_{EBO}**	I_{CBO}††	I_{ECO}††	I_{EBO}††	$\frac{I_{EBO}}{I_{CBO}}$†† 65°C	Rd††	C_{ecb}††	PHYS. PACKAGE
2N2002×	250	175	1.0	30	5	30	1.0	1.0	1.0	30	30	20	TO-5
2N2003×	250	175	2.5	30	5	30	3.0	3.0	3.0	50	30	20	TO-5
2N2004×	250	175	1.0	50	15	50	1.5	1.5	1.5	30	30	20	TO-5
2N2005×	250	175	3.5	50	15	50	5.0	5.0	5.0	50	30	20	TO-5
2N2006×	250	175	1.5	60	35	60	2.0	2.0	2.0	100	40	20	TO-5
2N2007×	250	175	3.5	60	35	60	5.0	5.0	5.0	100	50	20	TO-5

61-6

* Typical † Low Noise ** Minimum †† Maximum △ Offset voltage specified at two other base currents. × The 2N2002 series is specified for use in the inverted configuration.

National Semiconductor CORPORATION

Danbury, Conn. • Pioneer 3-7624 • TWX DANB 452-U

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You're assured of high uniformity from unit to unit within each shipment from Keystone and close adherence to the specified nominal values within your tolerances. Quality silvering techniques and extreme care in affixing leads assure good appearance and physical strength. The result is lower inspection costs and fewer assembled rejects for you.

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Keystone thermistor prices are realistic, and competitive. Our automated production methods and high manufacturing volume permit the most practical pricing policies. Service has never been better, quality has never been higher, and our efficiency has never been greater. Check us now.

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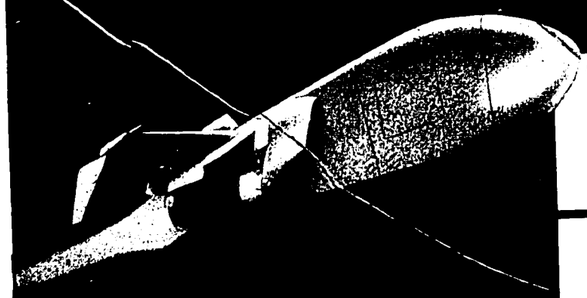

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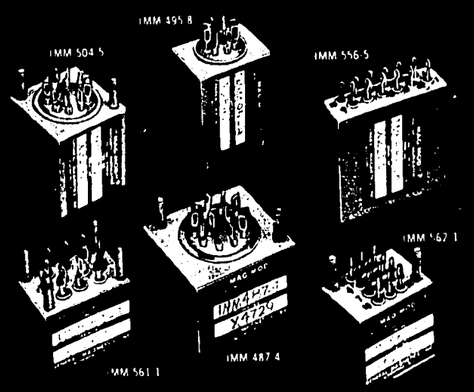

Amplitude Response Curve

Input Magnetic Modulator Type No. IMM 487-4

Subminiature "MAG MOD"® featuring high input signal sensitivity and high AC output impedance. Male or female mounting.

(20 K Ohm Load)

Amplitude Response Curve

Input Magnetic Modulator Type No. IMM 495-8

Subminiature "MAG MOD"® featuring wide band width, multiple signal input circuits, extreme zero stability from −65°C to +135°C, low null amplitude or noise level. Mounting available male or female.

(10 K Ohm Load)

Amplitude Response Curve

Input Magnetic Modulator Type No. IMM 504-5

Subminiature "MAG MOD"® featuring low input and output impedance, resistance vs. temperature compensated input, extreme zero stability, repeatability and insignificant hysteresis. Supplied with male or female mounting.

(5 K Ohm Load)

Amplitude Response Curve

Input Magnetic Modulator Type No. IMM 562-1

Subminiature "MAG MOD"® featuring 4 KC carrier operation, wide frequency band width, high output impedance and voltage range. Mounting male or female.

(100 K Ohm Load)

Amplitude Response Curve

Input Magnetic Modulator Type No. IMM 561-1

Subminiature "MAG MOD"® featuring low carrier energy level operation, very wide frequency band width, wide output operating range, minimum size and weight. Mounting male or female. May be mounted directly on printed circuit boards.

Amplitude Response Curve

Input Magnetic Modulator Type No. IMM 556-5

Subminiature "MAG MOD"® featuring high frequency carrier operation (35 KC), flat construction for printed circuit mounting, low output impedance and clean output fundamental frequency wave form. Mounting supplied male or female.

Designed for Subminiature Circuit Assemblies and Printed Circuit Card Configurations

New miniature designs of these reliable "MAG MODS"® make them ideal for incorporation into transistorized printed circuit assemblies. There is no sacrifice of dynamic response. They offer the engineer/designer the solution to problems involved in a wide range of data systems where analog circuit operations are encountered. To insure complete flexibility, the mechanical mounting on any "MAG MOD" may be modified to conform to your particular packaging requirements.

- **1% repeatability throughout entire service life**
- **Negligible hysteresis**
- **Faster response time**
- **Extreme stability over a wide temperature range**
- **Infinite service life**
- **Extremely lightweight— compact design**

GENERAL MAGNETICS • INC

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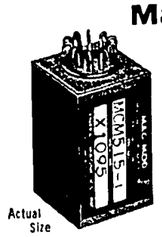
FOR RELIABILITY...

MAGNETIC MODULATORS

TYPE NUMBER	IMM 487-4	IMM 495-8	IMM 504-5	IMM 562-1	IMM 561-1	IMM 556-5
Excitation Carrier Voltage and Frequency	115 V @ 400 cps	115 V @ 400 cps	115 V @ 400 cps	2.5 V RMS @ 4 KC	1.0 V RMS @ 10 KC	6 to 10 V RMS @ 35 KC
Control Signal Winding DC Resistance	Winding No. 1 6700 ohms Winding No. 2 7400 ohms	Signal Winding No. 1 350 ohms Signal Winding No. 2 600 ohms	1000 ohms	Signal Winding 1300 ohms Feedback Winding 160 ohms	200 ohms	5000 ohms
Input Control Signal Range	0 to ±40 μa Each Winding	0 to −100 μa (Both Sig. Windings in Series)	0 to ±100 μa	0 to ±100 μa 0 to ± 1 V Bipolar	0 to ±400 μa	0 to ±400 μa
Amplitude Modulated AC Output Range	3 V RMS @ 400 cps Phase Reversing	0 to 1 V RMS @ 400 cps Phase Reversing	0 to 1.5 V RMS @ 400 cps Phase Reversing	0 to 5 V RMS @ 4000 cps Phase Reversing	0 to 3 V RMS @ 4 KC Phase Reversing	0 to 1.8 V RMS @ 35 KC Phase Reversing
Differential Gain RMS mv AC Out/μa Signal In	100 mv/μa	15 mv/μa	10 mv/μa	200 mv/μa	10 mv/μa	4.2 mv/μa
Null Amplitude (Noise Level) mv RMS	25 mv RMS Maximum	5 mv RMS Maximum	10 mv RMS Maximum	30 mv RMS Maximum	10 mv RMS Maximum	20 mv RMS Maximum
Output Impedance	Approx. 30 K ohms	1600 ohms	1000 ohms	Approx. 70 K ohms	Approx. 60 K ohms	900 ohms Each Output Wind.
External Load (Suggested)	Approx. 20 K ohms	Approx. 10 K ohms	Approx. 5 K ohms	Approx. 100 K ohms	Approx. 100 K ohms	1000 ohms Each Output Wind.
Null Drift (in terms of Input Signal) −65°C to +135°C	Less than ±0.25 μa Over Temp. Range	Less than ±0.25 μa Over Temp. Range	±1 μa Maximum Over Temp. Range	±0.5 μa Maximum Over Temp. Range	±1 μa Over Temp. Range	±2 μa Over Temp. Range
Hysteresis (% of Input Control Signal)	0.5% Maximum	0.5% Maximum	0.5% Maximum	Approx. 0.5%	0.5% Maximum	0.5% Maximum
% Harmonic Distortion in Output AC Modulated Envelope	Approx. 40% (3rd Harmonic)	Approx. 25% (3rd Harmonic)	Approx. 30% (3rd Harmonic)	Approx. 15% (3rd Harmonic)	Less than 10% (3rd Harmonic)	Approx. 5% (3rd Harmonic)
Overall Dimensions (in inches)	1⅛ x 1⅛ x ¾	¾ x 1 x 1	1 x 1 x 1	1 x 11/16 x ⅝	11/16 x 1 x ⅝	7/16 x 1⅛ x 1⅛
Type of Mounting	4-40 Studs or Inserts	4-40 Studs or Inserts	4-40 Studs or Inserts	4-40 Studs or Inserts	2-56 Studs	4-40 Tapped Holes or Studs
Weight in Ounces	Approx. 1.25	Approx. 1	Approx. 1.1	0.75	0.6	1
Response Time (Band Width cps)	0.01 sec. for 15 K Sig. Source Imp. (17 cps Corner Frequency)	20 cps for 10 K Sig. Source Imp. 25 cps for 20 K Sig. Source Imp. (Both Sig. Windings in Series)	5 cps for 1 K Sig. Source Imp. 10 cps for 5 K Sig. Source Imp. 20 cps for 10 K Sig. Source Imp.	70 cps for 10 K Sig. Source Imp. (Time Constant Approx. 2 Milli-Seconds)	Corner Frequency 2 KC for Sig. Source Imp. of Approx. 6 K ohms	Corner Frequency 200 cps for 600 ohm Signal Source Imp or 1000 cps for 5 K Source

Magnetic Multiplying Modulator Model MCM 515-1



Actual Size

The MAGNETIC MULTIPLIER is a miniaturized magnetic modulator specifically designed to deliver an analog output voltage which is the continuous product of two variable input voltages. One of these is an excitation voltage which varies over a pre-determined range; in this case, 0 to 1 VRMS 400 cycles per second. The other signal is a DC current which varies between 0 and ±400 μa. The output voltage is 400 cycles AC, and is always in phase or 180° out of phase with the variable excitation or fixed reference, i.e., in phase when the variable amplitude DC signal is positive, and 180° out of phase when the DC signal is negative. The general schematic is illustrated in Fig. 1. The relationship between variable alternating supply signal voltage E_s, variable direct current control signal E_c, and the alternating load voltage E_L having a sinusoidal wave shape is denoted by the equation—

$E_L = \text{Constant} \times E_s \times E_c$.

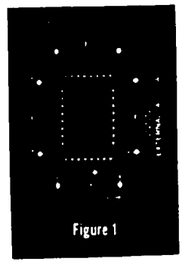


Figure 1

This expression, which defines the fundamental principle of the four quadrant MAGNETIC MULTIPLYING MODULATOR, can be clearly illustrated by linear transfer response curve families as shown at right, in Figure 2-A and Figure 2-B.

Illustrating:

(1) **Load voltage E_L as a function of alternating supply signal voltage E_s with control DC signal voltage E_c as a parameter.**

(2) **Load voltage E_L as a function of control DC signal voltage E_c with alternating supply voltage, E_s as a parameter.**

With linearity response curves held to within approximately 1 to 2% of theoretical straight lines, the product accuracy of the fundamental equation will be within 2 to 5% of the theoretical product.

SPECIFICATIONS MODEL MCM 515-1

Variable Excitation Carrier Voltage and Frequency	Variable AC Signal 0 to 1 V RMS 400 cps
Control Signal Winding DC Resistance	DC Signal Winding Resistance 2650 ohms
Input Control Signal Range	Variable DC Signal 0 to ±400 μa
Amplitude Modulated AC Output Range	0 to 0.9 V RMS @ 400 cps Phase Reversing
Null Amplitude (Noise Level) mv RMS at Max. AC Excitation	5 mv RMS
Output Impedance	Approx. 3500 ohms
External Load (Suggested)	Approx. 25 K ohms
Null Drift (in terms of Input Signal) −65°C to +135°C	±2 μa over Temperature Range
Hysteresis (% of Input Control Signal)	0.5% Maximum
% Harmonic Distortion in Output AC Modulated Envelope	Less than 5%
Overall Dimensions (in Inches)	27/32 x 27/32 x 1 3/16
Type of Mounting	6-40 Insert or Stud
Weight	Approx. 1 Ounce

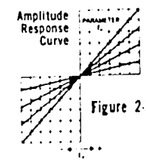


Figure 2-A

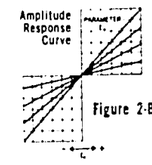


Figure 2-B

Typical "Mag Mod" Circuit Applications—

Include algebraic addition, subtraction, multiplying, raising to a power, controlling amplifier gain, mechanical chopper replacement in DC to fundamental frequency conversion, filtering and low signal level amplification.

Consult General Magnetics for magnetic amplifier components of proven reliability. These dependable instruments are widely employed in automatic flight systems, fire control, analog computers, guided missiles, nuclear equipment, antennas, gun turrets, commercial power amplifiers and complete control systems. Miniature, subminiature, standard and customized types available.

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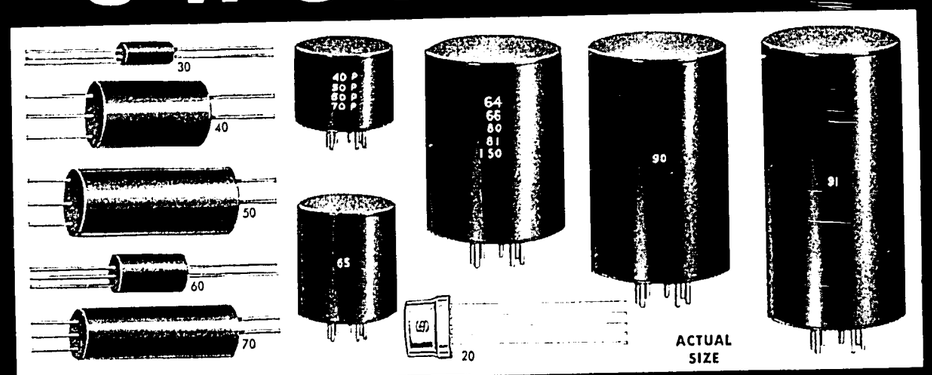
GM INC.

For details, circle #43 on Reader Service Card

THE MOST COMPREHENSIVE LINE OF SOLID STATE ELECTRONIC CHOPPERS



microminiature	lightweight	low power	high speed	rugged	indefinitely long life
non-mechanical	inertialess	low level	high efficiency	linear	temperature stable

The transistor chopper (or modulator) is a solidly encapsulated unit designed to alternately connect and disconnect a load from a signal source. It may also be used as a demodulator to convert an a.c. signal to d.c. It is capable of linearly switching or chopping voltages over a wide dynamic range which extends down to a fraction of a millivolt and up to 150 volts or more. Unlike mechanical choppers which can only be designated to operate over a narrow and comparatively low frequency range due to mechanical limitations, this transistorized chopper is an inertialess device that can be driven from d.c. to hundreds of kilocycles.

The switching circuitry used operates the transistors in a manner which provides stability and freedom from drift over a wide temperature range. Only carefully selected and matched transistors are utilized.

The Models 20, 30, 40, 40P, 50, 50P, 60, 60P, 70 and 70P are direct-coupled so as to provide the circuit designer with the most basic chopper from which to synthesize solutions to special circuit problems. The Models 64, 65, 66 and 150 are transformer-coupled for isolation purposes. The Model 65 is for low-level voltages and the Model 150 for high-level signals. The Models 64 and 66 are for operation from 400 cps and 600 cps sine wave drive at 115 volts a.c. The Models 80, 81, 90 and 91 VIBRACHOPPERS are unique in the chopper field in that they require DC rather than AC drive.

These units are practically immune to the effects of shock and vibration making them ideal for military, space vehicle and portable applications; or where power conservation, miniaturization and elimination of maintenance are a necessity. The transistor chopper has an inherently long life and is not subject to contact bounce, wear, pitting or burning.

CHOPPER MODEL SPECIFICATIONS

Model	Type	Max. Signal Voltage (Volts)	Max. Signal Current (MA)	Drive Frequency Range	Max. Drive Voltage (600Ω Source) (Volts)	Drive Input Impedance (Ohms)	Ambient Temp Range (°C)	Size (Inches)	Weight (Grams)	Remarks
20	Ge	± 10	10	DC to 100 kcps	25 pk-pk	200	55 to + 90	210 x .315 x .405	1	Shielded Micro-Min Hi-Freq
30	Ge	± 10	10	DC to 100 kcps	25 pk-pk	200	55 to + 90	.38 x .16 Dia.	1/2	Micro-Min Hi-Freq
40	Si	± 20	30	DC to 50 kcps	40 pk-pk	2K	55 to + 150	7/16 x .44 Dia.	2	Sub-Min Hi-Temp
40P	Si	± 20	30	DC to 50 kcps	40 pk-pk	2K	55 to + 150	1/2 x 3/4 Dia.	8	Plug-In Hi-Temp
50	Ge	± 10	10	DC to 100 kcps	25 pk-pk	200	55 to + 90	1 1/4 x .44 Dia.	3	Sub-Min Hi-Freq
50P	Ge	± 10	10	DC to 100 kcps	25 pk-pk	200	55 to + 90	1/2 x 3/4 Dia.	8	Plug-In Hi-Freq
60	Ge	± 10	50	DC to 100 kcps	50 pk-pk	600	55 to + 90	1/2 x 3/4 Dia.	1	Micro-Min Hi-Freq
60P	Ge	± 10	50	DC to 100 kcps	50 pk-pk	600	55 to + 90	1/2 x 3/4 Dia.	8	Plug-In Hi-Freq
64	Ge	± 5	50	94 to 12 kcps	300 pk-pk	100K	55 to + 90	1 1/4 x 1 Dia.	44	115V Drive 400 cps Xfmr-In
65	Ge	± 3	50	0.27 to 30 kcps	50 pk-pk	200	55 to + 90	3/4 x 3/4 Dia.	12	Xfmr-In Plug-In
66	Ge	± 10	50	92 to 12 kcps	300 pk-pk	100K	55 to + 90	1 1/4 x 1 Dia.	44	115V Drive 60 cps Xfmr-In
70	Si	± 3	30	DC to 100 kcps	4 pk-pk	600	55 to + 150	1 1/4 x 5/16 Dia.	2	Sub-Min Hi-Freq Hi-Temp
70P	Si	± 3	30	DC to 100 kcps	4 pk-pk	600	55 to + 150	1/2 x 3/4 Dia.	8	Plug-In Hi-Freq Hi-Temp
80	Ge	± 15	50	1.5 to 6.5 kcps	6 to 32 DC	2K	55 to + 90	1 1/4 x 1 Dia.	32	DC-Drive Plug-In
81	Ge	± 15	50	1.5 to 6.5 kcps	6 to 32 DC	2K	55 to + 90	1 1/4 x 1 Dia.	32	DC-Drive Plug-In DPDT
90	Si	± 6	50	1.2 to 3.0 kcps	12 to 32 DC	2K	55 to + 150	1 1/2 x 1 Dia.	40	DC-Drive Plug-In
91	Si	± 6	50	1.2 to 3.0 kcps	12 to 32 DC	2K	55 to + 150	1 1/4 x 1 Dia.	40	DC-Drive Plug-In Hi-Temp DPDT
150	Si	± 150	30	0.27 to 30 kcps	100 pk-pk	300	55 to + 150	1 1/4 x 1 Dia.	30	Hi-Volt Hi-Temp Xfmr-In

OTHER ADVANCED PRODUCTS FROM SOLID STATE ELECTRONICS CO:

Solid State Relay — 2 microsecond actuation, 50 volt, 50 ma contact rating, reliable operation, 55 C to + 125 C

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Plus: LC Controlled Sinusoidal Oscillators, Voltage Controlled Oscillators, Pressure to DC and Pressure to Frequency Converters, and Miniature Telemetering Systems.

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These circuits combine the Halltron (Hall Effect device) with an effective magnetic circuit resulting in a useful electronic multiplier. (MC-1 series for normal circuits. MC-11 and MC-21 series for premium applications.)

Halltron

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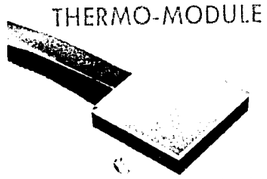
Model TA-20M

THERMO-MODULE



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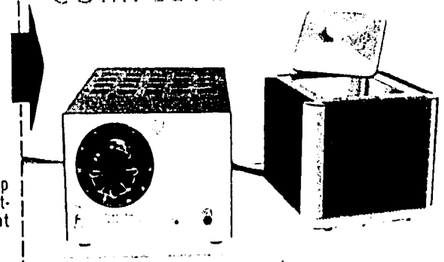
COMPLETE THERMOELECTRIC SYSTEMS



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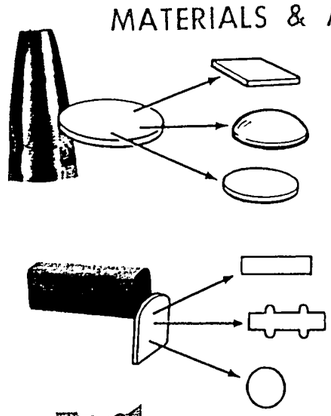
MATERIALS & ALLOYS



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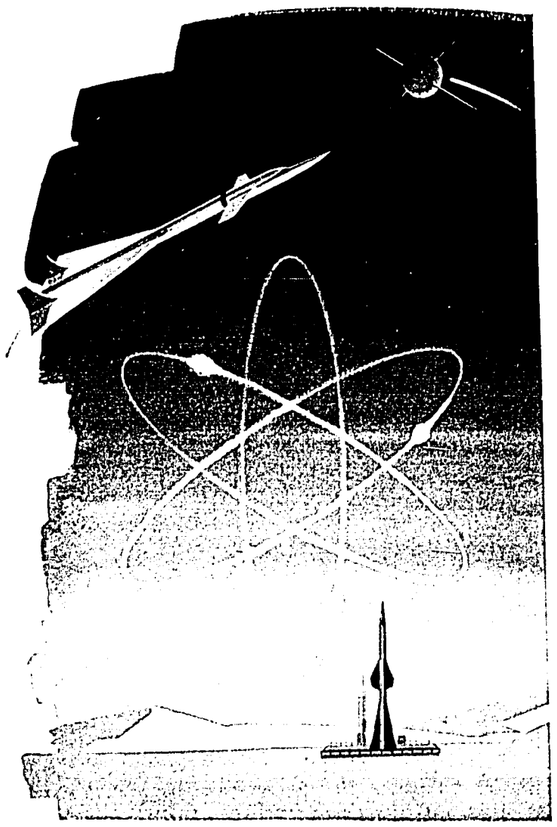

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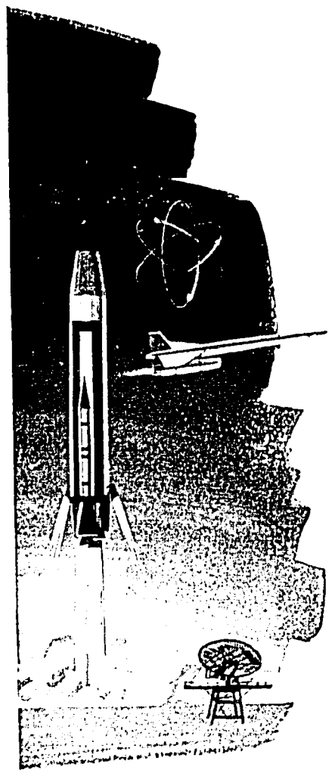

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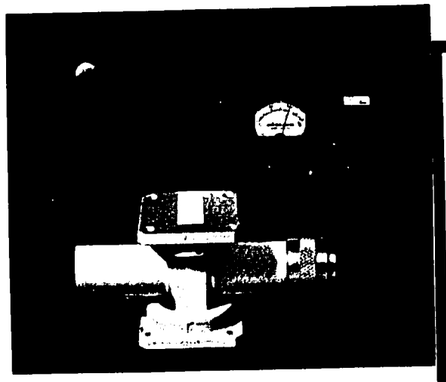
BENDIX ELECTRON TUBE PRODUCTS MEET CRITICAL DESIGN NEEDS

Bendix electron tube products listed on these two pages are a partial representation of the many special-purpose tubes we make. Others include gas noise source and spark gap types—also a HY-G-500™ line of metal ceramic receiving tubes. If the tube you need doesn't exist, our extensive design experience and production facilities can provide it.



GAS NOISE SOURCE TUBES

Frequency Range KMC	Band	Waveguide Number	Bendix Type Number	EIA Type Number	Mount Type	Recommended Mode of Operation	Anode Current MA	Tube Drop Volts	Tube Excess Noise Ratio DB
1.12-1.70	L	RG-69/U	TD-21	6881	90°H	D.C.	250	65	15.2
			TD-29	7101	90°H	A.C. & D.C.	250	130	18.0
2.6-3.95	S	RG-48/U	TD-12	6358	10°E	D.C.	250	80	15.2
			TD-22	6782	90°H	A.C. & D.C.	250	45	15.2
3.30-4.90	S	WR-229	TD-24	6852	10°E	A.C. & D.C.	250	65	15.2
3.95-5.85	C	RG-49/U	TD-10	6356	10°E	D.C.	250	70	15.2
5.85-8.20	X	RG-50/U	TD-10	6356	10°E	D.C.	250	70	15.2
8.20-12.40	X	RG-52/U	TD-11	6357	10°E	D.C.	200	75	15.2
			TD-23	6882	10°E	D.C.	200	115	18.0
12.4-18.00	KU	RG-91/U	TD-18	6684	10°E	D.C.	200	70	15.2
18.0-26.5	K	RG-53/U	TD-13	6359	10°E	D.C.	200	65	15.2
26.5-40.0	Ka	RG-96/U	RXB-103251		10°E	D.C.	125	130	15.2

MICROWAVE TUBES

EIA Type No.	JAN Type No.	BAND	BENDIX Type No.	DESCRIPTION
2K50	2K50	K	TK-4	REFLEX KLYSTRON
6116	6116	X	TK-62	REFLEX KLYSTRON
6541		K	TK-30	REFLEX KLYSTRON
6584		C	TK-38	REFLEX KLYSTRON
		Ka	TK-37	REFLEX KLYSTRON (SRV-38)
		Ka	TK-53	REFLEX KLYSTRON
6845	6845 (US Navy)	X	TK-59	REFLEX KLYSTRON
6940		X	TK-58	REFLEX KLYSTRON
		K	TK-60	REFLEX KLYSTRON
		X	TK-61	REFLEX KLYSTRON
6584		C	TK-69	REFLEX KLYSTRON
		Ka	TK-78	REFLEX KLYSTRON (SRV-38)
		V	TWO-82	BACKWARD-WAVE OSCILLATOR
		C	RXB-103401	TRAVELING-WAVE TUBE AMPLIFIER
		V	TWO-83	BACKWARD-WAVE OSCILLATOR
		V	TWO-75	BACKWARD-WAVE OSCILLATOR
		V	TWO-85	BACKWARD-WAVE OSCILLATOR
		E	TWO-90	BACKWARD-WAVE OSCILLATOR

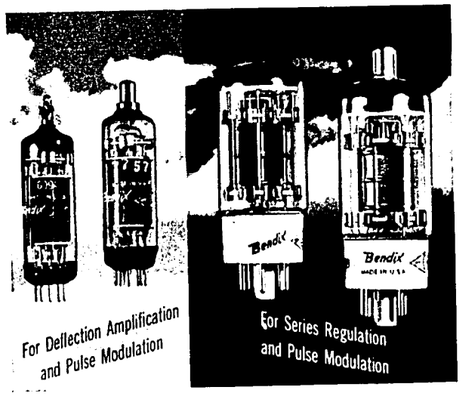
MICROWAVE DEVICES

BENDIX Type No.	BAND	DESCRIPTION
TN-1	X	Miniature Noise Generator, 8.5-9.6 KMC, Noise Source-in-Mount, Waveguide Connections, Transmission Type.
TN-2	X	Miniature Noise Generator, 8.5-9.6 KMC, Noise Source-in-Mount, Waveguide Connections, Terminated Type.
TN-3	S	Miniature Noise Generator, 2.7-2.9 KMC, Noise Source-in-Mount, Waveguide Connections, Terminated Type.
TFA-1	C	Attenuator, Electrically Variable, Ferrite Device, Coaxial Connections.
TFC-1	C	Y-Circulator, Ferrite Device, Coaxial Connections.
TFP-1	C	Phase Shifter, Electrically Variable, Ferrite Device, Coaxial Connections.

SPARK GAPS

Type No.	DC Breakdown KV	Initial Pulse Breakdown KV	Repetitive Pulse Breakdown KV	Watts Maximum Dissipation	Peak Discharge Watt-Second	Fault Surge Current Amps	Isotope Stabilization	Initia Equipment Usage	Configuration
TG-25	0.400			3	2		Yes	Safety	1
TG-26	0.75			5	2	1000	Yes	Safety	2
TG-27	1.0			5	5	1000	Yes	Safety	2
TG-30	2.0	3.0	2.7	5	14	2000	Yes	Safety	2
TG-34	5.0	8.5	5.5	5	19	3000	Yes	Safety	2
TG-37	10.0	20.0	15.0	5	22	4000	Yes	Safety	2
TG-56	20.0	23.0		7.5	30	5000	Yes	Safety	4
TG-60	50.0			7.5	50	6000	Yes	Safety	4

For details, circle #48 on Reader Service Card



SPECIAL-PURPOSE GAS TUBES

EIA Type No.	JAN Type No.	BENDIX Type No.	DESCRIPTION
5643	5643	TD-17	SUBMINIATURE XENON THYRATRON
5947		TT-2	TEMPERATURE-LIMITED DIODE
5960		TD-1	COLD CATHODE DISCHARGE
		TD-45	COLD CATHODE DISCHARGE
		TD-28	COLD CATHODE TETRODE THYRATRON
6142		TD-9A	GAS DIODE VOLTAGE REGULATOR
		TD-19	GAS DIODE VOLTAGE REGULATOR
7414		TD-70	TIME TOTALIZER
5787WA	5787WA	TD-61	VOLTAGE REGULATOR
6542		TD-68	VOLTAGE REGULATOR
6144		TT-1	NOISE DIODE
6352		TT-29	SUBMINIATURE TEMP-LIMITED DUAL-DIODE
6361		TT-25	SINGLE CONVECTRON
5845		TT-30	MINIATURE TEMPERATURE-LIMITED DIODE
5783WA	5783WA	TD-65	VOLTAGE REGULATOR

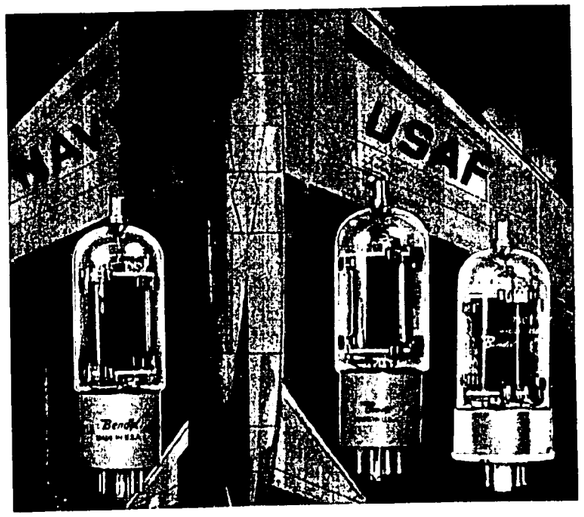
HY-G-300® RECEIVING TUBES

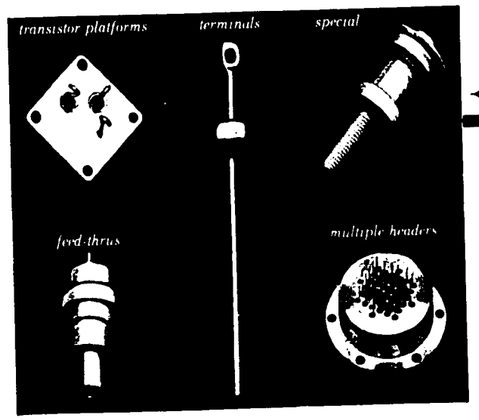
(Reliable, hard glass, ceramic spacers, 300°C. Bulb Temperature Rating)

EIA Type No.	JAN Type No.	PROTO-TYPE	BENDIX Type No.	DESCRIPTION
6080WB		6AS7	TE-46	TWIN TRIODE
6082A		6082	TE-55	TWIN TRIODE
6094	6094	6AQ5/ 6005/ 6095	TE-18	MINIATURE AMPLIFIER
6384	6384	6AR6/ 6098	TE-27	AMPLIFIER, Beam power
6754		412A	TE-36	RECTIFIER, Full-wave
6877		½ 6080	TE-48	MINIATURE TRIODE
6889		Top Cap 6384	TE-52	AMPLIFIER, Beam power
6900		5687	TE-54	MINIATURE TWIN TRIODE
7403		3D21	TE-74	PULSE MODULATOR
		3D21B	TE-56	AMPLIFIER, Beam power
7757		6094	TE-81	MIN. AMPLIFIER, High voltage

COMPUTER TUBES

6888	7AK7	TE-40	GATED PENTODE





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- 50-100 MICROSECOND RECOVERY TIME
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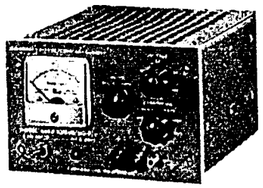


Continuously variable Constant Voltage and Constant Current operation--no range switching. Auto-Series and Auto-Parallel operation†, Remote Programming, Remote Sensing, Front and rear output terminals, Convection cooling--no moving parts. Switch enables meter to monitor either voltage or current. Rack Mounting Panels available.
Continuously variable current limit in Constant Voltage operation; continuously variable voltage limit in Constant Current operation.

	855B: 0-18 volts @ 0-1.5 amps		865B: 0-40 volts @ 0-0.5 amps	
	Constant Voltage	Constant Current	Constant Voltage	Constant Current
Load Regulation	0.03% or 5 mv	0.05% or 750μa	0.01% or 4 mv	0-0.5% or 250μa
Line Regulation	0.03% or 5 mv	0.05% or 750μa	0.01% or 4 mv	0-0.5% or 250μa
Ripple and Noise	500μv	250μa	200μv	100μa
Size	7-13/16"W x 5-1/16"H x 8-1/2"D		7-13/16"W x 5-1/16"H x 8-1/2"D	
Weight	11 pounds		11 pounds	

855 $169
865 $169

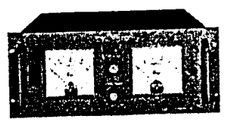
CONSTANT VOLTAGE/CONSTANT CURRENT RACK SUPPLIES

Plug-in Card selects mode of operation, output voltage and current continuously variable over entire output range--no range switching. Continuously variable current limit in Constant Voltage operation, Auto-Series and Auto-Parallel operation†, Chopper Stabilization optional‡, Remote Programming, Remote Sensing, Convection cooling--no moving parts.

	808A: 0-36 volts, 0-5 amps	809A: 0-36 volts, 0-10 amps	881A: 0-100 volts, 0-1 amp
Load Regulation	0.01% or 3.6 mv	0.02% or 7.2 mv	0.02% or 5 mv
Line Regulation	0.01% or 3.6 mv	0.02% or 7.2 mv	0.05% or 5 mv
Ripple and Noise	500 microvolts	500 microvolts	200 microvolts
Size	3-1/2"Hx16-3/4"Dx19"W	5-1/4"Hx16-3/4"Dx19"W	3-1/2"Hx16-3/4"Dx19"W
Weight	35 pounds	55 pounds	50 pounds

808A $475.00
809A $625.00
881A $475.00

25 AMPS — 0.5% REGULATION



Continuously variable output voltage - - no range switching. Continuously variable current limit. Auto-Series and Auto-Parallel operation†, Remote Programming, Remote Sensing. High efficiency circuit features unusual immunity to line transients.

520A $575.00

520A: 0-36 volts @ 0-25 amps

Load Regulation: } Line Regulation: }	Combined, less than 0.5%
Ripple and Noise	Less than 1%
Size	7"H x 16-1/2"D x 19"W
Weight	85 pounds

25 AMPS — 0.03% REGULATION

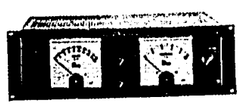
Continuously variable. Constant Voltage and Constant Current operation--no range switching. Auto-Series and Auto-Parallel operation†, Chopper Stabilization optional‡, Remote Programming, Remote Sensing. Continuously variable current limit in Constant Voltage operation; continuously variable voltage limit in Constant Current operation.

814A $775.00

814A: 0-36 volts @ 0-25 amps

	Constant Voltage Operation	Constant Current Operation
Load Regulation	0.03% or 10 mv	0.3% or 75 ma
Line Regulation	0.03% or 10 mv	0.3% or 75 ma
Ripple and Noise	1 millivolt	25 milliamps
Size	7"H x 20"D x 19"W	
Weight	100 pounds	

60 VOLT, 7.5 AMP SUPPLY



Continuously variable. Constant Voltage and Constant Current operation--no range switching. Auto-Series and Auto-Parallel operation†, Chopper Stabilization optional‡, Remote Programming, Remote Sensing. Continuously variable current limit in Constant Voltage operation; continuously variable voltage limit in Constant Current operation.

810B $795.00

810B: 0-60 volts @ 0-7.5 amps

Load Regulation	0.02% or 10 mv
Line Regulation	0.01% or 5 mv
Ripple and Noise	Less than 1 mv
Size	5¼" H x 16¾" D x 19" W
Weight	60 pounds

"FIXED" VOLTAGE — 10 AMP OUTPUT

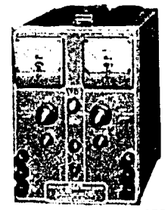
Output voltage span covered in eight ranges; range easily changed to meet new requirements. Remote Sensing, Front and rear output terminals.

812C $550.00

812C: 0-32 volts @ 0-10 amps

Load Regulation	0.05% or 16 millivolts
Line Regulation	0.03% or 9.6 millivolts.
Ripple and Noise	1 millivolt
Size	5-1/4"H x 16"D x 19"W
Weight	52 pounds

HEAVY DUTY BENCH SUPPLIES

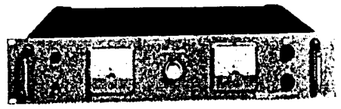


Continuously variable output voltage--no range switching. Choice of three voltage and current ranges to suit all low and medium voltage laboratory applications. Rack Mounting Panels available.

	800A-2: Twin 0-36 volts @ 0-1.5 amps	800B-2: 0-36 volts @ 0-2.5 amps	880: 0-100 volts @ 0-1.0 amp
Load Regulation	5 millivolts	10 millivolts	5 mv or 0.02%
Line Regulation	5 millivolts	5 millivolts	5 mv or 0.05%
Ripple and Noise	200 microvolts	250 microvolts	500 microvolts
Size	7"W x 9"H x 10-1/2"D	7"W x 9"H x 10-1/2"D	7"W x 9"H x 10-1/2"D
Weight	29 pounds	25 pounds	25 pounds

800A-2 $580.00
800B-2 $339.00
880 $375.00

TRANSISTOR SUPPLIES FOR HIGH VOLTAGE APPLICATIONS

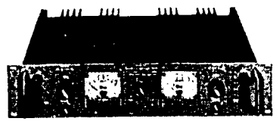


Continuously variable output voltage--no range switching. Chopper Stabilization optional‡, Remote Programming, Remote Sensing, Convection cooling--no moving parts.

	890A $495.00: 0-320 volts @ 0-0.6 amps	895A $625.00: 0-320 volts @ 0-1.5 amps	896A $675.00: 75-160 volts @ 0-2.5 amps
Load Regulation	0.007% or 20 mv	0.01% or 30 mv	0.02% or 30 mv
Line Regulation	0.007% or 20 mv	0.01% or 30 mv	0.02% or 30 mv
Ripple and Noise	2 millivolts	3 millivolts	1 millivolt
Size	3-1/2"H x 16-3/4"D x 19"W	5-1/4"H x 16-3/4"D x 19"W	5-1/4"H x 16-3/4"D x 19"W
Weight	35 pounds	50 pounds	50 pounds

TWIN RACK MOUNTING SUPPLY

Two independent supplies--can be connected in series for 0-72 volts @ 0-1.5 amps. Continuously variable output voltage--no range switching. Remote Sensing, Front and rear output terminals, Convection cooling--no moving parts.



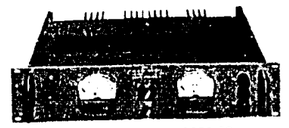
802B $580.00

802B: Twin 0-36 volts @ 0-1.5 amps

Load Regulation	0.01% or 3.6 millivolts
Line Regulation	0.01% or 3.6 millivolts
Ripple and Noise	200 microvolts
Size	3-1/2"H x 15"D x 19"W
Weight	28 pounds

PROGRAMMABLE RACK SUPPLY

Continuously variable output--no range switching. Remote Programming, Remote Sensing, Front and rear output terminals. Convection cooling--no moving parts.



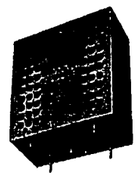
806AM $350.00

806AM: 0-20 volts @ 0-2 amps

Load Regulation	3 millivolts
Line Regulation	3 millivolts
Ripple and Noise	200 microvolts
Size	3-1/2"H x 15"D x 19"W
Weight	20 pounds

CHASSIS-MOUNTING PLUG-IN POWER MODULES

All input, output, and control connections made via octal plug. Continuously variable output voltage--no range switching. Remote Programming, Remote Sensing, Convection cooling--no moving parts. Rack Mounting Panels available.

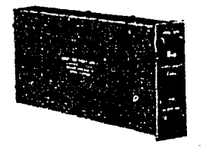


850 $197.00
860 $197.00

	850: 0-15 volts, 0-1.0 amp	860: 0-36 volts, 0-0.5 amp
Load Regulation	3 millivolts	3 millivolts
Line Regulation	3 millivolts	3 millivolts
Ripple and Noise	500 microvolts	500 microvolts
Size	6-1/2"Lx3-7/16"Wx6"H	6-1/2"Lx3-7/16"Wx6"H
Weight	6 pounds	6 pounds

STRAIN GAGE POWER SUPPLY

Continuously variable output voltage--no range switching. Chopper Stabilization optional‡, Plug-in Connectors Optional, Remote Sensing. Mount nine abreast on 5-1/4" rack panel. Insulation resistance greater than 10,000 megohms. Low capacity from AC line to output terminals insured by multiple-shielded transformer.



801C $110.00

801C: 0-25 volts @ 0-0.2 amps

Load Regulation	2 millivolts
Line Regulation	2 millivolts
Ripple and Noise	100 microvolts
Size	5"H x 14-7/8"D x 1-5/8"W
Weight	4 pounds

†AUTO-SERIES & AUTO-PARALLEL OPERATION

Automatic series and automatic parallel operation of many H-Lab supplies, is possible. All necessary wiring changes and interconnections are accomplished via rear terminal strip connections. These multiple groupings feature:

1. One-Knob Master Control
2. Automatic Voltage Equalizing
3. Automatic Current Equalizing
4. Full Range Control From Any Selected Module

For details, circle #50 on Reader Service Card

‡OPTIONAL CHOPPER STABILIZATION

For details, circle #51 on Reader Service Card

For applications requiring tighter regulation specs and greater long-term stability, a chopper-stabilized amplifier can be added to many H-Lab power supplies. This amplifier is completely transistorized and utilizes H-Lab's own semiconductor chopper, thus eliminating the periodic replacement cost and inconvenience which normally accompany the use of mechanical choppers.

Write for new catalog describing the complete H-Lab line.

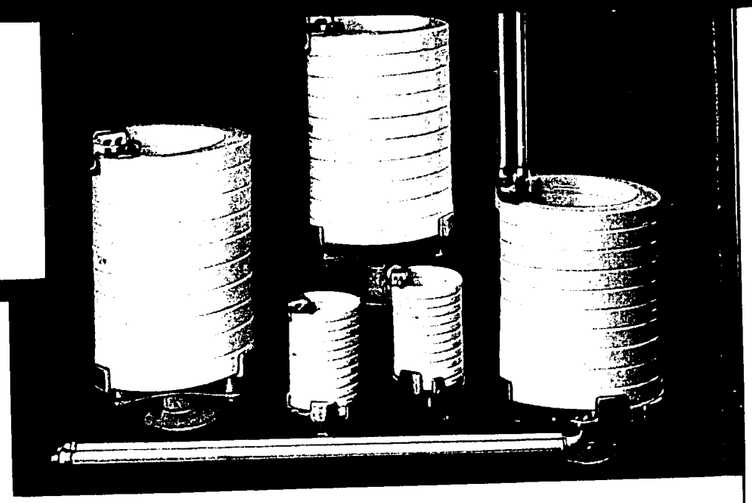
*TRADEMARK

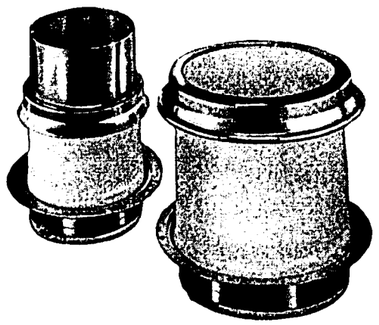
HARRISON LABORATORIES, INC.

45 INDUSTRIAL ROAD • BERKELEY HEIGHTS, NEW JERSEY • 464-1234 • TWX - SUMMIT, N. J. 977

All prices are given F.O.B. Berkeley Heights, N. J. Standard terms are net 30 days. Write for complete specifications on any of the above units or for any additional information.

Lapp





TUBE SUPPORTS
for air-cooled tubes

No longer is it necessary for equipment manufacturers to design supports for forced-air-cooled tubes. After producing many such special designs, Lapp has engineered and built a complete series of insulating supports for air-cooled tubes. Use of these supports facilitates design of transmitter and other high-power circuits. Simple, compact, efficient and attractive in appearance, in porcelain or steatite, they make for economical production, easy interchangeability, and availability of replacement units. Write for Bulletin 301, with complete description and specification data.

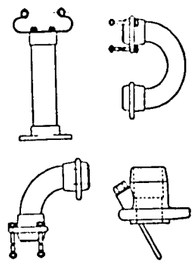
For details, circle #52 on Reader Service Card

INSULATION FOR WATER-COOLED SYSTEMS

For carrying cooling water which must undergo a change in potential, use of Lapp porcelain eliminates troubles arising from water contamination and conductivity, sludging and electrolytic attack of fittings. Permanent cleanness and high resistance of cooling water is assured—for positive cooling and long tube life.

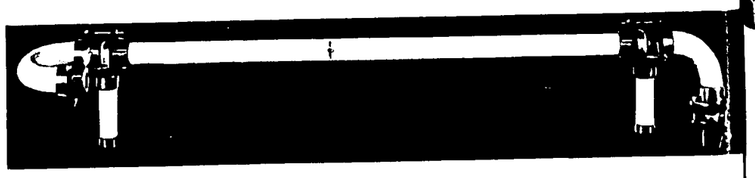
LAPP PORCELAIN WATER COILS

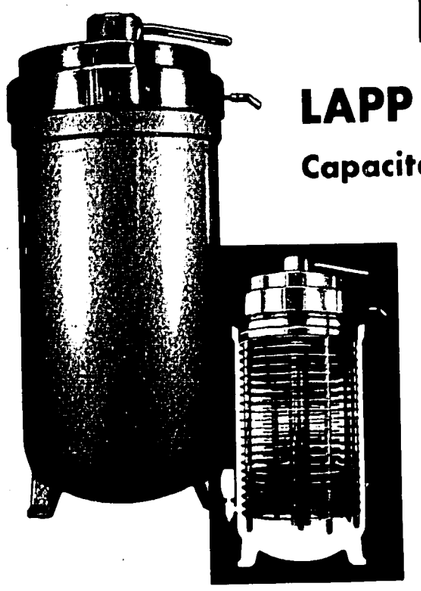
Twin-hole and single-hole models in sizes to provide flow of cooling water from 2 to 90 gallons per minute. Cast aluminum mounting bases, lead pipe or flexible metal hose for attachment.



LAPP PORCELAIN PIPE

Inside diameters ¾" to 3", in straight, 90° and 180° elbows, fittings. Swivel-type connections. Standoff insulators attach directly to fitting bolts. *Write for Bulletin 301 with specifications for Lapp Porcelain Water Coils and Porcelain Pipe.*





LAPP GAS-FILLED CONDENSERS
Capacitance for high-voltage, high-current duty

The record of more than 18 years' service, in thousands of installations, proves the reliability of the Lapp Gas-Filled Condenser. For duty at high voltages and high currents, this unit offers the advantages of extreme compactness . . . low loss . . . high safety factor . . . constant capacitance under temperature variation . . . grounded tuning shaft . . . and rugged sturdiness. Units available in four tank diameters, 7" to 18" . . . in fixed or variable capacitance . . . capacitances to 30,000 mmf; current ratings to 390 amps at 1 mc; voltages to 85 Kv peak. Write for Bulletin 302.

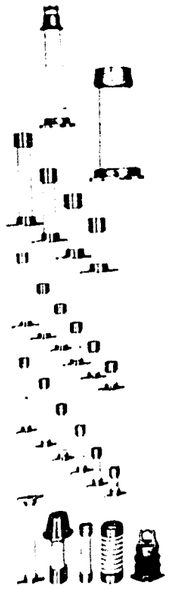
ENTRANCE INSULATORS

To eliminate losses which occur in ordinary types of bushings at radio frequency, Lapp units use air as major insulation, porcelain path being lengthened by its "bowl" shape. In wide variety of types for most electrical and mechanical requirements.

STAND-OFF INSULATORS

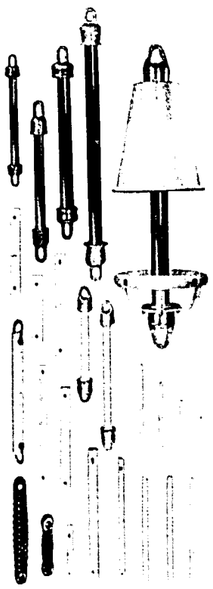
Dependable mechanical and electrical performance—and trim good looks. Hundreds of standard and special types available.

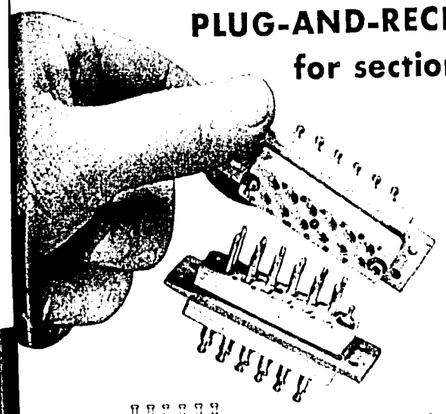
Write for Bulletin 301, listing entrance and stand-off insulators.



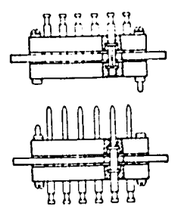
ANTENNA STRAIN INSULATORS

The largest of the porcelain rod insulators shown develops 12,000 lb. strength. Available, as specified, with rain shield and/or corona rings. Smaller units, in porcelain or steatite, for all strain or spreader use. Engineering and production facilities also available for special performance units See catalog 301.





PLUG-AND-RECEPTACLE UNITS
for sectionalizing circuits



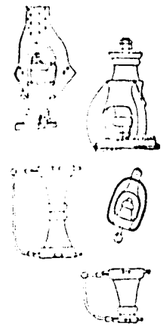
For panel-rack or other sectionalized circuits, Lapp offers a variety of plug-and-receptacle units. Any number of contacts can be provided (in multiples of twelve). Male and female contacts are full floating, for easy alignment and positive contact. Contacts silver plated, terminals tinned for soldering. Insulation is steatite, the low-loss ceramic . . . non-carbonizing even under leakage flashover resulting from contamination, moisture or humidity. Write for complete electrical and mechanical specifications and recommendations.

For details, circle #53 on Reader Service Card

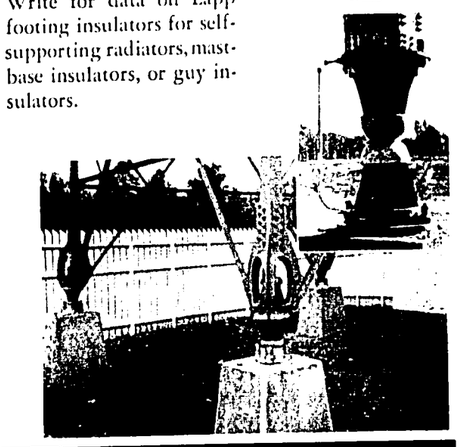
SPECIAL ASSEMBLIES

Lapp business is electrical porcelain, its application, design, manufacture, and assembly. Our skill is in our knowledge of the capabilities, and limitations, of ceramic insulation . . . in engineering ingenuity to meet specified requirements . . . and in efficient production. If you have need for insulating parts and associated subassemblies, we may be able to show you how they can be made most economically, to perform most efficiently.

ANTENNA TOWER INSULATORS



Most of the world's radio towers are supported by Lapp insulators, including the tallest guyed mast ever built. Through the Lapp "compression cone," immense loads can be carried by electrical porcelain. Write for data on Lapp footing insulators for self-supporting radiators, mast-base insulators, or guy insulators.



Lapp

LAPP INSULATOR CO., INC.
RADIO SPECIALTIES DIVISION
150 SUMNER ST., LEROY, N. Y.

RCA SEMICONDUCTOR PRODUCTS DIGEST

RCA GERMANIUM AND SILICON TRANSISTORS

TYPE	Structure	Radio Frequency: VHF Amplifier	Radio Frequency: HF Amplifier	Radio Frequency: Mixer	Radio Frequency: Oscillator	Radio Frequency: Converter	Radio Frequency: IF Amplifier	Audio Frequency: Small-Signal	Audio Frequency: Driver	Audio Frequency: Large-Signal	Audio Frequency: Power	Switching: Low-Speed	Switching: Medium-Speed	Switching: High-Speed	Switching: High-Voltage	Switching: High-Current	CASE
GERMANIUM ALLOY-JUNCTION TYPES																	
2N104	PNP							●									TO-40
2N109	PNP								●	●		●					TO-40
2N139	PNP			●		●						●					TO-40
2N140	PNP		●		●							●					TO-40
2N173	PNP									●	●	●			●	●	TO-36
2N174	PNP									●	●	●			●	●	TO-36
2N175	PNP							●									TO-40
2N176	PNP									●	●						TO-3■
2N215	PNP								●	●		●					TO-1
2N217	PNP								●	●		●					TO-1
2N218	PNP			●		●						●					TO-1
2N219	PNP		●		●							●					TO-1
2N220◆	PNP							●									TO-1
2N269	PNP											●					TO-1
2N270	PNP								●	●		●					▶◀
2N274▶◆	PNP	●	●	●	●	●							●				TO-44
2N277	PNP								●	●	●			●	●		TO-36
2N278	PNP								●	●	●			●	●		TO-36
2N301	PNP								●	●							TO-3■
2N301-A	PNP								●	●							TO-3■
2N351	PNP								●	●							TO-3■
2N370▶	PNP		●														TO-7
2N371▶	PNP				●												TO-7
2N372▶	PNP			●													TO-7
2N373▶	PNP						●	(see 2N1633, 2N1634)									TO-7
2N374▶	PNP					●		(see 2N1635, 2N1636)									TO-7
2N376	PNP								●	●							TO-3■
2N384▶◆	PNP	●	●	●	●	●	●							●			TO-44
2N398	PNP										●				●		TO-5
2N404◆	PNP										●						TO-5
2N405	PNP							●									TO-40
2N406	PNP							●									TO-1
2N407	PNP							●	●								TO-40
2N408	PNP							●	●								TO-1
2N409	PNP				●		●										TO-40
2N410	PNP				●		●										TO-1
2N411	PNP			●		●											TO-40
2N412	PNP			●		●											TO-1
2N414	PNP										●						TO-5
2N441	PNP									●	●			●	●		TO-36
2N442	PNP									●	●			●	●		TO-36
2N443	PNP									●	●			●	●		TO-36
2N578	PNP										●				●		TO-5
2N579	PNP										●				●		TO-5
2N580	PNP										●				●		TO-5
2N581	PNP										●						TO-5
2N582	PNP										●						TO-5
2N583	PNP										●						TO-1
2N584	PNP										●						TO-1
2N585	NPN										●						TO-5
2N586	PNP										●						TO-7
2N591	PNP							●									TO-1
2N640▶	PNP		●						(see 2N1637)								TO-7
2N641▶	PNP						●		(see 2N1638)								TO-7
2N642▶	PNP					●			(see 2N1639)								TO-7
2N643▶	PNP										●						TO-9
2N644▶	PNP										●						TO-9
2N645▶	PNP										●						TO-9
2N647	NPN							●	●								TO-1
2N649	NPN							●	●								TO-1
SILICON TYPES																	
2N497	NPN										●	●	●			●	TO-5
2N656	NPN										●	●	●			●	TO-5
2N706◆	NPN													●			TO-18
2N706-A	NPN													●			TO-18
2N1067	NPN										●	●	●			●	TO-8
2N1068	NPN										●	●	●			●	TO-8
2N1069	NPN										●	●	●			●	TO-3
2N1070	NPN										●	●	●			●	TO-3
2N1092	NPN										●	●	●			●	TO-5
2N1479	NPN										●	●	●			●	TO-5
2N1480	NPN										●	●	●			●	TO-5
2N1481	NPN										●	●	●			●	TO-5
2N1482	NPN										●	●	●			●	TO-5
2N1483	NPN										●	●	●			●	TO-8
2N1484	NPN										●	●	●			●	TO-8
2N1485	NPN										●	●	●			●	TO-8
2N1486	NPN										●	●	●			●	TO-8

TYPE	Structure	Radio Frequency: VHF Amplifier	Radio Frequency: HF Amplifier	Radio Frequency: Mixer	Radio Frequency: Oscillator	Radio Frequency: Converter	Radio Frequency: IF Amplifier	Audio Frequency: Small-Signal	Audio Frequency: Driver	Audio Frequency: Large-Signal	Audio Frequency: Power	Switching: Low-Speed	Switching: Medium-Speed	Switching: High-Speed	Switching: High-Voltage	Switching: High-Current	CASE
GERMANIUM ALLOY-JUNCTION TYPES (Continued)																	
2N1010	NPN										●						TO-1
2N1023▶	PNP	●	●	●	●	●	●						●				TO-44
2N1066▶	PNP	●	●	●	●	●	●						●				TO-33
2N1090	NPN												●				TO-5
2N1091	NPN												●				TO-5
2N1099	PNP											●	●		●	●	TO-36
2N1100	PNP											●	●		●	●	TO-36
2N1169	NPN	bidirectional											●		●		TO-5
2N1170	NPN	bidirectional											●		●		TO-5
2N1177▶	PNP	●															TO-45
2N1178▶	PNP					●											TO-45
2N1179▶	PNP				●												TO-45
2N1180▶	PNP										●						TO-45
2N1183	PNP											●	●		●	●	TO-8
2N1183-A	PNP											●	●		●	●	TO-8
2N1183-B	PNP											●	●		●	●	TO-8
2N1184	PNP											●	●		●	●	TO-8
2N1184-A	PNP											●	●		●	●	TO-8
2N1184-B	PNP											●	●		●	●	TO-8
2N1224▶	PNP							●	●	●	●	●					TO-33
2N1225▶	PNP	●		●	●	●	●										TO-33
2N1226▶	PNP			●	●	●	●										TO-33
2N1319	PNP	bidirectional											●				TO-5
2N1358	PNP											●	●		●	●	TO-36
2N1384▶	PNP																TO-11
2N1395▶	PNP							●	●	●	●	●					TO-33
2N1396▶	PNP	●		●	●	●	●										TO-33
2N1397▶	PNP	●		●	●	●	●										TO-33
2N1412	PNP											●	●		●	●	TO-36
2N1425▶	PNP										●						TO-7
2N1426▶	PNP					●					●						TO-7
2N1450	PNP																TO-9
2N1524▶	PNP										●						TO-1
2N1525▶	PNP										●						TO-40
2N1526▶	PNP										●						TO-1
2N1527▶	PNP										●						TO-40
2N1631▶	PNP				●												TO-40
2N1632▶	PNP				●												TO-1
2N1633▶	PNP										●						TO-40
2N1634▶	PNP										●						TO-1
2N1635▶	PNP										●						TO-40
2N1636▶	PNP										●						TO-1
2N1637▶	PNP				●												TO-1
2N1638▶	PNP										●						TO-1
2N1639▶	PNP										●						TO-1
GERMANIUM DIFFUSED-JUNCTION MESA TYPES																	
2N705	PNP														●		TO-18
2N710	PNP														●		TO-18
2N711	PNP														●		TO-18
2N794	PNP														●		TO-18
2N795	PNP														●		TO-18
2N796	PNP														●		TO-18
2N1213	PNP	(Thyristor)													●		TO-5
2N1214	PNP	(Thyristor)													●		TO-5
2N1215	PNP	(Thyristor)													●		TO-5
2N1216	PNP	(Thyristor)													●		TO-5
2N1300	PNP														●		TO-5
2N1301	PNP														●		TO-5
2N1683	PNP														●		TO-5
SILICON TYPES (Continued)																	
2N1487	NPN											●	●		●	●	TO-3
2N1488	NPN											●	●		●	●	TO-3
2N1489	NPN											●	●		●	●	TO-3
2N1490	NPN											●	●		●	●	TO-3
2N1491	NPN	●	●	●				●									TO-12
2N1492	NPN	●	●	●				●									TO-12
2N1493	NPN	●	●	●				●									TO-12
2N1511	NPN											●	●		●	●	TO-36
2N1512	NPN											●	●		●	●	TO-36
2N1513	NPN											●	●		●	●	TO-36
2N1514	NPN											●	●		●	●	TO-36
2N1700	NPN											●	●				TO-5
2N1701	NPN											●	●				TO-8
2N1702	NPN											●	●			●	TO-3
2N1703	NPN											●	●			●	TO-36
2N1768	NPN											●	●			●	Offset Stud
2N1769	NPN											●	●			●	Offset Stud

A quick classification guide to RCA's line of silicon and germanium transistors and silicon rectifiers

RCA SILICON RECTIFIERS

TYPE	TYPICAL APPLICATION	CASE	MAXIMUM RATINGS (Absolute-Maximum Values) For supply frequency of 60 cps and with capacitor input to filter: Peak Inverse volts	RMS Supply volts	DC Forward Amperes at 75°C	Ambient Temperature °C: Operating	Ambient Temperature °C: Storage	CHARACTERISTICS Maximum Reverse Current Microamperes (DC): At Maximum PIV and 25°C	At Maximum PIV and 100°C†
1N1763	Power Supply	DO-1	400	140	0.5	100	— 65 to + 150	100	1000
1N1764	Power Supply	DO-1	500	175	0.5	100	— 65 to + 150	100	1000

TYPE	TYPICAL APPLICATION	CASE	MAXIMUM RATINGS (Absolute-Maximum Values) For supply frequency of 60 cps and with resistive or inductive load: Peak Inverse volts	RMS Supply volts	DC Forward Current Milliamperes: At 100°C	At 150°C	Ambient Temperature °C: Operating	Storage	CHARACTERISTICS Maximum Reverse Current Microamperes (DC): At Maximum PIV and 25°C	At Maximum PIV and 150°C†
1N440-B	Magnetic Amplifier	DO-1	100	70	500	250	165	— 65 to + 175	0.3	100
1N441-B	Magnetic Amplifier	DO-1	200	140	500	250	165	— 65 to + 175	0.75	100
1N442-B	Magnetic Amplifier	DO-1	300	210	500	250	165	— 65 to + 175	1	200
1N443-B	Magnetic Amplifier	DO-1	400	280	500	250	165	— 65 to + 175	1.5	200
1N444-B	Magnetic Amplifier	DO-1	500	350	425	0	150	— 65 to + 175	1.75	200
1N445-B	Magnetic Amplifier	DO-1	600	420	400	0	150	— 65 to + 175	2	200
1N536	Power Supply	DO-1	50	35	500	250	165	— 65 to + 175	5	400
1N537	Power Supply	DO-1	100	70	500	250	165	— 65 to + 175	5	400
1N538◆	Power Supply	DO-1	200	140	500	250	165	— 65 to + 175	5	300
1N539	Power Supply	DO-1	300	210	500	250	165	— 65 to + 175	5	300
1N540◆	Power Supply	DO-1	400	280	500	250	165	— 65 to + 175	5	350
1N547◆	Power Supply	DO-1	600	420	500	250	165	— 65 to + 175	5	300
1N1095	Power Supply	DO-1	500	350	500	—	125	— 65 to + 125	1*	—
1N2858	General Purpose	DO-1	50	35	500	—	125	— 65 to + 125	1*	—
1N2859	General Purpose	DO-1	100	70	500	—	125	— 65 to + 125	1*	—
1N2860	General Purpose	DO-1	200	140	500	—	125	— 65 to + 125	1*	—
1N2861	General Purpose	DO-1	300	210	500	—	125	— 65 to + 125	1*	—
1N2862	General Purpose	DO-1	400	280	500	—	125	— 65 to + 125	1*	—
1N2863	General Purpose	DO-1	500	350	500	—	125	— 65 to + 125	1*	—
1N2864	General Purpose	DO-1	600	420	500	—	125	— 65 to + 125	1*	—

TYPE	TYPICAL APPLICATION	CASE	MAXIMUM RATINGS: Peak Inverse volts	RMS Supply volts	Forward Amperes @ 150°C Case Temp.: Average	Peak Surge	Case Temperature (°C) Operating and Storage	CHARACTERISTICS At 150°C Case Temperature: Max. Forward Voltage Drop (Watts)	Max. Reverse Ma
1N248C	Stud Mounted Types for Heavy-Duty Industrial and Military Applications	DO-5	55	39	20	350	— 65 to + 175	0.6	3.8
1N249C		DO-5	110	77	20	350	— 65 to + 175	0.6	3.6
1N250C		DO-5	220	154	20	350	— 65 to + 175	0.6	3.4
1N1195A		DO-5	300	212	20	350	— 65 to + 175	0.6	3.2
1N1196A		DO-5	400	284	20	350	— 65 to + 175	0.6	2.5
1N1197A		DO-5	500	355	20	350	— 65 to + 175	0.6	2.2
1N1198A		DO-5	600	424	20	350	— 65 to + 175	0.6	1.5

PROTOTYPES AND REVERSE-POLARITY VERSIONS AVAILABLE. ◆ MULTI-CELL RECTIFIERS—CR101—CR110—VOLTAGES UP TO 10,000 VOLTS, CURRENTS TO 825 MA D.C.

TO BE AVAILABLE IN 1961—35 AMP STUD MOUNTED (DO-5) RECTIFIERS, VOLTAGES TO 400 V PIV

TYPE (UNINSULATED VERSIONS)	TYPE (INSULATED VERSIONS)	CASE	Peak Inverse volts	RMS Supply volts	MAXIMUM RATINGS: DC Forward Milliamperes§ at 75°C	DC Forward Milliamperes§ at 100°C	Ambient Temperature °C: Operating	Storage	CHARACTERISTICS at 25°C Ambient Temperature: Forward Drop Volts	Reverse Current μa
1N3193	1N3253	TO-1	200	140	750	225	— 65 to + 100	— 65 to + 175	1.2	10
1N3194	1N3254	TO-1	400	280	750	225	— 65 to + 100	— 65 to + 175	1.2	10
1N3195	1N3255	TO-1	600	420	750	225	— 65 to + 100	— 65 to + 175	1.2	10
1N3196	1N3256	TO-1	800	560	750	150	— 65 to + 100	— 65 to + 175	1.2	10

RCA TUNNEL DIODES

TYPE	Material	MAXIMUM RATINGS: Peak Forward Ma	Peak Reverse Ma	Dissipation at 25°C MW	Ambient Operating Temperature °C	ELECTRICAL CHARACTERISTICS At 25°C: Ip Ma	C μμf: Typ	C μμf: Max	Iv ma: Typ	Iv ma: Max	Vp† volts: Min	Vp† volts: Max	Vv volts: Min	Vv volts: Max	−RD◆: Typ
1N3128	Ge	100	200	40	— 65 to + 150	5 ± 5%	7	15	0.45	0.6	445	485	45	65	280	330	22
1N3129	Ge	100	200	40	— 65 to + 150	20 ± 5%	10	20	1.8	2.4	500	550	65	90	300	360	6
1N3130	Ge	100	200	40	— 65 to + 150	50 ± 5%	12	25	4.5	6	540	600	90	120	350	430	2.4
1N3138	GaAs	100	200	75	— 65 to + 150	50 ± 5%	10	30	2.5	3.5	1100	1400	120	260	510	620	2.6

■ Similar to TO-3 outline
▶◀ Like TO-7 but has 3 flexible leads
▶ Drift field types
◆ JAN TYPES also available
USA-2N274 also available. Meets MIL-T-19500/26 (Sig C)
USA-2N384 also available. Meets MIL-T-19500/27 (Sig C)
USAF-2N404 also available. Meets MIL-T-19500/20 (USAF)
USA-2N706 also available. Meets MIL-S-19500/120 (Sig C)

▶ JAN types also available.
* Typical values † Averaged over one complete cycle
§ For supply frequency of 60 cps and with resistive or inductive load
◆ Values are in ohms. Measured value of −Ro at inflection point of negative resistance characteristic

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JFD IT PAYS TO SPECIFY VARIABLE TRIMMER PISTON CAPACITORS, LC TUNERS AND METALIZED INDUCTORS

model	type mount	capacitance range mmf measured per JFD #5177 min.	max.	D.C. working volts	dielectric strength measured at max. rated cap.	Insulation resistance 500 V D C.	Q factor measured per JFD #5178	temp coeff. of capacitance P.P.M./°C 25° to 125°C	material (dielectric-piston)	length (front of panel)
STANDARD PANEL MOUNT, GLASS AND QUARTZ										
VC1G	Panel	0.7	9.0	1500	2500 VDC	10^4 Meg. Min.	500	−60 to +10	Glass - Invar	21/32
VC4G	Panel	0.8	18.0	1000	1500 VDC	10^4 Meg. Min.	500	+350 to +450	Glass - Brass	1
VC5G	Panel	0.8	18.0	1000	1500 VDC	10^4 Meg. Min.	500	−20 to +40	Glass - Invar	1
VC11G	Panel	0.6	14.0	1000	1500 VDC	10^4 Meg. Min.	500	−30 to +40	Glass - Invar	1
VC11GRA	Panel	0.6	14.0	1000	1500 VDC	10^4 Meg. Min.	500	−40 to +50	Glass - Invar	1
VC11GRB	Panel	0.6	14.0	1000	1500 VDC	10^4 Meg. Min.	500	+450 to +600	Glass - Brass	1
VC11GRC	Panel	0.8	18.0	1000	1500 VDC	10^4 Meg. Min.	500	+20 to +100	Glass - Invar	1
VC30G	Panel	0.8	30.0	1000	1500 VDC	10^4 Meg. Min.	500	−10 to +50	Glass - Invar	1 11/32
VC2	Panel	0.7	4.5	1000	1500 VDC	10^4 Meg. Min.	2000	Approx. Zero	Quartz - Invar	7/16
VC5	Panel	0.6	6.0	1000	1500 VDC	10^4 Meg. Min.	2000	Approx. Zero	Quartz - Invar.	5/8
VC11	Panel	0.8	10.0	1000	1500 VDC	10^4 Meg. Min.	2000	Approx. Zero	Quartz - Invar	1
VC11A	Panel	1.0	10.0	1000	2000 VDC	10^4 Meg. Min.	2000	Approx. Zero	Quartz - Invar	1 1/32
VC12	Panel	9.0	21.0	1000	1500 VDC	10^4 Meg. Min.	2000	Approx. Zero	Quartz - Invar	1 11/32
VC99	Panel	0.8	10.0	3000	5000 VDC	10^4 Meg. Min.	2000	Approx. Zero	Quartz - Invar	1 7/32
SPLIT BUSHING SERIES PANEL MOUNT, PRINTED CIRCUIT, GLASS AND QUARTZ										
VC3G	Panel	0.7	9.0	1500	2500 VDC	10^4 Meg. Min.	650	+350 to +500	Glass - Brass	21/32
VC3GI	Panel	0.7	9.0	1500	2500 VDC	10^4 Meg. Min.	650	+0 to −150	Glass - Invar	21/32
VC6GA	Panel	0.7	17.0	1000	1500 VDC	10^4 Meg. Min.	750	+400 to +600	Glass - Brass	1 5/32
VC6GC	Panel	0.8	17.0	1000	1500 VDC	10^4 Meg. Min.	650	−100 to +100	Glass - Invar	1 5/32
VC6GI	Panel	0.8	17.0	1000	1500 VDC	10^4 Meg. Min.	600	−100 to +100	Glass - Invar	1 5/32
VC7G	Panel	2.0	30.0	1000	1500 VDC	10^4 Meg. Min.	600	−100 to +100	Glass - Invar	1 3/4
VC13GA	Panel	0.8	13.0	3000	5000 VDC	10^4 Meg. Min.	500	+225 to +375	Glass - Ph. Bronze	1 1/4
VC50C	Panel	5.0	50.0	1250	2500 VDC	10^3 Meg. Min.	450	+250 to +450	Ceram Ph Bronze	1
VC801GW	Prt. Ct.	0.8	4.5	1000	1500 VDC	10^4 Meg.	500	−55 to +125	Glass - Invar	3 3/4
VC803GW	Prt. Ct.	0.8	8.5	1000	1500 VDC	10^4 Meg.	500	−55 to +125	Glass - Invar	2 5/32
VC804GW	Prt. Ct.	0.8	12.0	1000	1500 VDC	10^4 Meg.	500	−55 to +125	Glass - Invar	2 5/32
VC806GW	Prt. Ct.	0.8	18.0	1000	1500 VDC	10^4 Meg.	500	−55 to +125	Glass - Invar	1 7/32
VC809GW	Prt. Ct.	0.8	30.0	1000	1500 VDC	10^4 Meg.	500	−55 to +125	Glass - Invar	1 13/16
VC811QW	Prt. Ct.	0.6	1.8	1000	1500 VDC	10^4 Meg.	2000	−55 to +150	Quartz - Invar	3 3/4
VC813QW	Prt. Ct.	0.6	5.0	1000	1500 VDC	10^4 Meg.	2000	−55 to +150	Quartz - Invar	2 5/32
VC816QW	Prt. Ct.	0.6	9.5	1000	1500 VDC	10^4 Meg.	2000	−55 to +150	Quartz - Invar	1 7/32
VC819QW	Prt. Ct.	0.6	16.0	1000	1500 VDC	10^4 Meg.	2000	−55 to +150	Quartz - Invar	1 13/16
MINIATURE PANEL MOUNT, PRINTED CIRCUIT, GLASS AND QUARTZ										
VC20G * VC9G, VC9GW	Prt. Ct.	0.8	8.5	1000	1500 VDC	10^4 Meg. Min.	500	±50	Glass - Invar	3/16
VC21G* VC10G, VC10GW	Prt. Ct.	0.8	4.5	1000	1500 VDC	10^4 Meg. Min.	500	±50	Glass - Invar	3/16
VC22G*	Panel	0.7	12.0	1000	1500 VDC	10^4 Meg. Min.	500	±75	Glass - Invar	47/64
VC23G* VC32G, VC32GW	Prt. Ct.	0.8	18.0	1000	1500 VDC	10^4 Meg. Min.	500	±100	Glass - Invar	1
VC24G*	Panel	1.0	30.0	1000	1500 VDC	10^4 Meg. Min.	500	±100	Glass - Invar	1 5/8
VC31G, VC31GW	Prt. Ct.	0.8	12.0	1000	1500 VDC	10^4 Meg. Min.	500	±75	Glass - Invar	1 1/32
VC42G & VC42GW	Prt. Ct.	1.0	21.0	1000	1500 VDC	10^4 Meg. Min.	500	±100	Glass - Invar	1 1/4
VC43G, VC43GW	Prt. Ct.	0.8	30.0	1000	1500 VDC	10^4 Meg. Min.	500	±100	Glass - Invar	1 5/8
MQ101*, 111 & 121	Prt. Ct.	0.6	1.8	1000	1500 VDC	10^4 Meg. Min.	1500	Approx. Zero	Quartz - Invar	3/16
MQ103*, 113 & 123	Prt. Ct.	0.6	5.5	1000	1500 VDC	10^4 Meg. Min.	1500	Approx. Zero	Quartz - Invar	3/16
MQ106*, 116 & 126	Prt. Ct.	0.6	9.5	1000	1500 VDC	10^4 Meg. Min.	1500	Approx. Zero	Quartz - Invar	1
MQ109*, 119 & 129	Prt. Ct.	0.8	16.0	1000	1500 VDC	10^4 Meg. Min.	1500	Approx. Zero	Quartz - Invar	1 5/8

* Panel Mount

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JFD

model	type mount	capacitance range mmf measured per JFD #5177 min.	max.	D.C. working volts	dielectric strength measured at max. rated cap.	Insulation resistance 500 VDC	Q factor measured per JFD #5178	temp. coeff. of capacitance P.P.M./°C 25° to 125°C	material (dielectric-piston)	length (front of panel)
SEALCAP MINIATURE PANEL MOUNT, PRINTED CIRCUIT, GLASS AND QUARTZ										
SC131*, 141 & 151	Prt. Ct.	0.8	4.5	750	1500 VDC	$2x10^4$ Meg.	500	±50	Glass - Invar	13/32†
SC133*, 143 & 153	Prt. Ct.	0.8	8.5	1250	2500 VDC	$10x10^4$ Meg.	500	±50	Glass - Invar	21/32†
SC134*	Prt. Ct.	0.7	12.0	1250	2500 VDC	$10x10^4$ Meg.	500	±75	Glass - Invar	1/4
SC144 & 154	Prt. Ct.	0.8	12.0	1250	2500 VDC	$10x10^4$ Meg.	500	±75	Glass - Invar	1.053
SC136*, 146 & 156	Prt. Ct.	0.8	18.0	1250	2500 VDC	$10x10^4$ Meg.	500	±100	Glass - Invar	13/32†
SC139*	Prt. Ct.	1.0	30.0	1250	2500 VDC	$10x10^4$ Meg.	500	±100	Glass - Invar	1 3/4
SC149 & 159	Prt. Ct.	0.8	30.0	1250	2500 VDC	$10x10^4$ Meg.	500	±100	Glass - Invar	1.928
QS171*, 181 & 191	Prt. Ct.	0.6	1.8	1000	1500 VDC	$2x10^4$ Meg.	1500	Approx. Zero	Quartz - Invar	13/32†
QS173*, 183 & 193	Prt. Ct.	0.6	5.5	1250	2500 VDC	$10x10^4$ Meg.	1500	Approx. Zero	Quartz - Invar	21/32†
QS176*, 186 & 196	Prt. Ct.	0.6	9.5	1250	2500 VDC	$10x10^4$ Meg.	1500	Approx. Zero	Quartz - Invar	13/32†
QS179*, 189 & 199	Prt. Ct.	0.8	16.0	1250	2500 VDC	$10x10^4$ Meg.	1500	Approx. Zero	Quartz - Invar	1 3/4†
STANDARD SPLIT-STATOR PANEL MOUNT, GLASS AND QUARTZ										
VC16G	Panel	(A) 0.5 (B) 0.8	5.0 2.5	500	1000 VDC	10^4 Meg.	700	±50	Glass - Invar	3/16
VC17G	Panel	(A) 0.6 (B) 1.1	8.5 4.5	500	1000 VDC	10^4 Meg.	700	±50	Glass - Invar	1 3/32
VC18G	Panel	(A) 0.7 (B) 1.8	14.0 7.5	500	1000 VDC	10^4 Meg.	700	±50	Glass - Invar	1 5/32
VC80	Panel	(A) 0.3 (B) 0.4	2.0 1.0	1000	1500 VDC	10^4 Meg.	1000	Approx. Zero	Quartz - Invar	3/32
VC81	Panel	(A) 0.4 (B) 0.6	3.2 1.6	1000	1500 VDC	10^4 Meg.	1000	Approx. Zero	Quartz - Invar	1/4
VC82	Panel	(A) 0.5 (B) 0.85	5.5 2.8	1000	1500 VDC	10^4 Meg.	1000	Approx. Zero	Quartz - Invar	1 3/32
VC83	Panel	(A) 4.8 (B) 3.0	11.0 6.0	1000	1500 VDC	10^4 Meg.	1000	Approx. Zero	Quartz - Invar	1 3/16
MINIATURE SPLIT-STATOR SERIES										
SP86G*, 206G & 216G	Prt. Ct.	(A) 0.8 (B) 0.8	4.2 2.0	750	1500 VDC	10^3 Meg.	500	±50	Glass - Invar	13/32†
SP87G*, 207G & 217G	Prt. Ct.	(A) 0.8 (B) 1.5	9.0 4.5	750	1500 VDC	10^3 Meg.	500	±100	Glass - Invar	1†
SP88G*, 208G & 218G	Prt. Ct.	(A) 1.0 (B) 2.0	14.0 7.0	750	1500 VDC	10^3 Meg.	500	±100	Glass - Invar	1 13/32†
MINIATURE SPLIT-STATOR SEALCAP SERIES										
SPS226G*, 236G & 246G	Prt. Ct.	(A) 0.8 (B) 0.8	4.2 2.0	750	1500 VDC	10^3 Meg.	500	±50	Glass - Invar	13/32†
SPS227G*, 237G & 247G	Prt. Ct.	(A) 0.8 (B) 1.5	9.0 4.5	750	1500 VDC	10^3 Meg.	500	±100	Glass - Invar	1 3/4†
SPS228G*, 238G & 248G	Prt. Ct.	(A) 1.0 (B) 2.0	14.0 7.0	750	1500 VDC	10^3 Meg.	500	±100	Glass - Invar	1 13/32†
DIFFERENTIAL SERIES, STANDARD PANEL MOUNT, MINIATURE TYPES FOR PANEL MOUNT*, AND PRINTED CIRCUIT TYPES**										
DC401**, 411* , 421 & 431	Prt. Ct.	(1) 0.7 (2) 2.0	3.0 3.0	500	1000 VDC	10^4 Meg.	500	±100	Glass - Invar	3/16†
DC403**, 413* , 423 & 433	Prt. Ct.	(1) 0.8 (2) 2.5	8.0 8.5	500	1000 VDC	10^4 Meg.	500	±100	Glass - Invar	3/16†
DC404**, 414* , 424 & 434	Prt. Ct.	(1) 0.8 (2) 3.0	12.0 12.0	500	1000 VDC	10^4 Meg.	500	±100	Glass - Invar	1/4†
DC406**, 416* , 426 & 436	Prt. Ct.	(1) 0.9 (2) 3.0	16.0 16.0	500	1000 VDC	10^4 Meg.	500	±100	Glass - Invar	5/16†
DC409**, 419* , 429 & 439	Prt. Ct.	(1) 1.0 (2) 4.0	28.0 28.0	500	1000 VDC	10^4 Meg.	500	±100	Glass - Invar	13/16†
MINIATURE DIFERENTIAL SEALCAP SERIES										
DS441*, 451 & 461	Prt. Ct.	(1) 0.7 (2) 2.0	3.0 3.0	500	1000 VDC	10^4 Meg.	500	±100	Glass - Invar	3/16†
DS443*, 453 & 463	Prt. Ct.	(1) 0.8 (2) 2.5	8.0 8.5	500	1000 VDC	10^4 Meg.	500	±100	Glass - Invar	47/64†
DS444*, 454 & 464	Prt. Ct.	(1) 0.8 (2) 3.0	12.0 12.0	500	1000 VDC	10^4 Meg.	500	±100	Glass - Invar	1/4†
DS446*, 456 & 466	Prt. Ct.	(1) 0.9 (2) 3.0	16.0 16.0	500	1000 VDC	10^4 Meg.	500	±100	Glass - Invar	5/16†
DS449*, 459 & 469	Prt. Ct.	(1) 1.0 (2) 4.0	28.0 28.0	500	1000 VDC	10^4 Meg.	500	±100	Glass - Invar	13/16†
MAX-C SEALCAP SERIES										
MC601*, 611 & 621	Prt. Ct.	1.0	14.0	1000	2000 VDC	10^4 Meg.	500	±50	Glass - Invar	3/16†
MC603*, 613 & 623	Prt. Ct.	1.0	28.0	1000	2000 VDC	10^4 Meg.	500	±50	Glass - Invar	5/16†
MC604*, 614 & 624	Prt. Ct.	1.0	42.0	1000	2000 VDC	10^4 Meg.	500	±50	Glass - Invar	25/32†
MC606*, 616 & 626	Prt. Ct.	1.0	60.0	1000	2000 VDC	10^4 Meg.	500	±50	Glass - Invar	1 5/32†
MC609*, 619 & 629	Prt. Ct.	1.0	90.0	1000	2000 VDC	10^4 Meg.	500	±50	Glass - Invar	1 3/4†

LC TUNERS*	self-resonating frequency (MC)	nominal induct (microhenries)	nominal capacitance (MME)	Q factor	operating temperature °C	material	length (front of panel)
LC303* , 313 , 323 & 333**	400 MIN	725 MAX .0248 MIN .0277 MAX	.54 MIN 6.56 MAX	170-200	−55 to +125	Glass - Invar	43/64
LC304* , 314 , 324 & 334**	275 MIN	550 MAX .0367 MIN .0396 MAX	.85 MIN 11.66 MAX	150-175	−55 to +125	Glass - Invar	57/64
LC306* , 316 , 326 & 336**	200 MIN	500 MAX .0507 MIN .0544 MAX	.86 MIN 20.19 MAX	135-170	−55 to +125	Glass - Invar	1 7/64
LC309* , 319 , 329 & 339**	125 MIN	375 MAX .048 MIN .0798 MAX	.88 MIN 24.49 MAX	145-155	−55 to +125	Glass - Invar	1 47/64

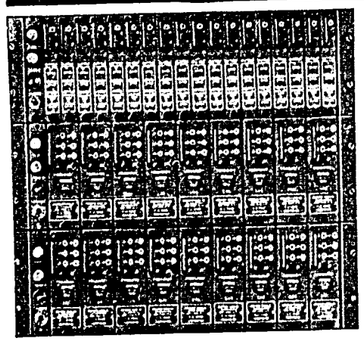
FIXED METALIZED INDUCTORS FOR PANEL MOUNT OR PRINTED CIRCUIT MOUNT

23 values available off the shelf from 0.05 μh to 2.0 μh-Q factor up to 180.
High stability over wide operating temperature. Write for our catalog.

** Standard panel mount * Miniature panel mount † Length Applicable for Panel Mount Types Only.

For details, circle #57 on Reader Service Card

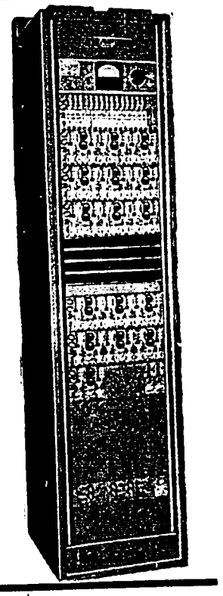
Northern Radio TRANSISTORIZED Voice Frequency Carrier Telegraph Systems



18 CHANNELS IN ONLY 15¾" PANEL SPACE

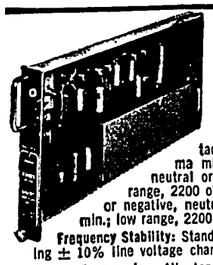
Top shelf **shows 18 FS Tone Keyers, Type 211, Model 1; Next 2 shelves contain 9 each FS Tone Converters, Type 212, Model 2.**

MILITARY EQUIPMENT AN/FGC-1 16-CHANNEL DIVERSITY SYSTEM



- Diversity switching sensitivity from —60 dbm to 0 dbm

The Northern Radio Voice Frequency Telegraph Terminal, Type 235 Model 1, is a multi-channel frequency shift communications terminal used for transmission and reception of telegraph, teleprinter or telemetering signals over channels subject to fading or attenuation changes, such as long distance point-to-point radio circuits. It provides the necessary equipment for transmission of 16 intelligence channels over one (1) voice frequency circuit, and diversity reception of 16 similar channels, received through two (2) voice frequency circuits. The two (2) voice frequency receiving circuits are normally obtained from radio receivers arranged for space diversity reception. Means are provided to allow reception on a frequency diversity basis rather than space diversity. A combination of space and frequency diversity may be utilized for maximum reliability, when conditions are such as to require same. All the necessary equipment may be mounted in approximately ⅔ of one standard 7-foot telegraph rack.



FREQUENCY SHIFT TONE KEYER

Type 211, Model 1

Keying inputs, levels and impedances: 1: Contact keying (internal battery to "dry" contacts) 1 ma min.; 2. DC current pulses, positive or negative, neutral or polar; high range, 220 ohms, 30 ma. min; low range, 2200 ohms, 0.5 ma. min.; 3. DC voltage pulses, positive or negative, neutral or polar; high range, 100,000 ohms, 10 volts min.; low range, 2200 ohms, 1 volt min.

Frequency Stability: Standard Networks ± 2 cps total for all causes including ± 10% line voltage change and ± 25°C. from 25°C. temperature change.

Output Frequencies: All standard VF carrier channels from 425 to 3315 cps. Bandwidth dependent on keying speed requirements. Other frequencies and bandwidths available on special order.

Output Level and Impedance: 5 dbm maximum, into 600 ohms, unbalanced. May be paralleled with any number of other Keyers operating on different frequencies in the same audio system.

Power Requirements: 14 V DC, 15 MA. Two transistorized power supplies and one automatic change-over relay are mounted on the rear of each mounting shelf.

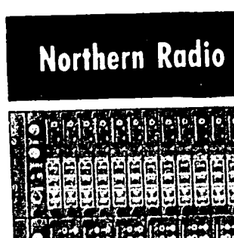
Dimension: ⅞" wide x 5¼" high x 10½" deep.

PRINTER RELAY

Type 237, Model 1

The Northern Radio Printer Relay, Type 237 Model 1, is used as a coupling device between a DC teleprinter signal loop and the printer selector magnet. It replaces electro-mechanical signal relays and their associated local DC power supplies normally used with printers, providing the advantages of relays and improving printer performance but eliminating the maintenance problems which electro-mechanical relays introduce.

This device effectively isolates the reactance of the printer selector magnet, presenting a resistive termination to the signal loop. Several printers equipped with this device can, therefore, be connected in series with the same signal loop without harmful interaction between them. The Printer Relay may be used with either polar or neutral keyed signals. When neutral signals are supplied, the device automatically selects the proper operating level for the loop current supply, and can therefore tolerate large changes in absolute values of loop current without introducing appreciable distortion into the printer selector magnet. It normally mounts within the housing of the teleprinter.



FREQUENCY SHIFT TONE CONVERTER

Type 212, Model 2

Input Level and Impedance: —48 dbm to +8 dbm into 600 ohms, unbalanced. May be paralleled with any number of other converters operating on different frequencies in the same audio system.

Input Frequencies: All standard telegraph VF channels from 425 to 3315 cps. Bandwidth dependent on keying speed requirements. Other frequencies and bandwidths available on special order.

Output: Neutral DC voltage pulses of 5 volts maximum across a 2000 ohm external load. Polar pulses ± 10 volts across a 2000 ohm external load. Output drives appropriate voltage-to-current converters, such as Northern Radio Type NRC 691 Transistor Relay which provides "Dry Contact" Keying to external battery supply.

Power Requirements: 14 V DC at 30 MA. Two transistorized power supplies and one automatic change-over relay are mounted on the rear of each mounting shelf.

Dimensions: 1⅞" x 5¼" x 11¾" deep. For rack mounting a number of these units, a shelf assembly is available accommodating nine (9) units in a panel height of 5¼".

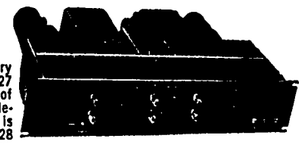
LOOP CURRENT CONTROL

Type 238 Models 1 and 2

The Northern Radio Loop Current Control, Type 238 Model 1, is used as a current "normalizer" in DC teleprinter signal loops, to automatically maintain loop current at the optimum value despite changes in loop resistance or loop supply voltage.

The Loop Current Control, Type 238 Model 1, is designed for use in loops requiring a nominal 60 milliamperes operating current, while the Model 2 is designed for a nominal 20 milliampere circuit. Both models incorporate a calibration control to allow reasonable variations from these design values.

Input Impedance: Variable. Automatically changes as necessary to maintain "constant current" in the circuit to which connected. Maximum and minimum limit of operation are specified by allowable voltage drops across the terminals of the device.
Voltage Limits: Maximum—80 volts; Minimum—5 volts.
Operating Currents: Model 1: 60 milliamperes (adjustable 55-75 milliamperes). Model 2: 20 milliamperes (adjustable 10-30 milliamperes).



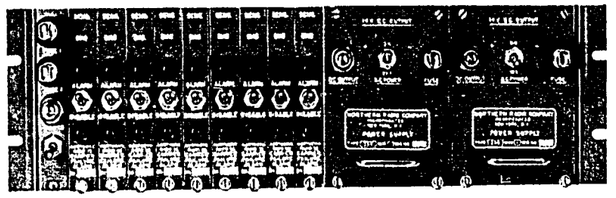
LINE BATTERY P.S. PANEL

The Northern Radio Line Battery Power Supply Panel, Type 227 Model 1, is used as a source of DC power for teleprinter, telegraph and similar circuits. It is equipped with two (2) Type 228 Model 1 Power Supplies, to provide DC requirements for a group of eighteen (18) or less teleprinter channels. The two Power Supplies are normally mounted on the Line Battery Power Supply Panel, Type 227 Model 1, with one Supply operating and the second "standing-by." An automatic transfer circuit is provided on the panel to place the "stand-by" unit in operation should the first supply fail. The Line Battery Power Supply Panel, Type 227 Model 1, is 3½" high x 19" long. The AC input and DC output circuits are isolated from each other and also from chassis so that either side of the circuit may be grounded, or left ungrounded as may be determined.

Technical Data:
AC Input: 115/230 volt. 50/60 cycles AC ± 10%. Output Voltage: 120 volts DC nominal. Maximum Output Current: 1.2 amperes. Maximum Output Ripple Voltage: 2%.

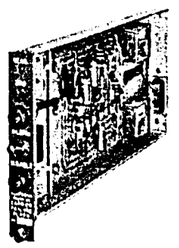
For details, circle #58 on Reader Service Card

NEW CARRIER FAILURE ALARM Type 256 Model 1



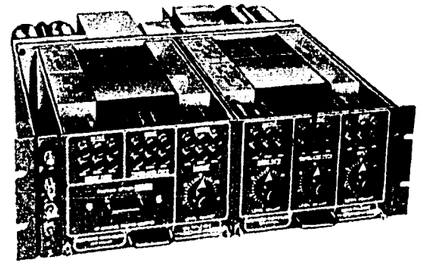
This alarm instantly detects and tells you about any signal failure, no matter where it occurs. Installed in a communications system, it detects any loss of signal and immediately lights a lamp on its front panel and actuates the "remote" alarm circuits controlled by contacts of the alarm relay. Gradual signal or power deterioration may also be detected before it gets too serious—by pre-setting the threshold control to the desired level.

Use of transistors makes the unit more compact, reliable, and efficient than has ever before been possible. It is contained in a ⅞" x 5¼" x 11¾" housing. Internal heat is negligible, and any number of units may be mounted close together without danger of overheating. This is particularly valuable as a separate unit is used for each channel being monitored.



POWER SUPPLY TYPE 258 Model 1

A solid-state-regulated rectifier contained in a 3-31/32" x 5¼" x 11¾" housing, used as a source of operating power for transistorized equipment such as the Carrier Failure Alarm Type 256 Model 1. DC output is 14 V ± 1½ V (regulated), 32 V ± 4 V (unregulated). Maximum output is 420 ma DC (regulated), 500 ma DC (unregulated).



Used with twin-channel, single-sideband radio circuits operating in the hi range, these units derive two vf circuits from each channel by means of frequency division multiplexing. Four such vf circuits are derived from the twin-channel radio, and these are used to transmit carrier telegraph signals or to provide telephone or facsimile service.

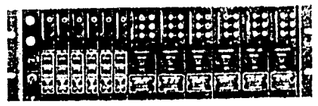
MULTIPLEXER Type 248 Model 1

Two Multiplexers, Type 248 Model 1, are required for full utilization of the capacity of a radio transmitter. One is used to transmit telegraph, telephone, or facsimile signals from two vf circuits to the radio channel designated as sideband A. The second Multiplexer performs the same function for sideband B. In this way, four vf circuits are applied to the twin-channel radio transmitter.

DEMULTIPLEXER Type 249 Model 1

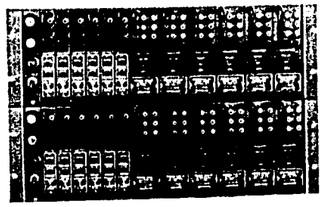
Two Demultiplexers, Type 249 Model 1, are required for full utilization of the capacity of a radio receiver. One is used to receive telegraph, telephone, or facsimile signals for two vf circuits from the radio channel designated as sideband A. The second Demultiplexer performs the same function for sideband B. In this way, four vf circuits are derived from the twin-channel radio receiver.

Northern Radio's exclusive
BUILDING BLOCK CONCEPT . . .



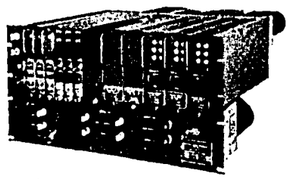
. . . permits the addition of as many new channels as may be necessary . . .

. . . as the need arises.



NEW SPEECH PLUS TELEGRAPH SHELF

Type 267 Model 1



This shelf is used as a mounting for the necessary tone keyers, converters, carrier failure alarms, filter assemblies, etc., required to provide one channel of two-way voice communication plus one or more channels of telegraph communication over a normal four-wire voice circuit. It includes terminal blocks for making all necessary external tone and DC connections to the keyers and converters and the connection to the local "speech" circuits as well as the telephone "line" connections. It also includes a power control panel section containing a power switch, pilot light and line fuse for the power supply, and a power cord for connecting to the AC line.

The shelf mounts in a standard relay rack, occupying 5¼" height and approximately 21" overall depth when Type 223 Model 1 power supplies are mounted on the rear. It is equipped with appropriate guides to accept up to three each Frequency Shift Tone Keyers Type 211 Model 1, Frequency Shift Tone Converters Type 212 Model 2, and Carrier Failure Alarms Type 256 Model 1, as well as two Filter Assemblies Type 266 Model 1. Sockets at the rear of the shelf mate automatically with matching plugs on the rear of the "plug-in" units. Individual units may be locked into place in the shelf by means of locking thumbscrews or fasteners provided on the units.

Pace Setters in Quality Communication Equipment
NORTHERN RADIO COMPANY, inc.
147 WEST 22nd ST. NEW YORK 11, NEW YORK
In Canada: Northern Radio Mfg. Co., Ltd., 1950 Bank St., Billings Bridge, Ottawa, Ontario

For details, circle #59 on Reader Service Card

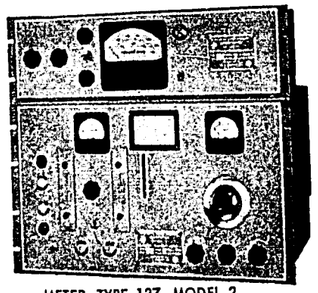
Northern Radio FREQUENCY SHIFT TERMINAL EQUIPMENT

FREQUENCY and SHIFT MONITOR SYSTEM

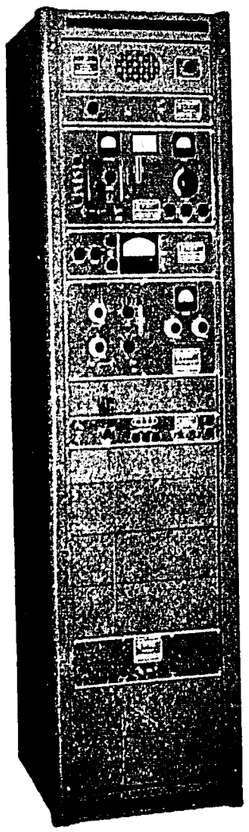
This system consists of a Type 106 Frequency and Shift Monitor and a Type 127 Frequency Meter. It is designed as a secondary standard to monitor the frequency and amount of shift of transmitter carrier output. It is particularly intended to measure the frequency shift of a mark and space (FS) signal either when setting up for traffic or under normal keying conditions.

The Monitor's stability is better than 2 cycles per megacycle over an ambient temperature range of 0-50° C—using crystals having a temperature coefficient of only 3 parts/million/degrees C. Range is 2.5-30 mc with 10 crystal-controlled frequencies (separate panel trimmers for each); use of external oscillator also provided for. Frequency Shift range is 10-10,000 cps. Less than 100 millivolts RF input needed for 2 volts audio output.

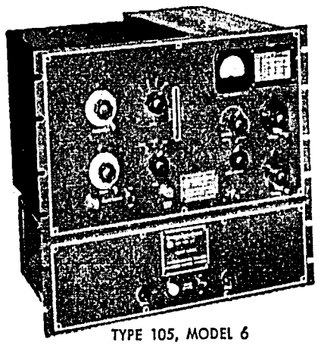
The Frequency Meter is specially designed with selectable normal and fast-acting damping factors, permitting frequency measurements of signals while keying. Its accuracy is 2% of full scale for the ranges 0-200, 500, 2000, 5000, 20,000 cps.



METER: TYPE 127, MODEL 2
MONITOR: TYPE 106, MODEL 4



TYPICAL TRANSMITTER TERMINAL for TWINPLEX OPERATION



TYPE 105, MODEL 6

FREQUENCY SHIFT KEYER

Supersedes and replaces its leader predecessor, Type 105, Model 4.

- Highest stability achieved by any FS Keyer.
- Increased frequency range 1.0 to 7.0 mc.
- Pre-selection of proper FS for any particular transmitter frequency multiplication.
- Permits use with external oscillator without need of adapters.
- Improved accessibility for even easier maintenance.
- Direct-reading frequency calibration of shift from 0 to 1000 cps.
- FS dial adjusts "Mark" and "Space" frequencies equally above and below the carrier position.
- Direct-reading frequency calibration of mixer and output tuning dials from 1.0 to 7.0 mc.
- Direct reading calibration of output frequency vernier ± 600 cps.
- Pulse-shaping circuit permits operation within assigned band-width with no adjacent channel radiation.
- Linear carrier shift up to 1400 cps for Fax operations.

TWINPLEX COMBINER TYPE 177 MODEL 1

For twinplex operation, the transmitting terminal includes a Twinplex Combiner Type 177 Model 1.

The Twinplex communication system makes possible a 2-channel radio circuit whereby 2 non-synchronous or synchronous telegraph transmissions modulate a single radio carrier wave causing the carrier to assume one of four specific frequencies with 400 cps separations.

The Combiner converts the four possible conditions of two telegraph signals (M1-M2, M1-S2, S1-M2, S1-S2) respectively into one of four voltages related in a 0-1-2-3 manner. The Combiner output voltage modulates the Frequency Shift Keyer.

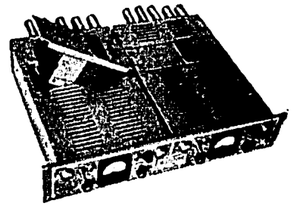
The two telegraph channels provide the same operational flexibility as that of two separate single channel FS systems. One can, for example, simultaneously use channel #1 on 60 wpm teletype and channel #2 on high-speed Morse or Time-Division Multiplex.

TECHNICAL DATA:

Keying Inputs: 1. Contacts; 2. DC current pulses, positive, negative, or polar; 3. DC voltage pulses, positive, negative, or polar.
Input Level: 1. DC Voltages: ± 10 volts minimum; 2. DC Current: ma. minimum.
Keying Speed: 240 Words per minute maximum.
Output Impedance: 10,000 ohms.
Keying Input Impedance: 1. DC Voltage: 100,000 ohms. 2. DC Current: 220 ohms.
Output Level: Neutral: 0 to 25 volts; Polar: +6 to −6 volts.
Output Voltage Conditions: Four output voltages are to be proportioned as follows assuming linear F.S. Keyer characteristic.
Input: M1 M2, M1 S2, S1 M2, S1 S2; Output 0, 1, 2, 3.
Individual level adjustments provided.
Power Requirements: 100/220 volts, 50/60 cycles. Approximately 50 watts. Connections at rear of chassis.
Dimensions: 3½" High x 19" Wide x 10" Deep.

MULTI-CHANNEL FREQUENCY SHIFT TONE TELEGRAPH SYSTEMS

These Multi-Channel Telegraph Systems are audio carrier systems capable of multiplexing such circuits as telephone lines, VHF, UHF, or radio frequency links—or practically any type circuit from which a two-wire audio circuit can be derived. Designed to meet any speed requirements, these systems are fully electronic, without relays or moving parts to wear. They can be used for high-speed printer, Morse or time division Multiplex circuits, as well as such application as Telemetering, Control Circuits and Servo-Mechanisms. Instantaneous and complete sending and channel control permits any binary code groups, either "Clear Text" or "Cryptographic," to be channelized without need for additional phasing or synchronizing equipment, while paralleling of channels will allow for transmission of other type codes, such as 3 element cable code. The completely independent operation of each channel, including its own power supply, localizes faults to one channel only, leaving other channels unaffected. Individual channel separation filters are used at both transmitting and receiving ends. This arrangement allows for sending telegraph or control signals over a circuit carrying, simultaneously, other forms of intelligence: or for two-way communications on the same line. The audio frequency shift principle of transmission provides for high fidelity of signal reproduction over a wide range of signal levels as well as under severe noise or interference conditions. Circuit requirements of any speed, shift and center frequency can readily be met. The systems illustrated are for use on printer circuits up to 100 WPM channel capacity. The system arrangement is very flexible, permitting grouping of the basic units into various arrangements of Multiplex Systems. These systems can be made to accommodate a large variety of channel numbers and speeds to meet any individual requirements. The flexibility is further improved by the fact that the racks, power control units, and terminal connection panels are the same for both transmitting and receiving terminals.

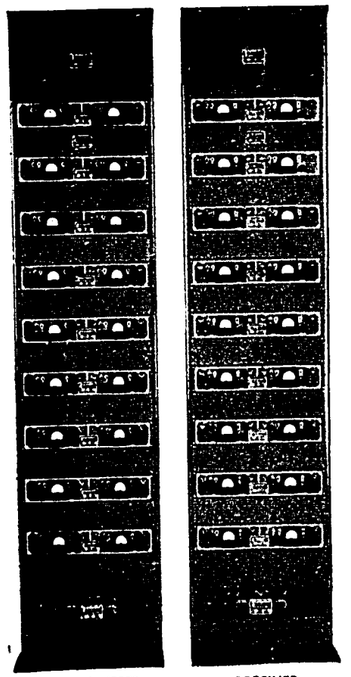


DUAL FS TONE KEYER; TYPE 153 MODEL 3:

Keying Input.... Relay contacts, ± DC current or voltage pulses, neutral or polar.

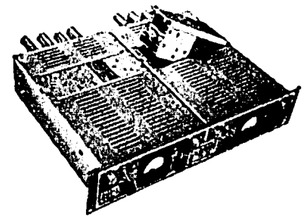
Input Level.... DC voltage: ± 10 volts min. DC current: 45 ma min., ± or polar. Relay: contact rating 5 ma min.

Keying Input Z... DC voltage: 100K ohms. DC current: 220 ohms.



TRANSMITTER

RECEIVER



DUAL FS TONE CONVERTER: TYPE 152 MODEL 3:

Input Z: 600 ohms, unbalanced.

Input Level: −40 dbm to 0 dbm.

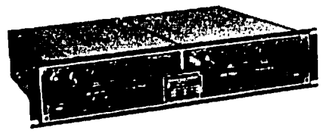
Input Frequencies: 18 channels, 425-3315 cps, 170 cycle spacing.

Keying Speed: 45 dot cycles.

DUPLEX TELEGRAPH SYSTEM FOR MULTI-CHANNEL TONE EQUIPMENT

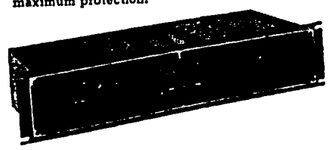
SEVEN NEW FEATURES in this system—simple 4-position switch selects from 12 possible duplex combinations: duplex operation between stations connected via carrier telegraph channels: *all-electronic*, without relays or moving parts: polar or neutral for either half duplex or full duplex: break-in now also possible for all *half*-duplex circuits: provided with positive feature to prevent space signal lock-out: includes individual line battery for each channel.

The Northern Radio Duplex Telegraph System consists of one each Dual Frequency Shift Tone Keyer, Type 153 Model 3: Dual Duplex Selector Panel, Type 200 Model 1: Dual Loop switch Panel, Type 200A Model 1: and Dual Frequency Shift Tone Converter, Type 152 Model 3.



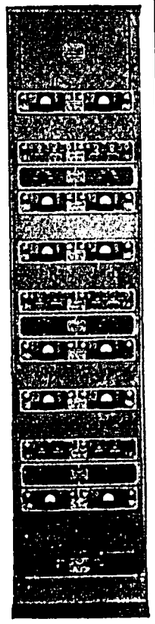
DUAL DUPLEX SELECTOR PANEL Type 200 Model 1

The Dual Selector Panel provides 12 loop options, patching facilities for monitoring purposes and channel routing, including the possibility of patching-in another tele-printer loop circuit (T-junction). Any of the 12 loop options are available and may be selected for the Dual Loop Switch Panel by simple strapping arrangements. It has an individual line battery for each channel for greatest circuit flexibility. Battery and line fuses are also provided for maximum protection.



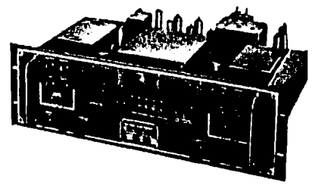
DUAL LOOP SWITCH PANEL Type 200A Model 1

The Dual Loop Switch Panel rapidly selects half-duplex and/or full duplex mode of operation for any of the 4 standard loop options by front panel switching available from the 12 loop options in the Dual Duplex Selector Panel.



REGENERATIVE REPEATER

TYPE 207
MODEL 1



This new Regenerative Repeater—the most advanced in the industry—is designed for use in telecommunication circuits to re-shape and re-time distorted signals for local use or retransmission. Special provision has also been made for its use on half-duplex where it will not only regenerate the ordinary teleprinter signals but also faithfully reproduce such special signals "break" signals and "mark restoration" information. *Outstanding features include:* . . . maximum acceptable signal distortion: new circuitry accepts up to 47% mark or space distortion: "floating" input & output circuits: completely electronic output, no relays: greater timing circuit stability: time base derived from highly stabilized L-C oscillator: adaptable to any speed: low-pass filter & frequency-determining elements are plug-in units: completely self-contained: includes power supply & line battery.

TECHNICAL DATA:

Input Keying Signal Requirements: (1) Neutral keying, positive or negative sense, (a) on-off 60 ma pulses, (b) on-off voltage pulses 10-100V into 100K ohms, (2) Polar keying, (3) Dry contact keying.

Frequency Stability of Time Base Generator: Less than 1 point range loss for ± 10% line voltage variation or ± 20° C ambient change from 25° C.

Sampling Time: Approximately 50 microseconds.

Output: Electronic tube outputs: (a) neutral 65 ma. max. into 2K ohms, (b) polar 33 ma (max.) into 2K ohms.

Power Requirement: 125 watts approx. 110/220V, 50/60 cps.

Mounting: Standard 19" rack mounting, 5¼" panel.

Pace Setters in Quality Communication Equipment
NORTHERN RADIO CO. inc.
147 W 22nd ST., NEW YORK 11, N Y
In Canada: Northern Radio Mfg Co Ltd
1950 Bank St Billings Bridge Ottawa Ontario

INDUSTRIAL AND SPECIAL PURPOSE TUBES

DESIGNED to meet the exacting requirements of modern industrial and military applications, Tung-Sol industrial and special purpose electron tubes are the standard of reliability.

TELEPHONE TUBES
Used in hand sets, central office, and carrier equipment.

VHF TRIODES
Used in military VHF radio and test equipment.

PENTODES
Used in military and other communications equipment.

VOLTAGE REFERENCE TUBES
Used in radio equipment and other electronic gear with regulated power supplies, especially in high-accuracy units.

TRANSMITTING TUBES
Used primarily in mobile transmitters through the UHF range.

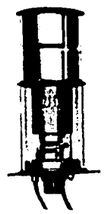
THYRATRONS
Used in power supplies, radio transmitters, motor controllers and spot welders.

VACUUM PULSE TUBES
Used in radar equipment and high power pulse generators.

TWIN TRIODES
Used widely in equipment handling frequencies from the audio level through the frequency band.

POWER TRIODES
Used in series regulated power supplies and wherever high perveance, high current tubes are needed.

RECTIFIERS
Used throughout industrial electronic equipment and broadcasting operations—AM, FM and TV.



CLIPPER TUBES
Used in radar to protect modulator components and to regulate output pulse. Both gas and vacuum tube versions available.

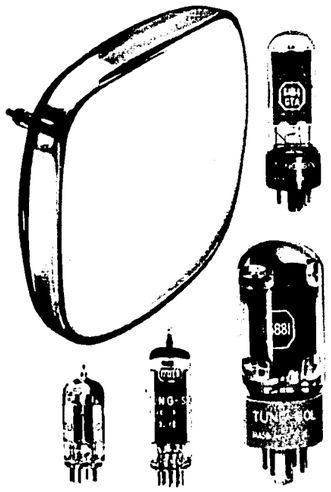
POWER PENTODES
Used in public address systems, hi-fi amplifiers, radio transmitters and receivers.

VOLTAGE REGULATORS
Used in radio and other electronic equipment with regulated power supplies.

HYDROGEN THYRATRONS
Used in radar modulators and missile tracking beacons. Miniatures in airborne units.

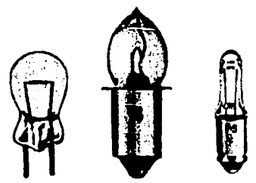
INDICATOR THYRATRONS
Used in relay service wherever a small, lightweight, self-indicating tube is needed.

ENTERTAINMENT TUBES



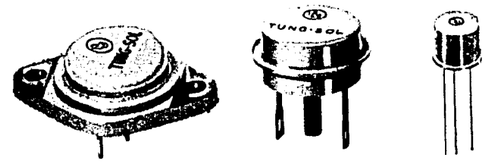
TUNG-SOL ENTERTAINMENT TUBES provide the most sought-after characteristics in ideal combination, whether cathode ray, series-string, hybrid auto radio, TV, radio, stereo or hi-fi. Tung-Sol packs the popular types of audio tubes in factory-matched pairs. Dynamically-balanced 6550's, 5881's, 6V6GTA's, 6BQ5's bring you the finest in full-fidelity reproduction.

LAMPS



TUNG-SOL SUPPLIES numerous types of miniature lamps for illuminated dials and panels of all types. Advanced design and reliable performance have been the key to Tung-Sol leadership in lamps.

GERMANIUM TRANSISTORS



TUNG-SOL GERMANIUM TRANSISTORS have been designed to meet the reliability and performance standards of critical commercial and military applications. Performance capabilities are evaluated under the severest environmental conditions and electrical limits.

HIGH POWER

MAXIMUM RATINGS							TYPICAL VALUES			
TYPE	P_C W	V_{CB} V	V_{CE} V	I_C A	T_J °C	MAX. I_{CBO} mA	CONDITION	h_{FE}	CONDITION	f_{ae} KC
2N173	75	60	50	15	100	8	VCB=-60V	52	Ic=5A, VCE=-2V	10
2N174	75	80	70	15	100	8	VCB=-80V	37	Ic=5A, VCE=-2V	10
2N174A	75	80	70	15	100	8	VCB=-80V	37	Ic=5A, VCE=-2V	10
2N277	75	40	40	15	100	8	VCB=-40V	52	Ic=5A, VCE=-2V	10
2N278	75	50	45	15	100	8	VCB=-50V	52	Ic=5A, VCE=-2V	10
2N441	75	40	40	15	100	8	VCB=-40V	30	Ic=5A, VCE=-2V	10
2N442	75	50	45	15	100	8	VCB=-50V	30	Ic=5A, VCE=-2V	10
2N443	75	60	50	15	100	8	VCB=-60V	30	Ic=5A, VCE=-2V	10
2N1009	75	80	70	15	100	8	VCB=-80V	52	Ic=5A, VCE=-2V	10
2N1100	75	100	80	15	100	8	VCB=-100V	37	Ic=5A, VCE=-2V	10
2N1358	75	80	70	15	100	8	VCB=-80V	37	Ic=5A, VCE=-2V	10
2N1412	75	100	80	15	100	8	VCB=-100V	37	Ic=5A, VCE=-2V	10

POWER

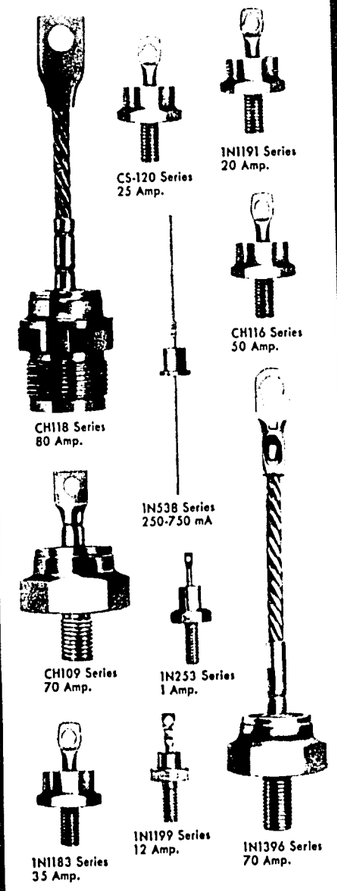
MAXIMUM RATINGS							TYPICAL VALUES			
TYPE	P_C W	V_{CB} V	V_{CE} V	I_C A	T_J °C	MAX. I_{CBO} mA	CONDITION	h_{FE}	CONDITION	f_{ae} KC
2N242	50	—	45	5	100	1	VCB=-25V	30 Min.	Ic=500 mA, VCE=-12V	5 Min.
2N307	50	35	35	5	100	5	VCB=-25V	20 Min.	Ic=200 mA, VCE=-1V	3 Min.
2N307A	50	35	35	5	100	2	VCB=-25V	30 Min.	Ic=200 mA, VCE=-1V	3.5 Min.
2N378	50	40	20	5	100	.5	VCB=-25V	35	Ic=2A, VCE=-2V	5 Min.
2N379	50	80	40	5	100	.5	VCB=-25V	50	Ic=2A, VCE=-2V	5 Min.
2N380	50	60	30	5	100	.5	VCB=-25V	55	Ic=2A, VCE=-2V	8 Min.
2N459	50	105	60	5	100	.5	VCB=-25V	50	Ic=2A, VCE=-2V	5 Min.

MEDIUM POWER

MAXIMUM RATINGS							TYPICAL VALUES			
TYPE	P_C mW	V_{CB} V	V_{CE} V	I_C mA	T_J °C	MAX. I_{CBO} µA	CONDITION	h_{FE}	CONDITION	f_{ae} MC
AUDIO & LOW SPEED COMPUTER										
2N381	200	50	25	400	100	10	VCB=-25V	50	Ic=20 mA VCE=-1.0V	3
2N382	200	50	25	400	100	10	VCB=-25V	80	Ic=20 mA VCE=-1.0V	4
2N383	200	50	25	400	100	10	VCB=-25V	100	Ic=20 mA VCE=-1.0V	5
2N460	200	45	—	400	100	15	VCB=-45V	25	IE=1 mA VCB=-6.0V	1.2
2N461	200	45	—	400	100	15	VCB=-45V	50	IE=1 mA VCB=-6.0V	4
2N526	200	45	—	500	100	10	VCB=-30V	73	Ic=20 mA VCE=-1V	3
2N1705	200	18	—	400	100	10	VCB=-10V	110 (hfe)	Ic=1 mA VCE=-6V f=1 KC	4
2N1706	200	25	—	400	100	10	VCB=-25V	90	Ic=20 mA VCE=-1V	3
2N1707	200	30	—	400	100	15	VCB=-25V	90	Ic=20 mA VCE=-1V	3
R. F. & COMPUTER										
2N396	150	30	—	200	100	6	VCB=-20V	30 Min.	Ic=10 mA VCE=-1V	5 Min.
2N396A	200	30	20	200	100	6	VCB=-20V	30 Min.	Ic=10 mA VCE=-1V	5 Min.
2N413	180	30	18	400	100	5	VCB=-12V	30 (hfe)	Ic=1 mA VCE=-6V f=1 KC	2.5
2N414	180	30	15	400	100	5	VCB=-12V	60 (hfe)	Ic=1 mA VCE=-6V f=1 KC	7
2N416	180	30	12	400	100	5	VCB=-12V	80 (hfe)	Ic=1 mA VCE=-6V	10
2N417	180	30	10	400	100	5	VCB=-12V	140 (hfe)	Ic=1mA VCE=-6V f=1 KC	20
2N425	180	30	20	400	100	25	VCB=-30V	30	IB=1 mA VCE=-.25V	4
2N426	180	30	18	400	100	25	VCB=-30V	40	IB=1 mA VCE=-0.25V	6
2N427	180	30	15	400	100	25	VCB=-30V	55	IB=1 mA VCE=-0.25V	11
2N428 (1)	180	30	12	400	100	25	VCB=-30V	80	IB=1 MA VCE=-0.25V	17
2N1313	180	30	15	400	100	25	VCB=-30V	40 Min.	IB=1 mA VCE=-0.25V	8 Min.
2N1681	180	30	15	200	100	3	VCB=-2V	75	Ic=10 mA VCE=-0.25V	5 Min.

(1) JAN 2N428 also available

SILICON POWER RECTIFIERS

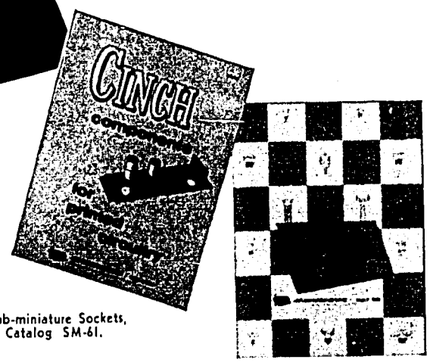


TUNG-SOL SILICON POWER RECTIFIERS offer distinct advantages over similar competitive types. Exclusive design features combine with Tung-Sol's historically rigid quality control to assure designers unmatched operational reliability. Wide interchangeability permits specification of these outstanding components for most commercial and military applications.

FOR FURTHER INFORMATION

Cinch ELECTRONIC COMPONENTS

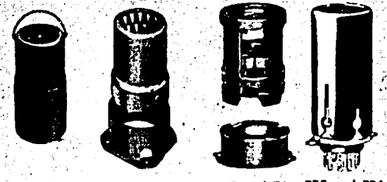
In the more than a quarter of a century of experience in the manufacture of electronic components, sockets, shields, connectors, terminal strips and miscellaneous electronic hardware, Cinch parts by specification and application have earned recognition as "Standard in the industry."



1. Cinch components for printed circuitry, 24 pages, Catalog PC-61.

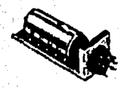
2. Cinch Sub-miniature Sockets, 12 pages, Catalog SM-61.

HEAT DISSIPATING TUBE SHIELDS



OCTAL and POWER SHIELDS — T5 and T6 — TR5 and TR6

The 7 and 9 pin Miniature Series, T, TR, and NW Series are variously covered by Military Specifications:
MIL-S-9372B (USAF)
MIL-STD-242B (Ships)
MIL-S-19786A (Navy) SCL-6307/2 (Signal Corps)



In the Octal and Power Series, the shields are covered by Redstone Arsenal and Signal Corps approval. Where shields are required blackened, Henderlube is supplied as the Standard finish.

Manufactured under license agreement with International Electronic Research Corporation

TRANSISTOR SOCKETS

17431 — 22455 — 22384 — 20248 — 14273

The CINCH sub-miniature and miniature sockets insure positive electrical contact, hold transistors and tubes securely in place, permit easy maintenance and replacement, provide maximum insulation resistance and minimum high frequency loss.

UNIVERSAL TRANSISTOR SOCKETS

STANDOFF TYPE

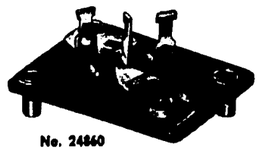
Standoff type Universal Transistor Socket for use with ten transistor bases and five base types. Casting is mica-filled phenolic (MFE). Contacts are beryllium copper, gold plated. Contacts may be used with either one or two sided 1/16" p.w. boards.

No. 24872

No. 24872 for use with transistors designed to the triangular base layout .2" x .1" (JETEC-30) contact centers, as well as the three contact in-line (.048 x .192 contact centers). Available in G. P. Black and low loss Mica-filled Phenolic.

POWER TRANSISTOR SOCKETS

There are three laminated and one molded No. 24246 type sockets; No. 22831 is elongated in shape, No. 24324 is rectangular in shape. Top and bottom plates are of natural XP Bakelite, vacuum wax impregnated. Formed thread for 6 — 20 screw, .104/.110 dia. hole in C R steel plate. Provides easy attachment to a heat sink. No. 24860 is identical with 24324 except it is equipped with integral eyelets for easy assembly to chassis. All contacts are of brass, cadmium plated.



No. 24860
WITH INTEGRAL EYELETS

For details, circle #64 on Reader Service Card

PRINTED CIRCUIT SOCKETS

No. 22920

These sockets for the three types of receiving tubes. Miniature, Flat Press and Button.

The contacts are so spaced that they can be mounted in an incremental drill pattern. This fact together with the exact precision and uniformity of Cinch sockets make them ideal for automatic assembly.

No. 22920 — 7 contact miniature molded vertically mounted socket with JAN type shield base. Mica insulation. Silver plated phosphor bronze contacts drop through .062" dia. clearance holes arranged on a .1" X and Y axis.

No. 22022

No. 22022—8 contact button base subminiature molded vertically mounted socket for conventional wiring. Assembled with special shield base to accept a subminiature shield with the "J" lock. Mica insulation. Silver plated beryllium copper contacts.

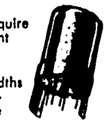
No. 24257

No. 24257 — 7 contact flat press subminiature molded right angle socket. Mica insulation. Silver plated beryllium copper contacts drop through .046" dia. clearance holes arranged on a .1" X and Y axis.

SOCKET FOR NUVISTOR TUBE

Low insertion force and contact protection . . . require minimum space . . . fulfilling every requirement for miniaturized equipment.
No. 133 65 10 001

The socket provides two slots of different widths mating with two corresponding legs depending from the metal envelope of the tube to index the tube and socket contacts. As a result the tube can be inserted by feel only and it is impossible to insert the tube incorrectly or damage the contacts. The socket saddle provides spring elements that engage with the depending legs of the tube envelope thus grounding the envelope to the panel.



ALL MOLDED OCTAL SOCKET

This new all molded Octal socket offers a complete one piece construction. The saddle and body are a single casting.

The standard socket is molded of general purpose Bakelite. Contacts are of brass, cadmium plated. Mica insulation with brass or phosphor bronze contacts can be made available. Two contact layouts can be supplied.

CINCH MANUFACTURING COMPANY
1026 South Homan Ave., Chicago 24, Illinois
Division of United-Carr Fastener Corporation, Boston, Mass.

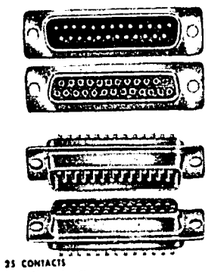
CINCH GOLDEN "D"

MONOBLOC CONNECTOR FEATURES:

• Monobloc insulators • Low engagement/separation forces • Probe-proof closed-entry socket contacts • Golden Iridite finish—per Mil Q Q-P-416A, Type II Class 2 • Type GDI-30 per Mil-M-19833 or MDG per Mil-M-14E insulators • Fully interchangeable with standard "D".

FOUR TYPES AVAILABLE: GOLDEN-D with closed-entry contacts in monobloc insulator.
•GOLDEN-D with snap-in ungrounded coaxial contacts.
•GOLDEN-D with grounded coaxial contacts.
•GOLDEN-D with high voltage contacts.

CONTACTS: 9, 15, 25, 37, and 50.



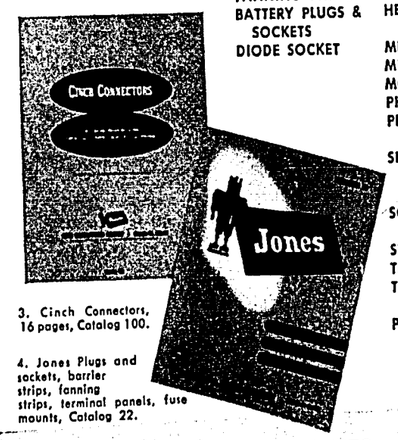
25 CONTACTS

Manufactured by agreement with Cannon Electric Company

CINCH AND JONES COMPONENTS

The list below comprises the products of both CINCH and JONES. It is indicative of their wide scope; and also indicates the myriad of variations and redesigning that is possible with this background of production experience.

ANTENNA JACKS
BARRIER TERMINAL STRIPS
FANNING STRIPS
BATTERY PLUGS & SOCKETS
DIODE SOCKET
CONNECTORS, MULTI CONTACT
FUSE STRIPS, BLOCKS & BOARDS
HERMETICALLY SEALED TUBE SOCKETS
METAL STAMPINGS
MICRO-CONNECTORS
MOUNTING DEVICES
PHONO TIP JACKS
PRINTED CIRCUIT CONNECTORS
SHIELDS, TUBE-MINIATURE & NOVAL & BASES
SOLDERING LUGS—200 VARIATIONS
STRAP NUTS
TRANSISTOR SOCKETS
TUBE HOLDERS—SPRING TYPE
PLUGS AND SOCKETS



3. Cinch Connectors, 16 pages, Catalog 100.

4. Jones Plugs and sockets, barrier strips, fanning strips, terminal panels, fuse mounts, Catalog 22.

MINIATURE BLUE RIBBON CONNECTORS

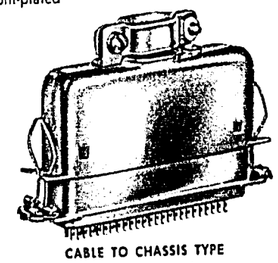
The smooth, easy insertion and extraction action, the self-wiping, self cleaning features and the double-sided, flexing action of both mating contact members make Micro-Ribbons the first miniature connectors to provide reduction in size with added reliability.

Bodies are molded of an improved diallyl phthalate with extremely high impact strength and excellent dielectric features. Contacts are gold-plated over silver. Shells are cadmium-plated brass with clear chromate treatment. Receptacle shells have floating bushings allowing a float of .020 in each direction.

The compact housings are equipped with sturdy spring type latches on the receptacles which are guided and held by cut-outs in the plug flanges. The shells are cadmium plated brass with clear chromate treatment. Receptacle shells have floating bushings allowing a float of .020 in each direction.

CONTACTS: 14, 24, 36 and 50.

24 CONTACTS
RACK AND PANEL TYPES

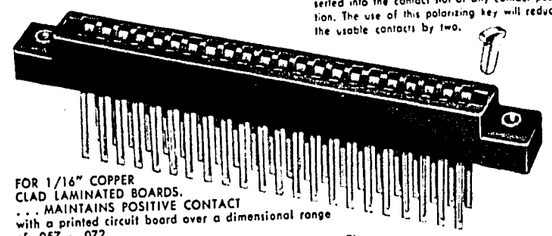


CABLE TO CHASSIS TYPE

Manufactured by agreement with Amphenol-Borg Electronics Corporation

WRAPOST TERMINATION PRINTED CIRCUIT CONNECTOR

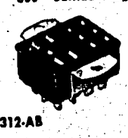
A No. 20H29401-4 plastic polarizing key is furnished with each connector. This key can be inserted into the contact slot of any contact position. The use of this polarizing key will reduce the usable contacts by two.



FOR 1/16" COPPER CLAD LAMINATED BOARDS.
. . . MAINTAINS POSITIVE CONTACT with a printed circuit board over a dimensional range of .057 - .072.
Insulation is glass filled Diall with a flame retardant. The 44 contacts are phosphor bronze with a silver plate of .0002 and .00003 min. gold plate finish. The inventory problem is simplified by providing a single connector that can be polarized in any position.

JONES PLUGS AND SOCKETS

P-312-CCT

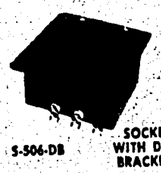


S-312-AB

"300" SERIES Plugs and Sockets are designed for light duty service. Two to thirty-three contacts. Plugs and sockets polarized. Phosphor bronze "knife switch" socket contacts engage both sides of heavy brass plug contacts for positive connections. Molded bakelite insulation. Also can be supplied with contact tells that will take standard solderless terminals. UL approved.

P-506-CE

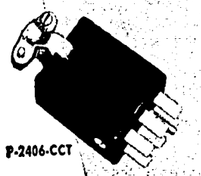
PLUG WITH CAP



S-506-DB

SOCKET WITH DEEP BRACKETS

500 SERIES for heavy duty work, severest electrical services. For 5,000 Volts 25 Amperes per Contact alterable by circuit characteristics. Socket contacts phosphor bronze knife-switch type, cadmium plated. Plug contacts hard brass cadmium plated 2, 4, 6, 8, 10, and 12 contacts. Plugs and sockets polarized. Long leakage path from terminal, and terminal to ground. Caps and brackets, steel parkerized (rustproofed). Plug and socket blocks interchangeable in caps and brackets. Terminal connections most accessible. Cap insulated with canvase bakelite.

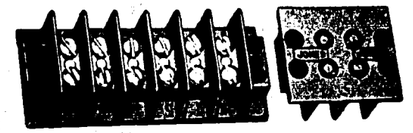


P-2406-CCT

S-2406-SB

2400 SERIES plugs and sockets . . . improved socket contacts. For highest electrical and mechanical efficiency. 4 individual flexing surfaces. Positive contact over practically their entire length. Cadmium plated plug and socket. Contacts mounted in recessed pockets, greatly increasing leakage distance, increasing voltage rating.

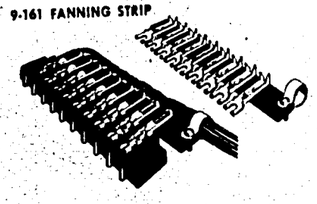
JONES BARRIER TERMINAL STRIP



500 SERIES . . . wider and higher barriers for increased creepage distances. Closed bottoms for complete insulation. Material between barriers at the base adds to the strength and maintains same creepage distance between contact to contact and contact to ground. Can be imprinted here. No insulating or marker strip required.

JONES FANNING STRIP

9-161 FANNING STRIP



9-141 BARRIER STRIP

Big help in terminal wiring. Connections are made through Fanning Strip, on bench or anywhere apart from barrier strip, and quickly slipped into assembly. Simplifies and facilitates soldering. Insures positive, correct connections. Saves time. Ideal for harness or cable assembly. Strong construction; brass terminals, cadmium plated. Heavy Bakelite mounting.

HOWARD B. JONES DIVISION
CINCH MANUFACTURING COMPANY
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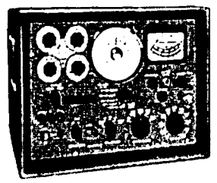
Division of United-Carr Fastener Corporation, Boston, Mass.

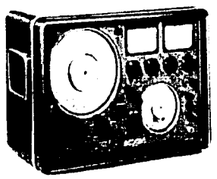
For details, circle #65 on Reader Service Card

MARCONI INSTRUMENTS



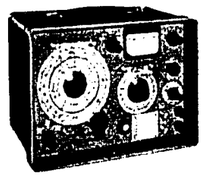
995A/5 FM SIGNAL GENERATOR

The latest in our 995 series, this generator has calibrated △ frequency controls and extra-high stability for precision measurements on narrow-band receivers. Model 995A/2M is for wider-band broadcast equipment.



1066A FM SIGNAL GENERATOR

Premium grade FM generator with coverage 10-470Mc. Used in Mobile Radio, Telemetering, Navigational Systems, FM Radio, Television and as a general laboratory tool. Has electronic, calibrated △ F control permitting measured carrier shifts of as little as 1kc at 470Mc. Over 600 Model 1066 are now in use throughout the U.S.A.



1064/2 FM SIGNAL GENERATOR

For use in design, production and maintenance of FM mobile radio—this new portable FM generator has a separate oscillator for each band thus eliminating instability due to band switching. This and other special design features give it frequency stability even higher than Model 1066A. Includes IF crystal oscillator for any 5 spots between 290kc and 16Mc. (crystals not supplied). 1000 c.p.s. mod. oscillator can be used as audio test tone.

791D FM DEVIATION METER

Like all Marconi Deviation Meters, 791D has a counter-type discriminator which has less than 0.2% distortion and is inherently more stable than tuned discriminators. This, and built-in Xtal standardization, provide 3% measurement accuracy. These meters make excellent transmitter monitors as the demodulated output can be analyzed for distortion, hum, noise and other spurious signals.

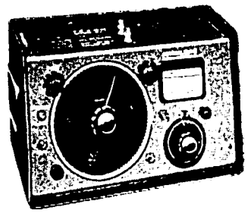
SIGNAL GENERATORS, FM, AM, SWEEP

MODEL	FREQUENCY	FEATURES
144H AM SIG. GEN.	10kc-72Mc	0.2μV to 2V ±0.5db, 50Ω. Xtal check, 400kc & 2Mc. Stability 0.002%/10 min. Internal AM to 80%, at 400cps and 1kc. Also external AM.
867 AM SIG. GEN.	15kc-30Mc	0.4μV to 4V, with ALC. 1Mc Xtal check. Scale length 15 ft. Internal AM to 100% with low distortion. FM on AM less than 200cps at 30% mod.
867/2 AM SIG. GEN.	15kc-37Mc	As Model 867; carrier can be Xtal locked at 1Mc. points.
888/3 Portable SIG. GEN.	70kc-70Mc	0.1μV to 0.5V, 52Ω. AC or battery operated, includes audio power meter and 1kc tone source. Crystal standardized. Provides completely hum-free CW.
1099 VIDEO SWEEP GEN.	100kc-20Mc	3V max, level stabilized, 75Ω. Measurement accuracy 0.01db. Includes 1Mc & 5Mc crystal markers and input and output probes. Accessory: 100db step attenuator Model 1073.
1064/2 MOBILE RADIO FM SIG. GEN.	290kc-16Mc 30-50Mc 118-185Mc 450-470Mc	.025 to 10,000μV (100,000μV uncalibrated). Extremely stable; quick warm up. Direct reading FM to 15kc deviation and Incremental Carrier Shifts to ±25kc on all bands. Portable.
995A/2M FM/AM SIG. GEN.	1.5-220Mc	0.1μV to 100mV. Calibrated △ F. Step attenuator. Crystal standardized; extremely stable. Deviation 0-600kc on top bands. Has simultaneous FM and AM.
995A/5 FM/AM SIG. GEN.	1.5-220Mc	As 995A/2M with narrow deviation 0-5 & 0-15kc; stability .002%/10 min; Calibrated △ F. Spurious FM is less than 25cps. Special model for Mobile Radio.
1066A FM SIG. GEN. 1066A/1 rack mounted	10-470Mc	0.1 to 100,000μV, 52Ω. FM at 1kc and 5kc internal, deviation to ±100kc, △ F to ±100kc, both meter monitored. (Deviation ±300kc, to order). Stability .0025%/10 min. Use Model 1102 Amplitude Modulator for FM-free AM.
801D/1 AM SIG. GEN.	10-470Mc	0.1μV to 1V, 50Ω. VSWR less than 1.2 Frequency cal. 0.2%; Xtal check. AM 0-90%, external pulse mod. 50cps-50kc. Contactless range turrets and ALC.
913/3 FM/AM SIG. GEN.	22-176Mc	0.1μV to 100mV, 52 & 75Ω. Deviation 0-100kc. AM 30%. Has Xtal check. CW carrier can be Xtal locked. Portable, inexpensive.
1066B/2 FM SIG. GEN.	400-550Mc	0.1μV to 100mV, 50Ω. VSWR less than 1.2 Calibration accuracy 0.01% at 1Mc and 10Mc Xtal points. Internal FM at 1 and 10kc. External FM 100cps-100kc. Deviation to 300kc. Residual FM less than 100cps. Will test Range Command Receivers.
1060 SIG. GEN.	450-1250Mc	0.15μV to 450mV, 52Ω (−130 to 0dbm) but max. output nearly 3V above 1000Mc. Calibrated △ freq. control.
1058 SIG. GEN.	1700-4000Mc	0.1μV to 450mV, 52Ω (−135 to 0dbm). Modulation: 1kc square wave, pulse or FM 50cps to 20kc.

FM DEVIATION METERS

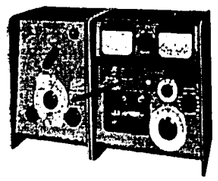
934/3 FM DEV. METER	2.5-500Mc	Deviation ranges 5, 25, 75, 125kc. Accuracy 3%. Xtal standardized. Mod. frequencies 50cps to 35kc. Rack mounting, ruggedized.
791D FM DEV. METER	4-1024Mc	Deviation ranges 5, 25, 75 and 125kc full scale. Accuracy 3%. Crystal standardized. LO can be Xtal controlled for measuring deviations down to 10cps.
928 FM DEV. METER	20-500Mc	Wide range; mod. freq. up to 120kc. Dev. ranges 0-100, 0-200, 0-400kc. Accuracy 3%. Ruggedized. Crystal standardized.
928/2 TELEMETERING DEV. METER	215-265Mc	Telemetering version of 928. Dev. ranges 15, 50, 150kc or to order. Crystal standardized.

FACTORY SERVICE:
Englewood, N. J. and Beverly Hills, Calif.



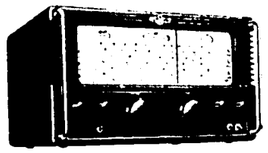
868B UNIVERSAL BRIDGE

This latest version of our 868 series has R range to 100MΩ and increased discrimination; an AGC circuit replaces the sensitivity control. The unique direct-reading facility which reduces operator error, is retained. Inexpensive and accurate, Model 868B finds a valued place in laboratory, plant or shop.



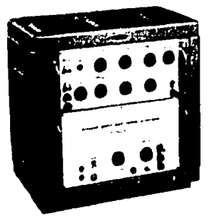
1245 Q METER

Q Meter 1245 has the widest frequency range ever, 1kc to 300Mc, and can replace 2 older instruments. New design of injection impedances gives increased accuracy and reduces need for corrections. A demonstration convinces most engineers that this is the finest Q Meter yet available.



770U EDDYSTONE RECEIVER

Four Eddystone receivers cover the range 500kc to 1000Mc; they are used throughout the U.S. for telemetry and mobile radio monitoring, for experimental communications studies and general laboratory measurements. They are ruggedly built and ultra-reliable.



3352 CINTEL DOUBLE PULSE GENERATOR

3352 is becoming increasingly popular because of its reliability, full calibration, short rise-time and double pulse facility. It is supplied with rugged force-ventilated cabinet but can also be rack-mounted.

BRIDGES, L C & R

MODEL	FREQUENCY	FEATURES
868B UNIVERSAL	1kc, 10kc	1μμF to 100μF, 1μH to 100H, 0.1Ω to 100MΩ. Accuracy 1%. Has built-in oscillator and tuned detector with AGC. DIRECT READING; simplest possible operation.
1313 UNIVERSAL	1kc, 10kc	0.1μμF to 110μF, 0.1μH to 110H, 0.01Ω to 110MΩ. Accuracy ¼%. Features as 868B plus greater range and accuracy. Adapter TM6113 for biasing inductors to 200mA.
1342 LOW CAPACITY	1kc	0.002 to 1,111μμF. Accuracy 0.2%. Shunt R: 1 to 1,000MΩ. Uses 3 terminal transformer bridge circuit, eliminating stray capacity effects.
CINTEL 1854 MUTUAL & SELF L	1592cps (10,000 r/sec)	0.001μH to 30mH, 0.01 to 3,000Ω in 12 ranges. Accuracy 1%. The only bridge which reads Mutual and Self Inductance directly. Transistorized.
CINTEL 1864 C & R	1592cps (10,000 r/sec)	0.002μμF to 100μF, 1Ω to 10,000MΩ in 18 ranges. Accuracy 1%. Uses 3 terminal transformer bridge for "in circuit" measurements. Transistorized.
CINTEL INCREMENTAL L & ELECTROLYTIC C	50cps-15kc	Due mid-1961, this transistorized bridge has variable frequency, wide range; polarizes and measures L and C.

SYSTEMS TEST GEAR, MULTI-CHANNEL, SSB.

1249A NOISE LOADING TEST SET	12-4028kc i.e. up to 960 channels	Precisely measures intermodulation and noise on multi-channel telephony systems to −70db. Includes noise generator, filters and receiver. Meets CCIR recommendations.
1259 DERIVATIVE TEST SET	65-75Mc swept ±20Mc (or to order)	For checking FM modulator/demodulator linearity. Displays 1st derivative (slope) of volts / △ F curve. CRT display. Discrimination 0.1db.
1094 SSB SPECTRUM ANALYZER	100cps-30Mc	60db dynamic range. Accuracy 2db. 3db selectivity at 6, 30 or 150cps. Spectrum width variable 100-30,000cps. If supplied without LF Adapter TM5606, range is 3-30Mc.

Q METER AND ACCESSORIES

1245 Q METER	1kc-300Mc	Q Ranges 5-1000, △ Q 25-0-25. Accuracy 5% to 100Mc, 20% to 300Mc. Calibrated capacitor range 7.5 to 500μμF. △ C ranges ±1 and ±5μμF. Extremely stable and easy to operate. Uses separate oscillators—see below.
1246 OSCILLATOR	40kc-50Mc	4V output, 50Ω. For driving Model 1245 Q Meter and general lab use.
1247 OSCILLATOR	20-300Mc	4V output, 50Ω. For driving Model 1245 Q Meter and general lab use.
TM4520, TM4947 INDUCTORS	50kc-230Mc	Set of 18 and set of 3 Inductors, 0.05μH to 25mH, for Q Meter tests.
TJ155B/1; TJ230 LOSS TEST JIGS	1kc-50Mc	Attachments to Q Meter for determining dielectric constant and loss factor; also very low impedances.

RECEIVERS FM/AM

EDDYSTONE 880	500kc-30.5Mc	An ultra-stable double conversion superheterodyne for AM, CW and SSB reception. Long term drift is less than 50cps; re-setting accuracy within 1kc; noise factor 5db; image rejection greater than −70db.
EDDYSTONE 770R	19-165Mc FM/AM/CW	Continuous coverage in 6 bands. Conservative design for long, stable life. Ideal for monitoring communications and for laboratory measurements.
EDDYSTONE 770U	150-500Mc FM/AM	Double conversion superheterodyne with excellent image rejection and high stability. Features include "S" Meter, IF gain control and squelch.
EDDYSTONE 770S	500-1000Mc	Continuous coverage in one band. Has AF, IF and VF outputs. Available mid-1961.

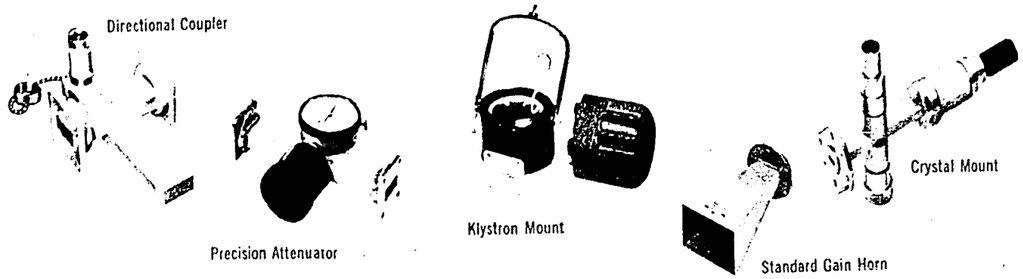
DOUBLE PULSE GENERATOR

CINTEL 3352	1cps-1.1Mc 2Mc ext. triggered	10mμsec rise time. 50V max. Calibrated variable width, delay, amplitude and polarity. No overshoot or tilt. Other outputs include a pre-pulse, sawtooth and cable-formed pulse.

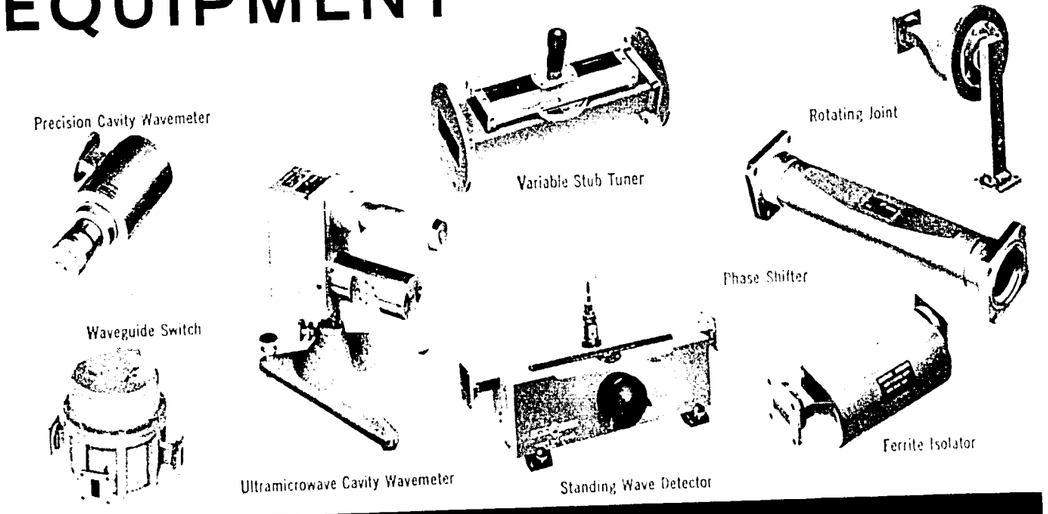
111 CEDAR LANE, ENGLEWOOD, NEW JERSEY

CANADA: CANADIAN MARCONI CO., MONTREAL 16 MAIN PLANT: ST. ALBANS, ENGLAND

ULTRAMICROWAVE®



EQUIPMENT



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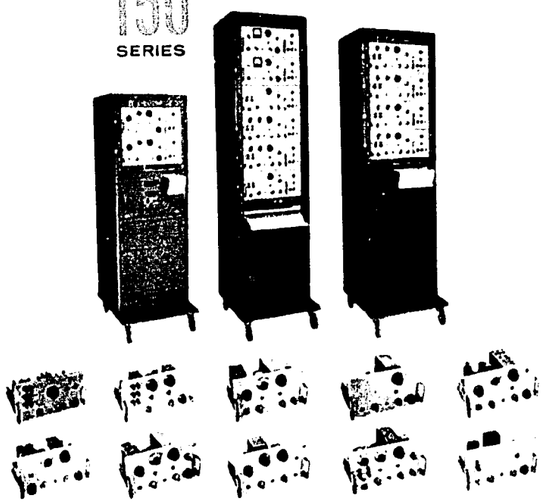
RECORD IT RIGHT WITH SANBORN®

150 SERIES



PROVEN RELIABILITY OF TUBE-TYPE ELECTRONICS, CHOICE OF 11 PLUG-IN PREAMPLIFIERS FOR 1- TO 8-CHANNEL SYSTEMS

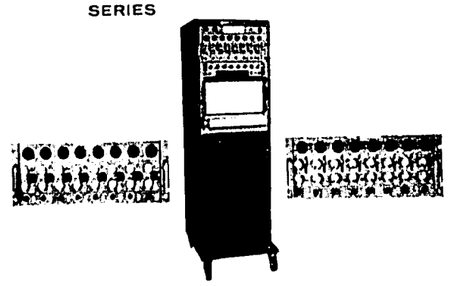
Widest choice in types of packaging and available preamplifiers of any Sanborn direct writing oscillographic recording system. Frequency response DC to 2 db down at 100 cps; basic sensitivity 10 uv/div to 0.1 volt/div, depending on preamp used; over-all linearity better than 1%, current-feedback amplifiers, horizontal plane recorder with 9 chart speeds, automatic stylus heat control. Preamplifiers include AC-DC, Carrier, Phase-Sensitive Demodulator, DC Coupling, Logarithmic, Low Level, Stabilized DC, AC Wattmeter, RMS Volt/Ammeter, 400 cycle Frequency Deviation and Frequency Meter types. Shown are vertical cabinet 2-, 4- and 6-channel "150's"; amplifier and recorder units can also be packaged in portable cases. Mobile 6- and 8-channel 46½" high console systems with dual-channel DC amplifiers also available for analog computer readout and similar applications.

350 SERIES

MAXIMUM 6- AND 8-CHANNEL PERFORMANCE, RELIABILITY AND APPLICATION VERSATILITY... HIGHLY DEVELOPED, SPECIALIZED PLUG-IN PREAMPLIFIERS

Flush front, 17½" high "350" style recorder unit with transistorized power amplifiers and power supply — plus extremely versatile, modern plug-in preamplifiers mounted in 21" of panel space for eight channels, comprise the main "350" system units. System response is DC to 150 cps within 3 db at 10 div peak-to-peak; input single-ended, floating and guarded, or push-pull, depending on preamp used. Preamplifiers, which can also be used alone with individual power supplies in portable cases to drive scopes, meters, optical galvanometers, etc., include Carrier, DC Coupling, Phase-Sensitive Demodulator, Differential DC, Low Level, Logarithmic, Frequency Deviation and RMS Volt/Ammeter types. Recorder-Power Amplifier features, in addition to those previously mentioned, include electrical limiting ahead of Power Amplifiers to prevent saturation or cut-off so that damping is never lost; current feedback circuits to prevent thermal drift; numerous solid state and MIL-spec components in power supply, galvanometer damping by velocity feedback signal; rugged, improved stylus construction for longer life; 50-division, 4 cm or 5 cm wide recording channels in 6-channel system, 4 cm channels in 8-channel system. Recorder-Power Amplifier assembly may also be used alone as a 0.1 volt/div sensitivity system.

950 SERIES

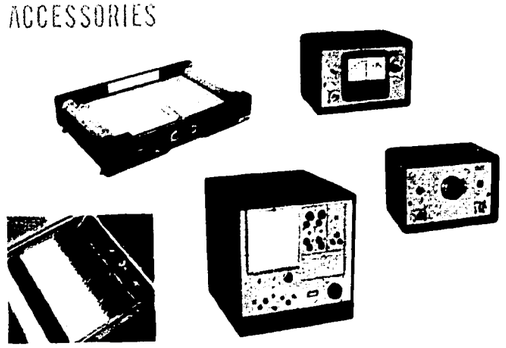


RELIABLE, ECONOMICAL 6- AND 8-CHANNEL SYSTEMS FOR HIGH, MEDIUM OR LOW GAIN IDENTICAL CHANNEL DC APPLICATIONS

Specially designed for applications where many similar low level DC signals must be accurately recorded and separate interchangeable preamplifiers are not required. High and medium gain amplifiers have six or eight identical transistorized channels with floating and guarded inputs; low gain amplifier is a general purpose type with high resistance balanced to ground inputs. Each amplifier with its power supply is mounted on a single chassis, with each channel complete from signal input terminals to galvanometer output terminals. For maximum sensitivity (10 uv/div) amplification, frequency response is DC to 100 cps within 3 db; for medium gain (0.5 mv/div) and low gain (10 mv/div) systems, response is extended to 150 cps within 3 db, 10 div peak-to-peak. System has all "350" flush front recorder features, including 9 pushbutton chart speeds; inkless rectangular coordinate recordings; rugged, enclosed galvanometers with velocity feedback damping; provision for remote control of chart drive, chart speeds, timer and marker.

a proven SANBORN system

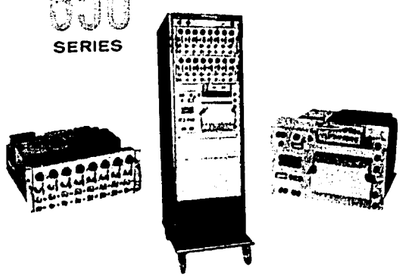
RELATED INSTRUMENTS and ACCESSORIES



Shown here are a few of the many kinds of allied instruments made by Sanborn. Typical are a high speed, 100 cps optical X-Y Recorder . . . precision made variable speed Chart Viewer for convenient study and editing of records . . . 4- to 32-channel "on-off" Event Recorders . . . Monitor Meter for indicating stylus position, system adjustment, visual monitoring, etc. . . . Servo Monitor Phase Shifter for use with Sanborn Phase-Sensitive Demodulator Preamplifiers . . . numerous linear motion and pressure transducers.

For application engineering assistance or complete product information and specifications, call the Sanborn industrial Sales-Engineering representative in or near your city. Offices throughout the U. S., in Canada and foreign countries.

650 SERIES



DC TO 3 KC OVER FULL SCALE... DC TO 5 KC OVER 4" AMPLITUDES ... UP TO 24 CHANNELS WITH DIRECT READOUT

This modern optical oscillograph combines high frequency capabilities with immediate availability of recordings, using a single set of galvanometers for the entire DC-5KC range. Charts are 8" wide, daylight loading and require no chemical development. Recorder has 9 speeds from ¼"/sec. to 100"/sec.; automatic trace identification and timing lines; amplitude lines 0.1" apart can be blanked from part or all of chart; galvanometer block for 8, 16 or 24 channels, equipped with optical inserts as required. Single-chassis, 7" high amplifier module has 8 separate channels, each complete from input to galvanometer output. Inputs are floating and guarded, 100,000 ohm impedance on all ranges. Performance specifications include 8" deflection for 20 mv input; common mode rejection 140 db min. at DC, tolerance to ±500 volts; linearity 1½% of full scale; gain stability better than 1% to 50°C. and for line voltage variation from 103 to 127 volts.

For details, circle #70 on Reader Service Card

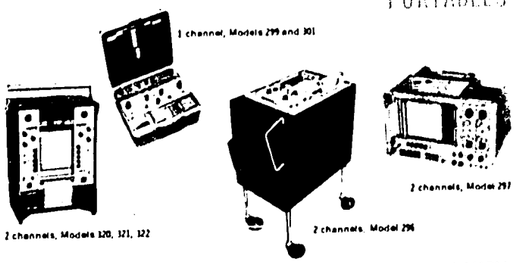
to match your specific application

850 SERIES

MINIMUM PANEL SPACE, MAXIMUM ECONOMY IN 6- AND 8- CHANNEL SYSTEMS WITH INTERCHANGEABLE PREAMPLIFIERS

This series has all the advantages of the 6- or 8-channel flush front recording assembly unit used in "350" systems, but uses miniaturized 2" x 7" plug-in preamplifiers of more economical design. Types include Carrier, Phase-Sensitive Demodulator, DC Coupling and Low Level preamplifiers; Master Oscillator Power Amplifier available for use with Carrier and Low Level preamps. System response to 150 cps within 3 db; input circuits single-ended, push-pull, or floating and guarded, depending on preamp used. System shown is 63⅜" tall, with 8-preamplifier module in 7" of panel space, recorder in 17½" of panel space.

PORTABLES



SINGLE- AND 2-CHANNEL PORTABLES WITH YOUR CHOICE OF AMPLIFIERS AND PACKAGING

For greatest portability in a single-channel system, briefcase size, 20 lb. Models 299 and 301 offer 2 chart speeds, response to 100 cps within 3 db, inkless rectangular coordinate recording. Model 299, for general purpose DC inputs, has 10 mv/div sensitivity, calibrated zero suppression; Model 301, for use with AC strain gages and inductive transducers, has 10 uv rms/div sensitivity. Portable 2-channel systems with built-in amplifiers include the Model 320 for general purpose DC recording with max. sensitivity of 0.5 mv/mm; Model 321 Carrier for AC transducer output recording at 10 uv rms/mm max. sensitivity; Model 322 DC Coupling with 10 sensitivities from 10 mv/div to 10 v/div. Two-channel systems with interchangeable preamplifiers include the Model 297 which accepts any two "850" preamps, and the Model 296 which uses the versatile "350" style preamps. Both the 296 and 297 may be packaged in either a mobile cart or portable case, or standard 19" rack mounted.

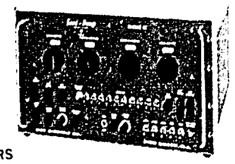
SANBORN COMPANY

INDUSTRIAL DIVISION 175 Wyman St., Waltham 54, Mass.

For details, circle #71 on Reader Service Card

KAY Sweeping Oscillators . . . Frequency Markers

AUDIO-VIDEO



- ALL-ELECTRONIC • STABLE
- BALANCED OUTPUT
- NO PHASING ADJUSTMENTS
- ZERO REFERENCE LINE
- "CRYSTAL" FREQUENCY MARKERS

20 cps to 200 kc . . . *Sona-Sweep* MODEL M

For Audio Bandpass, High-Q Filters

- Repetition Rate 0.2 to 25 cps, Logarithmic and Linear
- Built-in Low Frequency Detector • Pulse Markers

Price $895.00, f.o.b. factory. ($985.00 F.A.S., N. Y.)

50 kc to 8 mc . . . *Marka-Sweep* MODEL VIDEO TTV

For TV Frequencies

- 5 Crystal CW & Marker Frequencies • Metered Output
- Calibrated Variable CW and Marker

Price $795.00, f.o.b. factory. ($875.00 F.A.S., N. Y.)

50 kc to 20 mc . . . *Marka-Sweep* MODEL VIDEO

For Fixed Band Video

- 3 Switched Sweep Widths • Fixed Pulse Markers • Provision for Variable Pulse Marker

Price $575.00, f.o.b. factory. ($633.00 F.A.S., N. Y.)

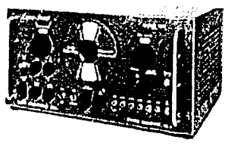
50 kc to 50 mc . . . *Marka-Sweep* MODEL VIDEO 50

For Varied Applications

- Variable Center • Wide 50 mc Sweep with Good Low Frequency Output • Pulse Markers

Price $845.00, f.o.b. factory. ($930.00 F.A.S., N. Y.)

AUDIO-VHF



200 cps to 220 mc . . .

Ligna-Sweep SKV

For Audio, Video, VHF Bandpass, High-Q Filters

- Repetition Rate 0.2 to 30 cps • Video Sweep 1 kc to 10 mc
- 200 cps to 30 mc Widths • Pulse Markers • Logarithmic Sweep

Price $1,295.00, f.o.b. factory. ($1,425.00 F.A.S., N. Y.)

VIDEO-VHF

100 kc to 150 mc . . . *Ligna-Sweep* MODEL CP

For Communications, Video Bandpass

- Variable Center Frequency • Pulse Markers

Price $795.00, f.o.b. factory. ($875.00 F.A.S., N. Y.)

1 mc to 260 mc . . . *Rada-Sweep Sr.*

For Production Alignment

- 6 Fixed Bands • Pulse Markers

Price $725.00, f.o.b. factory. ($798.00 F.A.S., N. Y.)

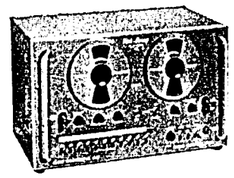
1 mc to 350 mc . . . *Rada-Sweep* 300

For Production Alignment

- 12 Fixed Bands • Pulse Markers

Price $925.00, f.o.b. factory. ($1,018.00 F.A.S., N. Y.)

VHF



2 mc to 470 mc

THE *Vari-Sweeps*

- Fundamental Frequency
- No Spurious Beats, Built-In Attenuators
- Direct Reading Frequency Dials 1.0 V into 70 ohms AGC'd

2 mc to 220 mc . . . *Vari-Sweep* 860-A

- Metered Output • 30 mc Sweeps

Price $795.00, f.o.b. factory. ($875.00 F.A.S., N. Y.)

4 mc to 120 mc . . . *Vari-Sweep* IF

- Built-In Variable Marker • Fixed Pulse Markers

Price $950.00, f.o.b. factory. ($1,045.00 F.A.S., N. Y.)

10 mc to 145 mc . . . *Vari-Sweep* RADAR

- Same as IF at Different Frequency

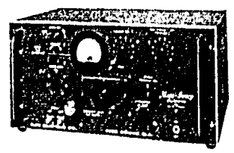
Price $950.00, f.o.b. factory. ($1,045.00 F.A.S., N. Y.)

15 mc to 470 mc . . . *Vari-Sweep* 400

- Same as 860-A at Different Frequency

Price $895.00, f.o.b. factory. ($985.00 F.A.S., N. Y.)

VIDEO-UHF



50 kc to 1000 mc

Mega-Sweeps

Highly Flexible Lab-Type Instruments, Operating Over a Very Wide Frequency Range

50 kc to 950 mc . . . CALIBRATED *Mega-Sweep* 110-A

- Variable Center • Variable Width
- 40 mc Widths

Price $625.00, f.o.b. factory. ($688.00 F.A.S., N. Y.)

10 mc to 950 mc . . . CALIBRATED *Mega-Sweep* 111-A

- Higher Output • Zero Reference

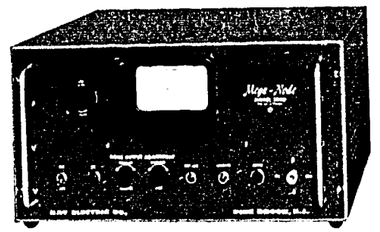
Price $625.00, f.o.b. factory. ($688.00 F.A.S., N. Y.)

KAY ELECTRIC COMPANY

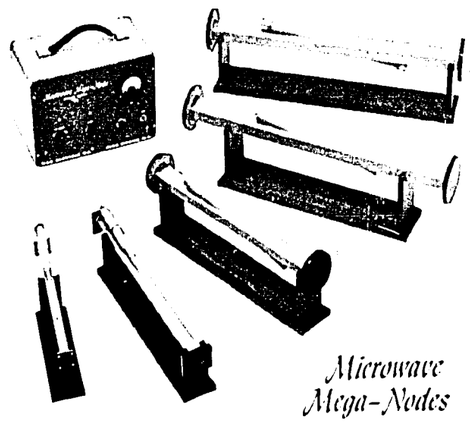
MAPLE AVENUE • PINE BROOK, N. J.

DEPT. ID-10 CAPITAL 6-4000

KAY Precision Random Noise Generators



Mega-Node 3000



Microwave Mega-Nodes

1 kc to 1000 mc . . . *Therma-Node*

The **Therma-Node** is a basic noise source which provides extremely high accuracy by utilizing a basic noise generation technique — thermal noise from a heated resistive element.

- **Noise figure to 10 db • Output impedance, 50 ohms unbalanced**
- **Accuracy ±0.1 db • Operates from line or 24 V dc . . .**

2 — 1000 mc. Price $550.00, f.o.b. factory. ($605.00 F.A.S., N. Y.)

1 kc — 300 mc, add $135.00 ($149.00 F.A.S., N. Y.)

1 mc to 3000 mc . . . *Mega-Node* 3000

The **Mega-Node 3000** is a calibrated random noise source providing output over a wide frequency and power range. It employs a coaxial-type noise diode with a tungsten filament as a temperature-limited noise generator.

- **Noise figure, 0-20 db • Output impedance, 50 ohms unbalanced**
- **Accuracy ±.25 db below 250 mc, ±1.0 db below 2000 mc, ±1.5 db at 3000 mc**

Price $790.00, f.o.b. factory. ($869.00 F.A.S., N. Y.)

3 mc to 500 mc . . . *Mega-Node* 403-A

The **Mega-Node 403-A** is a calibrated random noise source providing precise operation over a more limited frequency range at proportionately lower cost.

- **Noise figure, 0-19 db • Output impedance, 50 ohms unbalanced**
- **Accuracy ±0.5 db**

Price $375.00, f.o.b. factory. ($413.00 F.A.S., N. Y.)

1120 mc to 26,500 mc . . . *Microwave Mega-Nodes*

The **Microwave Mega-Nodes** are precision machined and plated waveguide fixtures, utilizing argon, fluorescent, or neon gas discharge tubes. Single power supply operates all units. (Power Supply Price, $125.00.) ($138.00 F.A.S., N. Y.)

- **Noise output of 15.8 ±.025 db for fluorescent tubes, 15.45 ±0.2 db for argon, 18.0 ±0.2 db for neon. Supplied with power cables and fittings**

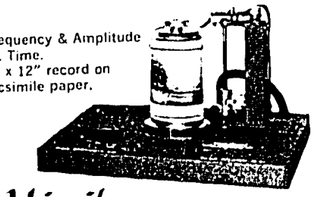
Price $175.00 up. ($193.00 F.A.S., N. Y.)

PERMANENT RECORDS

TIME

FREQUENCY

AUDIO SPECTRUM ANALYZERS



Frequency & Amplitude vs. Time. 4" x 12" record on facsimile paper.

KAY *Missilyzer* 5-15,000 cps

CAT. NO. 675

- **Two separate channels for simultaneous recording of two signals.**
- **Remote control of recording and reproducing channel selectors.**
- The **Missilyzer** is a wider range spectrum analyzer providing two identical channels for simultaneous recording of two related signals. Built-in fast acting relays permit rapid automatic remote control.

Price $2,950.00, f.o.b. factory. ($3,245.00 F.A.S., New York.)

KAY *Sona-Graph* MODEL RECORDER

CAT. NO. 662-A

- **85 — 12,000 cps • Easily stored, permanent or reusable magnetic disc recording.**

The **Sona-Graph Model Recorder** is an audio spectrograph for sound and vibration analysis. Unit provides four permanent, storable records of any sample of audio energy in the 85-12,000 cps range.

Price $2,950.00, f.o.b. factory. ($3,245.00 F.A.S., New York.)

PRECISION HIGH FREQUENCY

Attenuators

TOGGLE-SWITCH MODELS

ROTARY MODELS

- Digital Readout
- 0 — 119 db
- Up to 101 db
- Fixed 0 or 10* db insertion loss

50, 70 or 90 ohm impedance

High-Frequency, Precision Teflon & Silver Switches

1% Carbon Film Resistors

Fully Shielded Units

	TOGGLE SWITCH MODELS		ROTARY MODELS
	MOD. 20 SERIES	MOD. 30 SERIES	MODEL 40 SERIES
SWR	1.2 : 1 MAX UP TO 250 MC 1.4 : 1 MAX 250 TO 500 MC		
MIN INSERTION*	0.1 db at 250 mc; 0.2 db at 500 mc		
ACCURACY	AT FULL ATTENUATION 0.5 db at 250 mc, 1.2 db from 250 to 500 mc.	AT FULL ATTENUATION 0.9 db at 250 mc, 2.0 db from 250 to 500 mc.	
PRICE: f.o.b. factory	$75. ($79.*)	$110.	$250.
F.A.S. N. Y.	$83. ($87.*)	$121.	$275.

KAY ELECTRIC COMPANY

MAPLE AVENUE • PINE BROOK, N. J.

DEPT. ID-10 CAPITAL 6-4000

IOR

INTERNATIONAL RECTIFIER SEMICONDUCTORS

DIODES AND RECTIFIER CELLS

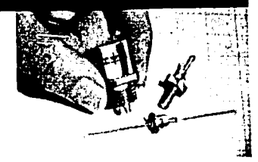
from 50 ma to 250 amps
at 25 to 1000 volts per junction
with stacks to 100,000 amps
and 320,000 volts

All designed and manufactured to meet the most rigid military requirements!

SPECIAL ASSEMBLIES can be made to your specifications... from microwatts to megawatts!

MIL TYPES

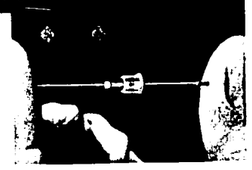
SILICON GENERAL PURPOSE RECTIFIER CELLS
Ratings: to 1 amp—60 to 800 PRV. JAN 1N538, JAN 1N540, JAN 1N547 axial lead, top-hat types... JAN 1N253 through JAN 1N256 stud mounted types... hermetically sealed... low reverse leakage.
Bulletins SR-236 and SR-237



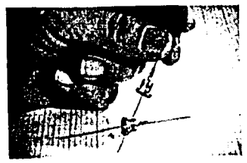
SILICON ZENER DIODES
Ratings: 6.2 to 27v, 10w—18 to 27v, 1w, 10w—types: USA 1N1804 6.2v, USA 1N1807 8.2v, USA 1N1353 12v, USA 1N1358 20v, USA 1N1361 27v ... 1w types: USA 1N1777 18v, USA 1N1781 27v ... Reference element, USN 1N430A 8.4v.
Bulletins SR-259 and SR-255

SILICON GENERAL PURPOSE DIODES

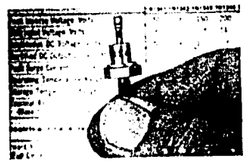
SUBMINIATURE GLASS DIODES
Ratings: 30 to 200 ma—25 to 380 PRV. Diffused junction... general purpose and high conductance types... excellent forward and reverse characteristics... nominal frequency range: 0 to 100 KC ... 1N456 and 1N482 series.
Bulletin SR-220



MINIATURE TOP-HAT SERIES
Ratings: to 500 ma—50 to 500 PRV. Hermetically sealed... all welded construction... low reverse leakage currents... high temperature operation to 165°C... excellent forward and reverse characteristics... 1N1701 series.
Bulletin SR-203



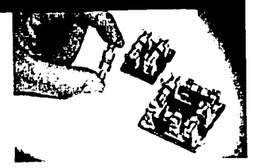
STANDARD TOP-HAT SERIES
Ratings: to 1.8 amp—50 to 600 PRV. Hermetically sealed... high rectification efficiency... low reverse leakage currents (0.3 ma @ 125°C)... welded construction... 1N440, 1N1487, 1N1692, and 1N538 series.
Bulletin SR-217



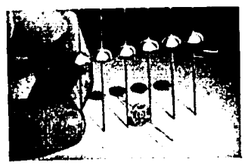
STUD MOUNTED SERIES
Ratings: to 1 amp—50 to 600 PRV. Hermetically sealed... all welded construction... high rectification efficiency... operation over −65°C to +170°C temperature range... low reverse leakage currents... 1N607 series.
Bulletins SR-135C

ENTERTAINMENT TYPE RECTIFIERS

MINIATURE SILICON RECTIFIER CELLS
Ratings: to 750 ma—200 to 600 PRV. High power capability (to 750 ma) ..peak surge current capacity (to 50 amps)... ideal for TV diode replacements... 5A series.
Bulletin SR-212



PLUG-IN SILICON RECTIFIER CELLS
Ratings: to 500 ma—200 to 600 PRV. Diffused junction... high power capability (to 750 ma)... kits containing standard clipholders and hardware also available... 5M series.
Bulletin SR-216



"LEMON-DROP" SILICON RECTIFIER CELLS
Ratings: to 500 ma—400 to 600 PRV. Specially recommended for dependable, miniaturized, low rectifier cost applications... ideal for TV, radio, phono, tape recorder circuits... 5E series.
Bulletin SR-208

SELENIUM RECTIFIER STACKS
Ratings: 75 to 650 ma—130 max. RMS. High efficiency /low cost replacement type rectifiers... high density construction for long life and... maximum reliability... T065/075 series.
Bulletin SR-900

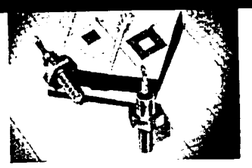
Please request bulletins by number.

For details, circle #74 on Reader Service Card

SILICON ZENER DIODES AND REFERENCE ELEMENTS

SUBMINIATURE 250 AND 400 MW SERIES
Ratings: 3.3 to 30 volts. Glass fusion sealed... diffused junction... low dynamic impedance to 5Ω @ 20 ma... excellent voltage regulation over −55°C to +150°C range... 1N702 and 1N748 series.
Bulletins SR-261 and SR-263

TOP-HAT 750 MW AND 1W SERIES
Ratings: 3.9 to 30 volts. Hermetically sealed... welded construction... low dynamic impedance to 1.1Ω @ 25 ma... excellent regulation and stability over −55°C to +150°C range... 1N1507 and 1N1518 series.
Bulletin SR-260

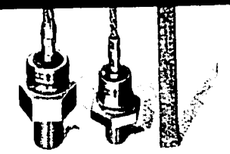


STUD MOUNTED 3.5 AND 10W SERIES
Ratings: 3.9 to 30 volts. Hermetically sealed... welded construction... low dynamic impedance to 0.2Ω @ 300 ma... excellent voltage regulation and stability over −55°C to +150°C range... 1N1588 and 1N1599 series.
Bulletin SR-260

VOLTAGE REFERENCE PACKS
Ratings: 6.4 and 16.8 vdc. High stability operation ... reference voltages within ± 0.01% ... temperature coefficient ± 0.001%/°C ... operate from 28 vdc or 115 v.a.c. 60 or 400 cycle inputs... IR4RV8 and 4RV16 series.
Bulletin SR-401

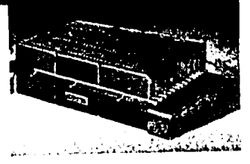
POWER RECTIFIER CELLS AND STACKS

SILICON POWER RECTIFIER CELLS
Ratings: to 45 amps—50 to 600 PRV. Hermetically sealed all welded construction... designed for operation at junction temperatures to 190°C... operating frequencies to 1,000 cps... 1N1199, 1N1341, 1N2128A series.
Bulletins SR-311 and SR-304



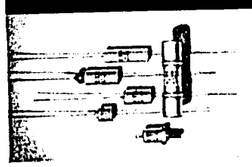
SILICON HIGH POWER RECTIFIER CELLS
Ratings: to 250 amps—50 to 600 PRV. Rugged all welded construction... hermetically sealed... designed for operation at junction temperatures to 190°C... operating frequencies to 1,000 cps... 1N3085 and 1N2054 series.
Bulletins SR-300 and SR-305

SILICON RECTIFIER STACKS
Ratings: to 750 amps—31 to 1500 vdc output. High forward conductance and low reverse leakage— rectification efficiencies to 99% at power frequencies... operation over −65°C to +170°C range ... 1N2690 and HR06-4620 series.
Bulletins SR-330 and SR-335

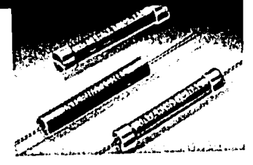


SELENIUM POWER RECTIFIER STACKS
Ratings: to 2300 amps—6 to 30,000 volts. Standard, double, and triple density types... all standard single phase and triple phase circuit configurations... high rectification efficiency over −65°C to +100°C range
Bulletin SR-170

HIGH VOLTAGE RECTIFIERS



SILICON CARTRIDGE RECTIFIERS
Ratings: to 440 ma—600 to 16,000 PRV. High rectification efficiency... low reverse leakage current at rated PRV... −55°C to +150°C operating range... 1N596, 1N1130, 1N1133, 1N1406, 1N1745 and 1N2373 series.
Bulletins SR-138, SR-226, SR-157, SR-225 and SR-227



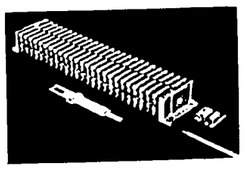
SELENIUM CARTRIDGE RECTIFIERS
Ratings: to 200 ma—20 to 14,400 PRV. High efficiency rectification over −65°C to +100°C temperature range... available in half-wave, full-wave center tap, voltage doubler, and single-phase bridge configurations.
Bulletin H2S-1

SPECIAL SEMICONDUCTOR DEVICES

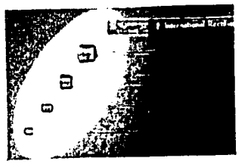
SILICON CONTROLLED RECTIFIERS
Ratings: 1, 5, 10, & 16 amps—20 to 400 PRV. Extremely efficient high-current switching... hermetically sealed... ideal state switch turn-on times to 2 μsec (typ)... IR X1RC2, X5RC2, X10RC2, and X16RC2 series.
Bulletins SR-353, SR-355, SR-350 and SR 351

SOLAR CELLS AND PHOTOCELLS
Wide range of silicon and selenium types. Silicon solar cells with conversion efficiencies to 13%... silicon readout photocells with response times to 5 μsec ... selenium photocells in wide variety of sizes and shapes.
Bulletins SR 280 (Silicon) and PC 649 (Selenium)

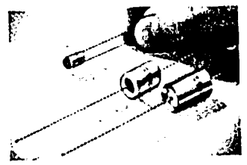
SILICON RECTIFIER TUBE EQUIVALENTS
Ratings: to 1250 ma—1500 to 10,000 PRV. Solid-state rectifiers replace vacuum tube types... reduce space... eliminate filament supply and warmup time... long life... high reliability operation... 1N570 and 1N2630 series.
Bulletin SR-209



SILICON SUPER-POWER RECTIFIERS
Ratings: to 50 amps—to 100 KV. Maximum power capacities exceed 1,000 kw... up to 1,000 watts per cubic inch... high overload capacity... reliability of column exceeds that of its individual components... IR HV series.
Bulletin SR-370



SUBMINIATURE SELENIUM DIODES
Ratings: to 28 ma—48 to 384 PRV. High efficiency/ low cost diodes provide stable operation over −50°C to +100°C range... reverse resistance to 30 megohms at 30 volts... withstand 1 second surges to 350 ma... 1N1625 series.
Bulletin SR-183A



SELENIUM CONTACT PROTECTORS
Ratings: 28 to 156 vac—.2 to 1.2 amp coil current 15 to 133 vdc—.25 to 3 amps coil current. Low cost contact protectors... eliminate arcing and pitting of relay and switch contacts... IR STV series.
Bulletin SR-150

For off-the-shelf delivery at factory prices, contact your authorized IR distributor.

Representatives and Distributors throughout the world.

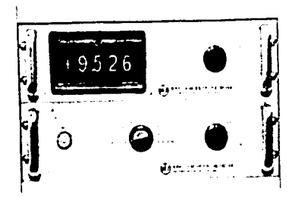
INTERNATIONAL IOR RECTIFIER

SYMBOL OF QUALITY IN SEMICONDUCTORS

INTERNATIONAL RECTIFIER CORPORATION: EL SEGUNDO, CALIFORNIA • PHONE OREGON 8-6281 • CABLE RECTUSA

REGIONAL OFFICES IN NEW YORK CITY, CHICKERING 4-0748 • FORT LEE, NEW JERSEY, WINDSOR 7-3311 • SYRACUSE, NEW YORK, HEMPSTEAD 7-8485 • CAMBRIDGE, MASSACHUSETTS UNIVERSITY 4-6520 • ARDMORE, PENNSYLVANIA, MIDWAY 9-1428 • SILVER SPRING, MARYLAND, JUNIPER 9-3305 • CHICAGO, ILLINOIS, JUNIPER 3-3065 • BERKLEY, MICHIGAN, LINCOLN 8-1144 • LOS ANGELES, CALIFORNIA, OREGON 8-6281 • IN CANADA TORONTO, ONTARIO, PLAZA 9-2291

For details, circle #75 on Reader Service Card


V44 All-Electronic Voltmeter

V24 Voltmeter-Ratiometer

M25 5-Digit Multi-Purpose Instrument

R24 Ratiometer

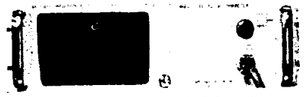
M24 Multi-Purpose Instrument

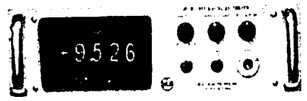
V35A Voltmeter-Ratiometer

V34A Voltmeter-Ratiometer

481A Digital Voltmeter

484 Digital Voltmeter with Printout


784 Digital Ohmmeter with Printout


481 Digital Voltmeter

Most complete line of digital measuring instruments . . . by purpose . . . by price!

PREMIUM DIGITAL VOLTMETERS

V44 All-Electronic Voltmeter Purpose: measuring and data logging for high-speed applications requiring maximum reliability and dependable ±0.01% accuracy . . . 200 readings per sec. of DC voltages from ±0.001 to ±999.9 . . . output for data logging . . . 10 megs input impedance on all ranges without internal or external preamplifiers . . . no decade or amplifier potentiometers to trim; "NO POTS AT ALL" stability is designed in, not trimmed in. **Price: $6,150**

M25 5-Digit Multi-Purpose Instrument Purpose: applications requiring full 5-digit accuracy with relatively high speed, outstanding reliability, and versatility; missile systems checkout, inertial guidance research, unattended data logging, advanced R & D . . . fastest, most reliable, most versatile 5-digit DVM . . . in 1.1 sec. measures DC voltage from ±0.0001 to ±999.99, DC voltage ratio from ±.00001 to ±99.999, and resistance from 0.1 ohm to 1 megohm . . . accuracy ±0.01% of reading ±1 digit . . . 10 to 1000 megs input impedance . . . with accessories, measures AC voltage, AC voltage ratio or low-level DC . . . fully automatic . . . remotely programmable . . . output for data logging . . . transistorized circuitry, mercury-wetted contact relays. **Price: $6,150**

M24 Multi-Purpose Instrument Purpose: for 4-digit applications requiring M25 features . . . 1/3 sec. balancing time is three times faster than M25 . . . measures DC voltage from ±.0001 to ±999.9 and DC voltage ratio to ±.9999 with ±0.01% accuracy, resistance from 0.1 ohm to 1 megohm with ±0.05% accuracy . . . with accessories, measures AC voltage, AC voltage ratio, or low-level DC . . . transistorized circuitry, mercury-wetted contact relays. **Price: $5,650**

V24 Voltmeter-Ratiometer Purpose: uses requiring M24 features without the need to measure resistance. **Price: $4,950**

R24 Ratiometer Purpose: especially useful in analog computers and potentiometer pickoff data systems . . . measures only DC ratio with ranges of ±.9999/9.999 . . . same features as M24 and V24. **Price: $4,650 (not stocked)**

V35A Voltmeter-Ratiometer Purpose: uses requiring maximum accuracy and high reliability such as inertial guidance research, missile checkout, calibrating high accuracy measuring systems . . . this medium-priced transistorized DVM is the fastest 5-digit stepping switch type voltmeter . . . "Factual Fifth Figure", full 5-digit resolution of 0.001% . . . measures DC voltage from ±0.0001 to ±999.99, DC voltage ratio from ±00.001% to ±99.999% . . . with accessories, measures AC voltage, AC voltage ratio, low-level DC . . . features "No-Needless-Nines" logic and plug-in oil-bath stepping switches for exceptionally long life and maximum reliability . . . no manual lubrication needed . . . completely automatic . . . output and built-in control for data logging. **Price: $3,950**

V34A Voltmeter-Ratiometer Purpose: designed for 4-digit uses requiring V35A reliability, speed and versatility. **Price: $3,350**

LOW-COST

481A Digital Voltmeter Purpose: this 4-digit instrument is an outstanding value for applications requiring ±0.01% accuracy and completely automatic operation at low-cost . . . does not contain printout connections . . . features plug-in decade resistors and stepping switches for troubleshooting and switch lubrication and replacement in several minutes . . . measures DC from ±0.001 to ±999.9, AC and low-level DC with plug-in accessories . . . basic design proved by six years field use. **Price: $1,425**

484 Digital Voltmeter with Printout Purpose: low-cost measuring and data logging with ±0.01% accuracy . . . printer connection and automatic print control are built-in . . . features plug-in stepping switches . . . same basic features as 481A above. **Price: $1,650**

784 Digital Ohmmeter with Printout Purpose: precise measuring and logging of resistance at low cost . . . features plug-in stepping switches and built-in printer connection and automatic control . . . stepping switches and decade resistors mounted on plug-in boards . . . same basic features as 484 above. **Price: $1,650 (not stock)**

481 Digital Voltmeter Purpose: applications requiring ±0.01% accuracy without need for printout or plug-in stepping switches . . . same basic specifications as 481A. **Price: $1,275 (not stock)**

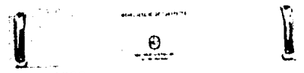
For details, circle #76 on Reader Service Card

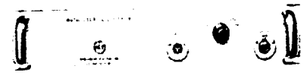
781 Digital Ohmmeter

V64A Digital Voltmeter

V60 Digital Millivoltmeter

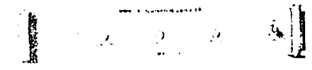
Model 125E

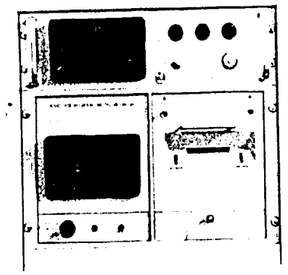

Model 125C

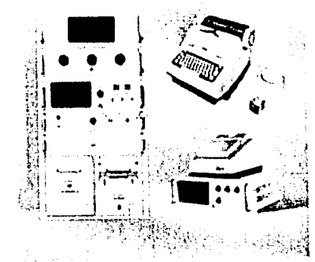

Model 125B

Model RR-1

Model 50


Model 51


RS2 Data Logger


DVM Accessories

INDUSTRIAL SERIES DVMS

781 Digital Ohmmeter Purpose: fast easy resistance measurements not requiring printout, such as receiving inspection, production, quality control, laboratory testing . . . this 4-digit ohmmeter equals performance of units costing twice as much . . . measures 0.1 ohm to 10 megs . . . accuracy of ±0.05% ±1 digit (±0.1% of reading above 5 megs) . . . 20 times faster than using Wheatstone bridge . . . completely automatic . . . construction similar to 481. **Price: $1,425**

V64A Digital Voltmeter Purpose: full 4-digit resolution at lowest cost . . . similar to 481A but has manual range polarity selection . . . accuracy is ±0.01% of full scale . . . measures DC voltage from ±0.001 to ±999.9, AC and low-level DC with accessories. **Price: $1,125**

V60 Digital Millivoltmeter Purpose: making highly-precise low-level measurements without a preamplifier for such applications as calibrating millivolt devices, strain gage and thermocouple measurements, process monitoring, semiconductor research and testing . . . features ±0.01% precision (ability to repeat readings within close limits), unattainable from pointer meters and strip chart recorders . . . accuracy is ±0.1% of reading or ±10 microvolts . . . range is ±00.01 to ±99.99 mv . . . extremely high AC and DC common mode rejection . . . scale factor control to permit display in units of pressure, weight, length, strain, etc. **Price: $1,625**

ASSOCIATED INSTRUMENTS AND ACCESSORIES

AC/DC Converters Purpose: provide advantages of digital measurements for AC voltage and AC voltage ratio . . . combine appropriate converter with any NLS DVM for precise, rapid AC measurements over a wide frequency range with high input impedance . . . accuracy: ±0.1% . . . ranges: 9.999/99.99/999.9 volts AC . . . speed: 3 sec. avg. . . . frequency range: 30 cps to 10 kc.

Model 125E ($1,200) automatic ranging for use with NLS premium DVM's . . . Model 125C ($1,200) same as 125E with manual ranging . . . Model 125B ($1,200) same as 125C for use with Industrial DVM's and RS2 . . . Model RR-1 ($1,200) AC voltage ratio measurements with 125C and M24 or V24 . . . Model RR-2 (not stock) AC voltage ratio with any DVM that measures DC ratio; 125B, C or E also required.

RS2 Data Logger Purpose: highly precise scanning, measuring and recording at low cost . . . scans up to 20 double-pole input channels, measures DC from ±0.001 to ±999.9 with ±0.01% accuracy, and records channel number and 4-digit reading with polarity and decimal point . . . delivered in cabinet ready for use. **Price: $3,600**

CS2 Calibration Console Purpose: highly accurate calibration of AC and DC digital voltmeters, ratiometers and ohmmeters . . . extremely fast, simple "push-button" operation. **Price: upon request (not stock)**

Voltage Comparators

Model 50 Voltage Comparator — a transistorized instrument with manual limit setting from ±0.001 to ±999.9 volts . . . signals tolerance by colored bulbs and contacts within 90 ms . . . ±0.02% accuracy . . . 10 megs input impedance. **Price $1,775**

Model 51 Voltage Comparison Amplifier — applications where limits are already in voltage form . . . wide range, high sensitivity, high input impedance, transistorized. **Price: $ 950**

Model 54 Digital Comparator — plugs into NLS DVMs with printer output connector for go/no-go indication of input limits . . . limits set by BCD voltages or contact closures or, optionally, by knobs on the 54 . . . signals "too high", "too low", or "OK" to recorders or control devices. **Price: upon request (not stock)**

DVM Accessories Purpose: to form any of hundreds of measuring and data logging systems by easy, plug-in combination with NLS DVM's . . . accessories include AC/DC converters, remote readouts, preamplifiers for low-level DC, transistorized input scanners, data printers, serial converters, Flexowriter systems, electric typewriter systems, tape punches, digital comparators.

Prices and specifications are subject to change without notice. Shipment is within 3 days after receipt of order at Del Mar — 30 days max. if stock becomes depleted. Non-stock models require 90 days max.

non-linear systems, inc.
DEL MAR, CALIFORNIA • Phone SKyline 5-1134 • TWX: Del Mar 6345

For details, circle #77 on Reader Service Card

New miniature ceramic trimmer—the smallest ceramic disc trimmer on the market • Style 538—3/8" diameter

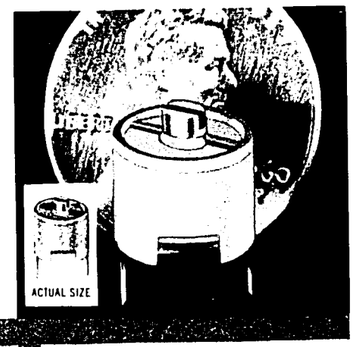
Ideal for missile and other high temperature applications, this ¾-inch diameter trimmer operates through a temperature range of −55°C to +125°C.

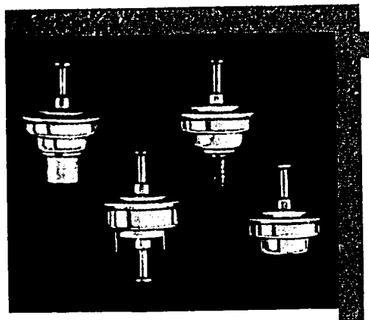
ERIE's new Style 538 is designed for printed circuitry as well as conventional circuitry.

CAPACITANCE: NPO; 2pf-8pf and 5.5pf-18pf N500; 3pf-10pf and 8pf-25pf
N300; 2.5pf-11pf and 7pf-25pf N650; 3pf-10pf and 9pf-35pf

WORKING VOLTAGE: 200 VDCW

ALSO AVAILABLE: ceramic trimmers with capacities ranging from 1.5 to 50 pf; custom designed assemblies containing up to 25 or more trimmers (for printed or conventional circuitry); and self-locking ERIE tubular trimmers in ceramic and high temperature polystyrene dielectrics.

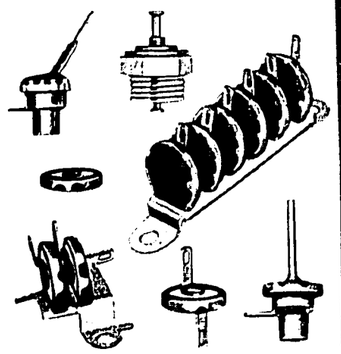




New Erie Gold Seal Button® mica capacitors the world's finest UHF capacitor

At 200°C, this exciting new capacitor far exceeds requirements of MIL-C-10950. Finest in design and quality to assure maximum freedom from internal contamination. Welded full-hermetic seal plus gold-plating assure maximum conductivity and resistance to leakage even under the most severe environmental operating conditions. Operates perfectly at temperatures from −55°C to +200°C at 500 VDCW. Capacities: 15pf to 2500pf.

Also standard ERIE BUTTON MICA CAPACITORS in capacities from 5pf to 8200pf. Wide range of stand-off and feed-through types, mountings, and styles. Exceed MIL-C-10950 specs.



NEW additions to the line of ERIE ELECTRONIC COMPONENTS

New miniature radial-lead tubular Ceramicons®

Two recent additions to the wide variety of ERIE's radial-lead capacitors are Style 374 and 375.

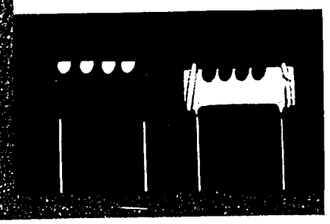
Style 374 is an enamel coated capacitor only .320" long and .125" diameter.

Style 375 is a dipped phenolic coated capacitor only .330" long and .140" diameter.

Both styles are available in the full range of Temperature-Compensating and Hi-K dielectrics.

Capacitance: 2pf—5600pf

Working Voltage: 200 VDCW

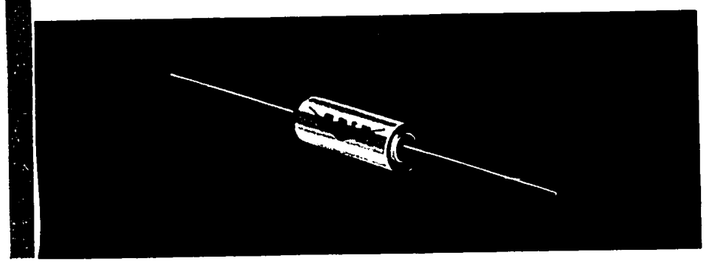


New Erie Solid Electrolyte Tantacons

Tantacons are hermetically sealed, polar, tantalum capacitors combining high capacitance per unit volume and low, linear temperature characteristics over a wide operating temperature range. Solid electrolyte eliminates leakage problems, and quality Erie construction assures long shelf and operating life.

Available in metal MIL cases sizes A and B, insulated and non-insulated, with capacitance range from 1.0 mf to 56 mf. Capacitance tolerances are ±5% (on request), ±10% and ±20%.

Supplied in voltage ratings of 6, 10, 15, 20, and 35 VDCW. Operating temperature range is −80°C to +85°C at full rated voltage.



For details, circle #78 on Reader Service Card

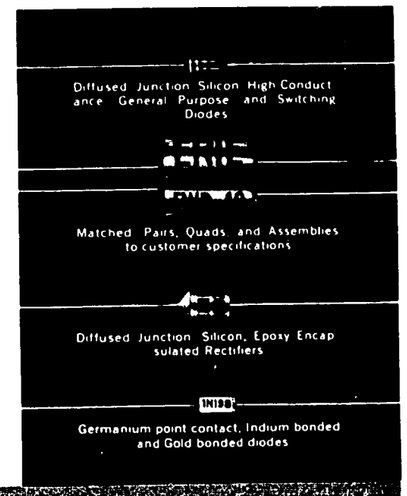
Erie Semiconductor Devices

NEW! The high-conductance, fast-switching, low-cost ED 1873 and ED 1904 germanium diodes are for both military and industrial computer and control applications. These units join the select group of Erie Specialized Application Diodes that have been custom designed to precise customer requirements and later have found industry-wide acceptance. This group includes the ED 1806, 1825, 2015, 2016, 2017, 2018 and many others. Information regarding the special application types is available by return mail.

COMING SOON—A 1500 volt, 1 amp, glass package silicon rectifier.

MIL DIODES — JAN 1N126A, 1N127A, 1N128A, 1N198, 1N270, 1N276, 1N277 and 1N281 are available to MIL-E-1D. Also available are types 1N198B, 1N933 and R-275.

Electron Research, Inc., Division of Erie Resistor Corp., manufactures over 600 individual types of germanium and silicon diodes and rectifiers. Also available is a standard line of silicon diode packaged assemblies with ratings of .3 to 4.0 amperes at working voltages between 200 and 1500 volts. Further special assemblies of germanium and/or silicon diodes and rectifiers are available packaged as matched pairs, quads, half and full wave rectifiers, doublers, etc., designed to specific customer requirements.



NEW Erie Wee-Cons

. . . Sub-miniature plate capacitors.

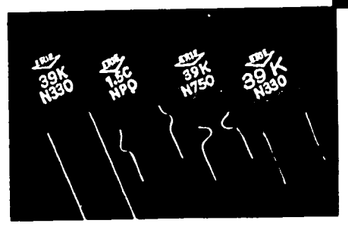
Sub-miniature size and rectangular shape allows a higher component density on printed circuit boards.

Dipped Phenolic Coated
TC and Hi-K Dielectrics

WORKING VOLTAGE: 200 VDCW

CAPACITANCE: 6pf to .05 mf

Style	4805	4815	4825	4835	4845	4855
Max. Size	.150 x .150	.200 x .200	.300 x .300	.400 x .400	.500 x .500	.600 x .500
Thickness	.100"	.100"	.100"	.100"	.150"	.150"
Capacitance	6pf to 3300pf	11pf to 6200pf	25pf to 13,500pf	48pf to 25,000pf	76pf to 40,000pf	90pf to 49,600pf



Erie Capacitors

STANDARD DISC CERAMICONS'— Your choice of wire leads, Wil-lok or plug-in terminals, or kink leads. Operating temperature range available: −55°C to +125°C. MIL-C-20, MIL-C-11015 qualification approvals. Conform to EIA RS-198, RS-165, SMC-1 and ERIE high-reliability spec. 900 where specified.

CAP.: .5pf through 0.1mf

TOL.: ± .25pf to GMV

TC DIELECTRIC: P120 through N5600

HI-K DIELECTRIC: X5F, Z5D, W5F through X5V

NEW Super NPO Discs . . .

- **Twice the capacitance for given diameter**
- **± 20 PPM temperature coefficient tolerance**
- **Higher life-test voltage endurance at 85 C or 125 C**

Designed around a revolutionary new dielectric developed by Erie, SUPER NPO Ceramicons provide electronic performance superior to dipped silvered mica capacitors, yet are generally lower in price . . . and may be only half the size.

CAPACITY: 1.4 pf through 270 pf.

CAPACITY TOLERANCE: 10pf and below ±0.1pf, ±0.25pf, ±0.5pf, ±1.0pf, and ±2.0pf. Above 10pf ±5%, ±10%, and ±20%.

Q FACTOR: 1000 Min., 30pf and above. Below 30pf, Q decreases in a straight line function from 1000 at 30pf to 400 at 1pf.

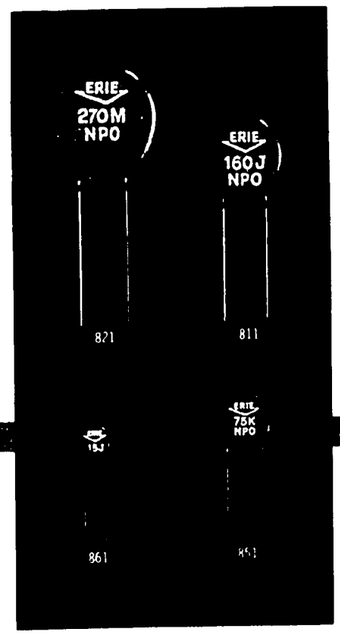
INSULATION RESISTANCE: 10,000 Megohms Min.

WORKING VOLTAGE: 500 VDC through 6000 VDC.

FLASH TEST: 1500 VDC for 500 VDC rated capacitors. 2X VDC rating for 1000 VDC or higher rated capacitors.

LEADS: Heavy solder coated meeting the requirements of EIA RS178.

INSULATION: Phenolic, vacuum wax impregnated.



ERIE ELECTRONICS DIVISION
ERIE RESISTOR CORPORATION
644 West 12th Street • Erie 6, Pennsylvania

Sales Offices in principal cities of USA, Canada, Europe

Erie Capacitors and Diodes are also available in quantities under 1,000 pieces from leading electronic distributors.

For details, circle #79 on Reader Service Card

PANORAMIC

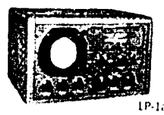
"the pioneer is the leader"

dependable CERTIFIED SPECIFICATIONS *for accurate data*

SUMMARY OF SPECIFICATIONS

SPECTRUM ANALYZERS

½ cps to 44 kmc



LP-1a

BROADBAND SPECTRUM ANALYZERS 0.5 cps to 25 mc. Easy-to-operate direct reading analyzers display plot of signal amplitude vs. frequency on 5" CRT or chart. Features include: "quick look" wideband scans plus highly selective narrow scans. Center frequency, sweep width, and selectivity (resolution) are adjustable. Calibrated linear and 40-db log scales.

All these broadband spectrum analyzers are available with accessories and in systems which materially improve specifications and application versatility.

* This specification improved or adjustable with optional accessories.

Frequency Range	Model No.	Sweep Width	Resolution (I-F Bandwidth)	Sensitivity Range (Full Scale Linear)	Sweep Rate	Harmonic Products (Dynamic Range)
0.5 cps to 2500 cps	LF-2b (incl. chart recorder, 3" CRT optional)	Preset 2-500 cps on 2 ranges	0.1-20 cps	10 mv to 100 v	30 sec-16 min scan	-40 db
20 cps* to 22.5 kc.	LP-1a (5" CRT)	40 cps-20 kc log scan. Linear* 200, 1000, 5000 cps	Automatic optimum. Best resolution 25 cps*	500 μv to 500 v	*1 cps	60 db
200 cps to 300 kc	SB-7bZ (5" CRT)	0-200 kc	100 cps-2 kc	250 μv to 25 v	*6.7 cps	-50 db
100 cps to 600 kc	SB-15a (5" CRT)	1 kc-200 kc	100 cps-4 kc -- automatic optimum	200 μv to 200 v	*1-60 cps	-60 db
1 kc to 15 mc	SPA-3 (5" CRT)	0-3 mc	200 cps-30 kc	20 μv to 2 v	1-60 cps	46 db
1 kc to 25 mc	SPA-3-25 (5" CRT)	0-3 mc	200 cps-30 kc	20 μv to 2 v	1-60 cps	46 db

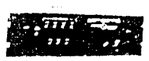
SPA-4a

MICROWAVE SPECTRUM ANALYZERS 10 mc to 44 kmc. Feature unsurpassed usable sensitivity and freedom from spurious effects for pulsed AM, FM and CW signals. Direct reading frequency dial ± 1%. They have adjustable dispersion, I-F bandwidth and adjustable sweep rate; 1-60 cps, free running or synchronized; 3 calibrated amplitude scales, linear, 40 db log, and power; calibrated frequency markers. Model SPA-1 has 2 interchangeable tuning heads; SPA-4a covers band to 44 kmc with 1 head.

Frequency Range	Model No.	Sweep Width (Dispersion)	Resolution (I-F Bandwidth)	Sensitivity (Signal 2x Noise)	Other Features
10 mc to 44,000 mc 1 Tuning Head	SPA-4a (5" CRT)	2 swept oscillators 0 to 70 mc 0 to 5 mc	1 kc to 80 kc	L band -100 to -110 dbm.; S band -90 to -100 dbm.; X band -90 to -100 dbm.; K band -70 to -90 dbm.	All mixers built in • Dynamic range to -60 db. • Low residual FM • Synchroscope Output • Marker Modulation
50 mc to 4000 mc; (10 mc to 4000 mc. optional)	SPA-1 (5" CRT)	0 to 10 mc	9 kc to 80 kc	(With opt. internal preamp.) RF-2 head, 50-250 mc 100 dbm RF-3 head, 220-4000 mc 500 mc -100 dbm 1500 mc -94 dbm 3000 mc -76 dbm	Extremely low cost • Exceptionally stable • Available in 4 styles • Highly sensitive I-F preamp, optional.

FREQUENCY RESPONSE PLOTTERS

½ cps to 15 mc



G-3a

COMPANION SWEEP GENERATORS FOR BROADBAND SPECTRUM ANALYZERS: Response to fundamental frequency only; discriminate against noise and hum; virtually unlimited dynamic range; single line plots. Accessories available for comparison testing, triangular scanning, and manual tuning.

Frequency Range	Sweeper Model No.	Used With Analyzer Model	Output Voltage (& Impedance)	Output Attenuator	Overall Flatness
0.5 cps to 2500 cps	G-5	LF-2a	0.5V (3000:!)	0-60 db	±0.5 db (1-2500!:)
20 cps to 22,500 cps	G-2a	LP-1a	50 mv-5v (1000, 600, 3K:!)	0-100 db	±1 db
200 cps to 300 kc	G-3a	SB-7bZ	250 μv to 2.5 v (600:!)	0-80 db	±0.5 db (1-300 kc)
100 cps to 600 kc	G-15a	SB-15a	250 μv to 2.5 v (600:!)	0-80 db	±1 db (0.2-600 kc)
1 kc to 15 mc	G-6	SPA-3 SPA-3-25	200 μv to 0.2 v (72:!)	0-60 db	±2 db (1 kc-13.5 mc)

SWEEP GENERATOR 20 cps-200 kc used with ext. scope (CRT scale furnished). Model SG1. Pre-set broad-band, log and adjustable linear scans. Built-in markers. SG-1R same as SG-1, plus synch pulse for testing tape recorder frequency response.

Frequency Range	Model	Scan Modes	Output Voltage (& Impedance)	Flatness	Sweep Rate
20 cps-200 kc	SG-1 SG-1R	40 cps to 20 kc log scan 400 cps to 200 kc log scan 0-200 kc lin. sweep widths	0-1 volt (600:!)	±½ db	1 cps, Adjustable with TW-1a

COMMUNI-CATIONS SYSTEMS ANALYZERS

SSB, AM, FM

SSB-3a

PANADAPTORS. For use with communications receiver with I-F ... Panadaptor center frequency. Panadaptor response shaped to match receiver. Specify receiver model no. and I-F.

SUMMARY OF SERIES CAPABILITY

For Receivers With Intermediate Frequency of	Model Series	Sweep Width	Resolution	Sensitivity (At I-F)	Sweep Rate	Amplitude Scales	CRT Size
450 kc-30 mc	SA-8b (4 types)	0-100 kc to 0-10 mc	50 cps to 80 kc	150-2000 mv full scale	1-60 cps	Linear, 40 db log Power	5" (camera mount style optional)
450 kc-30 mc	SA-3 (10 types)	0-50 kc to 0-6 mc	2 kc to 50 kc	10 μv-10 mv ¼" deflection	30 cps	linear (nominal)	3 inch

PANALYZORS scan through an adjustable sweep width about their center frequencies. An external VFO* is used for conversion of signals in Panalyzor input mixer. Mixer range up to 1000 mc.

*eg. Model RF-7a Panoramic VFO, 2-40 mc.

SUMMARY OF SERIES CAPABILITY

Model Series (Input Center Frequency)	Sweep Width	Resolution	Signal Sensitivity (VFO 0.1 volt rms)	Sweep Rate	Amplitude Scales
(†) SB-12a, 500 kc (or 455 kc)	0 to 100 kc + preset modes	10 cps-2.5 kc (see also SSB-3a)	2 mv full scale log	0.1-30 cps	linear 40 db log
SB-8b 3 types (500 kc-30 mc)	0 to 200 kc to 0 to 10 mc	50 cps-80 kc	10-100 mv full scale log	1-60 cps	linear 40 db log power
SB-3 5 types (500 kc-30 mc)	0 to 50 kc to 0 to 6 mc	2 kc-40 kc	1-10 mv, ¼" deflection	30 cps	linear (nominal)

(†) SB-12a also part of SSB-3a, (below)

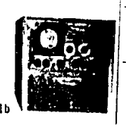
SINGLE SIDEBAND SPECTRUM ANALYZER Model SSB-3a is a complete, compact unit for communications systems analysis. Advantages are 60 db dynamic range, selectivity for hum sideband analysis to -60 db, and simple operation with preset modes and self-checking facilities.

SSB-3A INCLUDES THESE COMPONENT INSTRUMENTS.

SSB-3a Frequency Range	Panalyzor Model SB-12a(s)	Model RF-7a Tuning Head	2 tone AF Gen. Model TTG-2	Resolution (I-F Bandwidth)	Sensitivity
2 mc to 40 mc (100 cps to 40 mc with Model REC-1 optional)	see SB-12a specs. above	2-40 mc Fast search - precise vernier tuning 1% accuracy	100 cps-10 kc (±2%) 0-4 volts rms metered outputs	(Same as SB-12a Minimum 60 db bandwidths 90 cps)	2 mv full scale log. Virtually uniform from 100 cps-40 mc. 0-65 db input attenuator

TELEMETRY TEST INSTRUMENTS

(for IRIG FM/FM Systems)



TMI-1b

Model No.	Name	Features	Uses
TMI-1b	Telemetering Indicator	Analyzes 350 cps-85 kc band. • Both Log & Linear Scans • Automatic optimum resolution • Internal markers	Subcarrier spectrum analysis • pre-emphasis • distortion measurements • spillover • noise
TMC-1	3 Point Calibration and Subcarrier Deviation Indicator	Xtal controlled ± 0.02%; + 7.5%, 0, -7.5%; also A to E • Special deviations available • Provides markers for uni-channel scans for TMI-1b analyzer	Discriminator calibration ±0.02% With TMI-1b, monitors individual channels or VCO deviation linearity
TMC-411E	Simultaneous 11 Pt. Calibrator (also 3 pt.)	Accuracy ± 0.002% • All ± 7½% channels + A to E • 18 channel outputs simultaneously or individually • auto./manual sequencing • special provisions available • all electronic, 7" high • distortion -40 db	Complete discriminator checkout in seconds! Multiple frequency reference source for data reduction and system calibration. With TMI-1b for VCO checks.

Specification subject to change without notice

Write for detailed specifications and catalog.

PANORAMIC ELECTRONICS, Inc.

FORMERLY PANORAMIC RADIO PRODUCTS, Inc.

528 So. Fulton Avenue, Mount Vernon, N. Y. • Phone: OWens 9-4600

TWX: MT-V-NY-5229 • Cables: Panoramic, Mount Vernon, N. Y. State

For details, circle #80 on Reader Service Card

Panoramic electronics, inc.

HELPFUL HINTS
for using the IRE DIRECTORY

A few minutes' study of the basic layout of the IRE DIRECTORY will help you to find the information for which you are looking more quickly and more accurately. At first glance, the IRE DIRECTORY may seem to be confusing, but by using the various portions of the book as listed below, you will find your way around easily, and will discover that it is actually a very simple arrangement, and a much more logical one than a purely alphabetical terminology listing.

PINK SECTION at the front of the products and firms section contains a terminology index listing every product, major and minor, for which a list of manufacturers is given. Page numbers refer you to the page on which the listings for that product begin. Following this alphabetical index is a copy of the questionnaire which is sent to the firms who have furnished us with product information. A quick look through this questionnaire will help greatly in understanding the product arrangement. At the top of the first page of the pink section is a small index referring you to the opening page of the complete-data spread section, the alphabetical directory, and each of the three product directories.

THE COMPLETE DATA SPREAD SECTION contains product advertisements of great usefulness to the reader. Most of these advertisements are two pages or more, and all of them contain complete information on the products manufactured by the advertising firms—specifications, prices, illustrations, and suggested applications.

ALPHABETICAL DIRECTORY OF MANUFACTURERS contains a list of firms representing the majority of buying and selling power in the radio-electronic industry. Each firm listing contains the complete mailing address and telephone number for the firm. Following the state name in the firm address, a list of code numbers is given. These numbers refer to the product listed in the book (for quick reference to the meaning of the codes, use the questionnaire form in the pink section). Following the telephone number is the year in which the firm was founded, the total number of employees, the number of IRE members employed, and the net radio-electronic sales during the last fiscal year.

THE THREE DIRECTORIES OF PRODUCTS ARE:

1. Complete Equipment
2. Components
3. Materials and Services

This breakdown into three directories saves you from traveling through many products in which you are not interested at the moment, and helps you to turn immediately to the listings for the type of product you want, following a straight line to your destination. Use the Machol edge index at the top of the first page of the pink section to locate immediately the first page of the appropriate directory, then use the Machol edge index at the beginning of each directory to find the specific product you want. You don't even have to know the page number—the index will find it for you automatically!

112 MAJOR PRODUCTS are listed within these three Directories. Each product listing contains a number of sub-headings so that you may know specifically what each firm makes. To interpret the code numbers shown after each firm's listing, consult the first page of that product class, where the sub-headings are defined. You will note that advertisements are positioned throughout the book in the most appropriate listing section, so that the advertisement for a relay manufacturer will appear in the relay section, to help you with further information on his product. Every advertiser's listing shows you where his advertisement may be found, and you will derive more value from this book if you consult these advertisements for facts you cannot find in the listings.

COMPLETE ADDRESS LISTINGS are given only for advertisers in the product listings. If you wish to locate the address and telephone number for any other firm, it will be necessary to use the alphabetical directory.

THE DISTRIBUTION SECTION is the last class in the book. This section contains a list of manufacturers representatives, distributors and jobbers, grouped geographically.

MANUFACTURERS' CROSS-REFERENCE INDEX: This index will serve two purposes: 1) Indicate corporate affiliations between firms, between a parent company and its divisions, and old firm names which have been changed; 2) Tell you where to look for firms or divisions whose name you remember but whose listing in the Alphabetical Manufacturers' Index may be under a different name.

TRADE-NAME INDEX: A list of registered & "coined" trade-names submitted to IRE by manufacturers. For registered names of firms or divisions, see Manufacturers' Cross-Reference Index.

ADVERTISER'S INDEX appears just inside back cover.

How to Use the Machol Edge Index

High speed reference is a major objective of the IRE DIRECTORY. To this end we have adopted the Machol Edge Index system, and these indexes:

Advertisers Index, last pages in book, facing third cover.

Key to Products, Pink Section.

Index to Spreads, 1.

COMPLETE DATA SPREADS

ALPHABETICAL DIRECTORY

DIRECTORY I COMPLETE EQUIPMENT

DIRECTORY II COMPONENTS

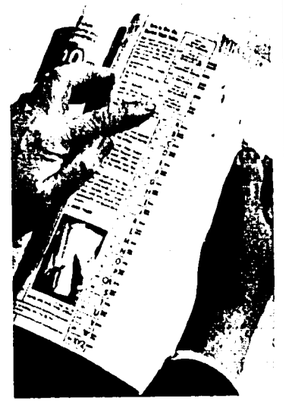
DIRECTORY III MATERIALS & SERVICES

DISTRIBUTION

Detailed Machol edge indexes will be found on the first page of the alphabetical Directory and each of the three major product Directories. The Machol system will help you find both alphabetical and product sections swiftly.

HOW TO USE

1. Bend the Directory almost double with the front cover page on the outside.
2. Hold in your right hand with your four fingers near to the bound edge and your right thumb near the middle of the open side of this page.
3. From the heavy or light line symbol adjacent to the subject you seek, run your eyes across the page edges until you reach the horizontally corresponding symbol.
4. OPEN THERE!



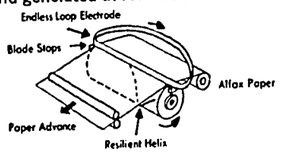
LICENSE NO. 25H
MACHOL EDGE INDEX PATENT #2680630

A B C D E F G H I J K L M N O P Q R S T U V W XYZ

1962 Edition prepared by The Advertising Department of the Institute of Radio Engineers, 72 W. 45th St., New York 36, N.Y. William C. Copp, Mgr.; Lillian Petranek, Asst.; Carl Maier, Production; Hugh R. M. Keays, Research.

Instant Graphic

For the first time . . . ultra high speed and precision accuracy in binary graphic display! 660 inches/second recorded at 40 lines/inch. Sweep information is amplitude measured at .010" against a grid generated at recorder.



Exclusive Alden graphic recording techniques make it simple to synchronize a recording helix with any of a variety of sweep, time-base, sampling, or other sensing applications which involve processing information on a sequential basis.

SAMPLE APPLICATIONS

RADAR — Direct graphic recording from radar or tapes at radar rate or sampling of radar return for range information, azimuth, target identification.

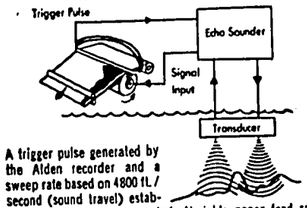
FREQUENCY ANALYSIS — Radio astronomy output records sweep of receiver with dynamic tone shade response identifying frequencies of interest.

INFRA-RED — Integration by Alfax Paper suppresses random noise functions integrates repeat signals.

ULTRASONICS — Specific flaw detection on 1 to 1 basis with wide printout available to 4' width.

SONAR — Echo-ranging, echo-sounding, ASW active & passive systems, etc.

SPECIFIC SONAR APPLICATION



A trigger pulse generated by the Alden recorder and a sweep rate based on 4800 ft./second (sound travel) establish the interval to be recorded. Variable paper feed rate provides integration of signal return.

PRECISION GRAPHIC RECORDER... an exemple of complete system development. The Alden 419PGR operates at 12 discrete speeds, presents 20 fm to 3000 fm full scale for flexible programming of underwater sound recording.

Write for complete information Dept. E3D:

ALDEN ELECTRONIC

For details, circle #01 on Reader Service Card

Alphabetical Directory

A

AAA Wire Works, Inc., 45 Fox St., New Haven 1, Conn., 91, Tel: 203-SPruce 7-2345, Yr: 1958, Emp: 30

A A Metal Products, Inc., 154 Elliot St., Box 716, Brattleboro, Vt., 90, 93, 109, Tel: ALpine 4-4333, Yr: 1948, Emp: 10, $50,000

ACDC Electronics, Inc., 2979 N. Ontario St., Burbank, Calif., 17, 43, 50, 51, 57, 69, 84, Tel: 213-VIctoria 9-2414, Yr: 1952, Emp: 110, ▲1, $1,000,000
See ad in class 69

A C Electronics, Inc., 11725 Mississippi Ave., Los Angeles 25, Calif., 1, 2, 12, 24, 26, 31, 35, 38, 43, 45, 50, 51, 53, 57, 59, 69, 84, 106, Tel: 213-GRanite 8-4288, Yr: 1956, Emp: 92, ▲1, $1,000,000

ACF Electronics Div., ACF Industries, Inc., 48 Lafayette St., Riverdale, Md., 1, 2, 4, 8, 9, 10, 11, 17, 21, 33, 37, 43, 50, 59, 61, 63, 66, 69, 77, 83, 90, 93, 96, 109, Tel: 212-WArfield 7-4444, Yr: 1899, Emp: 1800, ▲1

A C Transformer Corp., 89 Madison St., Newark 5, N.J., 84, Tel: MItchell 2-7574, Yr: 1950, Emp: 20, ▲1

ADC Incorporated, 2863 13th Ave. S., Minneapolis 7, Minn., 43, 51, 59, 62, 69, 81, 84, Tel: 612-PArkway 1-5551, Yr: 1936, Emp: 302, ▲2, $3,000,000
See ad in class 84

A.I.G. Metals, Inc., Subsid. of Consolidated Aluminum Corp., Jackson, Tenn., 104

A K Mfg. Co., Inc., 410 S. Hager Ave., Barrington, Ill., 62, 91, Tel: DUnkirk 1-5432, Yr: 1945, Emp: 50, $430,000

A.L.A. Industries, Inc., 151 Crotona Ave., Harrison, N.J., 13, 44, Tel: TEnnyson 5-0400, Yr: 1953, Emp: 75, ▲1, $300,000

A & M Instrument Service, Inc., 48-01 31st Ave., Long Island City 3, N.Y., 61, Tel: 212-RA 6-4343

AMP, Inc., Eisenhower Blvd., Harrisburg, Pa., 9, 48, 51, 52, 57, 62, 69, 81, 84, Tel: 717-JOrdan 4-0101, Yr: 1941, Emp: 3500, ▲2

AMP, Inc., Capitron Div., 155 Park St., Elizabethtown, Pa., 43, 48, 53, 57, 69, 75, 81, 84, 105, Tel: EMpire 7-1105, ▲4

A.P.M. Corp., 41 Honeck St., Englewood, N.J., 52, 75, 97, Tel: 201-LOwell 9-5700, Yr: 1951, Emp: 40, ▲3
See ads in classes 75, 97

A.P.W. Co., 72 W. Main St., Rockaway, N.J., 51, 80, Tel: 210-OAkwood 7-0643, Yr: 1945, Emp: 20, $65,000

A.R.F. Products, Inc., 7627 Lake St., River Forest, Ill., 1, 2, 4, 19, 37, 38, 50, 51, 95, 109, Tel: FOrest 9-6000, Yr: 1942, Emp: 125, ▲6, $1,500,000

A R & T Electronics, Inc., Subsid. of Baldwin Piano Co., 1101 McAlmont St., P.O. Box 627, Little Rock, Ark., 9, 10, 11, 34, 43, 51, 83, 84, 109, Tel: 501-FRanklin 5-6441, Yr: 1953, Emp: 165, ▲12
See ads in classes 9, 10, 11, 83

A & S Electronic Die Corp., 195 Chrystie St., New York 2, N.Y., 90, 93, 96, 97, Tel: 212-ORegon 4-5202, Yr: 1950, Emp: 40

A. & S. Lead Wire Corp., 57 Branford St., Newark, N.J., 105, Tel: 201-TAlbot 4-2868

A-T Electronics, Inc., 15 Lawrence St., New Haven 8, Conn., 57, 66, 91, Tel: 203-STate 7-2131, Yr: 1961, Emp: 20, ▲1, $350,000

ATR Electronics, Inc., 300 E. Fourth St., Saint Paul 1, Minn., 4, 26, 53, 69, 73, 84, 99, Tel: 612-CApital 2-3791, Yr: 1931
See ad in class 53

Abacus, Inc., 1718 24th St., Santa Monica, Calif., 4, 8, 9, 10, 11, 34, 50, 95, 109, Tel: EXbrook 3-9777, Yr: 1955, Emp: 10, ▲3

Abalon Precision Mfg. Corp., 540 Casanova St., New York 59, N.Y., 90, 93, 96, 97, Tel: LUdlow 9-5682, Yr: 1930, Emp: 25, $250,000

Abbeon, Inc., 179-15 Jamaica Ave., Jamaica 32, N.Y., 41, 61, 99, Tel: AXtel 7-1200, Yr: 1945, $250,000

Abbott-Clark Machine & Tool, Inc., 52 Edison Pl., Newark 2, N.J., 36, 43, 81, 90, 93, 96, 97, 99, 109, 111, Tel: MArket 3-2795, Yr: 1945, Emp: 15, $25,000

Abbott Products, Inc., 14-10 123rd St., College Point 56, N.Y., 97, Tel: 212-FLushing 8-1400, Yr: 1950, Emp: 43

Abbott Screw & Mfg. Co., 6525 N. Clark St., Chicago 26, Ill., 97, 105, 109, Tel: ROgers Park 1-8400, Yr: 1948, Emp: 75

Abrams Instrument Corp., 606 E. Shiawassee St., Lansing 1, Mich., 4, 11, 14, 16, 31, 61, 73, 109, Tel: 517-IVanhoe 4-9441, Yr: 1940, Emp: 120, ▲3, $500,000

Academic Press, Inc., 111 Fifth Ave., New York 3, N.Y., 108, Tel: 212-ORegon 7-6713, Yr: 1942, Emp: 150
See ad in class 108

Accessory Controls & Equipment Corp., 805 Bloomfield Ave., Windsor, Conn., 99, Tel: MUrdock 8-4986, Yr: 1952, Emp: 75

Accuracy, Inc., 223 Crescent St., Waltham 54, Mass., 74, Tel: 617-TWinbrook 4-1126, Yr: 1956, Emp: 15
See ad in class 74

Accurate Electronics Corp., P.O. Box 935E, Elyria, Ohio, 20, 50, 52, 60, 62, 78, 81, 83, 96, 97, Tel: 216-ENdicott 5-1211, Yr: 1952, Emp: 32, ▲2, $326,000

Accurate Instrument Co., 2414 W. Alabama, Houston 6, Texas, 31, 35, 53, 59, 69, Tel: 713-JAckson 6-4947
See ads in classes 31, 59

Accurate Molding Corp., 35-20 48th Ave., Long Island City 1, N.Y., 96, Tel: STillwell 4-0655, Yr: 1928, Emp: 25

Accurate Specialties Co., Inc., 345 Lodi St., Hackensack, N.J., 56, 92, 102, 104, 110, Tel: HUbbard 9-4650, Yr: 1955

Accurate Spring Mfg. Co., 3811 W. Lake St., Chicago 24, Ill., 96, 97, Tel: VAn Buren 6-5900, Yr: 1932, Emp: 200

Ace Coil & Electronics Co., 916 Lincoln Hwy., Metuchen, N.J., 44, 51, 74, 84, Tel: LIberty 8-3580, Yr: 1950, Emp: 32, ▲1, $122,385

Ace Drill Corp., 2600 E. Maumee, Adrian, Mich., 111, Tel: COlfax 5-5184, Yr: 1934, Emp: 130

Ace Electronic Mfg. Co., 1458 Shakespeare Ave., New York 52, N.Y., 70, Tel: JErome 7-5669, Yr: 1919

Ace Electronics Associates, Inc., 99 Dover St., Somerville 44, Mass., 74, Tel: 617-SOmerset 6-5130, Yr: 1952, Emp: 150, ▲12

Ace Engineering & Machine Co., Inc., Tomlinson Rd., Huntingdon Valley, Pa., 36, 59, 90, 95, 96, Tel: 215-WIlson 7-1900, Yr: 1946, Emp: 50, ▲5

Ace Fabricators, Route 2, Hwy. 45, Lake Villa, Ill., 96, 97, 107, Tel: BAldwin 3-0011, Yr: 1946, Emp: 5, ▲1, $50,000

Ace Plastics Co., 91-30 Van Wyck Expwy., Jamaica 35, N.Y., 96, 107, 112, Tel: JAmaica 3-5500, Yr: 1932, Emp: 100, $100,000

Ace Spring Mfg. Co., Inc., 130-32nd St., Brooklyn 32, N.Y., 80, 97, 105, Tel: 212-STerling 8-0100, Yr: 1938, Emp: 25

Aceto Chemical Co., Inc., 40-40 Lawrence St., Flushing 54, N.Y., 94, 102, 104, Tel: INdependence 1-4100, Yr: 1945, Emp: 20

Acheson Colloids Co., Div. of Acheson Industries, Inc., 1635 Washington Ave., Port Huron, Mich., 94, Tel: YUkon 4-4171, Yr: 1908, Emp: 107

Ackerman Engravers, Inc., 458 Broadway, New York 13, N.Y., 63, 90, 97, 109, Tel: 212-BArclay 7-1479, Yr: 1922, Emp: 50, ▲1

Ackerman Gould Co., Inc., 10 Neil Ct., Oceanside, L.I., N.Y., 99, Tel: 516-ORiole 8-4110, Yr: 1924, Emp: 25, $75,000
See ad in class 99

Acme Electric Corp., 44 Water St., Cuba, N.Y., 17, 43, 51, 53, 69, 72, 84, Tel: Cuba 4, Yr: 1917, Emp: 850, ▲3
See ad in class 69

Acme Electric Heating Corp., 99 Reading St., Boston 19, Mass., 84, 98, Tel: HIghlands 2-4125, Yr: 1919, Emp: 20

Acme Mfg. & Gasket Co., 738 N. 41st St., Philadelphia 4, Pa., 96, 97, 107, Tel: EV 6-8622

Acme Model Engineering Co., 6224 15th Ave., Brooklyn 19, N.Y., 81, 90, 97, 105, 107, 112, Tel: BEachview 2-1310, Yr: 1936, Emp: 8, $75,000

Acme Plating & Galvanizing Co., 1116 Carmen St., Tampa, Fla., 109, Tel: 8-0178

Acme Wire Co., 1255 Dixwell Ave., New Haven, Conn., 4, 75, 94, 101, Tel: LOcust 2-2171, Yr: 1904

Acopian Technical Co., 927 Spruce St., Easton, Pa., 69, Tel: BLackburn 8-6149

Acor, Inc., 13836 Saticoy, Van Nuys, Calif., 52, 106, 109, Tel: 213-STate 1-4203, Yr: 1953, Emp: 30, $260,000

Acoustic Research, Inc., 24 Thorndike St., Cambridge 41, Mass., 79, Tel: UNiversity 4-7310, Yr: 1954, Emp: 80, ▲2, $2,495,868

Acoustica Associates, Inc., 10400 Aviation Blvd., Los Angeles 45, Calif., 2, 4, 8, 9, 18, 40, 43, 77, 83, 84, 92, 99, 108, 109, Tel: SPring 6-2840, Yr: 1954, Emp: 700, ▲5, $10,000,000

Acoustical Mfg. Co., Ltd., Huntingdon, Hunts., England, 43, 79, 88, Tel: Huntington 361, Yr: 1936, Emp: 85

Acoustronics, Inc., 156 Olive St., Huntington Station, L.I., N.Y., 41, 95, 109, Tel: 516-HAmilton 1-1331, Yr: 1956, Emp: 8, ▲3

Code Numbers TELL YOU

what each company does or makes. The numbers after each address refer you to the 112 product and service classes, in which detailed information on the firm will be found.

For complete listings of over 900 major and minor products listed in the "Products and Services" sections of this Directory, see the pink section preceding page 1.

Acro Electronic Products Co., 410 Shurs Lane, Philadelphia 28, Pa., 43, 50, 51, 84, Tel: IVy Ridge 3-1661, Yr: 1950, Emp: 18, ▲2

Acro Products Corp., 1410 S. Aberdeen St., Chicago 8, Ill., 90, Tel: CAnal 6-1818, Yr: 1959, Emp: 18

Acro Tool & Die Works, 4554 Broadway, Chicago 40, Ill., 96, 99, 109, Tel: 312-LO 1-1807

Acromag, Inc., 22515 Telegraph Rd., Southfield, Mich., 21, 43, 51, 53, 73, 77, 84, Tel: ELgin 7-0030, Yr: 1957, Emp: 20, ▲3

Acromark Co., 538 Morrell St., Elizabeth 4, N.J., 90, 97, 99, 109, Tel: 201-ELizabeth 2-6500, Yr: 1936

Actioncraft Products, 2 Yennicock Ave., Port Washington, L.I., N.Y., 97, 101, 107, 112, Tel: 516-POrt Washington 7-4500, Yr: 1948, Emp: 35

Ad-Vance R/D Co., 2930 San Luis Rey Rd., Oceanside, Calif., 103, 104, Tel: SAratoga 2-1361, Yr: 1960, Emp: 5, ▲2

Ad-Yu Electronics Laboratory, Inc., 249 Terhune Ave., Passaic, N.J., 11, 35, 37, 38, 43, 45, 51, 53, 57, 59, 73, 90, Tel: 201-GRegory 2-5622, Yr: 1951, Emp: 50, ▲3
See ad in class 57

Adage, Inc., 292 Main St., Cambridge 42, Mass., 2, 4, 9, 34, 40, 43, 53, 61, Tel: 617-UNiversity 4-6620, Yr: 1957, Emp: 150, ▲10, $2,000,000

Adair Engineering Co. (George P.), 1610 Eye St., N.W., Washington 6, D.C., 95, Tel: 202-EXecutive 3-1230, Yr: 1947, Emp: 8, ▲3, $100,000

Adams Electronics, Inc., 16 Charles St., Bangor, Mich., 44, 51, 84, Tel: 5811, Yr: 1959, Emp: 400, $2,500,000

Adams Rite Mfg. Co., 540 W. Chevy Chase Dr., Glendale 4, Calif., 77, 97, Tel: CHapman 5-1095, Yr: 1901, Emp: 200

Adams-Russell Co., Inc., 200 Sixth St., Cambridge, Mass., 1, 44, 59, 66, 80, 95, Tel: 617-UNiversity 8-8040, Yr: 1958, Emp: 25, ▲5, $200,000
See ad in classes 59, 66

Adams & Westlake Co., 1025 N. Michigan St., Elkhart, Ind., 73, Tel: COngress 4-1141, Yr: 1857, Emp: 550

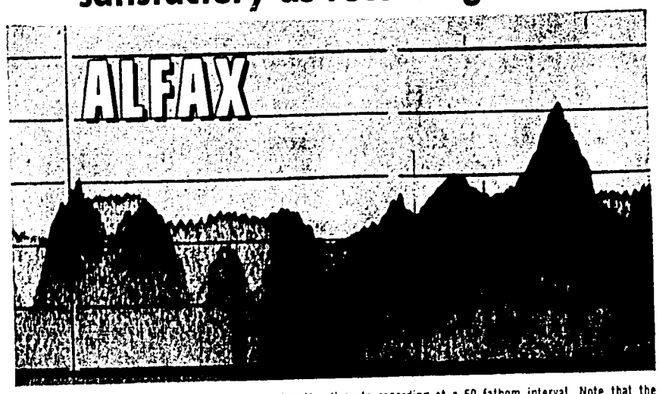
Adcole Corp., 186 Massachusetts Ave., Cambridge, Mass., 2, 4, 8, 9, 11, 16, 31, 34, 61, Tel: UNiversity 4-5630, Yr: 1957, Emp: 25, ▲8

Adcrafters Co., 325 W. Huron St., Chicago 10, Ill., 30, 43, Tel: SUperior 7-4688, Yr: 1941, Emp: 27, $200,000

Addis Translations (Robert), 129 Pope St., Menlo Park, Calif., 109, Tel: 415-DAvenport 2-6733

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

There's nothing as simple or satisfactory as recording with



Recording of Halifax Bay in Nova Scotia illustrates the discrete recording at a 50 fathom interval. Note that the tone shading derived from Alfax Paper in this instant graphic recording captures more information.

No matter what you need to record — Alfax electrosensitive paper can help you do it better, easier, faster.

Progressive innovators have proven this — obtaining *vital information never before recorded* in:

- Satellite Tracking
- Brain Wave Study
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Why? Because of
ALFAX EXCLUSIVES

- broad, dynamic response capable of 22 distinct tone shades
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- records in the sepia area of the color spectrum where the eye best interprets shade differentials in diminishing or poor light of laboratories, temporary field locations, briefing centers, planes or ships.
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- integration capability to provide for signal capture in signal to noise ratio conditions worse than 1 to 4
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- accuracy capabilities of a few thousandths of an inch by generation of simultaneous grids with signal to permit accurate location of recorded transients
- sensitivity to match the most advanced sensing devices

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- requires no further processing (thus no delay of information accumulation — no delay of decisions)
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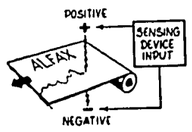

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Alphabetical Directory

Addison-Wesley Publishing Co., Inc., 500 South St., Reading, Mass., 108, Tel: 617-944-3700, Yr: 1942, Emp: 100
See ad in class 108

Adhesive Products Corp., 1660 Boone Ave., New York 60, N.Y., 94, Tel: 212-KIlpatrick 2-4600, Yr: 1895

Adler Electronics, Inc., 1 LeFevre Lane, New Rochelle, N.Y., 2, 7, 19, 20, 24, 26, 29, 37, 38, 42, 43, 44, 59, 66, Tel: 914-NEw Rochelle 6-1620, Yr: 1947, Emp: 700, ▲25, $8,000,000

Admiral Corp., 3800 W. Cortland St., Chicago 47, Ill., 1, 2, 8, 9, 22, 23, 25, 29, 38, 39, 40, 44, 50, 53, 57, 63, 69, 95, 109, Tel: SPaulding 2-0100, Yr: 1934, Emp: 6000, ▲74, $180,000,000

Adre Co., 1005 S. 26th St., Milwaukee 4, Wis., 94, Tel: EVergreen 3-5311, Yr: 1955, Emp: 6

Advance Components, Ltd., Roebuck Rd., Hainault, Ilford, Essex, England, 8, 9, 11, 23, 35, 37, 38, 39, 40, 45, 69, 72, 80, 84, Tel: HAInault 4444, Yr: 1932, Emp: 250

Advance Electronics Co., 8510 North End Ave., P.O. Box 3706, Oak Park 37, Mich., 44, 51, 97, Tel: LIncoln 6-0248, Yr: 1947, Emp: 5, ▲1

Advance Gear & Machine Corp., 5851 Holmes Ave., Los Angeles 1, Calif., 4, 44, 77, 95, 96, 97, Tel: 213-LUdlow 7-8103, Yr: 1936, Emp: 111

Advance Ross Electronics Corp., 2538 Peterson Ave., Chicago 45, Ill., 51, 84, Tel: BRiargate 4-6330, Yr: 1936, Emp: 220, ▲3, $3,200,000

Advanced Acoustics Corp., 67 Factory Pl., Cedar Grove, N.J., 30, 36, 64, 79, Tel: CEnter 9-3000, Yr: 1959, Emp: 35, ▲4

Advanced Development Laboratories, Inc., Haines St. Extension, Nashua, N.H., 1, 2, 4, 5, 17, 18, 19, 23, 25, 29, 34, 37, 38, 39, 43, 44, 45, 50, 52, 57, 59, 66, 73, 77, 80, 84, 88, 91, 95, 97, 109, Tel: 603-TUxedo 2-8111, Yr: 1961, Emp: 10, ▲6

Advanced Electronics Corp., 2 Commercial St., Hicksville, L.I., N.Y., 1, 19, 34, 43, 53, 59, 69, Tel: OVerbrook 1-6400, Yr: 1956, Emp: 40, $500,000

Advanced Electronics, Inc., 94 Silas Deane Hwy., Rocky Hill, Conn., 4, 36, 43, 51, 73, 82, 84, 91, 96, 109, Tel: 203-JAckson 9-6882, Yr: 1954, Emp: 25, ▲1

Advanced Instrument Corp., 1475 Powell St., Emeryville 8, Calif., 9, 10, 11, 27, 40, 41, Tel: OLympic 4-7186, Yr: 1959, Emp: 12, $50,000

Advanced Measurement Instruments, Inc., 109 Dover St., Somerville 44, Mass., 2, 21, 23, 31, 34, 35, 38, 39, 40, 43, 45, 53, 56, 59, 69, Tel: 617-SOmerset 6-8008, Yr: 1960, Emp: 25, ▲5

Advanced Micro-Electronics, Inc., 99 Bald Hill Rd., Cranston 10, R.I., 22, 50, 54, 56, 58, 76, Tel: 401-REgent 7-3200, ▲3

Advanced Products Co., 59 Broadway, North Haven, Conn., 82, 97, Tel: 203-CEdar 9-1664, Yr: 1955, Emp: 30

Advanced Research Associates, 4130 Howard Ave., Kensington, Md., 4, 5, 8, 9, 10, 11, 13, 34, 40, 43, 73, 76, 77, 80, 95, 96, Tel: 202-WHitehall 2-4800, Yr: 1958, Emp: 12, ▲3, $90,000

Advanced Technology Laboratories, Div. of American-Standard, 369 Whisman Rd., Mountain View, Calif., 2, 21, 80, 82, 83, 96, Tel: 415-YOrkshire 8-4461, Yr: 1957, Emp: 185, ▲3

Advanced Vacuum Products, Inc., Subsid. of Glass-Tite Industries, Inc., 430 Fairfield Ave., Stamford, Conn., 17, 50, 52, 66, 75, 81, 92, 105, 109, Tel: 203-DAvis 5-3881, Yr: 1952, Emp: 65

Advancement Devices, Inc., 86 Denton Ave., New Hyde Park, L.I., N.Y., 4, 8, 9, 10, 13, 44, 45, 51, 59, 63, 66, 69, 74, 77, 84, 88, 95, Tel: 516-PIoneer 1-3121, Emp: 20, ▲4, $220,000

Aermoton, Inc., Subsid. of Aermotor Div. Nautec Corp., 2500 W. Roosevelt Rd., Chicago 8, Ill., 44, Tel: 312-SEcley 3-7000, Yr: 1888, Emp: 220

Aero Bolt & Screw Co., 1071 W. Arbor Vitae, Inglewood, Calif., 97, Tel: ORegon 8-3931, Yr: 1941, Emp: 50, $500,000

Aero Electronics Corp., 1745 W. 134th St., Gardena, Calif., 74, Tel: FAculty 1-3311, Emp: 30, $200,000

Aero Geo Astro Corp., 1200 Duke St., P.O. Box 1082, Alexandria, Va., 1, 2, 23, 25, 34, 41, 43, 44, 50, 53, 59, 66, 69, 80, 90, 109, Tel: 703-TEmple 6-7117, Yr: 1958, Emp: 170, ▲25, $1,200,000

Aero Mechanism, Inc., 13866 Saticoy St., Van Nuys, Calif., 2, 4, 34, 40, 61, 80, 83, Tel: 213-TRiangle 3-4136, Yr: 1958, Emp: 60, $600,000

Aero Research Instrument Co., Inc., 315 N. Aberdeen St., Chicago 7, Ill., 82, 83, 91, Tel: TAylor 9-6400, Yr: 1954, Emp: 80, $1,000,000

Aero Service Corp., 210 E. Courtland St., Philadelphia 20, Pa., 4, 16, 50, 95, 96, Tel: GLadstone 7-3000

Aero-Tech Products Co., 300 Main St., Chatham, N.J., 91, 101, 107, 112, Tel: MErcury 5-7600

Aerocoil, Inc., 2207 Summit Ave., Union City, N.J., 43, 44, 51, 57, 59, 84, Tel: UNion 3-2955

Aerodyne Controls Corp., 90 Gazza Blvd., Farmingdale, L.I., N.Y., 54, 61, 80, Tel: 516-MYrtle 4-3500

See the pink section preceding page 1 for complete instructions on how to get the most out of this Directory.

Aeroflex Laboratories, Inc., 48-25 36th St., Long Island City 1, N.Y., 2, 8, 9, 14, 15, 17, 36, 40, 41, 43, 53, 67, 69, 77, 89, 109, Tel: STillwell 6-3315, Yr: 1937, Emp: 300, ▲10, $4,000,000

Aerolab Development Co., 1580 W. Colorado St., Pasadena, Calif., 54, 66, 93, 95, 96, 109, Tel: 213-MUrray 1-2481, Yr: 1946, Emp: 70, ▲5

Aerolite Electronics Corp., 2207 Summit Ave., Union City, N.J., 43, 50, 52, 55, 62, 63, 81, 91, 96, 109, Tel: UNion 3-2955, Yr: 1944, Emp: 65, ▲1

Aerolux Light Corp., 653 11th Ave., New York 36, N.Y., 41, 63, 86, 87, Tel: CIrcle 6-5324, Yr: 1937, Emp: 20

Aeronautical Communications Equipment, Inc., 3090 S.W. 37th Ave., Miami 33, Fla., 1, 24, 43, 59, 88, Tel: 305-HIghland 8-6503, Yr: 1946, Emp: 100, ▲4

Aeronautical Electric Co., 5656 Northwest Hwy., Chicago 46, Ill., 63, 78, 81, Tel: 312-SPring 4-5200, Yr: 1945, Emp: 30, $300,000
See ad in class 63

Aeronautical Electronics, Inc., P.O. Box 6527, Route #1 N., Raleigh, N.C., 1, 18, 20, 24, Tel: 919-TEmple 4-7381, Yr: 1946, Emp: 130, ▲3, $1,200,000

Aeronautical Radio Mfg. Co., 4165 S.W. 11th Terrace, Fort Lauderdale, Fla., 1, 44, 52, 65, 91, 92, Tel: 305-JAckson 5-1120, Yr: 1932, Emp: 3

Aeronca Mfg. Corp., Aerospace Div., P.O. Box 536, Baltimore 3, Md., 1, 2, 4, 8, 9, 10, 19, 25, 26, 28, 34, 43, Tel: 301-SOuthfield 6-5000, Yr: 1928, Emp: 2000, ▲10, $1,750,000

Aeronutronic, Div. of Ford Motor Co., Ford Rd., Newport Beach, Calif., 4, 8, 9, 10, 14, 17, 33, 34, 44, 54, Tel: ORiole 5-1234, Yr: 1956, Emp: 2700, ▲50

Aeroquip Corp., 300 S. East St., Jackson, Mich., 4, 52, 54, 97, 109, 112, Tel: 517-STate 2-0361, Yr: 1940, Emp: 1814, $60,000

Aeroquip Corp., Marman Div., 11214 Exposition Blvd., Los Angeles 64, Calif., 97, Tel: BRadshaw 2-8511, Yr: 1940, Emp: 435

Aerosecl, Inc., 801 23rd St., Union City, N.J., 52, 75, 81, Tel: UNion 3-2955

Aerospace Controls, 602 Colorado Ave., Santa Monica, Calif., 4, 9, 14, 16, 36, 80, 83, Tel: EXbrook 5-5216, Yr: 1960, Emp: 5, ▲1

Aerospace Corp., 2400 E. El Segundo Blvd., El Segundo, Calif., 109, Tel: OSborne 9-4661, Yr: 1960, Emp: 2300

Aerospace Research, Inc., 94 Massachusetts Ave., Cambridge 39, Mass., 1, 21, 24, 26, 29, 31, 43, 44, 59, 69, 95, 96, Tel: 617-ELiot 4-7780, Yr: 1960, Emp: 5, ▲2
See ad in class 26

Aerotest Laboratories, Inc., Comac Rd., Deer Park, L.I., N.Y., 109, Tel: 516-MOhawk 7-7200

Aerotronic Associates, Inc., P.O. Box 367, Contoocook, N.H., 4, 36, 41, Tel: Pioneer 6-3141, Yr: 1958, Emp: 70

Aerovox Corp., 740 Belleville Ave., New Bedford, Mass., 12, 43, 45, 48, 50, 59, 70, 74, 80, Tel: 617-WYman 4-9661, Yr: 1922, Emp: 2500, ▲12, $10,000,000

Aetna Electronics Corp., Readington Rd., North Branch, N.J., 4, 40, 43, 77, 84, Tel: 201-RAndolph 5-1000, Yr: 1956, Emp: 7, ▲1, $100,000

Affiliated Manufacturers, Inc., P.O. Box 211, Oldwick, N.J., 4, 14, 96, 99, Tel: GEneva 9-2121, Yr: 1957, Emp: 4, $200,000

Affiliated Screw Products Co., 3800 Wesley Terrace, Schiller Park, Ill., 95, 97, Tel: NA 5-4800, Yr: 1946, Emp: 85, $350,000

Aga Corp. of America, 2013 Park Ave., South Plainfield, N.J., 16, 18, 20, 27, 46, 56, 57, 69, Tel: 201-PLainfield 7-7111, Yr: 1960, Emp: 12

Agard Electronics Corp., 25 Denton Ave., New Hyde Park, L.I., N.Y., 50, Tel: GEneral 7-1065, Emp: 25, ▲1, $150,000

Aidin Automation, Inc., 1613 E. New York Ave., Brooklyn 12, N.Y., 4, 11, 95, 96, Tel: 212-EVergreen 5-4246, Yr: 1953, Emp: 22

Ainslie Corp., 531 Pond St., South Braintree 85, Mass., 43, 44, 66, 90, 96, Tel: 617-VIctor 8-0850
See ad in class 44

Air Born Connectors, Inc., 2618 Manana Dr., P.O. Box 13232, Dallas 20, Texas, 52, 78, 80, 96, 97, 111, Tel: FLeetwood 2-1648, Yr: 1958, Emp: 24, $200,000

Air Control, Inc., 450 Narberth Ave., Narberth, Pa., 90, 96, 99, Tel: MOhawk 4-6300, Yr: 1960, Emp: 10

Air Control Installations, Ltd., Victoria Rd., Ruislip, Middlesex, England, 47, Tel: VIKing 1222

Air Filter Corp., 4554 W. Woolworth Ave., Milwaukee 18, Wis., 90, Tel: 414-FLagstone 3-5800, Yr: 1937, Emp: 35, $150,000

Air-Marine Motors, Inc., 369 Bayview Ave., Amityville, L.I., N.Y., 47, 67, Tel: 516-AMityville 4-3700, Yr: 1950, Emp: 130, ▲2
See ad in class 47

Air-Maze Div., Rockwell Standard Corp., 25000 Miles Rd., Cleveland 28, Ohio, 90, Tel: AXminster 2-6800, Emp: 350

Air-O-Tronics Engineering Co., Morrisville, N.Y., 62, 78, 111, Tel: OVerbrook 4-4705, Yr: 1956, Emp: 20, ▲1

Air Reduction Co., Inc., Murray Hill, N.J., ▲6

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

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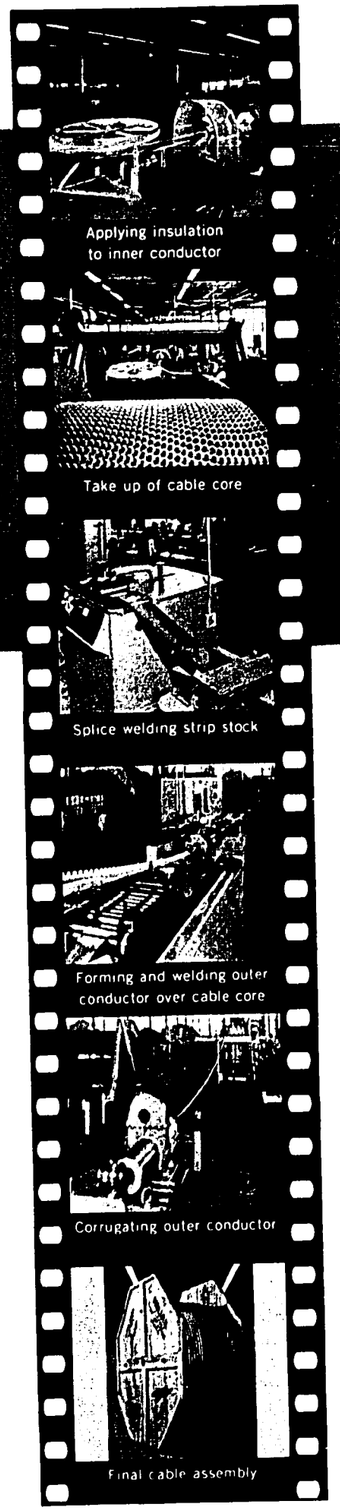

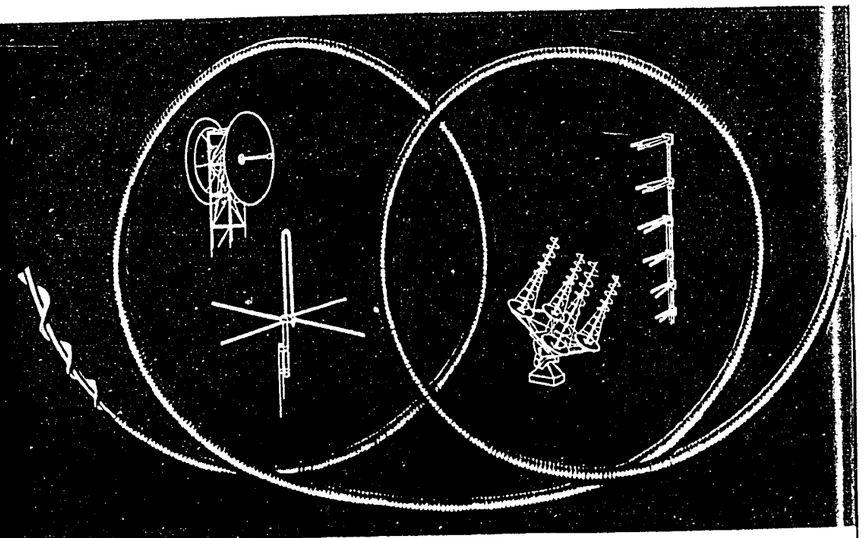

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7/8	50	H5-50
7/8	75	H5-75
7/8	100	HT5-100
1 5/8	50	H7-50
1 5/8	75	H7-75
1 5/8	100	H7-100
3 1/8	50	H2-50
3 1/8	75	H2-75

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Air Reduction Co., Inc., Pure Carbonic Co. (Div.), 150 E. 42nd St., New York 17, N.Y., 54, 94, Tel: 212-MUrray Hill 2-6700, $202,000,000

Airborne Accessories Corp., 1414 Chestnut Ave., Hillside 5, N.J., 43, 48, 53, 67, 69, 73, Tel: MUrdock 8-0250

Airborne Instruments Laboratory, Div. of Cutler-Hammer, Inc., Comac Rd., Deer Park, L.I., N.Y., 1, 19, 25, 35, 37, 38, 41, 43, 44, 45, Tel: 516-MYrtle 2-6100, Yr: 1945, Emp: 3000, ▲72

Aircom, Inc., 48 Cummington St., Boston 15, Mass., 2, 37, 43, 44, 45, 59, 66, 88, Tel: 617-COpley 7-9115, Yr: 1954, Emp: 25, ▲2

See ads in classes 44, 66

Aircraft Armaments, Inc., York Rd., Cockeysville, Md., 2, 8, 9, 13, 34, 37, 43, 44, 59, 66, 69, 77, 90, 95, 96, 108, 109, Tel: 301-NOrmandy 6-1400, Yr: 1950, Emp: 750, ▲33, $5,000,000

Aircraft & Electronic Specialties, 22 S. Green St., Brownsburg, Ind., 7, 41, 60, 91, 105, Tel: 317-ULrick 2-2218, Yr: 1950, Emp: 120, $500,000

Aircraft Electronics, 6219 S. Sears Blvd., Tucson, Ariz., 1, 2, 3, 18, 20, 24, 40, 41, 43, 50, 64, 69, 91, 99, Tel: 602-AX 4-3970, Yr: 1955, Emp: 3, ▲1, $10,000

Aircraft Instruments Co., King of Prussia Rd. at Montgomery Lane, Radnor, Pa., 61, 63, Tel: MUrray 8-0151, Yr: 1957, Emp: 10, $100,000

Aircraft & Missile Consultants, 2722 Ardmore Ave., Manhattan Beach, Calif., 13, 52, 80, 95, 108, 109, Tel: FRontier 4-0026, Yr: 1957, Emp: 8

Aircraft Radio Corp., Boonton, N.J., 1, 2, 44, 65, 79, Tel: 201-DEerfield 4-1800, Yr: 1928, Emp: 575, ▲40, $12,000,000

Airdesign Corp., 600 W. Washington St., Norristown, Pa., 51, 59, 69, 73, 84, 96, 99, Tel: 215-BRoadway 9-4100, Yr: 1942, Emp: 50, ▲1, $600,000

Aireco, Inc., 2323 Second Ave., Schenectady 3, N.Y., 36, Tel: 518-ELgin 5-6545, Yr: 1940, Emp: 9

Airflow Co., 400 S. Stonestreet Ave., Rockville, Md., 36, 54, 99, Tel: 301-GArden 4-6166, Yr: 1959, Emp: 25

Airflyte Electronics Co., 537 Ave. A, Bayonne, N.J., 4, 9, 10, 34, 50, 52, 80, 109, Tel: 201-HEmlock 6-2230, Yr: 1949, Emp: 85, $750,000

See ad in class 80

Airmatic Valve, Inc., 7313 Associate Ave., Cleveland 9, Ohio, 99, Tel: WOodbine 1-5320, Yr: 1947, Emp: 38

Airmec, Ltd., High Wycombe, Bucks., England, 4, 11, 21, 22, 23, 31, 35, 38, 40, 41, Tel: High Wycombe 2501, Emp: 300, ▲1

Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 2, 4, 9, 21, 34, 40, 43, 53, 61, 69, 77, 80, 84, Tel: 301-ACademy 8-4600, Yr: 1948, Emp: 475, ▲15, $4,500,000

See ad in class 53

Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 2, 4, 9, 21, 34, 40, 43, 53, 61, 69, 77, 80, 84, Tel: 305-LUdlow 3-6160, Yr: 1948, Emp: 475, ▲20, $4,500,000

See ad in class 53

Airtec, Inc., 139 E. First Ave., Roselle, N.J., 37, 43, 44, 45, 59, 66, 84, 88, Tel: CHestnut 5-2990, Yr: 1956, Emp: 33, ▲2, $850,000

Airtronics, Inc., 5522 Dorsey Lane, Washington 16, D.C., 1, 2, 4, 9, 11, 17, 18, 19, 23, 29, 32, 34, 41, 43, 44, 45, 50, 53, 56, 59, 66, 69, 77, 82, 88, 109, Tel: OLiver 4-1676, Yr: 1950, Emp: 130, ▲3, $1,500,000

Airtronics International Corp., 6900 W. Rd. 84, Fort Lauderdale, Fla., 30, 34, 35, 38, 41, 43, 50, 59, 66, 96, Tel: LU 3-4541, Yr: 1958, Emp: 180, ▲4, $1,000,000

Ajax Condenser Co., Inc., 932 W. Wrightwood, Chicago 26, Ill., 48, Tel: GRaceland 7-0600

Ajax Magnethermic Corp., 3990 Simon Rd., Youngstown, Ohio, 98, Tel: STerling 8-9661, Yr: 1948, Emp: 300, ▲5

Akro-Mils, Inc., Box 989, Akron 13, Ohio, 90, 106, Tel: 216-BLackstone 3-8432, Yr: 1946

Akron Metallic Gasket Co., 150 N. Union St., Akron 9, Ohio, 97, Tel: 216-JEfferson 5-7184, Yr: 1904, Emp: 50

Aladdin Electronics Div., Aladdin Industries, Inc., 719 Murfreesboro Rd., Nashville 10, Tenn., 50, 51, 59, 84, Tel: CHapel 2-3411, Yr: 1908, Emp: 700, ▲6

Albano Co., Inc., Honeycomb Div., 555 W. 54th St., New York 19, N.Y., 43, 90, 93, 103, Tel: 212-PLaza 7-5887, Yr: 1895, Emp: 140

See ad in class 90

Alcar Instruments, Inc., 411 Robbins Ave., Trenton 8, N.J., 4, 18, 41, 99, 109, Tel: TUxedo 3-2900, Yr: 1953, Emp: 25, ▲4, $250,000

Alcon Metal Products, Inc., 1750 N. Kimball Ave., Chicago 47, Ill., 78, 81, Tel: BElmont 5-5030, Yr: 1945, Emp: 325, ▲1, $1,500,000

Alcor Mfg. Co., 1140 S. Seventh St., DeKalb, Ill., 80, 81, Tel: 6-9595

Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 1, 9, 15, 16, 18, 23, 28, 34, 35, 36, 38, 43, 50, 59, 69, 81, 83, 90, 93, Tel: 617-FOrest 6-4467, Yr: 1946, ▲1

See ad on page 82

Alden Products Co., 10140 N. Main St., Brockton 64, Mass., 50, 52, 60, 62, 63, 78, 80, 81, 90, 91, 93, 97, Tel: 617-JUniper 3-0160, Yr: 1929

See ad in class 50

Alden Systems Co., 117 N. Main St., Brockton, Mass., 4, 63, 90, 98, 99, Tel: JUniper 3-0160

Aldrich Mfg. Co. (C. G.), 1235 Yankee Bush Rd., Warren, Pa., 75, 78, 90, 96, 97, Tel: Chandler's Valley 5-R-5, Yr: 1950, Emp: 10, $75,000

Alectric Mfg. Co., 7842 30th Ave., Kenosha, Wis., 41, Tel: OLympic 7-3248, Yr: 1955, Emp: 3, $8,000

Alfax Paper & Engineering Co., Inc., Dept. A-1, Alden Research Center, Washington St., P.O. Box 125, Westboro, Mass., 15, 28, Tel: 617-FOrest 6-4467, Yr: 1943, Emp: 60, ▲2

See ad on page 84

Alford Mfg. Co., 299 Atlantic Ave., Boston 10, Mass., 2, 6, 37, 44, 45, 59, 66, 80, Tel: 617-HAncock 6-2150, Yr: 1948, Emp: 60, ▲6, $985,000

See ad in class 66

Alfred Electronics, 3176 Porter Dr., Palo Alto, Calif., 35, 37, 38, 43, 66, 69, Tel: 415-DAvenport 6-6496, Yr: 1955, Emp: 80, ▲12, $1,800,000

All American Engineering Co., Commercial Products Div., Lancaster Ave. & Center Rd., Wilmington 99, Del., 4, 5, 6, 13, 14, 40, 44, 50, 69, 96, 99, Tel: 302-WYman 4-0951, Yr: 1938, Emp: 44, ▲3, $500,000

All American Tool & Mfg. Co., 8027 Lawndale Ave., Skokie, Ill., 36, 99, Tel: ORchard 3-7084, Yr: 1941, Emp: 12, $230,000

All Channel Products Corp., 47-39 49th St., Woodside 77, N.Y., 44, Tel: EXeter 2-1336, Yr: 1949, Emp: 125

All Star Products, Inc., P.O. Box 487, Squire Ave., Defiance, Ohio, 49, Tel: 2-1065, Yr: 1904, Emp: 325, $2,140,000

All-State Welding Alloys Co., Inc., 249-55 Ferris Ave., White Plains, N.Y., 94, 104, 110, Tel: 914-WHite Plains 8-4646, Yr: 1946, Emp: 75, $100,000

All-Tronics, Inc., 45 Bond St., Westbury, L.I., N.Y., 51, 59, 109, Tel: 516-EDgewood 3-3090, Yr: 1953, Emp: 30, ▲1

See ad in class 59

Allegany Instrument Co., Div. of Textron Electronics, Inc., 1091 Wills Mountain, Cumberland, Md., 6, 8, 23, 31, 39, 41, Tel: 301-PArkview 4-1200, Yr: 1952, Emp: 225, ▲4

Allegheny Electronic Chemicals Co., 207 Hooker-Fulton Bldg., Bradford, Pa., 102, Tel: 814-FOrest 2-3586, Yr: 1958, Emp: 200, ▲22

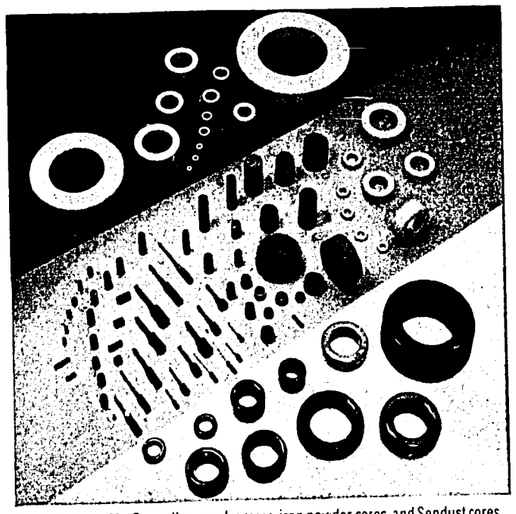
Allegri-Tech Inc., 141 River Rd., Nutley 10, N.J., 7, 43, 48, 81, 91, Emp: 200

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Specify "ARNOLD"

for your MAGNETIC CORE requirements

Top to bottom: Tape wound cores, Silectron C, E and O cores, and bobbin cores.



Top to bottom: Mo-Permalloy powder cores, iron powder cores, and Sendust cores.

SILECTRON C-CORES, E-CORES and TOROIDS Arnold C and E cores are made from precision-rolled Silectron strip in 1, 2, 4 and 12 mil thicknesses.

They are supplied in a wide variety of shapes, and in sizes from a fraction of an ounce to several hundred pounds. In addition to standard transformer applications, they may also be supplied for special applications such as saturable reactors, instrument transformers and pulse transformers.

Over 1,000 stock cores are listed in the Arnold Silectron catalog. A wide selection of preferred sizes are carried in stock for immediate shipment. For complete data on C and E cores and Silectron toroids, *write for Bulletin SC-107A.*

TAPE WOUND CORES of High Permeability Materials Arnold tape wound cores are available made of Deltamax, 4-79 Mo-Permalloy, Supermalloy, Mumetal, 4750 Electrical Metal, Silectron, or the new rectangular-loop material, Supermendur. All except Supermendur cores are available in standard tape thicknesses of 1, 2 and 4 mils; also in special tape thicknesses of ½ mil, 12 mil or other, as required or feasible. Supermendur is presently available in 4 mil cores.

Toroidal cores are made in 30 standard sizes with protective nylon or aluminum cases. Special sizes of toroidal cores are produced to individual requirements. *Write for Bulletin TC-101A. (TC-113A for Supermendur Cores.)*

BOBBIN CORES Arnold bobbin cores are available in a wide range of sizes, tape thicknesses, widths and number of wraps to suit the ultimate use of the core in electronic computer assemblies. Magnetic materials usually employed are Deltamax and Square Permalloy in standard thicknesses of 1, ½, ¼ and ⅛ mil. Bobbins are supplied in ceramic or stainless steel. *Write for Bulletin TC-108A.*

MO-PERMALLOY POWDER CORES Available in a wide range of sizes, from .260" OD to 5.218" OD. They are given various types of enamel and varnish finishes, some of which permit winding with heavy Formex insulated wire without supplementary insulation over the core.

These powder cores are supplied in four standard permeabilities: 125, 60, 26 and 14 Mu. They provide constant permeability over a wide range of flux density, and in many cases may be furnished stabilized to provide essentially constant permeability over a specific temperature range. Large warehouse stocks of preferred sizes are carried for immediate shipment. *Write for Bulletin PC-104C.*

IRON POWDER CORES A wide selection of cores is available, from simple cylinders to special cores of complicated design. The line includes all standard types of threaded cores, cup, sleeve, slug and cylindrical insert cores: for use in antenna and RF coils, oscillator coils, IF coils, perm tuning, FM coils, television coils, noise filter coils, induction heating and bombarder coils, and other low frequency applications. Preferred sizes are carried in warehouse stock for quick shipment. A standard series of iron powder toroids is also manufactured, conforming to the standard sizes proposed by the Metal Powder Industries. *Write for Bulletin PC-109.*

SENDUST POWDER CORES Available in a wide selection of sizes, ranging from .800" OD to 3.346" OD, and in permeabilities of 10, 13, 25, 30, 50 and 80, although not all sizes are available in all permeabilities. They possess magnetic properties generally superior to iron powder cores, but inferior to Mo-Permalloy powder cores in the audio and carrier frequency range. *Write for Bulletin SDC-110.*

PERMANENT MAGNET MATERIALS

ALNICO—Arnold produces permanent magnets in all types of Alnico, from castings up to 80 lbs. or more, down to sintered parts weighing less than a gram; also magnet assemblies to meet your designs. Many sizes and types of Alnico magnets carried in stock for immediate delivery.

ARNOX—Arnox III is a molded-type magnet having high coercive force and moderately low energy product. Available to close tolerances in size. Arnox V is a ceramic permanent magnet material, highly oriented, having many times the energy product of Arnox III, also higher resistance to demagnetization than Arnox III possesses.

VICALLOY—A carbon free vanadium-cobalt-iron permanent magnet alloy, adaptable to varied uses because available in hot and cold rolled forms, castings and forgings and readily machinable.

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Find them FAST in the YELLOW PAGES.

Allen Avionics, Inc., 255 E. 2nd St., Mineola, L.I., N.Y., 48, 49, 51, 57, 59, 84, Tel: 516-PIoneer 7-5450, Yr: 1959, Emp: 100, ▲5

Allen-Bradley Co., 136 W. Greenfield Ave., Milwaukee 4, Wis., 45, 48, 55, 59, 64, 73, 74, 81, Tel: ORchard 1-2000, Yr: 1910, Emp: 6000, ▲15

Allen Electric & Equipment Co., 2101 N. Pitcher, Kalamazoo, Mich., 40, 51, 71, 73, 90, Tel: FIreside 5-8531, Yr: 1920, Emp: 250, ▲1

Allen-Jones, Inc., 1325 Gaylord St., Long Beach 13, Calif., 56, 69, 99, 102, 104, Tel: 213-HEmlock 5-5301, Yr: 1949, Emp: 21, ▲1, $200,000

Allen Mfg. Co., P.O. Drawer 570, Hartford 1, Conn., 97, Yr: 1910, Emp: 435

Allen Organ Co., Inc., Macungie, Pa., 34, 35, 73, Tel: WOodring 5-9801, Yr: 1939, Emp: 350, ▲3

Alliance Mfg. Co., Inc., Div. of Consolidated Electronics Industries Corp., Lake Park Blvd., Alliance, Ohio, 44, 67, Tel: 216-TAlbot 1-5360, ▲1

Alliance Motor Div., General Steel Wares Ltd., 199 River St., Toronto 2, Ontario, Canada, 67, 99, Tel: 416-EMpire 2-2981, Yr: 1945, Emp: 50, $300,000

Allied Chemical Corp., General Chemical Div., 40 Rector St., New York 6, N.Y., 94, 102, 104, 107, Tel: 212-HAnover 2-7300
See ad in class 94

Allied Control Co., Inc., 2 East End Ave., New York 21, N.Y., 51, 64, 73, 78, 80, 99, Tel: 212-BUtterfield 8-7403, Yr: 1938, Emp: 900, ▲6, $10,000,000
See ad in class 73

Allied Decals, Inc., 20700 Miles Ave., Cleveland 28, Ohio, 63, 97, Tel: 216-GReenwood 5-1500, Yr: 1950, Emp: 52, $50,000

Allied Fabricating Corp., 1538 N. Clybourn Ave., Chicago, Ill., 90, 93, 97, Yr: 1953, Emp: 8

Allied International Corp., 230 Park Ave., New York 17, N.Y., 1, 2, 20, 24, 25, 42, 44, 46, 69, Tel: 212-MUrray Hill 9-6126, Yr: 1930, Emp: 38, ▲1

Allied Plastics Supply Corp., 75 Cliff St., New York 38, N.Y., 96, 97, 101, 105, 106, 107, 109, 112, Tel: BEekman 3-7377, Yr: 1955, Emp: 20

Allied Recording Products Co., Inc., 32-32 Greenpoint Ave., Long Island City 1, N.Y., 70, Tel: STillwell 4-2318, Yr: 1927, Emp: 10, ▲1

Allied Research Associates, Inc., 43 Leon St., Boston 15, Mass., 4, 22, 33, 36, 40, 83, 89, 95, 103, 109, Tel: 617-GArrison 7-2434, Yr: 1951, Emp: 230, ▲9, $300,000

Allied Research & Engineering Co., 6916 Santa Monica Blvd., Hollywood 38, Calif., 44, 66, 96, Tel: 213-HOllywood 2-1251, Yr: 1952, Emp: 8, $200,000

Allied Research Products, Inc., 4004 E. Monument St., Baltimore 5, Md., 94, Tel: PEabody 2-9070, Yr: 1947, Emp: 200, $150,000

Allies' Products Corp., P.O. Box 188, Kendall 56, Fla., Importers, 74, Tel: CEdar 5-5424, Yr: 1951

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., 5, 22, 73, Tel: 414-SPring 4-3600, Yr: 1847, Emp: 30,000, ▲15

Allison Associates, 71 North St., Medfield, Mass., 43, 48, 50, 52, 70, 81, 97, Yr: 1961, Emp: 6

Allison Laboratories, Inc., 11301 E. Ocean Ave., LaHabra, Calif., 5, 35, 36, 59, Tel: OWen 1-0115, Yr: 1949, Emp: 12, ▲1, $250,000

Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, L.I., N.Y., 97, Tel: PIoneer 1-1200, Yr: 1943, Emp: 125
See ad in class 97

Alloy Bellows, Inc., 18125 Roseland Rd., Cleveland 12, Ohio, 80, Tel: IVanhoe 6-3990, Yr: 1935, Emp: 10

Alloyd Corp., 35 Cambridge Pkwy., Cambridge, Mass., 92, 99, 100, 104, 109, 111, Tel: 617-UNiversity 8-6900, Yr: 1955, Emp: 65, ▲2, $60,000

Alloyd Electronics Corp., 37 Cambridge Pkwy., Cambridge 42, Mass., 98, 99, Tel: 617-UNiversity 8-6900, Yr: 1960, Emp: 35, ▲2, $25,000

Alloys Unlimited, Inc., 21-01 43rd Ave., Long Island City 1, N.Y., 41, 56, 68, 75, 91, 92, 94, 97, 100, 102, 104, 105, 110, Tel: EMpire 1-9540, Yr: 1958, Emp: 200, $1,329,225

Alonge Products, Inc., 163 W. 23rd St., New York 11, N.Y., 70, Tel: WAtkins 4-2815, Yr: 1954

Alpar Mfg. Corp., 220 Demeter St., Palo Alto, Calif., 44, 95, 96, Tel: 415-DAvenport 6-8105, Yr: 1953, Emp: 5, $120,000

Alpha Corp., Div. of Collins Radio Co., 1900 N. Akard St., Richardson, Dallas, Texas, 96, Tel: 214-AD 5-2331, Yr: 1959, Emp: 750, ▲44

Alpha Metals, Inc., 56 Water St., Jersey City 4, N.J., 91, 94, 104, 110, Tel: HEnderson 4-6778, Yr: 1930, Emp: 100

Alpha Molykote Corp., 65 Harvard Ave., Stamford, Conn., 94, Tel: 203-FIreside 8-3724, Yr: 1946, Emp: 45, $1,000,000

Alpha Wire Corp., Subsid. of Loral Electronics Corp., 200 Varick St., New York 14, N.Y., 91, 107, 112, Tel: 212-ALgonquin 5-5400, Yr: 1921, Emp: 100
See ad in class 91

Alpine Electronic Components, Wolcott Rd., Waterbury, Conn., 52, 78, 80, 81, 97, Tel: 203-PLaza 7-1449, Yr: 1954, Emp: 80, $300,000

Alpine, Inc. (A. D.), 11837 Teale St., Culver City, Calif., 98, Tel: UPton 0-3584, Yr: 1949, Emp: 15

Alpitec, Inc., 49 Gleason Ave., Stamford, Conn., 90, 93, 96, 97, 109, Tel: 203-FI 8-7788, Yr: 1950, Emp: 15, $200,000

Altair Research & Mfg. Co., P.O. Box 106, Baldwin Park, Calif., 77, Tel: 213-EDgewood 7-6875, Yr: 1957, Emp: 4, $10,000

Althor Products, 2301 Benson Ave., Brooklyn 14, N.Y., 90, Tel: ESplanade 3-7444, Yr: 1955, Emp: 7, $4500

Alto Scientific Co., Inc., 4083 Transport St., Palo Alto, Calif., 2, 19, 24, 34, 53, 59, 69, Tel: 415-DAvenport 1-3434, Yr: 1954, Emp: 55, ▲5, $500,000

Altron Electronics Co., P.O. Box 141, Ridley Park, Pa., 27, 31, 35, 37, 40, 41, 43, 50, 53, 58, 90, Tel: LEhigh 2-9241, Yr: 1958, Emp: 4, ▲1, $12,000

Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa., 91, 92, 94, 96, 97, 102, 104, 110, 112, Tel: ATlantic 1-4545, Yr: 1888, Emp: 45,000, ▲3

Alvo Nut & Bolt Co., Inc., 1601 Grande Vista, Los Angeles 23, Calif., 97, Tel: ANgelus 2-5131, Yr: 1930, Emp: 65

Alwac Computer Div., El-Tronics, Inc., 13040 S. Cerise Ave., Hawthorne, Calif., 4, 8, 9, 10, 34, 43, 78, 95, 96, 109, Tel: 213-OSborne 5-0311, Yr: 1952, Emp: 150, ▲3, $750,000

Amatom Electronic Hardware Co., Inc., 88 Drake Ave., New Rochelle, N.Y., 52, 60, 62, 63, 78, 81, 97, 105, 106, Yr: 1956, Emp: 22

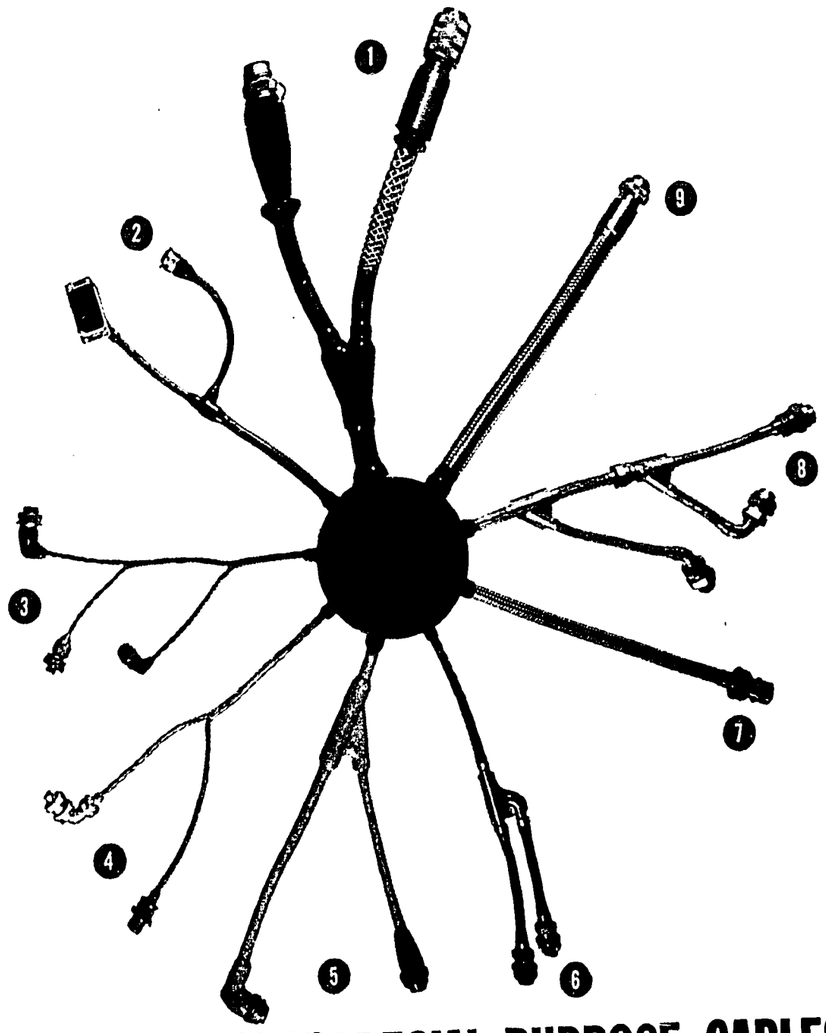
Ambroid Co., Inc., Box 30, Weymouth 88, Mass., 94, Tel: EDgewater 5-6658, Yr: 1910, $50,000

Amco Engineering Co., 7333 W. Ainslie St., Chicago 31, Ill., 47, 90, 93, 96, Tel: 312-UNderhill 7-8500, Yr: 1943, Emp: 170, ▲1, $2,000,000
See ad in class 90

Amelco, Inc., Handley Potentiometer Div., 12964 Panama St., Los Angeles 66, Calif., 74, Tel: UPton 0-9831, Yr: 1953, Emp: 250, ▲15, $2,600,000

Amerac, Inc., Dunham Rd., Beverly, Mass., 1, 11, 37, 44, 66, 69, Tel: 617-WAlker 2-8611, Yr: 1946, Emp: 94, ▲11, $500,000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.



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Amerconda Chemical Co., 170 Broadway, New York 38, N.Y., 94, 96, 102, 104, 106, 107, 109, 112, Tel: COrtland 7-3579, Yr: 1952, Emp: 22, ▲1, $410,000

Ameresco, Inc., 7 Center Ave., Little Falls, N.J., Importers, 4, 10, 31, 40, 61, Tel: 201-CLifford 8-0582, Yr: 1932

American Agile Corp., 5461 Dunham Rd., Maple Heights 37, Ohio, 47, 96, 106, 107, 112, Tel: 214-662-6900, Yr: 1932, Emp: 22, $750,000

American Aluminum Co., Inc., Dept. E, 230 Sheffield St., Mountainside, N.J., 90, 93, 96, 109, Tel: 201-ADams 3-3500, Yr: 1911, Emp: 110, $1,000,000

See ad in class 96

American Avionics, Inc., Div. of Astro-Science Corp., 2028-2032 Stoner Ave., Los Angeles 25, Calif., 1, 2, 4, 9, 10, 17, 20, 24, 25, 27, 34, 41, 43, 50, 53, 69, 70, 77, 91, 96, Tel: 213-GRanite 8-0891, Yr: 1957, Emp: 160, ▲5, $2,500,000

American Bosch Arma Corp., 320 Fulton Ave., Garden City, L.I., N.Y., 2, 4, 8, 9, 28, 34, 43, 50, 53, 67, 83, Tel: 212-PIoneer 2-2000, Yr: 1919, Emp: 8918, ▲220, $125,480,543

American Bosch Arma Corp., Tele-Dynamics Div., 5000 Parkside Ave., Philadelphia 31, Pa., 1, 2, 9, 27, 28, 34, 43, 50, 109, Tel: 215-TRinity 8-3000, Yr: 1917, Emp: 9000, ▲6, $85,000,000

American Brake Shoe Co., Raymond Atchley Div., 2339 Cotner Ave., Los Angeles 64, Calif., 4, 8, 43, 77, 95, 109, Tel: GRanite 7-8245, Yr: 1954, Emp: 220, ▲2, $100,000

American Brake Shoe Co., Dynisco Div., 42 Carleton St., Cambridge 42, Mass., 83, Tel: 617-UNiversity 4-7260, Yr: 1953, Emp: 55, ▲2, $500,000

American Brazing Alloys Corp., P.O. Box 11, Pelham, N.Y., 91, 104, 110, Tel: 914-MOunt Vernon 4-5858, Yr: 1958, Emp: 12

American Capacitor Co., 32 High St., Amesbury, Mass., 48, Tel: 388-0017, Yr: 1959, Emp: 35, ▲1

American Communications Corp., 280 Broadway, New York 7, N.Y., 4, 8, 9, 10, 11, 13, 16, 17, 21, 26, 30, 32, 43, 44, 45, 52, 53, 59, 62, 63, 65, 69, 74, 79, 81, 84, 88, 90, 91, 93, 95, 96, 97, 109, Tel: 212-REctor 2-0320, Yr: 1936, Emp: 100, ▲4

American Concertone, Inc., 9449 W. Jefferson Blvd., Culver City, Calif., 1, 9, 10, 13, 27, 109, Tel: VErmont 9-7568, Yr: 1948, Emp: 80, ▲4

American Cystoscope Makers, Inc., 8 Pelham Pkwy., Pelham Manor, N.Y., 63, 112, Tel: PElham 8-4800, Yr: 1900, Emp: 500, ▲2

American Development Electronics Co., 77 Poinier St., Newark 2, N.J., 20, 30, 43, 44, 45, 52, 61, 63, 65, 69, 79, 80, 96, 97, Tel: BIgelow 8-1330, Yr: 1957, Emp: 20, ▲1, $275,000

American District Telegraph Co., 155 Sixth Ave., New York 13, N.Y., 4, Tel: 212-ALgonquin 5-0200, Yr: 1874, Emp: 4862, ▲8

American Electric Cable Co., 181 Appleton St., Holyoke, Mass., 91, Tel: JEfferson 9-9893, Yr: 1918, Emp: 50, ▲1

American Electrical Heater Co., 6110 Cass Ave., Detroit 2, Mich., 111, Tel: 313-TRinity 5-2505, Yr: 1894, Emp: 150, ▲1

American Electronic Laboratories, Inc., MR #1 Richardson Rd., Lansdale, Pa., 5, 37, 41, 43, 44, 66, 109, Tel: 215-VAn-Dyke 2-0131, Yr: 1950, Emp: 220, ▲40, $2,700,000

See ad adjacent to Index to Advertisers, back of book

American Electronics Co., 178 Herricks Rd., Mineola, L.I., N.Y., 1, 3, 13, 18, 20, 26, 33, 53, 56, 59, 108, Tel: 516-PIoneer 1-5030, Yr: 1952, Emp: 25, ▲2

American Electronics, Inc., 1725 W. Sixth St., Los Angeles 17, Calif., 2, 4, 8, 43, 47, 53, 67, 69, 74, 77, Tel: 213-DUnkirk 5-7401, Yr: 1945, Emp: 1600, ▲3

American Electronics, Inc., Electro-Mechanical Div., 1598 E. Ross Ave., Fullerton, Calif., 43, 47, 53, 67, 69, 77, Tel: TRojan 1-3020, Yr: 1946, Emp: 253, $4,000,000

American Electronics, Inc., Fullerton Divs., 1598 E. Ross Ave., Fullerton, Calif., 2, 47, 53, 67, 109, Tel: 213-MAdison 5-7192, Yr: 1945, Emp: 1400, $20,000,000

American Electronics, Inc., Instrument Div., 9503 W. Jefferson Blvd., Culver City, Calif., 1, 4, 9, 40, 43, 50, 67, 77, 109, Tel: UPton 0-5581, Yr: 1945, Emp: 1587, ▲1, $4,300,000

American Electronics, Inc., Taller Cooper Div., 75 Front St., Brooklyn 1, N.Y., 9, 11, Tel: ULster 8-0500, Emp: 135

American Elite, Inc. (Telefunken), 48-50 34th St., Long Island City 1, N.Y., Importers, 7, 13, 18, 19, 24, 26, 27, 30, 32, 41, 42, 45, 48, 65, 68, 76, 85, 86, 87, Tel: 212-STillwell 6-8913, ▲1

American Feldmuehle Corp., 11 W. 42nd St., New York 36, N.Y., Importers, 49, 66, 75, 86, 92, 101, 105, Tel: PEnnsylvania 6-9751, Yr: 1875, Emp: 3, ▲1

American Felt Co., Glenville Rd., Glenville, Conn., 89, 97, 101, 103, Tel: 203-JEfferson 1-8700, Yr: 1899, Emp: 870

American Gas Furnace Co., 140-4 Spring St., Elizabeth, N.J., 98, 109, Tel: 201-ELizabeth 2-2120, Yr: 1878, Emp: 120

American Geloso Electronics, Inc., 251 Park Ave. S., New York 10, N.Y., Importers, 3, 4, 5, 17, 18, 26, 27, 29, 30, 38, 43, 48, 49, 50, 51, 52, 53, 64, 65, 68, 69, 88, Tel: 212-ALgonquin 4-2282, Yr: 1931, Emp: 4300, ▲3, $25,000

American Hinge Corp., 88 Porter Ave., Brooklyn 37, N.Y., 97, Tel: GLenmore 6-7761

American Hoist & Derrick Co., 63 S. Robert St., Saint Paul 7, Minn., 97, Tel: CApitol 2-0541, Yr: 1882, Emp: 1400

American Hydromath Corp., 24-20 Jackson Ave., Long Island City 1, N.Y., 4, 8, 11, 95, 111, Tel: EX 2-4242, Yr: 1940, Emp: 10

American Instrument Co., Inc., 8030 Georgia Ave., Silver Spring, Md., 4, 14, 36, 40, 41, 61, 73, 82, 99, Tel: 301-JUniper 9-1727, Yr: 1919, Emp: 300, ▲1

American Latex Fibre Corp., 500 Broadway, Lawrence, Mass., 97, 109, Tel: MU 5-5172, Yr: 1953, Emp: 75

American Lava Corp., Subsid. of Minnesota Mining & Mfg. Co., Cherokee & Manufacturers Rd., Chattanooga 5, Tenn., 48, 49, 55, 75, 81, 92, 101, 105, Tel: 615-AMherst 5-3411, ▲4

See ad on page 98

American Machine & Foundry Co., 261 Madison Ave., New York 16, N.Y., 11, 53, 61, 67, 80, 97, Tel: 212-MUrray Hill 7-3100, Yr: 1900, Emp: 18,500

American Machine & Foundry Co., Government Products Group, 261 Madison Ave., New York 16, N.Y., 2, 4, 8, 9, 19, 21, 25, 35, 40, 41, 43, 44, 61, 63, 66, 73, 80, 91, 95, 96, 99, 108, Tel: MU 8-6505, Yr: 1900, Emp: 17,000, ▲25

American Machine & Foundry Co., Greenwich Engineering Div., 11 Bruce Pl., Greenwich, Conn., 2, 4, 8, 14, 17, 18, 25, 43, 44, 51, 66, 69, 77, 80, 84, 96, 99, 109, Tel: FI 8-5851, ▲29

American Machine & Foundry Co., Leland Airborne Products Div., P.O. Box 128, Vandalia, Ohio, 53, 61, 67, 69, 99, Tel: TWin Oaks 8-5881, Yr: 1922, Emp: 390, ▲2

American Machine & Foundry Co., Thompson-Bremer & Co. (Div.), 228 N. LaSalle St., Chicago 1, Ill., 81, 96, 97, Tel: FRanklin 2-6858, Yr: 1915, Emp: 175

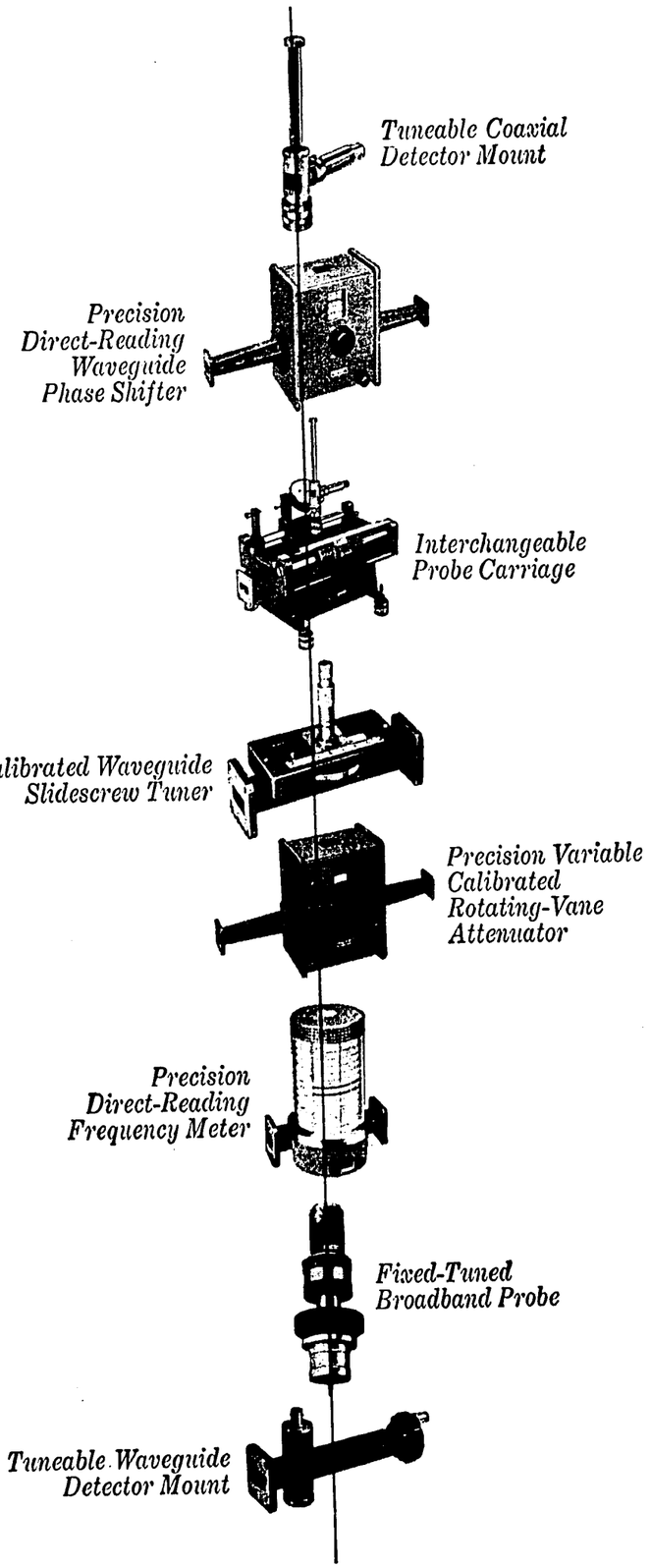
American Magnetics Corp., P.O. Box 98, Carterville, Ill., 43, 51, 84, Tel: 150-YUkon 5-4838, Yr: 1946, Emp: 65, ▲1, $280,000

American-Marietta Co., Adhesive, Resin & Chemical Div., 3400 13th Ave. S.W., Seattle 4, Wash., 94, 101, 107, Tel: 206-MAin 3-3311, Yr: 1935, Emp: 14,000

American Measurement & Control, Inc., 240 Calvary St., Waltham, Mass., 4, 9, 36, 40, 43, 61, 77, 83, 95, Tel: 617-TWinbrook 4-6212, Yr: 1957, Emp: 30, ▲3

American Metal Climax, Inc., 1270 Ave. of the Americas, New York 20, N.Y., 102, 104, Tel: PLaza 7-9700, Yr: 1887, Emp: 10,000

American Microphone Mfg. Co., Div. of GC-Textron Electronics, Inc., 412 S. Wyman St., Rockford, Ill., 62, 65, 68, Tel: 815-WOodland 8-9661, Emp: 500



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American Microwave & Television Corp., 1369 Industrial Rd., San Carlos, Calif., 19, 21, 26, 32, 42, 43, Tel: 415-LYtell 1-7387, Yr: 1953, Emp: 27, ▲5, $400,000

American Missile Products Co., Inc., 15233 Grevillea, Lawndale, Calif., 2, 4, 9, 10, 34, 43, 50, 53, 59, 69, 80, 84, 95, 96, 98, 109, 111, Tel: ORegon 8-5001, Yr: 1956, Emp: 125, ▲2, $1,300,000

American Molded Products Co., 2721 W. Chicago Ave., Chicago 22, Ill., 70, 96, 97, 106, Tel: 312-ARmitage 6-3235, Yr: 1939, Emp: 350, $4,500,000

See ad in class 106

American-Monarch Corp., American Electronics Div., 2801 37th Ave. N.E., Minneapolis 18, Minn., 10, 43, 50, 51, 53, 69, 73, 77, 80, 84, Tel: ST 1-3391, Yr: 1949, Emp: 136, ▲4, $1,050,000

American Nut & Bolt Fastener Co., 14 Wood St., Pittsburgh 22, Pa., 97, Tel: EXpress 1-2650

American Optical Co., J. W. Fecker Div., 6592 Hamilton Ave., Pittsburgh 6, Pa., 2, 4, 14, 17, 43, 53, 61, 77, Tel: 412-EMerson 1-7616, Yr: 1882, Emp: 235, ▲6, $3,000,000

American Optical Co., Instrument Div., Eggert & Sugar Rds., Buffalo 15, N.Y., 28, 43, Tel: 716-FIllmore 5-4000

American Pamcor, Inc., 181 Hillcrest Ave., Havertown, Pa., 81, 111, Tel: HIlltop 6-5800, Yr: 1953, Emp: 325

American Potash & Chemical Corp., 3000 W. Sixth St., Los Angeles 54, Calif., 94, 104, Tel: DUnkirk 2-8231, Yr: 1916, Emp: 2000

American Printed Circuits Co., 104 Forrest St., Metuchen, N.J., 50, 101, 107, Tel: LIberty 8-5777, Yr: 1954, Emp: 4, ▲2, $20,000

American Products Mfg. Co., 8127-33 Oleander St., New Orleans 18, La., 94, Tel: HUnter 2-1501, Yr: 1919

American Quartz Laboratories, Inc., Route 9-D, Garrison, N.Y., 96, 101, 107, 112, Tel: GArrison 4-3338, Yr: 1946, Emp: 10

American Radar Components, Inc., 415 E. Main St., Denville, N.J., 66, Tel: OAkwood 7-5530, Yr: 1953, Emp: 25, ▲2, $250,000

American Radio Co., Inc., 445 Park Ave., New York 22, N.Y., 66, 85, 86, Tel: PLaza 3-5046, Yr: 1914, Emp: 20, ▲4

American Rectifier Corp., 95 Lafayette St., New York 13, N.Y., 4, 53, 69, 71, 72, 77, 84, 95, Tel: WOrth 6-3350, Yr: 1947, Emp: 36, ▲1

American Research Corp., Route 6, Farmington, Conn., 36, Tel: ORchard 7-2693, Yr: 1953, Emp: 25

American Research & Mfg. Corp., 920 Halpine Ave., Rockville, Md., 36, 43, 51, 52, 53, 69, 84, 108, 109, Tel: 301-HAzelwood 7-7117, Yr: 1954, Emp: 65, ▲5, $50,000

American Screw Co., Div. of Noma Lites, Inc., West Main St., Willimantic, Conn., 97, Tel: HArrison 3-6331, Yr: 1838, Emp: 500

American Sealants Co., 705 N. Mountain Rd., Hartford 11, Conn., 75, 94, Tel: 203-CHapel 9-8536, Yr: 1956, Emp: 30

American Silver Co., Inc., 36-06 Prince St., Flushing 54, N.Y., 104, 110, 112, Tel: 212-FLushing 3-8012, Yr: 1946, Emp: 50, ▲1

See ad in class 104

American Smelting & Refining Co., 120 Broadway, New York 5, N.Y., 75, 102, 103, 104, 110, Tel: 212-REctor 2-9500

American Speedlight Corp., 63-01 Metropolitan Ave., Middle Village 79, N.Y., 99, Tel: 212-EMpire 6-3000, Yr: 1946, Emp: 70, ▲1

American-Standard Controls Div., American Radiator & Standard Sanitary Corp., 5900 Trumbull Ave., Detroit 8, Mich., 80, Tel: 313-TRinity 2-0300, Yr: 1877, Emp: 1500

American Super-Temperature Wires, Inc., Subsid. of Haveg Industries, Inc., 52 W. Canal St., Winooski, Vt., 91, 101, 112, Tel: 802-UNiversity 2-9636, Yr: 1955, Emp: 250, $5,000,000

See ad in class 91

American Systems, Inc., 1625 E. 126th St., Hawthorne, Calif., 4, 9, 10, 13, 16, 40, 44, 50, 109, Tel: 213-PLymouth 6-8301, Yr: 1960, Emp: 80, ▲35, $400,000

American Thermo-Electric Co., 1023 N. Fuller Ave., Los Angeles 46, Calif., 82, Tel: HOllywood 4-1632, Yr: 1938, Emp: 12

American Time Products, Div. of Bulova Watch Co., Inc., 61-20 Woodside Ave., Woodside 77, L.I., N.Y., 4, 10, 11, 16, 31, 99, Tel: 212-OLympia 1-7800, Yr: 1937, Emp: 100, ▲3, $1,000,000

See ad in class 31

American Tower Co., Box 29, Shelby, Ohio, 44, Tel: 4-2481, Yr: 1951, Emp: 15, $250,000

Amglo Corp., 4337 N. Ravenswood Ave., Chicago 13, Ill., 4, 63, 67, 69, 86, Tel: 312-BUckingham 1-2727, Yr: 1935, Emp: 50, $500,000

See ads in classes 67, 86

Amicon Corp., 5903 City Ave., Philadelphia 31, Pa., 95, Tel: 215-TEnnyson 9-3098

Ampco Mfg. Co., 246 E. 2nd St., Plainfield, N.J., 50, 52, 62, 66, 78, 80, 91, 97, Tel: PLainfield 7-4600, Yr: 1953, Emp: 60, $750,000

Ampere Industries, 60 Boston St., Newark 3, N.J., 98, Tel: MArket 2-4037, Yr: 1956, Emp: 15, $420,000

Amperex Electronic Corp., 230 Duffy Ave., Hicksville, L.I., N.Y., 9, 76, 85, 86, 87, 91, Tel: WEIls 1-6200, Yr: 1930, Emp: 500, ▲35

Amperite Co., Inc., 561 Broadway, New York 12, N.Y., 73, 86, Tel: 212-CAnal 6-1446, Yr: 1924, Emp: 90, ▲1

See ad in class 73

Ampex Audio Co., 1020 Kifer Rd., Sunnyvale, Calif., 13, 26, 27, 43, 70, 88, Tel: REgent 6-2110, Yr: 1946, ▲3

Ampex Computer Products Co., 9937 Jefferson Blvd., Culver City, Calif., 10, 55, Tel: UPton 0-8571, Yr: 1948, Emp: 575

Ampex Computer Products Co., 934 Charter St., Redwood City, Calif., 1, 9, 10, 27, 34, 55, 68, 70, 83, Tel: 415-EMerson 9-7111, Yr: 1946, Emp: 4800, ▲120, $68,000,000

Ampex Instrumentation Products Co., 934 Charter St., Redwood City, Calif., 1, 4, 9, 10, 27, 34, 70, Tel: EMerson 9-7111, Yr: 1946, Emp: 1900, ▲120

Ampex Magnetic Tape Products, Div. of Ampex Corp., P.O. Box 190, Opelika, Ala., 10, 70, Tel: SHerwood 5-7643, Yr: 1948, Emp: 275, ▲4

Ampex Military Products Co., 2685 Bay Rd., P.O. Box 727, Redwood City, Calif., 9, 10, 27, 109, Tel: 415-EMerson 9-7111, Yr: 1959, Emp: 107, ▲19, $2,000,000

Amphenol-Borg Electronics Corp., Amphenol Connector Div., 1830 S. 54th Ave., Chicago 50, Ill., 52, 62, 75, 78, 80, 81, 91, 109, 111, Tel: 312-BIshop 2-1000, Yr: 1932, Emp: 2000, ▲20

See ad on page 114

Amplifier Corp. of America, 398 Broadway, New York 13, N.Y., 27, 35, 43, 69, 70, 72, 84, Tel: WOrth 6-2929, Yr: 1936, Emp: 25, ▲4

Amplivox Exports, Ltd., Beresford Ave., Wembley, Middlesex, England, 2, 5, 13, 16, 30, 43, 65, 79, Tel: 8991, Yr: 1935, Emp: 350

Amprobe Instrument Corp.: See Pyramid Instrument Corp.

Amtron Corp., 17 Felton St., Waltham 54, Mass., 34, 42, 66, Tel: 617-TWinbrook 4-5020, Yr: 1956, Emp: 4, $30,000

See ad in class 66

Amy, Aceves & King, Inc., 11 W. 42nd St., New York 36, N.Y., 18, 44, 84, 95, Tel: 212-LOngacre 5-6622, Yr: 1928, ▲2

Anaconda Aluminum Co., P.O. Box 1654, 1430 S. 13th St., Louisville 1, Ky., 104, Tel: 502-MElrose 4-1511, Yr: 1939, Emp: 1600, ▲1

Anaconda American Brass Co., 414 Meadow St., Waterbury 20, Conn., 104, Tel: 203-PLaza 4-1121

Anaconda Wire & Cable Co., 25 Broadway, New York 4, N.Y., 91, Tel: 212-HAnover 2-6300, ▲4

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

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Victor Monofilament Nylon Gloves

Angelica has been appointed the only distributor of Victor Gloves, the finest protective gloves made. Victor's non-contaminating gloves of monofilament nylon with plastic coated palms, have maximum touch sensitivity for precision operations. Victor Gloves Inc. collaborated with Bell Laboratories, Inc., in developing these gloves and Bell is currently using them in the assembly of select devices sensitive to physical and chemical contamination.

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1900 W. Pico Blvd., Los Angeles 6, Calif.
317 Hayden St., N. W., Atlanta 13, Ga.

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Alphabetical Directory

Anadex Instruments, Inc., 14734 Arminta St., Van Nuys, Calif., 2, 4, 11, 21, 22, 53, 61, Tel: 213-STate 0-7911, Yr: 1957, Emp: 11, ▲2, $160,000

Analab Instrument Corp., 30 Canfield Rd., Cedar Grove, N.J., 5, 14, 23, 90, Tel: 201-CEnter 9-6500, Yr: 1959, Emp: 30, ▲4

Analogue Controls, Inc., 200 Frank Rd., Hicksville, L.I., N.Y., 74, Tel: OVerbrook 1-7300, Yr: 1955, Emp: 110, $1,250,000

Anchor Metal Co., Inc., 966 Meeker Ave., Brooklyn 22, N.Y., 56, 91, 97, 104, 105, 110, Tel: STagg 2-7090

Anchor Plastics Co., Inc., 36-36 36th St., Long Island City 6, N.Y., 96, 106, 107, 112, Tel: 212-RAvenswood 9-1494, Yr: 1941, Emp: 125

Anchor Plating & Tinning Co., 1734 N. Tyler Ave., South El Monte, Calif., 109, Tel: 213-CUmberland 3-8241, Yr: 1955, Emp: 40

Anchor Specialty Mfg. Co., Inc., 300 Hollister Rd., Teterboro, N.J., 2, 4, 36, 40, 41, 50, 61, 62, 69, 81, 90, 93, 96, 109, Tel: 201-ATlas 8-1939, Yr: 1951, Emp: 10, ▲1, $20,000

Anders Electronics, Inc., 30 Brook Rd., Needham Heights 94, Mass., 69, Tel: 617-HIllcrest 4-6990, Yr: 1958, Emp: 39, ▲4, $500,000
See ad in class 69

Andersen Laboratories, Inc., 501 New Park Ave., West Hartford 10, Conn., 2, 4, 43, 45, 57, Tel: 203-ADams 6-1281, Yr: 1950, Emp: 97, ▲7, $1,200,000

Anderson Controls, Inc., 9959 Pacific Ave., Franklin Park, Ill., 51, 84, Yr: 1953, Emp: 300, ▲2

Anderson Electronics, Inc., 1012 Chestnut St., Altoona, Pa., 56, 59, Tel: 814-WIndsor 4-7148, Yr: 1959, Emp: 12, ▲1, $95,000

Anderson & Sons, Inc., North Elm St., Westfield, Mass., 90, 97, Tel: LOgan 2-9671, Yr: 1924, Emp: 125

Anderton Electronic Laboratory, 129 E. 1800 S., Bountiful, Utah, 3, 24, 26, 27, 30, 32, 35, 43, 69, 88, 95, Tel: AX 5-5113, Yr: 1947, Emp: 4, ▲1, $22,000

Andrea Radio Corp., 27-01 Bridge Plaza N., Long Island City 1, N.Y., 1, 2, 8, 18, 20, 23, 24, 26, 29, 30, 33, 34, 39, 43, 95, Tel: STillwell 4-5411, Yr: 1932, Emp: 350, ▲11

Andrew Antenna Corp., Ltd., 606 Beech St., Whitby, Ontario, Canada, 37, 38, 44, 59, 66, 91, Tel: 416-MOhawk 8-3348, Yr: 1953, Emp: 40, ▲3, $650,000

Andrew Corp., 363 E. 75th St., P.O. Box 807, Chicago 42, Ill., 44, 52, 66, 80, 91, Tel: 312-Fieldbrook 9-3300, Yr: 1936, Emp: 350, ▲30
See ad on page 86

Anelex Corp., 150 Causeway St., Boston 14, Mass., 9, 43, 52, 108, Tel: RIchmond 2-1720, Yr: 1952, Emp: 475, ▲15

Anetsberger Brothers, Inc., Northbrook, Ill., 90, Tel: 312-CRestwood 2-0770, Yr: 1926, Emp: 200, $250,000

Angelica Uniform Co., 1427 Olive St., Saint Louis 3, Mo., Lint-Free Uniforms, Tel: 314-CEntral 1-0344, Yr: 1885, Emp: 1000
See ad on page 94

Angler Industries, Inc., 3 Lexington, Metuchen, N.J., 2, 4, 8, 11, 40, 62, 77, 96, 97, Tel: 201-LIberty 9-0582, Yr: 1960, Emp: 5, ▲1

Anko Mfg. Co., Inc., 5025 N. 124th St., Milwaukee, Wis., 41, 84, Tel: 414-SUnset 1-8785, Yr: 1952, Emp: 9, $90,000

Annis Co. (R. B.), 1101 N. Delaware, Indianapolis, Ind., 28, 64, 70, 84, 99, Tel: ME 5-2838, Yr: 1930, Emp: 11

Anodyne, Inc., North Shore Nameplate Div., 1270 N.W. 165th St., North Miami Beach, Fla., 90, 91, 93, 97, 104, 109, Tel: 305-NAtional 1-3641, Yr: 1945, Emp: 60, ▲1, $500,000

Ansley Mfg. Co. (Arthur), New Hope, Pa., 50, Tel: AXtel 7-5050, Yr: 1948, Emp: 25, ▲1, $150,000
See ad in class 50

Antara Chemicals, Div. of General Aniline & Film Corp., 435 Hudson St., New York 14, N.Y., 104, Tel: 212-WAtkins 4-0600, Yr: 1928, Emp: 7900, $1,000,000

Antares Instruments, Inc., 55-02 37th Ave., Woodside 77, N.Y., 99, 109, Tel: IL 7-4400, Yr: 1950, Emp: 12

Antenna Products Co., Div. of All Products Co., Box 110, Mineral Wells, Texas, 44, 52, 59, 66, 95, 96, Tel: 817-FAirfax 5-3301, Yr: 1948, Emp: 150, ▲7, $1,000,000

Antenna & Radome Research Associates, Inc. (ARRA), 27 Bond St., Westbury, L.I., N.Y., 37, 44, 45, 66, 88, Tel: 516-EDgewood 4-8770, Yr: 1957, Emp: 20, ▲2, $250,000
See ad in class 45

Antenna Specialists Co., 12435 Euclid Ave., Cleveland 6, Ohio, 44, Tel: 216-Sweetbriar 1-7878, Yr: 1953, Emp: 100, ▲1, $2,000,000

Antenna Systems, Inc., 349 Lincoln St., Hingham, Mass., 44, 45, 59, 66, 109, Tel: 617-RIverview 9-4700, Yr: 1960, Emp: 135, ▲6, $1,000,000
See ad in class 44

Anthony & Co. (J. L.), 115 Baker St., Providence 5, R.I., 104, Tel: 401-HOpkins 7-9700, Yr: 1914, Emp: 20

Anti-Corrosive Metal Products Co., Inc., P.O. Box 1894, Albany, N.Y., 97, Tel: 518-PErshing 2-7711, Yr: 1927, Emp: 135

Antlab, Inc., 6330 Proprietors Rd., Worthington, Ohio, 4, 19, 28, 41, 43, 44, 61, 66, 77, Tel: 614-TUxedo 5-5396, Yr: 1955, Emp: 75, ▲4, $1,000,000

Anton Electronic Laboratories: See Lionel Corp., Lionel Electronic Laboratories

Anton Machine Works, 1226 Flushing Ave., Brooklyn 37, N.Y., 66, 105, Tel: 212-GLenmore 6-9250, Yr: 1933, Emp: 45, $500,000

Apahouser Corp. of N.E., 1312 Boylston St., Boston 15, Mass., 60, 90, 96, 97, 109, Tel: 617-KEnmore 6-1223, Emp: 50, ▲1, $500,000

Apex Coated Fabrics Co., Inc., 12 E. 22nd St., New York 10, N.Y., 90, 97, 101, 107, Tel: SPring 7-3141, Yr: 1926, Emp: 22

Apex Electronics, Inc., 100 8th St., Passaic, N.J., 86, 105

Apex Machine Co., 14-13 118th St., College Point 56, N.Y., 99, Tel: FLushing 8-2010

Appalachian Electronic Instruments, Inc., Ronceverte, W.Va., 4, 22, 41, 43, Tel: 304-MIdway 7-5855, Yr: 1954, Emp: 26, $432,000

Apparatus Development Co., 115 Main St., Wethersfield 9, Conn., 9, 41, 44, 66, Tel: JAckson 9-5186, Yr: 1946

Applegate & Co. (C. J.), 1840 24th St., Boulder, Colo., 5, 43, 50, 69, 96, Tel: HIllcrest 2-8750, Yr: 1951, Emp: 14, ▲2, $78,000

Applied Control Corp., 1000 Main St., Hackensack, N.J., 3, 4, 6, 8, 13, 17, 21, 40, 41, 43, 50, 51, 53, 59, 69, 72, 77, 80, 84, 95, 108, Tel: HUbbard 9-4553, Yr: 1957, Emp: 12, ▲2, $130,000

Applied Dynamics, Inc., 635 S. Main, P.O. Box 612, Ann Arbor, Mich., 4, 8, 10, 13, 95, Tel: NOrmandy 2-4493, Yr: 1957, Emp: 12, ▲4, $200,000

Applied Electro Mechanics, Inc., 2350 Duke St., Alexandria, Va., 1, 4, 9, 38, 43, Tel: 703-KIng 8-2166, ▲1

Applied Electronics Co., 213 E. Grand Ave., South San Francisco, Calif., 9, 18, 20, 24, 29, 44, 65, 83, Tel: PL 6-4100, Yr: 1947, Emp: 125, ▲1, $3,500,000

Applied Electronics Corp. of New Jersey, P.O. Box 43, Metuchen, N.J., 1, 4, 5, 8, 9, 10, 11, 18, 20, 34, 43, 80, Tel: 201-LIberty 9-9200, Yr: 1959, Emp: 100, ▲10, $600,000
See ad in class 34

Applied Magnetics Corp., 1407 Norman Firestone Rd., Goleta, Calif., 1, 9, 10, 27, 50, 70, 80, 95, 96, 109, Tel: WOodland 7-2016, Yr: 1957, Emp: 32, ▲2, $160,000

Applied Physics Corp., 2724 S. Peck Rd., Monrovia, Calif., 22, 40, Tel: 213-HIllcrest 6-7181, Yr: 1946, Emp: 250, ▲4

Applied Research, Inc., 76 S. Bayles Ave., Port Washington, L.I., N.Y., 34, 37, 38, 43, 45, 59, 66, Tel: 516-POrt Washington 7-8707, Yr: 1950, Emp: 70, ▲5
See ad in class 43

Applied Research Laboratories, Inc., P.O. Box 1710, Glendale 5, Calif., 14, 40, Tel: CHapman 5-5524, Yr: 1934, Emp: 207, ▲3

Applied Technology, Inc., 930 Industrial Ave., Palo Alto, Calif., 1, 2, 6, 19, 24, 25, 34, 43, 59, 66, 88, 95, 109, Tel: 415-DAvenport 1-5135, Yr: 1959, Emp: 24, ▲6, $700,000

Arber Mfg. Co., Inc., 40 McDermott Rd., North Haven, Conn., 97, Tel: LOcust 2-6424, Yr: 1946, Emp: 10

Arch Gear Works, Inc., 97 Holmes St., North Quincy 70, Mass., 77, 80, Tel: GR 1-9600, Yr: 1946, Emp: 200

Arch Instrument Co., Inc., 101 Holmes St., Quincy 71, Mass., 41, Tel: GR 1-9600, Yr: 1946, Emp: 200

Arco Electronics, Inc., Community Dr., Great Neck, L.I., N.Y., 12, 31, 48, 49, Tel: 516-HUnter 7-0500, Yr: 1945, Emp: 170, ▲2, $2,400,000
See ads in classes 31, 48

Arde Engineering Div., Arde Associates, 11 Hill St., Newark 2, N.J., 36, 44, 95, 96, 108, 109, Tel: 201-MItchell 2-1765, Yr: 1950, Emp: 230, ▲12, $1,500,000

Ardente Acoustic Laboratories, Ltd., Minerva Rd., London N.W. 10, England, 43, 50, 51, 74, 80, 84, Tel: ELGar 3923, ▲1

Ardwin Microlab, Inc., 21 Spencer St., Stoneham 80, Mass., 4, 11, 37, 45, 66, 95, 109, Tel: 617-NOrmandy 5-6330, Yr: 1957, Emp: 16, ▲1, $200,000

Arenberg Ultrasonic Laboratory, Inc., 94 Green St., Jamaica Plain 30, Mass., 38, 40, 41, 43, 45, 57, Tel: 617-JAmaica 2-8640, Yr: 1950, Emp: 21, ▲3
See ad in class 38

Argus Cameras, Inc., Subsid. of Sylvania Electric Products, Inc., 405 Fourth St., Ann Arbor, Mich., 21, 26, 32, Tel: NOrmandy 2-6511, Yr: 1932, Emp: 800, $25,000,000

Ariel Davis Mfg. Co., 3687 S. State St., Salt Lake City 15, Utah, 51, 60, 69, 80, 84, Tel: 801-AMherst 6-3591, Yr: 1947, Emp: 50, $250,000

Aries Laboratories, Inc., 225 Greenwich Ave., Stamford, Conn., 94, 109, Tel: DAvis 5-4124

Ark Electronics Corp., 624-26 Davisville Rd., Willow Grove, Pa., 59, 95, 103, 109, Tel: 215-OLdfield 9-4121, Yr: 1952, Emp: 17, ▲5, $200,000
See ad in class 109

Arkay International, Inc., 88-06 Van Wyck Expwy., Jamaica 18, N.Y., 13, 18, 20, 24, 26, 35, 38, 40, 53, 68, 88, 111, Tel: 212-AX 7-6666, Yr: 1945, Emp: 20

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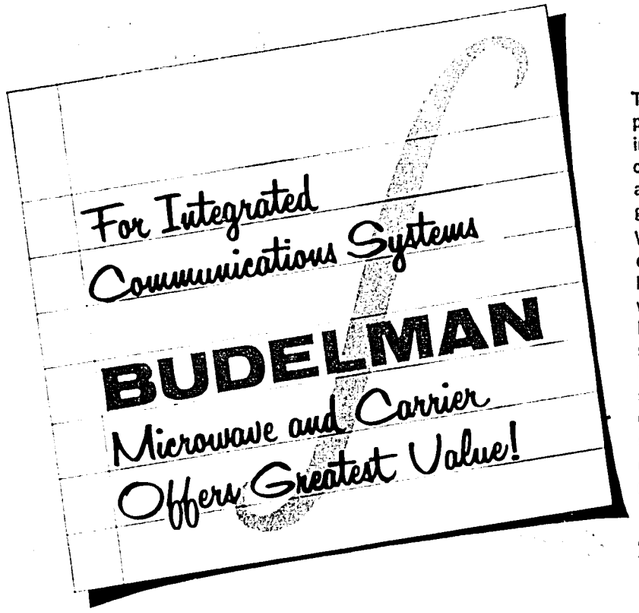

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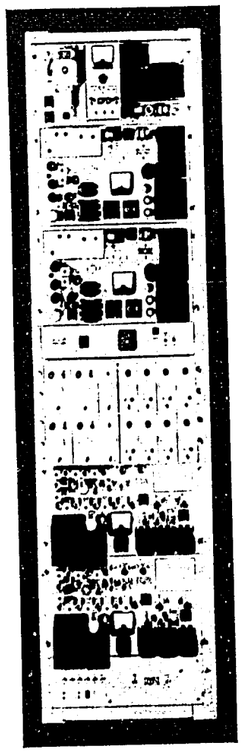

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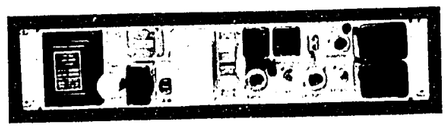

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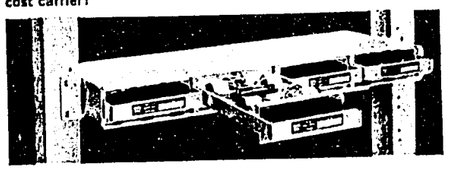

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ELECTRONICS CORPORATION
375 Fairfield Ave., Stamford, Connecticut • FI 8-9231

MIDWEST: Buckeye Telephone & Supply Co., 1250 Kinnear Rd., Columbus 21, Ohio; HU 8-0655 • NORTHWEST: The Engineering Service, P.O. Box 178, Butte, Mont.; 6134 • ROCKIES: Empire Telectronics, 5708 Balsam St., Arvada, Colo.; Denver HA 4-6286 • NORTHEAST: Somerset Telephone & Supply, North Anson, Me.; ME 5-9901 • WEST COAST: Space Com, Inc., Box 56, Calistoga, Calif.; WH 2-4212 • SOUTHWEST: J. W. Flint, 325 Virginia, Ponca City, Okla.; RO 2-5368 TEXAS: Nelson Electric Supply, 1123 Slocum St., Dallas, Texas; RI 6341 • SOUTHEAST: Dickerson Engineering Co., 28 Seminole Rd., Atlantic Beach, Fla.; P.O. Box 1526 • CANADA: Tele-Radio Systems, Ltd., 3633 Dundas St. W., Toronto 9, Ont.; RO 2-8224 • EXPORT: Westrex Corp., 540 W. 58th St., NYC 19; JU 2-3030

Arkay Products Mfg. Co., 4111 W. Jefferson Blvd., Los Angeles 16, Calif., 4, 30, 43, 52, 79, 80, Tel: 213-REpublic 1-2501, Yr: 1952, Emp: 35, ▲1, $422,000

Arlin Mfg. Co., 12 Perkins St., Lowell, Mass., 101, 107, Tel: 617-GLenview 4-6751, Yr: 1954, Emp: 10

Arlo Electronic Corp., 240A Old Country Rd., Hicksville, L.I., N.Y., 13, 43, 79, Tel: OVerbrook 1-7363, Yr: 1957, Emp: 7

Armco Steel Corp., 703 Curtis St., Middletown, Ohio, 103, 104, Tel: 513-GA 2-2711

Armel Electronics, Inc., 1601 75th St., North Bergen, N.J., 52, 78, 81, Tel: UNion 9-4300, Yr: 1949, Emp: 70

Armour Alliance Industries, 16123 Armour St., Alliance, Ohio, 97, Tel: TAlbot 1-3510, Yr: 1863, Emp: 500

Armour Industrial Chemical Co., 110 N. Wacker Dr., Chicago 6, Ill., 94, Tel: 312-263-5200

Armour Research Foundation, Illinois Institute of Technology, 10 W. 35th St., Chicago 16, Ill., 96, 109, Tel: CAlumet 5-9600, Yr: 1936, Emp: 1250, ▲70, $16,190,000

Armstrong Bros. Tool Co., 5200 W. Armstrong Ave., Chicago 46, Ill., 11, Tel: ROdney 3-3333, Yr: 1890

Armstrong Cork Co., W. Liberty St., Lancaster, Pa., 94, 95, 97, 109, Tel: EXpress 7-0611, Yr: 1860, Emp: 18,000, ▲3

Armstrong Resins, Inc., P.O. Box 1-RA, Warsaw, Ind., 94, 99, 107, Tel: AMherst 7-3226, Yr: 1949, Emp: 30

Armstrong Whitworth/Brush, Falcon Works, Loughborough Leicestershire, England, 4, 8, 9, 10, 11, 24, 26, 34, 40, 41, 42, 43, 50, 51, 53, 66, 73, 80, 84, Tel: Loughborough 3131, Yr: 1961, ▲1

Armstrong Whitworth Equipment, Sir W. G. Armstrong Whitworth Aircraft, Ltd., Hucclecote, Gloucester, England, 4, 40, 43, 74, Tel: Gloucester 6-6781, Yr: 1957, Emp: 364, ▲1

Arnhold Ceramics, Inc., 1 E. 57th St., New York 22, N.Y., 48, 74, 79, Tel: 212-PLaza 5-8213, Yr: 1944, Emp: 10

Arnold Engineering Co., P.O. Box G, Marengo, Ill., 55, 64, 70, 83, Tel: 815-JOrdan 8-7251, Yr: 1936, Emp: 800, ▲6

See ad on page 88

Arnold Magnetics Corp., 6050 W. Jefferson Blvd., Los Angeles 16, Calif., 51, 53, 69, 84, Tel: VE 7-5315, Yr: 1954, Emp: 50, ▲3, $550,000

Arnoux Corp., 11924 W. Washington Blvd., Los Angeles 66, Calif., 53, Tel: 213-UPton 0-5371, Yr: 1952, Emp: 200, ▲9

Arrow Fastener Co., Inc., 1 Junius St., Brooklyn 12, N.Y., 111, Tel: 212-DIckens 6-1608, Yr: 1930, Emp: 200

Arrow-Hart & Hegeman Electric Co., 103 Hawthorn St., Hartford 6, Conn., 73, 78, 80, 81, Tel: CHapel 9-8471, Yr: 1890, Emp: 2300

Arrow Machinists & Fabricators, 154 E. Third St., Mount Vernon, N.Y., 93, 96, Tel: 914-OWens 9-4000, Yr: 1951, Emp: 15, $100,000

Arrow Radio Co., 1829 Davenport Rd., Toronto 9, Ontario, Canada, 48, Tel: ROger 6-1421, Emp: 10

Art Specialty Co., 3720 N. Milwaukee Ave., Chicago 41, Ill., 14, 63, Tel: KIldare 5-0607, Yr: 1936, Emp: 70, ▲2

Art Wire & Stamping Co., 21 Boyden Place, Newark 2, N.J., 91, 96, 97, 105, 110, Tel: 201-HUmboldt 4-2100, Yr: 1923, Emp: 150, $1,360,000

See ad in class 105

Artisan Electronics Corp., 171 Ridgedale Ave., Morristown, N.J., 73, 80, Tel: 201-JEfferson 8-8500, Yr: 1949, Emp: 50, ▲4, $1,000,000

Artisan Metal Works Co., 11400 Madison Ave., Cleveland 2, Ohio, 90, 93, 97, 109, Tel: 216-LAkewood 1-6173, Yr: 1924, Emp: 100, $560,000

Artos Engineering Co., 2757 S. 28th St., Milwaukee 46, Wis., 91, 99, 105, 111, Tel: MItchell 5-6010, Yr: 1911, Emp: 175

Artronic Instrument Co., 11232 Triangle Lane, Silver Spring, Md., 4, 10, 23, 31, 48, 50, 57, 59, 84, 96, 109, Tel: 301-LOckwood 5-4447, Yr: 1959, ▲1

Artted Co., Inc., 367 Worthington St., Springfield 3, Mass., 44, 51, 59, 84, Tel: 413-REpublic 3-3944, Yr: 1945, Emp: 125

Arvey Corp., 3500 N. Kimball Ave., Chicago 18, Ill., 70, 107, Tel: INdependence 3-1400, Yr: 1905, Emp: 3000

Arwood Corp., 321 W. 44th St., New York 36, N.Y., 66, 96, Tel: 212-JUdson 2-4210, Yr: 1943, Emp: 900

Arwood Corp., Mercast Div., 2620 First St., LaVerne, Calif., 66, Tel: LYcoming 3-4521, Emp: 800, $500,000

Asco Wire & Cable Co., 1180 Stratford Rd., Stratford, Conn., 91, Tel: 203-DRexel 8-7348, Yr: 1954, Emp: 30, $1,000,000

Ascop, Div. of Electro-Mechanical Research, Inc., Box 44, Princeton, N.J., 4, 9, 10, 17, 21, 34, 40, 53, 80, 83, 86, Tel: 609-SWinburne 9-1000, Yr: 1946, Emp: 200, $1,500,000

Asheville-Schoonmaker Mica Co., 900 Jefferson Ave., Newport News, Va., 66, 101, Tel: CHestnut 4-7311, Yr: 1928, Emp: 250, $750,000

Ashland Electric Products, Inc., 32-02 Queens Blvd., Long Island City 1, N.Y., 47, 67, Tel: EXeter 2-4010, Yr: 1952, Emp: 100

Assembly Products, Inc., 75 Wilson Mills Rd., Chesterland 33, Ohio, 4, 28, 40, 61, 73, 83, Tel: 216-HAmilton 3-3131, Yr: 1945, Emp: 310, ▲7

See ad in class 73

Associated American Winding Machinery, Inc., 750 St. Ann's Ave., New York 56, N.Y., 99, Tel: CYpress 2-5050, Yr: 1952, Emp: 15

Associated Commodity Corp., 620 Fifth Ave., New York 20, N.Y., 101, Tel: CIrcle 5-6150, Yr: 1949

Associated Electrical Industries (Rugby), Ltd., Rugby, England, 4, 8, 11, 17, 23, 25, 34, 37, 40, 41, 43, 45, 50, 53, 61, 66, 67, 71, 72, 73, 75, 76, 77, 80, 83, 86, 87, 98, 107

Associated Engineering Corp., 65 Kent St., Brookline 46, Mass., 62, Tel: 617-ASpinwall 7-4064, Yr: 1950, Emp: 13, ▲2, $100,000

Associated Engineering & Mfg. Corp., Glen Ridge, N.J., 94, 96, 99, 104, 105, 112, Tel: PIlgrim 3-8899, Yr: 1911, Emp: 34, ▲3, $500,000

Associated Mfg. Co., 4755 N. Rockwell St., Chicago 25, Ill., 97

Associated Research, Inc., 3792 W. Belmont Ave., Chicago 18, Ill., 6, 16, 40, 41, 69, 84, Tel: 312-COrnelia 7-4040, Yr: 1936, Emp: 38, ▲2

See ad in class 41

Associated Specialties Co., 1751 Main St., Orefield, Pa., 69, Tel: 215-EXpress 5-1275, Yr: 1952

See ad in class 69

Associated Testing Laboratories, Inc., 115 Route 46, Wayne, N.J., 36, 98, 99, 109, Tel: 201-CLifford 6-2800, Yr: 1956, Emp: 200, ▲5, $2,000,000

See ad in class 36

Astatic Corp., P.O. Box 120, Conneaut, Ohio, 16, 65, 68, 70, 83, 106, Tel: 22-656, Yr: 1932, Emp: 470, ▲4

Astra, Inc., Box 226, Raleigh, N.C., 95, 109, Tel: VAnce 8-3250, Yr: 1953, Emp: 23, ▲1, $8,000

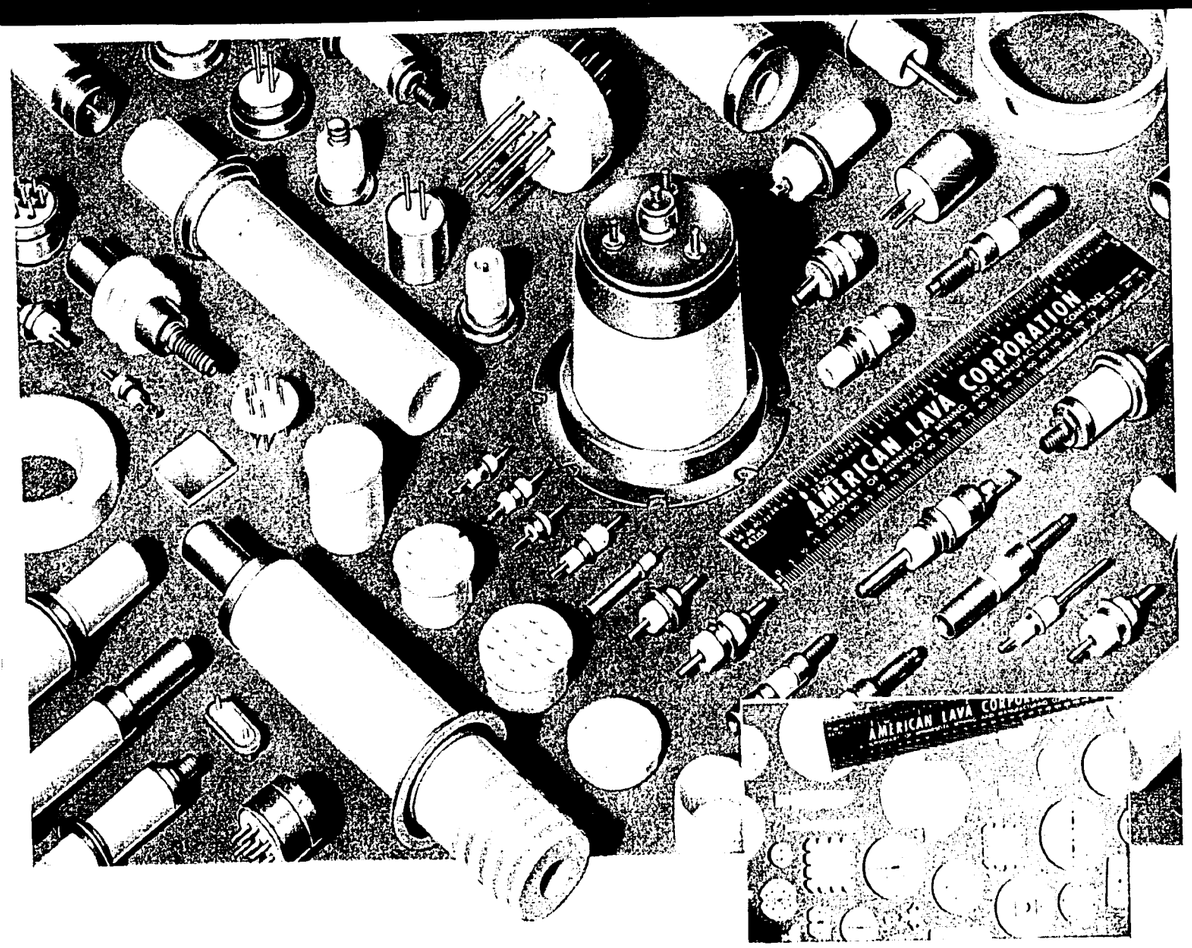
Astra Technical Instrument Corp., 12930 Panama St., Los Angeles 66, Calif., 2, 4, 82, 83, Tel: EXmont 7-6826, Yr: 1956, Emp: 40, ▲5, $202,467

Astral Electronics, Inc., 14620 Arminta St., Van Nuys, Calif., 2, 4, 41, 52, 69, 78, 80, 96, Tel: STate 0-3270, Yr: 1957, Emp: 28, $1,700,000

Astro Dynamics, Inc., 2nd Ave., Northwest Industrial Park, Burlington, Mass., 13, 47, 50, 53, 54, 58, 67, 90, 105, Tel: UNiversity 8-6260, Yr: 1959, Emp: 25, ▲4

Astro-Space Laboratories, Inc., 2104 Memorial Pkwy. S.W., Huntsville, Ala., 2, 4, 5, 8, 11, 53, 83, 95, 109, Tel: JEfferson 9-7711, Yr: 1960, Emp: 65, ▲7

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.



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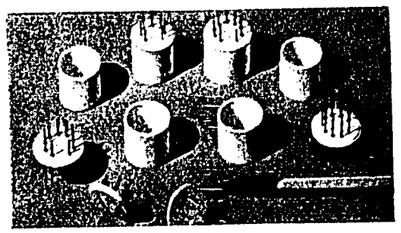

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Astronics, Div. of Mitchell Camera Corp., 600 W. Harvard Ave., Glendale 4, Calif., 2, 4, 61, 83, Tel: CHapman 5-7586, Yr: 1947, Emp: 300

Astron Corp., 255 Grant Ave., East Newark, N.J., 48, 59, Tel: HUmboldt 2-7800, Yr: 1950, Emp: 400, ▲4

Astronautics Corp. of America, 3880 W. Wisconsin Ave., Milwaukee 8, Wis., 2, 4, 8, 9, 34, 41, 43, 44, 50, 61, 63, 67, 69, 77, 83, 95, 96, 109, Tel: DIvision 2-5888, Yr: 1959, Emp: 100, ▲6, $800,000

Astrosystems, Inc., 82 Naylon Ave., Livingston, N.J., 2, 13, 17, 36, Tel: 201-WYman 2-1900, Yr: 1960, Emp: 20, ▲1

Ateliers de Montages Electriques (AMEL), 77 rue Saint Charles, Paris 15, France, 4, 11, 15, 22, 23, 24, 26, 29, 31, 33, 40, 42, 43, 44, 53, 77, 84, 95, Tel: LEC 2179, Yr: 1955, Emp: 550, ▲1, $4,500,000

Atkins & Merrill, Inc., Boston Post Rd., South Sudbury, Mass., 13, 44, 90, 96, 101, 107, 112, Tel: HIlltop 3-8822, Yr: 1946, Emp: 100, $500,000

Atkins Technical, Inc., 1276 W. Third St., Cleveland 13, Ohio, Importers, 4, 28, 40, 61, 82, Tel: 216-SUperior 1-1332, Yr: 1956

Atlantic Design Co., 790 Broad St., Newark, N.J., 95, 109, Tel: MArket 3-5864, Yr: 1951, Emp: 450, ▲10, $3,500,000

Atlantic Research Corp., Jansky & Bailey Div., Shirley Hwy. & Edsall Rd., Alexandria, Va., 95, 96, 109, Tel: FL 4-3400, Yr: 1949, Emp: 1500, ▲2

Atlantic Transformer Corp., 50 Hynes Ave., Groton, Conn., 51, 84, Tel: HIllltop 5-9768, Yr: 1950, Emp: 55

Atlantis Electronics Corp., P.O. Box 451, Garland, Texas, 4, 41, 78, 90, 98, 99, Tel: 214-BRoadway 8-3551, Yr: 1958, Emp: 22, ▲2, $180,000

Atlas Chemical Industries, Inc., Ordnance Materiel Dept., Concord Pike & New Murphy Rd., Wilmington 99, Del., 60, 80, 94, Tel: OLympia 8-9311, Yr: 1913, Emp: 4000

Atlas Coil, Inc., 63 Main St., Ansonia, Conn., 43, 51, 59, 67, 69, 84, Tel: 203-REgent 5-4628, Yr: 1946, Emp: 38, ▲3, $400,000

Atlas Connectors Corp., 43 River Rd., North Arlington, N.J., 52, Tel: GRamercy 7-8620, Yr: 1961, Emp: 50, ▲1

Atlas Controls, Inc., 9 Erie Dr., Natick, Mass., 4, 43, 53, 69, Tel: 617-OLympic 5-1550, Yr: 1957, Emp: 60, ▲2, $1,000,000

Atlas Engineering Co., Inc., 10 Cheney St., Roxbury, Mass., 43, 51, 59, 69, 84, Tel: HIghlands 5-7100, Yr: 1950, Emp: 225, ▲6, $2,500,000

Atlas Precision Products Co., 3801 Castor Ave., Philadelphia 11, Pa., 2, 4, 8, 25, 77, 88, Tel: JEfferson 5-3700, Yr: 1927, Emp: 185, ▲1

Atlas Screw & Specialty Co., Inc., 450 Broome St., New York 13, N.Y., 97, Tel: WOrth 6-0600, Yr: 1931, Emp: 50

Atlas Sound Corp., 1449 39th St., Brooklyn 18, N.Y., 65, 79, Tel: GEdney 8-5500, Yr: 1930, Emp: 100, ▲2

Atlas Transformer Co., 1859 Moore St., San Diego 1, Calif., 51, 53, 59, 69, 72, 84, Tel: CYpress 7-2248, Yr: 1959, Emp: 10, ▲2, $50,000

Atlas Wire & Cable Co., Inc., 45 Vesey St., New York 7, N.Y., 91, Tel: 212-BArclay 7-0465

See ad in class 91

Atlee Corp., Atlas Div., 47 Prospect St., Woburn, Mass., 49, 60, 78, 97, 105, Tel: WEbb 3-3300, Yr: 1952, Emp: 35, ▲1, $750,000

Atlee Corp., Monitor Controller Div., 99 Grove St., Rockland, Mass., 16, 73, Tel: TRiangle 7-3308, Yr: 1888, Emp: 55, ▲1

Atlee Corp., Wesco Div., 27 Olive St., Greenfield, Mass., 48, 69, Tel: PRescott 4-4358, Yr: 1940, Emp: 60

Atocon Co., 527 N. Union St., Galion, Ohio, 111, Tel: HOward 2-6314, Yr: 1955

Atomic Accessories, Inc., Subsid. of Baird-Atomic, Inc., 811 W. Merrick Rd., Valley Stream, L.I., N.Y., 11, 22, 28, 61, 86, Tel: 516-CUrtiss 5-9300, Yr: 1957, Emp: 18, ▲1, $250,000

See ad in class 22

Atomic Film Badge Corp., Div of X-Ray Monitoring Corp., 43 W. 61st St., New York 23, N.Y., 22, Tel: JUdson 6-6520, Yr: 1957, Emp: 12

Atomic Laboratories, Inc., 3080 Claremont Ave., Berkeley 5, Calif., 11, 13, 22, Tel: OL 5-5001, Yr: 1955, Emp: 20, $25,000

Atronic Products, Inc., Union Hill, West Conshohocken, Pa., 4, 5, 14, 95, 96, Tel: 215-TAylor 8-5350, Yr: 1957

Attleboro Refining Co., Inc., 400 Union St., Attleboro, Mass., 104, 109, Tel: CAstle 2-3705

Atwood Engineering (Wilfrid L.), 528 Adelaide Ave. S.E., Warren, Ohio, 4, 54, 95, 98, 99, Tel: 216-EXpress 4-3868, Yr: 1948, Emp: 1, ▲1

Auburn Mfg. Co., Pease Ave. & Stack St., Middletown, Conn., 89, 96, 97, 101, 103, 105, 107, 112, Tel: DIamond 6-6631, Yr: 1878, Emp: 75

Audax, Inc., 38-19 108th St., Corona 68, N.Y., 13, 79, 83, Tel: 212-DEfender 5-3500, Yr: 1931, Emp: 30

Audio Devices, Inc., 444 Madison Ave., PLaza 1-6640, Yr: 1937, Emp: 200, ▲3 New York 22, N.Y., 10, 70, Tel: 212-

Audio Equipment Co., Inc., 75 Harbor Rd., Port Washington, L.I., N.Y., 18, 30, 43, Tel: 516-POrt Washington 7-8989, Yr: 1947, Emp: 50, ▲1

Audio-Master Co., 17 E. 45th St., New York 17, N.Y., 13, 27, 36, Tel: 212-ONford 7-0725, Yr: 1950

Audiotex Associates, Inc., P.O. Box 862, Stony Brook, L.I., N.Y., 30, 32, Tel: 516-HR 3-3332, Yr: 1954, Emp: 5, $65,000

Audiomation Laboratories, 7230 Clinton Rd., Upper Darby 27, Pa., 68, Tel: 215-MAdison 6-4411, Yr: 1947, Emp: 14, $70,000

Audiosears Corp., Roxbury, N.Y., 52, 62, 65, 80, 95, 106, Tel: 518-ROxbury 2261, Yr: 1956, Emp: 50, $500,000

Audiotex Mfg. Co., Div. of Gt. Textron Electronics, Inc., 400 S. Wyman St., Rockford, Ill., 35, 40, 52, 62, 68, 70, 79, Tel: 815-WOodland 8-6661, Emp: 300

Audiotronics Corp., 11067 Weddington St., North Hollywood, Calif., 13, 26, 27, 30, 43, 88, Tel: 213-TRiangle 7-0577, Yr: 1957, Emp: 25, ▲2, $425,000

Auerbach Electronics Corp., 1634 Arch St., Philadelphia 3, Pa., 2, 4, 8, 9, 11, 13, 16, 22, 28, 34, 37, 38, 40, 41, 50, 95, 96, 109, Tel: LOcust 3-7737, Yr: 1957, Emp: 95, ▲4

Augat Brothers, Inc., 33 Perry Ave., Attleboro, Mass., 52, 56, 62, 78, 97, 105, Tel: 617-CAstle 2-2202, Yr: 1931, Emp: 90, $1,000,000

See ad in class 105

Austenal Co., Div. of Howe Sound Co. (Microcast Products), 230 Park Ave., New York 17, N.Y., 60, Tel: MUrray Hill 9-5760, Yr: 1925, Emp: 1500

Austin Craft Co., 2616 Superba Ave., P.O. Box 207, Kingman, Ariz., 50, 97, Tel: SKyline 3-2988, Yr: 1957

Austin Electronics, Div. of Austin Co., 76 Ninth Ave., New York 11, N.Y., 2, 4, 8, 9, 11, 28, Tel: WAtkins 4-3650, Yr: 1878, Emp: 10,000, ▲5

Austin Screw Products, 4873 W. Armitage, Chicago 39, Ill., 97, Tel: 312-NAtional 2-3035, Yr: 1950, Emp: 55

Auth Electric Co., Inc., 34-20 45th St., Long Island City 1, N.Y., 30, Tel: AStoria 8-7000, Yr: 1892, Emp: 200, ▲1

Auto Products Mfg. Co., 2735 Olive, Saint Louis 3, Mo., 60, Tel: 314-OLive 3-7305

Auto Savage Products, Inc., 258 Canal St., Shelton, Conn., 52, 105, Tel: 203-REgent 5-3361, Yr: 1947, Emp: 50

Auto-Test, Inc., 600 S. Michigan Ave., Chicago 5, Ill., 40, 61, 84, 95, 96, Tel: WAbash 2-5459, Yr: 1947, Emp: 40, ▲1

Autocall Co., 57 Mack Ave., Shelby, Ohio, 4, 30, 73, Tel: 3-1015, Yr: 1908, Emp: 100

Autocrat Electronics Co., 5024 Elm St., Skokie, Ill., 43, 68, Tel: ORchard 3-8033, Yr: 1930, Emp: 7

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr: Year of founding. Emp: Total employees. ▲: Number of IRE members. $: Net radio-electronic sales during last fiscal year.

Automatic Coil Co., Inc., 76 E. 2nd St., Mineola, L.I., N.Y., 51, 57, 59, 84, Tel: PIoneer 1-7070, Yr: 1952, Emp:40, $400,000

Automatic Control Co., 995 University Ave., Saint Paul 4, Minn., 4, 34, 73, Tel: 612-MI 6-1801

Automatic Electric Co., Subsid. of General Telephone & Electronics, Northlake, Ill., 73, 80, Tel: 312-FIllmore 5-7111, Yr: 1891, Emp: 8000, ▲30

Automatic Metal Products Corp., 323 Berry St., Brooklyn 11, N.Y., 45, 51, 52, 59, 66, 73, 80, Tel: 212-EVergreen 8-6057, Yr: 1940, Emp: 240, ▲2

See ad in class 52

Automatic Production Research, 19 Beechwood Ave., Mount Vernon, N.Y., 50, 95, 96, 99, 109, Tel: MOunt Vernon 4-7011, Yr: 1954, Emp: 5, ▲1, $12,000

Automatic Switch Co., 50-56 Hanover Rd., Florham Park, N.J., 73, 80, Tel: 201-FRontier 7-4600, Yr: 1888, Emp: 785

Automatic Telegraph Keyer Corp., 33 W. 42nd St., New York 36, N.Y., 28, 33, Tel: 212-LOngacre 3-5565, Yr: 1952

Automatic Telephone & Electric Co., Ltd., Strowger Works, Liverpool 7, England, 4, 24, 33, 35, 38, Tel: Stoneycroft 4830, Yr: 1912, Emp: 10,000, ▲2

Automatic Timing & Controls, King of Prussia, Pa., 4, 11, 28, 61, 73, 83, 84, Tel: BRoadway 9-1100, Yr: 1925, Emp: 200, ▲3

Automation Components, Inc., 875 Hickory St., Peckville, Pa., 48, Tel: Hunter 9-7508, Yr: 1956, Emp: 150, ▲2

Automation Devices, Inc., 3125 Brandes St., Erie, Pa., 4, 40, 76, 80, Tel: GLendale 6-5381, Yr: 1947, Emp: 30

Automation Dynamics Corp., 255 County Rd., Tenafly, N.J., 2, 4, 5, 8, 19, 24, 34, 41, 44, 95, 96, 109, Tel: LOwell 7-3232, Yr: 1957, Emp: 20, ▲4

Automation Electronics, Inc., Subsid. of Arnoux Corp., 11924 W. Washington Blvd., Los Angeles 66, Calif., 3, 4, 52, 96, Tel: UPton 0-6215, Yr: 1952, Emp: 35

Automation Engineering Laboratory, Inc., 84 Commerce Rd., Stamford, Conn., 95, 96, 109, Tel: 203-DAvis 3-1101, Yr: 1954, Emp: 40

Automation, Inc., 212 Worcester St., Wellesley Hills 82, Mass., 4, 8, 11, 30, 80, 83, 109, Tel: CEdar 5-6621, Emp: 4, ▲1, $80,000

Automation Industries, Inc., Datran Div., 7750 Monroe St., Paramount, Calif., 2, 4, 9, 10, 11, Tel: NEvada 6-9841, Yr: 1955, Emp: 200

Automation Laboratories, Inc., 179 Liberty Ave., Mineola, L.I., N.Y., 2, 4, 35, 36, 39, Tel: PIoneer 1-6544, Yr: 1955, ▲7, $150,000

Automation Management, Inc., 25 Brigham St., Westboro 18, Mass., 4, 8, 9, 11, 34, 95, Tel: 617-FOrest 6-5377, Yr: 1955, Emp: 3

Automation Products, Inc., 3030 Max Roy St., Houston 24, Texas, 4, 40, 61, Tel: UNderwood 9-1485, Yr: 1955, Emp: 75

Automation Research & Design Associates (A R & D A), 135 Main St., Belleville 9, N.J., 4, 8, 28, 35, 38, 40, 41, 43, 53, 57, 59, 69, 74, 77, 83, 95, Tel: PLymouth 9-4902, Yr: 1956, Emp: 10, ▲2, $125,000

Automation Service Co., 200 S. Kenmore, Los Angeles 4, Calif., 8, 2', Tel: WEbster 1-4227

Autometric Corp., 1501 Broadway, New York 36, N.Y., 1, 2, 5, 8, 9, 10, 13, 14, 16, 18, 23, 25, 26, 43, 50, 51, 63, 85, 86, 100, 109, Tel: 212-OXford 5-8600, Yr: 1957, Emp: 350, ▲75

Autonetics, Div. of North American Aviation, Inc., 9150 E. Imperial Hwy., Downey, Calif., 1, 2, 4, 8, 9, 10, 25, 38, 41, Tel: SPruce 3-2233, Yr: 1928, Emp: 25,000, ▲450

Autosonics, Inc., 4217 Chestnut St., Philadelphia 4, Pa., 94, 99, Tel: GReenwood 3-9000, Yr: 1960

Autotron, Inc., 2413 Main St., Santa Monica, Calif., 52, 62, 91, 109, Tel: 213-EXbrook 9-8256, Yr: 1955, Emp: 12

Autotron, Inc., 3629 N. Vermilion St., Danville, Ill., 4, 43, Tel: 217-HIckory 6-0650, Yr: 1945, Emp: 20, $500,000

Autotronics, Inc., P.O. Box 208, Florissant, Mo., 40, 41, 77, 80, 81, Tel: TEmple 7-3565, Yr: 1954, Emp: 156, ▲3, $2,000,000

Autron Engineering, Inc., 1301 Wilshire Blvd., Los Angeles 17, Calif., 15, Tel: HUbbard 3-7030, Yr: 1955, Emp: 10

Avco Corp., Avco Research & Advanced Development Div., 201 Lowell St., Wilmington, Mass., 36, 58, 79, 92, 95, 104, 109, Tel: OLiver 8-8911, Yr: 1955, Emp: 2800, ▲90

Avco Corp., Avco Research Laboratory, 2385 Revere Beach Pkwy., Everett 49, Mass., Tel: 617-OLiver 8-8911, Yr: 1929, Emp: 2300, ▲4

Avco Corp., Electronics & Ordnance Div. (formerly Crosley Div.), 1329 Arlington St., Cincinnati 25, Ohio, 17, Tel: 513-KIrby 1-6600, Yr: 1920, Emp: 4400, ▲150

Avco Corp., Nashville Div., P.O. Box 210, Nashville 1, Tenn., 44, 66, 90, 93, Tel: ALpine 4-9551, Yr: 1930, Emp: 2500, ▲2

Avdel, Inc., 210 S. Victory Blvd., Burbank, Calif., 97, Yr: 1947, Emp: 150

Avery Label Co., Div. of Avery Adhesive Products, Inc., 1616 S. California Ave., Monrovia, Calif., 97, Tel: MUrray 1-5237, Yr: 1935, Emp: 292

Aviel Electronics, Inc., 1755 Berkeley St., Santa Monica, Calif., 44, 45, 52, 59, 62, 66, 73, 80, Tel: 213-UPton 0-6529, Yr: 1957, Emp: 20, ▲1, $350,000

Avien, Inc., 58-15 Northern Blvd., Woodside 77, N.Y., 1, 2, 4, 6, 9, 25, 34, 40, 43, 44, 61, 63, 77, 83, Tel: 212-YEllowstone 2-4600, Yr: 1948, Emp: 700, $6,000,000

Avionics, Ltd., P.O. Box 200, Niagara-on-the-Lake, Ontario, Canada, 50, 66, 73, 90, 93, Tel: HOward 8-3632, Yr: 1953, Emp: 10

Avionics Research Products Corp., 4254 Glencoe Ave., Venice, Calif., 4, 5, 8, 10, 34, 64, Tel: EXmont 1-7117

Avnet Electronics Corp., 70 State St., Westbury, L.I., N.Y., 41, Tel: 516-EDgewood 3-5800, ▲1

Avo, Ltd., Avocet House, 92-96 Vauxhall Bridge Rd., London S.W., 1, England, 6, 22, 35, 38, 40, 41, 99, Tel: VICtoria 3404, Yr: 1923, Emp: 600

Avon Gear & Engineering Co., 2011 Rice St., Melrose Park, Ill., 77, Tel: FIlmore 5-7890, Yr: 1955, Emp: 22

Avon Tube Div., Higbie Mfg. Co., Wagner Rd., Rochester, Mich., 96, 109, 112, Tel: OLive 1-9671, Yr: 1924, Emp: 380

Avtron Mfg., Inc., 10409 Meech Ave., Cleveland 5, Ohio, 2, 4, 11, 21, 36, 40, 43, 44, 53, 61, 69, 84, Tel: MIchigan 1-8310, Yr: 1953, Emp: 100, ▲2, $1,700,000

Axel Electronics, Inc., 134-20 Jamaica Ave., Jamaica 18, N.Y., 48, 59, 84, Tel: 212-AXtel 1-3900, Yr: 1956, Emp: 80, ▲4, $1,000,000

See ad in class 48

B

B. B. Chemical Co., 784 Memorial Dr., Cambridge 39, Mass., 94, Tel: KIrkland 7-8500, Yr: 1886, Emp: 350, $20,000

B & C Insulation Products, Inc., 490 Lincoln Hwy., Iselin, N.J., 112, Tel: 201-LIberty 8-0815, Yr: 1945, Emp: 6, $100,000

B & F Instruments, Inc., 3644 N. Lawrence St., Philadelphia 40, Pa., 6, 34, 40, 41, 43, 61, 69, 83, 109, Tel: GArfield 5-4175, Yr: 1952, Emp: 55, ▲1, $500,000

B G Corp., 321 Broad Ave., Ridgefield, N.J., 75, 92, Tel: WHitney 5-8800

B & K Instruments, Inc. of Bruel & Kjaer, 3044 W. 106th St., Cleveland 11, Ohio, Importers, 28, 35, 36, 40, 43, 65, 83, Tel: CLearwater 1-8430, Yr: 1958, Emp: 16

B & K Mfg. Co., 1801 W. Belle Plaine, Chicago 13, Ill., 39, 40, 41, 42, Tel: EAstgate 7-7270, Yr: 1950, Emp: 150, ▲2

B & M Electronics Mfg. Co., 2516 Dodge Ave., Fort Wayne, Ind., 41, 43, 80, Tel: E-1942, Yr: 1956, Emp: 3

BTU Engineering Corp., 179 Bear Hill Rd., Waltham, Mass., 98, Tel: 617-TWinbrook 4-6050, Yr: 1946, Emp: 60

Babcock Electronics Corp., 1640 Monrovia Ave., Costa Mesa, Calif., 2, 4, 21, 38, 41, 42, Tel: LIberty 8-7705, Yr: 1947, Emp: 490, ▲12, $9,000,000

Babcock Relays, Inc., 1645 Babcock Ave., Costa Mesa, Calif., 73, Tel: LIberty 8-7705, Yr: 1956, Emp: 220, $2,000,000

Bach Auricon, Inc., 6950 Romaine St., Los Angeles 38, Calif., 13, 14, 27, 32, Tel: HOllywood 2-0931, Yr: 1931, Emp: 80, ▲3, $800,000

Bach-Simpson, Ltd., 1255 Brydges St., London, Ontario, Canada, 4, 5, 11, 23, 28, 35, 40, 41, 61, 67, 84, 97, 106, Tel: 516-GEneral 1-9490, Yr: 1946, Emp: 300, ▲6

Bache & Co. (Semon), 636 Greenwich St., New York 14, N.Y., 17, 97, 112, Tel: WAtkins 4-2121, Yr: 1847, Emp: 200, $250,000

Bacon Industries, Inc., 192 Pleasant St., Watertown 72, Mass., 94, 95, 96, 97, 101, 109, Tel: 617-WAtertown 4-5000, Yr: 1952, Emp: 17, ▲4, $50,000

Baer Co. (N. S.), 1-11 Montgomery St., Hillside 5, N.J., 81, 96, 107, Tel: MUrdock 8-2250, Yr: 1938, Emp: 40

Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio, 4, 8, 34, 40, 61, 82, 90, Tel: 216-GLenville 1-4600, Yr: 1916, Emp: 1800, ▲3

Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 4, 5, 9, 10, 11, 14, 17, 21, 22, 35, 37, 38, 40, 41, 43, 61, 63, 69, 76, 85, 86, 98, Tel: 617-UNiversity 4-7420, Yr: 1936, Emp: 700, ▲20, $1,027,000

See ad in class 86

Baker Chemical Co. (J. T.), N. Broad St., Phillipsburg, N.J., 94, 107, Tel: 201-GLencourt 4-2151, Yr: 1904, Emp: 800

Baker Co., Inc., 106 Granite St., Biddeford, Me., 36, 90, 98, Tel: ATlantic 4-5951, Emp: 33

Bal Corp. (William), 947 Newark Ave., Elizabeth, N.J., 90, Tel: ELizabeth 4-9625, Yr: 1898, Emp: 70, $20,000

Balco Capacitors Div., Balco Research Laboratories, Dept. E, 40-53 Edison Pl., Newark 2, N.J., 31, 48, Tel: 201-MItchell 3-5200, Yr: 1946, Emp: 50, ▲2

See ad in class 48

Balcrank, Inc., Disney St., Cincinnati 9, Ohio, 97, Tel: REdwood 1-7200, Yr: 1906, Emp: 650

Baldwin-Lima-Hamilton Corp., Electronics & Instrumentation Div., 42 Fourth Ave., Waltham 54, Mass., 40, 41, 43, 81, 82, 83, Tel: TWinbrook 4-6700, Yr: 1956, Emp: 700, ▲3

Baldwin Piano Co., 1801 Gilbert Ave., Cincinnati 2, Ohio, 4, 9, 10, 11, 34, 43, 76, 83, 84, Tel: 513-MAin 1-4300, Yr: 1862, Emp: 2800, ▲30

Baldwin Piano Co., Industrial Div.: See A R & T Electronics, Inc.

Ball Brothers Research Corp., Industrial Park, Boulder, Colo., 4, 14, 16, 17, 34, 96, 109, Tel: 303-HIllcrest 2-2965, Yr: 1882, Emp: 200, ▲5

Ballantine Laboratories, Inc., Boonton, N.J., 2, 31, 34, 35, 39, 40, 41, 43, 53, 61, Tel: 201-DEerfield 4-1432, Yr: 1929, Emp: 85, ▲9

See ad in class 40

Baltic Metal Products Co., 120 Sutton St., Brooklyn 22, N.Y., 93, 96, Tel: EVergreen 4-2300, Yr: 1934, Emp: 89, $900,000

Bar-Ray Products, Inc., 209 25th St., Brooklyn, N.Y., 5, 54, 95, 99, 103, Tel: 212-SOuth 8-1020, Yr: 1921, Emp: 150

Barber-Colman Co., Motors & Components Div., Dept. V, P.O. Drawer 99, 19119 Rock St., Rockford, Ill., 4, 47, 67, 73, Tel: 815-WOodland 8-6833, Yr: 1900, Emp: 5000, ▲5

See ad in class 67

Barbour Stockwell Co., 286 Third St., Cambridge 42, Mass., 44, 96, 99, Tel: 617-KIrkland 7-7020, Yr: 1858, Emp: 47

Barco Chemical Products Co., 701-3 LaSalle, Chicago 5, Ill., 94, Tel: HArrison 7-2916, Yr: 1929, Emp: 10

Barco, Inc., Box 1222, Milwaukee 1, Wis., 48, 71, 80, Tel: 414-BRoadway 6-8515, Yr: 1950, Emp: 10, ▲1, $100,000

Barden Corp., 200 Park Ave., Danbury, Conn., 97, Tel: PIoneer 3-9201, Yr: 1942, Emp: 1350, ▲2

Barium & Chemicals, Inc., P.O. Box 390, Willoughby, Ohio, 92, 94, 104, Tel: 216-WHitehall 2-5151, Yr: 1938, Emp: 55

Barker Products Co., 3 Component Park, West Bridgewater, Mass., 43, 44, 52, 62, 78, 91, 97, 109, Tel: 617-JUniper 8-0163, Yr: 1957, Emp: 30, $70,000

Barker Sales Co., 339 S. Broad Ave., Ridgefield, N.J., Importers, 55, 64, 69, 79, 82, 91, Tel: 201-Whitney 3-2477, Yr: 1950

Barker & Williamson, Inc., Canal & Beaverdam Rds., Bristol, Pa., 3, 11, 24, 29, 33, 35, 40, 44, 49, 51, 53, 59, 69, 73, 80, 84, 88, 96, Tel: STillwell 8-5581, Yr: 1932, Emp: 200, ▲4, $1,500,000

Barnes Development Co., 213 W. Baltimore Pike, Lansdowne, Pa., 4, 6, 12, 28, 36, 40, 41, 52, 62, 78, 96, Tel: 215-MAdison 2-1525, Yr: 1948, Emp: 20, $230,000

See ad in class 41

Barnes Engineering Co., 30 Commerce Rd., Stamford, Conn., 2, 4, 14, 17, 22, 54, 98, Tel: 203-FIreside 8-5381, Yr: 1952, Emp: 350, ▲15, $4,000,000

Barnes & Reinecke, Inc., 230 E. Ohio, Chicago 11, Ill., 95, 96, 108, 109, Tel: DElaware 7-6350, Yr: 1934, Emp: 187, ▲4

Barnett Instrument Co., 430 Commerce St., Clarksville, Tenn., 12, 40, 41, Yr: 1932, Emp: 35, ▲1, $150,000

Barnstead Still & Sterilizer Co., 2 Lanesville Terrace, Boston 31, Mass., 99, Tel: 617-JAmaica 2-8490, Yr: 1878, Emp: 200, ▲3

See ad in class 99

Barre Co., Inc., 318 Jefferson St., Newark 5, N.J., 90, 93, 96, 97, 109, Tel: 201-MItchell 2-6242, Yr: 1950, Emp: 90, $575,000

Barrett Coil Co., Inc., 1611 W. Smith Ave., Orlando, Fla., 51, 59, 84, Tel: 305-GArden 5-2633, Yr: 1959, Emp: 12, ▲3, $50,000

Barrett Co., (Leon J.), 1725 Grafton Rd., Worcester 1, Mass., 99, Tel: 617-PLeasant 5-4306, Yr: 1848, Emp: 30, $100,000

Barrett Electronics Corp., 630 Dundee Rd., Northbrook, Ill., 4, Tel: 312-CRestwood 2-2300

Barrett Varnish Co., 1532 S. 50th Ct., Cicero 50, Ill., 94, Tel: 312-BIshop 2-2462, Yr: 1870, Emp: 65

Barry Controls, Div. of Barry Wright Corp., 700 Pleasant St., Watertown 72, Mass., 36, 89, 93, 103, Tel: 617-WAtertown 3-1150, Yr: 1943, Emp: 249, $4,708,000

Bart Mfg. Corp., 135 Manchester Pl., Newark 4, N.J., 44, 66, 109

Barth Engineering & Mfg. Co., Inc., 48 Elm St., Meriden, Conn., 2, 4, 18, 28, 34, 44, 77, 109, Tel: 203-BE 7-7468, Emp: 55, ▲2, $250,000

Bartlett Mfg. Co., 1871 Grove St., Glenview, Ill., 50, Tel: PArk 4-5232, Yr: 1956, Emp: 16

Barton Mines Corp., North Creek, N.Y., 94, Tel: 2296, Yr: 1878, Emp: 115

Barwood Electronics, Inc., 120 S. Maryland Ave., Glendale 5, Calif., 51, 69, 80, 84, 86, Tel: CHapman 5-4063, Yr: 1955, Emp: 10, $150,000

Barwood Mfg. Co., Inc. (L. J.), 20 Williams St., Everett 49, Mass., 96, 97, Tel: 617-DUnkirk 7-0942, Yr: 1900, Emp: 65

Basic & Experimental Physics, Box 689, Falmouth, Mass., 4, 5, 9, 10, 13, 14, 17, 18, 19, 20, 27, 28, 36, 40, 41, 43, 44, 50, 51, 54, 55, 57, 61, 69, 70, 77, 83, 84, 95, 96, 108, 109, 111, Tel: 617-KImball 8-2175, Yr: 1952, Emp: 260, ▲110, $120,000

Basler Electric Co, Magnetic Components Dept., Box 269, Highland, Ill., 43, 51, 84, Tel: 2123, Yr: 1942, Emp: 320, ▲1, $3,500,000

Baso, Inc., 730 N. Jackson St., Milwaukee 1, Wis., 73, Tel: BRoadway 3-5388, Yr: 1914, Emp: 810, ▲1

Batcher Engineering (Ralph R.), 24002 42nd Ave., Douglaston 63, N.Y., 95, Tel: BAyside 4-5092

Battelle Memorial Institute, 505 King Ave., Columbus 1, Ohio, 109, Tel: 614-AX 9-3191
See ad on this page

Baumker Mfg. Co., 3826-28 Summit St., Toledo 11, Ohio, 44, 90, 93, 96, 97, Tel: RAndolph 6-1823, Yr: 1940

Bausch & Lomb, Inc., Instrument Div., 84462 Bausch St., Rochester 2, N.Y., 13, 14, 17, 22, 32, 40, 94, 96, 97, Tel: LOcust 2-3000, ▲8

Bay Products Div., American Metal Works, Inc., 1835 W. Cambria St., Philadelphia 32, Pa., 90, Tel: BAldwin 9-1805, Yr: 1940, Emp: 75

Bay-Roy Electronics, Inc., P.O. Box 7503, Cleveland 30, Ohio, 73, 80, Tel: 216-TRinity 1-7804, Yr: 1960, Emp: 3, ▲2

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Bay-Tronic Co., 39-43 Evergreen St., Bayonne, N.J. 37, 41, 43, 69, Tel: HEmlock 7-3929, Yr: 1957, Emp: 23, ▲1

Bayside Watch Tool Co., Inc., 20-02 Utopia Pkwy., Whitestone 57, N.Y., 2, 4, 14, 37, 77, Tel: BAyside 4-8300

Beach-Russ Co., 420 Lexington Ave., New York 17, N.Y., 99, Tel: 212-OREgon 9-7636, Yr: 1898, Emp: 100, ▲4, $100,000

Bead Chain Mfg. Co., 6 Mountain Grove St., Bridgeport 5, Conn., 52, 62, 81, 97, 105, Tel: 203-EDison 4-4124, Yr: 1920, Emp: 200
See ad in class 97

Bean & Co. (Morris), Hyde Rd., Yellow Springs, Ohio, 66, Tel: ROckwell 7-7301, Yr: 1946, Emp: 390

Bearing Inspection, Inc., 3311 E. Gage Ave., Huntington Park, Calif., 35, 36, 40, 97, 99, 109, Tel: 714-LUdlow 2-6431, Yr: 1955, Emp: 28, $17,542

Beattie-Coleman, Inc., 1000 N. Olive St., Anaheim, Calif., 4, 14, Tel: 714-PRospect 4-4503, Yr: 1945, Emp: 80, ▲3, $650,000

Beau Electronics, Inc., 1060 Wolcott Rd., Waterbury, Conn., 27, 67, 68, Tel: PLaza 5-0101, Yr: 1958, Emp: 20, ▲1, $250,000

Beauchaine & Sons, Inc., Union Ave., Lakeport, N.H., 52, 62, 66, 78, 96, 97, 111, Tel: 603-LAkeside 4-5518, Yr: 1910, Emp: 55, $275,000

Beaver Gear Works, Inc., 1034 Parmele St., Rockford, Ill., 77, Tel: 815-WOodland 3-9691

Beaver Laboratories, 469 Jericho Tnpke., Mineola, L.I., N.Y., 94, Tel: PIoneer 7-3900, ▲1

Becker Brothers Carbon Co., 3450 S. Laramie Ave., Cicero, Ill., 94, 97, Yr: 1890, Emp: 155

Becker Electronics Mfg. Corp., 1091 Rockaway Ave., Valley Stream, L.I., N.Y., 13, 79, Tel: LOcust 1-2510, ▲1

Beckman Instruments, Inc., Berkeley Div., 220 Wright Ave., Richmond, Calif., 4, 8, 9, 10, 11, 21, 28, 35, 37, 38, 40, 53, 61, Tel: 415-LAndscape 6-7730, Yr: 1952, Emp: 500, ▲19

Beckman Instruments, Inc., Helipot Div., 2500 Harbor Blvd., Fullerton, Calif., 43, 57, 61, 67, 74, 77, 97, Tel: TRojan 1-4848, Yr: 1946, Emp: 836, ▲12, $11,000,000

Beckman Instruments, Inc., Scientific & Process Instrument Div., 2500 Harbor Blvd., Fullerton, Calif., 17, 28, 40, Tel: TRojan 1-4848, Yr: 1935, Emp: 4000, ▲10

Beckman Instruments, Inc., Spinco Div., 1117 California Ave., Palo Alto, Calif., 5, 40, 65, 83, ▲4

Beckman Instruments, Inc., Systems Div., 2400 Harbor Blvd., Fullerton, Calif. 2, 4, 9, 10, 11, 33, 34, 43, 50, 69, Tel: TRojan 1-4848

Beckman & Whitley, Inc., 993 E. San Carlos Ave., San Carlos, Calif., 14, 17, 23, 28, 40, 61, 80, 83, 96, 109, Tel: 415-LYtell 1-8241, Yr: 1948, Emp: 200, ▲2, $3,000,000

Beck's, Inc., 300 E. Fifth St., Saint Paul 1, Minn., 10, 50, 52, 80, Tel: CA 4-6465, Yr: 1947, Emp: 17, $75,000

Bee Chemical Co., 2700 E. 170th St., Lansing, Ill., 94, Tel: 312-GRanite 4-7000, Yr: 1945, Emp: 60

Beede Electrical Instrument Co., Inc., Penacook, N.H., 61, Tel: PLaza 3-6362, Yr: 1895, Emp: 150, ▲2

Behlman Engineering Co., 2911 Winona Ave., Burbank, Calif., 2, 43, 53, 61, 69, 84, 108, Tel: VIctoria 9-5733, Yr: 1952, Emp: 100, ▲4, $1,600,000

Bel Fuse, Inc., 198 Van Vorst St. at Morris St., Jersey City 2, N.J., 57, 60, 75, 92, Tel: 201-HEnderson 2-0463, Yr: 1949, ▲1
See ad in class 57

Bel-Tronics Corp., 344 Interstate Rd., Addison, Ill., 44, 51, 84, Tel: KIngswood 3-7777, Yr: 1953, Emp: 150, $500,000

Belclere Co., Ltd., 171 Cowley Rd., Oxford, England, 5, 43, 50, 51, 69, 74, 84, 96, 106, 109, Tel: Oxford 4-3431

Belden Mfg. Co., 415 S. Kilpatrick Ave., Chicago 44, Ill., 91, Tel: ESterbrook 8-1000, Yr: 1902, Emp: 1500

Bell Aerosystems Co., Avionics Div., P.O. Box 1, Buffalo 5, N.Y., 1, 2, 4, 5, 8, 9, 19, 21, 25, 34, 43, 84, 90, 95, 109, Tel: BUtler 5-7851, Yr: 1935, Emp: 3300, ▲70

Bell Helicopter Co., Electronics Dept., P.O. Box 482, Fort Worth 1, Texas, 2, 4, 8, 34, 40, Tel: 817-ATlas 4-3434, ▲5

Bell & Howell Co., Research Center, 360 Sierra Madre Villa, Pasadena, Calif., ▲12

Bell, Inc. (F. W.), 1356 Norton Ave., Columbus 12, Ohio, 6, 40, 50, 64, 65, 76, 96, 97, 100, 102, 109, Tel: 614-AXminster 4-4906, Yr: 1949, Emp: 35, ▲5, $500,000

Bellaire Electronics, Inc., 62 White St., Red Bank, N.J., 24, 30, 37, 43, 45, 51, 60, Tel: SHadyside 1-8383, Yr: 1951, Emp: 15, ▲1, $200,000

Belling & Lee, Ltd., Great Cambridge Rd., Enfield, Middlesex, England, 44, 45, 52, 59, 60, 75, 78, 81, 82, Tel: Enfield 5393, Yr: 1922, Emp: 1000, ▲3
See ad in class 52

Belmont Smelting & Refining Works, Inc., 330 Belmont Ave., Brooklyn 7, N.Y., 102, 104, 110, 112, Tel: DIckens 2-4900, Yr: 1896, Emp: 100, $50,000

Belock Instrument Corp., 112th St. & 14th Ave., College Point 56, N.Y., 1, 2, 8, 18, 25, Tel: 212-HIckory 5-4200, Yr: 1950, Emp: 900, ▲20, $13,000,000

Beltone Hearing Aid Co., 2900 W. 36th St., Chicago 32, Ill., 5, 43, Tel: 312-CLiffside 4-9100, Yr: 1940, Emp: 335, ▲4

Belz Industries, Inc., 89 Union St., Mineola, L.I., N.Y., 66, Tel: 516-PIoneer 2-1010, Yr: 1959, Emp: 60

Benco Television Associates, Ltd., 27 Taber Rd., Rexdale, Ontario, Canada, 19, 32, 38, 42, 43, 44, 45, 52, 59, 84, 91, Tel: CHerry 4-4296, Yr: 1951, Emp: 49, ▲3, $500,000

Bendix Corp., Bendix Computer Div., 5630 Arbor Vitae St., Los Angeles 45, Calif., 8, Tel: 213-ORchard 0-3640, Yr: 1952, Emp: 690, ▲25

Bendix Corp., Bendix Mishawaka Div., 40 S. Beiger St., Mishawaka, Ind., 2, Tel: 219-BLackburn 5-2111, Yr: 1951, ▲81

Bendix Corp., Bendix-Pacific Div., 11600 Sherman Way, North Hollywood, Calif., 1, 2, 4, 5, 9, 10, 11, 18, 20, 25, 34, 43, 44, 50, 53, 77, 83, 99, 109, Tel: 213-POplar 5-1010, Yr: 1938, Emp: 4250, ▲150, $40,000,000

Bendix Corp., Bendix Radio Div., Avionic Products Dept., E. Joppa Rd., Baltimore 4, Md., 1, 2, 8, 25, 30, 44, Tel: 301-VAlley 3-2200

Bendix Corp., Bendix Radio Div., Government Products Dept., E. Joppa Rd., Baltimore 4, Md., 1, 2, 4, 8, 9, 10, 11, 18, 19, 20, 24, 25, 29, 30, 33, 37, 38, 43, 44, 50, 66, 84, 96, 109, Tel: VAlley 3-2200, Yr: 1937, ▲190

Bendix Corp., Bendix Radio Div., Industrial Electronics Dept., E. Joppa Rd., Baltimore 4, Md., 20, Tel: VAlley 3-2200

Bendix Corp., Bendix Systems Div., 3300 Plymouth Rd., Ann Arbor, Mich., 2, 4, 9, 18, 34, Tel: 313-NOrmandy 5-7766, Yr: 1956, Emp: 1100, ▲72

Bendix Corp., Cincinnati Div., 3130 Wasson Rd., Cincinnati 8, Ohio, 4, 10, 14, 22, 40, 48, Tel: ELmhurst 1-2323, ▲3

Bendix Corp., Cleveland Instrument Co. (Subsid.), 6220 E. Schaaf Rd., Cleveland 31, Ohio, 4, 41, 83, 109, Tel: 216-LAfayette 4-4821, Yr: 1945, ▲1

Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J., 2, 4, 8, 9, 10, 11, 25, 43, 44, 67, 77, 80, Tel: 201-ATlas 8-2000, Yr: 1916, Emp: 10,000, ▲96
See ad on pages 46-47

Bendix Corp., Friez Instrument Div., 1400 Taylor Ave., Baltimore 4, Md., 4, 41, 42, 43, 50, 61, 77, 80, 97, Tel: 301-VAlley 5-5200, Yr: 1876, ▲11

Bendix Corp., Industrial Controls Section, 21820 Wyoming Ave., Detroit 37, Mich., Importers, 4, 11, 41, 50, 57, 63, 77, 83, 95, 109, Tel: 313-JOrdan 6-9800, Yr: 1957, Emp: 140, ▲6, $2,500,000

Bendix Corp., M. C. Jones Electronics Co., Inc. (Subsid.), 185 N. Main St., Bristol, Conn., 21, 37, 38, 44, 45, 56, 66, 88, Tel: 203-LUdlow 2-6388, Yr: 1947, Emp: 88, ▲6

Bendix Corp., Montrose Div., South Montrose, Pa., 4, 40, 43, 51, 53, 61, 67, 77, 109, Tel: Montrose 570, Yr: 1951, Emp: 750, ▲3

Bendix Corp., Pioneer-Central Div., 2734 Hickory Grove Rd., Davenport, Iowa, 2, 4, 6, 40, 43, 54, 61, 77, 80, 83, 90, 99, 109, Tel: 319-324-9101, Yr: 1950, ▲7

Bendix Corp., Red Bank Div., Electron Tube Products, Highway #35, Eatontown, N.J., 45, 53, 54, 58, 59, 66, 67, 69, 71, 72, 75, 76, 81, 85, 86, 87, Tel: 201-LIberty 2-2000, ▲14
See ad on pages 48-49

Bendix Corp., Scintilla Div., Sidney, N.Y., 48, 52, 91, Tel: 607-LOwell 3-9511, Yr: 1925, Emp: 4600, ▲5
See ad on page 90

Bendix Corp., Semiconductor Products, South St., Holmdel, N.J., 71, 76, Tel: SHadyside 7-5400, ▲3

Bendix Corp., Sheffield Corp. (Subsid.), Box 893, Dayton 1, Ohio, 4, 36, 40, 41, 43, 61, 83, 89, 95, 109, 111, Tel: CLearwater 4-5377, Yr: 1906, Emp: 850, ▲6

Bendix Corp., Utica Div., 211 Seward Ave., Utica, N.Y., 4, 61, 96, 97, 99, Tel: 315-SW 7-2500, Yr: 1920, Emp: 1004, ▲12

Bendix Corp., York Div., York, Pa., 1, 2, 4, 9, 25, 44, 45, 50, 57, 66, 69, 90, 109, Tel: 47-1951, Yr: 1952, ▲34

Benmar Heater Div., Test Institute Corp., 3189 W. 33rd St., Cleveland 9, Ohio, 98, Tel: 216-MElrose 1-1922, Yr: 1946, Emp: 150, $225,000

Bennett Mfg. Co., Inc., Railroad St., Alden, N.Y., 90, 93, 96, Yr: 1906, Emp: 110

Benrus Watch Co., Inc., 30 Cherry Ave., Waterbury 20, Conn., 1, 4, 23, 26, 35, 43, 53, 69, Tel: 203-PLaza 6-4621, ▲3

Benson-Lehner Corp., 1860 Franklin St., Santa Monica, Calif., 2, 4, 9, 11, 14, 27, 28, 40, 77, 109, Tel: EXbrook 3-9921, Yr: 1950, Emp: 235, ▲5, $3,700,000

Benson Mfg. Co., 1811 Agnes St., Kansas City, Mo., 47

Bentley-Harris Mfg. Co., Hector & Lime Sts., Conshohocken, Pa., 101, 112, Tel: 215-TAylor 8-7600, Yr: 1924, Emp: 108

Bently Scientific Co., 2811 7th St., Berkeley 10, Calif., 4, 40, 43, 52, 69, 80, 92, Tel: 514-THornwall 5-6551, Yr: 1956, Emp: 10, ▲1

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Berg Mfg. Corp., 142 Reno St., New Cumberland, Pa., 4, 81, Tel: CEdar 8-9394, Yr: 1950, Emp: 77, ▲1

Bergen Laboratories, Inc., 60 Spruce St., Paterson 1, N.J., 4, 41, 43, 53, 61, 69, 73, 80, 94, 95, 96, 109, Tel: 201-ARmory 8-3020, Yr: 1955, Emp: 28, ▲3

Berkeley/Dynamics, P.O. Box 1098, Burlingame, Calif., 4, 14, Tel: 415-DIamond 3-8707, Yr: 1957, Emp: 5, ▲2

Berkshire Electric Cable Co., Leeds, Mass., 91, Tel: JUstice 4-3853, Yr: 1949, Emp: 55, $2,000,000

Berkshire Laboratories, 11-37 Kingsford Rd., Hanover, N.H., 40, 84, 95, Tel: Hanover 1292-W, Yr: 1949, Emp: 1, ▲1

Berkshire Transformer Corp., Kent, Conn., 84, Tel: 203-WAlker 7-3541, Yr: 1947, Emp: 120, $1,000,000

Berman Laboratories, 112-03 Rockaway Blvd., Ozone Park 20, N.Y., 40, Tel: 212-VIrginia 3-1045, Yr: 1949

Berry Associates, Inc., 1014-15 Commercial Trust Bldg., Philadelphia 2, Pa., 95, Tel: LOcust 3-6654, Yr: 1958, Emp: 5, ▲4

Beryllium Corp., Box 1462, Reading, Pa., 91, 101, 104, Tel: WAlker 9-0781, Yr: 1935, Emp: 1200, ▲2

Best Mfg. Co., Inc., 117 Elizabeth St., Clinton, N.C., 51, 79, 84, Tel: 919-LYnwood 2-3106, Yr: 1922, Emp: 175, ▲1, $1,000,000

Bestcraft Products Co., Inc., 626 Broadway, New York, 12, N.Y., 79, 97, 101, 107, 109, Tel: AL 4-7920

Bethlehem Corp., Environmental Engineering Div., 225 W. Second St., Bethlehem, Pa., 36, 44, 96, 98, 99, 109, Tel: 215-UNiversity 7-4605, Yr: 1856, Emp: 226, $500,000

See ad in class 36

Bethlehem Instrument Co., Inc., Prospect & Conestoga Sts., Bethlehem, Pa., 40, 61, 73, 97, Tel: 215-UNiversity 5-0031, Yr: 1958, Emp: 40, $25,000

Beva Laboratory, Inc., 185 Fourth St., Trenton 8, N.J., 43, 69, Tel: 609-EXport 4-4074, Yr: 1950, Emp: 10

Biddle Co. (James G.), 1316 Arch St., Philadelphia 7, Pa., 11, 37, 40, 41, 59, 61, 73, 74, Tel: LOcust 4-1602, Yr: 1895, Emp: 200, ▲2, $500,000

Biggs Co., Inc. (Carl H.), 1547 14th St., Santa Monica, Calif., 94, 96, 101, 106, 107, 109, Tel: UPton 0-4910, Yr: 1949, Emp: 10

Bingham Mfg. Co. (J. F.), 69 Bay State Rd., Lawrence, Mass., 93, 96, 109, Tel: 617-MUrdock 5-5188, Yr: 1888, Emp: 85

Biocom, Inc., 21823 Providencia St., Woodland Hills, Calif., 5, Tel: DIamond 7-5929

Bird & Co., Inc. (Richard H.), 1 Spruce St., Waltham 54, Mass., 63, 97, Tel: 617-TWinbrook 4-0160, Yr: 1913, Emp: 90, $500,000

Bird Electronic Corp., 30303 Aurora Rd., Cleveland 39, Ohio, 37, 38, 44, 45, 52, 59, 66, 80, 82, Tel: 216-CHurchill 8-1200, Yr: 1942, Emp: 104, ▲7

See ad on page 116

Bird & Sons, Ltd. (Sydney S.), 3 Palace Mansions, Palace Gardens, Enfield, Middlesex, England, 48, 49, 51, 70, 88, Tel: Enfield 8571, Yr: 1926, Emp: 800, $2,000,000

Birdair Structures, Inc., 1800 Broadway, Buffalo 12, N.Y., 44, Tel: 716-TX 6-5100, Yr: 1955, Emp: 40

Birkenhead & Staff (Warren), #3, 21 Gochi, Shiba Park, Minato-ku, Tokyo, Japan, 109, ▲1

Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 44, 52, 62, 78, 80, 81, 91, 92, 97, 101, 103, 105, 107, 112, Tel: 212-WOrth 6-5611, Yr: 1923, Emp: 27

See ad in class 91

Birtcher Corp., Industrial Div., 745 S. Monterey Pass Rd., Monterey Park, Calif., 54, 97, 105, Tel: ANgelus 8-8584, Yr: 1936, Emp: 200, ▲3

Bischoff Chemical Corp., Riverside Plastics Div., 220 Miller Rd., Hicksville, L.I., N.Y., 44, 66, 90, 94, 96, 101, 103, 107, 109, 112, Tel: WElls 1-8010, Yr: 1951, Emp: 125, ▲2, $400,000

Bishop & Co. (J.), Platinum Works, Malvern, Pa., 91, 103, 104, 112, Tel: NIagara 4-3100, Yr: 1842, Emp: 500

Bishop Mfg. Corp., 10 Canfield Rd., Cedar Grove, N.J., 97, 101, Tel: CEnter 9-2400, Yr: 1847, Emp: 61

Bittermann Electric Co., Inc., Box 807, Canaan, Conn., 51, 84, Tel: 203-TAylor 4-7345

Biwax Corp., 3445 W. Howard St., Skokie, Ill., 94, 101, Tel: AMbassador 2-3339, Yr: 1928, Emp: 12, $400,000

Black Light Corp. of America, 5114 Walnut Grove Ave., San Gabriel, Calif., 5, 13, 14, 87, 94, 112, Tel: CUmberland 3-3193, Yr: 1954, Emp: 32

Black Light Eastern Corp., 4 Manhasset Ave., Port Washington, L.I., N.Y., 5, 16, 94, Tel: 516-POrt Washington 7-7850, Yr: 1955, Emp: 23

Black Light Products, Inc., 4868 Sheridan Rd., Chicago 40, Ill., 5, 63, 90, 94, 96, 109, Tel: LOngbeach 1-4046, Yr: 1942, Emp: 26

Black & Webster, Inc., 570 Pleasant St., Watertown 72, Mass., 99, 111, Tel: WAlnut 6-0100, Yr: 1945, Emp: 36

Blackburn Electronic Corp., 55 W. 7th St., Wyoming, Pa., 4, 6, 12, 41, 43, 51, 59, 63, 74, 84, Yr: 1955, Emp: 60, $160,000

Blackburn, Inc. (P. W.), 67 Main St., Dobbs Ferry, N.Y., 94, 112, Tel: OWens 3-2620, Yr: 1952

Blackhawk Engineering Co., Inc., 14 N. Parker Dr., Janesville, Wis., 59, Tel: 608-PLeasant 2-8701, Yr: 1957, Emp: 6, ▲1, $120,000

Blackstone Corp., 111 Allen St., Jamestown, N.Y., 99, 109, 110, Tel: 51-121, Yr: 1874, Emp: 1500

Blaco Mfg. Co., 6541 Euclid Ave., Cleveland 3, Ohio, 97, 112, Tel: 216-EXpress 1-0497, Yr: 1904, Emp: 6

Blaine Electronetics, Inc., 14757 Keswick St., Van Nuys, Calif., 44, Tel: TRiangle 3-3479, Yr: 1957, Emp: 20, ▲2, $170,000

Blaw-Knox Co., P.O. Box 1198, Pittsburgh 30, Pa., 44, Tel: STerling 1-2700, ▲2

Blickman, Inc. (S.), 534 Gregory St., Weehawken, N.J., 36, Tel: UNion 3-0800, Yr: 1889, Emp: 500

Bliley Electric Co., Union Station Bldg., Erie, Pa., 31, 38, 56, 57, 59, Tel: 814-GLendale 6-7561, Yr: 1930, Emp: 275, ▲4

See ad in class 56

Blinn Co. (Delbert), P.O. Box 757, Pomona, Calif., 78, 81, 96, 97, 105, 106, 107, Tel: 714-NAtional 9-3900, Yr: 1958, Emp: 15

Bliss Electronic Corp., Box 366, Sussex, N.J., 30, 40, 41, Tel: SUssex 2-3000, Yr: 1947, Emp: 22, ▲2

Block Associates, Inc., 385 Putnam Ave., Cambridge 39, Mass., 4, 5, 16, 17, 28, 34, 40, 43, 69, 83, 96, 102, 109, Tel: 617-UNiversity 8-6050, Yr: 1956, Emp: 55, ▲2, $125,000

Blocksom & Co., 5th & Canal Sts., Michigan City, Ind., 109, Tel: TRiangle 4-3231, Yr: 1919, Emp: 250, $1,000,000

Bloomingdale Rubber Co., Aberdeen, Md., 94, Tel: CRestwood 2-2050, Yr: 1910, Emp: 100

Blonder-Tongue Laboratories, Inc., 9 Alling St., Newark 2, N.J., 19, 21, 42, 43, 44, 45, 52, 53, 59, 95, 111, Tel: 201-MArket 2-8151, Yr: 1950, Emp: 300, ▲15

Bludworth Marine Div., States Electronics Corp., 96 Gold St., New York 38, N.Y., 18, 24, 25, 28, 40, 67, 69, 71, 83, 95, 109, Tel: BEekman 3-2676, Yr: 1926, Emp: 14, ▲1, $150,000

Blue M Electric Co., 138th & Chatham St., Blue Island, Ill., 4, 36, 40, 54, 61, 82, 98, Tel: FUlton 5-9000, Yr: 1945, Emp: 93, ▲2

Blum & Co., Inc. (Julius), P.O. Box 92, Carlstadt, N.J., 107, 112, Tel: GEneva 8-4600

Bo Myte Co., Green St., Silverdale, Pa., 107, Tel: ALpine 7-2300

Bodine Electric Co., 2500 W. Bradley Pl., Chicago 18, Ill., 67, Tel: IRving 8-3515, Yr: 1905, Emp: 575

Bodnar Products Corp., 238 Huguenot St., New Rochelle 7, N.Y., 63, 90, 96, 97, 106, 109, Tel: 914-NEw Rochelle 6-4664, Yr: 1939, Emp: 45, ▲2

See ad in class 90

Boehme, Inc. (H. O.), 915 Broadway, New York 10, N.Y., 33, 96, Tel: SPring 7-2208, ▲1

Boeing Co., Antenna Dept., P.O. Box 3976, Seattle 24, Wash., 44, 59, 66, 96, Tel: 206-JUniper 6-6121, ▲475

Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., 45 River St., Danbury, Conn., 2, 4, 9, 10, 31, 36, 40, 61, 67, 74, 80, 91, 97, 98, 99, Tel: Pioneer 3-3886, Yr: 1960, Emp: 100, ▲2

Bogart Mfg. Corp., 315 Seigel St., Brooklyn 6, N.Y., 25, 44, 45, 53, 59, 66, 80, Tel: 212-HYacinth 7-4972, Yr: 1942, Emp: 200, ▲15, $3,000,000

See ad in class 66

Bogen-Presto, Div. of Siegler Corp., P.O. Box 5, Paramus, N.J., 4, 13, 26, 27, 30, 32, 43, 68, 70, 88, Tel: DIamond 3-5700, Yr: 1932, ▲3

Bogue Electric Mfg. Co., 52 Iowa Ave., Paterson, N.J., 2, 4, 17, 53, 67, 69, 71, 76, 77, 84, 90, 99, Tel: LAmbert 5-2200, Yr: 1892, Emp: 600, ▲10, $5,000,000

Bolsey Corp. of America, 11 W. 57th St., New York 19, N.Y., Importers, 13, 14, 17, 27, 28, 32, 43, 63, 67, 68, 83, 97, 106, Tel: ELdorado 5-4980, Yr: 1940

Bomac Laboratories, Inc., Subsid. of Varian Associates, 8 Salem Rd., Beverly 2, Mass., 56, 66, 86, Tel: 617-WAlker 2-6000, Yr: 1947, Emp: 600, ▲34

Bon-De Electronic Laboratories, Inc., 361-363 Rantoul St., Beverly, Mass., 4, 22, 36, 40, 54, 75, 80, 82, 99, 112, Tel: 617-WAlker 2-1106, Yr: 1958, Emp: 12, ▲1, $200,000

Bond Electronics Corp., 60 Springfield Ave., Springfield, N.J., 74, Tel: MUrdock 8-3838

Bonny Mfg. Corp., 146 Main St., Maynard, Mass., 96, 97, 106, 107, 112, Tel: 617-TWinoaks 7-9311, Yr: 1954, Emp: 48

Book Clearing House, Technical Book Div., 423 Boylston St., Boston 16, Mass., 108, Tel: COpley 7-9677, Yr: 1940, Emp: 14

Boonshaft & Fuchs, Inc., Hatboro Industrial Park, Hatboro, Pa., 4, 8, 9, 35, 36, 40, 43, 77, 95, Tel: 215-OSborne 2-1240, Yr: 1959, Emp: 28, ▲3, $400,000

Boonton Electronics Corp., 738 Speedwell Ave., Morris Plains, N.J., 6, 31, 38, 40, Tel: 201-JEfferson 8-4210, Yr: 1953, Emp: 58, ▲7, $815,000

See ad in class 6

Boonton Molding Corp., 300 Myrtle Ave., Boonton, N.J., 90, 96, 106, 107, 109, 112, Tel: COrtland 7-0003, Yr: 1921, Emp: 374, ▲4

Boonton Radio Corp., Subsid. of Hewlett-Packard Co., 50 Intervale Rd., Boonton, N.J., 6, 31, 34, 38, 40, 41, 43, 53, Tel: 201-DEerfield 4-3200, Yr: 1934, Emp: 155, ▲15

See ad in class 38

Booth Co. (Arthur E.), 265 S. Alexandria Ave., Los Angeles 4, Calif., 40, 41, 69, Tel: DUnkirk 1-2161, Yr: 1937, Emp: 11

Boots Aircraft Nut Corp., Div. of Townsend Co., Newtown Tnpke., Norwalk, Conn., 97, Tel: 203-VIctor 7-2446, Yr: 1938, Emp: 75, $250,000

Booz-Allen Applied Research, Inc., 135 S. LaSalle St., Chicago 3, Ill., 95, 109, Tel: FRanklin 2-1728, Yr: 1955, Emp: 90, ▲6

Borden Chemical Co., 350 Madison Ave., New York 17, N.Y., 94, 101, 107, Tel: MUrray Hill 7-4100, Yr: 1929, Emp: 6000

Borden Chemical Co., Resinite Dept., 1 Clark St., North Andover, Mass., 94, 106, 107, 109, 112, Tel: 617-MUrdock 7-7131

Borg Equipment Div., Amphenol-Borg Electronics Corp., 120 S. Main St., Janesville, Wis., 11, 21, 31, 67, 69, 74, Tel: 608-PLeasant 4-6616, Yr: 1958, Emp: 450, ▲12, $8,500,000

See ad in class 74

Borg-Warner Corp., Borg-Warner Controls Div., 3300 Newport Blvd., Santa Ana, Calif., 1, 37, 83, Tel: KImberly 5-5581, Yr: 1945, Emp: 330, ▲4

Borg-Warner Corp., Ingersoll Products Div., 630 Congdon Ave., Elgin, Ill., 90, 93, Tel: 212-COmmodore 4-7800

Borg-Warner Corp., Omnitronics, Inc. (Subsid.), 511 N. Broad St., Philadelphia 23, Pa., 9, Tel: 215-WAlnut 5-4343, Yr: 1960

See ad in class 9

Borg-Warner Corp., Pesco Products Div., 24700 N. Miles Rd., Bedford, Ohio, 4, 47, 53, 54, 58, 67, Tel: AXminster 2-6100, Yr: 1933, Emp: 1500, ▲17

Borolite Corp., 3113 Forbes St., Pittsburgh 3, Pa., 94, 98, 103, 104, Tel: MUseum 2-4600, Yr: 1953, Emp: 500

Boston Insulated Wire & Cable Co., 65 Bay St., Boston 25, Mass., 91, Tel: 617-COlumbia 5-2104, Yr: 1905, Emp: 180, ▲1, $1,600,000

Boulevard Electronics, Inc., 4757 N. Ravenswood Ave., Chicago 40, Ill., 20, 26, 30, 43, 53, 69, 88, 96, Tel: LOngbeach 1-3355, Yr: 1949, Emp: 18, $208,000

Bourns, Inc., 6135 Magnolia Ave., Riverside, Calif., 73, 74, 83, Tel: OVerland 4-1700, Yr: 1946, Emp: 1000, ▲3, $11,563,094

Bow Solder Products Co., Inc., 251 Freeman St., Brooklyn 22, N.Y., 110, Tel: 212-EVergreen 9-4863, Yr: 1939, Emp: 25, $500,000

Bowitz Electronics, 1341 W. Woodcrest Ave., Fullerton, Calif., 57, 74, 84, Tel: LAmbert 5-5976

Bowmar Instrument Corp., 8000 Bluffton Rd., Fort Wayne, Ind., 2, 4, 11, 43, 61, 77, Tel: SHerwood 3121, Yr: 1951, ▲2

See ad in class 77

Boyle Metalcraft Corp., 150 Sullivan St., Brooklyn 31, N.Y., 90, Tel: TRiangle 5-3603, Yr: 1946, Emp: 175

Bozak Mfg. Co. (R. T.), Box 1166, Darien, Conn., 79, Tel: 203-TEmple 8-6521, Yr: 1949, Emp: 50, ▲1

Brach Mfg. Corp., Div. of General Bronze Corp., 200 Central Ave., Newark 3, N.J., 4, 43, 44, 53, 69, 72, 73, 77, 80, Tel: 201-HUmboldt 2-1500, Yr: 1906, Emp: 250, ▲2, $2,510,696

Bracke-Seib X-Ray Co., Inc., 16 Pelham Bay Park W., Pelham Manor, N.Y., 5, 36, 41, Tel: PElham 8-4346, Yr: 1945, Emp: 15

Bradford Components, Inc., 65 South Ave., Salamanca, N.Y., 51, 73, 74, 84, Tel: 2340, Yr: 1953, Emp: 50, ▲1

Bradley Industries, Inc., 1650-1658 N. Damen Ave., Chicago 47, Ill., 90, 96, 109, Tel: 312-ARmitage 6-8197

See ad in class 90

Bradley Semiconductor Corp., 275 Welton St., New Haven 11, Conn., 53, 71, 76, Tel: 203-STate 7-7181, Yr: 1939, Emp: 125, ▲10

See ad in class 71

Brady Co. (W. H.), 734 W. Glendale Ave., Milwaukee 9, Wis., 97, 109, Tel: 414-EDgewood 2-8100, Yr: 1914

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Brainin Corp. (C. S.), 320 Washington St., Mount Vernon, N.Y., 80, 91, 97, 104, 109, 110, Tel: 914-MOunt Vernon 8-5500

Bram Metallurgical-Chemical Co., 820 65th Ave., Philadelphia 26, Pa., 56, 64, 82, 86, 91, 96, 102, 104, 112, Tel: WAverly 4-2121, Yr: 1939, Emp: 75

Brand-Rex Div. (William), American Enka Corp., 47 Sudbury Rd., Concord, Mass., 91, 101, 107, Tel: 617-EMerson 9-9630, Yr: 1920, Emp: 1000, ▲1, $20,000,000

Branson Corp., 41 S. Jefferson Rd., P.O. Box 234, Whippany, N.J., 73, Tel: 201-TUcker 7-1100, Yr: 1948, Emp: 50, ▲1

See ad in class 73

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

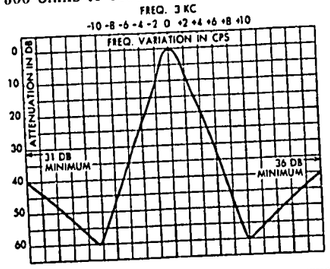
Only a Bird in a Gilded Cage

As succeeding generations of missiles penetrate the curtain of space that separates Earth from other planets, the importance of electronic guidance, control and airborne telemetry systems becomes obvious. For, without new engineering design techniques to provide reliable communication and control, the most advanced missile is but a bird in a gilded and very expensive cage.

As typical examples of what can be accomplished to insure maximum performance in missile telemetering, communication, data processing and other applications, Burnell & Co. has developed two new filters—a miniature 3 kc crystal filter and, employing modern synthesis techniques, a miniature 500 kc LC toroidal filter possessing low transient distortion characteristics.

TECHNICAL DATA
3 kc Crystal Filter

Attenuation—3 db B/W—2 cps
Shape Factor—30/3—5:1
Impedance—500K in and out
Temp. Coeff.—.021 cps °C
Size—3½ x 2⅜ x 1⅞
Insertion Loss—3½ db
Also available in any impedance from 500 ohms to 500K

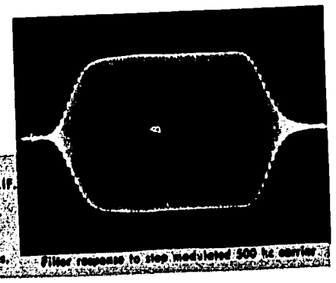


TECHNICAL DATA
500 kc LC Toroidal Filter

Attenuation—B/W 40 kc at 3 db
—200 kc at 50 db
Impedance—50 ohms in and out
Insertion Loss—4.5 db
Over and undershoot—
(for a step modulated
500 kc carrier)—less than 1%
Size—⅞ x 3 x 1½

Other Burnell filters are available in frequencies up to 30 mcs over a wide range of impedances.

Write for new catalog.



Filter response to step modulated 500 kc carrier

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For details, circle #91 on Reader Service Card

Alphabetical Directory

Branson Instruments, Inc., 37 Brown House Rd., Stamford, Conn., 41, 83, 84, 94, 99, 109, Tel: 203-DAvis 4-6721, Yr: 1946, Emp: 196, ▲6, $2,626,539

Braun-Knecht-Heimann Co., 601 O'Neill Ave., Belmont, Calif., 17, 36, 40, 75, 98, 105, 112, Tel: 415-LYtell 3-5603

Braun Tool & Instrument Co., Inc., 140 Fifth Ave., Hawthorne, N.J., 52, 60, 78, 96, 97, 105, Tel: 201-HAwthorne 7-1773, Yr: 1946, Emp: 65
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Breeze Corporations, Inc., 700 Liberty Ave., Union, N.J., 18, 43, 52, 91, 97, 109, Tel: MUrdock 6-4000, Yr: 1927, Emp: 600, $2,000,000

Breon Laboratories, 1520 Evergreen Rd., Williamsport 29, Pa., 56, Tel: 717-323-7426

Brevel Products Corp., 601 W. 26th St., New York 1, N.Y., 67, Tel: 212-WAtkins 4-4737, Yr: 1948, Emp: 250, ▲8, $150,000

Brew & Co., Inc. (Richard D.), 90 Airport Rd., Concord, N.H., 57, Tel: 603-CApitol 5-6605, Yr: 1945, Emp: 150, ▲5

Brick Electronic Equipment Co., 820 Blanch Ave., Norwood, N.J., 15, Tel: POplar 8-0409, ▲1

Bridgeport Brass Co., 30 Grand St., Bridgeport 2, Conn., 104, 112, Tel: EDison 4-1182, Yr: 1865, Emp: 6500

Briggs Associates, Inc., 10 DeKalb St., Norristown, Pa., 4, 8, 9, 10, 15, 34, 35, 36, 41, 50, 95, 96, 109, Tel: BR 9-0400, Yr: 1956, Emp: 37, ▲8, $500,000

Bright Radio Laboratories, Inc., 222 E. 2nd St., Mineola, L.I., N.Y., 44, 49, 53, 61, 65, 66, 80, 81, 84, Tel: Pioneer 2-5520, Yr: 1951, Emp: 6

Bright Star Industries, 600 Getty Ave., Clifton, N.J., 46, Tel: GRegory 1-3200, Yr: 1909, Emp: 300, ▲1

Brilhart Electronics Corp., Old Country Rd., Mineola, L.I., N.Y., 52, 81, 96, 106, Tel: Pioneer 6-0425, Emp: 60, $600,000

Brilmayer Laboratories, Inc. (E. W.), 86 Fulton St., New York 38, N.Y., 40, Tel: BEekman 3-7914, Yr: 1945, Emp: 6, ▲1, $2,000

Briscoe Mfg. Co., P.O. Box 628, Columbus 16, Ohio, 98, Tel: 614-294-3376

Bristol Co., P.O. Box 1790, Waterbury 20, Conn., 4, 6, 16, 17, 24, 28, 34, 40, 53, 61, 73, 80, 82, 97, Tel: 203-PLaza 6-4451, ▲5

Bristol Motors, Div. of Vocaline Co. of America, Inc., Old Saybrook, Conn., 20, 30, 67, Tel: EV 8-3414, Yr: 1951, Emp: 130

British Industries Corp., 80 Shore Rd., Port Washington, L.I., N.Y., Importers, 32, 43, 68, 79, 85, 88, 90, 110, Tel: 516-POrt Washington 7-7700, Yr: 1936, Emp: 100, $6,100,000

British Radio Electronics, Ltd., 1833 Jefferson Pl. N.W., Washington 6, D.C., Importers, 48, 49, 74, Tel: 202-FEderal 8-1520, Yr: 1951, Emp: 5, ▲1, $180,000

Britton Electronics Corp., 19 Warren Pl., Mount Vernon, N.Y., 71, 76, Tel: OWens 9-3311, Yr: 1958, Emp: 48, ▲3, $500,000

Broadcast Equipment Specialties Corp., Cedar Hill Rd., Fishkill, N.Y., 27, Tel: 914-TWinbrook 6-6035, Yr: 1951, Emp: 5

Broadway Coil Co., 5638 Broadway, Chicago 40, Ill., 51, 84, 88, Tel: LO 1-3804, Yr: 1951, Emp: 40, $500,000

Brooke Engineering Co., Inc., 4517 Wayne Ave., Philadelphia 44, Pa., 4, Tel: DAvenport 9-8822, Yr: 1929, Emp: 8

Brookfield Wire Co., Inc., Airport, Brookfield, Mass., 91, Tel: VOlunteer 7-0474

Brooks Instrument Co., Inc., 407 Vine St., Hatfield, Pa., 4, 40, Tel: 215-ULysses 5-5174, Yr: 1946, Emp: 220, ▲2, $500,000

Brooks & Perkins, Inc., 1950 W. Fort St., Detroit 16, Mich., 44, 54, 66, 90, 93, 96, 97, 104, 105, 109, Tel: 313-TAshmoo 5-5900, Yr: 1943, Emp: 400, $4,000,000

Brooks Research, Inc., 499 W. Commercial St., East Rochester 10, N.Y., 5, 41, Tel: 716-LUdlow 6-2720, Yr: 1957, Emp: 45, ▲4, $400,000

Brown-Bridge Mills, Inc., E. Water St., Troy, Ohio, 97, Tel: FEderal 2-1266, Yr: 1928, Emp: 175

Brown, Inc. (Dayton T.), 555 Church St., Bohemia, L.I., N.Y., 109, Tel: LT 9-6300, Yr: 1951, Emp: 85, ▲6

Browning Laboratories, Inc., 100 Union Ave., Laconia, N.H., 1, 7, 20, 21, 24, 26, 38, 43, Tel: 603-LAkeside 4-5454, Yr: 1922, Emp: 75, ▲3, $500,000

Bruel & Kjaer (A/S), Lindealle 23, Naerum, Denmark, 4, 6, 28, 35, 36, 38, 40, 41, 43, 59, 61, 65, 83, Tel: Copenhagen 80-05-00, Yr: 1942, Emp: 550, $3,000,000

Bruno-New York Industries Corp., 460 W. 34th St., New York 1, N.Y., 2, 8, 30, 37, 40, 41, 43, 45, 111, Tel: 212-LOngacre 4-5930, Yr: 1950, Emp: 78, ▲3, $2,000,000

Brunswick Instruments, P.O. Box 813, New Brunswick, N.J., 37, 41, 63, Tel: CHarter 7-5919, Yr: 1954, Emp: 3, ▲1

Brush Beryllium Co., 5209 Euclid Ave., Cleveland 3, Ohio, 92, 101, 104, Tel: 216-EXdicott 1-5400, Yr: 1931, Emp: 1555

Brys Instrument Co., 7026 Sixth Ave., Brooklyn 9, N.Y., 51, 74, 80, 109, Tel: 212-BEachview 8-0305, Yr: 1955, Emp: 12, ▲1, $100,000

Buchanan Electrical Products Corp., 225 Route #22, Hillside, N.J., 52, 62, 81, 97, 111, Tel: 201-WAverly 3-7474, Yr: 1944, Emp: 100

Buck Engineering Co., Inc., 37-41 Marcy St., Freehold, N.J., 69, Tel: 201-HOpkins 2-1111, Yr: 1932, Emp: 40, ▲1, $500,000

Buck Instrument Co., P.O. Box 930, Boulder, Colo., 4, 10, 11, 14, 16, 23, 40, 96, Tel: HIllcrest 2-3741, Yr: 1958, Emp: 17, ▲4, $147,000

Buckbee Mears Co., 245 E. Sixth St., Saint Paul 1, Minn., 40, 43, 50, 59, 91, 96, 99, 105, 109, Tel: 612-CApital 7-7361, Yr: 1905, Emp: 286, $400,000
See ad in class 105

Bucknell Engineering Co., Inc., 10717 E. Rush St., South El Monte, Calif., 53, 67, 73, 84, Tel: 213-GIlbert 3-5923, Yr: 1958, Emp: 32, ▲1, $350,000

Bud Radio, Inc., 2118 E. 55th St., Cleveland 3, Ohio, 32, 47, 49, 51, 59, 62, 79, 90, 93, 96, 97, 105, Tel: 216-HEnderson 1-7166, Yr: 1928, Emp: 125, ▲1, $2,500,000
See ad in class 90

Budd Electronics, Inc., 43-22 Queens St., Long Island City 1, N.Y., 1, 4, 7, 20, 24, 25, 34, 54, 90, 99, Tel: 212-EXeter 2-5050, Yr: 1888, Emp: 700, ▲50, $12,000,000

Budd-Stanley Co., Inc., 175 Eileen Way, Syosset, L.I., N.Y., 37, 44, 45, 59, 66, 84, 88, Tel: 516-WAlnut 1-7550, Yr: 1951, Emp: 150, ▲4, $1,500,000
See ad on page 92

Budelman Electronics Corp., 375 Fairfield Ave., Stamford, Conn., 7, 19, 24, 30, 38, 42, 43, Tel: 203-FIreside 8-9231, Yr: 1952, Emp: 60, ▲5, $750,000
See ad on page 96

Buhl Optical Co., 1009 Beech Ave., Pittsburgh 33, Pa., 14, 17, 32, Tel: FAirfax 1-0076, Yr: 1930, Emp: 100

Building Blocks Electronic Co., 2172 E. 30th St., Brooklyn 34, N.Y., 2, 23, 40, 69, Tel: CLoverdale 3-8931, Yr: 1957, Emp: 3, ▲1, $40,000

Bulova Research & Development Laboratories, 62-10 Woodside Ave., Woodside 77, N.Y., 1, 2, 4, 9, 10, 14, 17, 21, 22, 23, 27, 31, 34, 35, 38, 39, 43, 50, 53, 56, 59, 61, 72, 77, 78, 80, 83, Tel: 212-NEwtown 9-5000, Yr: 1875, Emp: 3715, ▲50, $4,000,000

Bulova Watch Co., Inc., Electronics Div., Dept. A-1376, 61-10 Woodside Ave., Woodside 77, N.Y., 1, 10, 31, 34, 35, 37, 38, 51, 54, 56, 57, 59, 77, Tel: 212-NEwtown 9-5700, Yr: 1951, Emp: 350, ▲3
See ad in class 56

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

E-I

Glass-to-Metal SEALS

VERSATILE
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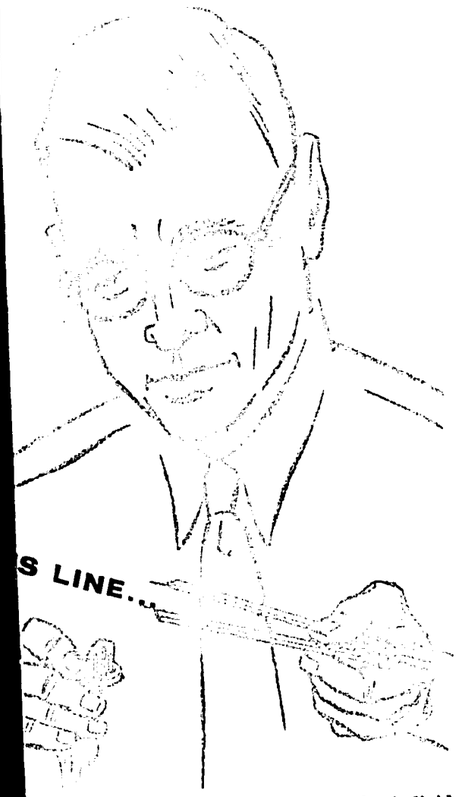
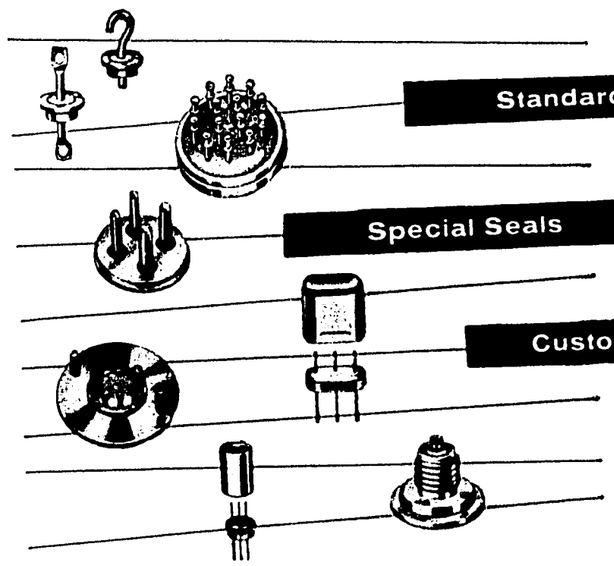


Including semi-conductor seals, individual terminals and multiple headers are available in hundreds of standardized types that reflect the economies of mass production methods. Offer a time and money-saving solution to all but the most unusual sealing problems.



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E-I engineers will design "specials" or produce seals to your exact specifications. Custom threaded types, color coding or unusual terminal arrangements can be supplied quickly in reasonable quantities.

Custom Sealing Service

Complete facilities available for sealing assemblies of your own manufacture. Please supply sample or drawings for estimates on your sealing requirements, or ask to have a field engineer make recommendations on specific seal applications. Literature on request.

ELECTRICAL INDUSTRIES
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A Division of Philips Electronics and Pharmaceutical Industries Corp.

Patented In Canada, No. 523,390; In United Kingdom, No. 734,583; licensed in U.S. under No. 2561520

For details, circle #92 on Reader Service Card

Bulow Electric Co., 11000 Capital, Oak Park 37, Mich., 1, 2, 9, 11, 13, 44, 82, 96, 109, Tel: 313-LIncoln 7-1133, Yr: 1932, Emp: 32, ▲2, $178,000

Bundy Electronics Corp., 171 Fabyan Pl., Newark 12, N.J., 12, 34, 51, 59, 69, 84, Tel: 201-ESsex 2-1872, Yr: 1953, Emp: 50, ▲3, $300,000

Burdick, George, Parmenter Rd., R.F.D., Hudson, Mass., 95, 109, Tel: 617-JOrdan 2-6705, Yr: 1961, ▲1

See ad in class 95

Bureau of Engraving, Inc., 500 S. Fourth St., Minneapolis, Minn., 43, 81, Tel: FEderal 9-8721

Burgess Battery Co., Div. of Servel, Inc., Foot of Exchange St., Freeport, Ill., 46, Tel: ADams 2-2161, Yr: 1916, Emp: 1500, ▲1

Burke Electric & X-Ray Co., Ltd., 61-63 Yorkville Ave., Toronto 5, Ontario, Canada, Tel: 416-WAlnut 2-5138, Yr: 1928, Emp: 10, ▲1

Burke & James, Inc., 321 S. Wabash Ave., Chicago 4, Ill., 14, 32, Tel: HArrison 7-8393, Yr: 1897

Burklyn Co., 3429 Glendale Blvd., Los Angeles 39, Calif., 91, 96, 97, Tel: NOrmandie 2-3111, Yr: 1946, Emp: 15

Burling Instrument Co., Inc., 16 River Rd., Chatham, N.J., 80, 82, Tel: 201-MErcury 5-9481, Yr: 1935, Emp: 12

Burmac Electronics Co., Inc., 142 S. Long Beach Rd., Rockville Centre, L.I., N.Y., 37, 43, 48, 66, 69, 84, Tel: 516-ORiole 8-3070, Yr: 1957, Emp: 25, ▲5, $167,000

See ad in class 69

Burndy Corp., Omaton Div., Richards Ave., Norwalk, Conn., 7, 44, 52, 60, 78, 81, 91, 97, 111, Tel: 203-TEmple 8-1169, Yr: 1924, ▲4

See ad in class 52

Burndy-Escon Div., Burndy Corp. & Glass-Tite Industries, Inc., 725 Branch Ave., Providence 4, R.I., 52, 75, 96, Tel: 401-TEmple 1-6800, Yr: 1960, Emp: 40

Burnell & Co., Inc., Dept. IR-2, 10 Pelham Pkwy., Pelham Manor, N.Y., 12, 51, 57, 59, 84, Tel: 914-PElham 8-5000, Yr: 1945, Emp: 350, ▲5

See ad on page 106

Burnett Radio Laboratory (Wm. W. L.), 4818 Idaho St., San Diego 16, Calif., 56, 95, 109, Tel: ATwater 2-2740, Yr: 1927, ▲1

Burnley Battery & Mfg. Co., Clay St., North East, Pa., 110, Tel: SAratoga 5-3595, Yr: 1886, Emp: 3, $45,000

Burr-Brown Research Corp., Box 6444, Tucson, Ariz., 2, 4, 35, 40, 43, 50, 61, 69, 109, Tel: AXtel 8-0772, Yr: 1956, Emp: 16, ▲3

Burroughs Corp., 6071 Second Ave., Detroit 32, Mich., 2, 8, 9, 10, 28, 33, 50, 55, 63, 76, 109, Tel: TRinity 5-2260, Yr: 1886, Emp: 36,000, ▲34

Burroughs Corp., Control Instrument Co., Inc. (Subsid.), 67 35th St., Brooklyn 32, N.Y., 1, 2, 4, 8, 9, 13, 14, 18, 25, 40, 41, 44, 61, 67, 90, Tel: STerling 8-0658, Yr: 1934, Emp: 600, ▲10, $7,580,000

Burroughs Corp., Electro Data Div., 460 Sierra Madre Villa, Pasadena, Calif., 4, 8, 9, 10, 11, 27, 48, 50, 63, 86, 109, Tel: 213-ELgin 5-8061, Yr: 1905, Emp: 37,500, ▲50

Burroughs Corp., Electronic Components Div., P.O. Box 1226, Plainfield, N.J., 9, 10, 11, 50, 53, 63, 86, Tel: PLainfield 7-5000, Yr: 1954, Emp: 200, ▲6

Burroughs Corp., Electronic Instruments Div., 1209 Vine St., Philadelphia 7, Pa., 10, 55, 84, Tel: 215-LOcust 7-1401, Yr: 1952, Emp: 400, ▲10

Burton-Rogers Co. (Hoyt Electrical Instruments), Dept. I.R.E., 42 Carleton St., Cambridge 42, Mass., 61, Tel: 617-ELiot 4-1643, Yr: 1904, Emp: 200, ▲1, $1,500,000

See ad in class 61

Bush Transformer Corp., 707 North St., Endicott, N.Y., 43, 51, 59, 69, 84, Tel: Pioneer 8-3387, Yr: 1957, Emp: 75

Bushings, Inc., 4358 Coolidge Hwy., P.O. Box 189, Royal Oak, Mich., 89, 97, Yr: 1940, Emp: 25, $30,000

Bussmann Mfg. Div., McGraw-Edison Co., 2536 W. University at Jefferson, Saint Louis 7, Mo., 60, Tel: 314-GArfield 1-1740, Yr: 1914, ▲1

See ad in class 60

By-Buk Co., 4314 W. Pico Blvd., Los Angeles 19, Calif., 97, 111, Tel: 213-WEbster 6-0151, Yr: 1947

Bytrex Corp., 50 Hunt St., Newton 58, Mass., 4, 40, 41, 61, 83, Yr: 1958, Emp: 30, $750,000

C

CBC Electronics Co., Inc., 2601 N. Howell St., Philadelphia 33, Pa., 30, 50, 62, 74, 84, 91, 106, 109, Tel: GArfield 3-2797, Yr: 1950, Emp: 35, ▲3, $180,000

CBS Electronics, Div. of Columbia Broadcasting System, Inc., 100 Endicott St., Danvers, Mass., 2, 10, 41, 50, 65, 68, 69, 76, 85, 86, 87, Tel: 617-SPring 4-2360, Yr: 1921, Emp: 2600, ▲50

CBS Electronics, Semiconductor Operations, 900 Chelmsford St., Lowell, Mass., 76, Tel: 617-GLenview 2-8961, ▲14

CBS Laboratories, Div. of Columbia Broadcasting System, Inc., High Ridge Rd., Stamford, Conn., 9, 10, 17, 86, Tel: 203-DAvis 5-4321, Yr: 1936, Emp: 250, ▲35

C & D Batteries, Div. of Electric Autolite Co., Washington & Cherry Sts., Conshohocken, Pa., 40, 53, 69, 71, Tel: 215-TAylor 8-9000

C.E.S. Electronic Products, Inc., 5026 Newport Ave., San Diego 7, Calif., 2, 4, 6, 35, 41, 43, 45, 50, 59, 69, 96, 109, Tel: ACademy 2-3505, Yr: 1957, Emp: 12, ▲3

CFI Corp., Dept. IRE, Cottage Pl., Mineola, L.I., N.Y., 52, 55, 75, 81, 92, 101, 103, 105, 109, Tel: 516-PIoneer 6-0571, Yr: 1958, Emp: 38, ▲1, $350,000

See ad in class 92

C & K Components, Inc., 101-103 Morse St., Watertown, Mass., 10, 11, 50, 57, 63, 84, Tel: 617-WAlnut 6-0800, Yr: 1957, Emp: 150, ▲9, $1,300,000

C-M Mfg. & Machine Co., Inc., 103 Dewey St., Bloomfield, N.J., 80, 91, 92, 96, 98, 101, 104, 105, 109, Tel: EDison 8-6500, Yr: 1946, Emp: 60, $500,000

CTS Corp., 1142 W. Beardsley Ave., Elkhart, Ind., 45, 50, 51, 73, 74, 75, 80, 84, 107, Tel: 219-JAckson 3-0210, Yr: 1896, Emp: 1500, ▲7, $20,047,758

See ad on page 12

CTS of Canada, Ltd., Industrial Electronics Div., 80 Thomas St., Streetsville, Ontario, Canada, 4, 53, 67, 69, 71, Tel: ATwater 9-0318

CWS Waveguide Corp., 301 W. Hoffman Ave., Lindenhurst, L.I., N.Y., 66, Tel: 516-TUrner 8-7150, Yr: 1958, Emp: 35

Cable Designs, Inc., 69 Rushmore St., Westbury, L.I., N.Y., 52, 91, 107, 112, Tel: 516-EDgewood 3-5323, Yr: 1958, Emp: 30, ▲2, $494,000

Cable Electric Products, Inc., 234 Daboll St., Providence, R.I., 4, 41, 62, 63, 78, 80, 82, 84, Tel: STuart 1-5400, Yr: 1925, Emp: 300, $3,000,000

Cable Specialists of Conn., 95 Kitts Lane, Newington 11, Conn., 4, 30, 43, 62, 69, 77, 91, 96, 109, Tel: 203-MOhawk 6-3663, Yr: 1955, Emp: 4, $100,000

Cabtron, Div. of Argus Mfg. Co., 1218 S. Western Ave., Chicago 8, Ill., 47, 90, 93, Tel: 312-243-2565, Yr: 1910, Emp: 100, $1,000,000

See ad in class 90

Caddell-Burns Mfg. Co., Inc., 40 E. Second St., Mineola, L.I., N.Y., 44, 51, 84, 92, 106, Tel: PIoneer 6-2310, Yr: 1946, Emp: 30, ▲1, $200,000

Cadre Industries Corp., 20 Valley St., Endicott, N.Y., 18, 20, 24, 30, 41, 43, 50, 62, 77, 91, 96, 105, 111, Tel: 607-PIoneer 8-3373, Yr: 1950, Emp: 1000, $6,500,000

Caig Laboratories, Inc., 46 Stanwood Rd., New Hyde Park, L.I., N.Y., 94, 111, Tel: PIoneer 2-0278, Yr: 1955, Emp: 6, ▲1, $50,000

Calbest Electronics, 4801 Exposition Blvd., Los Angeles 16, Calif., 2, 4, 8, 21, 26, 30, 43, 44, 50, 51, 69, 74, 79, 84, 88, 91, 95, 96, Tel: 714-REpublic 1-7291, Yr: 1942, Emp: 100

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Calibration Standards Corp., Subsid. of Royal Industries, Inc., 1025 Westminster Ave., Alhambra, Calif., 6, 31, 40, Tel: CUmberland 3-8156, Yr: 1959, Emp: 35

California Chassis Co., 5445 E. Century Blvd., Lynwood, Calif., 79, 90, 93, Tel: 213-NEvada 6-9931, Yr: 1947, Emp: 65, $600,000

California Computer Products, Inc., 8714 Cleta St., Downey, Calif., 4, 8, 9, 10, 11, 28, 34, 40, 41, 43, 50, 57, 69, Tel: SPruce 3-4921, Yr: 1959, Emp 45, ▲10, $370,000

California Electronic Services Co., 1724 Trinity St., Los Angeles 15, Calif., 109, Tel: RIchmond 7-4235

California Magnetic Control Corp., 11922 Valerio St., North Hollywood, Calif., 43, 51, 69, 72, 84, 109, Tel: TRiangle 7-1104, Yr: 1953, Emp: 40, ▲2

California Resistor Corp., 1631 Colorado Ave., Santa Monica, Calif., 74, Tel: EXbrook 3-9861, Yr: 1960, Emp: 24

California Technical Industries, Div. of Textron, Inc., 1421 Old County Rd., Belmont, Calif., 2, 4, 9, 22, 23, 35, 37, 38, 40, 41, 43, 44, 69, 70, Tel: LYtell 3-8466, Yr: 1946, Emp: 165, ▲20, $3,000,000

Callins Industries, Inc., P.O. Box 356, Greenfield, Tenn., 48, Tel: ADams 5-2234, Yr: 1958, Emp: 48, ▲1, $273,577

Caltron Products Co., 3518 W. Pico Blvd., Los Angeles 19, Calif., 99, Tel: REpublic 4-2420

Calumet & Hecla, Inc., Flexonics Div., 450 E. Devon Ave., Bartlett, Ill., 96, 97, 109, Tel: TEnnyson 7-1811, Yr: 1902, Emp: 850

Calvideo Electronics, Inc., 18601 S. Santa Fe, Compton, Calif., 21, 85, 86, 87, Tel: NEvada 6-0741, Yr: 1951, Emp: 150, ▲2, $3,000,000

Camblock Corp., Div. of Waltham Precision Instrument Co., Inc., Natick Industrial Center, Natick, Mass., 52, Tel: OLympic 3-6114, Yr: 1958, Emp: 25, ▲3, $500,000

Cambridge Communications Corp., 138 Main St., Cambridge 42, Mass., 108, Tel: 617-KIrkland 7-1997, Yr: 1957, Emp: 12, ▲1

Cambridge Co., 224 N. Desplaines St., Chicago 6, Ill., 30, Tel: ANdover 3-6574, Yr: 1942

Cambridge Electronics Corp., 294 Centre St., Newton, Mass., 53, Tel: WOodward 9-8890, Yr: 1945, Emp: 5, ▲3

Cambridge Filter Corp., 738 E. Erie Blvd., Syracuse 1, N.Y., 90, Tel: 315-GRanite 5-1608

Cambridge Instrument Co., Inc., 420 Lexington Ave., New York 17, N.Y., 5, 6, 12, 13, 22, 40, 61, Tel: 212-MUrray Hill 6-0335, Yr: 1914, Emp: 300, ▲6

Cambridge Thermionic Corp., 445 Concord Ave., Cambridge 38, Mass., 49, 50, 51, 55, 56, 62, 81, 97, Tel: 617-TRowbridge 6-2800, Yr: 1941, Emp: 275, ▲2

Camden Wire Co., Inc., Masonic Ave., Camden, N.Y., 91, Tel: 315-CAmden 645

Camera Equipment Co., Inc., Dept. RE-2, 315 W. 43rd St., New York 36, N.Y., 32, 53, 96, Tel: 212-JUdson 6-1420, ▲1

See ad in class 32

Cameraflex Corp., 1055 Stewart Ave., Garden City, L.I., N.Y., 1, 2, 3, 14, 15, 17, 20, 21, 26, 30, 34, 43, 53, 69, 72, 96, Yr: 1933, Emp: 400, ▲20, $5,000,000

Camloc Fastener Corp., 22 Spring Valley Rd., Paramus, N.J., 97, Tel: HUbbard 9-4900, Yr: 1938, Emp: 200, $1,500,000

Campbell Co., Inc. (Colin), Miry Brook Rd., P.O. Box 529, Danbury, Conn., 69, 84, Tel: 203-PIoneer 3-6701, Yr: 1951, Emp: 40, ▲1

Campbell Industries, Inc., 1 Washington St., Dover, N.H., 74, Tel: 603-SHerwood 2-1120, Yr: 1949, Emp: 150, ▲2

Campbell-Norquist & Co., 305 N.E. Russell, Portland 12, Ore., 30, Yr: 1930, Emp: 27, $50,000

Campbell X-Ray Corp., 108 Cummington St., Boston 15, Mass., 5, 40, 84, Tel: KEnmore 6-1611

Campro Products, Inc., 3131 Columbus Rd. N.E., Canton 1, Ohio, 90, Tel: 216-GLendale 5-0334, Yr: 1945, Emp: 110

Canadian Applied Research, Ltd., 750 Lawrence Ave. W., Toronto 19, Ontario, Canada, 1, 2, 4, 8, 14, 16, 17, 19, 25, 43, 108, 109, Tel: RUssel 1-1571, Yr: 1947, Emp: 475, ▲3, $1,500,000

Canadian Aviation Electronics, Ltd., P.O. Box 2030, Saint Laurent, Montreal 9, P.Q., Canada, 1, 2, 4, 8, 10, 11, 18, 20, 21, 24, 25, 28, 35, 43, 48, 50, 53, 69, 73, 77, 109, Tel: MElrose 1-6781, Yr: 1947, Emp: 1800, ▲32

Canadian General Electric Co., Ltd., Electronic Equipment & Tube Dept., 830 Lansdowne Ave., Toronto 4, Ontario, Canada, 1, 2, 18, 19, 20, 24, 25, 29, 42, Tel: 416-LEnnox 4-6511, Emp: 12,700, ▲36

Canadian Marconi Co., 2442 Trenton Ave., Montreal 16, Canada, 1, 2, 18, 19, 20, 24, 25, 29, 35, 37, 45, 51, 53, 57, 59, 80, 84, 85, 86, Tel: REgent 8-9441, Yr: 1902, Emp: 2400, ▲15, $15,000,000

Canadian Westinghouse Co., Ltd., 286 Sanford Ave. N., Hamilton, Ontario, Canada, 1, 2, 4, 7, 8, 9, 10, 18, 19, 25, 34, 37, 40, 43, 44, 50, 53, 83, 84, 85, 86, 87, 96, Tel: 416-JAckson 8-8811, Yr: 1903, Emp: 8500, ▲46

Cannon Co. (C. F.), Springwater, N.Y., 79, Tel: NOrthfield 9-2550, Yr: 1919, Emp: 45, $268,000

Cannon Electric Co., 3208 Humboldt St., Los Angeles 31, Calif., 52, 62, 80, 91, 111, Tel: 213-CApitol 5-1251, Yr: 1915, Emp: 3500, ▲40, $44,000,000

See ad in class 52

Canoga Electronics Corp., 15330 Oxnard St., Van Nuys, Calif., 1, 2, 4, 11, 25, 34, 37, 38, 43, 44, 66, Tel: 213-STate 6-9010, Yr: 1949, Emp: 250, ▲35, $4,000,000

Canrad Precision Industries, Inc., 43 W. 16th St., New York 11, N.Y., 63, 90, 94, 96, 97, 109, Tel: WAtkins 4-3760, Emp: 50

Capcon, Inc., 61 Stanton St., New York 2, N.Y., 48, 50, Tel: GRamercy 5-0080, Yr: 1951, Emp: 103, ▲2, $900,000

Capehart Corp., 87-46 123rd St., Richmond Hill 18, N.Y., 1, 2, 5, 18, 20, 21, 23, 24, 25, 26, 29, 30, 35, 37, 38, 41, 42, 43, 44, 57, 59, 66, 69, 95, 103, 109, Tel: 212-HIckory 1-4400, Yr: 1930, Emp: 450, ▲30, $4,000,000

Capitol Machine Co., 36 Balmforth Ave., Danbury, Conn., 80, Tel: PIoneer 3-2758

Capitol Radio Engineering Institute, 3224 16th St. N.W., Washington 10, D.C., Educational Institution, Tel: 202-HObart 2-1520, Yr: 1927, Emp: 160, ▲18, $3,000,000

Capps & Co., Inc., 20 Addison Pl., Valley Stream, L.I., N.Y., 65, 68, 70, Tel: VAlley Stream 5-4413, Yr: 1929, Emp: 25, ▲1

Captran Corp., 1910 N. Elston, Chicago 22, Ill., 84, Tel: ALbany 2-8500, Yr: 1952, Emp: 60, ▲6, $500,000

Carad Corp., 3381 Junipero Serra Blvd., Palo Alto, Calif., 40, 51, 59, 69, 84, 109, Tel: DAvenport 1-6111, Yr: 1954, Emp: 55, ▲5, $450,000

Carbonneau Industries, Inc., 100 Lexington Ave. S.W., Grand Rapids, Mich., 79, Tel: 616-GLendale 6-9528, Yr: 1946

Carborundum Co., Refractories Div., Perth Amboy, N.J., 17, 44, 45, 52, 54, 55, 66, 72, 73, 74, 75, 81, 91, 92, 94, 97, 98, 101, 104, 105, 112, Tel: HIllcrest 2-3380, Yr: 1892, Emp: 6500, ▲2

Cardwell Condenser Corp., 80 E. Montauk Hwy., Lindenhurst, L.I., N.Y., 25, 31, 48, 49, Tel: 516-TUrner 8-5200

Carey Electronic Engineering Co., 1880 Clifton Ave., Springfield, Ohio, 90, 109, Tel: FAirfax 3-6300, Yr: 1942, Emp: 25, ▲1

Carling Electric, Inc., 505 New Park Ave., West Hartford 10, Conn., 63, 80, Tel: ADams 2-4461, Yr: 1920, Emp: 150, ▲1, $1,000,000

Carma Mfg. Co., 1879 Mullin Ave., Torrance, Calif., 1, 2, 4, 18, 20, 40, 51, 60, 63, 64, 73, 77, 80, 84, 88, 96, 99, Tel: SPruce 5-2221, Yr: 1948, Emp: 75, $30,000

Carmer Industries Inc., 22 N. 26th St., Kenilworth, N.J., 107, Tel: CHestnut 1-0500, Yr: 1954, Emp: 35, $300,000

Carmody Corp., 2361 Wehrle Dr., Buffalo 21, N.Y., 13, 77, 97, Tel: NF 3-7700, Yr: 1954, Emp: 60, ▲1

Carol Electronics Corp., 315 W. Stephen St., Martinsburg, W.Va., 2, 23, 35, 38, 42, 43, 69, 84, Tel: 304-AMherst 7-8911, Yr: 1945, Emp: 54, ▲1, $400,000

Carpenter Co., 8236 Christiana, Skokie, Ill., 65, Tel: 312-ORchard 6-0404, Yr: 1935, Emp: 12

Carpenter Mfg. Co., Inc., P.O. Box 217, DeWitt 14, N.Y., 111, Tel: 315-Gibson 6-0670, Yr: 1955, Emp: 16

Carpenter Steel Co., 101 W. Bern St., Reading, Pa., 91, 104, 112, Tel: 215-FRanklin 4-8211, Yr: 1889, Emp: 2800, ▲1

Carroll Pressed Metal, Inc., 133 Dewey St., Worcester 10, Mass., 90, 93, 96, 97, 105, Tel: 617-SWift 9-4116, Yr: 1903, Emp: 25

Carson Mfg. Co., Inc., 2424 E. 55th St., Indianapolis, Ind., 51, 80, 84, Tel: CLifford 1-9591, Yr: 1946, Emp: 130, ▲1, $1,300,000

Carstedt Research, Inc., 2501 E. 68th St., Long Beach 5, Calif., 55, Tel: MEtcalf 0-5821, Yr: 1951, Emp: 85, $1,250,000

Carter Co. (J. C.), 671 W. 17th St., Costa Mesa, Calif., 3, 40, 51, 54, 64, 69, 96, Tel: LIberty 8-3421, Yr: 1945, Emp: 134, ▲1, $50,000

Carter Mfg. Corp., 23 Washington St., Hudson, Mass., 74, Tel: JOrdan 2-2206, Yr: 1955, Emp: 30, ▲2, $400,000

Carter Motor Co., 2711 W. George St., Chicago 18, Ill., 53, 67, Tel: JUniper 8-7700, Yr: 1932, Emp: 100, ▲1

Carter Parts Co., 3401 W. Madison, Skokie, Ill., 62, 74, 80, Tel: ORchard 4-0340, Yr: 1922, Emp: 250, $600,000

Carvil Technical Ceramics, Inc., 801 23rd St., Union City, N.J., 60, 75, 81, 84, 92, Tel: UNion 3-2955

Castings Corp., Brewster, N.Y., 96, 109, Yr: 1945, Emp: 70

Caswell Electronics Corp., 414 Queens Lane, San Jose 12, Calif., 37, 45, 59, 66, Tel: 415-CYpress 7-9333, Yr: 1959, Emp: 13, ▲1

Catalin Corp. of America, 1 Park Ave., New York 16, N.Y., 94, 101, 107, Tel: MUrray Hill 3-2100, Yr: 1927

Catalyst Research Corp., 6101 Falls Rd., Baltimore 9, Md., 46, Tel: DRexel 7-7100, Yr: 1930, Emp: 285, $1,500,000, ▲1

Caterpillar Tractor Co., Peoria, Ill., 69, Tel: 6-3311, Yr: 1928, Emp: 20,000, ▲3

Cathodeon, Ltd., Meadowcroft Laboratories, Church St., Cambridge, England, 73, 75, 86, Tel: Cambridge 5-6481, Yr: 1934, Emp: 170

Cavitron Electron Oscillator Co., 355 N. Newport Blvd., Newport Beach, Calif., 69, 96, 98, 99, 109, 111, Tel: LIberty 8-6123, Yr: 1945, Emp: 5, ▲2

Celanese Plastics Co., Div. of Celanese Corp. of America, 744 Broad St., 7th Floor, Newark 2, N.J., 107, Tel: MItchell 2-4800

Celco Constantine Engineering Laboratories Co., 70 Constantine Dr., Mahwah, N.J., 43, 51, 67, 69, 84, 109, Tel: 201-DAvis 7-1123, Yr: 1950, Emp: 125, ▲2

See ad on page 130

Central Coil Co., Inc., 110 W. Morgan St., Martinsville, Ind., 51, 59, 84, Tel: DIckens 2-3361, Yr: 1947, Emp: 125, ▲1, $600,000

Central Dynamics, Ltd., 147 Hymus Blvd., Pointe Claire, Quebec, Canada, 1, 2, 4, 8, 9, 10, 11, 13, 21, 30, 32, 34, 43, 69, 77, 82, 91, 96, Tel: 514-OXford 7-0810, Yr: 1958, Emp: 50, ▲3, $150,000

Central Electronics, Inc., 1247 W. Belmont, Chicago 13, Ill., 3, 23, 24, 29, Tel: 312-EAstgate 7-7460, Yr: 1950, Emp: 80, ▲2, $500,000

Central Engineering Co., 417 Taylor St. N.E., Minneapolis 13, Minn., 2, 4, 40, 41, 69, 96, 99, 111, Tel: 612-STerling 1-3431, Emp: 10, $175,000

Central Scientific Co., Div. of Cenco Instruments Corp., 1700 Irving Park Rd., Chicago 13, Ill., 13, 22, 23, 40, 98, Tel: WEllington 5-8600, Yr: 1900, Emp: 600, ▲1

Central Screw Co., 3501 Shields Ave., Chicago 9, Ill., 97, Tel: BOulevard 8-6000, Yr: 1914, Emp: 500

Central Transformer Co., 900 W. Jackson Blvd., Chicago 7, Ill., 51, 69, 84, Tel: TAylor 9-1936, Yr: 1951, Emp: 50, ▲1, $500,000

Centralab, Electronics Div. of Globe-Union, Inc., 900A E. Keefe Ave., Milwaukee 1, Wis., 43, 48, 49, 50, 55, 74, 75, 80, 92, 101, Tel: 414-WOodruff 2-9200, Yr: 1922, Emp: 2100, ▲14, $20,000,000

See ad in class 74

Centre Circuits, Inc., P.O. Box 165, 1101 N. Atherton St., State College, Pa., 99, Tel: ADams 8-0514, Yr: 1955, Emp: 40, ▲3, $300,000

Centroid Engineering & Mfg. Corp., 126 Jackson St., Cambridge 40, Mass., 2, 4, 43, 50, 53, 59, 69, 73, 77, 91, 95, 96, 109, Tel: 617-TRowbridge 6-7250, Yr: 1957, Emp: 35, ▲6, $300,000

See ads on this page and in class 91

Century Coil Corp., 1522 N. Clybourn Ave., Chicago 10, Ill., 41, 51, 53, 69, 84, Tel: MOhawk 4-2305, Yr: 1947, Emp: 7, $70,000

Century Electric Co., 18th & Pine Sts., Saint Louis 66, Mo., 67, Tel: CEntral 1-4920, Yr: 1903, Emp: 1750

Century Electronics & Instruments, Inc., 1333 N. Utica, Tulsa 10, Okla., 4, 16, 28, 40, 80, 83, Tel: LUther 4-7111, Yr: 1946, Emp: 267, ▲15, $1,600,000

Century Plating Co., 229 Ferris Ave., White Plains, N.Y., 109, Tel: 914-WHite Plains 8-3777

See ad in class 109

Ceramaseal, Inc., Box 25, New Lebanon Center, N.Y., 17, 44, 52, 66, 75, 81, 92, 97, 105, Tel: WEst Lebanon 3-5851, Yr: 1953, Emp: 43, $570,000

Ceramatronics, Inc., 364 Highland Ave., Passaic, N.J., 52, 75, 81, 92, 101, 109, Tel: GRegory 3-8274, Yr: 1958, Emp: 6

Ceramco, Inc., 175 Ridge St., Newark 4, N.J., 48, 52, 55, 58, 75, 80, 81, 82, 90, 91, 92, 94, 96, 97, 101, 103, 104, 105, 109, Tel: 201-HUmboldt 4-5900, Yr: 1953, Emp: 29, $37,000

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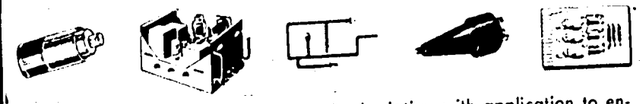

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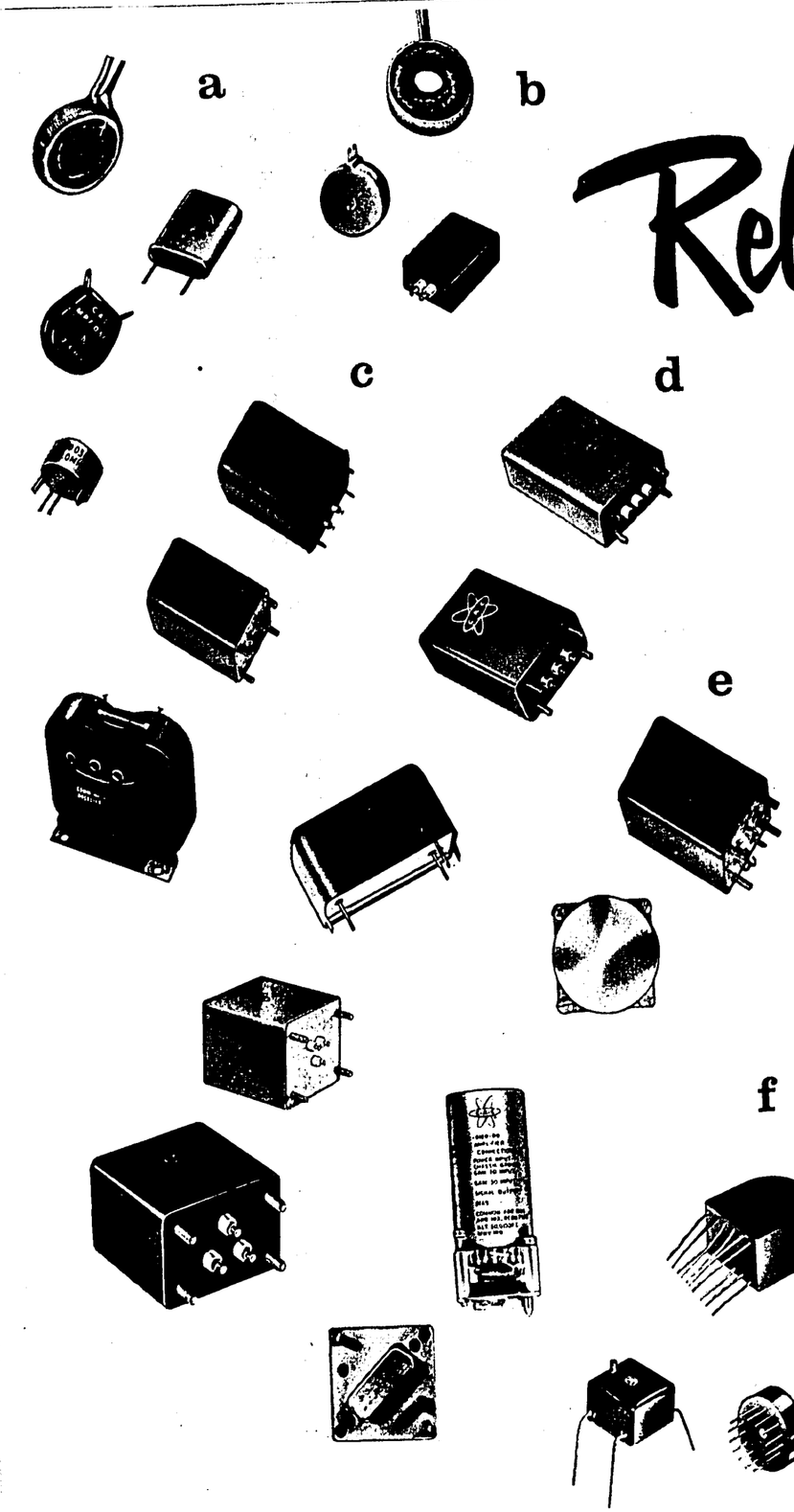

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Ceramics International Corp., 39 Siding Pl., Mahwah, N.J., 50, 52, 75, 92, 109, Tel: 201-LAfayette 9-3004, Yr: 1960, Emp: 20

Cerberus AG, Werk fur Elektronentechnik, Maennedorf ZH, Switzerland, 4, 63, 75, 86, Tel: 051-74-15-55, Yr: 1941, Emp: 250, ▲1, $700,000

Certified Radio Laboratories, 5507 13th Ave., Brooklyn 19, N.Y., 20, 43, Tel: 212-GEdney 8-8080, Yr: 1933, Emp: 5, ▲1

Cetron Electronic Corp., 715 E. Hamilton St., Geneva, Ill., 5, 14, 17, 40, 80, 86, 87, Tel: 312-CEnter 2-4140, Yr: 1930, Emp: 215, ▲5, $1,100,000

Chadwick-Helmuth Co., 472 E. Duarte Rd., Monrovia, Calif., 14, 36, 40, Tel: ELliott 8-4567, Yr: 1953, Emp: 8, ▲2, $180,000

Champion Bronze Powder & Paint Co., Inc., 2101-21 N. Elston Ave., Chicago 14, Ill., 94, Tel: ALbany 2-2022, Yr: 1948, Emp: 50

Champion DeArment Tool Co., S. Main St., Meadville, Pa., 111, Tel: 43-295, Yr: 1886, Emp: 150

Champion Papers, Inc., Hamilton, Ohio, 4, ▲2

Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., P.O. Box 1500, Arlington, Tex., 1, 2, 4, 8, 9, 21, 43, 44, 50, 59, 66, 77, 95, 109, Tel: ANdrew 2-3211, Yr: 1959, Emp: 520, ▲53, $7,500,000

Chapin Electronics Corp., 275 Main St., Webster, Mass., 4, 25, Tel: 943-2359, Yr: 1953, Emp: 15, ▲2

Chart-Pak, Inc., 1 River Rd., Leeds, Mass., 97, 105, Tel: JUstice 4-5446, Yr: 1949, Emp: 60, ▲2

Chase Brass & Copper Co., 236 Grand St., Waterbury 20, Conn., 66, 91, 97, 104, 110, 112, Tel: 203-PLaza 6-9444, Yr: 1876, Emp: 4200

Chase-Foster, Inc., 34 Ormsbee Ave., Providence, R.I., 101, 107, Tel: 401-DExter 1-1144, Yr: 1959, Emp: 13

Chassis-Trak Corp., 600 W. Florence Ave., Inglewood 1, Calif., 93, Tel: 312-ORegon 8-4208
See ad in class 93

Chassis-Trak, Inc., 525 S. Webster Ave., Indianapolis 19, Ind., 93, Tel: 317-FLeetwood 9-5407, Yr: 1955, Emp: 90
See ad in class 93

Chatham Controls Corp., 33 River Rd., Chatham, N.J., 4, 82, Tel: MErcury 5-8892, Yr: 1954, Emp: 11, $200,000

Chatillon & Sons (John), 85 Cliff St., New York 38, N.Y., 40, 41, 83, Tel: BEekman 3-2552, Yr: 1835, Emp: 175

Chem-Ionics Corp., 7834 Bothell Way N.E., Seattle 15, Wash., 50, 90, 97, Tel: LAkeview 3-2430, Yr: 1952, Emp: 5, $62,500

Chemalloy Electronics Corp., Gillespie Airport, Santee, Calif., 16, 37, 45, 54, 66, 104, 110, Tel: HIckory 4-7661, Yr: 1950, Emp: 9, ▲1, $89,000

Chemical Development Corp., Endicott St., Danvers, Mass., 75, 94, 101, 103, Tel: SPring 4-1990, Yr: 1950, Emp: 30

Chemical Products Corp., King Philip Rd., East Providence 14, R.I., 94, Tel: GE 4-1770, Yr: 1922, Emp: 100

Chemplast, Inc., 3 Central Ave., East Newark, N.J., 91, 96, 97, 107, 112, Tel: HUmboldt 5-4850, Yr: 1954, Emp: 71, $1,000,000

Chemprint Corp., 4000 Campbell Ave., Menlo Park, Calif., 43, 50, 51, Tel: DAvenport 3-1841, Yr: 1960, Emp: 75, ▲3

Chemtronics, Inc., 870 E. 52nd St., Brooklyn 3, N.Y., 94, 106, 110, Yr: 1957, Emp: 13, ▲1

Cherry Electrical Products Corp., P.O. Box 66, Highland Park, Ill., 80, Tel: 312-HIdewood 2-8182, Yr: 1953, Emp: 94, ▲1, $142,294

Chesapeake Instrument Corp., Shadyside Md., 9, 16, 18, 35, 37, 40, 43, 83, Tel: 301-UNiversity 7-2151, Yr: 1954, Emp: 120, ▲7, $1,500,000

Chester Cable Corp., Subsid. of Tennessee Corp., Oakland Ave., Chester, N.Y., 91, Tel: 914-HOmestead 9-2141, Yr: 1945, Emp: 1200, $3,000,000
See ad in class 91

Chester-Morton Electronics Corp., 10th St. & Morton Ave., Chester, Pa., 41, 52, 62, 91, Tel: 215-TRemont 4-6363, Yr: 1952, Emp: 60, $900,000

Chicago Aerial Industries, Inc., 550 W. Northwest Hwy., Barrington, Ill., 2, 4, 8, 9, 14, 17, 23, 40, 41, 74, 77, 109, Tel: 312-DUnkirk 1-2400, Yr: 1922, Emp: 700, ▲11, $6,000,000

Chicago Aerial Industries, Inc., Kintronic Div., 10134 Pacific Ave., Franklin Park, Ill., 74, 80, Tel: GLadstone 1-1830, Yr: 1922, Emp: 30, ▲12 $100,000

Chicago Aerial Industries, Inc., Pacific Optical Corp. (Div.), 120 S. Glasgow Ave., Inglewood 1, Calif., 14, 17, 32, 94, 97, 109, Tel: ORegon 8-1139, Yr: 1956, Emp: 70, ▲5, $600,000

Chicago-Allis Mfg. Corp., 113-125 N. Green St., Chicago 7, Ill., 97, 101, Tel: MOnroe 6-5050, Yr: 1889, Emp: 300, ▲4

Chicago Condenser Corp., 3255 W. Armitage Ave., Chicago 47, Ill., 48, 69, Tel: 312-CApitol 7-7070, Yr: 1944, Emp: 45, ▲2, $500,000
See ad in class 48

Chicago Dynamic Industries, Inc., 1725 W. Diversey Blvd., Chicago 14, Ill., 11, 80, Tel: WEllington 5-4600, Yr: 1933, Emp: 350, ▲2, $4,000,000

Chicago Electronic Engineering Co., 3223 W. Armitage, Chicago 47, Ill., 84, Tel: CApitol 7-3130, Yr: 1943, Emp: 89, ▲1, $900,000

Chicago Gasket Co., 1271 W. North Ave., Chicago 22, Ill., 106, 107, 112, Tel: HUmboldt 6-3660, Yr: 1948, Emp: 50, $150,000

Chicago Magnetic Control Div., 3223 W. Armitage, Chicago 47, Ill., 43, 59, 84, Tel: CApitol 7-3130, Yr: 1953, Emp: 80, ▲1, $900,000

Chicago Miniature Lamp Works, 1300 N. Ogden Ave., Chicago 10, Ill., 63, 78, 87, Tel: MOhawk 4-1741, Yr: 1910, Emp: 200, ▲4, $1,800,000

Chicago Pneumatic Tool Co., 8 E. 44th St., New York 17, N.Y., 67, 99, 111, Tel: MUrray Hill 7-1700

Chicago Rivet & Machine Co., 950 S. 25th Ave., Bellwood, Ill., 97, Tel: LInden 4-5100, Yr: 1920, Emp: 850

Chicago Telephone of California, Inc., 1010 Sycamore Ave., Los Angeles, Calif., 51, 74, 80, 84, Tel: 213-CLinton 5-7186, Yr: 1956, Emp: 100, ▲1

Chicago Thrift-Etching Corp., 1555 N. Sheffield Ave., Chicago 22, Ill., 90, 97, Tel: MIchigan 2-1630, Yr: 1909, Emp: 200

Chicopee Mills, Inc., Lumite Div., 47 Worth St., New York 13, N.Y., 97, Tel: WOrth 6-1000, Yr: 1916, Emp: 4000

Chlorivolt Corp., 24 Woodworth Ave., Yonkers, N.Y., 46, Tel: 914-GReenleaf 6-4440
See ad in class 46

Christie Electric Corp., 3412J W. 67th St., Los Angeles 43, Calif., 53, 69, Tel: 213-PLeasant 0-1151, Yr: 1929, Emp: 100, ▲1
See ad in class 69

Christman Industries, Inc., 1502 61st St., Brooklyn 19, N.Y., 90, 93, Tel: 212-DEwey 1-6072, Yr: 1959, Emp: 80

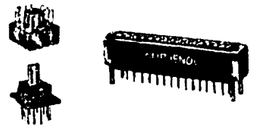
Christo Assoc. (Van), 330 Stuart St., Boston 16, Mass., 108, Tel: 617-HAncock 6-2465, Yr: 1960, Emp: 3, ▲1

Chrono-Log Corp., Box 4587, Philadelphia 31, Pa., 4, 10, 11, 32, Tel: 215-HIlltop 6-1816, Yr: 1957, Emp: 7, ▲1

Chrysler Corp., Defense Group, P.O. Box 757, 7000 E. Eleven-Mile Rd., Detroit 31, Mich., 1, 2, 4, 14, 17, 18, 21, 26, 29, 30, 34, 42, 54, 69, 94, 97, 99, 108, 109, Tel: 313-JEfferson 9-3000, Yr: 1925, Emp: 118,000, ▲101

Chu Associates, P.O. Box 387, Whitcomb Ave., Littleton, Mass., 44, 59, 66, 107, Tel: GLadstone 6-3282, Yr: 1955, Emp: 50, ▲8

Churchill Lighting Corp., 344 Franklin St., Melrose 76, Mass., 90, 93, 96, 97, Tel: NOrmandy 5-4700, Yr: 1948, Emp: 20



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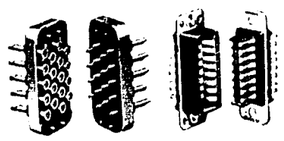

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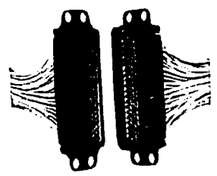

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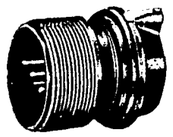
Rack & Panel connectors with performance equivalent to MIL-C-26500.



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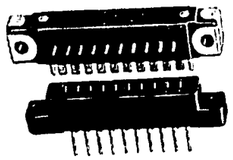

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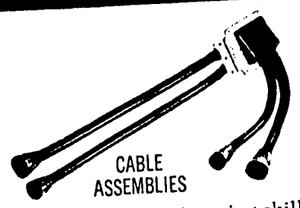

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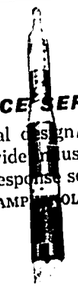

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Ciba Products Corp., Route 208, Fair Lawn, N.J., 101, Tel: 201-SWarthmore 1-1122, Emp: 500

Cicoil Corp., 13833 Saticoy, Van Nuys, Calif., 50, 91, 109, Tel: 213-STate 1-3440, Yr: 1956, Emp: 28, ▲1

Cimco Wire & Cable Co., 303 W. Crescent Ave., Allendale, N.J., 91, 112, Tel: 201-DAvis 7-2522, Yr: 1957, Emp: 25

See ad in class 91

Cimron Corp., 1162 Morena Blvd., San Diego 10, Calif., 40, Tel: 714-BRowning 6-3200

Cinaudagraph, Inc., 7334 N. Clark St., Chicago 26, Ill., 2, 4, 14, 30, 43, 51, 62, 64, 65, 79, 83, 84, 90, 93, 95, 96, 97, 109, Tel: SHeldrake 3-7010, Yr: 1950, Emp: 250, ▲2, $1,000,000

Cinch Mfg. Co., 1026 S. Homan Ave., Chicago 24, Ill., 50, 52, 60, 62, 78, 81, 96, 97, 105, 111, Tel: 312-NEvada 2-2000, Yr: 1923, Emp: 1500, ▲4, $15,000,000

See ads on pages 64-65

Cinch Mfg. Co., Graphik-Circuits Div., 200 S. Turnbull Canyon Rd., City of Industry, Calif., 43, 48, 50, 52, 81, Tel: 213-EDgewood 3-1201, Yr: 1953, Emp: 128

Cinch Mfg. Co., Howard B. Jones Div., 1026 S. Homan Ave., Chicago 24, Ill., 52, 60, 62, 81, Tel: 312-NEvada 2-2000, ▲3

See ad on pages 64-65

Cincinnati Cleaning & Finishing Machinery Co., 3280 Hageman St., Sharonville 41, Ohio, 96, 98, 99, Tel: 513-PRinceton 1-5100, Yr: 1946, Emp: 100

Cincinnati Sub Zero Products, Inc., 3932 Reading Rd., Cincinnati 29, Ohio, 2, 36, 41, 54, Tel: PLaza 1-8810, Yr: 1940, Emp: 69

Cinematic Developments, P.O. Box 151, Mena, Ark., 14, 17, 27, 61, 95, 96, 109

Circle F Mfg. Co., 720 Monmouth, Trenton 8, N.J., 80, 91, Tel: EXport 2-3141

Circo Corp., Subsid. of Branson Instruments, Inc., 51 Terminal Ave., Clark, N.J., 40, 41, 99, Tel: 201-FUlton 8-8600, Yr: 1923, Emp: 80, ▲1, $1,300,000

See ad in class 99

Circon Component Corp., Santa Barbara Municipal Airport, Goleta, Calif., 50, 52, 63, 78, 97, 111, Tel: 805-WOodland 7-1113, Yr: 1954, Emp: 20, ▲3

See ad in class 63

Circuitdyne Corp., 421 S. Pasadena Ave., Pasadena, Calif., 5, 43, 50, 51, 53, 59, 69, 84, Tel: 213-SYcamore 2-7148, Yr: 1955, Emp: 40, ▲3, $228,000

City Chemical Corp., 132 W. 22nd St., New York 11, N.Y., 56, 94, 102, 104, Tel: WAtkins 9-2723

City Marking Devices Corp., 69 Murray St., New York 7, N.Y., 97, 99, 109, Tel: 212-BEekman 3-8720, Yr: 1955, Emp: 10

See ad in class 97

Clairex Corp., 8 W. 30th St., New York 1, N.Y., 76, Tel: 212-MUrray Hill 4-0940, Yr: 1953, Emp: 65, ▲5, $500,000

See ad in class 76

Clare & Co. (C. P.), 3101 Pratt Blvd., Chicago 45, Ill., 73, 80, Tel: AMbassador 2-7700, Yr: 1937, Emp: 1600, ▲5

Clark Co., Inc. (David), P.O. Box 555, 360 Park Ave., Worcester 2, Mass., 56, Tel: 617-PLeasant 6-6216, Yr: 1935

Clark Controller Co., 1146 E. 152nd St., Cleveland 10, Ohio, 4, 73, 74, 80, Tel: ULster 1-2000, Yr: 1925, Emp: 1000, ▲1

Clark Crystal Co., Inc., 2 Farm Rd., Marlboro, Mass., 50, 82, Tel: HUntley 5-1411, Yr: 1947, Emp: 27, ▲2

Clark Electronic Laboratories, Box 165, Palm Springs, Calif., 40, 71, 83, 94, Tel: 328-2210, Yr: 1907, Emp: 17, ▲1

Clarostat Mfg. Co., Inc., Washington St., Dover, N.H., 12, 45, 74, 109, Tel: 603-SHerwood 2-1120, Yr: 1920, Emp: 1200, ▲4, $8,487,850

Clary Corp., 408 Junipero St., San Gabriel, Calif., 2, 4, 8, 9, 10, 27, 67, 77, 99, 109, Tel: CUmberland 3-2724, Yr: 1939, Emp: 850, ▲2, $10,094,000

Clauser Technology Corp., 3510 Torrance Blvd., Torrance, Calif., 31, Tel: 213-FRontier 1-2455

Clauss Cutlery Co., 223 Prospect St., Fremont, Ohio, 111, Tel: FEderal 2-7344, Yr: 1877, Emp: 130

Clear Beam Antenna Corp., 21341 Roscoe Blvd., Canoga Park, Calif., 44, 59, 84, 106, Tel: TRiangle 3-3220, Yr: 1951, Emp: 105

Clearprint Paper Co., 1482 67th St., Emeryville, Calif., Drafting papers

Cleco Air Tools, Div. of Reed Roller Bit Co., 5125 Clinton Dr., Houston, Texas, 104, 111, Tel: ORchard 2-1761

Clegg Laboratories, Div. of Clegg, Inc., Route 53, Mount Tabor, N.J., 3, 4, 6, 20, 21, 24, 26, 29, 34, 35, 42, 43, 53, 69, Tel: 201-OAkwood 7-6800, Yr: 1952, Emp: 35, ▲3

Cletron, Inc., 1974 E. 61st St., Cleveland 3, Ohio, 79, Tel: 216-EXpress 1-3834, Yr: 1945, Emp: 25, ▲1, $500,000

Cleveland Container Co., 6201 Barberton Ave., Cleveland 2, Ohio, 112, Tel: OLympic 1-4500, Yr: 1923, Emp: 1200

Cleveland Electronics, Inc., 1974 E. 61st St., Cleveland 3, Ohio, 51, 79, 83, Tel: 216-EXpress 1-3834, Yr: 1945, Emp: 250, ▲1, $3,000,000

Cleveland Institute of Electronics, 1776 E. 17th St., Cleveland 14, Ohio, 108, Tel: 216-SUperior 1-9400, Yr: 1932, Emp: 90, ▲3

Cleveland Metal Specialties Co., Electronics Div., 1783 E. 21st St., Cleveland 14, Ohio, 10, 11, 43, 50, 96, Tel: PRospect 1-4186, Yr: 1907, Emp: 30, ▲2, $200,000

Clevite Corp., Brush Instruments Div., 37th & Perkins, Cleveland 14, Ohio, 2, 9, 23, 28, 40, 43, 70, 83, Tel: 216-ENdicott 1-3315, Yr: 1932, Emp: 450, ▲20, $8,000,000

Clevite Corp., Clevite Electronic Components Div., 232 Forbes Rd., Bedford, Ohio, 4, 13, 59, 83, 100, Yr: 1957, Emp: 260, ▲5

Clevite Corp., Clevite Ordnance Div., 540 E. 105th St., Cleveland 8, Ohio, 2, 4, 18, 36, 83, 107, 112, Tel: 216-ULster 1-5500, Yr: 1919, Emp: 7000, ▲10, $36,000,000

Clevite Corp., Clevite Transistor Div., 200 Smith St., Waltham 54, Mass., 71, 76, Tel: 617-TWinbrook 4-7780, Yr: 1950, Emp: 1500, ▲15

See ad in class 76

Clifton Precision Products Co., Inc., Broadway at Marple, Clifton Heights, Pa., 8, 9, 67, 77, 83, Tel: 215-MAdison 2-1000, Yr: 1946, Emp: 1200, ▲15, $10,700,000

Clippard Instrument Laboratory, Inc., 7390 Colerain Rd., Cincinnati 39, Ohio, 41, 43, 51, Tel: 521-JAckson 1-4261, Yr: 1946, Emp: 100, $750,000

Clipper Gear & Machine Co., 15301 E. Twelve-Mile Rd., Roseville, Mich., 77, 96, 97, 99, 111, Tel: PRescott 3-0450, Yr: 1951, Emp: 30, $100,000

Close Associates, Inc., 233 Broadway, New York 7, N.Y., 56, Tel: 212-WOrth 4-5144

Clough-Brengle Co., 6014 N. Broadway, Chicago 40, Ill., 35, 38, 39, 40, 41, 84, 90, Tel: AMbassador 2-2200, Yr: 1932, Emp: 25, ▲3

Clover Industries, Inc., 578-588 Young St., Tonawanda, N.Y., 90, 97, Tel: 716-NX 3-1331, Yr: 1944

Co Engineering Co., Boonton Ave., P.O. Box 194, Boonton, N.J., 2, 4, 9, 10, 18, 27, 34, 40, 53, 61, 68, 80, 97, Tel: DEerfield 4-9300, Yr: 1951, Emp: 8

Co-operative Industries, Inc., 100 Oakdale Rd., Chester, N.J., 52, 66, Tel: 201-TRinity 9-5151, Yr: 1946, Emp: 190, ▲1

Coast Coil Co., 5333 W. Washington Blvd., Los Angeles 16, Calif., 12, 43, 51, 84, Tel: 213-WEbster 6-6188, Yr: 1951, Emp: 30

Coast Pro-Seal & Mfg. Co., P.O. Box 57248, Flint Station, Los Angeles 57, Calif., 94, 101, Tel: DUnkirk 7-5141, Yr: 1944, Emp: 300, $1,000,000

Coastal Publications Corp., 130 W. 42nd St., New York 36, N.Y., 108, Tel: LOngacre 3-2100, Yr: 1950, Emp: 200, ▲10, $2,000,000

Coaxial Components Co., Inc., 391 Ludlow St., Stamford, Conn., 52, 109, 111, Tel: 203-DAvis 4-7538, Yr: 1945, Emp: 45, $75,000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

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Adv. Dept., 72 West 45th Street, New York 36 MUrray Hill 2-6606

See Bird Electronic Corporation ad on page 210

Cobehn, Inc., 226 Passaic Ave., Caldwell, N.J., 94, 99, Tel: CApital 6-6675, Yr: 1954, Emp: 500, ▲1

Coen Controls Co., 40 Boardman Pl., San Francisco 3, Calif., 4, Yr: 1958, Emp: 6

Cohan Epner Co., Inc., 142 W. 14th St., New York 11, N.Y., 109, Tel: 212-CHelsea 3-3411, Yr: 1911, Emp: 100

See ad in class 109

Cohn Corp. (Sigmund), 121 S. Columbus Ave., Mount Vernon, N.Y., 91, 104, 105, Tel: 914-MOunt Vernon 4-5300, Yr: 1901, Emp: 150, ▲3

See ad in class 91

Coil Co. of America, Inc., 218 Washington St., Northvale, N.J., 69, 84, Tel: POplar 8-3434, Yr: 1940, Emp: 20, ▲1

Coil Engineering & Mfg. Co., Inc., 200 Main St., Roanoke, Ind., 51, 84, Tel: 2013, Yr: 1936, Emp: 185

Coil Winding Equipment Co., Railroad Plaza, Oyster Bay, L.I., N.Y., 99, Tel: 516-WAlnut 2-5660, Yr: 1945, Emp: 30, ▲2, $350,000

See ad in class 99

Coilcraft, Inc., Cary, Ill., 51, 57, 84, Tel: MErcury 9-2361, Yr: 1945, Emp: 350, ▲3, $2,000,000

Coils-Electronics Co., 2939 N. 2nd St., Philadelphia 33, Pa., 4, 6, 12, 50, 51, 69, 90, 93, 96, 109, Tel: REgent 9-6465, Yr: 1954, Emp: 45, ▲1, $165,000

Colber Corp., 26 Buffington St., Irvington, N.J., 51, 74, 92, Yr: 1948, Emp: 30, $200,000

Coldstream Engineering Co., P.O. Box 1893, Tulsa, Okla., 5, 28, 43, Yr: 1958, Emp: 3

Cole Electric Co., 8439 Steller Dr., Culver City, Calif., 52, 62, 78, 80, 90, 98, Tel: UPton 0-4701, Yr: 1939, Emp: 70, $285,000

Cole Instrument Co., 144 Via Trieste, Newport Beach, Calif., 2, 4, 6, 9, 12, 14, 16, 22, 23, 32, 34, 35, 36, 40, 41, 43, 50, 54, 60, 61, 63, 69, 71, 73, 74, 80, 84, 90, 95, 96, 105, 109, Tel: ORiole 3-7024, ▲1

Coleman Cable & Wire Co., 1900 River Rd., River Grove, Ill., 91, Tel: NAtional 5-6215, Yr: 1943, Emp: 100

Coleman Electronics, Inc., 133 E. 162nd St., Gardena, Calif., 4, 9, 10, 70, 96, Tel: FAculty 1-4775, Yr: 1959, Emp: 30, ▲1, $400,000

Coleman Instruments, Inc., 42 Madison St., Maywood, Ill., 40, Tel: FIlmore 5-9400, Yr: 1935, ▲4

Coleman Machine Co., Inc., Springfield Ave., New Providence, N.J., 99, Tel: CRestview 7-1204

Collaro, Ltd., Ripple Works, By-Pass Rd., Barking, Essex, England, 9, 68, 70, Tel: RIPpleway 5533, Yr: 1927, Emp: 1500

Collectron Corp., 304 E. 45th St., New York 17, N.Y., 9, 10, 52, 77, 80, 81, 96, 106, Tel: 212-MUrray Hill 9-7120, Yr: 1950, Emp: 150, $1,000,000

See ad in class 80

Collins Corp. (G. L.), 2820 E. Hullett St., Long Beach 5, Calif., 31, 83, Tel: 213-METcalf 0-3121, Yr: 1955, Emp: 50, $20,000

Collins Electronics, Inc., Stevensville, Md., 53, Tel: MIssion 3-2341, Yr: 1955, Emp: 25, ▲1

Collins Radio Co., 5200 C Ave. N.E., Cedar Rapids, Iowa, 1, 2, 3, 8, 19, 20, 21, 24, 25, 29, 33, 37, 38, 42, 43, 44, 59, 65, Tel: 319-EMpire 5-8411, Yr: 1933, Emp: 13,500, $190,000,000, ▲600

Collins Radio Co., Information Science Center, 19700 San Joaquin Rd., Newport Beach, Calif.

Collins Radio Co., Texas Div., 1930 Hi-Line Dr., Richardson, Dallas 7, Texas, 19, 25, Tel: 214-AD 5-4511, Yr: 1933, Emp: 1500, ▲60

Collins Radio Co., Western Div., 2700 W. Olive, Burbank, Calif., 59, Tel: 213-VIctoria 9-3361, Yr: 1926, Emp: 1200, ▲96

Colonial Alloys Co., Ridge Ave. & Crawford, Philadelphia 29, Pa., 94, 109, Tel: GErmantown 8-2272, Yr: 1851

Colorado Research Corp., Broomfield, Colo., 8, 10, 20, 34, 50, 109, Tel: INgersoll 6-2331, Yr: 1955, Emp: 100, ▲6, $900,000

Columbia Electric Mfg. Co., 4519 Hamilton Ave., Cleveland 14, Ohio, 40, 61, 67, Tel: 216-ENdicott 1-8060, Yr: 1928, Emp: 85, $200,000

Columbia Metal Box Co., 260 E. 143rd St., New York 51, N.Y., 90, 93, Tel: 212-LU 5-2525, Yr: 1908, Emp: 140

Columbia Products Co., Route 3, Columbia, S.C., 44, 107, 112, Tel: SU 7-8710, Yr: 1946, Emp: 350, ▲3, $240,000

Columbia Research Laboratories, Inc., MacDade Blvd. & Bullens Lane, Woodlyn, Pa., 35, 36, 43, 83, Tel: LEhigh 2-9464, Yr: 1956, Emp: 106, ▲12, $1,020,000

Columbia Technical Corp., 24-30 Brooklyn-Queens Expwy., Woodside 77, N.Y., 57, 59, 84, 94, Tel: 212-YEllowstone 2-0800, Yr: 1953, Emp: 57, ▲5, $750,000

Columbia Wire & Supply Co., 2850 Irving Park Rd., Chicago 18, Ill., 91, Tel: COrnelia 7-3160, Yr: 1937, Emp: 100, $1,800,000

Columbian Carbon Co., Mapico Iron Oxides Unit, 380 Madison Ave., New York 17, N.Y., 94, 104, Tel: 212-MUrray Hill 7-2300, Yr: 1880, Emp: 2400, ▲6

See ad in class 104

Columbus Electric Mfg. Co., 2005 E. Main St., Columbus 5, Ohio, 80, Tel: 614-CLearbrook 2-4142, Yr: 1958, Emp: 60, ▲1, $300,000

Columbus Electronics, Inc., 1010 Saw Mill River Rd., Yonkers, N.Y., 26, 35, 37, 38, 40, 41, 42, 45, 48, 49, 59, 69, 71, 76, Tel: 914-YOnkers 8-1221, Yr: 1947, Emp: 110, ▲6, $800,000

See ads in classes 48 and 71

Columbus Process Co., Inc., 2851 Southeastern Ave., Columbus, Ind., 43, 51, 84, Tel: 812-372-4471, Yr: 1946, Emp: 300, ▲2, $3,700,000

Colvin Laboratories, Inc., 364 Glenwood Ave., East Orange, N.J., 4, 80, 83, Tel: ORange 7-1221, Yr: 1950, Emp: 110, $600,000

Com-Tronics, Inc., 3409 Venice Blvd., Los Angeles 19, Calif., 57, Tel: 213-REpublic 5-1388, Yr: 1955, $40,000

Comar Electric Co., 3349 Addison St., Chicago 18, Ill., 51, 73, 80, Tel: 312-JUniper 8-2410, Yr: 1942, Emp: 428

See ad on page 132

Combined Book Exhibit, Inc., 950 University Ave., New York 52, N.Y., 108, Tel: 212-LUdlow 8-8400, Yr: 1933, Emp: 7

Combined Electronics, Inc., 4616 W. 20th St., Chicago 50, Ill., 50, 90, Tel: OLympic 6-3450, Yr: 1955, Emp: 30, ▲1

Comco Plastics, Inc., 98-46 Jamaica Ave., Richmond Hill 18, N.Y., 50, 81, 90, 96, 107, Tel: VIrginia 9-0000, Yr: 1952, Emp: 125

Comet, Ltd., 72 Waldeggstrasse, Liebefeld-Berne, Switzerland, 80, 87, Tel: 031-63-0583, Yr: 1948, Emp: 60, $500,000

Comfort Lines, Inc., 1735 W. Diversey Pkwy., Chicago 14, Ill., 32, Tel: WEllington 5-3330, Yr: 1906, Emp: 200

Cominco Products, Inc., Electronic Materials Dept., 933 W. Third Ave., Spokane 4, Wash., 17, 94, 102, 104, 110, Tel: 509-RIverside 7-7103

Commercial Plastics Co., 945 George St., Chicago 14, Ill., 96, 97, 107, Tel: GRaceland 7-8220, Yr: 1930, Emp: 35, ▲1, $310,000

Commercial Plastics & Supply Corp., 630 Broadway, New York 12, N.Y., 107, Tel: 212-GRamercy 7-5000, Yr: 1947, Emp: 200, $3,000,000

Communication Accessories Co., U.S. Hwy. 50 & 71 By-Pass, Lee's Summit, Mo., 43, 51, 57, 59, 84, 88, Tel: 816-LAclede 4-3500, Yr: 1948, Emp: 400, ▲5

See ad on page 112

Communication Electronics, Inc., 4900 Hampden Lane, Bethesda 14, Md., 1, 26, 29, 34, 59, 84, Tel: 202-OLiver 4-8860, Yr: 1960, Emp: 35, ▲3

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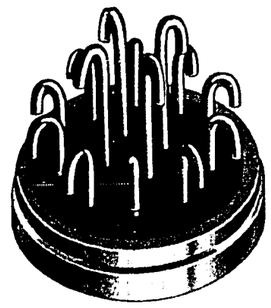

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Communication Measurements Laboratory, Inc., 350 Leland Ave., Plainfield, N.J., 2, 4, 18, 35, 40, 41, 43, 50, 53, 69, 72, 77, Tel: 201-Plainfield 4-5502, Yr: 1938, Emp: 40, ▲3

Communications Co., Inc., 300 Greco Ave., Coral Gables 55, Fla., 1, 20, 24, 29, 44, Tel: 305-HIghland 6-0846, Yr: 1948, Emp: 235, ▲3, $1,000,000

Communications & Control Corp., 14707 Keswick Ave., Van Nuys, Calif., 4, 9, 10, 33, 35, 36, Tel: 213-STate 2-4250, Yr: 1960, Emp: 29, ▲2

Communications Equipment Co., 140 Union St., Auburn, Me., 30, 69, Tel: 207-782-7281, Yr: 1946, Emp: 10

Community Engineering Corp., 234 E. College Ave., State College, Pa., 13, 43, 44, 53, Tel: ADams 8-2461, Yr: 1953, Emp: 32, ▲2

Compact Circuits Co., Div. of Electrons, Inc., 127 Sussex Ave., Newark, N.J., 43, 69, 73, 77, Tel: HUmboldt 2-3000, Yr: 1928, Emp: 110

Compo Shoe Machinery Corp., Special Products Div., 125 Roberts Rd., Waltham 54, Mass., 90, 94, 96, 98, 99, Tel: TWinbrook 4-3650, Yr: 1929, Emp: 10, ▲3, $60,000

Component Mfg. Service, Inc., 1 Component Park, West Bridgewater, Mass., 52, 62, Tel: JUniper 8-0163, Yr: 1950, Emp: 135, $1,250,000

Component Research Co., Inc., 3019 S. Orange Dr., Los Angeles 16, Calif., 48, 49, Tel: 213-WEbster 3-1105, Yr: 1958, Emp: 6, ▲1

Components Corp., 2857 N. Halsted St., Chicago 14, Ill., 43, 51, 59, 84, Tel: 312-EAstgate 7-6566, Yr: 1955, Emp: 42, ▲4

Components Corp., 106 Main St., Denville, N.J., 17, 32, 69, 95, Tel: 201-OAkwood 7-0290, Yr: 1943, ▲1

Components for Research, Inc., 979 Commercial St., Palo Alto, Calif., 51, 52, 66, 84, 91, 97, 101, 106, 109, Tel: DAvenport 1-5252, Yr: 1956, Emp: 11, ▲1

Composite Industrial Metals, 235 Georgia Ave., Providence, R.I., 104, 105, 110, Tel: HO 7-8767, Yr: 1958, Emp: 25

Comptometer Corp., 5600 Jarvis Ave., Chicago 48, Ill., 11, 17, 33, 69, 70, Tel: SPring 5-2400, Yr: 1889, Emp: 1900, ▲10, $1,400,000

Comptometer Corp., Radiation Electronics Co. (Div.), 5600 Jarvis St., Chicago 48, Ill., 4, 17, 35, 40, 43, 50, 54, 83, 95, Tel: 312-SPring 5-2400, Yr: 1957, Emp: 30, ▲3

Comptron Corp., 778 Pleasant St., Belmont 79, Mass., 4, 10, 11, 38, 43, 50, 53, 69, 95, Tel: 617-IVanhoe 4-8954, Yr: 1957, Emp: 70, ▲1

CompuDyne Corp., 2400 Calvary St., Waltham 54, Mass., 2, 4, 8, 9, 21, 33, 34, 40, 41, 43, 50, 61, 77, 95, 96, 109, Tel: TWinbrook 4-6212, Yr: 1951, Emp: 180, ▲8, $2,000,000

CompuDyne Corp., 400 S. Warminster Rd., Hatboro, Pa., 1, 2, 4, 6, 8, 9, 10, 11, 16, 19, 24, 26, 29, 34, 35, 38, 40, 43, 59, 63, 77, 95, 96, 109, Tel: OSbourne 5-4100, Yr: 1952, Emp: 200, ▲12, $750,000

Computer Components, Inc., 88-06 Van Wyck Expressway, Jamaica 18, N.Y., 51, 109, Tel: 212-AXtel 1-3500, Yr: 1959, Emp: 45, $350,000

Computer Control Co., Inc., Eastern Div., 983 Concord St., Framingham, Mass., 4, 8, 9, 10, 41, 50, 57, 80, 95, 96, Tel: 617-TRinity 5-6185, Yr: 1953, Emp: 300, ▲35

See ad in class 8

Computer Control Co., Inc., Western Div., 2251 Barry Ave., Los Angeles 64, Calif., 4, 8, 9, 10, 41, 50, 57, 80, Tel: 213-GRanite 8-0481, Yr: 1953, Emp: 50, ▲8

See ad in class 8

Computer Devices Corp., 6 W. 18th St., Huntington Station, L.I., N.Y., 50, 57, Tel: 516-AR 1-0666, Yr: 1961, Emp: 15, ▲2

See ad in class 57

Computer Diode Corp., 250 Garibaldi Ave., Lodi, N.J., 76, Tel: 201-PRescott 3-2511, Yr: 1960, Emp: 80, ▲5

Computer Engineering Associates, Div. of Susquehanna Sciences, Inc., 350 N. Halsted, Pasadena, Calif., 8, 43, 69, Tel: ELgin 5-7121, Yr: 1952, Emp: 60, ▲2, $450,000

Computer Equipment Corp., 11612 W. Olympic Blvd., Los Angeles 64, Calif., 4, 9, 10, 11, 34, 40, 43, 57, 91, 96, Tel: GRanite 8-0464, Yr: 1958, Emp: 40, ▲4, $464,000

Computer Instruments Corp., 92 Madison Ave., Hempstead, L.I., N.Y., 61, 73, 74, 77, 80, 83, Tel: 516-IVanhoe 3-8200, Yr: 1949, Emp: 250, ▲8, $3,000,000

See ad in class 74

Computer-Measurements Co., Div. of Pacific Industries, Inc., 12970 Bradley Ave., Sylmar, Calif., 4, 9, 10, 11, 22, 40, Tel: 213-EMpire 7-2161, ▲2

Computer Sciences, Inc., 603 Main St., Westbury, L.I., N.Y., 2, 4, 8, 10, 28, 35, 41, 43, 53, 69, 77, 95, Tel: 516-EDgewood 3-7070, Yr: 1960, Emp: 25, ▲5

Computer Systems, Inc., Culver Rd., Monmouth Junction, N.J., 2, 4, 8, 9, 10, 28, 43, 69, 77, 109, Tel: DAvis 9-2351, Yr: 1950, Emp: 170, ▲20, $2,000,000

Computer Techniques, Inc., 3300 Northern Blvd., Long Island City, 1, N.Y., 2, 4, 8, 9, 10, 11, 50, 63, 95, Tel: 212-STillwell 6-1276, Yr: 1960, Emp: 10, ▲3

Computer Usage Co., Inc., 18 E. 41st St., New York 17, N.Y., 109, Tel: MUrray Hill 9-7672, Yr: 1955, Emp: 90, ▲2, $805,000

Computing Devices of Canada, Ltd., Subsid. of Bendix Corp., P.O. Box 508, Ottawa 4, Ontario, Canada, 22, Tel: TAlbot 8-2711, ▲19

Computronics, Inc., 5310 E. Pacific Pl., Denver 22, Colo., 4, 8, 9, 10, 40, 43, Tel: 303-SKyline 6-3608, Yr: 1959, Emp: 20, ▲2, $250,000

Con-Elco, Div. of Edcliff Instruments, 1711 S. Mountain Ave., Monrovia, Calif., 74, Tel: 714-ELliott 8-4571, Yr: 1955, Emp: 300, ▲1

Con-Torq, Inc., Div. North & Judd Mfg. Co., 50 E. Main St., New Britain, Conn., 97, Tel: BAldwin 3-3621, Yr: 1812

Conant Laboratories, 6500 O St., Lincoln 5, Nebr., 71, Tel: 488-0432, Yr: 1933, Emp: 8, $178,000

Conap, Inc., 184 E. Union St., Allegany, N.Y., 109, Tel: FR 2-9613, Yr: 1958, Emp: 11, ▲2, $100,000

Concertapes, Inc., Box 88, Wilmette, Ill., Yr: 1954, Emp: 8

Concord Control, Inc., 1282 Soldiers Field Rd., Boston 35, Mass., 4, 27, 28, 37, 90, Tel: 617-ALgonquin 4-5106, Yr: 1956, Emp: 60, ▲10, $500,000

Condenser Products Co., Hwy. 41 S., P.O. Box 1046, Brooksville, Fla., 48, 69, Tel: 796-4411, Yr: 1938, Emp: 50, ▲2

Condor Electronics, Inc., P.O. Box 1104, Los Gatos, Calif., 85, 86, 87, Tel: ELgato 4-4993, Yr: 1960, Emp: 12, ▲2, $67,141

Conductorlab, Inc., Main St., Groton, Mass., 36, 41, 44, 48, 50, 96, 97, 109, Tel: 617-GIlbert 8-5140, Yr: 1957, Emp: 23, ▲3, $125,000

See ad in class 50

Conforming Matrix Corp., 830 New York Ave., Toledo 11, Ohio, 99, 109, Tel: 419-RAndolph 9-3777, Yr: 1939, Emp: 75, ▲1, $130,000

Conn-Craft Co., 301 Fairlawn Ave., Waterbury 5, Conn., 90, 96, 97, 109, Tel: PLaza 4-1811, Yr: 1946, Emp: 3

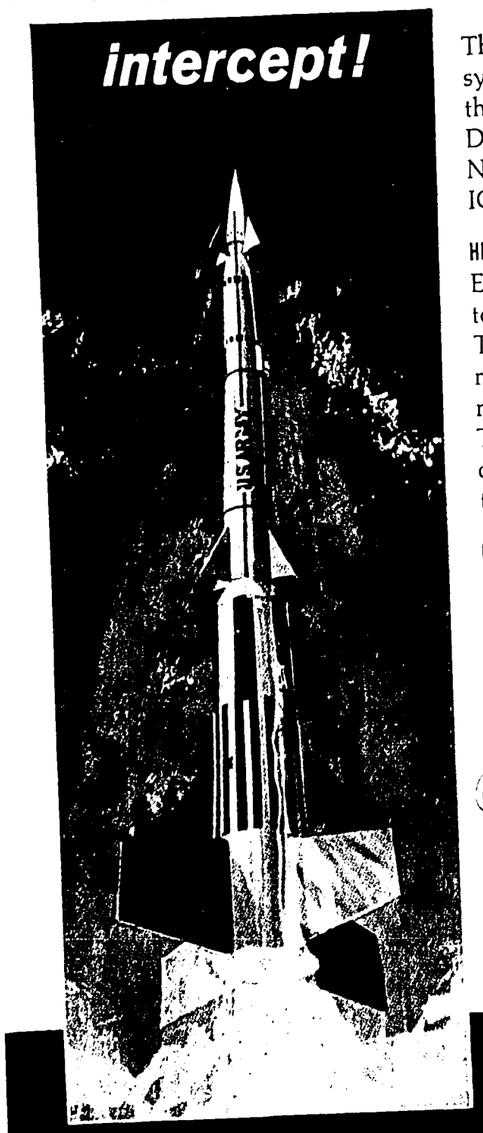
Conn, Ltd. (C. G.), 1101 E. Beardsley, Elkhart, Ind., 13, 31, 35, 37, Tel: 219-COngress 4-1161, Yr: 1875, Emp: 700, ▲4, $275,000

Connect-Tron, Inc., 4 Spruce Dr., Roslyn, L.I., N.Y., 52, Yr: 1960, Emp: 3, ▲2

Connecticut Hard Rubber Co., 407 East St., New Haven 9, Conn., 94, 97, 101, 103, Tel: SPruce 7-3631, Yr: 1921, Emp: 250

Connecticut Instrument Corp., Box 337, Wilton, Conn., 17, Tel: 203-POrter 2-5545, Yr: 1958, Emp: 18, ▲1

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.



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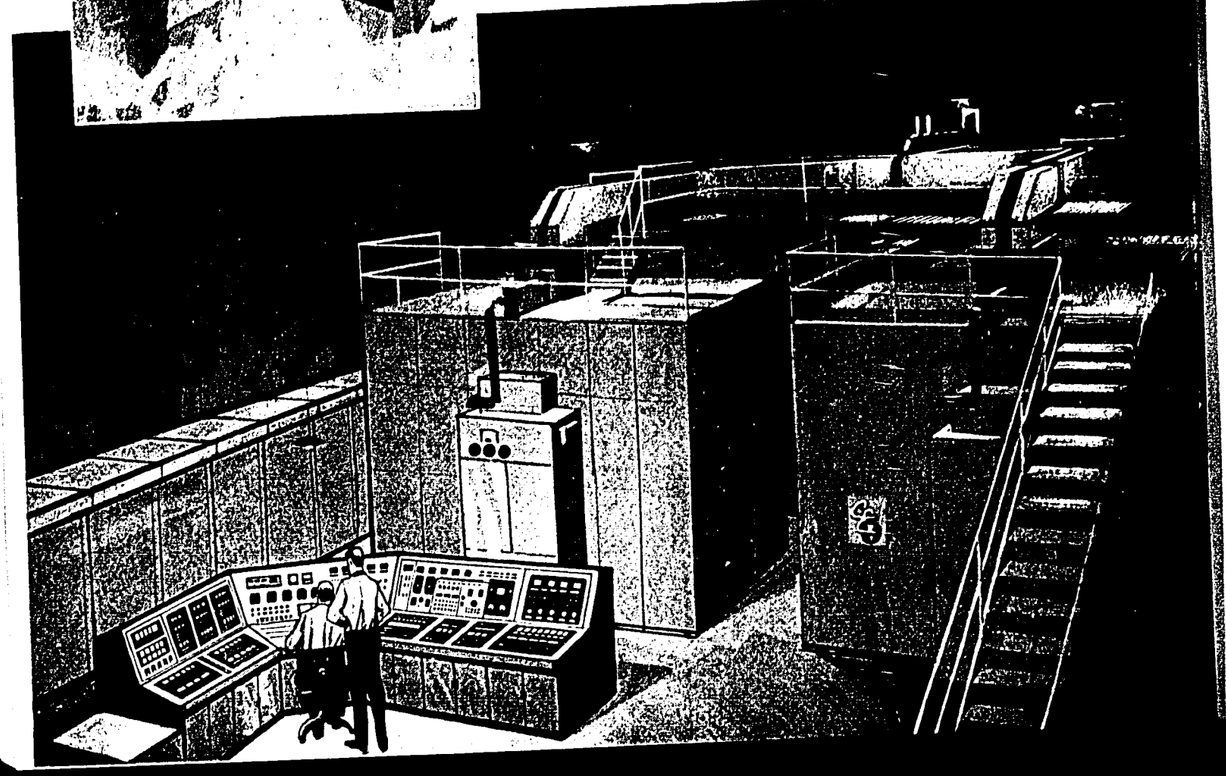

Connecticut Technical Corp., 3000 Main St., Hartford 5, Conn., 2, 4, 8, 9, 10, 50, 95, 96, 109, Tel: 203-JAckson 2-6167, Yr: 1960, Emp: 10, ▲2

Connecticut Telephone & Electric Corp. of Meriden, 38 Elm St., Meriden, Conn., 7, 33, 35, 41, 52, 62, 69, 80, 90, 96, Tel: 203-BEverly 5-7941, Yr: 1958, Emp: 150, ▲2, $2,000,000

Connector Corp., 6025 N. Keystone Ave., Chicago 46, Ill., 52, 56, 60, 62, 73, 78, 80, Tel: KEystone 9-3108

Connector Corp. of America, 12959 Sherman Way, North Hollywood, Calif., 66, Tel: TRiangle 7-0653, Yr: 1951, Emp: 10

Connector Seals Corp., 300 N. Lake, Pasadena, Calif., 52, Tel: 213-MUrray 1-3421, Yr: 1958, Emp: 30, ▲1

Connolly & Co., P.O. Box 295, Menlo Park, Calif., 48, 55, 86, Tel: DAvenport 3-1930, Yr: 1957, Emp: 34

Conoflow Corp., 2100 Arch St., Philadelphia 3, Pa., 4, Tel: 215-LOcust 7-7560, Yr: 1943, Emp: 160, ▲2

Conrad-Carson Electronics, Inc., 1347 Broadway, P.O. Box 2396, Bostonia Station, El Cajon, Calif., 9, 49, 61, 74, 84, Tel: HI 2-6602, Yr: 1958, Emp: 14, $64,500

Conrad, Inc., 141 Jefferson St., Holland, Mich., 36, Tel: EXport 2-3161, Yr: 1951, Emp: 46

Consolidated Airborne Systems, Inc., 900 Third Ave., New Hyde Park, L.I., N.Y., 2, 4, 40, 41, 43, 49, 50, 53, 61, 67, 69, 74, 77, Tel: 516-HUnter 8-1606, Yr: 1957, Emp: 100, ▲4, $1,250,000

Consolidated Aluminum Corp., 9 Rockefeller Plaza, New York 20, N.Y., 102, 104, Tel: 212-LT 1-2240, Yr: 1950, Emp: 350

Consolidated Avionics Corp., 800 Shames Dr., Westbury, L.I., N.Y., 2, 4, 8, 9, 10, 11, 17, 34, 40, 41, 50, 53, 57, 69, 72, Tel: EDgewood 4-8400, Yr: 1955, Emp: 108, ▲16, $1,800,000

Consolidated Controls Corp., 3 Durant Ave., Bethel, Conn., 4, 10, 31, 58, 61, 80, 83, 99, Tel: 203-PIoneer 3-6721, Yr: 1957, Emp: 275, ▲1, $2,000,000

Consolidated Controls Corp., 2622 San Mateo, N.E., Albuquerque, N.M., 4, 8, 40, 53, 83, Tel: AMherst 8-2431, Yr: 1954, Emp: 280, $12,000,000

Consolidated Diesel Electric Corp., 880 Canal St., Stamford, Conn., 2, 53, 67, 69, 90, Tel: 203-DAvis 5-2261, Yr: 1942, Emp: 500, ▲1

Consolidated Electrodynamics Corp., 360 Sierra Madre Villa, Pasadena, Calif., 1, 2, 4, 9, 10, 16, 23, 27, 34, 36, 40, 43, 52, 55, 61, 69, 70, 75, 83, 92, 94, 99, 109, Tel: MUrray 1-8421, Yr: 1937, Emp: 3500, ▲18, $40,000,000

Consolidated Mining & Smelting Co. of Canada, Ltd., 215 Saint James St. W., Montreal, Quebec, Canada, 17, 94, 102, 104, 110, Tel: AVenue 8-3103, ▲1

Consolidated Reactive Metals, Inc., 115 Hoyt Ave., Mamaroneck, N.Y., 91, 104, 105, 110, Tel: 914-OWens 8-2300, Yr: 1933, Emp: 30, ▲1

See ad in class 91

Consolidated Resistance Co. of America, Inc., 44 Prospect St., Yonkers, N.Y., 6, 12, 74, 81, Tel: YOnkers 3-5900, Yr: 1953, Emp: 20

Consolidated Vacuum Corp., 1775 Mount Read Blvd., Rochester 3, N.Y., 4, 36, 40, 99, Tel: 716-GLadstone 8-2550, Yr: 1953, Emp: 450, ▲11

Consolidated Wire & Associated Companies, 1637 S. Clinton St., Chicago 16, Ill., 91, Tel: 312-HAymarket 1-4441, Yr: 1919, Emp: 30

See ad in class 91

Constanta Co. of Canada, Ltd., 280 Regina Ave., Montreal 19, Quebec, Canada, 74, Tel: 514-POntiac 8-3235, Yr: 1954, Emp: 25

Contemporary American Furniture, Inc., 1821 W. Berteau Ave., Chicago 13, Ill., 90, Tel: Diversey 8-4355, Yr: 1952, Emp: 8

Continental Connector Corp., 34-63 56th St., Woodside 77, N.Y., 52, Tel: 212-TWining 9-4422, Yr: 1952, Emp: 520, ▲1, $7,230,000

Continental Consultants, Inc., 830 Montgomery Ave., #116, Bryn Mawr, Pa., 95, Tel: LAwrence 5-2115

Continental Device Corp., 12515 Chadron Ave., Hawthorne, Calif., 71, 76, Tel: 213-ORegon 8-4894, Yr: 1958, Emp: 350, ▲10

Continental-Diamond Fibre Corp., 16 S. Chapel St., Newark, Del., 81, 90, 96, 97, 101, 106, 107, 112, Tel: 112-ENdicott 8-8531, Yr: 1895, Emp: 2000, ▲2

Continental Electronics Corp., 2724 Leonis Blvd., Los Angeles 58, Calif., 85, 86, Tel: LUdlow 2-8101, Yr: 1955, Emp: 45, ▲3, $760,000

Continental Electronics Corp., 302 Oakland St., Brooklyn 22, N.Y., 7, 18, 30, 43, 49, 51, 59, 62, 65, 73, 80, 95, 96, Tel: EVergreen 3-3331, Yr: 1944, Emp: 16, ▲2, $500,000

Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 1, 4, 20, 24, 25, 29, 34, 42, 43, 44, 59, 66, 69, 80, 88, 90, 95, 109, Tel: 214-EVergreen 1-1135, Yr: 1946, Emp: 500, ▲40, $10,000,000

See ad on page 120

Continental Electronics & Sound Co., (CESCO), 6151 Dayton Liberty Rd., Dayton 18, Ohio, 37, 38, 43, 44, 59, 66, 69, 73, 78, 80, 90, 91, 96, 105, 112, Tel: TEmple 5-5669, Yr: 1949, Emp: 8, $100,000

Continental Instruments Corp., 110 Atlantic Ave., Lynbrook, L.I., N.Y., 4, Tel: 516-LYnbrook 3-2266

Continental Mfg., Inc., 1612 California, Omaha 2, Nebr., 20, 21, 26, 30, 33, 43, 88, Tel: 342-2753, Yr: 1955, Emp: 35, ▲1

Continental Merchandise Co., Transistor Products Div., 236 5th Ave., New York 1, N.Y., Importers, 5, 8, 10, 20, 26, 27, 44, 49, 50, 54, 55, 65, 79, 88, Tel: MUrray Hill 3-3540, Yr: 1926, Emp: 60, ▲2, $6,000,000

Continental Precision Products, 1026 E. 179th St., New York 60, N.Y., 96, 97, Tel: LUdlow 9-9284

Continental Screw Co., 459 Mount Pleasant St., New Bedford, Mass., 97, Tel: WYman 3-2621, Yr: 1904, Emp: 800, $400,000

Continental Sound Engineering, Inc., 12730 W. Burleigh Rd., Brookfield, Wis., 30, 79, Tel: 414-SUnset 1-4900, Yr: 1956, Emp: 30, ▲1, $400,000

Continental Technical Service, Inc., 19 W. 4th St., Dayton 2, Ohio, 2, 4, 8, 9, 11, 21, 33, 34, 40, 41, 95, 96, 99, 108, 109, 111, Tel: BAldwin 2-8626, Yr: 1945, Emp: 100

Continental-Wirt Electronics Corp., 26 W. Queen Lane, Philadelphia 44, Pa., 74, 80, Tel: GErmantown 8-9334, Yr: 1900, Emp: 130, ▲3

Control Circuits, Inc., 66 Marlborough St., Portland, Conn., 4, 17, 28, 41, 50, 51, 53, 59, 69, 71, 84, 96, 109, Tel: 203-Diamond 2-2220, $150,000

Control Data Corp., 501 Park Ave., Minneapolis 15, Minn., 4, 7, 8, 9, 10, 34, 84, Tel: 612-FEderal 9-0411, Yr: 1957, Emp: 1300, ▲24

Control Data Corp., Cedar Engineering Div., 5806 W. 36th St., Minneapolis 16, Minn., 2, 4, 8, 9, 10, 67, 77, 83, 96, Tel: WEst 9-1681, ▲1

Control Data Corp., Control Corporation (Subsid.), 718 Central Ave., N.E., Minneapolis 14, Minn., 4, 7, 8, 9, 10, 34, 69, 73, 84, 99, Tel: 612-FEderal 5-7893, Yr: 1937, Emp: 174, ▲8

Control Devices, Inc., 925 S. Eton, Birmingham, Mich., 50, 61, 96, Tel: MIdwest 4-4244, Yr: 1953, Emp: 11

Control Dynamics Corp., 7420 Fulton Ave., North Hollywood, Calif., 73, Tel: 213-TRiangle 7-0183, Yr: 1957, Emp: 105, ▲3, $500,000

Control Electronics Co., Inc., 10 Stepar Pl., Huntington Station, L.I., N.Y., 2, 18, 35, 37, 43, 44, 45, 57, 59, 66, Tel: 516-HAmilton 7-7961, Yr: 1951, Emp: 125, ▲3, $1,500,000

See ad in class 59

Control Equipment Corp., 19 Kearney Rd., Needham Heights 94, Mass., 2, 4, 8, 9, 10, 11, 43, 50, 80, Tel: HIllcrest 4-7550, Yr: 1956, Emp: 20, ▲2, $200,000

Control Indicating Corp., Route 75 & Spring St., Windsor Locks, Conn., 4, 61, 98, Tel: 203-NAtional 3-2481, Yr: 1960, Emp: 18, ▲4, $100,000

Control Logic, Inc., 11 Mercer Rd., Natick, Mass., Tel: 617-CEdar 5-1865

Control Products, Inc., 280 Ridgedale Ave., East Hanover, N.J., 80, 82, Tel: TUcker 7-5000, Yr: 1945, Emp: 100, ▲1

Control Technology Co., Inc., 41-16 29th St., Long Island City 1, N.Y., 2, 4, 8, 43, 77, 95, Tel: EMpire 1-2133, Emp: 14, ▲1

Controlled Atmosphere Enclosures Mfg. Co., Inc., 1061 E. 8th St., Jacksonville 6, Fla., 36, 90, 96, 98, Tel: 305-ELgin 4-5604, Yr: 1951, Emp: 38, $62,000

Controlomag Laboratories, 2459 Susquehanna, Roslyn, Pa., 4, 38, 39, 40, 41, 43, 61, 69, 84, 95, 99, 109, Tel: TUrner 4-8098, Yr: 1959, Emp: 5

Controls Co. of America, 9555 Soreng Ave., Schiller Park, Ill., 2, 4, 9, 10, 13, 47, 50, 53, 54, 63, 67, 69, 71, 76, 80, 82, 83, 90, 96, 97, 99, 103, 109, Tel: 312-678-4150, Yr: 1925, Emp: 4200, ▲30, $10,000,000

Controls Co. of America, Control Switch Div., 4218 W. Lake St., Chicago 24, Ill., 63, 80, Emp: 500

Controls Co. of America, Electron Div., 811 W. Broadway Rd., Tempe, Ariz., 76, Tel: WO 7-1641, Yr: 1959, Emp: 57, ▲5

Controls Co. of America, Redmond Co. (Subsid.), 201 Monroe St., Owosso, Mich., 67, Tel: SAratoga 5-5151, Yr: 1924, Emp: 1300

Controls for Radiation, Inc., 130 Alewife Brook Pkwy., Cambridge, Mass., 11, 22, 95, Tel: UNiversity 4-8280, Yr: 1957, Emp: 70, ▲1

Contronics, Inc., 37 Leon St., Boston 15, Mass., 4, 5, 9, 10, 11, 17, 33, 35, 38, 40, 41, 43, 50, 95, Tel: HIghlands 2-8080, Yr: 1959, Emp: 50, ▲1

Cook Co. (Ken), 9929 W. Silver Spring Rd., Milwaukee 18, Wis., 13, 108, Tel: 414-HOpkins 6-6060, Yr: 1944, Emp: 120, $500,000

Cook Electric Co., 2700 N. Southport Ave., Chicago 14, Ill., 2, 4, 9, 13, 14, 18, 19, 22, 34, 36, 40, 43, 45, 48, 50, 66, 73, 80, 90, 92, 93, 99, 108, 109, Tel: DIversey 8-6700, Yr: 1897, Emp: 4800, ▲250, $7,500,000

Cook Electric Co., Cook Technological Center, 6401 Oakton St., Morton Grove, Ill., 2, 4, 8, 9, 10, 17, 18, 19, 20, 22, 25, 27, 34, 36, 37, 41, 43, 44, 50, 57, 69, 77, 95, 96, 109, Tel: 312-NIles 7-6100, Yr: 1898, Emp: 4300, ▲60, $50,000,000

Cook Electric Co., Data-Stor Div., 3100 Monticello Ave., Skokie, Ill., 1, 9, Tel: ORchard 3-9200, ▲10

Cook Electric Co., N.R.K. Microwave Div., 4601 W. Addison St., Chicago 41, Ill., 45, 59, 66, 84, Tel: 312-SPring 7-2970, Yr: 1942, Emp: 125, ▲1, $1,750,000

Cooke Engineering Co., 735 N. Saint Asaph St., Alexandria, Va., 18, 21, 24, 29, 30, 31, 33, 34, 43, 44, 50, 69, 88, 95, 96, 108, 109, Tel: 703-KIng 8-3889, ▲7

Cool Fin Electronics Corp., 6442 Coldwater Canyon Ave., North Hollywood, Calif., 95, 103, 105, Tel: 213-TRiangle 7-0816, Yr: 1961, Emp: 20, ▲2

Cooper Corp. (Morris), 3832 Terrace St., Philadelphia 50, Pa., 109, Tel: IV 3-6533, Yr: 1960, Emp: 5, ▲1

Cooper & Sons, Inc. (Joseph B.), 180 Varick St., New York 14, N.Y., 91, 102, 104, 105, 110, Tel: 212-ALgonquin 5-3131, Yr: 1908

Coors Porcelain Co., 600 9th St., Golden, Colo., 75, 81, 86, 92, 101, Tel: CRestview 9-4533, Yr: 1910, Emp: 850, ▲6

Copperweld Steel Co., Flexo Wire Div., 70 W. First St., Oswego, N.Y., 91, Tel: 315-FIreside 3-0524, Yr: 1915, Emp: 120

Copperweld Steel Co., Wire & Cable Div., 1000 Monongahela Ave., Glassport Pa., 91, Tel: 412-HOmestead 1-4020, Yr: 1915, Emp: 850, ▲1

Cord Specialties, 9239 Cherry St., Franklin Park, Ill., 91, Tel: GLadstone 5-3503, Yr: 1948, Emp: 30

Corkpac Co., Inc., 70 Argyle Ave., New Rochelle, N.Y., 47, 97, 99, Tel: NEw Rochelle 2-1713, Yr: 1934

Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., 50 Paris St., Newark 1, N.J., 6, 12, 41, 44, 48, 50, 51, 53, 57, 59, 61, 69, 71, 73, 76, 84, 99, Tel: MArket 4-7500, Yr: 1910, Emp: 4000, ▲8, $27,800,000

Cornell Mfg. Co., Inc., 21 Saw Mill River Rd., Yonkers 2, N.Y., 97, Tel: 614-YOnkers 8-9400, Yr: 1941, Emp: 100

Corning Glass Works, Corning Electronic Components Div., 750 High St., Bradford, Pa., 48, 49, 50, 51, 57, 74, 86, 88, 112, Tel: 814-FOrest 2-5571, Yr: 1851, Emp: 800, ▲30

See ads in classes 48, 49, 74

Corning Glass Works, Electrical Products Div., Corning, N.Y., 92, 97, 105, 109, 112, Tel: 607-XN 2-5011, Yr: 1851, Emp: 14,000, ▲36

Cornwell Electronics Corp., 84 S. Water St., Port Chester, N.Y., 43, 44, 51, 77, 84, Tel: 203-JEfferson 1-6801, Yr: 1956, Emp: 12, ▲2, $60,000

Corona Engineering Service, 94-52 Corona Ave., Elmhurst 73, N.Y., 4, 36, 73, 80, 95, Tel: ILlinois 7-2777, Yr: 1947, Emp: 9, ▲2

Corry Jamestown Corp., 40 N. Center St., Corry, Pa., 90, Tel: COrry 2-8221, Yr: 1919, Emp: 800

Corson Electric Mfg. Corp., 540 39th St., Union City, N.J., 48, Tel: 203-UNion 6-4227, Yr: 1949, Emp: 30, ▲2

Cortland Industries, Inc., 4545 W. Cortland St., Chicago 39, Ill., 92, 96, 97, 107, 112, Tel: CApitol 7-1500, Yr: 1937, Emp: 450

Cosa Corp., 405 Lexington Ave., New York 17, N.Y., Importers, 36, 40, 99, Tel: YUkon 6-9696, Yr: 1940, Emp: 56

Cosmic, Inc., 1028 Connecticut Ave., Washington 6, D.C., 2, 22, 25, 37, 38, 43, 48, 53, 69, Tel: 202-METropolitan 8-2620, Yr: 1957, Emp: 12, ▲3

Cosmic Radio Corp., 853 Whittier St., New York 59, N.Y., 48, Tel: LUdlow 9-3360

Cosmo Plastics Co., 3239 W. 14th St., Cleveland 9, Ohio, 96, 97, 106, Tel: 216-TOwer 1-5596, Yr: 1945, Emp: 70, $465,000

Cosmodyne Corp., 3232 W. El Segundo Blvd., Hawthorne, Calif., 4, 36, 47, 54, 99, Tel: OSborne 5-0327, Emp: 152, $250,000

Costelow Co., Inc. (John A.), 125 Kansas Ave., Topeka, Kan., 44, Tel: CEntral 3-6598, Yr: 1947, Emp: 36, ▲1, $400,000

Coto-Coil Co., Inc., 74 Pavilion Ave., Providence 5, R.I., 51, Tel: 401-WIlliams 1-3355, Yr: 1917, Emp: 75

See ad in class 51

Cottrell Paper Co., Inc., Rock City Falls, N.Y., 101, Tel: TUlip 5-7510, Yr: 1926, Emp: 70

Couch Ordnance, Inc., 3 Arlington St., North Quincy 71, Mass., 73, 80, Tel: 617-CYpress 8-4147, Yr: 1894, Emp: 269, ▲4

See ad in class 73

Counting Instruments, Ltd., 5 Elstree Way, Boreham Wood, Hertfordshire, England, 4, 9, 11, Tel: ELStree 1382, Yr: 1941, Emp: 350, $45,000

Cousino Electronics Corp., 1941 Franklin Ave., Toledo 2, Ohio, 13, 27, 68, 70, Tel: 419-248-4287

Covel Mfg. Co., Benton Harbor, Mich., 14, Yr: 1874, Emp: 100

Cox & Co., Inc., 115 E. 23rd St., New York 10, N.Y., 4, 56, 82, 98, Tel: ORegon 4-4727, Yr: 1948, Emp: 135, ▲8

Cox Instruments Div., George L. Nankervis Co., 15300 Fullerton Ave., Detroit, Mich., 4, 9, 11, 40, 53, Yr: 1923, Emp: 175, $500,000

Cox Mfg. Co., 807 Fredericksburg, Rd., San Antonio 1, Texas, 81, 90, 96, 97, Tel: PErshing 2-7881, Yr: 1956, Emp: 35, $500,000

Craig Systems, Inc., 360 Merrimack St., Lawrence, Mass., 2, 44, 90, 93, 96, Tel: 112-MUrdock 8-6961, Yr: 1941, Emp: 590, ▲5

Crane Electronics Co., 4345 Hollister, Santa Barbara, Calif., 9, 16, 27, 35, 41, 43, 50, 69, 73, 96, 109, Tel: WOodland 7-1193, Yr: 1956, Emp: 5

Crane Packing Co., 6400 W. Oakton St., Morton Grove, Ill., 96, 107, Tel: ORchard 4-0100, Yr: 1917, Emp: 1000, ▲1

Cratex Mfg. Co., Inc., 1600 Rollins Rd., Burlingame, Calif., 94, Tel: OXford 7-1600, Yr: 1922, Emp: 15

Crescent Co., Inc., 20 Central Ave., Pawtucket, R.I., 91, Tel: 401-PAwtucket 2-3100, Yr: 1923, Emp: 325

Crescent Engineering & Research Co., 5440 N. Peck Rd., El Monte, Calif., 4, 5, 34, 40, 41, 83, Tel: 213-GIlbert 3-6141, Yr: 1938, Emp: 200, ▲5, $1,800,000

Crescent Fabricators Corp., 39-51 60th St., Woodside 77, N.Y., 81, 96, Yr: 1959, Emp: 15, $75,000

Crest Transformer Corp., 405 W. Orange St., Hoopeston, Ill., 51, 84, Tel: 1600

Crompton & Knowles Packaging Corp., 960 Suffield St., Agawam, Mass., 99, Tel: JEfferson 4-5681

Croname, Inc., 6231 Howard St., Chicago 48, Ill., 50, 88, 90, 96, 97, 109, 112, Tel: 312-NIles 7-6100, Yr: 1903, Emp: 1000

Crosby-Teletronics Corp., 54 Kinkel St., Westbury, L.I., N.Y., 26, 29, 34, 35, 37, 38, 40, 41, 42, 79, 80, 88, Tel: 516-EDgewood 3-1027, Emp: 130, ▲10, $1,250,000

Cross Co. (H.), 3229 Bergenline Ave., Union City, N.J., 104, Tel: 201-UNion 3-1134, Yr: 1930

See ad in class 104

Crouse Hinds Co., Wolf & Seventh Sts. N., Syracuse 1, N.Y., 52, 62, 78, Tel: 315-GRanite 4-8411, Yr: 1897, Emp: 3000, ▲3

Croven, Ltd., 500 Beech St., Whitby, Ontario, Canada, 56, Tel: 416-MOhawk 8-3325, Yr: 1954, Emp: 102, ▲2, $1,250,000

Crowhurst (Norman H.), 216-18 40th Ave., Bayside 61, N.Y., 95, 96, 108, 109, Tel: 212-BAyside 4-4400

Crown Engineering, 3821 Commercial N.E., Albuquerque, N.M., 13, 20, 23, 34, 38, 43, 51, 95, 96, 109, Tel: 505-DIamond 4-2341, Yr: 1951, Emp: 50, ▲3, $450,000

Crown Tool, Inc., 810 N. Cass St., Wabash, Ind., 99, Tel: 219-563-2144, Yr: 1956, Emp: 26, $200,000

Crucible Steel Co. of America, P.O. Box 88, Pittsburgh 30, Pa., 51, 64, 97, 99, 104, 112, Tel: 412-CApital 7-6315, Yr: 1901, Emp: 12,500, ▲3

Cryogenerators, Inc., 100 Mendon Rd., Ashton, R.I., 36, 52, 54, 80, 81, 97, 105, Tel: 401-PAwtucket 2-2200, Yr: 1954, Emp: 80, ▲2

Crystal Research Laboratories, Inc., 29 Allyn St., Hartford 4, Conn., 99, Tel: 112-JAckson 7-3215, ▲1

Crystalonics, Inc., 249 Fifth St., Cambridge 42, Mass., 76, Tel: 617-KIrkland 7-2750, Yr: 1959, Emp: 25, ▲1, $250,000

Cubic Corp., San Diego 11, Calif., 1, 2, 8, 9, 18, 34, 37, 40, 43, 50, 53, 69, 93, 96, 109, Tel: 714-BRowning 7-6780, Yr: 1950, Emp: 500, ▲50, $9,192,486

Culbertson Products, Inc., 25 Samson Ave., Madison, N.J., 48, 49, 50, 55, 81, 92, 97, Tel: FRontier 7-0778, Yr: 1947, Emp: 15, ▲1

Culver-Stearns Mfg. Co., 181 Greenwood St., Worcester 7, Mass., 52, 60, 62, 63, 74, 78, 80, 81, 97, Tel: 112-PLeasant 3-6304, Yr: 1909, Emp: 110

Cunningham Industries, Inc., 56 Hubbard Ave., Stamford, Conn., 77, Tel: 203-DAvis 4-2942, Yr: 1951, Emp: 3

Cunningham Son & Co., Inc. (James), 33 Litchfield St., Rochester 8, N.Y., 80, Tel: BAker 5-7240, Yr: 1838, Emp: 86, ▲1, $664,716

Curtis Development & Mfg. Co., 3276 N. 33rd St., Milwaukee 16, Wis., 81, 96, 97, Tel: 414-HIlltop 5-1817, Yr: 1935, Emp: 110

Curtis Instruments, Inc., 45 Kisco Ave., Mount Kisco, N.Y., 4, 61, Tel: 914-MOunt Kisco 6-8051, Yr: 1960, Emp: 7

Curtis Universal Joint Co., Inc., 196 Birnie Ave., Springfield 7, Mass., 66, 97, Tel: REpublic 7-0281, Yr: 1935, Emp: 35

Curtiss-Wright Corp., Electronics Div., 35 Market St., East Paterson, N.J., 2, 4, 8, 9, 10, 25, 40, 41, 50, 57, 67, 73, Tel: SWarthmore 1-0100, Yr: 1951, Emp: 2100, ▲12

Curtiss-Wright Corp., Electronics Div., P.O. Box 8324, 5400 Acoma Rd., S.E., Albuquerque, N.M., 2, 4, 8, 9, 40, 41, 50, 61, 73, 96, 109, Tel: 505-AMherst 8-2474, Yr: 1958, Emp: 70, ▲9

Curtiss-Wright Corp., Princeton Div., P.O. Box 110, Princeton, N.J., 2, 4, 22, 28, 40, 41, 43, 94, 95, 98, 99, 109, Tel: SWinburne 9-0500, Yr: 1956, Emp: 350, ▲15

Cush Craft, 621 Hayward St., Manchester, N.H., 44, 91, 96, Tel: NAtional 5-9814, Yr: 1950, Emp: 10

Cushing & Nevell, Inc., 101 Park Ave., New York 17, N.Y., 108, Tel: ORegon 9-3810, Yr: 1933, Emp: 480, ▲10, $5,000,000

Custom Components, Inc., Box 248, Caldwell, N.J., 43, 45, 55, 92, 100, 102, 103, 104, Tel: 201-CApital 6-3403, Yr: 1953, Emp: 24, ▲3, $400,000

Custom Gear Co., Inc., 648 College St., South Bend 28, Ind., 77, Tel: 219-CEntral 4-5188, Yr: 1951, Emp: 12, $35,000

Custom Scientific Instruments, Inc., 541 Devon St., Kearny, N. J., 36, 40, 41, 99, Yr: 1947, Emp: 20

Cutler-Hammer, Inc., 372 N. 12th St., Milwaukee 1, Wis., 4, 73, 77, 80, 98, Tel: 414-BRoadway 1-7800, Yr: 1893, Emp: 6500, ▲9

Cutler Metal Products Co., 1025 Line St., Camden 3, N.J., 90, 93, 96, 109, Tel: 609-WOodlawn 3-1060, Yr: 1932, Emp: 300, $500,000

Cybernetics, Inc., 25 Locust St., Haverhill, Mass., 95, 109, Tel: DRake 2-8544, Yr: 1959, Emp: 12, ▲1

Cycle Transformer Corp., 356 Glenwood Ave., East Orange, N.J., 43, 84, Tel: 201-ORange 4-0731, Yr: 1944, Emp: 60, ▲2, $400,000

Cyclotron Specialties Co., Moraga 9, Calif, 11, Tel: OR 6-4712

D

DBM Research Corp., 11-13 N. Atlantic, Cocoa Beach, Fla., 1, 2, 4, 5, 9, 10, 11, 14, 22, 43, 44, 103, 109, Tel: SUnset 2438, Yr: 1953, Emp: 7, ▲3, $250,000

DKE Electronic Bases, Inc., 27 Wright St., Newark 5, N.J., 78, 86, 87, 91, 105, Tel: BIgelow 3-0800, Yr: 1924, Emp: 25

D & R Pilot Plants, Inc., Water St., Hazardville, Conn., 101, Tel: 112-RIverview 9-8301, Yr: 1953, Emp: 10, ▲1, $150,000

Daco Instrument Co., Tillary & Prince Sts., Brooklyn 1, N.Y., 11, 14, 40, 51, 61, 77, 80, Tel: 212-ULster 5-8530, Yr: 1930, Emp: 125, ▲1, $250,000

Dage Electric Co., Inc., 67 N. Second St., Beech Grove, Ind., 52, 75, Tel: 317-STate 7-5305, Yr: 1951, Emp: 135, $2,000,000

See ads in classes 52, 75

Dahlstrom Mfg. Corp., 419 Buffalo St., Jamestown, N.Y., 93, 96, Tel: 47-101, Yr: 1904, Emp: 700

Dale Electronics, Inc., Subsid. of Hathaway Instruments, Inc., P.O. Box 488, 1318 28th Ave., Columbus, Nebr., 12, 41, 44, 48, 50, 51, 67, 74, 84, 91, 96, Tel: 402-LOcust 4-3131, Yr: 1951, Emp: 650, ▲3

See ad in class 74

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Dales Co. (Franklin), 180-84 E. Mill St., Akron 8, Ohio, 4, 80, 82, Tel: 216-POrtage 2-7236, Yr: 1954, Emp: 80

Dalmo Victor Co., Div. of Textron, Inc., 1515 Industrial Way, Belmont, Calif., 1, 2, 4, 18, 28, 44, Tel: 415-LYtell 1-1414, Yr: 1922, Emp: 734, ▲28, $15,000,000

Daltronics, Inc., 100 Manton Ave., Providence 9, R.I., 43, 51, 59, Tel: ELmhurst 1-3525, Yr: 1960, Emp: 10, ▲1, $125,000

Dalweld Co., Inc., 13 Bertel Ave., Mount Vernon, N.Y., 104, 110, Tel: 914-MOunt Vernon 4-8698, Yr: 1955, Emp: 18

Dampp-Chaser, Inc., P.O. Box 1641, Hendersonville, N.C., 98, Tel: 692-8271, Yr: 1947

Daniels, Inc. (C. R.), Daniels, Md., 44, 90, 101, 107, Tel: 301-HOward 5-1200, Yr: 1917, Emp: 420, $1,000,000

Dano Electric Co., 97 Main St., Winsted, Conn., 51, Tel: FRontier 9-3302, Yr: 1936, Emp: 150

Dante Electric Mfg. Co., P.O. Box 6, Bantam, Conn., 52, 60, 81, 97, Tel: JOrdan 7-5307, Yr: 1923, Emp: 12

Darco Industries, Inc., 2151 E. Rosecrans Ave., El Segundo, Calif., 2, 51, Tel: 213-OSborne 5-3381

Data Display, Inc., 1820 Como Ave., Saint Paul 8, Minn., 2, 9, 25, Tel: 612-MIdway 6-8673, Yr: 1958, Emp: 16, ▲7

See ad in class 9

Data-Master Corp., 85 Hazel St., Glen Cove, L.I., N.Y., 4, 9, 10, 34, 40, Tel: 516-ORiole 6-7300, Yr: 1946, Emp: 50, ▲4

Data Products Co., Inc., 414 Pine Ave., Frederick, Md., 4, 9, 10, 11, 33, 35, 40, 53, 69, 109, Tel: 301-MOnument 2-4156, Yr: 1959, Emp: 15, ▲2

Data Sciences, Inc., 230 Middle Neck Rd., Great Neck, L.I., N.Y., 109, Tel: HUnter 7-0220

Datalog Corp., Metrolog Div., 2415 Amsler St., Torrance, Calif., 2, 4, 5, 9, 34, 37, 40, 43, 66, 69, 109, Tel: 213-SPruce 5-6621

See ad in class 40

Datascan, Inc., 324 Colfax Ave., Clifton, N.J., 4, 6, 8, 9, 10, 11, 41, Tel: PRescott 3-8803, Yr: 1957, Emp: 21, ▲1

Datex Corp., 1307 S. Myrtle Ave., Monrovia, Calif., 2, 4, 9, 10, 11, 34, 40, 77, Tel: ELliott 9-5381, Yr: 1952, Emp: 240, ▲10, $3,500,000

Datronics Engineers, Inc., 4925 St. Elmo Ave., Bethesda 14, Md., 91, 95, 96, 109, Tel: 301-OLiver 6-2505, ▲4

Daven Co., Subsid. of General Mills, Inc., 530 W. Mt. Pleasant Ave., Livingston, N.J., 4, 9, 12, 21, 31, 32, 34, 35, 36, 40, 43, 45, 50, 53, 57, 59, 69, 74, 80, 95, 96, Tel: WYman 2-4300, Yr: 1929, Emp: 1550, ▲40

Davidson Electronic Development Co., 2211 Peninsula Dr., Erie, Pa., 95, 96, Tel: TEmple 3-9818, Yr: 1951, Emp: 6, ▲2

Davidson Optronics, Inc., 2223 Ramona Blvd., West Covina, Calif., 14, 17, 40, Tel: EDgewood 7-7281, Yr: 1933, Emp: 175

Davies Molding Co. (Harry), 1428 N. Wells St., Chicago 10, Ill., 81, 90, 97, 106, Tel: 312-MIchigan 2-7240, Yr: 1933, Emp: 160, $600,000

Davis Electric Co., 230 N. Spring, Cape Girardeau, Mo., 73, Tel: 314-EDgewater 5-5547, Yr: 1945, Emp: 190, $1,200,000

Davis Electronics, Inc., P.O. Box 1247, Burbank, Calif., 18, 20, 44, 50, 75, 93, 94, 99, Tel: STate 4-2210, Yr: 1952, Emp: 78, ▲3, $3,000,000

Davis Engineering (George C.), Suite 527, Munsey Bldg., Washington 4, D.C., 95, Tel: STerling 3-0111, ▲2

Davis & Hemphill, 2000 Furnace Ave., Elk Ridge 27, Md., 97, Tel: Elk Ridge 90, Yr: 1906

Davis Plastics Co. (Joseph), Kearny, N.J., 97, 106, 107, 112, Tel: WYman 1-0980, Yr: 1917, Emp: 200

Dawe Instruments, Ltd., Harlequin Ave., Great West Rd., Brentford, Middlesex, England, 6, 11, 12, 23, 35, 37, 38, 40, 41, 59, 61, 99, Tel: ISLeworth 7331, Yr: 1946, Emp: 200, ▲1, $1,500,000

Daystrom, Inc., Advanced Systems Laboratory, 620 Passaic Ave., West Caldwell, N.J., Tel: 201-CApitol 8-0200, ▲2

Daystrom, Inc., Control Systems Div., 4455 Miramar Rd., La Jolla, Calif., 4, 8, 9, 10, 73, Tel: 714-GLencourt 4-0421, Yr: 1956, Emp: 250, ▲18, $2,000,000

Daystrom, Inc., Military Electronics Div., Archbald, Pa., 1, 2, 4, 8, 9, 10, 18, 25, 29, Tel: 717-876-1500, Yr: 1951, Emp: 1000, ▲11

Daystrom, Inc., Pacific Div., 9320 Lincoln Blvd., Los Angeles 45, Calif., 2, Tel: 213-OR 4-7100, ▲4

Daystrom, Inc., Transicoil Div., Worcester, Pa., 77, Tel: BRoadway 9-9800, Yr: 1947, Emp: 550, ▲6, $6,000,000

Daystrom, Inc., Weston Instruments Div., 614 Frelinghuysen Ave., Newark, N.J., 2, 31, 35, 37, 38, 40, 41, 61, 73, 74, 76, 82, 83, 84, Tel: 201-BIgelow 3-4700, Yr: 1888, Emp: 2300

Daystrom-Wiancko Engineering Co., 255 N. Halstead, Pasadena, Calif., 2, 4, 31, 34, 83, Tel: ELgin 5-7186, Yr: 1946, Emp: 225

Dayton Aircraft Products, Inc., 812 N.W. 1st St., Fort Lauderdale, Fla., 44, Tel: JAckson 3-5451, Yr: 1949, Emp: 50, $100,000

Dayton Aviation Radio & Equipment Corp. (DARE), R.R. 3, County Rd. 61, Troy, Ohio, 1, 2, 8, 18, 20, 24, 29, 38, 44, Tel: FEderal 2-5513, Yr: 1946, Emp: 350, ▲6, $2,800,000

Dayton Electronic Products Co., 915 Webster St., Dayton 4, Ohio, 1, 31, 37, 43, 44, 50, 59, 69, 83, Tel: BAldwin 4-0569, Yr: 1953, Emp: 53, ▲4, $425,000

Daytronic Corp., 223-227 S. Jefferson St., Dayton 2, Ohio, 4, 40, 41, 43, 61, 83, Tel: BAldwin 4-1621, Yr: 1954, Emp: 16, $225,000

Dazor Mfg. Corp., 4481-99 Duncan Ave., Saint Louis 10, Mo., 14, 65, Tel: 314-OLive 2-2400

Deal Products, Inc., 635 Industrial Dr., Easton, Pa., 44, Tel: 25-8-0681, Yr: 1950, Emp: 15

Dearborn Electronic Laboratories, Inc., P.O. Box 3431, Orlando, Fla., 48, 59, Tel: TErrace 8-5400, Yr: 1951, Emp: 88, ▲4

Decade Instrument Co., Box 153, Caldwell, N.J., 38, Tel: CApital 6-4258

Decibel Products, Inc., 3184 Quebec St., Dallas 7, Tex., 44, 66, 91, Tel: FLeetwood 7-0311, Yr: 1947, Emp: 20, ▲3

Decision/Inc., 2601 Colerain Ave., Cincinnati 14, Ohio, 108, Tel: 681-6800, Yr: 1952, Emp: 50, $250,000

Decker Corp., 45 Monument Rd., Bala Cynwyd, Pa., 2, 4, 5, 6, 19, 24, 35, 36, 40, 41, 43, 50, 83, 95, 96, 109, Tel: 215-MOhawk 4-6700, Yr: 1951, Emp: 205, ▲10

DeCoursey Engineering Laboratory, 11828 W. Jefferson Blvd., Culver City, Calif., 51, 59, 84, Tel: EXmont 7-9668, Yr: 1939, Emp: 7

Dee Electric Co., 1708 W. Belmont Ave., Chicago 13, Ill., 98, 99, Tel: 312-EAstgate 7-6622, Yr: 1950, Emp: 15, ▲1

See ad in class 98

Deeco Instruments, Inc., 14737 Arminta St., Van Nuys, Calif., 35, 43, 51, 53, 57, 59, 84, Tel: STate 2-9083, Yr: 1957, Emp: 60, ▲1, $640,000

Defender Instrument & Regulator Co., Boody, Ill., 4, 17, 40, 61, Tel: ELwin 2519

Defense Electronics, Inc., 5451-B Randolph Rd., Rockville, Md., 1, 19, 24, 26, 34, 38, 43, 44, 66, 109, Tel: 301-WHitehall 6-7396, Yr: 1959, Emp: 50, ▲10, $100,000

Defiance Machine & Tool Co., 1920 S. Vandeventer Ave., Saint Louis 10, Mo., 96, 97, 99, 109, Tel: 314-PRospect 3-0567, Yr: 1936, Emp: 60

Defiance Printed Circuit Corp., 144 Commercial St., Malden, Mass., 50, Tel: 617-DAvenport 4-8250, Yr: 1955, Emp: 47, $300,000

See ad in class 50

Deitz Co., Inc., 9 E. Wesley St., South Hackensack, N.J., 4, 43, 96, Tel: 201-HUbbard 8-8516, Yr: 1948, Emp: 20, ▲1, $250,000

DeJur-Amsco Corp., Electronics Div., 45-01 Northern Blvd., Long Island City 1, N.Y., 52, 61, 74, 83, Tel: 212-RAvenswood 1-8000, Yr: 1922, Emp: 500, ▲1, $3,000,000

Del Electronics Corp., 521 Homestead Ave., Mount Vernon, N.Y., 4, 17, 40, 51, 53, 67, 69, 77, 83, 84, 109, Tel: 914-OWens 9-2000, Yr: 1954, Emp: 70

See ad in class 69

Del Mar Engineering Laboratories, 6901 W. Imperial Hwy., Los Angeles 45, Calif., 1, 4, 5, 9, 25, 34, Tel: ORegon 8-4371, Yr: 1951, Emp: 300, ▲1

DeLandri Precision Elements Co., Inc., 39 School St., Yonkers, N.Y., 77, 97, Tel: 914-GReenfield 6-3678, Yr: 1956, Emp: 10, $60,000

Delcon Corp., 943 Industrial Ave., Palo Alto, Calif., 1, 3, 4, 13, 18, 24, 26, 29, 41, 43, 50, 53, 59, 69, 90, 95, 96, 109, Tel: DAvenport 1-8200, Yr: 1960, Emp: 30, ▲2, $400,000

Delevan Electronics Corp., 7719 Olean Rd., East Aurora, N.Y., 51, Tel: 716-NL 2-3600, Yr: 1953, Emp: 300, ▲1, $2,000,000

See ad in class 51

Dell Optics Co., Ltd., 327 55th St., West New York, N.J., 17, 92, 94, 112, Tel: 201-UNion 7-1599, Yr: 1952, Emp: 79

Delsen Corp., 719 W. Broadway, Glendale 4, Calif., 40, 41, 109, Tel: CHapman 5-8517, Yr: 1957, Emp: 6

Delta Broadcasting System, 941 Shedburne Ave., Dayton 3, Ohio, 32, 43

Delta Chemical Works, Inc., 23 W. 60th St., New York 23, N.Y., 94, Tel: PLaza 7-6317, Yr: 1948, Emp: 18

Delta Coils, Inc., 1128 Madison Ave., Paterson 3, N.J., 51, 59, 84, 92, 95, 97, 109, Tel: MUlberry 4-5878, Yr: 1950, Emp: 100, ▲2

Delta Design, Inc., 3163 Adams Ave., San Diego 16, Calif., 4, 22, 36, 61, 90, 98, 99, Tel: ATwater 3-3193, Yr: 1955, Emp: 30, ▲2, $605,000

Delta-F, Inc., 113 E. State St., Geneva, Ill., 31, 36, 56, Tel: 312-CEnter 2-7600, Yr: 1958, Emp: 45, ▲1, $450,000

See ad in class 31

Delta Radio Co., 115 Worth St., New York 13, N.Y., 51, 84, Tel: REctor 2-6649, Yr: 1934, Emp: 12, ▲1, $72,000

Deltex Laboratories, Div. of Delta Exploration Co., Inc., P.O. Box 2666, Jackson, Miss., 16, 43, 48, 50, 51, 53, 57, 59, 69, 84, 96, Tel: 601-FLeetwood 5-9636, Yr: 1947, Emp: 150, ▲2

Deltime, Inc., 139 Hoyt St., Mamaroneck, N.Y., 9, 31, 33, 43, 57, 59, Tel: OWens 8-5600, Yr: 1952, Emp: 250, ▲1

Deltron Co., 14736 Arminta St., Van Nuys, Calif., 43, 51, 59, 69, 84, Tel: 213-STate 6-3613, Yr: 1954, Emp: 12, $100,000

Deltron, Inc., 4th & Cambria Sts., Philadelphia 33, Pa., 47, 50, 69, Tel: REgent 9-1101, Yr: 1952, Emp: 45, ▲5

DeMornay-Bonardi Corp., 780 S. Arroyo Pkwy., Pasadena, Calif., 31, 37, 43, 44, 45, 52, 56, 59, 66, 84, 88, 112, Tel: 213-SYcamore 2-4142, Yr: 1951, Emp: 100, ▲1, $1,000,000

See ad on pages 68-69

Demuth Glass Works, Inc., P.O. Box 629, Parkersburg, W.Va., 105, 112, Yr: 1941, Emp: 148, $12,000

Dennis Chemical Co., 2701 Papin St., Saint Louis 3, Mo., 94, Tel: 314-PRospect 6-1868, Yr: 1936, Emp: 50, $50,000

Denominator Co., Inc., 261 Broadway, New York 7, N.Y., 11, Tel: BArclay 7-3834, Yr: 1914, Emp: 15, $100,000

Denrad Mfg. Co., Inc., 310 W. Woodard St., Denison, Texas, 43, Tel: 214-HOmestead 5-2336, Yr: 1948, Emp: 5, $300,000

Denson Electronics Corp., P.O. Box 85, Rockville, Conn., 3, 11, 21, 26, 30, 33, 38, 43, Tel: TR 5-5198, Yr: 1947, Emp: 6, $50,000

Dependable Printed Circuit Corp., 827 Black Oak Ridge Rd., Wayne, N.J., 43, 50, Tel: 201-TEmple 5-2765, Emp: 20, ▲1

See ad in class 50

Deringer Metallurgical Corp., 8131 N. Monticello Ave., Skokie, Ill., 80, 81, Tel: ORchard 4-1983

Derivation & Tabulation Associates, Inc., 43 S. Day St., Orange, N.J., 108, Tel: 201-ORange 3-8030, Yr: 1956, Emp: 10, ▲1

Dero Research & Development Corp., Broadway & Park Ave., Huntington, L.I., N.Y., 2, 4, 9, 13, 17, 18, 20, 21, 22, 23, 25, 27, 34, 35, 37, 38, 40, 45, 109, Tel: 516-HAmilton 3-5757, Emp: 25, ▲4, $175,000

DeRyder Engineering (Herbert), Notch Rd. & Route 46, Little Falls, N.J., 41, 69, 86, 95, Tel: CLifford 6-2142, Yr: 1942, Emp: 9, ▲1, $187,500

Desco Mfg. Co., 608 Ruberta Ave., Glendale 1, Calif., 41, 62, 111, Tel: 213-CItrus 1-9560, Yr: 1950, Emp: 6, $31,204

Design Tool Co., Div. of Federal Mfg. & Engineering Corp., 1055 Stewart Ave., Garden City, L.I., N.Y., 4, 99, Tel: 516-PIoneer 2-7400, Yr: 1952

Designers for Industry, Inc., 4241 Fulton Pkwy., Cleveland 9, Ohio, 1, 2, 4, 9, 19, 20, 24, 25, 26, 27, 28, 29, 41, 42, 95, 96, 109, Tel: 216-SHadyside 9-0700, Yr: 1935, Emp: 210, ▲11, $1,000,000

Desmond-Stephan Mfg. Co., Urbana, Ohio, 111, Tel: 3-2181, Yr: 1905, Emp: 75

Despatch Oven Co., 619 S.E. 8th St., Minneapolis 14, Minn., 98, Tel: FEderal 1-1873, Yr: 1902, Emp: 250, $25,000

Destron Co., 25914 Chalmette Lane, Rolling Hills Estates, Calif., 4, 61, 73, 80, Tel: FRontier 8-3450, Yr: 1951, Emp: 2, ▲1

Detronic Industries Corp., 5650 E. Ten Mile Rd., Warren, Mich., 2, 90, 93, 96, Tel: SLocum 7-0100

Deutsch Co., Electronic Components Div., Municipal Airport, Banning, Calif., 52, 62, 75, 78, 80, 97, 101, 106, 111, Tel: 714-849-6701, Yr: 1955, Emp: 800, ▲6

Deutsch Fastener Corp., P.O. Box 61072, Los Angeles 61, Calif., 97, Tel: 213-FAculty 1-2747, Yr: 1950, Emp: 1000

Devco Engineering, Inc., Pier Lane West, Caldwell, N.J., 4, 40, 90, Tel: CApital 6-0610, Yr: 1954, Emp: 26

Develop-Amatic Engineering, 923 Industrial Ave., Palo Alto, Calif., 4, 95, 96, 99, 109, Tel: 415-DAvenport 1-3376, Yr: 1957, Emp: 12

Development Engineering Co., Inc., 9 Cross St., Norwalk, Conn., 36, 41, 54, 95, Tel: VIctor 7-7720, Yr: 1949, Emp: 7, $75,000

Developmental Electronics Corp., 4213 S. Broadway, Los Angeles 37, Calif., 2, 4, 8, 9, 10, 11, 31, 34, 41, 43, 50, 53, 57, 69, 73, 77, 84, 95, 96, 109, Tel: 213-ADams 4-7751, Yr: 1951, Emp: 10, ▲4

Developmental Engineering Corp., Fort Evans, P.O. Box 551, Leesburg, Va., 24, 44, 45, 95, Tel: 703-SPring 3400, Yr: 1945, Emp: 150, ▲20, $2,000,000

Device Development Corp., 428 Boston Post Rd., Weston 93, Mass., 10, 64, 76, Tel: 617-TWinbrook 3-0300, Yr: 1956, Emp: 20, ▲3, $120,000

Device Seals, Inc., 7225 Radford Ave., North Hollywood, Calif., 52, 75, 81, 92, 99, 109, Tel: 213-TRiangle 7-0751, Yr: 1950, Emp: 45, ▲3

DeVilbiss Co., 300 Phillips Ave., Toledo 1, Ohio, 47, 98, 99, Tel: GReenwood 4-5411

Devol Research Corp., Brookside Dr., Greenwich, Conn., 4, 9, 10, 95, Tel: 203-PI 3-6721, Yr: 1945

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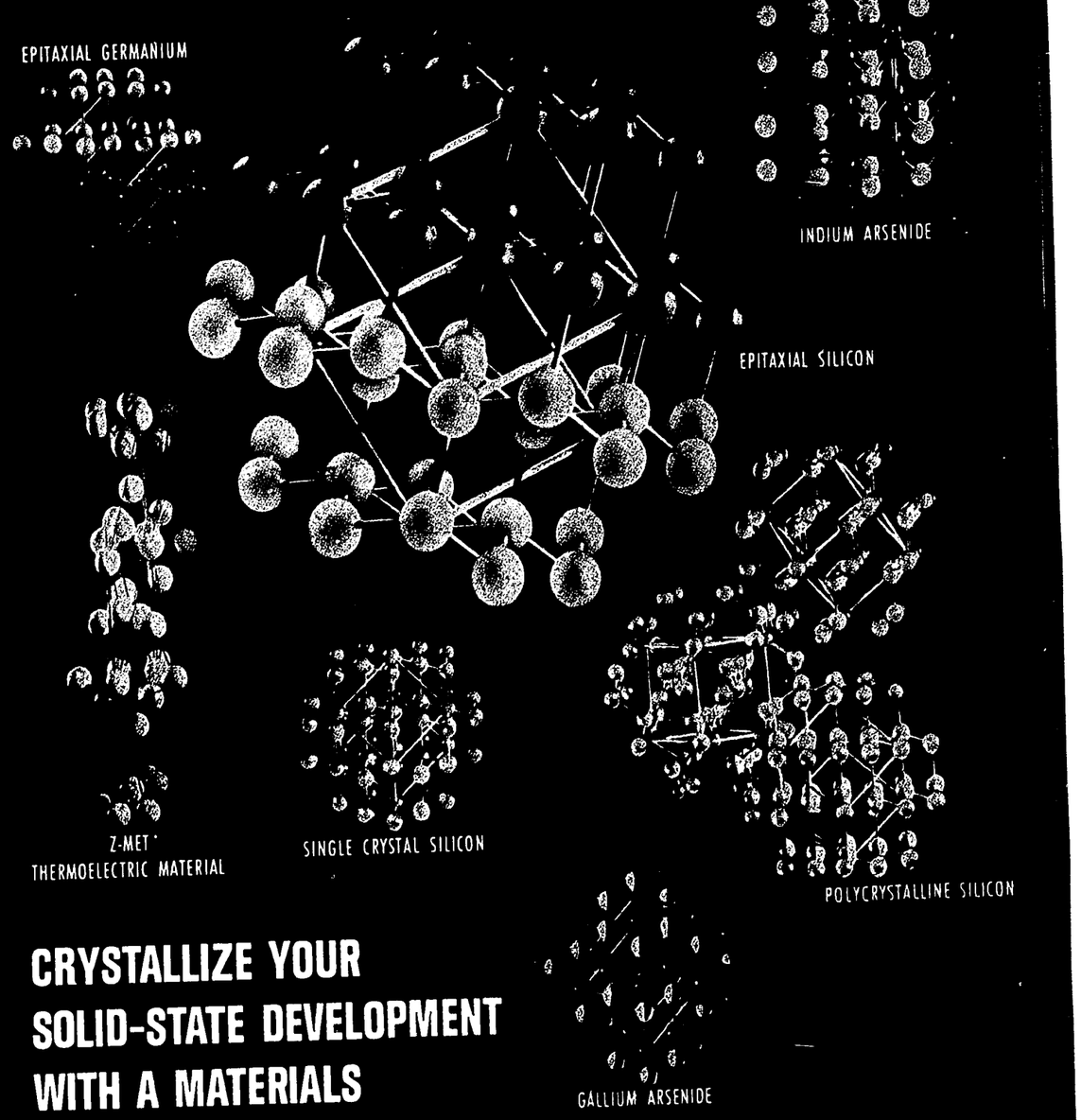

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DeVry Technical Institute, 4141 Belmont Ave., Chicago 41, Ill., Educational Institution, Tel: 312-KIldare 5-2700, ▲30

DeWald Radio, Div. of United Scientific Laboratories, Inc., 35-15 37th Ave., Long Island City 1, N.Y., 3, 20, 26, 30, 43, 88, Tel: 212-STillwell 4-9334, Yr: 1921, Emp: 150, ▲2, $1,500,000

Dewey Corp. (G. C.), 202 E. 44th St., New York 17, N.Y., 1, 2, 4, 5, 8, 9, 10, 21, 22, 25, 34, 35, 38, 95, 109, Tel: MUrray Hill 2-7369, Yr: 1955, Emp: 140, ▲30, $1,800,000

DeWitt Development Co., 3008 W. 127th St., Blue Island, Ill., 46, 51, 74, Tel: 312-FUlton 8-2480, Yr: 1946, Emp: 5, $15,000

Di/An Controls, Inc., 944 Dorchester Ave., Boston 25, Mass., 2, 4, 8, 9, 10, 11, 43, 50, 55, 57, 77, Tel: AVenue 8-7700, Yr: 1959, Emp: 105, ▲12, $800,000

Di-Tran Corp., 11307 Hindry Ave., Los Angeles 45, Calif., 2, 4, 31, 36, 40, 41, 43, 50, 53, 63, 69, 96, 109, Tel: ORegon 8-7141, Yr: 1960, Emp: 25, ▲4, $500,000

Dial Products Co., 19 Cottage St., Bayonne, N.J., 77, 97, Tel: HEmlock 7-0720, Yr: 1953

Dialight Corp., 60 Stewart Ave., Brooklyn 37, N.Y., 52, 62, 63, 78, 80, Tel: 212-HYacinth 7-7600, Yr: 1937, Emp: 250, ▲6

See ad in class 63

Dialtron Corp., 203 Harrison Pl., Brooklyn 37, N.Y., 73, Tel: 212-HYacinth 7-7600, Yr: 1955, Emp: 100, ▲2

Diamond Antenna & Microwave Corp., 35 River St., Winchester, Mass., 25, 37, 38, 44, 45, 56, 59, 66, 80, 88, 96, 109, Tel: PArkview 9-5500, Yr: 1956, Emp: 50, ▲5, $700,000

Diamond Coils, Inc., 540 39th St., Union City, N.J., 51, Tel: 201-UNion 7-6797, Yr: 1956, Emp: 28, ▲1, $200,000

Diamond Drill Carbon Co., 244 Madison Ave., New York 16, N.Y., 56, Tel: LExington 2-3006

Diamond Electronics, Div. of Diamond Power Specialty Corp., Box 415, Lancaster, Ohio, 2, 4, 9, 13, 21, 26, 86, 95, 96, 109, Tel: OLive 3-6540, Yr: 1922, Emp: 562, ▲6, $1,000,000

Diamond Tool Engineering Co., 108 Massachusetts Ave., Boston 15, Mass., 68, 97, Tel: COmmonwealth 6-2700, Yr: 1946, Emp: 40

Diamond Tool & Horseshoe Co., 4702 Grand Ave., Duluth 7, Minn., 111, Tel: MArket 4-4858, Yr: 1908, Emp: 350

Diamonite Products Mfg. Co., Div. of U.S. Ceramic Tile, Shreve, Ohio, 92, Tel: JO 7-4211, Yr: 1945, Emp: 150, ▲1, $810,000

Dice Co. (J. W.), 16 Highwood Ave., Englewood, N.J., 40, 41, Tel: LOwell 8-0471, Yr: 1949, Emp: 8, ▲1, $200,000

Dick Co. (A. B.), 5700 W. Touhy Ave., Chicago 48, Ill., 9, 10, 28, 69, Tel: 312-ROdney 3-1900, Yr: 1884, Emp: 1500, ▲6

Dickson Electronics Corp., 248 Wells Fargo Ave., Scottsdale, Ariz., 71, 76, Tel: 602-WHitney 6-5357, Yr: 1960, Emp: 35, ▲2, $5,200

Dicon Corp., P.O. Box 177, Port Washington, L.I., N.Y., 4, 5, 7, 8, 9, 10, 11, 12, 18, 19, 21, 22, 23, 28, 30, 34, 40, 43, 44, 50, 53, 61, 69, 72, 80, 83, 95, 96, 109, Tel: PO 7-6900, Yr: 1960, Emp: 8, ▲2

Dictaphone Corp., 2208 Wisconsin Ave. N.W., Washington 7, D.C., 13, 15, 27, Tel: 202-FEderal 7-5000, Yr: 1922, Emp: 3000, ▲5, $36,941,409

Dictaphone Corp., 730 Third Ave., New York 17, N.Y., 1, 9, 13, 27, Tel: YUkon 6-1900, ▲10

Dictograph Products, Inc., Shelter Rock Lane, Danbury, Conn., 4, 30, 50, 69, 83, Tel: 203-PIoneer 8-9205, Yr: 1902, Emp: 350, ▲4, $6,000,000

Diebel Die & Mfg. Co., 6505 Oakton St., Morton Grove, Ill., 96, Tel: 312-INdependence 3-3100, Yr: 1937, Emp: 200

Diehl Mfg. Co., Finderne Ave., Somerville, N.J., 43, 67, 77, Tel: RAndolph 5-2200, Yr: 1888, Emp: 1500, ▲5

Dielectric Materials Co., 1811 W. Bryn Mawr Ave., Chicago 26, Ill., 91, 107, 112, Tel: LOngbeach 1-5833, Yr: 1938, Emp: 50

Dielectric Products Engineering Co., Inc., Raymond, Me., 37, 38, 44, 52, 59, 66, 73, 80, 84, 91, 99, Tel: 207-OLdfield 5-4555, Yr: 1953, ▲5, $2,500,000

Dietz Co., Inc. (Henry G.), 12-16 Astoria Blvd., Long Island City 2, N.Y., 4, 80, 90, 97, Tel: RAvenswood 6-3347, Yr: 1947, Emp: 20, ▲1

Dietz Design, Inc., 12900 Fifth St., Grandview, Mo., 51, 53, 57, 59, 69, 84, 96, 97, Tel: SOuth 1-7216, Yr: 1947, Emp: 50, ▲3, $500,000

Digitac, Inc., 143 S. Cedros Ave., Solana Beach, Calif., 11, Tel: SKyline 5-1551

Digital Equipment Corp., Main St., Maynard, Mass., 8, 9, 10, 11, 13, 40, 41, 43, 50, 57, 69, Tel: 617-TWinoaks 7-8822, Yr: 1957, Emp: 155, ▲12

Digitool Corp., 5300 Brownway, Houston 27, Texas, 4, 9, 10, 11, 40, 83, Tel: SUnset 2-0360, Yr: 1959, Emp: 10, $20,000

Digitran Co., 660 S. Arroyo Pkwy., Pasadena, Calif., 11, 12, 80, Tel: 213-MUrray 1-9667, Yr: 1949, Emp: 200, ▲8

Digitrols, Inc., 8 Industry Lane, Cockeysville, Md., 30, 35, 43, 51, 53, 69, 77, 84, Tel: 301-NOrmandy 6-2010, Yr: 1960, Emp: 9, ▲1, $10,000

Digitronics Corp., Albertson Ave., Albertson, L.I., N.Y., 4, 9, 10, 24, Tel: 516-HT 4-1000, Yr: 1957, Emp: 150, ▲6, $821,839

Dikewood Corp., 4805 Menaul Blvd., N.E., Albuquerque, N.M., 95, ▲4

Dilectrix Corp., Allen Blvd., Farmingdale, L.I., N.Y., 107, Tel: 516-CHapel 9-7999

Dilectron, Div. of Bestran Corp., 2069 S. Myrtle Ave., Monrovia, Calif., 48, Tel: 213-MUrray 1-4541, Yr: 1957, Emp: 150, ▲2, $1,000,000

Dillon & Co., Inc. (W. C.), 14620 Keswick St., Van Nuys, Calif., 4, 40, 41, 83, Tel: STate 5-3168, Yr: 1936, Emp: 60

Dimco-Gray Co., 212 E. Sixth St., Dayton 2, Ohio, 61, 97, 106, Tel: 513-BAldwin 2-6703, Yr: 1939, Emp: 50, ▲2

See ad in class 97

Dimensions, Inc., 7314 20th Ave., Brooklyn 4, N.Y., 9, 34, 86, 95, 109, Tel: 212-CLoverdale 6-8182, Yr: 1958, Emp: 6, ▲1

Dimick Mfg. Co., Jefferson, Ore., 44, 97, 106, Tel: FAirfax 7-2555, Yr: 1951, Emp: 6, $69,000

Diodes, Inc., 7303 Canoga Ave., Canoga Park, Calif., 71, 76, Tel: DIamond 6-5900, Yr: 1959, Emp: 55, ▲2

Diotron, Inc., 3650 Richmond St., Philadelphia 34, Pa., 17, 43, 46, 56, 58, 71, 72, 76, 80, 100, 102, Tel: 215-GArfield 6-8696, Yr: 1959, Emp: 35, ▲4, $350,000

Direct T/V Windings, Ltd., 138 Lewisham Way, London S.E. 14, England, 12, 13, 21, 23, 26, 30, 32, 35, 38, 41, 43, 51, 69, 84, Tel: TIDeway 6666-8

Dirigo Compass & Instrument Co., Boeing Field, Box 37, Seattle, Wash., 2, 99, Yr: 1911, Emp: 8, $40,000

Dit-Mco, Inc., Electronics Div., 911 Broadway, Kansas City 5, Mo., 2, 41, Tel: 816-HArrison 1-0011, Yr: 1954, Emp: 89, ▲1, $2,000,000

Dittmore-Freimuth Corp., 2517 E. Norwich St., Milwaukee 7, Wis., 4, 6, 10, 11, 33, 43, 44, 45, 48, 50, 51, 52, 56, 59, 60, 61, 62, 66, 69, 77, 78, 80, 81, 84, 89, 90, 91, 96, 97, 98, 105, 106, 109, 111, Tel: 414-HUmboldt 3-7724, Yr: 1946, Emp: 60

Division Lead Co., 7742 W. 61st St., Summit, Ill., 90, 94, 96, 97, 103, 104, 110, 112, Tel: RElIance 5-8600, Yr: 1918, Emp: 100

Dixon Corp., Bristol, R.I., 96, 97, 106, 107, 112, Tel: 401-CLifford 3-7500, Yr: 1876, Emp: 150

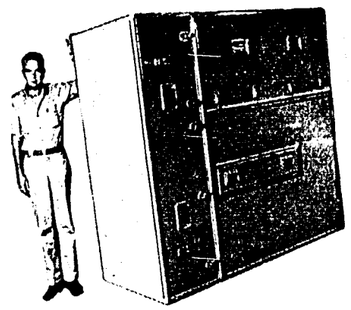
Skydyne, Inc

CASE HISTORY

The total background of Skydyne's 20 years of pioneering in the design and manufacture of transit and operational cases, consoles and benches is expressed in every unit produced — whether specially engineered, or part of a modified standard line.

SANDWICH MATERIAL FIELD AND MOBILE TRANSIT CASES

Skydyne's "Unistruc" construction of sandwich type transit cases produces completely bonded units of minimum weight and maximum strength. Individually engineered cases are particularly effective for use with ground support and other military equipment, and are designed to meet specifications MIL-T-945/A, MIL-T-4734, MIL-T-21200 and MIL-C-4150/E, as required. They assure greatest possible protection of sensitive equipment under widely varied circumstances and environment.



FEATURES

Integrated structural frame
Panels bonded to frame members
No limitation on size or design
Sandwich panel types to meet individual requirements
Shock absorbed by entire case.

MOLDED FIBERGLASS HAND PORTABLE INSTRUMENT CASES

Skydyne molded fiberglass hand portable instrument cases are available in 16 standard sizes — each capable of modification to meet individual requirements. Interior packing or mounting devices are custom-designed for protective cushioning. Molded fiberglass cases were developed by Skydyne to house and protect all types of portable optical, electric and electronic instruments and equipment. Cases meet all applicable MIL-T-945A and MIL-T-108C specifications

FEATURES

Standard sizes, which can be modified for specific uses
Durable material — waterproof and oil and acid resistant
High strength to weight ratio
Corner impact resistance
Molded in color — no surface finish required

Send us your specifications for estimate.

SKYDYNE — SCIENTIFICALLY ENGINEERED TRANSIT AND OPERATIONAL PACKAGING

MAXIMUM WEIGHT Skydyne Inc MAXIMUM STRENGTH

Skydyne, Inc

River Road, Port Jervis, New York

For details, circle #100 on Reader Service Card

Djeco, Div. of Djordjevic Engineering Co., 1933 N. Damen, Chicago 47, Ill., 8, 9, 31, 41, 43, 51, 53, 59, 66, 69, 71, 72, 73, 77, 84, 95, 98, 109, Tel: AR 6-7308, Yr: 1957, Emp: 30, ▲1, $250,000

Dmeter Mfg. Co. Inc., P.O. Box 88, Yonkers, N.Y., 6, 12, 31, 41, 73, 74, 80, Tel: 914-YOnkers 9-1770

DoAll Co., 254 N. Laurel Ave., Des Plaines, Ill., 99, Tel: VAnderbilt 4-1122

Dodge Fibers Corp., John St., Hoosick Falls, N.Y., 94, 97, 101, 104, 107, 112, Tel: Hoosick Falls 1080, Yr: 1955, Emp: 60

See ad in class 97

Dolin Metal Products, Inc., 315 Lexington Ave., Brooklyn 16, N.Y., 90, 93, 96, Tel: NEvins 8-9472, Yr: 1946, Emp: 55, $30,000

Dolinko & Wilkens, Inc., 1937 Summit Ave., Union City, N.J., 48, Tel: 201-UNion 7-6630, Yr: 1947, Emp: 25, ▲1, $175,000

Dominion Electrohome Industries, Ltd., 283 Duke St. W., Kitchener, Ontario, Canada, 26, 30, 43, 47, 67, 68, 88, 90, 98, Tel: SH 3-0271, Yr: 1907, Emp: 1160, ▲7, $12,500

Don-Lan Electronics, Inc., 1131 Olympic Blvd., Santa Monica, Calif., 44, 45, 66, 73, 80, 88, 95, Tel: EXbrook 3-0758, Yr: 1957, Emp: 60, ▲3, $1,000,000

Donmar Products, Inc., P.O. Box 8396, Denver 1, Colo., 50, 62, 95, 96, 109, Tel: 303-WEst 5-4676, Yr: 1949, ▲1

Donnelly Mfg. Co., Div. of Brockhouse Corp., 580 Winter St., Waltham 54, Mass., 90, Tel: TWinbrook 3-5700, Yr: 1940, Emp: 235, $2,000,000

Donner Scientific Co., Subsid. of Systron-Donner Corp., 888 Galindo St., Concord, Calif., 2, 4, 8, 9, 10, 35, 36, 40, 43, Tel: MUlberry 2-6161, Yr: 1954, Emp: 250, ▲20

Door-Man Mfg. Co., 12835 Hamilton Ave., Detroit 3, Mich., 4, 95, 96, Tel: 616-TOwnsend 8-0500, Yr: 1952, Emp: 39, ▲1, $384,000

Dormeyer Industries, 3418 N. Milwaukee Ave., Chicago 25, Ill., 51, 89, 84, Tel: 312-AVenue 3-4000, Yr: 1946, Emp: 485, $750,000

Dorne & Margolin, Inc., 29 New York Ave., Westbury, L.I., N.Y., 2, 18, 37, 38, 43, 44, 59, 66, 84, Tel: EDgewood 4-3200, Yr: 1947, Emp: 200, ▲15, $2,500,000

Dorsett Electronics, Inc., 119 W. Boyd, P.O. Box 862, Norman, Okla., 2, 4, 5, 13, 34, 50, 59, 69, 77, 93, 95, Tel: 405-JEfferson 4-3750, Yr: 1950, Emp: 450, ▲10, $2,900,000

Dorsey & Associates (J. G.), P.O. Box 45793, Los Angeles 45, Calif., 13, 54, 95, 96, 97, 99, 109, 111, Tel: GRanite 7-3837, Yr: 1958, Emp: 8, ▲4, $12,000

Douglas Aircraft Co., Inc., 3000 Ocean Park Blvd., Santa Monica, Calif., 1, 2, 4, 5, 8, 9, 10, 11, 17, 18, 34, 37, 38, 41, 44, 50, 59, 61, 66, 93, 109, Tel: OLive 3-0300, ▲80

Douglas Aircraft Co., Inc., Astropower, Inc. (Subsid.), 3801 Lakewood Blvd., Long Beach, Calif., ▲7

Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 1, 2, 31, 37, 38, 43, 44, 45, 56, 59, 66, 69, 80, 84, 88, 103, Tel: 914-MOunt Vernon 8-6900, Yr: 1952, Emp: 70, ▲6, $800,000

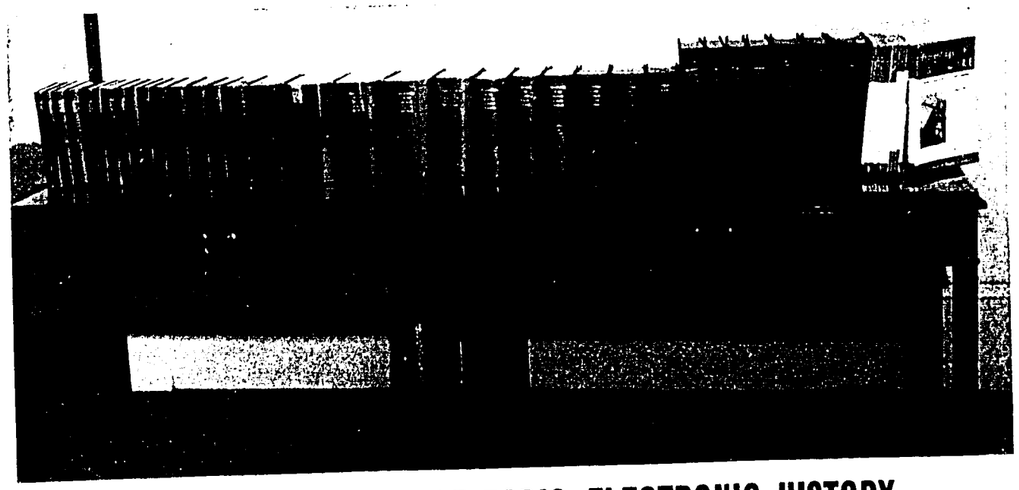
See ad in class 66

Dover Publications, Inc., 180 Varick St., New York 14, N.Y., 108, Tel: 212-ALgonquin 5-3755

Dow Chemical Co., Midland, Mich., 94, 97, 101, 104, 107, Tel: 517-MElrose 6-1000, Yr: 1897, Emp: 29,100, ▲3

Dow Corning Corp., Midland, Mich., 56, 94, 101, 102, 107, Tel: 517-TEmple 2-2371, Yr: 1942, Emp: 1450, ▲3

Dow-Key Co., Inc., Hwy. 59, Thief River Falls, Minn., 29, 44, 52, 73, 80, Tel: MU 1-3075, Yr: 1952, Emp: 30



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are recorded in "Proceedings of the IRE." The photo above shows the issues from 1912 through 1947—fourteen years of rapid advances and earth-shaking accomplishments are not even included in this panorama of progress! Since publication of its first issue, "Proceedings of the IRE" has paced and pioneered in every field of radio from the first vacuum tube through today's giant computers and tiny transistors. The engineers who write, read and use this magazine have transformed the world in forty-nine short years! Is it any wonder that so many advertisers believe these engineers must learn about their products in the fact-packed advertising pages of "Proceedings of the IRE"?

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

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Celco YOKES

Celco YOKES FOR CHARACTER DISPLAYS & HIGH RESOLUTION APPLICATIONS

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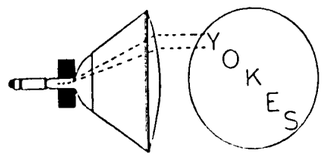
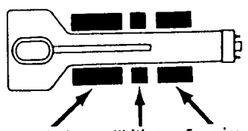


MAGNETIC WRITING
MAGNETIC POSITIONING
DYNAMIC FOCUSING COIL



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Celco Deflection Yokes permit rapid presentation of random character and alpha numeric displays. Low hysteresis, high accuracy and fast Recovery time with emphasis on spot approach to absolute zero, assures highest performance of magnetic deflection character displays.

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For best utilization of the New High Resolution CRT's CELCO YOKES assure minimum defocusing at large deflections.

The construction of our yokes makes it possible to achieve sensitivities, linearities, responses and distortion-free deflecting fields not possible with the usual types of yoke.

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Single units or production quantities immediately available in wide range of inductance - resistance - Recovery time - pin cushion corrected or optimum focus as required. Also available 2-⅛" and 2-½" neck CRT yokes.

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Transistorized encapsulated yokes for 70° 7/8" neck CRT and 1" neck image storage tubes.

TYPE AY
Push-pull or single ended yokes for 52°, 70° and 90° deflections for 1-7/16" neck CRT.

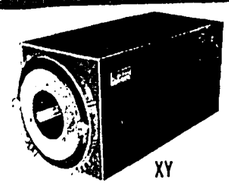
TYPE RY
Rotating deflection yokes for PPI displays. Gears, bearings, slip rings and contact assembly included.

TYPE DF
Dynamic Focusing Coil for 1⅞" neck CRT's.

TYPE MY
Miniature light weight deflection yoke coils or assemblies for incorporation into customer housings.

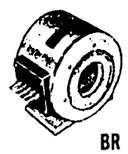
Celco ENGINEERED YOKES FOR PRECISION DISPLAYS

WY
High speed writing yoke.



XY
Small Angle, High Linearity, High Resolution Yoke and Focusing Coil.

PI
Plug in type encapsulated deflection yoke for rapid insertion.



BR
2 axis 5 or 8 slip ring, geared, rotating yoke.

MS
Miniature deflection yoke for rotating or fixed coil radar system.

Write for CELCO DEFLECTION YOKE Catalogue & Design Sheets or for assistance Call your nearest CELCO Plant listed below.

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Main Plant: MAHWAH, N. J. DAvis 7-1123

• Pacific Division - 1150 E. 8th St., Upland, Calif. - YUkon 2-0215 •

For details, circle #101 on Reader Service Card

Draftette Co., P.O. Box 794, Beverly Hills, Calif., Drafting Equip., Yr: 1937, Emp: 4

Drake Co. (R. L.), 540 Richard St., Miamisburg, Ohio, 26, 50, 51, 59, 88, Tel: UNderhill 6-2421, Yr: 1942, Emp: 36, $372,938

Drake Mfg. Co., 4622 N. Olcott Ave., Chicago 31, Ill., 63, 78, Tel: 312-UNderhill 7-7227, Yr: 1932, Emp: 125

See ad in class 63

Dreier Brothers, Inc., 7301 S. Woodlawn Ave., Chicago 19, Ill., 111, Tel: NOrmal 7-3602

Dressen-Barnes Electronics Corp., 250 N. Vinedo Ave., Pasadena 8, Calif., 09, Tel: MUrray 1-0043, Yr: 1947, Emp: 127, ▲6, $2,000,000

Dresser Electric Co., 2705 Wight St., Detroit 7, Mich., 53, 69, Tel: 313-LOrain 8-1855, Yr: 1945, Emp: 20, $50,000

Dresser Electronics-HST Div., 555 N. 5th St., Garland, Texas, 43, 51, 53, 57, 59, 69, 84, 199, Tel: 214-BRoadway 6-5141, Yr: 1952, Emp: 500, ▲4, $5,000,000

Dresser Electronics-SIE Div., Dresser Industries, Inc., 10201 Westheimer Rd., Houston 42, Texas, 2, 4, 5, 16, 23, 28, 69, 70, Tel: SUnset 2-2000, Yr: 1945, Emp: 800, ▲25, $10,000,000

Dresser-Ideco Co., 875 Michigan Ave., Columbus 8, Ohio, 44, Tel: AXminster 9-2123, Yr: 1924, Emp: 2000, ▲4, $10,000,000

Drexel Dynamics Corp., Richmond & Norris Sts., Philadelphia 25, Pa., 4, 8, 9, 11, 15, 17, 27, 28, 36, 41, 50, 77, 90, 91, 93, 95, 96, 108, 109, Tel: GA 5-3217, Yr: 1957, Emp: 100, ▲10, $500,000

Dri-Clave Corp., 301 Franklin Ave., Franklin Square, L.I., N.Y., 97, 98, 111, Tel: 516-GEneral 7-2100, Yr: 1946, Emp: 28, $9,000

Driver Co. (Wilbur B.), 1875 McCarter Hwy., Newark 4, N.J., 91, 104, Tel: 201-HUmboldt 2-5550, Yr: 1919, Emp: 750, ▲2, $10,000,000

See ad on page 134

Driver-Harris Co., 201 Middlesex St., Harrison 24, N.J., 104, 107, Tel: 201-HUmboldt 3-4800, Yr: 1899, Emp: 300, ▲5

See ad on this page

Dry Screen Process, Inc., 1016 Madison Ave., Pittsburgh 12, Pa., 50, 99, Tel: 412-FAirfax 1-5255, Yr: 1955, Emp: 15, ▲1, $311,000

Dryomatic Corp., 715 N. Fayette St., Alexandria, Va., 20, 99, Tel: 202-KIng 9-3000, Yr: 1950, Emp: 25

Du-Co Ceramics Co., Box 278, Saxonburg, Pa., 49, 55, 75, 86, 92, 101, Tel: FLanders 2-1511, Yr: 1949, Emp: 175, ▲2

Dubbings Sales Corp., 226 Franklin Ave., Hewlett, L.I., N.Y., 109, Tel: FRanklin 4-6040, Emp: 10, ▲1

Duke Engraving & Machine Corp., 24 Brook St., Newton, Mass., 109, Tel: WOodward 9-9650, Yr: 1955, Emp: 15, $100,000

DuMont Div., Fairchild Camera & Instrument Corp., 750 Bloomfield Ave., Clifton, N.J., 86, Tel: 201-PRescott 3-2000, Yr: 1931, ▲70

Dumore Co., 1300 17th St., Racine, Wis., 67, 99, Yr: 1913, Emp: 250

Duncan Electric Co., Inc., Davenport Mfg. Div., 2532 N. Elston Ave., Chicago 47, Ill., 2, 4, 11, 17, 31, 35, 40, 41, 53, 61, 69, 72, 84, 95, Tel: DIckens 2-5020

Duncan Electronics, Inc., 2865 Fairview Rd., Costa Mesa, Calif., 74, 80, Tel: 714-KImberly 5-8261, Yr: 1949, Emp: 53, ▲2

Dunham-Bush, Inc., 179 South St., West Hartford 10, Conn., 54, Tel: CHapel 9-8471, Yr: 1908, Emp: 2000

Dunlee Corp., 1023 S. Paulina Rd., Bellwood, Ill., 86, 87, Tel: LInden 7-9535, Yr: 1946, Emp: 68, ▲1

Dunn Engineering Corp., 225 O'Brien Hwy., Cambridge 41, Mass., 2, 36, 40, 41, 85, 99, Tel: 617-UNiversity 4-6700, Yr: 1952, Emp: 125, ▲10

Dunton Co. (M. W.), 350 Kinsley Ave., Providence, R.I., 110, Tel: 617-DExter 1-3040, Emp: 35

Duotone Co., Inc., Locust St., Keyport, N.J., 68, 70, Tel: COlfax 4-2200

DuPont de Nemours & Co., Inc. (E. I.), Wilmington 98, Del., 94, 107, Tel: PRospect 4-3000, Yr: 1802, Emp: 86,000, ▲17

DuPont de Nemours & Co., Inc. (E. I.), Fabrics & Finishes Dept., 7250 N. Cicero Ave., Lincolnwood, Chicago 46, Ill., 101, 107, 112, Tel: INdependence 3-7250

DuPont de Nemours & Co., Inc. (E. I.), Film Dept., Wilmington 98, Del., 101, 103, 107, 109, Tel: 302-PRospect 4-6000, Yr: 1802, Emp: 9000, ▲10

DuPont de Nemours & Co., Inc. (E. I.), Photo Products Dept., de Nemours Bldg., Wilmington 98, Del., Tel: 302-PRospect 4-5831

Dura Plastics of New York, Inc., 303 Fifth Ave., New York 16, N.Y., 80, 99, 97, 107, 109, 112, Tel: MUrray Hill 6-5645, Yr: 1940, Emp: 35

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RESISTORS:

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Available in fine wire sizes down to .00045 and in over 200 insulation combinations derived from 11 basic coatings.

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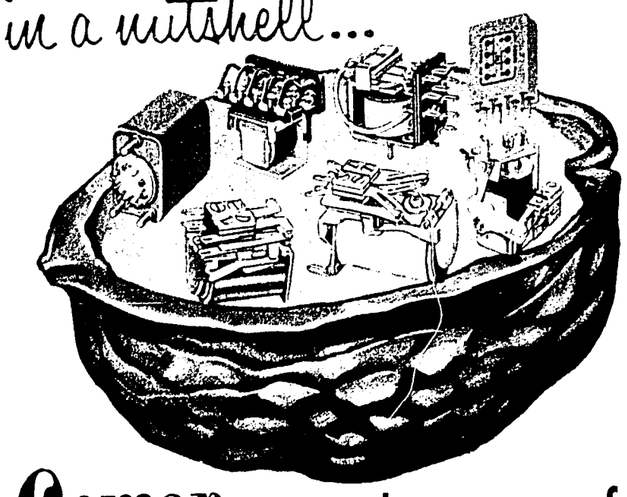
Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

in a nutshell...



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Alphabetical Directory

Duramark, Inc., 2 Secatoag Ave., Port Washington, L.I., N.Y., 97, Tel: 516-POrt Washington 7-3232, Yr: 1952, Emp: 45, $400,000

Duramic Products, Inc., 426 Commercial Ave., Palisades Park, N.J., 55, 56, 92, 101, 111, Tel: 201-WIndsor 7-0310, Yr: 1955, Emp: 25, $200,000

Durant Mfg. Co., 1900 N. Buffum St., Milwaukee 1, Wis., 11, Tel: 414-LOcust 2-5035, Yr: 1879, Emp: 250

Durez Plastics Div., Hooker Chemical Corp., 1941 Walck Rd., North Tonawanda, N.Y., 94, 101, 107, Tel: 716-NX 3-1860, Yr: 1921, Emp: 1060

Duro-Matic Products Co., 8509 Higuera St., Culver City, Calif., 51, Tel: UPton 0-0341, Yr: 1942, Emp: 30, $110,000

Duro Specialty Co., Inc., 811 Boston St., Lynn, Mass., 96, 111, Tel: LYnn 3-3585, Yr: 1950, Emp: 15, $100,000

Dychro Corp., 49 Walnut St., Wellesley 81, Mass., 4, 9, Tel: CEdar 7-0600, Yr: 1958, Emp: 20, ▲1

Dymo Industries, Inc., 2546 Tenth St., Berkeley 10, Calif., 109, 111, Tel: THornwall 1-4452, Yr: 1957, Emp: 300

Dyna-Empire, Inc., 1075 Stewart Ave., Garden City, L.I., N.Y., 18, 40, 65, 68, 70, 82, 83, Tel: 516-PIoneer 1-2700, Yr: 1941, Emp: 250, ▲4, $850,000

See ad in class 40

Dyna Magnetic Devices, Inc., 110 Duffy Ave., Hicksville, L.I., N.Y., 4, 13, 16, 18, 40, 65, 78, 79, 83, 95, 109, Tel: 516-OVerbrook 1-5100, Yr: 1958, Emp: 160, ▲3, $1,000,000

Dynaco, Inc., 3912 Powelton Ave., Philadelphia 4, Pa., 43, 65, 68, 84, 88, Tel: 215-EVergreen 6-9405, Yr: 1954, ▲1

Dynage, Inc., 390 Capitol Ave., Hartford, Conn., 23, 31, 34, 40, 50, 53, 69, 109, Tel: 203-CHapel 9-5654, Yr: 1959, Emp: 7, ▲3

Dynair Electronics, Inc., 7564 Broadway, Lemon Grove, Calif., 32, 34, 42, 43, 44, 88, Tel: HOpkins 6-4167, Yr: 1957, Emp: 15, ▲1, $110,000

Dynamic Air Engineering, Inc., 7412 Maie Ave., Los Angeles 1, Calif., 5, 47, 67, Tel: 213-LUdlow 8-3292, Yr: 1942, Emp: 105, $500,000

Dynamic Controls Co., 2225 Massachusetts Ave., Cambridge 40, Mass., 11, 69, Tel: TRowbridge 6-3700, Yr: 1956, Emp: 10, ▲1

Dynamic Gear Co., Inc., 175 Dixon Ave., Amityville, L.I., N.Y., 77, 95, 97, Tel: AMityville 4-4788, Yr: 1948, Emp: 90

Dynamic Instrument Corp., 59 New York Ave., Westbury, L.I., N.Y., 77, Tel: 516-EDgewood 3-1600, Yr: 1947, Emp: 50, $401,000

See ad in class 77

Alphabetical Directory

Dynamics Corp. of America, 25 W. 43rd St., New York 36, N.Y., 2, 3, 4, 5, 8, 18, 19, 24, 25, 29, 34, 42, 44, 56, 59, 67, 69, 77, 84, 88, 95, Tel: 212-BRyant 9-1082, Yr: 1924, Emp: 6000, ▲40, $40,000,000

Dynamics Corp. of America, American Transformer Div., 25 W. 43rd St., New York 36, N.Y., 84, Tel: 212-BRyant 9-1082, Yr: 1940, ▲1

Dynamics Instrumentation Co., 583 Monterey Pass Rd., Monterey Park, Calif., 40, 43, 59, 91, Tel: 213-CUmberland 3-7773, Yr: 1956, Emp: 41, ▲4

Dynamics Research Corp., 38 Montvale Ave., Stoneham, Mass., 2, 4, 41, 43, 83, Tel: 413-438-3900, Yr: 1955, Emp: 50, ▲4

Dynapar Corp., Subsid. of Louis Allis Co., 427 E. Stewart, Milwaukee, Wis., 11

Dynatran Electronics Corp., 178 Herricks Rd., Mineola, L.I., N.Y., 41, 61, Tel: 516-PIoneer 1-4141, Yr: 1959, Emp: 12, ▲2

Dynatronics, Inc. (Hi-Way 17-92 N.), P.O. Box 2566, Orlando, Fla., 1, 2, 4, 8, 9, 10, 16, 34, 38, 40, 43, 44, 56, 66, 69, 90, 109, Tel: 305-TErrace 8-1100, Yr: 1957, Emp: 217, ▲25, $3,200,000

Dynavia Corp., 3021 W. Clay St., Richmond 30, Va., 8, Tel: ELgin 9-2473

Dynex, Inc., 170 Eileen Way, Syosset, L.I., N.Y., 8, 10, 11, 14, 17, 69, 77, 95, 96, 109, Yr: 1952, Emp: 80, ▲2

Dytronics Co., 5485 N. High St., Columbus 14, Ohio, 35, 38, 59, Tel: 614-TUxedo 5-3303, Yr: 1957, ▲1

Dzus Fastener Co., Inc., 125 Union St., West Islip, L.I., N.Y., 97, Tel: 516-MOhawk 9-0494, Yr: 1932, Emp: 90

E

E D P Corp., 3501 S. Orange Blossom Trail, Orlando, Fla., 2, 4, 8, 9, 10, 34, 41, 43, 50, 69, 96, Tel: CHerry 1-5324, Yr: 1959, Emp: 30, ▲4, $200,000

E-H Research Laboratories, Inc., 163 Adeline St., Oakland 20, Calif., 22, 37, 40, Tel: 415-TEmplebar 4-3030, Yr: 1959, Emp: 30, $442,621

EI Laboratories, 1165 Morena Blvd., San Diego 10, Calif., 23, Tel: 714-BRowning 6-2126

E-Kay Mfg. Co., Inc., P.O. Box 144, Little Falls, N.J., 80, 96, 97, 109, Tel: 201-CLifford 6-5767, Yr: 1953, Emp: 9, ▲1, $85,000

E & M Laboratories, 15145 Califa St., Van Nuys, Calif., 45, 59, 66, 80, Tel: 213-STate 1-1484, Yr: 1960, Emp: 11, ▲4

E.M.I.-Cossor Electronics, Ltd., P.O. Box 525, Dartmouth, N.S., Canada, 4, 8, 9, 10, 14, 18, 20, 22, 23, 27, 32, 43, 51, 64, 68, 70, 79, 83, 86, Tel: 902-466-7491, Yr: 1949, Emp: 400, ▲2

EMI-U.S., Ltd., 1750 N. Vine St., Los Angeles 28, Calif., 42, 66, 86, Tel: 213-HOllywood 2-4909, Yr: 1953, Emp: 20, ▲4

EMP Electronics Research Laboratories, Inc., 3131 N. 29th Ave., Phoenix 17, Ariz., 43, 51, 53, 69, 84, Tel: 602-ALpine 8-3724, Yr: 1954, Emp: 54, ▲2, $250,000

E.M.T. Corp., Syosset Industrial Park, 210 Michael Drive, Syosset, L.I., N.Y., 66, Tel: 516-WAlnut 1-7171, ▲1

See ad in class 66

E O Electronics, Inc., 14 Morris Ave., Mountain Lakes, N.J., 22, 35, 36, 40, 43, Tel: DEerfield 4-8727, Yr: 1952, Emp: 7, ▲1, $100,000

E.P. Electric Products Co., Ltd., 9720 Waverly St., Montreal 12, P.Q., Canada, 2, 43, 51, 53, 69, 72, 84, Tel: DUpont 9-8267, Yr: 1955, Emp: 40, $800,000

ESC Electronics Corp., 534 Bergen Blvd., Palisades Park, N.J., 57, 59, 84, Tel: WIndsor 7-0400, Yr: 1953, Emp: 180, ▲10, $2,000,000

E-T-A Products Co. of America, 6284 N. Cicero Ave., Chicago 46, Ill., 73, 80, Tel: KIldare 5-1553

E T C, Inc., 900 E. 67th St., Cleveland 3, Ohio, 81, 97, Tel: HEnderson 2-0855, Yr: 1955, Emp: 65, ▲5

E-Z-Hook Test Products, 1536 Woodburn Ave., Covington, Ky., 62, 97, Tel: 513-COlonial 1-1495, Yr: 1954, Emp: 2, $22,000

See ad in class 97

E-Z Way Towers, Inc., 5901 E. Broadway, Tampa 5, Fla., 3, 44, Tel: 4-2171, Yr: 1951, Emp: 23, $233,589

Eagle Electric Mfg. Co., Inc., 23-10 Bridge Plaza S., Long Island City 1, N.Y., 52, 60, 62, 63, 78, 80, 84, 91, 97, 98, 110, 111, Tel: 212-STillwell 4-9200, Yr: 1920

Eagle Metalcraft, Inc., 3550 Burnet Ave., East Syracuse, N.Y., 90, 93, 96, 109, Tel: 315-HEmpstead 7-3858, Yr: 1953, Emp: 20, $300,000

Eagle-Picher Co., American Bldg., Cincinnati 1, Ohio, 101, 102, 104, Yr: 1843, Emp: 6500

Eagle Signal Co., Div. of Gamewell Co. (An E. W. Bliss Co. Subsid.), 202 20th St., Moline, Ill., 2, 4, 10, 11, 61, 73, 80, 90, 91, 96, Tel: MOline 2-5571, Yr: 1921, Emp: 525

Ealing Corp., 33 University Rd., Cambridge 38, Mass., Importers, 40, 61, 62, Tel: KIrkland 7-5760

Eastern Air Devices, Inc., 385 Central Ave., Dover, N.H., 47, 67, 77, Tel: SHerwood 2-3330, Yr: 1942, Emp: 400, ▲1

Eastern Chemical Corp., 34 Spring St., Newark 4, N.J., 94, Tel: HUmboldt 2-0039

Eastern Foilcal Nameplate Corp., 1061 Linden Ave., Ridgefield, N.J., 63, 90, 97, Tel: 201-WHitney 3-3220, Yr: 1957, Emp: 38, $500,000

Eastern Industries, Div. of Laboratory For Electronics, Inc., 100 Skiff St., Hamden 14, Conn., 4, 54, 77, 99, Tel: CHestnut 8-3841, Yr: 1947, Emp: 800, ▲1, $5,000,000

Eastern Jewel Corp., Plainview, L.I., N.Y., 48, 54, 66, 71, 74, Tel: 516-OVerbrook 1-4422

Eastern Precision Resistor Co., Div. of Dynacron Electronic Corp., Hi-08 Myrtle Ave., Richmond Hill 18, N.Y., 41, 43, 59, 73, 74, Tel: VIrginia 9-2575

Eastern Smelting & Refining Corp., 109 W. Brookline St., Boston 18, Mass., 104, 110, Tel: COmmonwealth 6-7504, Yr: 1896, Emp: 50

Eastern Technical Associates, Inc., Main St., North Acton, Mass., 80, 83, 93, 96, Tel: COlonial 3-7719, Yr: 1955, Emp: 24, ▲2, $150,000

Eastman Kodak Co., 343 State St., Rochester 4, N.Y., 15, 17, 22, 32, 76, 107, Tel: 716-LOcust 2-6000, ▲42

See ad in class 17

Ebauches S. A., Dept. Semiconducteurs, Faubourg Hopital #1, Neuchatel, Switzerland, 41, 76, Tel: 038 5-7401, Yr: 1958, Emp: 50, ▲2, $25,000

Eberline Instrument Corp., 805 Early St., P.O. Box 279, Santa Fe, N.M., 11, 22, 90, 95, 96, Tel: YUcca 2-1881, Yr: 1953, Emp: 118, ▲6, $2,300,000

Ebert Electronics Corp., 212-26 Jamaica Ave., Queens Village 28, N.Y., 73, Tel: 212-SPruce 6-1800, Yr: 1945, Emp: 25, ▲1, $35,000

Eburn Industrial Research Corp., 33 Central St., Hingham, Mass., 50, Tel: 617-RIverview 9-0993

Ecco Electronic Components Corp., 578 Nepperhan Ave., Yonkers, N.Y., 38, 44, 45, 52, 66, 91, Tel: 914-GReenleaf 6-5500, Yr: 1957, Emp: 50, ▲1, $500,000

Echo Electronics Corp., 87-07 57th Ave., Elmhurst 73, N.Y., 96, Tel: NEwtown 9-3705, Yr: 1945

Eckel Valve Co., 1425 First St., San Fernando, Calif., 99, Tel: EMpire 1-6251, Yr: 1951, Emp: 35

Eclipse Electronics Co., 153 Logan Ave., Toronto 8, Ontario, Canada, 48, 59, Tel: HOward 5-3188, Yr: 1957, Emp: 6, ▲1

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

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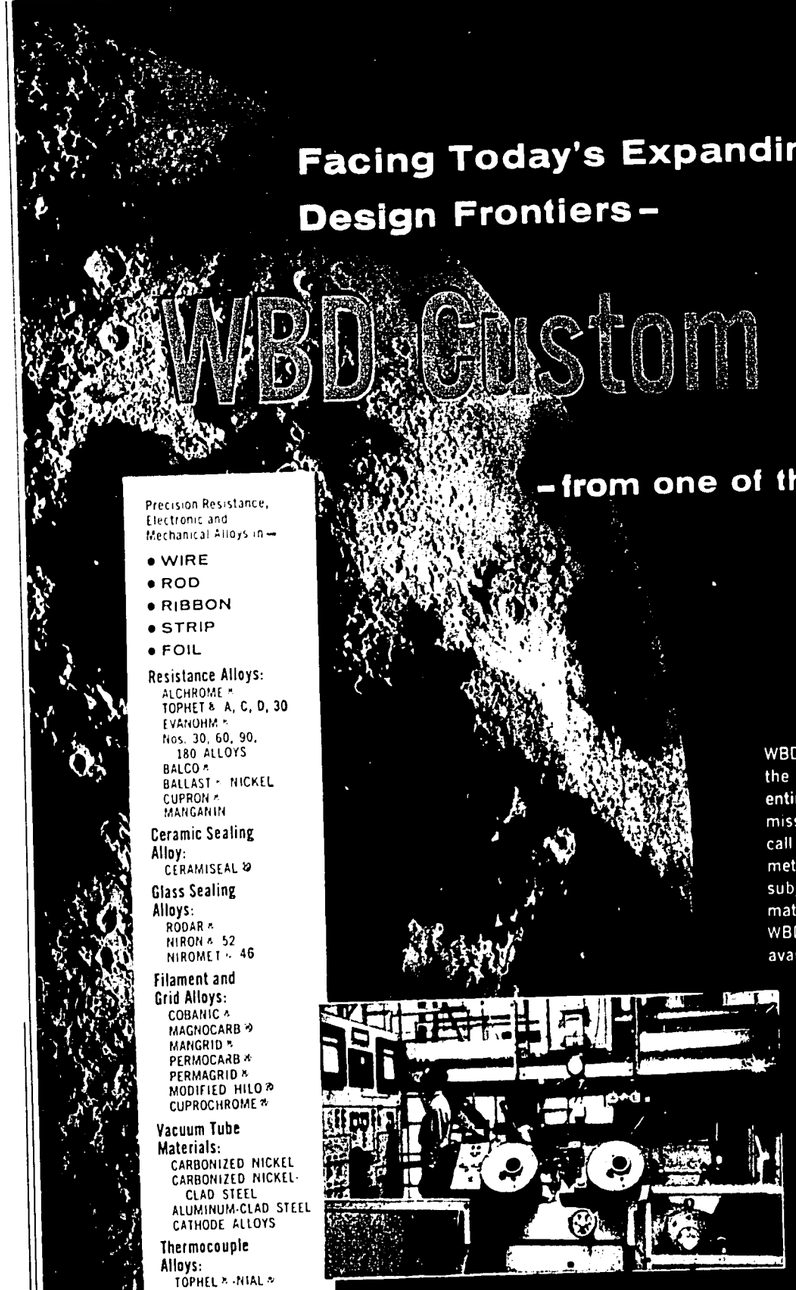

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Edal Industries, Inc., 4 Short Beach Rd., East Haven 12, Conn., 71, 72, Tel: HObart 7-2591, Yr: 1958, Emp: 25, ▲1, $220,000

Edcliff Instruments, 1711 S. Mountain Ave., Monrovia, Calif., 74, 80, 88, Tel: 714 ELliott 4-4871, Yr: 1951, Emp: 300, ▲1

Eder Instrument Co., Inc., 2256 N. Clybourn Ave., Chicago 14, Ill., 14, 35, 97, Tel: EAstgate 7-2131, Yr: 1945, Emp: 15

Edgerton, Germeshausen & Grier, Inc., 160 Brookline Ave., Boston 15, Mass., 1, 5, 14, 20, 22, 25, 30, 43, 76, 78, 84, 86, 106, Tel: COlumbus 7-5700, Yr: 1947, Emp: 850, ▲7

Edison Industries (Thomas A. Edison Instrument Div., McGraw-Edison Co.), Lakeside Ave., West Orange, N.J., 4, 24, 28, 30, 43, 61, 67, 73, 75, 77, 82, 88, Tel: 215 RIdgewood 3-1000, Emp: [illegible], ▲

Editors & Engineers, Ltd., Box 267, 2556 Lillie Ave., South Portland, Calif., 28, Tel: 808-969-5137, Yr: [illegible], $300,000

Edko Electronics Engineering Co., 797 Bedford Ave., Brooklyn 11, N.Y., 54, Tel: 212 EVergreen 4-2742, Yr: 1953, Emp: 7, ▲1, $170,000

Edmund Scientific Co., 501 E. Gloucester Pike, Barrington, N.J., 14, 17, 43, 57, 86, 92, Tel: HAddon 7-3881, Yr: 1942, Emp: 75

Edmulco Optical Co., Box 200 N. Water St., Peck Slip, N.Y., 3, 14, 17, 32, 40, 43, 56, 59, 92, Tel: PEnnsylvania 6-4000, Yr: 1938, Emp: 75

Edo Corp., 13-50 111th St., College Point 56, L.I., N.Y., 2, 15, Tel: HIllcrest 3-8000, Yr: 1925, Emp: 500, ▲5

Edroy Products Co., 480 Lexington Ave., New York 17, N.Y., 14, Tel: YUkon 6-4477

Educational Electronics Co., 225 W. 8th St., Chicago 47, Ill., 29, 95, 109, Yr: 1954, Emp: 30, $750,000

Edwards Engineering Co., 21 Veranoak Ave., Port Washington, L.I., N.Y., 2, 27, Tel: 516 PORt Washington 7-5700, Yr: 1955, Emp: 14, ▲1, $150,000

Edwards High Vacuum (Canada), Ltd., P.O. Box 515, Burlington, Ontario, Canada, 4, 40, 80, 98, 99, 105, Tel: NElson 4-7757, Yr: 1952, Emp: 15

Edwards High Vacuum, Inc., 3279 Grand Island Blvd., Grand Island, N.Y., 22, 40, 54, 80, 99, Tel: 716 RR 3-7553, Yr: 1959, Emp: 12, $100,000

Egan Laboratory, 107-56 113th St., Richmond Hill 19, N.Y., 5, 17, 22, 76, 95, 109, Tel: 212 Michigan 1-0605, Yr: 1946, Emp: 12, ▲2

Ehrenpreis Engineering (David), 325 Spring St., New York 13, N.Y., 2, 8, 18, 25, 28, 35, 36, 40, 83, 86, 89, 90, 93, 95, 96, 97, 101, 108, 109, Tel: BEnsonhurst 6-4018, Yr: 1955, Emp: 10, ▲1

Ehrick Co. (Fred), 134 22nd St., Brooklyn 32, N.Y., 60, Tel: Sterling 8-0815, Yr: 1922, Emp: 36, $250,000

Eichner Instruments (L. C.), Pt. Pleasant St., Clifton, N.J., 14, 40, Tel: 201 PRescott 4-1443, Yr: 1951, Emp: 20

Eisler & Co., Inc. (B.), 257 E. 42nd St., New York, N.Y., [illegible], 106, Tel: 212 MUrray Hill 6-[illegible], Yr: 1926, Emp: 125, ▲20, $1,[illegible]

Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 3, 12, 13, 20, 25, 27, 35, 38, 39, 40, 41, 43, 88, Tel: 212-STillwell 6-8700, Yr: 1945, Emp: 200, ▲7

See ad in class 43

Eidson Electronics Co., 2002 N. Highland, Temple, Tex., 28, 95, Tel: PArkway 3-8461, Yr: 1956, Emp: [illegible]

Eisler Engineering Co., Inc., 755 S. 13th St., Newark 3, N.J., 75, 84, 90, 99, 104, 109, Tel: 201-BIgelow 3-5310, Yr: 1946, Emp: 110

See ad in class 99

Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 4, 37, 40, 43, 44, 51, 52, 54, 59, 60, 75, 78, 80, 86, 87, 92, 99, 103, 105, 109, Tel: 415-LYtell 1-1451, Yr: 1934, Emp: 1700, ▲45, $28,500,000

See ad on pages 20-32

Ekco McGilvray, Inc., National Rte. [illegible], Inc., Sebastopol, Calif., 28, Novato, Calif., 28, Geneva, Ill., 28, 52, Tel: 312 Geneva 2-4300, Yr: 1941, Emp: 250, ▲2

Elco Electronics, Inc., Elco Road, Souderton-Sellersville, Pa., 2, 28, 36, 37, 40, 68, Tel: Souderton 5-4941, Yr: 1953

El Rad Mfg. Co., 4300 N. California, Chicago 18, Ill., 28, 52, 76, 84, Tel: IRving 8-7300, Yr: 1944, Emp: 300, ▲3

Elano, Inc., 3 Prescott St., Roxbury 19, Mass., 17, 53, 69, 84, Tel: 617 HIllcrest 2-2400, Yr: 1951, Emp: [illegible], $[illegible],000

Elastic Stop Nut Corp. of America, 2330 Vauxhall Rd., Union, N.J., 52, Tel: MUrdock 6-0000, Yr: 1934, Emp: 2000, ▲5

Elastic Stop Nut Corp. of America, Elizabeth Div., Dept. S3 1462, 1027 Newark Ave., Elizabeth, N.J., 73, Tel: 201-ELizabeth 2-2980, Yr: 1909, Emp: 310, ▲3

See ad in class 73

Elco Corp., M St., Belox Erie Ave., Philadelphia 24, Pa., 32, 75, 95, 105, Tel: GErmantown 9-5500, Emp: 450, ▲4, $1,300,000

Elcon Laboratory, Inc., 258 Main St., Cambridge 42, Mass., 109, Tel: 617 TRowbridge 6-8855, Yr: 1959, Emp: 12, ▲4, $120,000

Elcor, Inc., 1225 W. Broad St., Falls Church, Va., 22, 43, 69, 84, 109, Tel: 703 JEfferson 2-8850, Yr: 1956, Emp: 15, $140,000

Eldema Corp., 1605 Bolcom Ave., El Monte, Calif., 2, 3, 5, Tel: 213 GIlbert 3-6427, Yr: 1954, Emp: [illegible], ▲5, $1,[illegible],000

Eldorado Electronics, 2521 [illegible] St., Berkeley 3, Calif., 4, 11, 22, 36, Tel: TIlden 5-[illegible], Yr: [illegible], ▲2

Electra Mfg. Co., 4651 Broadway, Kansas City 11, Mo., 74, Tel: 816 WEstport 1-0864, Yr: 1930, Emp: [illegible], ▲6, $5,[illegible],000

See ad in class 74

[illegible] Electronics Co., [illegible], Calif., 3, [illegible], Tel: [illegible], Yr: [illegible], ▲

Electralab Printed Electronics Corp., 116 A St., Needham Heights 94, Mass., 56, 64, 99, Tel: 617-HIllcrest 4-6452, Yr: 1952, Emp: 250, ▲5, $3,500,000

See ad in class 56

[illegible] Electronics, Inc., [illegible], Mountain Ave., [illegible], N.J., [illegible], Tel: [illegible], Yr: [illegible], ▲

Electran Mfg. Co., 1901 N. Clybourn Ave., Chicago 14, Ill., 51, 84, Tel: [illegible], BIttersweet 1-4500, Yr: 1944, Emp: 50, ▲2, $7,[illegible],000

See ad in class 84

Electrical Products Corp., 5410 W. 65th St., Los Angeles 45, Calif., 84, Tel: [illegible], Yr: [illegible], ▲

Electrical Research Products, Inc., 165 W. 46th St., New York 36, N.Y., 2, 4, 84, Tel: [illegible], Yr: [illegible], ▲5, $[illegible],000

Electric Cord & Set Co., 455 E. Third St., Los Angeles 13, Calif., 84, 85, Tel: MAdison 6-2251, Yr: 1955, Emp: [illegible]

Electric Design & Mfg. Co., [illegible] Burlington, Iowa, 84, Tel: [illegible], Yr: 1941, Emp: 32, $[illegible],000

Electric Heating Co., Inc., 1619 German Ave., Philadelphia 38, Pa., 36, 95, Tel: 215 DEvonshire 4-1700, Yr: 1945, Emp: 100, ▲2

Electric Indicator Co., Inc., Camp Ave., Stamford, Conn., 19, 47, 53, 67, 77, Tel: 203 DAvis 2-1671, Yr: 1925, Emp: 167, ▲2, $1,000,000

Electric Machinery Mfg. Co., 800 Central Ave., Minneapolis 13, Minn., 4, 53, 67, 69, Tel: FEderal 9-6751, Yr: 1897, Emp: 700, $500,000

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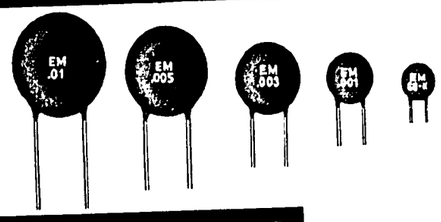

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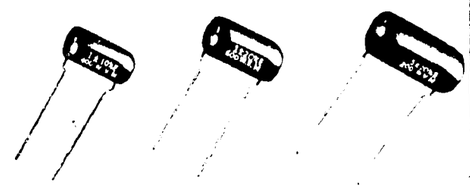

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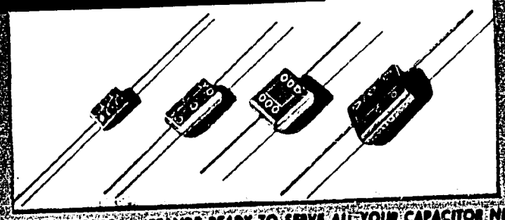

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Electro Motors & Specialties, Inc., Kent & Hamilton Sts., Garfield, N.J., 52, 75, Tel: ELdorado 7-4411, Yr: 1942, Emp: 200

Electro Regulator Corp., Pearl St., Norwalk, Conn., 48, 52, 55, Tel: 847-DExter 7-2304, Yr: 1945, ▲

Electro Schematic Products, Inc., Davis Road, Conn., 58, 111, Tel: EVergreen 9-2627, Yr: 1957, Emp: 20

Electro Service Battery Co., Inc., P. O. Box 1, Central Mat. Depot, Dix Hills, N.Y., 58, Mailing Address: Pinelawn, N.Y., 25, 26, 27, 28, 29, 21, 15, 16, 17, 18, Tel: Huntington 4-2600, Yr: 1946, Emp: 300, ▲1

Electro Service Battery Co., Inc., Electronic Parts Div., 559 Lexington Ave., New York 22, N.Y., 15, 16, 17, 18, Tel: PLaza 5-8282, Yr: 1946, Emp: 200

Electro Service Battery Co., Inc., Industrial Battery Div., 559 Lexington Ave., New York 22, N.Y., 15, 16, 17, 18, Tel: PLaza 5-8282, Yr: 1946, Emp: 200

Electro Service Battery Co., Inc., Radio Parts Div., 212 E. 149th St., Bronx 51, N.Y., 15, 16, 17, 18, Tel: MOtt Haven 5-7200, Yr: 1946, Emp: 100

Electro Service Battery Co., Inc., Transportation Div., 222 E. 149th St., Bronx 51, N.Y., 15, 16, 17, 18, Tel: MOtt Haven 5-7200, Yr: 1946, Emp: 100, ▲1

Electro Tec Corp., 1611 Sheridan Ave., Cheyenne, Wyo., 58, 59, Tel: 634-6, Yr: 1952, Emp: 50, ▲2

Electro Terminal Corp., P.O. Box 1057, Providence 1, R.I., 52, 58, Tel: GAspee 1-2584, Yr: 1946, Emp: 42

Electro Voice, Inc., P.O. Box 227, Cedar, Buchanan, Mich., 7, 58, 59, 73, 84, 95, Tel: 756-3441, Yr: 1930, ▲1, $30,000

Electrical Industries, Div. of Philips Electronics & Pharmaceutical Industries Corp., 691 Central Ave., Murray Hill, N.J., 52, 75, 81, Tel: 201-CRestview 7-4300, Yr: 1943, Emp: 510, ▲1

See ad on page 108

Electrical Insulation Co., Inc., 1245 Macon Blvd., Cedarhurst, L.I., N.Y., 15, 16, 96, 97, 301, 307, 309, 312, Tel: 32-AMaxville 4-6700, Yr: 1941, Emp: 75, $750,000

Electrical Reactance Corp., E. Clark St., East Palestine, Ohio, 92, Tel: Tel: 21-GArden 2-9455, Yr: 1949, Emp: 70, $500,000

Electrical Service Co., 1271 Mission St., San Francisco 3, Calif., 4, 45, Tel: UNderhill 3-2243, Yr: 1948, Emp: 5, $52,000

Electrical Testing Laboratories, Inc., 2 East End Ave., New York 21, N.Y., 109, Tel: 212-ELdorado 5-2000, Yr: 1896, Emp: 115, ▲1

Electrical Utilities Co., 3221 Scott Ave., Wichita, Kan., La Salle 5, Ill., 15, 16, 17, 18, Tel: MUrdock 3-1520, Yr: 1954, Emp: 35

Electrical Wholesale, Inc., 2[illegible] N. [illegible] Ave., [illegible] Ill., 15, 16, 17, 18, Tel: [illegible], Yr: [illegible], Emp: [illegible], ▲[illegible]

Electro Circuits, Inc., 170 Walker St., Lowell, Mass., 90, Tel: 617-GLenview 5-8081, Yr: 1955, Emp: 50, ▲1, $[illegible]

See ad in class 90

Electro Corp., Inc., [illegible] Ave., [illegible], Ill., [illegible], Tel: [illegible], Yr: [illegible], Emp: 250, $ [illegible]

Electro Corp., [illegible] Ave., [illegible], Ill., [illegible], Tel: [illegible], Yr: [illegible], Emp: [illegible], ▲[illegible]

Electro Dynamic Construction Co., [illegible] Ave., [illegible], Tel: [illegible], Yr: [illegible], Emp: [illegible], ▲[illegible]

Electro Dynamic Works, [illegible] Ave., [illegible], Tel: [illegible], Yr: [illegible], Emp: [illegible], ▲[illegible]

Electro Devices, Inc., 580 Main St., Wilmington, Mass., 90, Tel: 617-PArkview 9-2551

See ad in class 90

Electro Dynamics, Inc., 3 [illegible] Ave., Saint Louis 15, Mo., 4, Tel: [illegible], Yr: 1946, Emp: 2, ▲[illegible]

Electro Dynamics, Inc., 3 [illegible] Ave., Paterson 23, N.J., 4, Tel: [illegible], Yr: 1946, Emp: 22, ▲1, $[illegible]

Electro Engineering Products Co., Inc., 609 W. Lake St., Chicago 6, Ill., 10, 27, 31, Tel: CEntral 6-2500, Yr: 1956, Emp: 125

Electro Enterprise Works, 301 Precita, San Leandro, Calif., 21, 99, 84, Tel: LOckhaven 9-5326, Yr: 1942, Emp: 185, ▲4, $2,000,000

Electro Impulse Laboratory, Inc., River St., Red Bank, N.J., 57, 58, 43, 44, 45, 54, 55, Tel: [illegible] SHadyside 1-4-4, Yr: 1946, Emp: 35, $[illegible]

See ad in class 57

▲[illegible]

Electro Mec. Div. of Waltham Precision Instrument Co., Inc., 47 St. and 3rd St., Long Island City 1, N.Y., 9, 4, 55, 56, 59, Tel: [illegible] STillwell [illegible], Yr: 1946, Emp: [illegible], ▲1, $[illegible]

See ad in class 59

▲

Electro Mechanical Instrument Co., 4th & Chestnut Sts., Perkasie, Pa., 58, 59, 69, 61, 97, Tel: 215 ALpine 2-[illegible], Yr: 1944, Emp: 65, $[illegible]

See ad in class 61

▲

▲

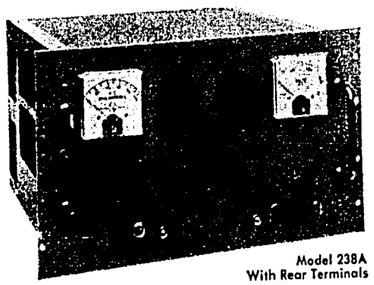
Electro Motive Mfg. Co., Inc., South Park St., Willimantic, Conn., 48, 49, Tel: 203 HArrison 3-4551, Yr: 1946, Emp: [illegible], ▲2, $12,[illegible],000

See ad on page 136

Electro Neutronics, Inc., 1361 Middle Harbor Rd., Oakland 20, Calif., 4, 11, 13, 14, 20, 22, 81, 95, 96, Tel: LAwrence 3-[illegible], Yr: 1946, Emp: 7, ▲2, $[illegible],000

FROM ELECTRONIC MEASUREMENTS

0–1500 V DC POWER SUPPLIES



Model 238A
With Rear Terminals

CONSTANT-VOLTAGE

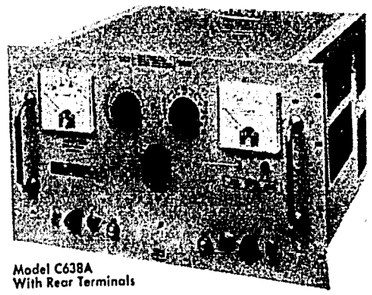
In addition to covering a complete voltage range—0 to 1500 V—this programmable, regulated power supply can deliver rated current of 100 ma at any output voltage . . . even at less than a volt.

But an even more useful feature is its continuously variable current-limiting control. Here's a feature that's finding more application with every passing day.

When it comes to regulation, the Model 238A is truly flexible. Standard regulation is 0.1% line or load. However, 0.01% regulation is available by means of an optional plug-in chopper unit.

The chart below lists just a few of the many Electronic Measurements off-the-shelf, constant-voltage power supplies. For complete information request Catalog BR1961.

MODEL	RANGE VOLTS DC	RANGE CURRENT
238A	0-1500 V DC	0-100 MA
239A	0-400 V DC	0-1 AMP
235A	0-600 V DC	0-500 MA
234A	0-300 V DC	0-300 MA
230A	0-200 V DC	0-1 AMP
228A	0-150 V DC	0-1 AMP
229A	0-150 V DC	0-300 MA
218A	0-100 V DC	0-3 AMP
221A	0-100 V DC	0-300 MA
225A	0-75 V DC	0-2 AMP
215A	0-50 V DC	0-3 AMP



Model C638A
With Rear Terminals

CONSTANT-CURRENT

Here's the newest in Electronic Measurements' line of Constant Current Power Supplies . . . a full 1500 V compliance at constant current outputs from less than a ma to 100 ma. Like all Electronic Measurements Power Supplies, the Model C638A has a lot of built-in extras too. For example, there's a modulation input . . . there are also provisions for remote programming . . . and an adjustable voltage compliance control that in effect provides for voltage-limiting.

Specifications include a high output impedance of 10^4 megohms at 0.5 μa to 0.5 megohm at 100 ma. Above 2.2 μa, regulation is better than 0.15%, line or load. Ripple is less than 0.01% + 1 μa.

The following listing shows some of the constant current models available. For complete information, request Specification Sheet 3072B.

MODEL	RANGE MIN.	RANGE MAX.	VOLTAGE COMPLIANCE (Minimum)
C614A	10 μa	1 AMP	100 V
C613A	10 μa	1 AMP	100 V
C631A	5 μa	300 MA	100 V
C620A	5 μa	300 MA	300 V
C633A	2.2 μa	300 MA	300 V
C629A	2.2 μa	300 MA	50 V
C632A	2.2 μa	220 MA	200 V
C624A	2.2 μa	220 MA	1100 V
C638A	1 μa	100 MA	1500 V
C631A	1 μa	100 MA	300 V
C612A	1 μa	100 MA	100 V

ELECTRONIC MEASUREMENTS COMPANY, INCORPORATED
EATONTOWN · NEW JERSEY

For details, circle #106 on Reader Service Card

Electro-Optical Instruments, Inc., 2612 E. Foothill Blvd., Pasadena, Calif., 14, Tel: SY 6-3405, Yr: 1956, Emp: 8, ▲1

Electro-Physics Co., 287-D Broadway, New York 7, N.Y., 4, 40, 69, 96, 108, 109, Tel: 212-WOrth 4-1290, Yr: 1950

Electro Powerpacs, Inc., 5 Hadley St., Cambridge, Mass., 14, 43, 46, 53, 56, 66, 69, 84, Tel: 617-TRowbridge 6-9220, Yr: 1932, Emp: 50, ▲3, $500,000

Electro-Products, Inc., 15050 Schaefer Hwy., Detroit 21, Mich., 52, 60, 78, 79, 90, Tel: 313-BRoadway 3-2433, Yr: 1953, Emp: 5, $160,000

Electro Products Laboratories, Inc., 4501 N. Ravenswood Ave., Chicago 40, Ill., 4, 40, 69, 83, Tel: LOngbeach 1-1707, Yr: 1936, Emp: 52, ▲3

Electro-Pulse, Inc., Div. of Servo Corp. of America, 6711 S. Sepulveda Rd., Los Angeles 45, Calif., 37, 41, Tel: 213-ORegon 8-2244, Yr: 1953, Emp: 96, ▲7

Electro-Rack, Inc., 11501 Jefferson Blvd., Culver City, Calif., 47, 90, 93, 95, 96, 97, 109, Tel: UPton 0-5744, Yr: 1959, Emp: 65, ▲1, $627,000

Electro Radiation, Inc., 11916 W. Pico Blvd., Los Angeles 64, Calif., 2, 4, 9, 10, 11, 14, 17, 28, 34, 35, 40, 43, 48, 50, 53, 54, 61, 63, 70, 73, 74, 76, 83, 95, 105, 109, Tel: GRanite 7-1237, Yr: 1960, Emp: 25, ▲2, $50,000

Electro Scientific Industries, Inc., 7524 S.W. Macadam, Portland 19, Ore., 8, 12, 31, 40, 41, 48, 49, 74, Tel: CHerry 6-3331, Yr: 1946, Emp: 125, ▲7, $1,800,000

Electro-Seal Corp., 946 North Ave., Des Plaines, Ill., 4, 50, 53, 61, 69, 72, 73, 75, 80, 84, 109, Tel: ROdney 3-0047, Yr: 1947, Emp: 100, ▲1

Electro-Security Corp., 275 Main St., Webster, Mass., 4, Tel: 617-943-1518, Yr: 1957, Emp: 17, ▲1, $186,000

Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., 8001 Bloomington Freeway, Minneapolis 20, Minn., 4, 13, 18, 27, 43, 53, 61, 69, 73, 77, 80, 83, 84, 95, Tel: TUxedo 8-5516, Yr: 1961, Emp: 700, ▲25, $4,000,000

Electro-Sonic Laboratories, Inc., 627 Broadway, New York 12, N.Y., 10, 65, 68, 83, 84, Tel: 212-SPring 7-0022, Yr: 1952, Emp: 44, ▲4, $500,000

Electro Switch Corp., King Ave., Weymouth 88, Mass., 80, Tel: EDgewater 5-5200, Yr: 1947, Emp: 150, ▲2

Electro Switch Corp., Slip-Ring Div., Osterville, Mass., 52, 80, Tel: 617-GArden 8-6986

See ad in class 80

Electro-Tec Corp., 10 Romanelli Ave., South Hackensack, N.J., 34, 52, 73, 80, 104, Tel: 201-HUbbard 7-4940, Yr: 1945, Emp: 425, ▲10, $6,000,000

Electro-Technical Laboratories, 5134 Glenmont, Houston 36, Texas, 16, Tel: MOhawk 7-6561, Yr: 1948, Emp: 275, ▲4

Electro Technical Products, Div. of Sun Chemical Corp., 113 E. Centre St., Nutley 10, N.J., 101, Tel: 201-NOrth 7-7070

Electro-Techniques, 11301 E. Ocean Ave., La Habra, Calif., 74, Tel: OWen 1-7219, Yr: 1959, Emp: 12, ▲1, $100,000

Electro-Voice, Inc., Buchanan, Mich., 3, 16, 20, 29, 30, 65, 68, 79, 90, Tel: OXbow 5-6831, Yr: 1927, Emp: 850, ▲13, $10,521,165

Electro Winders Co., Inc., 854 W. Front St., Covina, Calif., 51, 57, 59, 84, Tel: EDgewood 2-6207, Yr: 1956, Emp: 75, ▲1, $600,000

Electrochemical Industries, Inc., 35 Armory St., Worcester 3, Mass., 92, 94, Tel: PLeasant 6-3846

Electrodynamic Instrument Corp., 1841 Old Spanish Trail, Houston 25, Texas, 16, 27, 30, 43, 50, 51, 53, 69, 77, 84, 95, Tel: JA 6-3761, Yr: 1956, Emp: 68, ▲4, $700,000

Electrodyne Co., Inc., Endicott St., Norwood, Mass., 5, Tel: NOrwood 7-3203, Yr: 1946

Electrofilm, Inc., 7116 Laurel Canyon Blvd., North Hollywood, Calif., 94, 98, Tel: TRiangle 7-1324, Yr: 1949, Emp: 90

Electromagnetic Technology Corp., 1375 California Ave., Palo Alto, Calif., 1, 17, 31, 36, 37, 43, 54, 59, 66, 80, 95, 98, 109, Tel: 415-DAvenport 1-8611, Yr: 1961, Emp: 9, ▲8

Electromath Corp., 115 Pleasant Ave., Roosevelt, L.I., N.Y., 74, Tel: 516-MAyfair 3-3500, Yr: 1950, Emp: 32, ▲2, $300,000

Electromation Co., 4254 Glencoe Ave., Venice, Calif., 1, 4, 43, 77, Tel: EXmont 8-5776, Yr: 1948, Emp: 10, ▲1, $250,000

Electromode, Div. of Commercial Controls Corp., 570 Culver Rd., Rochester 3, N.Y., 98, Tel: BUtler 8-1880, Yr: 1929, Emp: 200

Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 4, 14, 17, 24, 30, 31, 35, 43, 50, 51, 53, 58, 61, 69, 84, 99, Tel: 617-LYnn 8-2100, Yr: 1949, Emp: 140, $100,000

See ad in class 69

Electron Enterprises, Inc., 6917 Stanley Ave., Berwyn, Ill., 26, 43, 68, 96, Tel: BIshop 2-2636, Yr: 1946, Emp: 9, $450,000

Electron Products, Div. of Marshall Industries, 430 N. Halstead St., Pasadena, Calif., 48, 59, Tel: 213-Murray 1-0666, Yr: 1952, Emp: 135

Electron-Radar Products, 4806 W. Chicago Ave., Chicago 51, Ill., 4, 17, 41, 44, 45, 73, 76, 86, Tel: ESterbrook 9-1232, Yr: 1947, Emp: 50, ▲3

Electronet Div., Rue Products, 10539 Clarkson Rd., Los Angeles 64, Calif., 38, 41, 50, 69, 74, 94, 101, 109, Tel: VErmont 7-0435, Yr: 1952, Emp: 12, $100,000

Electrometics Corp., P.O. Box 862, Melbourne, Fla., 4, 5, 34, 40, 44, 95, Tel: 305-PArkway 3-5382, Yr: 1960, Emp: 16, ▲4, $34,197

Electronic Applications Co., 10916 Basye St., El Monte, Calif., 35, 40, Tel: GIlbert 3-5001, Yr: 1952, Emp: 10, ▲2

Electronic Assistance Corp., 20 Bridge Ave., Red Bank, N.J., 1, 2, 3, 4, 25, Tel: SHadyside 7-5100, Yr: 1958, Emp: 150, ▲4, $4,000,000

Electronic Associates, Inc., Long Branch, N.J., 4, 8, 9, 28, 40, 43, 48, 49, 53, Tel: CApital 9-1100, Yr: 1945, Emp: 1030, ▲48, $15,000,000

Electronic Batteries, Inc., 34 35th St., Brooklyn 32, N.Y., 46, Tel: 212-STerling 8-3641, Yr: 1946, Emp: 15

Electronic Brazing Co., 140 Glenridge Ave., Montclair, N.J., 40, 41, 99, Tel: PIlgrim 4-2160, Yr: 1949, Emp: 6, ▲1, $140,000

Electronic Chemical Corp., 813 Communipaw Ave., Jersey City 4, N.J., 94, Tel: 201-DElaware 2-2877, Yr: 1947

Electronic Coils, Inc., 33 Lyman St., Springfield 2, Mass., 51, 84, Tel: 413-REpublic 6-6339, Yr: 1946, Emp: 60, ▲2, $400,000

Electronic Communications, Inc., 1501 72nd St. N., Saint Petersburg 10, Fla., 1, 4, 8, 9, 15, 19, 26, 29, 34, 42, 43, 44, 53, 66, 77, Tel: DIckens 7-1121, Yr: 1927, Emp: 1100, ▲95, $14,000,000

Electronic Components Corp., 520 Interstate Rd., Addison, Ill., 51, 84, Tel: KIngwood 3-7720, Yr: 1944, Emp: 800, ▲2, $7,000,000

Electronic Control Corp., 15341 Dale, Detroit 23, Mich., 4, 43, 73, 83, Tel: 616-KEnwood 3-6219, Yr: 1935, Emp: 8, ▲1, $70,000

Electronic Controls, Inc., 68 Southfield Ave., Stamford, Conn., 2, 4, 8, 9, 10, 11, 30, 32, 34, 43, 67, 73, 77, 80, Tel: 302-DAvis 5-3524, Yr: 1959, Emp: 15, ▲2, $150,000

Electronic Counters, Inc., 155 Eileen Way, Syosset, L.I., N.Y., 4, 9, 11, 21, 28, Tel: 516-WAlnut 1-5000, Yr: 1960, Emp: 20, ▲1

Electronic Development Laboratory, Inc., 7220 W. Agatite Ave., Chicago 31, Ill., 6, 12, 13, 23, 31, 35, 38, 40, 41, 69, 74, 96, Tel: 312-GLadstone 6-7300, Yr: 1938, Emp: 60, ▲1, $400,000

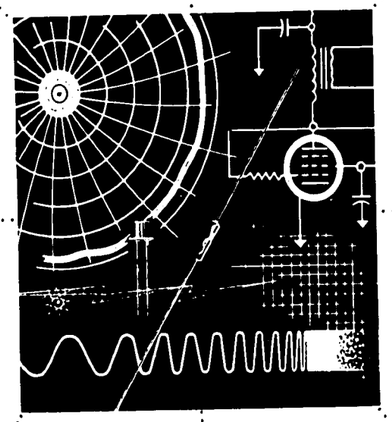
Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

ESSENTIAL ELECTRONIC PRODUCTS

D. E. MAKEPEACE DIVISION
Attleboro, Mass.
Slip Rings, Slip Ring Assemblies, Waveguide Tubing, Precision Drawn Wire-Spring Parts, Channel Sections

AMERICAN PLATINUM & SILVER DIVISION
231 N. J. Railroad Ave., Newark 5, N. J.
Silva-Brite™ Silver Plating Process, Silver Solders

CHEMICAL DIVISION
113 Astor St., Newark 2, N. J.
Atomex™ Immersion 24K Gold Solution, Rhodium Plating Solution



BAKER PLATINUM DIVISION
113 Astor St., Newark 2, N. J.
Fine Wire, Platinum Clad Tungsten Wire, Composite Wire and Sheet

BAKER CONTACT DIVISION
207 Grant Ave., E. Newark, N. J.
Precious Metal Contacts, Contact Sub-Assemblies, Sintered Powder Metals

AMERSIL QUARTZ DIVISION
685 Ramsey Ave., Hillside, N. J.
Fused Quartz and Silica in all shapes and forms

INDUSTRIAL EQUIPMENT DIVISION
850 Passaic Ave., E. Newark, N. J.
Deoxo® Puridryer, Deoxo® Purifier, Deoxo® Indicator, Minoxo® Indicator, Nitroneal® Gas Generator, Hydrogen Diffusion Purifier

H. A. WILSON DIVISION
U. S. Highway 22, Union, N. J.
Thermometal®, Thermostatic Bi-Metal, Composite Metals, Special Alloys, Powdered and Sintered Metals, Precious Metal Contacts and Contact Materials

SALES OFFICES:
CHICAGO • DALLAS
DETROIT • HOUSTON • LOS ANGELES
• NEW YORK • ORLANDO
PROVIDENCE • SAN FRANCISCO
• WASHINGTON, D. C.

ENGELHARD
INDUSTRIES INC.
EXECUTIVE OFFICES
113 ASTOR STREET • NEWARK 2 NEW JERSEY

Electronic Devices, Inc., 50 Webster Ave., New Rochelle, N.Y., 71, 76, Tel: NEw Rochelle 2-8500, Yr: 1951, Emp: 50

Electronic Enclosures, Inc., 3029 Holdrege Ave., Los Angeles 16, Calif., 90, 93, 94, 95, 96, 97, 109, Tel: VErmont 7-5163, Yr: 1956, Emp: 53, $600,000

Electronic Energy Conversion Corp., 342 Madison Ave., New York 17, N.Y., 69, Tel: YUkon 6-3173, Yr: 1959, Emp: 9, ▲3

Electronic Engineering Co., 362 W. Bowery St., Akron 7, Ohio, 18, 20, 30, 43, 95, Yr: 1940, Emp: 8, ▲1, $125,000

Electronic Engineering Co. of California, 1601 E. Chestnut St., Santa Ana, Calif., 4, 8, 9, 31, 34, 41, 69, 70, 78, 95, Tel: 714-Kimberly 7-5501, Yr: 1947, Emp: 300, ▲35, $4,300,000

Electronic Engineers, Inc., 5015 Division St., Chicago 51, Ill., 13, 27, 30, 70, 94, 95, 96, 109, Tel: ESterbrook 8-3060, Yr: 1950, Emp: 20, ▲2

Electronic Enterprises, Inc., 65 Seventh Ave., Newark 4, N.J., 86, 87, Tel: HUmboldt 2-0630, Yr: 1928, Emp: 78

Electronic Instruments, Ltd., Lower Mortlake Rd., Richmond, Surrey, England, 4, 22, 40, 41, 43, 61

Electronic Lights, Inc., 1713 N. Ashland Ave., Chicago 22, Ill., 1, 63, 69, Tel: 312-TAylor 9-6050, Yr: 1959, Emp: 18, ▲1, $40,000

Electronic Mfg. Co., 670-72 South 17th St., Newark, N.J., 105, Tel: 201-ESsex 4-7600
See ad in class 105

Electronic Measurements Co., Inc., Lewis St. & Maple Ave., Eatontown, N.J., 40, 41, 69, 72, Tel: 201-LIberty 2-0300, Yr: 1940, Emp: 200, ▲3
See ad on page 138

Electronic Measurements Corp., 625 Broadway, New York 12, N.Y., Importers, 23, 35, 36, 38, 40, 41, 43, 69, Tel: GRamercy 5-0610, Yr: 1945

Electronic Mechanics, Inc., 101 Clifton Blvd., Clifton, N.J., 92, 101, 107, Tel: 201-GRegory 3-4108, Yr: 1935, Emp: 112, ▲1, $575,000

Electronic Metals & Alloys, Inc., 60 Arsenal St., Watertown 72, Mass., 96, 97, 104, 105, 109, 110, Tel: 617-WAlnut 6-0400, Yr: 1960, Emp: 25

Electronic Parts Mfg. Co., Inc., 508-10 25th St., Union City, N.J., 52, 75, 80, 81, 91, 96, 97, 104, 105, 109, 112, Tel: UNion 5-4028, Yr: 1949, Emp: 8, $50,000

Electronic Plastics Co., 18600 Parthenia St., Northridge, Calif., 9, 43, 50, 53, 74, 96, 109, Tel: DIckens 5-5595, Yr: 1953, ▲1

Electronic Plastics Corp., 16 New Salem St., Wakefield, Mass., 81, 90, 96, 97, 106, 107, 109, 112, Tel: 617-245-4969, Yr: 1955, Emp: 30, $328,000

Electronic Processes Corp., 436 Bryant St., San Francisco 7, Calif., Tel: 415-EXbrook 7-3881, Yr: 1944, Emp: 50, ▲2

Electronic Production & Development, Inc., 501 N. Prairie Ave., Hawthorne, Calif., 13, 26, 34, 41, 51, 69, 75, 81, 84, 90, 91, 94, 96, 97, 99, 101, 109, 111, Tel: ORegon 8-7642, Yr: 1959, Emp: 25, $220,000

Electronic Products Co., Div. of Victoreen Instrument Co., 111 E. Third St., Mount Vernon, N.Y., 11, 22, 75, 80, Tel: 914-MOunt Vernon 4-9293, Yr: 1946, Emp: 50, ▲1

Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., 1, 2, 4, 9, 10, 11, 13, 32, 50, 61, 63, 73, 80, 96, 109, Tel: 301-HAmilton 6-1268, Yr: 1959, Emp: 7
See ad on page 73

Electronic Products Corp., Subsid. of Futura Mfg. Corp., 4251 Forest Park Ave., Saint Louis 8, Mo., 26, 27, 30, 43, 46, 65, 68, 79, Tel: 314-OLive 2-4745, Yr: 1954, Emp: 125, $1,000,000

Electronic Products, Inc., 185 Cambridge St., Burlington, Mass., 52, 75, Tel: BRowning 2-0363, Yr: 1960, Emp: 48, ▲3

Electronic Reproducers (Components), Ltd., Valley Rd., Industrial Estate, Saint Albans, Herts., England, 68, Tel: Saint Albans 5-0555

Electronic Research Associates, Inc., 67 Factory Pl., Cedar Grove, N.J., 17, 18, 19, 25, 30, 41, 43, 51, 53, 64, 65, 69, 79, 83, 84, 95, Tel: CEnter 9-3009, Yr: 1953, Emp: 125, ▲12

Electronic Research Co., Div. of Textron Electronics, Inc., 218 W. 74th St., Kansas City, Mo., 56, 59, Tel: HIland 4-5104, Yr: 1958, Emp: 45, ▲2, $400,000

Electronic Secretary Industries, Inc., 1101 S. Prairie Ave., Waukesha, Wis., 4, 27, Tel: 414-LIberty 2-4201, Emp: 100

Electronic Specialty Co., 5121 San Fernando Rd., Los Angeles 39, Calif., 1, 2, 4, 9, 10, 13, 17, 18, 20, 21, 24, 25, 27, 34, 40, 41, 43, 44, 50, 52, 53, 59, 61, 66, 67, 69, 72, 73, 77, 80, 88, 91, 95, 99, 109, Tel: 213-CHapman 5-3771, Yr: 1944, Emp: 969, ▲25, $12,000,000

Electronic Systems, 7412 Varna Ave., North Hollywood, Calif., 30, 43, Tel: 213-POplar 5-4185, Yr: 1959, Emp: 10, $50,000

Electronic Teaching Laboratories, 952 S. Frederick St., Hagerstown, Md., 43, Tel: 202-EMerson 9-9722, Yr: 1950, Emp: 110, ▲2, $1,700,000

Electronic Transistors Corp., 9226 Hudson Blvd., North Bergen, N.J., 71, 76, Tel: 201-UNion 9-2100, Yr: 1959, Emp: 75, ▲5, $350,000

Electronic Tube Corp., 1200 E. Mermaid Lane, Philadelphia 18, Pa., 5, 23, 37, 38, 43, 69, 80, 96, Tel: CHestnut Hill 7-6800, Yr: 1937, Emp: 98, ▲7, $1,000,000

Electronic Wiring Corp., 22-14 40th Ave., Long Island City 1, N.Y., 43, 69, 72, 91, 109, Tel: 212-EMpire 1-2221, Yr: 1952, Emp: 50, ▲2, $475,000

Electronica Industrial S.A., Rua Caramuru, 285-Bosque, Sao Paulo, Brazil, 4, 43, 48, 85, 86, 89, 99, Tel: 7-7463, Yr: 1949, Emp: 75, ▲1, $10,000,000

Electronics Corp. of America, 1 Memorial Dr., Cambridge 42, Mass., 4, 17, 76, Tel: 413-UNiversity 4-8060, Yr: 1937, Emp: 350, ▲4, $6,549,547

Electronics Development Corp., 3743 Cahuenga Blvd., North Hollywood, Calif., 1, 19, 24, 26, 34, 42, Tel: TRiangle 7-3223, Yr: 1955, Emp: 20, ▲4

Electronics Development, Inc., Box 813, 521 Marylyn Ave., State College, Pa., 96, 98, 109, Tel: ADams 8-0593, Yr: 1956, Emp: 14, $50,000

Electronics Inc. of Pa., 2440 Maryland Ave., Willow Grove, Pa., 50, Tel: 215-OLdfield 9-6666, Yr: 1956, Emp: 33, ▲2, $270,000

Electronics, Missiles & Communications, Inc., 262 E. Third St., Mount Vernon, N.Y., 19, 24, 42, Tel: 914-MOunt Vernon 8-3012, Yr: 1960, Emp: 15, ▲3

Electronics Research, 221 Angelique St., Weehawken, N.J., 95, 108, 109, Tel: 201-UNion 3-5136, Yr: 1951, Emp: 15, ▲1

Electronics Research, Inc., P.O. Box 327, Evansville 4, Ind., 44, Tel: ULster 3-3318, Yr: 1944, ▲1, $223,000

Electrons, Inc., 127 Sussex Ave., Newark 3, N.J., 86, 87, Tel: 201-HUmboldt 2-5977, Yr: 1930, Emp: 500, ▲1

Electropac, Inc., 62 Union St., Peterborough, N.H., 50, 91, 96, 109, Tel: 603-WAlnut 6411, Yr: 1960, Emp: 45, ▲1

Electrophono & Parts Corp., 530 Canal St., New York 13, N.Y., 43, 68, 74, Tel: 212-WOrth 6-5613

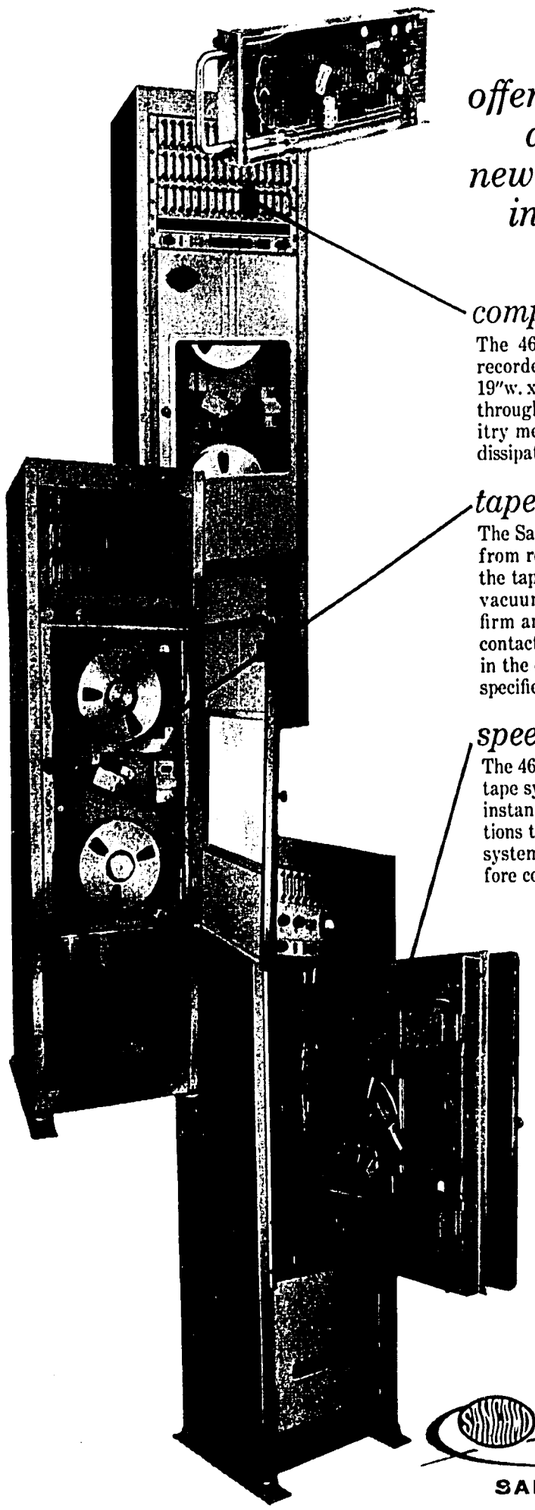
Electropot, Inc., 3155 W. El Segundo Blvd., Hawthorne, Calif., 73, 74, Tel: SPring 2-2591, Yr: 1957, Emp: 100, ▲4, $800,000

Electrosolids Corp., 6352 Bellingham Ave., North Hollywood, Calif., 8, 53, 69, 84, Tel: 213-TRiangle 7-5587, Yr: 1953, Emp: 300, ▲8, $3,000,000

Electrovert, Inc., 124 E. 40th St., New York 16, N.Y., 91, 97, 99, 110, Tel: OX 7-8396, Yr: 1953, Emp: 15, ▲3

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

SANGAMO 460-SERIES MAGNETIC TAPE INSTRUMENTATION



offers a new concept in...

compactness

The 460-Series tape transport and a complete 14 track recorder/reproducer are contained in a single standard 19"w. x 71"h. cabinet. This unusual compactness is achieved through transistorized electronic circuitry. Solid state circuitry means greater reliability, reduced weight, lower heat dissipation, and lower power consumption.

tape handling

The Sangamo recorder/reproducer can be changed instantly from reel to loop operation (250 feet) without re-handling the tape or making any changes in the transport. Exclusive vacuum tensioning and tape guiding provides gentle, but firm and precise control of tape position and head-to-tape contact. This design, in addition to a long tape path, results in the extremely low interchannel time displacement error specified.

speed control

The 460-Series has exclusive wide-range, fast-response, Hare tape synchronized servo speed control. This control reduces instantaneous and long-term record-playback speed deviations to a level several times lower than other speed control systems. You get magnetic tape system accuracies heretofore considered unattainable.

SANGAMO 460-SERIES
PERFORMANCE and CHARACTERISTICS

Start Time: 1.0 second to synchronism @ 60 ips with servo speed control and 1" wide tape.

Stop Time: 1.0 second from 60 ips.

Instantaneous Time Displacement Error: Less than 25.0 microseconds (including flutter) @ 60 ips.

Long Term Time Displacement Error: ±0.01% standard. Higher accuracies available.

Interchannel Time Displacement Error: ±2.0 microseconds @ 60 ips between outside tracks on 1" tape.

Servo Speed Control Range: ±10% nominal tape speed.

Servo Speed Control Response: ±15% speed change per second.

Tape Widths: Standard sizes from ¼ to 2".

Reel Sizes: 14" or smaller.

Mounting: 1 standard 19" equipment rack for a complete 14 track record/reproduce system with power supplies and servo speed control.

Power Requirements: 117 volts, 60 cps ±10% single phase. All D C drives. 7.0 amperes load for 14 track system.

Weight: Approximately 600 pounds for 14 track system.

SANGAMO *ELECTRONIC SYSTEMS*

SANGAMO ELECTRIC COMPANY

SPRINGFIELD ILLINOIS

ES61-5

For details, circle #108 on Reader Service Card

Elgenco, Inc., 1555 14th St., Santa Monica, Calif., 35, 36, Tel: EXbrook 3-3023, Yr: 1955, Emp: 10, ▲3, $80,000

Elgin Electronics, Div. of Elgin National Watch Co., 2435 N. Naomi, Burbank, Calif., 73, Tel: THornwall 2-8191, ▲3

Elgin Micronics, Div. of Elgin National Watch Co., 366 Bluff City Blvd., Elgin, Ill., 1, 2, 4, 5, 9, 10, 11, 27, 34, 37, 61, 65, 67, 69, 70, 73, 77, 80, 83, 96, 97, 109, Tel: 312-SHerwood 2-5700, Yr: 1950, Emp: 450, ▲5, $2,000,000

Elion Instruments, Inc., 430 Buckley St., Bristol, Pa., 4, 14, 41, Tel: WIndsor 9-2700, Yr: 1959, Emp: 53, ▲6, $1,000,000

Elliott-Automation Ltd., 34 Portland Pl., London W.1, England, 1, 2, 4, 6, 7, 8, 9, 10, 11, 13, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, 30, 34, 35, 36, 37, 38, 40, 44, 45, 54, 59, 61, 70, 80, 81, 83, 86, 88, 95, 105, 106, 109, Tel: LANgham 9271, Yr: 1800, Emp: 16,000

Elliott-Litton, Ltd., Manor Way, Borehamwood, Herts., England, 75, 80, Tel: ELStree 5484, Yr: 1961

Ellis Engineering (David O.), 1187 Roxbury Pl., Thousand Oaks, Calif., 95, Tel: HUdson 5-5622

Ellis & Watts Products, Inc., 8407 Monroe Ave., Cincinnati 36, Ohio, 4, 54, 99, Tel: TWeed 1-8000, Yr: 1949, Emp: 150

Ellisco, Inc., 4002-A N. American St., Philadelphia 40, Pa., 97, 105, Tel: 215-BAldwin 3-3405, Yr: 1843, Emp: 200

Ellison Draft Gage Co., Inc., 548 W. Monroe St., Chicago 6, Ill., 4, 40, 61, 80, Tel: RAndolph 6-2296, Yr: 1896, Emp: 25

Elm Instrument Corp., 30 Chasner St., Hempstead, L.I., N.Y., 1, 4, 8, 43, 77, 83, 109, Tel: IVanhoe 5-1700, Yr: 1959, Emp: 31, ▲1, $75,000

Elm Laboratories, P.O. Box 14, Hastings-on-Hudson, N.Y., 2, 4, 10, 13, 28, 47, 56, 96, 97, Tel: GReenleaf 8-2600, Yr: 1945, Emp: 20, ▲1, $100,000

Elna Ferrite Laboratory, Inc., R.R. 1, Box 220, Saugerties, N.Y., 55, 64, 92, 106, Tel: 914-CHerry 6-5861, Yr: 1955, Emp: 4

Elotec Corp., 1425 N. Lidcombe, El Monte, Calif., 63, 73, 80, 81, Tel: CUmberland 3-7717, Yr: 1954, Emp: 100

Elpac, Inc., 4270 Artesia, Fullerton, Calif., 12, 48, Tel: MAdison 8-0490, Yr: 1960, Emp: 26

Elsco Systems, Inc., 4516 Stone Way N., Seattle 3, Wash., 2, 4, 18, 43, 44, 50, 66, 69, 73, 91, 96, 109, Tel: 206-MElrose 3-3212, Yr: 1947, Emp: 15, ▲2, $300,000

Elveco (Etablissements), 70 rue de Strasbourg, Vincennes, France, 49, Tel: DAumesnil 33-60, Yr: 1924, Emp: 83

Elzee Metal Products Co., Inc., 775 39th St., Brooklyn 32, N.Y., 90, 93, 96, 109, Tel: GEdney 5-5000, Yr: 1945, Emp: 60, $1,000,000

Embree Electronics Corp., 993 Farmington Ave., West Hartford 7, Conn., 4, 8, 9, 43, 50, 69, Tel: 203-ADams 2-5144, Yr: 1959, Emp: 10, $100,000

See ad in class 43

Emeloid Co., Inc., Subsid of Addressograph-Multigraph Corp., 1239 Central Ave., Hillside 5, N.J., 8, 28, 96, 106, 107, Tel: 201-ELizabeth 2-1944, Yr: 1919, Emp: 150

Emerson & Cuming, Inc., 59 Walpole St., Canton, Mass., 36, 66, 75, 92, 94, 101, 103, 107, 110, 112, Tel: CAnton 6-3300, Yr: 1952, Emp: 250, ▲8

Emerson Electric Mfg. Co., 8100 W. Florissant Ave., Saint Louis 36, Mo., 2, 4, 8, 9, 11, 25, 28, 30, 37, 43, 44, 45, 47, 50, 59, 66, 67, 69, 77, 88, 89, 90, 91, 93, 95, 96, 97, 98, 99, 103, 108, 109, Tel: 314-COlfax 1-1800, Yr: 1890, Emp: 9000, ▲80, $41,576,000

Emerson Plastics Corp., 1383 Seabury Ave., New York 61, N.Y., 44, 66, 81, 96, 97, 101, 107, Tel: 212-SYcamore 2-4400, Yr: 1945, Emp: 50

Emertron, Inc., Div. of Emerson Radio & Phonograph Corp., 14th & Coles Sts., Jersey City 2, N.J., 1, 2, 19, 27, 43, Tel: SWarthmore 5-3500, Yr: 1940, Emp: 1050, ▲30, $25,000,000

Emmco Plastics Corp., 68 Vine St., Everett 49, Mass., 81, 96, 97, 107, 112, Tel: 617-DUnkirk 9-1660, Yr: 1950, Emp: 50, $350,000

See ad in class 81

Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 19, 21, 25, 35, 37, 38, 43, 44, 45, 56, 59, 66, 69, 88, Tel: 518-VIctor 2-8400, Yr: 1946, Emp: 180, ▲4, $2,977,000

See ad in class 38

Empire Electronics Co., Inc., 60 Spruce St., Paterson 1, N.J., 91, Tel: 201-ARmory 4-8282, Yr: 1950, Emp: 55

Empire Precision Metal Parts, Inc., 574 President St., Brooklyn, N.Y., 52, 74, 77, 96, 97, 106, Tel: 212-MAin 4-1790, Yr: 1945, Emp: 35

Endevco Corp., 161 E. California Blvd., Pasadena, Calif., 11, 12, 36, 43, 69, 83, Tel: SYcamore 5-0271, Yr: 1949, Emp: 200, ▲6

Endicott Coil Co., Inc., 24 Charlotte St., Binghamton, N.Y., 51, 80, 96, Tel: 607-SWarthmore 7-1263, Yr: 1950, Emp: 120, ▲1, $1,200,000

See ad in class 51

Enflo Corp., Fellowship Rd. & Rt. 73, Maple Shade, N.J., 48, 62, 66, 81, 96, 97, 106, 107, 109, 112, Tel: NOrmandy 3-1700, Yr: 1956, Emp: 35, ▲1

Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 14, 17, 22, 35, 40, 52, 56, 60, 61, 69, 76, 82, 84, 91, 94, 104, 108, 109, 110, 112, Tel: 201-BIgelow 2-2700, Yr: 1879, ▲2

See ad on page 140

Engelhard Industries, Inc., American Platinum & Silver Div., 231 New Jersey Railroad Ave., Newark 5, N.J., 91, 104, 105, 110, Tel: BIgelow 2-2700, ▲2

Engelhard Industries, Inc., Amersil Quartz Div., 685 Ramsey Ave., Hillside, N.J., 17, 32, 44, 55, 57, 66, 92, 97, 101, 103, 105, 112, Tel: MUrdock 8-4500

Engelhard Industries, Inc., Instruments & Systems Sect., 850 Passaic Ave., East Newark, N.J., 31, 40, 61, 82, 83, Tel: 201-BIgelow 2-2700, Emp: 3000, ▲1

Engelhard Industries, Inc., Makepeace Div., Pine & Dunham Sts., Attleboro, Mass., 2, 4, 10, 11, 34, 43, 44, 52, 66, 69, 80, 83, 91, 96, 97, 104, 105, 110, 112, Tel: 617-CAstle 2-5500, Yr: 1897, Emp: 600, $5,000,000

Engineered Electronics Co., 1441 E. Chestnut Ave., Santa Ana, Calif., 40, 43, 50, 63, 69, 97, Tel: 714-KImberly 7-5651, Yr: 1954, Emp: 150, ▲15, $3,048,000

Engineering Information Associates, Inc., 322 Main St., Stamford, Conn., 95, 108, Tel: 203-FIreside 8-3701, Yr: 1960, Emp: 8, ▲2

Engineering Model Laboratory, Inc., Union St., Ashland, Mass., 41, 43, 50, 69, 77, 84, 91, 95, 96, 109, Tel: CEdar 5-0778, Yr: 1949, Emp: 25, ▲2, $350,000

Engineering Specialties, 8117 Camargo Rd., Madeira, Cincinnati 43, Ohio, 4, 40, 43, 51, 84, 90, 95, 96, 109, Tel: 513-LOcust 1-6803, Yr: 1949, Emp: 17, ▲4, $200,000

Engler Instrument Co., 250 Culver, Jersey City 5, N.J., 4, 10, 28

English Electric Valve Co., Ltd., Chelmsford, Essex, England, 43, 49, 71, 86, 87, 108, Tel: CHElmsford 3491, ▲4

Ensco, Inc., 3100 Eldridge St., Salt Lake City 15, Utah, 5, 8, 35, 41, 43, 69, 95, 109, Tel: HUnter 5-9102, Yr: 1955, Emp: 15, ▲3, $110,000

Ensign Coil Co., 2520 S. Pulaski Rd., Chicago 23, Ill., 51, 84, Tel: CRawford 7-4141, Yr: 1939, Emp: 150

Enthone, Inc., 442 Elm St., New Haven 8, Conn., 94, Tel: SPruce 7-5581, Yr: 1930, Emp: 60, $100,000

Entron, Inc., 4902 Lawrence Ave., Bladensburg, Md., 43, 52, 59, 69, 91, Tel: 301-APpleton 7-9585, Yr: 1953, Emp: 80, ▲6, $1,400,000

Enviro Equipment Corp., 369 Linden St., Brooklyn 27, N.Y., 36, Tel: VAnDyke 1-9872, Emp: 25

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Epco Products, Inc., P.O. Box 298, Wallkill, N.Y., 51, 84, Tel: TWinbrook 5-3300, Yr: 1949, Emp: 100

Epic, Inc., 150 Nassau St., New York 38, N.Y., Importers, 6, 12, 17, 23, 28, 31, 39, 40, 41, 61, 84, Tel: DIgby 9-2470, Yr: 1950, Emp: 6, $150,000

Epoxy Products, Div. of Joseph Waldman & Sons, 137 Coit St., Irvington, N.J., 94, 96, 97, 101, 103, 105, 106, 107, Tel: ESsex 5-6000, Yr: 1929, Emp: 150, ▲3, $1,000,000

Eppley Laboratory, Inc., 15 Sheffield Ave., Newport, R.I., 6, 17, 31, 40, Tel: 401-VIking 7-1020, Yr: 1917, Emp: 53, $600,000

See ad in class 17

Eprad, Inc. (Electrical Products Research & Development Co., Inc.), 1214 Cherry St., Toledo 4, Ohio, 30, 79, Yr: 1946, Emp: 40, ▲3

Epsco, Inc., 275 Massachusetts Ave., Cambridge 39, Mass., 2, 4, 5, 8, 9, 10, 11, 13, 28, 31, 34, 40, 43, 45, 50, 51, 53, 57, 59, 61, 69, 80, 84, 93, Tel: UNiversity 4-4950, Yr: 1954, Emp: 800, ▲30

Epsco, Inc., Monitor Systems, Inc. (Subsid.), Fort Washington Industrial Park, Fort Washington, Pa., 2, 4, 9, 34, Tel: MItchell 6-8100, Yr: 1959, Emp: 50, ▲5, $750,000

Epsco Medical, 275 Massauchusetts Ave., Cambridge 39, Mass., 5, 28, 61, Tel: 617-UNiversity 4-4950

Equipto Div., Aurora Equipment Co., 401 S. Highland Ave., Aurora, Ill., 90, Tel: TW 6-4641, Yr: 1907, Emp: 200

Equipto Electronics Corp., 319 N. Webster St., Napervile, Ill., 47, 90, 93, Tel: ELmwood 5-7460, Yr: 1960, Emp: 35, ▲1

Era Research, Inc., 1099 Montana Ave., Santa Monica, Calif., 111, Tel: EXbrook 5-9995, Yr: 1957, Emp: 5, $20,000

Eraser Co., Inc., 1068 S. Clinton St., Syracuse 4, N.Y., 94, 111, Tel: 315-GRanite 6-7441, Yr: 1935, Emp: 15, ▲1, $189,000

Erco Radio Laboratories, Inc., 637 Stewart Ave. E., Garden City, L.I., N.Y., 1, 18, 20, 24, 26, 33, 42, 44, Tel: 516-PIoneer 1-0300, Yr: 1930, ▲2

Ercolino, M. D., Route 35 & Rutherford Ave., Asbury Park, N.J., 95, Tel: 201-PRospect 5-7252

See ad in class 95

Erdco Engineering Corp., 136 Official Rd., Addison, Ill., 2, 4, 40, 41, Tel: 312-KIngswood 3-6733, Yr: 1946, Emp: 40, $250,000

Ericsson Corporation, Subsid. of L. M. Ericsson Telephone Co. (Stockholm), 100 Park Ave., New York 17, N.Y., 4, 7, 29, 30, 33, 86, 91, 99, Tel: 212-MUrray Hill 5-4030, Yr: 1876, Emp: 35,000, ▲20, $200,000,000 (Parent Co.)

See ad in class 86

Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 4, 11, 22, 48, 49, 50, 51, 71, 74, 76, 78, 83, 84, 92, 96, 105, Tel: 814-GLendale 6-8592, Yr: 1928, Emp: 1400, ▲19, $23,000,000

See ad on pages 78-79

Erie Resistor Corp., Ceramic Components Div., P.O. Box 677, State College, Pa., 48, 49, 84, 92, 109, Tel: ADams 8-2466, Yr: 1928, Emp: 500, ▲2, $3,000,000

Erie Resistor Corp., Erie Pacific Div., 12932 S. Weber Way, Hawthorne, Calif., 2, 4, 9, 10, 11, 21, 31, Tel: 213-ORegon 8-5418, Yr: 1955, Emp: 25, ▲1

Erikson Specialized Tool Co., P.O. Box 424, Pico, Calif., 111, Tel: OXford 9-3719, Yr: 1947, Emp: 5

Erwood, Inc., 1770 W. Berteau, Chicago 13, Ill., 17, 36, 43, 65, 69, 89, 95, 96, 97, 106, 109, Tel: BI 8-0622, Yr: 1950, Emp: 40, ▲2

Espey Mfg. & Electronics Corp., Saratoga Industries Div. & Saratoga Semiconductor Div., Congress & Ballston Aves., Saratoga Springs, N.Y., 5, 12, 38, 41, 43, 48, 51, 53, 54, 59, 66, 69, 71, 74, 76, 83, 84, 90, 94, 96, 109, Tel: SAratoga Springs 4100, Yr: 1928, Emp: 450, ▲5, $3,500,000

Essential Electronics Corp., 1011 Power Ave., Cleveland 14, Ohio, 5, Tel: SUperior 1-7136, Yr: 1956, Emp: 40, ▲2

Essex Wire Corp., Carolina Industrial Plastics Div., Mount Airy, N.C., 107, Tel: STate 6-2127

Essex Wire Corp., Cords, Ltd. (Div.), 121 Dodge Ave., De Kalb, Ill., 91, Tel: DE Kalb 6-2721, ▲1

Essex Wire Corp., Magnet Wire Div., 1601 Wall St., Fort Wayne, Ind., 91, Tel: EAstbrook 0311

Essex Wire Corp., RBM Controls Div., 131 Godfrey St., Logansport, Ind., 73, 80, Tel: Logansport 6121, Yr: 1930, ▲1

Esterline Angus Instrument Co., Inc., P.O. Box 596, Indianapolis 6, Ind., 28, 40, Tel: CHapel 4-3318, Yr: 1910, Emp: 100

Etching Corp. of California, Div. of Allegri-Tech, Inc., 865 Hinckley Rd., Burlingame, Calif., 50, 96, 97, Tel: 415-OXford 7-7771, Yr: 1949, Emp: 45, $350,000

Etchomatic, Inc., 182 Newton St., Waltham 54, Mass., 94, 96, 99, Tel: 617-TWinbrook 3-2020, Yr: 1957, Emp: 6

Etelco, Ltd., 22 Lincoln's Inn Fields, London W.C. 2, England, 4, 7, 8, 9, 11, 30, 33, 34, 40, 41, 43, 53, 62, 63, 65, 73, 80, 83, 86, Tel: HOlborn 6936, Yr: 1903, Emp: 6000

Ethylene Corp., P.O. Box 307, Murray Hill, N.J., 96, 107, 112, Tel: CRestview 7-2600, Yr: 1949, Emp: 26

Eubanks Engineering Co., 260 N. Allen Ave., Pasadena, Calif., 99, 111, Tel: 714-MUrray 1-9638, Yr: 1952, Emp: 26, ▲1

Eugene Engineering Co., Inc., 1217 Hyde Park Ave., Hyde Park 36, Mass., 16, 44, 47, 54, 90, 93, 95, 96, 97, 105, 109, Tel: 617-EMpire 1-7000, Yr: 1943, Emp: 100, $950,000

See ads in classes 96, 105

Eureka X-Ray Tube Corp., 3250 N. Kilpatrick Ave., Chicago 41, Ill., 86, 87, Tel: KIldare 5-3126, Yr: 1933, Emp: 65, ▲1

Eutectic Welding Alloys Corp., 40-40 172nd St., Flushing 58, N.Y., 110, Tel: 212-FLushing 8-4000, Yr: 1940, Emp: 450

Everard Tap & Die Corp., 215 E. 144th St., New York 51, N.Y., 95, 96, 97, 109, 111, Tel: 212-LUdlow 5-1760, Yr: 1917, Emp: 20

Everlast Refrigeration Co., 654 Henry St., Brooklyn 31, N.Y., 36, 99, Tel: MAin 4-4520

Evra, Inc., 8956-62 National Blvd., Los Angeles 34, Calif., 94, 101, 107, Tel: WEbster 1-1676

Ewald Instruments, Rt. 7H, Kent, Conn., 4, 99, 111, Tel: 203-WAlker 7-3278, Yr: 1954, ▲1

See ad in class 99

Ewen Knight Corp., Oak & Pine Sts., East Natick, Mass., 1, 2, 19, 25, 34, 43, 44, 53, 96, 99, Tel: OLympic 3-3300, Yr: 1951, Emp: 100, ▲15, $2,600,000

Exact Electronics, Inc., P.O. Box 234, 455 S. Second St., Hillsboro, Ore., 2, 4, 5, 9, 22, 31, 34, 35, 36, 39, 40, Tel: MI 8-3590, Yr: 1957, Emp: 9, ▲1

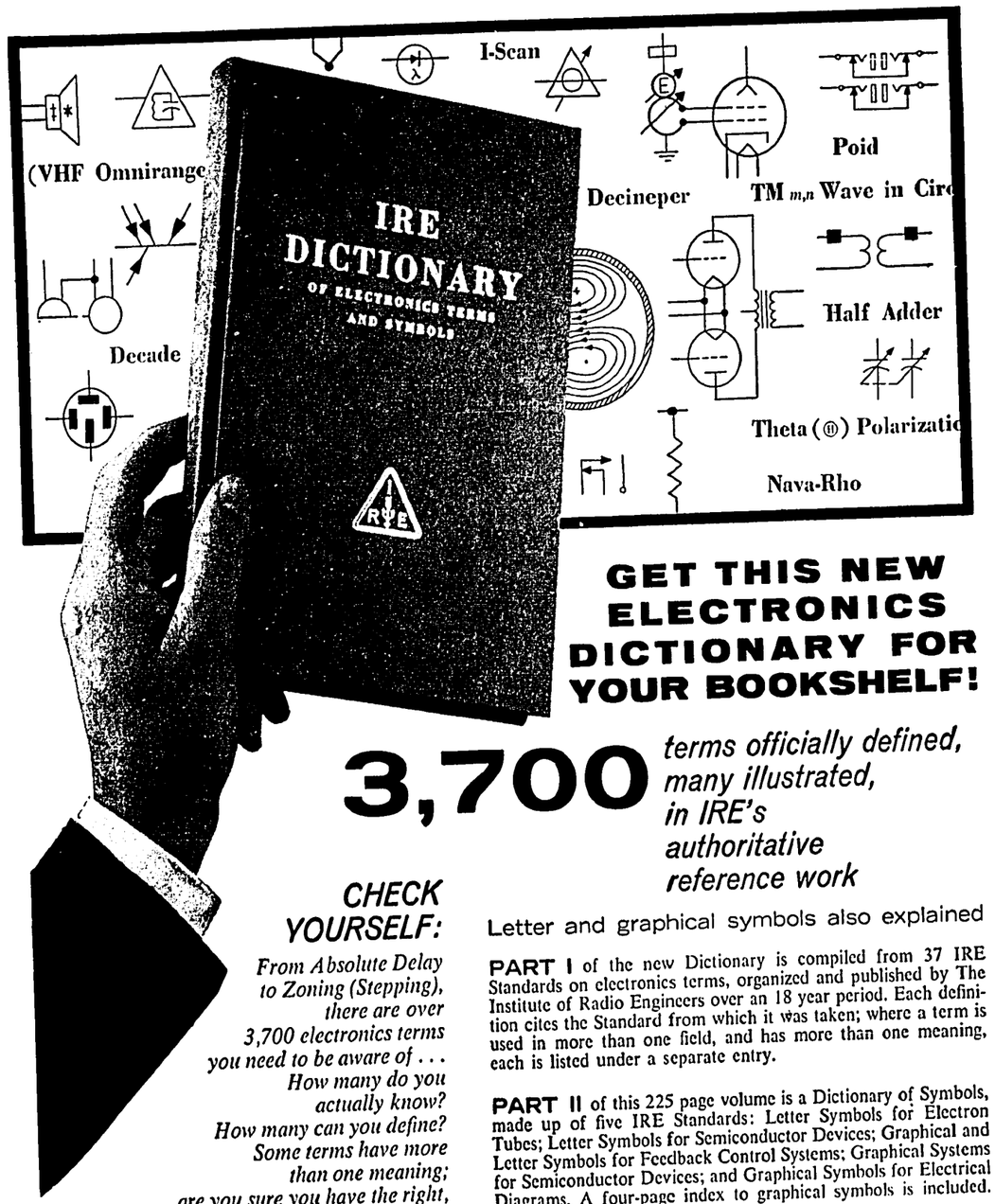
Exact Engineering & Mfg., Inc., P.O. Box 447, Oceanside, Calif., 2, 4, 9, 10, 11, 77, 109, Tel: 714-SAratoga 2-1461, Yr: 1952, Emp: 90, $1,000,000

Exactel Instrument Co., 185 Evelyn Ave., Mountain View, Calif., 4, 8, 40, 43, 61, 67, 77, 80, 84, Tel: 415-YOrkshire 8-6558, Yr: 1956, Emp: 12, $220,000

Excel Specialty Corp., 6335 N. Broadway, Chicago 40, Ill., 62, 91, 96, 97, 109, Tel: AMbassador 2-4781, Yr: 1949, Emp: 25

Executone, Inc., 415 Lexington Ave., New York 17, N.Y., 30, Tel: 212-MUrray Hill 7-7440, ▲2

Executone, Inc., Components Div., 47-37 Austell Pl., Long Island City 1, N.Y., 73, Tel: 212-RAvenswood 9-7031, Yr: 1960, ▲1



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PART II of this 225 page volume is a Dictionary of Symbols, made up of five IRE Standards: Letter Symbols for Electron Tubes; Letter Symbols for Semiconductor Devices; Graphical and Letter Symbols for Feedback Control Systems; Graphical Systems for Semiconductor Devices; and Graphical Symbols for Electrical Diagrams. A four-page index to graphical symbols is included.

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Export Packing & Crating Co., Inc., 5401 First Ave., Brooklyn 20, N.Y., 90, 109, Tel: 212-HYacinth 2-4300, Yr: 1944, Emp: 140, $1,000,000

Eyelet Tool Co., Inc., 31 Carleton St., Cambridge, Mass., 99, Yr: 1861

F

FMC Corp., 1105 Coleman Ave., P.O. Box 760, San Jose 6, Calif., 4, 8, 14, Tel: CYpress 4-8124, Yr: 1928, Emp: 16,045, ▲15, $363,872,655

FMC Corp., Dapon Dept., 161 E. 42nd St., New York 17, N.Y., 107, Tel: 212-MUrray Hill 7-7400, Yr: 1884

F & M Scientific Corp., Starr Rd. & Rt. 41, P.O. Box 234, Avondale, Pa., 40, Tel: 215-COlony 8-2281, Yr: 1957, Emp: 70

FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 1, 6, 19, 21, 25, 31, 35, 37, 38, 44, 45, 56, 59, 66, 69, 80, 84, 88, Tel: 212-RAvenswood 1-9000, Yr: 1945, Emp: 767, ▲25, $7,500,000
See ad in class 37

Factory Enterprises, Inc., 3431 Butler St., Pittsburgh 1, Pa., 91, 94, Tel: 412-MUseum 1-1199, Yr: 1951, Emp: 5, $50,000

Fae Instrument Corp., 16 Norden Lane, Huntington Station, L.I., N.Y., 77, 97, Tel: 516-AR 1-0300, Yr: 1950, Emp: 30, $250,000

Fair-Rite Products Corp., Commercial Row, Wallkill, N.Y., 55, Tel: 914-TWinbrook 5-3700, Yr: 1952, Emp: 55, ▲1
See ad in class 55

Fairbanks, Morse & Co., Electronics Div., 100 Electra St., Yonkers, N.Y., 4, 5, 11, 13, 14, 18, 19, 20, 22, 23, 26, 27, 30, 40, Tel: BEverly 7-4100, Emp: 200, ▲6

Fairbanks Wire Co., Inc., 2287 Hollers Ave., New York 69, N.Y., 91, Tel: FAirbanks 4-1266, Yr: 1951, Emp: 20, $200,000

Fairchild Camera & Instrument Corp., Defense Products Div., 300 Robbins Lane, Syosset, L.I., N.Y., 1, 2, 4, 14, 18, 19, 22, 25, Tel: 516-WElls 1-4500, Yr: 1920, Emp: 2000, ▲31

Fairchild Controls Corp., 225 Park Ave., Hicksville, L.I., N.Y., 2, 74, 77, Tel: WElls 8-5600, Emp: 550, ▲1

Fairchild Recording Equipment Corp., 10-40 45th Ave., Long Island City 1, N.Y., 27, 32, 43, 68, 70, Tel: 212-STillwell 4-6163, Yr: 1948, Emp: 65, ▲1, $500,000

Fairchild Semiconductor Corp., 545 Whisman Rd., Mountain View, Calif., 41, 50, 76, Tel: 415-YOrkshire 8-8161, Yr: 1957, Emp: 1500, ▲50
See ad in class 76

Fairchild Stratos Corp., Hagerstown 10, Md., 44, 58, 107, 109, 111, Tel: 301-REgent 3-3600, ▲8

Fairchild Stratos Corp., Fairchild Electronic Systems Div., Straight Path, Wyandanch, L.I., N.Y., 1, 2, 4, 8, 9, 10, 15, 18, 19, 24, 25, 34, 43, 44, 50, 57, 77, 109, Tel: 516-MIdland 3-7171, Yr: 1945, Emp: 630, ▲69, $15,263,334

Fairfield Controls, Inc., 114 Manhattan St., Stamford, Conn., 4, 32, 43, 51, 69, 72, 77, 80, 84, 99, 105, 109, Tel: 203-DAvis 5-1561, Yr: 1955, Emp: 25, ▲3, $150,000

Fairmount Chemical Co., Inc., 136 Liberty St., New York 6, N.Y., 110, Tel: 212-BArclay 7-6375, Yr: 1938, Emp: 125, $100,000
See ad in class 110

Falcon Div., General Thermodynamics Corp., 211 Concord Tnpke., Cambridge 40, Mass., 40, 41, 77, 97, Tel: 617-TRowbridge 6-3269, Yr: 1940, Emp: 20, $100,000
See ad in class 41

Falstrom Co., 74A Falstrom Ct., Passaic, N.J., 90, 93, 95, 96, 109, Tel: 201-PRescott 7-0013, Yr: 1870, Emp: 180, ▲9
See ad in class 96

Fanon Transistor Corp., 439 Frelinghuysen Ave., Newark 12, N.J., 1, 30, 43, 68, 76, Tel: 201-BIgelow 3-1020, Yr: 1954, Emp: 175, ▲4, $1,500,000
See ad in class 76

Fansteel Metallurgical Corp., 2220 N. Sheridan Rd., North Chicago, Ill., 48, 69, 71, 76, 80, 103, 104, 105, Tel: 312-SHeldrake 3-0742, Yr: 1908, Emp: 2200, ▲6, $8,000,000

Faradyne Electronics Corp., 471 Cortlandt St., Belleville 9, N.J., 48, 55, 91, 92, 104, 105, Tel: PLymouth 1-2400

Farinon Electric, 935 Washington St., San Carlos, Calif., 4, 19, 24, 37, 38, 41, 59, 66, 69, Tel: 415-LYtell 3-8491, Yr: 1958, Emp: 60, ▲6, $534,000

Farmer Electric Products Co., Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 43, Tel: 617-DEcatur 2-8383, Yr: 1955, Emp: 20

Farr Co., 2301 Rosecrans, El Segundo, Calif., 90, Tel: Oregon 8-3873

Farrall Instrument Co., P.O. Box 658, Grand Island, Nebr., 4, 5, 40, 95, 96, Tel: DU 4-1530, Yr: 1958, Emp: 4, ▲1

Farrand Controls, Inc., 99 Wall St., Valhalla, N.Y., 4, 8, 9, 10, 67, 77, 84, Tel: 914-ROckwell 1-2600, Yr: 1956, ▲5

Farrelloy Co., 1243-45 N. 26th St., Philadelphia 21, Pa., 110, Tel: 215-POplar 3-2124, Yr: 1932, Emp: 20

Farwell Metal Fabricating, 73 W. Fairfield Ave., Saint Paul 7, Minn., 90, 93, 96, 109, Tel: CApital 2-3713, Yr: 1900, Emp: 150

Farwest Mfg. Div., Inc., 209 1st Ave., S., Seattle 4, Wash., 63, 69, 91, 109, Tel: 206-MAin 4-5656, Yr: 1945, Emp: 12, ▲1, $175,000

Fasco Industries, Inc., 255 N. Union St., Rochester 2, N.Y., 47, 67, Tel: HA 6-1800, Yr: 1928, Emp: 1000

Fashion Seal Uniforms, 63 New York Ave., Huntington, L.I., N.Y., Lint-Free Uniforms, Tel: 516-HAmilton 7-7400, Yr: 1920, Emp: 250

Fast & Co. (John E.), Subsid. of Victoreen Instrument Co., 3580 N. Elston Ave., Chicago 11, Ill., 48, Tel: JUniper 8-2715, Yr: 1919, Emp: 300, ▲3

Fawn Plastics Co., Inc., 2301 York Rd., Timonium, Md., 90, 100, Tel: 301-CLearbrook 2-1600, Yr: 1948, Emp: 100, $300,000

Federal-Anti-Capacity Switch Co., P.O. Box 25, Lancaster, N.Y., 80, Tel: 716-NT 4-1600, Yr: 1930, Emp: 1, $9,000

Federal Electric Corp., Industrial Park, Paramus, N.J., 96, Tel: 201-COlfax 1-7200, Yr: 1952, Emp: 4500, ▲80

Federal Electronic Products, Inc., 1380 Pompton Ave., Cedar Grove, N.J., 99, 105, 111, Tel: 201-CLifford 6-1600, Yr: 1957, Emp: 50, ▲1, $240,000

Federal Machine Co., Inc., 807 Garfield Ave., Jersey City 5, N.J., 96, 109, 111, Tel: 201-HEnderson 5-1500, Yr: 1954, Emp: 45

Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., 1055 Stewart Ave., Garden City, L.I., N.Y., 1, 2, 3, 4, 5, 6, 9, 11, 13, 14, 17, 18, 20, 21, 23, 24, 26, 27, 29, 30, 32, 34, 35, 36, 37, 38, 39, 40, 41, 43, 50, 69, 76, 77, 83, 85, 90, 93, 96, 99, 109, 111, Tel: 516-PIoneer 2-7400, Yr: 1921, Emp: 350, ▲10

Federal-Mogul Div., Federal-Mogul-Bower Bearings, Inc., 11031 Shoemaker Ave., Detroit 13, Mich., 97, 104, Tel: 313-WAlnut 1-0750, Yr: 1899, Emp: 1285

Federal Scientific Corp., 615 W. 131st St., New York 27, N.Y., 35, 37, 38, 43, 50, 53, Tel: AUdubon 6-4400, Yr: 1957, Emp: 30, ▲11, $450,000

Federal Screw Products, Inc., 3917 N. Kedzie Ave., Chicago 18, Ill., 81, 97, Tel: 312-IRving 8-5744, Yr: 1931, Emp: 16, ▲1
See ad in class 97

Federal Tool Engineering Co., 1400 Pompton Ave., Cedar Grove, N.J., 4, 69, 99, 105, Tel: 201-CLifford 6-5300, Yr: 1946, Emp: 150, $1,500,000
See ad in class 99

Federal Tool & Mfg. Co., 3600 Alabama Ave., Minneapolis 16, Minn., 96, 105, Tel: WEst 9-7843, Yr: 1945, Emp: 120

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Federated Electronics, Inc., 134-20 Jamaica Ave., Jamaica 18, N.Y., 22, 56, 100, 102, Tel: JAmaica 3-5588, Yr: 1958, Emp: 28, ▲1, $170,000

Federation Francaise des Industries Electroniques, 23, rue de Lubeck, Paris 16e, France, Electronic Exhibition, Tel: PASsy 01-16

See ad on this page

Fedtro, Inc., Federal Electronics Sales Div., Federal Electronics Bldg., Rockville Centre, L.I., N.Y., 30, 41, 46, 48, 59, 63, 79, 111, Tel: ROckville Centre 6-1435, Yr: 1951, $1,000,000

Feiler Engineering & Mfg. Co., 8026 N. Monticello, Skokie, Ill., 30, Tel: COrnelia 7-8280, Yr: 1945, Emp: 50, ▲5

Feiner & Sons, Inc. (P.), 522 W. 45th St., New York 36, N.Y., 90, 93, 96, Tel: 212-PLaza 7-6150, Yr: 1888, Emp: 90, $600,000

Felker Mfg. Co., 1128 Border Ave., Torrance, Calif., 94, 99, 111, Tel: FAirfax 8-4704, Yr: 1924, Emp: 125, $500,000

Felters Co., 210 South St., Boston, Mass., 89, Tel: 617-LIberty 2-7021

Fen-Thread Machine Co., Inc., 1910 N. Marshall St., Philadelphia 22, Pa., 99, Tel: 215-CEnter 6-7717

See ad in class 99

Fen-Tone Corp., 106 Fifth Ave., New York 11, N.Y., 27, 65, 68, Tel: 212-OREgon 5-1707, Yr: 1938

Fentiman & Sons, Ltd. (F.), 335 Roosevelt Ave., Ottawa 3, Ontario, Canada, 44, Tel: 613-PArkway 2-6581, Yr: 1940, Emp: 90

Fenwal Electronics, Inc., 51 Mellen St., Framingham, Mass., 74, Tel: TRinity 5-1351, Yr: 1956, Emp: 130, ▲4

Fenwal, Inc., Pleasant St., Ashland, Mass., 4, 80, 82, Tel: TRinity 5-6111, Yr: 1935, Emp: 700, ▲7

Ferranti Electric, Inc., Industrial Park #1, Plainview, L.I., N.Y., 2, 8, 10, 11, 14, 27, 35, 37, 57, 61, 71, 75, 76, 80, 86, Tel: WElls 8-7500, Yr: 1892, Emp: 18,000, ▲6

Ferranti-Packard Electric, Ltd., Electronics Div., 16 Industry St., Toronto 15, Ontario, Canada, 4, 8, 9, 10, 21, 50, 63, 109, Tel: ROger 2-3661, Yr: 1912, Emp: 1000, ▲19, $3,500,000

Ferricore, Inc., 250 South St., Newark, N.J., 43, 44, 51, 55, 64, 92, Tel: 201-MItchell 2-6800, Yr: 1955, Emp: 65, $1,000,000

Ferris Instrument Co., P.O. Box 209, 110 Cornelia St., Boonton, N.J., 31, 38, 39, 44, 45, Tel: DEerfield 4-0781, Yr: 1932, Emp: 25, ▲3

Ferritronics, Ltd., 157 Willowdale Ave., Willowdale, Toronto, Ontario, Canada, 50, 51, 59, 84, Tel: 416-BAldwin 2-1168, Yr: 1960, Emp: 15, ▲3, $100,000

Ferro Magnetics Co., 989 Commercial St., Palo Alto, Calif., 51, 59, 84, 95, 96, 109, Tel: DAvenport 1-5141, Yr: 1957, Emp: 25, ▲2, $164,000

Ferrodynamics Corp., Gregg St. & Rt. 17, Lodi, N.J., Tel: DIamond 2-7017, Yr: 1956, Emp: 30, ▲4

Ferrotec, Inc., 217 California St., Newton 58, Mass., 45, 66, Tel: 617-DEcatur 2-7600, Yr: 1958, Emp: 75, ▲6, $900,000

See ad in class 66

Ferrotran Electronics Co., Inc., 693 Broadway, New York 12, N.Y., 35, 38, 41, 43, 50, 51, 53, 59, 69, 84, Tel: ALgonquin 4-5810, Yr: 1956, Emp: 20, ▲3

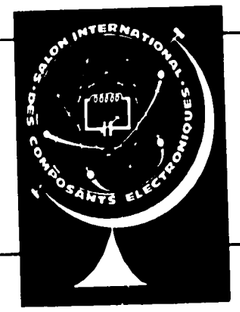
Ferroxcube Corp. of America, E. Bridge St., Saugerties, N.Y., 10, 34, 44, 55, 74, 76, 92, 100, Tel: 914-CHerry 6-2811, Yr: 1950, Emp: 200, ▲5

See ads in classes 10, 34, 55, 74, 92, 100

Fiberite Corp., 512-528 W. Fourth St., Winona, Minn., 94, 96, 101, 107, Tel: 2316, Yr: 1948, Emp: 120

Fibrous Glass Products, Inc., Alpa Plaza, Hicksville, L.I., N.Y., 89, 101, 103, Tel: 516-ORiole 1-3600, Yr: 1953, Emp: 45, $100,000

Fidelitone Microwave, Inc., 6415 N. Ravenswood, Chicago 26, Ill., 2, 37, 38, 43, 44, 45, 56, 59, 66, 68, 69, 70, Tel: BRiargate 4-0075, Yr: 1929, Emp: 250, ▲6



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FEDERATION FRANCAISE DES INDUSTRIES ELECTRONIQUES

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For details, circle #111 on Reader Service Card

Fidelity Amplifier Co., 1633 N. Halsted St., Chicago 14, Ill., 4, 12, 30, 43, 53, 63, 69, 96, Tel: MOhawk 4-3515, Yr: 1944, Emp: 20, ▲1, $182,349

Fidelity Chemical Products Corp., 470 Frelinghuysen Ave., Newark 12, N.J., 94, 99, Tel: BIgelow 2-4110, Yr: 1942

Fidelity Instrument Corp., 1000 E. Boundary Ave., York, Pa., 67, 69, 72, 84, Tel: 3-7884, Yr: 1952, Emp: 105, ▲5, $1,500,000

Field Emission Corp., 611 E. Third St., McMinnville, Ore., 5, 14, 37, 86, 109, Tel: 503-MC-Minnville 1-2951, Yr: 1958, Emp: 110, ▲6

Film Capacitors, Inc., 3400 Park Ave., New York 56, N.Y., 48, 69, Tel: 212-CYpress 2-5181, Yr: 1946, ▲1

Film Resistors, Inc., 242 Ridgedale Ave., P.O. Box 49, Morristown, N.J., 45, 50, 66, 74, 109, Tel: 201-JEfferson 8-2440, Yr: 1960, Emp: 10, ▲1

Filmohm Corp., 48 W. 25th St., New York 10, N.Y., 17, 37, 45, 66, 74, 75, Tel: 212-WAtkins 4-6605, Yr: 1955, Emp: 40, ▲6, $440,000

See ad in class 74

Filtors, Inc., 30 Sagamore Hill Dr., Port Washington, L.I., N.Y., 73, Tel: 516-POrt Washington 7-8220, Yr: 1938, Emp: 450, ▲5, $6,000,000

Filtron Co., Inc., 131-15 Fowler Ave., Flushing 55, N.Y., 48, 57, 59, 84, 95, 109, Tel: HIckory 5-7000, Yr: 1946, Emp: 485, ▲40, $4,000,000

Finney Co., 34 W. Interstate, Bedford, Ohio, 43, 44, 76, 91, Tel: 216-BEdford 2-6161, Yr: 1950, Emp: 150, ▲1

Fire Control Co., Inc., 703 Thornton St., Wilmington 1, Del., 4, 82, Tel: 302-OLympia 6-5370, Yr: 1946, Emp: 10, $250,000

First Electronics Corp., 119 E. Sixth St., Michigan City, Ind., 4, 13, 21, 30, 43, 95, Tel: 219-TRiangle 2-6565, Yr: 1961, Emp: 6, ▲2

First Electronics Corp., 17 Saint Ann St., Boston 30, Mass., 4, 11, 41, 52, 62, 91, 111, Tel: 617-JAmaica 2-2010, Yr: 1955, Emp: 20

Fischer Electric Co., Inc., P.O. Box 518, DeLeon Springs, Fla., 84, Tel: YUkon 5-4441, Yr: 1954, Emp: 65, $500,000

Fischer Electronics, Inc., 2238 Bailey Ave., Buffalo 11, N.Y., Tel: TX 3-1555

Fischer & Porter Co., 480 Warminster Rd., Warminster, Pa., 4, 9, 34, 61, 96, 107, 112, Tel: OSborne 5-6000, Yr: 1937, Emp: 1110

Fischer Special Mfg. Co., 446 Morgan St., Cincinnati 6, Ohio, 97, Tel: 513-WOodburn 1-1280, Yr: 1905, Emp: 65

Fish-Schurman Corp., 70 Portman Rd., New Rochelle, N.Y., Importers, 17, 75, 112, Tel: NEw Rochelle 6-1300, Yr: 1923, Emp: 42, ▲1

Fisher Berkeley Corp., 1475 Powell St., Emeryville 8, Calif., 7, 26, 30, 43, 69, 86, 96, Tel: OLympic 5-9696, Yr: 1957, Emp: 35

Fisher Co., Inc. (Oscar), P.O. Box 420, Newburgh, N.Y., 4, 5, 99, Tel: JOhn 2-3900, Yr: 1947, Emp: 60

Fisher & Crome, 109 N. Camac St., Philadelphia 7, Pa., 9, 81, 96, 97, 107, 109, 112, Tel: 215-LOcust 4-5054, Yr: 1944, Emp: 16, $150,000

Fisher Engineering, Inc., 2060 U.S. 24 E., P.O. Box 327, Huntington, Ind., 43, 51, 84, Tel: 315, Yr: 1950, Emp: 65, ▲1, $350,000

Fisher Radio Corp., 21-21 44th Dr., Long Island City 1, N.Y., 26, 43, 79, 88, Tel: 212-EXeter 2-2500, Yr: 1924, Emp: 250, ▲2

Fisher Research Laboratory, Inc., 1975 University Ave., Palo Alto, Calif., 1, 2, 4, 5, 16, 18, 20, 24, 35, 40, 41, Tel: DA 2-4646, Yr: 1936, Emp: 68, ▲3, $1,150,000

Fisher Scientific Co., 711 Forbes Ave., Pittsburgh 19, Pa., 4, 40, 94, 98, 112, Tel: EXpress 1-1330, Yr: 1900, Emp: 1343, ▲2

Fitchburg Engineering Corp., Dept. D-17, Cleghorn St., Fitchburg, Mass., 99, Tel: 617-DIamond 3-7416, Yr: 1929, Emp: 150, ▲1, $180,000

See ad in class 99

Five Star Co., Inc., 100 W. Main St., Plantsville, Conn., 51, 73, Tel: MArket 8-5561, Yr: 1945, Emp: 150, $1,000,000

Fleetwood Laboratories, Inc., 300 Victory Blvd., New Rochelle, N.Y., 41, Tel: BEverly 5-0831, Yr: 1950, Emp: 4, ▲1, $50,000

Flexaust Co., Div. of Callahan Mining Corp., 100 Park Ave., New York 17, N.Y., 47, Tel: OREgon 9-1300, Yr: 1938, Emp: 50, $100,000

Flexo International Corp., 3720 N. Milwaukee Ave., Chicago 41, Ill., 63, 65, Tel: KIldare 5-6609, Yr: 1932, Emp: 75

Flexrock Co., 3609 Filbert St., Philadelphia 1, Pa., 94, 96, 97, 107, 112, Tel: BAring 2-5500, Yr: 1933, Emp: 100, ▲1, $500,000

Flight Research, Inc., P.O. Box 1-F, Richmond 1, Va., 1, 4, 8, 14, 32, Tel: 703-737-4163, Yr: 1953, Emp: 49, ▲3

Flite-Tronics, Inc., 3312 Burton Ave., Burbank, Calif., 2, 30, 36, 40, 41, 43, 53, 69, Tel: VIctoria 9-3376, Yr: 1951, Emp: 60, ▲3, $750,000

Flo-Tronics, Inc., Electronic Controls Div., 1432 Zarthan Ave., Minneapolis 16, Minn., 4, 50, 53, 61, 69, 96, Tel: 612-FEderal 2-3554, Yr: 1960, Emp: 80, ▲1, $50,000

Flock Process Co., Inc., 373 Main Ave., Norwalk, Conn., 90, 97, Tel: VIctor 7-4586, Yr: 1939, Emp: 10

Floquil Products, Inc., Cobleskill, N.Y., 94, Tel: 518-AF 4-2571, Yr: 1941

Flotron Industries, Inc., 1608 Centinela, Inglewood, Calif., 4, 90, 93, Tel: 213-OREgon 8-0777, Yr: 1958, Emp: 15, $400,000

Flow Corp., 85 Mystic St., Arlington 74, Mass., 40, 83, Tel: 617-MIssion 8-6740, Yr: 1953, Emp: 17, ▲1, $250,000

Flow Measurements Corp., 10506 Wheatley St., Kensington, Md., 4, 109, Tel: 301-LOckwood 4-0111, Yr: 1958, Emp: 50, ▲5

Fluke Mfg. Co., Inc. (John), P.O. Box 7428, Mountlake Terrace, Wash., 2, 6, 12, 31, 35, 40, 61, 69, 74, Tel: PRospect 6-1171, Yr: 1948, Emp: 250, ▲11, $3,500,000

Fluorulon Laboratories, Inc., 174 Passaic Ave., Caldwell Township, N.J., 96, 97, 106, 107, 112, Tel: 201-CApital 6-8228, Yr: 1955, Emp: 8

Fluro Plastics, Inc., 36th & Fibert Sts., Philadelphia 1, Pa., 96, 107, 112, Yr: 1933, Emp: 100, $550,000

Flush Wall Radio Co., 1012 Cleveland St., Clearwater, Fla., 26, 30, Tel: 444-6061, Yr: 1940, Emp: 6, $25,000

Foote Mineral Co., 18 W. Chelten Ave., Philadelphia 44, Pa., 94, 104, Tel: 215-VIctor 8-4000, Yr: 1876, Emp: 600

Forbes & Wagner, Inc., 350 Central Ave., Silver Creek, N.Y., 33, 51, 57, 59, 84, Tel: 716-YEllowstone 4-2691, Yr: 1948, Emp: 200, ▲5, $1,358,000

See ads in classes 33, 51, 57, 84

Ford Electronics Corp., 11747 Vose St., North Hollywood, Calif., 18, 67, Tel: TRiangle 7-3351, Emp: 30

Ford Instrument Co., 31-10 Thomson Ave., Long Island City 1, N.Y., 1, 2, 4, 8, 9, 14, 25, 53, 67, 77, 95, 109, Tel: ST 4-9000, Yr: 1915, Emp: 3000, ▲3

Ford Radio & Mica Corp., 536 63rd St., Brooklyn 20, N.Y., 101, 105, Tel: GEdney 9-8300, Yr: 1917, Emp: 105, $900,000

Foredom Electric Co., Inc., Bethel, Conn., 94, 99, 111, Tel: Pioneer 8-3521, Yr: 1922, Emp: 20

Forest Electric Co., 1001 N. 25th Ave., Melrose Park, Ill., 51, 69, 84, Tel: MAnsfield 6-0766, Yr: 1946, Emp: 80

Form-It Products, Inc., 1619 W. Walnut St., Chicago 12, Ill., 96, 97, 106, 112, Tel: HAymarket 1-7337, Yr: 1956, Emp: 15, $152,000

Forma Scientific, Inc., Box 649, Marietta, Ohio, 4, 36, 54, 90, 98, 99, Tel: 614-FRontier 3-4763, Yr: 1952, Emp: 50

Formcraft Tool Co., 2465 S. Archer, Chicago 16, Ill., 66, Tel: CAlumet 5-3173, Yr: 1948, Emp: 16, $350,000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Formica Corp., Subsid. of American Cyanamid Co., 4614 Spring Grove Ave., Cincinnati 32, Ohio, 107, Tel: 513-KIrby 1-3670, Yr: 1913, Emp: 2000, ▲1

Formica Metal Products Co., 225 Corporation Way, Medford 55, Mass., 90, 93, 96, Tel: 617-EXport 5-5656, Yr: 1946, Emp: 46, $360,000

See ad in class 90

Formsprag Co., 23601 Hoover Rd., Warren, Mich., 66, 77, 97, Tel: JEfferson 6-9000, Yr: 1943, Emp: 200

Formweld Products Co., 1530 Coit Ave., East Cleveland 12, Ohio, 36, 90, 93, 96, Yr: 1940, Emp: 75, $30,000

Forro Scientific Co., 833 Lincoln St., Evanston, Ill., 22, Yr: 1953

Fort Wayne Metals, Inc., 3211 MacArthur Dr., Fort Wayne, Ind., 70, 91, Tel: S-4154, Yr: 1946, Emp: 60

Fortiphone, Ltd., Components & Transformer Divs., 124 Denmark Hill, London S.E. 5, England, 43, 51, 52, 65, 73, 74, 78, 79, 80, 84, 95, 96, 106, 109, Tel: BRixton 8977, Yr: 1925, Emp: 300, $400,000

Forway Industries, Inc., 122 Green Ave., Woodbury, N.J., 1, 2, 4, 18, 20, 37, 41, 50, 52, 66, 77, 78, 93, 96, Tel: TIlden 5-0804, Yr: 1947, Emp: 55, $750,000

Foster Transformer Co., 3820 Colerain Ave., Cincinnati 23, Ohio, 51, 84, Tel: MUlberry 1-2420, ▲1

Fostoria Corp., Box 151, Fostoria, Ohio, 63, 98, Tel: 419-HEmlock 5-7721, Yr: 1917, Emp: 300

Foto-Video Electronics, Inc., 36 Commerce Rd., Cedar Grove, N.J., 21, 23, 32, 39, 43, 69, Tel: 201-CEnter 9-6100, Yr: 1954, Emp: 102, ▲7, $385,000

Fourdee, Inc., 704 W. Fairbanks Ave., Orlando, Fla., 77, 97, Tel: CHerry 1-6109, Yr: 1957, Emp: 10, ▲2, $50,000

Fourjay Industries, 2801 Ontario Ave., Dayton 14, Ohio, 79, 96, 97, 106, 107, Tel: CRestview 8-2924, Yr: 1957

Fox Products Co., 4720 N. 18th St., Philadelphia 41, Pa., 53, 69, 84, 96, 97, 99, 105, 109, Tel: DA 9-2700, Yr: 1913, Emp: 120, ▲4

Foxboro Co., Foxboro, Mass., 4, 8, 24, 28, 34, 40, 61, 82, Tel: KIngswood 3-5311, ▲13

Franke Gear Works, Inc., 4401 Ravenswood, Chicago 40, Ill., 77, Tel: LOngbeach 1-0950, Yr: 1936, Emp: 50

Frankel & Associates (S.), 1165 Saxon Way, Menlo Park, Calif., 95, Tel: 415-DAvenport 6-9166, Yr: 1960, Emp: 2, ▲1, $22,000

Franklin Co., Inc. (Bernard), 4045 Torresdale Ave., Philadelphia 24, Pa., 90, Tel: JEfferson 3-4500

Franklin Electronics, Inc., E. Fourth St., Bridgeport, Pa., 40, Tel: BR 2-4800, Yr: 1951, Emp: 85, ▲1

Franklin Engineering Design Co., 977 Commercial St., Palo Alto, Calif., 44, 60, 69, 74, 84, 91, 95, 96, 109, Tel: DAvenport 1-1702, Yr: 1957, Emp: 8, ▲1, $50,000

Franklin Fibre-Lamitex Corp., 18th & Market Sts., Wilmington 99, Del., 81, 90, 92, 94, 96, 97, 100, 103, 107, 109, 112, Tel: 302-OLympia 8-5269, Yr: 1921, $500,000

Franklin Systems, Inc., 2734 Hillsboro Rd., P.O. Box 3250, West Palm Beach, Fla., 11, 17, 22, 30, 40, 43, 50, 69, 90, 95, 96, 109, Tel: 305-TEmple 3-4602, Yr: 1957, Emp: 30, ▲6, $350,000

See ad in class 22

Frazier, Inc., 2649 Brenner Dr., Dallas 20, Texas, 30, 79, Tel: FLeetwood 1-6497, Yr: 1945, Emp: 25

Frebank Co., 711 W. Broadway, Glendale 4, Calif., 80, Tel: 213-CHapman 5-6558, Yr: 1950, Emp: 50, $25,000

Frederick Research Corp., 2601 University Blvd. W., Wheaton, Md., 95, 108, 109, Tel: 301-LOckwood 5-3873, Yr: 1951, Emp: 60, ▲7

Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 4, 6, 11, 12, 40, 41, 43, 48, 51, 53, 59, 69, 77, 84, Tel: 212-EVergreen 6-1300, Yr: 1929, Emp: 375, ▲6

See ad in class 84

Freeland Products Co., 706 Dryades St., New Orleans 12, La., 109, Tel: 504-522-6381, ▲1

Freeman Co., 8th & Walnut Sts., Yankton, S.D., 44, Tel: NOrth 5-2829, Yr: 1937, Emp: 65

Freeway Washer & Stamping Co., 4911 Grant Ave., Cleveland 5, Ohio, 97, 105, Tel: 216-BRoadway 1-6262, Yr: 1944, Emp: 160

Frenchtown Porcelain Co., Frenchtown, N.J., 55, 75, 81, 86, 92, 101, 109, Tel: 201-996-2121, Yr: 1914, Emp: 200, ▲3

Frequency Standards, Div. of Harvard Industries, Inc., P.O. Box 504, Asbury Park, N.J., 19, 21, 31, 37, 38, 40, 43, 44, 45, 59, 66, 88, 96, Tel: PRospect 4-0500, Yr: 1948, Emp: 225, ▲7, $1,500,000

Fried Engineering (Walter), Crescent Beach Dr., Huntington, L.I., N.Y., 4, 95, 109, Tel: 516-HAmilton 7-4300

Friend, Dr. A. W., 5903 City Ave., Philadelphia 31, Pa., 95, Tel: 215-TEnnyson 9-3098

See ad in class 95

Friend Engineering (Albert W.), P.O. Box 29, Bala-Cynwyd, Pa., 31, 34, 43, 50, 51, 53, 57, 59, 69, 72, 84, 96, 99, 108, 109, Tel: 215-MOhawk 4-0275, Yr: 1953, Emp: 5, ▲1, $40,000

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 1, 2, 4, 8, 9, 10, 11, 31, 33, 34, 35, 37, 38, 39, 40, 41, 43, 50, 53, 56, 57, 61, 63, 66, 69, 73, 80, 95, 96, 109, Tel: 216-SHadyside 9-0700, Yr: 1950, Emp: 200, ▲30, $1,000,000

See ad in class 50

Fryling Mfg. Co., 531 W. 11th St., Erie 6, Pa., 80, 96, 97, Tel: GLendale 2-3707, Yr: 1929, ▲20

Fugle-Miller Laboratories, Inc., 301 Central Ave., Clark, N.J., 43, 51, 59, 84, Tel: FUlton 1-2727, Yr: 1947, Emp: 44, ▲1, $450,000

Fuji Communication Apparatus Mfg. Co., Ltd. (Fuji Tsushinki Seizo K. K., Tokyo), c/o Nissho-American Corp., 80 Pine St., New York 5, N.Y., 7, 51, 88, Tel: 212-WHitehall 3-7840, ▲1

Fuller Brush Co., 88 Long Hill St., East Hartford 8, Conn., 99, Tel: 203-BUtler 9-6811

Funfstuck, Horst, 7521 Paso Robles Ave., Van Nuys, Calif., 109, Tel: 213-DIckens 2-4945

Furane Plastics, Inc., 4516 Brazil St., Los Angeles 39, Calif., 94, 101, 107, Tel: 213-CHapman 5-1151, Yr: 1945, Emp: 85, ▲3

Furnas Electric Co., 1000 McKee St., Batavia, Ill., 4, 80, Tel: 312-TRemont 9-3410, Yr: 1932, Emp: 465

Furniture Craftsmen, 3596 Alpine Rd. N.W., Comstock Park, Mich., 90, Tel: EMpire 1-0203, Yr: 1955, Emp: 8

Furzehill Laboratories, Ltd., 57 Clarendon Rd., Watford, Hertfordshire, England, 12, 23, 35, 38, 40, Tel: WAtford 3-4686, Yr: 1924, Emp: 145, ▲1, $450,000

Fusite Corp., Dept. H-1, 6000 Fernview Ave., Cincinnati 12, Ohio, 81, Tel: 513-REdwood 1-2020, Yr: 1945, Emp: 200, ▲2

See ad on page 118

G

G C Electronics Co., Div. of Textron Electronics, Inc., 400 S. Wyman St., Rockford, Ill., 44, 48, 51, 74, 94, 97, 111, 112, Tel: 815-WOodland 8-9661, Emp: 500

G C Electronics Co., Electrocraft Components Div., 400 S. Wyman St., Rockford, Ill., 52, 62, Tel: 815-WOodland 8-9661, Yr: 1928, Emp: 500, ▲1

G-L Electronics Co., Inc., 300 Harvard Ave., Westville, N.J., 44, 55, Tel: GLenview 6-7300, Yr: 1956, Emp: 190, ▲6, $1,750,000

G-M Laboratories, Inc., 4300 N. Knox Ave., Chicago 41, Ill., 77, Tel: 312-PEnsacola 6-1800, Yr: 1925, Emp: 700, ▲3

GOE Engineering Co., 219 S. Mednik Ave., Los Angeles 22, Calif., 81, Tel: 213-ANgelus 1-2183, Yr: 1950, Emp: 12, ▲1

GP Engineering Services, 220 Church St., New York 13, N.Y., 96, 108, Tel: 212-BEekman 3-6333

GP Engineering Services, 4030 Chestnut St., Philadelphia 4, Pa., 13, 95, 108, Tel: 215-EVergreen 6-5245, Yr: 1960, Emp: 125, ▲3, $700,000

GPS Instrument Co., Inc., 180 Needham St., Newton 64, Mass., 8, 10, 35, Tel: DEcatur 2-8110, Yr: 1955, Emp: 38, ▲5, $350,000

G-V Controls, Inc., 101 Okner Pkwy., Livingston, N.J., 50, 73, 80, 82, Tel: 201-WYman 2-6200, Yr: 1949, Emp: 160, ▲4, $2,000,000

Gables Engineering, Inc., 247 Greco Ave., Coral Gables 34, Fla., 1, 27, 30, 43, Tel: HIghland 5-3785, Yr: 1946, Emp: 43, ▲3, $2,300,000

Gabriel Co., Gabriel Electronics Div., Main & Pleasant Sts., Millis, Mass., 44, 66, Tel: FRontier 6-2953, Yr: 1942, Emp: 150, ▲15, $1,800,000

Gahagan, Inc., Waterman Ave., Esmond, R.I., 76, Tel: 401-CEnterdale 1-4000, Emp: 400

Galaxy Engineering Co., 10623 Burbank Blvd., North Hollywood, Calif., 97, Tel: VI 9-1494, Yr: 1956, Emp: 18, $156,000

Galbraith-Pilot Marine Corp., Div. of Marine Electric Corp., 600 Fourth Ave., Brooklyn 15, N.Y., 2, 4, 15, 30, 43, 51, 69, 79, 84, 90, 98, 99, Tel: SOuth 8-8300, Yr: 1942, Emp: 100, ▲2, $850,000

Gamewell Co., 1238 Chestnut St., Newton Upper Falls 64, Mass., 74, 80, Tel: 617-BIgelow 4-1240, Yr: 1855, Emp: 450, ▲8, $750,000

Gap Instrument Corp., S. Main St., Newtown, Conn., 67, 77, Tel: 203-GArden 6-2518, Yr: 1953, Emp: 15, $200,000

Gar Precision Parts, Inc., 190 Henry St., Stamford, Conn., 37, 44, 45, 59, 66, 84, Tel: 203-FIreside 8-2671, Yr: 1950, Emp: 75, $300,000

Garde Mfg. Co., 53 John St., Cumberland, R.I., 52, 75, 81, 96, 106, 109, Tel: PAwtucket 6-4200, Yr: 1946, Emp: 62, $600,000

Gardiner Electronics Co., 2545 E. Indian School Rd., Phoenix, Ariz., 5, 22, 80, Tel: CRestwood 4-9681

Gardner-Denver Co., Front St., Quincy, Ill., 99, 111, Tel: 217-BAldwin 2-5400, Yr: 1859, Emp: 4000, $5,000,000

Gardner-Denver Co., Wire-Wrap Div., 1333 Fulton St., Grand Haven, Mich., 111, Tel: 616-842-0200, Yr: 1859, Emp: 5000, $3,000,000

Garlock, Inc., Garlock Electronic Products, 600 N. Tenth St., Camden 1, N.J., 50, 62, 66, 78, 81, 97, 101, 105, 106, 107, 112, Tel: WOodlawn 4-2212, ▲1

Garrett Co., Inc. (George K.), Torresdale Ave. at Tolbut St., Philadelphia 36, Pa., 93, 97, Tel: DEvonshire 2-6000

Garrett Corp., AiResearch Mfg. Co., 9851 Sepulveda Blvd., Los Angeles 45, Calif., 2, 4, 8, 18, 36, 43, 47, 54, 58, 59, 67, 77, 90, 99, Tel: ORchard 0-0131, Yr: 1936, ▲10

Gates & Co., Inc. (George W.), Hempstead Tpke. & Lucille Ave., Franklin Square, L.I., N.Y., 5, 14, Tel: 516-FIeldstone 7-0787, Yr: 1919, Emp: 17

Gates Electronic Co., 2243 White Plains Rd., New York 67, N.Y., 41, 48, 51, 53, 69, 71, 84, Tel: 212-TUlip 1-5900, Yr: 1955, ▲5

See ad in class 69

Gates Radio Co., 123 Hampshire, Quincy, Ill., 21, 24, 27, 29, 30, 32, 33, 42, 43, 44, 51, 52, 59, 68, 70, 79, Tel: BA 2-8202, Yr: 1922, Emp: 425, ▲15

Gavitt Wire & Cable Co., Div. of Amerace Corp., Central St., Brookfield, Mass., 50, 91, Tel: VOlunteer 7-6476, Yr: 1923, Emp: 185, ▲1, $2,000,000

Gaylord-Rives Co., 181 N. Hill St., Pasadena, Calif., 4, 47, 67, Tel: 213-MUrray 1-3189, Yr: 1954, Emp: 12, ▲1, $100,000

Gear Specialties, Inc., 2635 W. Medill Ave., Chicago 47, Ill., 77, Tel: DIckens 2-3200, Yr: 1915, Emp: 275, ▲2, $100,000

Geartronics Corp., Actuator Products Div., 14 Nashua St., Woburn, Mass., 40, 77, 96, 97, Tel: 617-WEIls 3-1400, Yr: 1956, Emp: 50, $25,000

Geartronics Corp., Massachusetts Gear Div., 106 Nashua St., Woburn, Mass., 77, Tel: 617-WEIls 3-1400, Yr: 1922, Emp: 125

Geisler Laboratories, P.O. Box 353, Woodland Hills, Calif., 86, Tel: 213-DIamond 8-8571, Yr: 1954, Emp: 10, ▲2

Gelman Instrument Co., 106 N. Main St., Chelsea, Mich., 11, 22, 40, 41, 61, Tel: 313-GReenwood 9-4821, Yr: 1957, Emp: 25, $300,000

See ad in classes 22, 40

Gemco Electric Co., 25685 W. Eight-Mile Rd., Detroit 40, Mich., 4, 40, 43, 50, 51, 61, 69, 72, 77, 80, 81, 83, Tel: KEnwood 3-0700, Yr: 1945, Emp: 35, ▲4

Gemex Precision Metals, Inc., 1200 Commerce Ave., Union, N.J., 81, 89, 96, 97, 99, 105, 109, Tel: 201-MUrdock 6-4100

General Aniline & Film Corp., Ansco Div., Vestal Pkwy. E., Binghamton, N.Y., 2, 4, 14, 17, 18, 19, 22, 23, 28, 37, 40, 43, 45, 59, 66, 77, 80, 83, 96, 107, 109, Tel: 607-RAymond 9-6555, Yr: 1842, Emp: 8000, ▲2, $1,500,000

General Antronics Corp., 11930 W. Jefferson Blvd., Culver City, Calif., 1, 26, Tel: EXmont 1-6955, Yr: 1957, Emp: 10

General Applied Science Laboratories, Inc., Merrick & Stewart Aves., Westbury, L.I., N.Y., 8, 9, 10, 11, 35, 36, 43, 50, 77, Tel: 516-EDgewood 3-6960, Yr: 1956, Emp: 170, ▲10, $1,000,000

See ad in class 35

General Atronics Corp., 1 Bala Ave., Bala Cynwyd, Pa., 13, 25, 34, 35, 38, 95, 96, 109, Tel: 215-GReenwood 7-1860, Yr: 1955, Emp: 87, ▲20, $1,013,368

General Automatic Corp., 111 33rd St., Union City, N.J., 73, Tel: UNion 4-1867

General Automatics, Inc., 331 Alma St., Palo Alto, Calif., 2, 4, 8, 9, 16, 18, 77, 95, 96, 99, Tel: DAvenport 1-8727, Yr: 1953, Emp: 13, ▲2, $75,000

General Battery & Ceramic Corp., P.O. Box 1262, Reading, Pa., 46, 92, Tel: 215-WAlker 9-0771, Yr: 1921, Emp: 700

General Bronze Corp., G B Electronics Div., 711 Stewart Ave., Garden City, L.I., N.Y., 2, 4, 44, 59, 66, 77, 90, 96, Tel: PIoneer 1-4400, ▲5

General Cable Corp., 730 Third Ave., New York 17, N.Y., 91, Tel: 212-YUkon 6-3800, ▲3, $165,000,000

General Cable Corp., Cornish Wire Co. (Div.), 50 Church St., New York 7, N.Y., 91, Tel: 212-BArclay 7-5140, Yr: 1919, Emp: 550, ▲3

General Ceramics, Div. of Indiana General Corp., Crows Mill Rd., Keasbey, N.J., 4, 10, 44, 50, 55, 75, 81, 92, 97, 101, 104, Tel: 201-VAlley 6-5100, Yr: 1906, Emp: 500, ▲12

See ad in class 64

General Circuits, Inc., 1645 Saint Paul St., Rochester 21, N.Y., 43, 50, 52, 74, 78, 96, 107, 109, Tel: COngress 6-1120, Yr: 1940, Emp: 123, ▲2, $2,000,000

General Coil Products Corp., 147-12 Liberty Ave., Jamaica 35, N.Y., 2, 18, 44, 51, 52, 65, 79, 84, Tel: AXtel 1-8300, Yr: 1953, Emp: 55, $452,000

General Communication Co., 677 Beacon St., Boston 15, Mass., 1, 2, 35, 37, 43, 44, 45, 50, 59, 66, 69, 73, 80, Tel: 617-COpley 7-6030, Yr: 1937, Emp: 172, ▲16, $1,500,000

See ads in class 37

General Communications Broadcast Division, Inc., P.O. Box 169, Fort Atkinson, Wis., 43, 69, 80, 90, Tel: JOrdan 3-5547, Emp: 45

General Components, Inc., 225 E. 144th St., New York 51, N.Y., 96, 97, Tel: MOtthaven 5-0740

General Computers, Inc., 9000 W. Pico Blvd., Los Angeles 35, Calif., 4, 8, 9, 43, 50, Tel: 213-BRadshaw 2-6010, Yr: 1957

General Control Co., 1200 Soldiers Field Rd., Boston 34, Mass., 80, Tel: STadium 2-7440, Yr: 1934, Emp: 39

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

General Controls Co., 801 Allen Ave., Glendale 1, Calif., 4, 11, 17, 67, 74, 80, 82, Tel: VIctoria 9-2181, Yr: 1930, Emp: 3000

General Controls Co., PIC Automation Controls Div., 8080 McCormick Blvd., Skokie, Ill., 4, 11, 80, Tel: ORchard 3-8900

General Crystal Co., Inc., 372 Wilmot Ave., Burlington, Wis., 44, 56, Tel: 414-ROckwell 3-2425, Yr: 1953, Emp: 25

General Devices, Inc., P.O. Box 253, Princeton, N.J., 2, 4, 5, 9, 11, 34, 43, 50, 53, 73, 80, Tel: 609-WAlnut 4-2500, Yr: 1953, Emp: 200, ▲12, $1,700,000

See ad adjacent to Index to Advertisers, back of book

General Dynamics Corp., Convair Div. (Convair/Pomona), P.O. Box 1011, Pomona, Calif., 2, 21, 41, 96, 109, Tel: 714-NAtional 9-5111, Yr: 1951, Emp: 6300, ▲740

General Dynamics Corp., Electric Boat Div., Groton, Conn., 36, ▲18

General Dynamics/Electronics (Stromberg-Carlson), 100 Carlson Rd., Rochester 3, N.Y., 1, 2, 4, 7, 8, 9, 10, 13, 15, 17, 18, 19, 20, 22, 24, 25, 26, 28, 29, 30, 33, 34, 35, 36, 37, 38, 40, 43, 44, 50, 51, 53, 59, 62, 65, 68, 69, 73, 77, 79, 81, 83, 84, 86, 88, 93, 109, Tel: 716-HUbbard 2-2200, Yr: 1894, Emp: 11,000, ▲350

General Dynamics/Electronics, Information Technology Div., 1895 Hancock St., San Diego 12, Calif., 2, 8, 9, 10, 15, 37, 40, 43, 50, 63, 69, 86, 96, 103, Tel: 714-CYpress 8-8331, Yr: 1955, Emp: 600, ▲50

General Dynamics Corp., Liquid Carbonic Div., 135 S. LaSalle St., Chicago 3, Ill., 94, Tel: 312-FInancial 6-8181, Yr: 1888, Emp: 450

General Electric Co., 6901 Elmwood Ave., Philadelphia 42, Pa., 2, 53, 60, 69, 73, Tel: 215-SAratoga 4-1500, ▲106

General Electric Co., Apparatus Sales Dept., 1 River Rd., Schenectady 5, N.Y., 4, 7, 8, 9, 17, 28, 34, 37, 40, 43, 48, 51, 53, 61, 67, 69, 72, 73, 74, 80, 81, 84, 98, 111, Tel: 518-FRanklin 4-2211, Yr: 1892, Emp: 260,000, ▲2100, $4,200,000,000

General Electric Co., Capacitor Dept., John St., Hudson Falls, N.Y., 48, Tel: 518-RH 7-3341, Yr: 1878, Emp: 1000, ▲5

General Electric Co., Cathode Ray Tube Dept., Electronics Park, Bldg. 6, Syracuse, N.Y., 85, 86, Tel: 315-GRanite 6-4411, ▲5

General Electric Co., Chemical Materials Dept., 1 Plastics Ave., Pittsfield, Mass., 94, 101, 107, Tel: HIllcrest 8-8223, ▲9

General Electric Co., Clock & Timer Dept., Homer Ave., Ashland, Mass., 61, 67, Tel: TRinity 2-4331

General Electric Co., Communication Products Dept., Mountain View Rd., Lynchburg, Va., 4, 7, 18, 19, 20, 24, 26, 33, 43, Tel: VIctor 6-7311, Emp: 2500, ▲72

General Electric Co., Communication Products Dept. (Technical Products Operation), Bldg. 7, Electronics Park, Syracuse, N.Y., 2, 9, 19, 24, 26, 27, 29, 32, 39, 42, 43, 44, 62, 69, Tel: 315-GRanite 6-4411, Emp: 700

General Electric Co., Computer Dept., 13430 N. Black Canyon Hwy., Phoenix, Ariz., 8, 109, Tel: WIndsor 3-2351, Yr: 1957, Emp: 1800, ▲77, $10,000,000

General Electric Co., Defense Systems Dept., 300 S. Geddes St., Syracuse, N.Y., 1, 2, Tel: 315-GRanite 6-4411, Yr: 1958, Emp: 2600, ▲225

General Electric Co., Direct Energy Conversion Project, 950 Western Ave., Lynn 3, Mass., 58, Tel: 617-LYnn 8-6000, Yr: 1953, Emp: 2200, ▲4

See ad in class 58

General Electric Co., Electronic Specialty Capacitor Products Sect., Irmo, S.C., 48, Tel: 803-ALpine 2-6332, Yr: 1956, Emp: 800, ▲8

General Electric Co., Heavy Military Electronics Dept., Bldg. 3, Room 1-A, C.S.P., Syracuse, N.Y., 44, 57, 66, 83, Tel: 315-GRanite 6-4411, Yr: 1953, Emp: 8000, ▲106

General Electric Co., High Voltage Specialty Transformer Sect., 60 Jackson St., Holyoke, Mass., 41, 69, 71, 84, Tel: JEfferson 2-3221, ▲1

General Electric Co., Instrument Dept., 40 Federal St., Lynn, Mass., 2, 4, 9, 28, 34, 37, 40, 41, 61, 83, 97, Tel: 617-LYnn 3-3400, ▲9

See ad in class 61

General Electric Co., Laminated Products Dept., Coshocton, Ohio, 107, 112, Tel: 614-MAin 2-5310, Emp: 700, ▲5

General Electric Co., Lamp Metals & Components Dept., 21800 Tungsten Rd., Cleveland 17, Ohio, 91, 94, 96, 104, 105, 110, Tel: KEnmore 1-5050, ▲14

General Electric Co., Light Military Electronics Dept., French Rd., Utica, N.Y., 1, 2, 4, 8, 17, 25, Tel: 315-SWift 7-1000, Yr: 1953, Emp: 7000, ▲224

General Electric Co., Magnetic Materials Section, 7844 N. Neff Rd., Edmore, Mich., 64, 72, 74, HAmilton 7-5151, ▲4

General Electric Co., Miniature Lamp Dept., Nela Park, Cleveland 12 Ohio, 63, Tel: GL 1-6600, ▲1

General Electric Co., Missile & Space Vehicle Dept., 3198 Chestnut St., Philadelphia 1, Pa., 1, Tel: 215-LOcust 8-8000

General Electric Co., Ordnance Dept., 100 Plastics Ave., Pittsfield, Mass., 2, 44, Tel: HIllcrest 3-3561, Yr: 1941, Emp: 4500, ▲89

General Electric Co., Power Tube Dept., Schenectady 5, N.Y., 59, 66, 86, 87, Tel: 518-FRanklin 4-2211, Yr: 1899

General Electric Co., Precision Parts Sect., Springfield, N.J., 105, Tel: DRexel 6-2600, Yr: 1929, Emp: 200, $40,000,000

General Electric Co., Receiving Tube Dept., 316 E. Ninth St., Owensboro, Ky., 86, 87, 105, Tel: 502-MUrray 3-2401, Yr: 1896, Emp: 6500, ▲80

General Electric Co., Rectifier Components Dept., W. Genesee St., Auburn, N.Y., 71, Tel: 315-AL 3-7321, Yr: 1960, ▲10

General Electric Co., Semiconductor Products Dept., Electronics Park, Syracuse, N.Y., 76, Tel: 315-GRanite 6-4411

General Electric Co., Silicone Products Dept., Waterford, N.Y., 94, 101, 103, Tel: ADams 8-3330

General Electric Co., Specialty Control Dept., Waynesboro, Va., 4, 41, 53, 69, 72, 73, Tel: WHitehall 2-8161, ▲12

General Electric Co., Voltage Regulator Products Section, 100 Woodlawn Ave., Pittsfield, Mass., 72, Tel: 413-HIllcrest 3-3511, ▲9

See ads in classes 4, 69, 72, 84

General Electric Co., Wiring Device Dept., 95 Hathaway St., Providence 7, R.I., 80, Tel: STuart 1-1800

General Electric Co., X-Ray Dept., 4855 Electric Ave., Milwaukee 1, Wis., 5, 14, 22, 40, 86, Tel: 414-EVergreen 3-3211, Yr: 1895, Emp: 2500, ▲20

General Electric Co. Ltd. of England, Telecommunications Group, Coventry, Warwickshire, England, 4, 7, 10, 18, 19, 21, 29, 33, 34, 36, 43, 53, 69, Tel: COventry 5-2152, Yr: 1886, Emp: 70,000

General-Electro Mechanical Corp., 785 Hertel Ave., Buffalo 7, N.Y., 40, 77, 111, Tel: 716-TR 6-9685, Yr: 1934, Emp: 90, ▲2, $500,000

General Electrodynamics Corp., 4430 Forest Lane, Garland, Texas, 86, 98, Tel: BRoadway 6-1161, Yr: 1955, Emp: 85, ▲4

General Findings, Inc., Industrial Div., Leach & Garner Bldg., Attleboro, Mass., 52, 80, 96, 97, 105, 109, 110, Tel: CAstle 2-1156, Yr: 1914, Emp: 200

General Gaskets, Inc., Middletown, Conn., 96, 97, 101, 107, Tel: DIamond 6-6203, Yr: 1955, Emp: 10

General Hardware Mfg. Co., Inc., 80 White St., New York 13, N.Y., 64, 111, Tel: BArclay 7-2648, Yr: 1927, Emp: 50

General Hermetic Sealing Corp., Subsid. of Electrospace Corp., 99 E. Hawthorne Ave., Valley Stream, L.I., N.Y., 2, 4, 6, 17, 18, 30, 35, 38, 40, 41, 43, 52, 59, 69, 75, 80, 81, 82, 91, 96, 97, 109, Tel: 516-VAlley Stream 5-6363, Yr: 1951, Emp: 50, ▲2

General Industries Co., Olive & Taylor Sts., Elyria, Ohio, 67, Tel: 216-FAirfax 3-3136, Yr: 1903, Emp: 1100, ▲1

General Instrument Corp., Automatic Mfg. Div., 65 Gouverneur St., Newark 4, N.J., 51, 84, Tel: 201-HUmboldt 5-2100, ▲21

General Instrument Corp., Capacitor Div. (Pyramid Electric Co.), Orange St., Darlington, S.C., 41, 48, Tel: 803-EXpress 3-3821, Yr: 1944, Emp: 710, ▲1, $7,400,000

General Instrument Corp., Defense & Engineering Products Group, Andrews Rd., Hicksville, L.I., N.Y., 1, 2, 4, 6, 7, 8, 12, 17, 18, 19, 20, 21, 24, 25, 26, 27, 29, 33, 34, 42, 43, 44, 45, 48, 49, 50, 51, 53, 54, 55, 56, 57, 58, 59, 60, 65, 66, 69, 70, 71, 72, 73, 76, 80, 83, 84, 88, 91, 92, 94, 99, 101, 102, Tel: 516-OVerbrook 1-4300, Yr: 1923, Emp: 7000, ▲750, $72,000,000

General Instrument Corp., Elcon, Inc. (Subsid.), Patterson Place, Roosevelt Field, Garden City, L.I., N.Y., 48, Tel: 516-PIoneer 1-4200, Yr: 1952, Emp: 60, ▲8, $300,000

General Instrument Corp., Harris ASW Div., Woodbury, Conn., 6, 18, 36, 40, 43, 83, 94, 95, 109, Tel: 203-COngress 3-2116, Yr: 1951, Emp: 108, ▲4

General Instrument Corp., Magne-Head Div., 3216 W. El Segundo Blvd., Hawthorne, Calif., 9, 10, 27, 70, Tel: SPring 2-2351, Yr: 1956, Emp: 150, ▲10

General Instrument Corp., Micamold Div., 65 Gouverneur St., Newark 4, N.J., 48, 57, 59, Tel: 201-HUmboldt 5-2100, ▲22

General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), 240 Wythe Ave., Brooklyn 11, N.Y., 71, Tel: 212-EVergreen 8-6000, Yr: 1922, Emp: 182, ▲10

General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), Andrews Rd., Hicksville, L.I., N.Y., 1, 2, 4, 7, 8, 9, 18, 19, 20, 21, 24, 25, 26, 29, 33, 34, 42, 66, 69, 71, 88, Tel: 516-OVerbrook 1-4300, Yr: 1922, Emp: 1000, ▲200, $18,000,000

General Instrument Corp., Semiconductor Div., 65 Gouverneur St., Newark 4, N.J., 50, 71, 73, 74, 76, 80, Tel: 201-HUmboldt 5-2100, Yr: 1923, Emp: 2200, ▲21

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General Instrument Corp., F. W. Sickles Div., 165 Front St., P.O. Box 330, Chicopee, Mass., 43, 49, 51, 57, 59, 84, 88, 95, Tel: 413-LYceum 4-4781, Yr: 1921, Emp: 1900, ▲7

See ad in class 57

General Instrument Corp., Systematics Div., 3216 W. El Segundo Blvd., Hawthorne, Calif., 9, 33, Tel: SPring 2-2351, Yr: 1955, Emp: 200, ▲4

General Insulated Wire Works, 69 Gordon Ave., Providence 5, R.I., 91, Tel: 401-HOpkins 1-2100, Yr: 1940, Emp: 375

General Kinetics, Inc., 2611 Shirlington Rd., Arlington 6, Va., 9, 10, 27, 35, 40, 41, 70, 99, 109, Tel: 703-JAckson 5-4055, Yr: 1955, ▲3, $200,000

General Laboratory Associates, Inc., 17 E. Railroad St., Norwich, N.Y., 48, 59, 91, Tel: 212-334-3264, Yr: 1947, Emp: 350, ▲2

General Magnetic Corp., 10001 Erwin Ave., Detroit 34, Mich., 55, 64, 92, Tel: 313-921-7558, Yr: 1940, Emp: 175, ▲8, $2,000,000

General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 4, 21, 29, 30, 41, 43, 44, 45, 50, 51, 53, 59, 69, 84, Tel: 612-WEst 9-8571, Yr: 1959, Emp: 43, ▲6, $812,000

See ad in class 43

General Magnetics, Inc., 135 Bloomfield Ave., Bloomfield, N.J., 10, 34, 43, 53, 69, Tel: 201-PIlgrim 8-2400, Yr: 1950, ▲1

See ad on pages 42-43

General Mfg. Co., 724 Ruberta Ave., Glendale 1, Calif., 81, 97, Tel: CItrus 3-2069, Yr: 1946

General Metal Products Co., 1010-14 Centre St., Easton, Pa., 90, 93, 96, Tel: BLackburn 8-0801, Yr: 1944, Emp: 50, ▲2, $250,000

General Metals, Inc., 858 Goldsboro St., Greensboro, N.C., 90, 96, Tel: BRoadway 4-5451, Yr: 1948, Emp: 125, $10,000

General Meters, Inc., P.O. Box 1701, Grand Junction, Colo., 2, 40, 41, 43, 61, 69, 84, 90, 95, 96, 109, Tel: 303-CHapel 3-0954, Yr: 1955, Emp: 60, ▲1, $275,000

General Microwave Corp., 3770 Windsor Dr., Bethpage, L.I., N.Y., 1, 2, 6, 19, 21, 25, 26, 34, 37, 38, 39, 43, 44, 45, 56, 59, 66, 69, 84, 88, Tel: 516-MYrtle 4-3434, Yr: 1961, Emp: 20, ▲5, $500,000

General Mills Electronics Group, 2003 E. Hennepin Ave., Minneapolis 13, Minn., Tel: 612-FEderal 2-7481, ▲70

General Mills, Inc., 1620 Central Ave., Minneapolis 13, Minn., 2, 4, 8, 9, 10, 16, 19, 25, 26, 37, 44, 77, 96, Tel: STerling 9-8811, Yr: 1928, Emp: 15,000, ▲50

General Mills, Inc., Magnaflux Subsid., 7328 W. Lawrence Ave., Chicago 31, Ill., 4, 40, 41, 94, 99, 109, Tel: UNderhill 7-8000, Yr: 1929, Emp: 420, $500,000

General Motors Corp., AC Spark Plug Div., Milwaukee 2, Wis., 1, 2, 8, 17, Tel: 414-SOuth 2-7000, Yr: 1910, Emp: 7500, ▲250

General Motors Corp., Delco Radio Div., 700 E. Firmin, Kokomo, Ind., 4, 8, 10, 26, 29, 50, 51, 53, 69, 71, 76, 77, 79, 84, 88, Tel: 317-GLadstone 2-8211, Yr: 1936, Emp: 5000, ▲55

General Motors Corp., Detroit Diesel Engine Div., 13400 W. Outer Dr., Detroit 28, Mich., 69, Tel: 616-KEnwood 1-7100, Yr: 1937, Emp: 3500

General Motors Corp., New Departure Div., 269 N. Main St., Bristol, Conn., 97, Tel: 203-LUdlow 2-6371, Yr: 1889, Emp: 7000, ▲2

General Motors Corp., Packard Electric Div., 305 Dana N.E., Warren, Ohio, 52, 81, 91, 106, Tel: 216-EXpress 3-2501, Yr: 1890, Emp: 5000

General Motors Corp., Research Laboratories, Warren, Mich., ▲15

General Nuclear Corp., 550 Fifth Ave., New York 27, N.Y., 11, 17, 22, 28, 69, 71, 99, Tel: 212-PLaza 7-3638, Yr: 1954, Emp: 32, ▲1, $625,000

General Plastics Corp., 55 LaFrance Ave., Bloomfield, N.J., 43, 50, 91, 94, 96, 101, 107, 109, 112, Tel: PIlgrim 8-5500, Yr: 1950, Emp: 50

General Precision Equipment Corp., GPE Controls, Inc. (Subsid.), 240 E. Ontario St., Chicago 11, Ill., 4, 8, 40, 41, 61, Tel: WHitehall 4-3700, Yr: 1930, Emp: 400, ▲2

General Precision Equipment Corp., Kearfott Semiconductor Corp. (Subsid.), 437 Cherry St., West Newton 65, Mass., 8, 10, 11, 41, 50, 56, 69, 76, 77, 95, 102, 109, Tel: 617-WOodward 9-9026, Yr: 1960, Emp: 80, ▲5

General Precision Equipment Corp., Strong Electric Corp. (Subsid.), 87 City Park Ave., Toledo 1, Ohio, 17, 32, 36, 84, Tel: CHerry 8-3741, Yr: 1926, Emp: 130

General Precision, Inc., Subsid. of General Precision Equipment Corp., 50 Prospect Ave., Tarrytown, N.Y., 1, 2, 4, 5, 8, 9, 10, 11, 13, 14, 17, 26, 27, 28, 32, 33, 34, 35, 40, 41, 43, 44, 50, 53, 55, 56, 57, 61, 64, 66, 67, 71, 76, 77, 83, 92, 96, 97, 99, Tel: 914-MEdford 1-6200, Yr: 1936, Emp: 17,100, $244,000,000

General Precision, Inc., GPL Div., 63 Bedford Rd., Pleasantville, N.Y., 2, 5, 8, 13, 21, 25, 26, 27, 32, 42, 44, Tel: 914-ROgers 9-5000, Yr: 1945, Emp: 2000, ▲200

General Precision, Inc., Kearfott Div., 14844 Oxnard St., Van Nuys, Calif., 1, 2, 19, 23, 37, 44, 45, 59, 66, 80, 84, 88, Tel: STate 6-1760, Yr: 1954, Emp: 200, ▲20, $2,500,000

General Precision, Inc., Kearfott Div., Little Falls, N.J., 2, 4, 8, 9, 10, 11, 37, 40, 41, 43, 44, 45, 47, 53, 55, 59, 61, 66, 67, 69, 76, 77, 83, 84, Tel: 201-CLifford 6-4000, Yr: 1917, Emp: 6700, ▲92

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

General Precision, Inc., Librascope Div., 808 Western Ave., Glendale, Calif., 2, 4, 8, 9, 10, 11, 13, 14, 17, 18, 43, 50, 53, 57, 63, 69, 77, 109, Tel: CItrus 4-6541, Yr: 1937, Emp: 3800, ▲95

General Precision, Inc., Link Div., Binghamton, N.Y., 4, 9, 40, 41, 43, 50, 77, 96, Tel: 607-RAymond 3-9311, Yr: 1929, Emp: 2600, ▲90

General Products Corp., 107 Salem St., Union Springs, N.Y., 48, 52, 81, 96, Tel: 315-TT 9-7367, Yr: 1930, Emp: 375, ▲2, $1,500,000

General RF Fittings, Inc., 702 Beacon St., Boston 15, Mass., 52, 66, 80, Tel: 617-KEnmore 6-2290, Yr: 1950, Emp: 40, ▲1

See ad in class 52

General Radio Co., 22 Baker Ave., West Concord, Mass., 6, 9, 11, 12, 21, 28, 31, 35, 36, 37, 38, 39, 40, 41, 43, 44, 45, 48, 49, 51, 52, 57, 59, 62, 65, 66, 69, 72, 74, 83, 84, 91, 97, 106, 111, Tel: 617-EMerson 9-4400, Yr: 1915, Emp: 875, ▲95

See ad on Cover 4

General Railway Signal Co., P.O. Box 600, Rochester 2, N.Y., 2, 4, 9, 21, 28, 34, 40, 63, 67, 71, 73, 84, 90, Yr: 1904, Emp: 2230, ▲15

General Resistance, Inc., 430 Southern Blvd., New York 55, N.Y., 12, 40, 41, 74, Tel: 212-CYpress 2-1500, Yr: 1956, Emp: 90, ▲5

See ad in class 74

General Telephone & Electronics Corp., 730 Third Ave., New York 17, N.Y., Tel: 212-MUrray Hill 7-3400, Yr: 1935, Emp: 90,000, ▲1200

General Television Network, 901 Livernois Ave., Ferndale 20, Mich., 21, 26, 32, 95, Tel: 313-LIncoln 8-2500, Yr: 1957, Emp: 150

General Testing Laboratories, 40-50 Commercial Ave., Moonachie, N.J., 96, 109, Tel: 201-WEbster 9-6933, Yr: 1955, Emp: 21, ▲3

General Thermoelectric Corp., P.O. Box 253, Princeton, N.J., 4, 13, 54, 58, 69, 83, 102, Tel: 609-DAvis 9-4545, Yr: 1960, Emp: 40, ▲3

See ad in class 54

General Time Corp., 355 Lexington Ave., New York 17, N.Y., 4, 10, 11, 34, 50, 51, 67, 77, Tel: 212-MUrray Hill 7-9292, ▲10

General Time Corp., Incremag Div., Progress Dr., Stamford, Conn., 4, 10, 11, 22, 109, Tel: 203-DAvis 5-2691, Yr: 1960, Emp: 30, ▲4, $250,000

General Vacuum Corp., 81 Hicks Ave., Medford 55, Mass., 4, 36, 69, 98, 99, Tel: 617-EXport 5-8100, Yr: 1957, Emp: 25, ▲2, $250,000

General Winding Co., Inc., 559 W. 35th St., New York 1, N.Y., 51, Tel: 212-BRyant 9-4440, Yr: 1922

Genisco, Inc., 2233 Federal Ave., Los Angeles 64, Calif., 2, 4, 9, 10, 21, 23, 31, 34, 35, 36, 37, 40, 41, 43, 50, 59, 61, 63, 67, 77, 80, 83, 99, Tel: 213-BRadshaw 2-2706, Yr: 1948, Emp: 260, ▲9, $2,500,000

Genistron, Inc., 6320 W. Arizona Circle, Los Angeles 45, Calif., 48, 51, 59, 82, Tel: ORegon 8-9094, Yr: 1958, Emp: 125, ▲10, $790,000

Geophysical Instrument Co., Inc., 315 Tudor Lane, Manassas, Va., 16, Tel: EMpire 8-3434

Georator Corp., 314 Tudor Lane, Manassas, Va., 53, 67, 69, Tel: EMpire 8-2101

George Products Co., Inc., 104 Dorsa Ave., Livingston, N.J., 105, Tel: WYman 2-2642, Yr: 1951, Emp: 6

Geoscience Instruments Corp., 142 Maiden Lane, New York 38, N.Y., 56, 92, 94, 99, 100, 102, 109, Tel: 212-HA 5-6135, Yr: 1959, Emp: 14, ▲1, $50,000

Geotechnical Corp., 3401 Shiloh Rd., Garland, Texas, 9, 10, 14, 16, 22, 23, 28, 31, 34, 35, 36, 40, 43, 53, 83, 109, Tel: BR 8-8102, Yr: 1936, Emp: 350, ▲15

Geotronic Laboratories, Inc., 1314 Cedar Hill Ave., Dallas 8, Texas, 16, 31, 41, 43, 48, 51, 53, 57, 59, 64, 69, 83, 84, 96, Tel: WHitehall 6-9123, Yr: 1947, Emp: 50, ▲1

Gerber Scientific Instrument Co., 89 Spruce St., Hartford 1, Conn., 9, 28, 40, Tel: 203-BUtler 9-2731, Yr: 1948, Emp: 35

Gerst & Co. (Paul E.), 4868 N. Clark St., Chicago 40, Ill., 43, 53, 67, Tel: 312-LOngbeach 1-5897, Yr: 1940, Emp: 6, ▲1, $90,000

Gertsch Products, Inc., 3211 S. La Cienega Blvd., Los Angeles 16, Calif., 6, 9, 21, 31, 34, 35, 37, 38, 40, 43, 45, 59, 66, 84, Tel: 213-UPton 0-2761, Yr: 1949, Emp: 175, ▲4, $3,000,000

Getters Electronics, Inc., 3279 Grand Island Blvd., Grand Island, N.Y., 105, Tel: 716-RR 3-7553, Yr: 1957, Emp: 12, $600,000

Giannini Controls Corp., 1600 S. Mountain Ave., Duarte, Calif., 2, 4, 8, 21, 40, 67, 74, 77, 80, 83, 109, Tel: MUrray 1-2311, Yr: 1935, Emp: 1050, ▲20, $15,000,000

Giannini Controls Corp., Conrac Div., 19217 E. Foothill Blvd., Glendora, Calif., 21, 26, Tel: 213-EDgewood 5-0541, Yr: 1949, Emp: 100, ▲4, $1,600,000

Giannini Controls Corp. (Cramer Controls Corp.), Centerbrook, Conn., 4, 61, 67, 73, 80, Tel: 203-SOuth 7-8255, Yr: 1921, Emp: 330, $4,000,000

Gibbs Mfg. & Research Corp., 456 Main St., Janesville, Wis., 2, 4, 11, 15, 17, 31, 34, 41, 53, Tel: 608-PLeasant 4-4467, Yr: 1946, Emp: 247, ▲10, $1,790,000

Gibson Electric Co., Box 541, Delmont, Pa., 80, 104, 109, Tel: 412-HOward 8-7701, Yr: 1933, Emp: 150, ▲1, $2,250,000

Gilfillan Brothers, Inc., 1815 Venice Blvd., Los Angeles 6, Calif., 1, 2, 4, 8, 9, 21, 23, 25, 34, 37, 43, 44, 45, 51, 59, 61, 63, 66, 69, 80, 84, 88, 91, 93, 95, 96, 108, 109, Tel: 213-DUnkirk 1-3441, Yr: 1917, Emp: 2400, ▲55, $49,000,000

Gilford Instrument Laboratories, Inc., 132 Artino St., Oberlin, Ohio, 5, 40, 61, Tel: 775-1581, Yr: 1958, Emp: 17, ▲1, $200,000

Gillen Co. (John), Subsid. of Stanray Corp., 2540 S. 50th Ave., Cicero 50, Ill., 80, 81, 97, Tel: BIshop 2-1723, Yr: 1920

Gillies Co., Inc. (Duncan M.), 66 Central St., West Boylston, Mass., 99, Tel: 617-TEmple 5-4445, Yr: 1952, Emp: 14

Gilliland Instrument Co., Inc., 1448 29th Ave., Oakland 1, Calif., 2, 9, 34, 96, Tel: 415-KEllog 6-1118, Yr: 1950, Emp: 41, ▲2, $616,000

Gilmore Industries, Inc., 13015 Woodland Ave., Cleveland 20, Ohio, 4, 8, 9, 11, 28, 31, 40, 61, Tel: 216-RAndolph 1-6400, Yr: 1953, Emp: 70, ▲3, $1,560,000

Girard-Hopkins, 1000 40th Ave., Oakland 1, Calif., 48, Tel: KEllog 2-8477, Yr: 1930, Emp: 20, $500,000

Gjadny Corp. (Richard), 85 Shields Ave., Williston Park, L.I., N.Y., 4, 15, 24, 30, 33, 34, 96, Tel: 516-PIoneer 2-6218, Yr: 1958, Emp: 3, $20,000

Glaser-Steers Corp., 155 Oraton St., Newark 4, N.J., 68, Tel: 201-HUmboldt 4-6400, Yr: 1950, Emp: 350, ▲3

Glaskyd, Inc., Perrysburg, Ohio, 94, 107, Tel: 413-TRinity 4-7941, Yr: 1950, Emp: 40, $1,000,000

Glasply Corp., S. Sixth St., Verplanck, N.Y., 44, 90, 107, 112, Tel: 914-PEekskill 7-7666, Yr: 1952, Emp: 23, $250,000

Glass-Solder Engineering, 4232 Temple City Bldg., Rosemead, Calif., 52, 75, 81, Tel: CUmberland 3-7224, Yr: 1950, Emp: 200, $2,000,000

Glass-Tite Industries, Inc., 725 Branch Ave., Providence 4, R.I., 56, 75, 81, Tel: 401-TEmple 1-6800, Yr: 1956, Emp: 537, $3,637,453

Glasseal Products Co., Inc., 725 Commerce Rd., Linden, N.J., 52, 73, 75, 76, 81, 82, Tel: HUnter 6-2067, Yr: 1956, Emp: 90

Glastic Corp., 4321 Glenridge Rd., Cleveland 21, Ohio, 96, 97, 101, 107, Tel: 216-IVanhoe 6-0100

Gleason-Avery, Inc., 41 Aurelius Ave., Auburn, N.Y., 67, 96, 97, 99, 105, Tel: 315-AL 3-7396, Yr: 1933, Emp: 30

Glenair, Inc., 1211 Air Way, Glendale 1, Calif., 52, 78, 97, Tel: 213-CHapman 5-8587, Yr: 1959, Emp: 30, ▲2

Glentronics, Inc., 859 E. Alosta Ave., Glendora, Calif., 53, 69, Tel: 213-CUmberland 3-5930, Yr: 1957, Emp: 20, ▲1, $200,000

Globe Electrical Mfg. Co., 1729 W. 134th St., Gardena, Calif., 50, 73, 74, 80, 90, 96, 97, 106, Tel: FAculty 1-3311

Globe Industries, Inc., 1784 Stanley Ave., Dayton 4, Ohio, 2, 4, 10, 47, 61, 67, 77, Tel: BAldwin 2-3741, Yr: 1940, Emp: 600, $8,0000,000

Goat Electronics, Inc., 323 Dean St., Brooklyn 17, N.Y., 73, 80, Tel: ULster 2-2311, Yr: 1961, Emp: 40, ▲1

Godfrey Mfg. Co., 1633 N. Halsted St., Chicago 14, Ill., 4, 30, 43, 80, 96, Tel: MOhawk 4-3515, Yr: 1949, Emp: 2, ▲1

Godley Co. (Paul), P.O. Box 798, Upper Montclair, N.J., 95, Tel: PIlgrim 6-3000, ▲3

Golden Co., 1054 38th St., Brooklyn 19, N.Y., 90, 93, 96, Tel: 212-GEdney 6-2476, Yr: 1948, Emp: 25

Golding Mfg. Co., 90 Porete Ave., Kearney, N.J., 90, 93, Tel: MArket 3-0702, Yr: 1950, Emp: 25, ▲1, $300,000

Goldsman Co. (Al), 1328-34 N. 4th St., Philadelphia 22, Pa., 90, 96, 109, Tel: POplar 5-4468, Yr: 1907, Emp: 45, ▲2, $500,000

Gombos Co., Inc. (John), Webro Rd., Clifton, N.J., 37, 43, 44, 45, 59, 66, 88, Tel: PRescott 3-6633, Yr: 1945, Emp: 150, ▲6

Good Electronic Corp., P.O. Box 2406, West Palm Beach, Fla., 5, 43, 50, 61, 69, 77, 95, 96, 109, Tel: 305-VIctor 8-3241, Yr: 1932, Emp: 17, ▲1, $178,000

Goodfriend & Associates (Lewis S.), 1 The Crescent, Montclair, N.J., 95, Tel: 201-PIlgrim 4-1756, Yr: 1953, Emp: 2, ▲1

Goodman's Industries, Ltd., Axiom Works, Wembley, Middlesex, England, 35, 36, 38, 43, 45, 79, Tel: Wembley 1200, Yr: 1925, Emp: 400, $3,000,000

Goodrich Co. (B. F.), B. F. Goodrich Aviation Products Div., 500 S. Main St., Akron, Ohio, 18, 61, 97, Tel: 216-BLackstone 3-1171, Yr: 1870, Emp: 40,000, ▲3

Goodrich Industrial Products Co. (B. F.), 500 S. Main St., Akron 18, Ohio, 89, 96, 97, 107, 112, Tel: BLackstone 3-1171, Yr: 1870

Goodrich Sponge Products (B. F.), 239 Derby Pl., Shelton, Conn., 36, 45, 66, 103, 109, Tel: 203-REgent 5-4661

See ad in class 103

Goodyear Aircraft Corp., 1210 Massillon Rd., Akron 15, Ohio, 2, 8, 25, 33, 44, Tel: REpublic 3-6361, Yr: 1942, Emp: 8500, ▲164

Goodyear Aircraft Corp., Arizona Div., Litchfield Park, Ariz., 1, 2, 4, 7, 8, 9, 10, 14, 15, 16, 18, 19, 20, 24, 25, 27, 28, 29, 33, 34, 37, 43, 44, 96, 107, 108, 109, Tel: WEstport 5-9331, Yr: 1939, Emp: 1200, ▲35

Gordon Associates, Inc., 62 White St., Red Bank, N.J., 95, 108, 109, Tel: SHadyside 1-2743, Yr: 1950, Emp: 6, $50,000

Gordos Corp., 250 Glenwood Ave., Bloomfield, N.J., 80, 87, Tel: PIlgrim 3-6800, Yr: 1947, Emp: 60, ▲3, $612,653

Gore & Associates, Inc. (W. L.), 555 Paper Mill Rd., Newark, Del., 91, 94, Tel: ENdicott 8-9183, Yr: 1958, Emp: 50, ▲1

Gorham Electronics, Div. of Gorham Corp., 333 Adelaide Ave., Providence 7, R.I., 1, 18, 25, 38, 43, 44, 45, 59, 66, 88, Tel: WIlliams 1-1000, ▲6

Gorman Machine Corp., 480 S. Main St., Randolph, Mass., 51, 99, Tel: 617-WOodlawn 3-7333, Yr: 1948, Emp: 20, $300,000

See ad in class 99

Gorn Electric Co., Inc., Gorn Electronics Div., 845 Main St., Stamford, Conn., 52, 80, 81, Tel: 203-FIreside 8-7591, Yr: 1923, Emp: 125, ▲2

Gossland Engineering (John K.), 318 E. Calaveras St., Altadena, Calif., 95, 109, Tel: SYcamore 8-2829, Yr: 1954, Emp: 5, ▲1

Gotham Audio Corp., 2 W. 46th St., New York 36, N.Y., Importers, 27, 45, 65, 68, 70, 79, Tel: 212-COlumbus 5-4111, Yr: 1957, Emp: 8, ▲2, $600,000

Gould-National Batteries, Inc., E1201 First National Bank Bldg., Saint Paul 1, Minn., 46, Tel: 612-CApital 2-4171, Yr: 1895, Emp: 5000

Gould-National Batteries, Inc., Nicad Div., 172 Pleasant St., Easthampton, Mass., 46, Tel: Easthampton 1200, Yr: 1945, Emp: 145

Gow-Mac Instrument Co., 100 Kings Rd., Madison, N.J., 4, 40, 74, 83, Tel: 201-FRontier 7-3450, Yr: 1935, Emp: 25, $5,000

Grace Electronic Chemicals, Inc., 101 N. Charles St., Baltimore 1, Md., 102, Tel: 301-PLaza 2-7699, Yr: 1958, Emp: 75, ▲1

Graef Engineers, Inc., P.O. Box 426, Paramount, Calif., 95, 96, 97, 98, 99, 107, 109, 112, Tel: NEvada 6-9564, Yr: 1959, Emp: 5, $2,000

Graf-Tek, Inc., P.O. Box 1981, Camden 1, N.J., 95, 108, Tel: 201-OL 2-3664, Yr: 1959, Emp: 5, ▲1

Graham Research, Inc., 666 22nd Ave., N.E., Minneapolis 18, Minn., 41, Tel: 612-STerling 1-4829, Yr: 1950, Emp: 9, $15,000

Gramer Halldorson, 700 W. 7th, Mount Carmel, Ill., 51, 59, 72, 84, Tel: Mount Carmel 1200

Grand Coil Winders, 17382 Hayes St., Grand Haven, Mich., 3, 51, 84, Tel: 616-842-5830, Yr: 1955, Emp: 24, $250,000

Grand Tran, Inc., Paw Paw Ave., Benton Harbor, Mich., 51, 69, 84, Tel: 616-WAlnut 5-0380, Yr: 1959, Emp: 30, ▲1, $260,000

Grand Transformers, Inc., Beechtree & Marion Sts., Grand Haven, Mich., 51, 84, Tel: 616-842-5430, Yr: 1951, Emp: 75, ▲1, $650,000

Granger Associates, 974 Commercial St., Palo Alto, Calif., 1, 2, 19, 26, 38, 43, 44, 66, 69, 88, Tel: DAvenport 1-4175, Yr: 1956, Emp: 100, ▲20, $670,463

Granite State Machine Co., Inc., 124 Joliette St., Manchester, N.H., 43, 44, 66, 77, 88, Tel: NAtional 7-7804, Yr: 1938, Emp: 180, ▲3, $1,500,000

Grant Gear Works, Inc., 154 W. Second St., South Boston 27, Mass., 77, Tel: ANdrew 8-4403, Yr: 1877, Emp: 100, $500,000

Grant Pulley & Hardware Corp., High St., West Nyack, N.Y., 93, Tel: 914-ELmwood 8-4400, Yr: 1895, Emp: 300, $4,000,000

Graphic Controls Corp.: See Technical Sales Corp.

Graphic Systems, P.O. Box 267, Yanceyville, N.C., 109, Tel: OWen 4-4300, Yr: 1947, Emp: 25

Graphite Metallizing Corp., 1057 Nepperhan Ave., Yonkers, N.Y., 52, 53, 66, 80, 81, 97, Tel: 914-YOnkers 8-8400, Yr: 1913, Emp: 165

See ad in class 52

Grason-Stadler Co., Inc., West Concord, Mass., 5, 9, Tel: 617-EMerson 9-3787, Yr: 1949, Emp: 41, ▲1, $590,000

Gray Instrument Co., 448 Mill Rd., Andalusia, Pa., 6, 12, 31, 40, 74, Tel: HObart 4-2100, Yr: 1926, Emp: 21, $280,000

Gray Mfg. Co., 16 Arbor St., Hartford 1, Conn., 13, 27, 30, 32, 43, 68, 70, 83, 96, Tel: 203-ADams 3-1271, Yr: 1891, Emp: 700, ▲6, $8,000,000

Gray Radio Co., Inc., 501 Forest Hill Blvd., West Palm Beach, Fla., 18, Tel: JUstice 2-2201, Yr: 1937, Emp: 5, ▲1, $20,000

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Grayhill, Inc., 561 Hillgrove Ave., La Grange, Ill., 62, 78, 80, Tel: FLeetwood 4-1040, Yr: 1943, Emp: 110, ▲3

Great Eastern Mfg. Co., 163-165 Remsen Ave., Brooklyn 12, N.Y., 90, Tel: PResident 1-8400, Yr: 1950, Emp: 8

Great Eastern Metal Products Co., Div. of GEMP Mfg. Corp., 22 Woodworth Ave., Yonkers 2, N.Y., 90, 97, Tel: 914-GReenleaf 6-7300, Yr: 1896, Emp: 15, $165,000

See ad in class 97

Great Lakes Electric Mfg. Co., 17 S. DesPlaines St., Chicago 6, Ill., 53, 67, Tel: ANdover 3-3565, Yr: 1917, Emp: 12

Great Lakes Mfg. Corp., 4223 Monticello Blvd., Cleveland 21, Ohio, 2, 54, 80, 99, Tel: 216-EVergreen 2-5500, Yr: 1914, Emp: 105, $500,000

Green Instrument Co., Inc., Dept. 91, 295 Vassar St., Cambridge 39, Mass., 99, Tel: 617-ELiot 4-2989, Yr: 1946, Emp: 25

See ad in class 99

Green Instruments, Inc. (Henry J.), 2500 Shames Dr., Westbury, L.I., N.Y., 2, 41, 61, Tel: 516-EDgewood 3-5888, Yr: 1832, Emp: 20, ▲2, $10,000

Green Rectifier Co., 1-10 30th St., Fair Lawn, N.J., 2, 4, 17, 40, 41, 51, 53, 59, 61, 69, 71, 72, 84, 90, 93, 94, 96, 97, 99, 101, 109, Tel: SWarthmore 7-8100, Yr: 1954, Emp: 73, ▲3, $250,000

Greenberg, Earl, 11-16 154th St., Whitestone 57, N.Y., 95, 96, Tel: 212-HIckory 5-2459

See ad in class 95

Greene Electronics, Inc., 1844 Cranston St., Cranston 9, R.I., 50, 96, 97, 109, Tel: 401-WIlliams 2-3800, Yr: 1958, Emp: 15, $125,000

See ad in class 50

Greenfield Hermetic Components Corp., 184 Shelburne Rd., Greenfield, Mass., 75, Tel: PRescott 3-5494, Yr: 1960

Greenlee Tool Co., 2136 12th St., Rockford, Ill., 111, Yr: 1900

Greenray Industries, Mounted Route, Mechanicsburg, Pa., 4, 31, 34, 35, 37, 38, 40, 43, 50, 56, 69, 96, Tel: 717-POplar 6-7175, Yr: 1958, Emp: 10, ▲1

Greentree Electronics Corp., 1122 S. LaCienega Blvd., Los Angeles 35, Calif., 70, Tel: OLeander 5-8904, Yr: 1957, Emp: 25, ▲2

Gregory Research Engineering Group, Box 11, East Side Station, Binghamton, N.Y., 13, 14, 43, 68, 70, Tel: 607-MIlton 8-6382

Greibach Instruments Corp., 329 North Ave., New Rochelle, N.Y., 31, 40, 61, 73, Tel: 914-NEw Rochelle 3-7900, Yr: 1952, Emp: 30, ▲2

See ad in class 61

Gremar Mfg. Co., Inc., 7 North Ave., Wakefield, Mass., 45, 52, 66, Tel: 245-4580, Yr: 1946, Emp: 225, ▲2, $2,000,000

Gresham Transformers, Ltd., Twickenham Rd., Hanworth, Middlesex, England, 9, 43, 51, 70, 72, 84, 95, Tel: FELtham 6661, Yr: 1939, Emp: 800, $1,400,000

Gries Reproducer Corp., 168 Beechwood Ave., New Rochelle, N.Y., 52, 62, 78, 96, 97, 106, Tel: 914-NEw Rochelle 3-8600, Emp: 350

See ad in class 97

Grieve-Hendry Co., Inc., 1350 N. Elston Ave., Chicago 22, Ill., 98, Tel: BRunswick 8-3400, Yr: 1950, Emp: 59

Griffiths Electronics, Inc., 155 Summit St., Newark, N.J., 63, 73, 85, 86, 95, 96, 104, 105, 110, Tel: MItchell 2-5511, Yr: 1954, Emp: 170, ▲2, $1,500,000

Grigsby Co., Inc., 407 N. Salem Ave., Arlington Heights, Ill., 80, 82, 109, Tel: NEwcastle 1-8700, Yr: 1946, Emp: 350, ▲2, $2,500,000

Groov-Pin Corp., 1125 Hendricks Causeway, Ridgefield, N.J., 97, 105, Tel: WHitney 5-6780, Yr: 1926, Emp: 80

Gruenberg Electric Co., Inc., 9 Commercial Ave., Garden City, L.I., N.Y., 36, 98, Tel: 516-PIoneer 1-4180, Yr: 1927, Emp: 35

Grumman Aircraft Engineering Corp., Bethpage, L.I., N.Y., 2, 13, 16, 44, 58, 90, 93, 96, 109, Tel: 516-LR 5-3323, ▲100

Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 2, 4, 9, 11, 17, 19, 34, 41, 51, 53, 64, 66, 69, 73, 80, Tel: 312-CHesapeake 3-1100, Yr: 1932, ▲1

See ad in class 73

Gudebrod Bros. Silk Co., Inc., 225 W. 34th St., New York 1, N.Y., 97, Tel: 212-LAckawanna 4-5858, Yr: 1870

See ad in class 97

Gudeman Co., 340 W. Huron, Chicago 10, Ill., 48, 51, 57, 59, 84, Tel: 312-DElaware 7-7400, ▲6

Gudeman Co. of California, Inc., 7473 Ave. 304, Visalia, Calif., 48, 51, 57, 84, Tel: 209-REdwood 2-4811, Yr: 1953, Emp: 150, ▲2, $1,000,000

Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 4, 6, 8, 9, 10, 11, 21, 40, 41, 50, 61, 63, 64, 67, 74, 77, 80, 83, Tel: 516-WElls 8-9500, Yr: 1959, Emp: 60, ▲1

See ad in class 77

Guildline Instruments, Ltd., P.O. Box 99, Smiths Falls, Ontario, Canada, 6, 12, 31, 36, 40, 41, 43, 53, 61, 69, 74, 80, Tel: 613-283-3000, Yr: 1900, Emp: 40

Gulow Transformer Co., Inc., Route 17 & Broad St., Carlstadt, N.J., 13, 17, 43, 51, 55, 57, 59, 69, 73, 80, 84, Tel: WEbster 9-2050, Yr: 1943, Emp: 80, ▲1, $750,000

Gulton Industries, Inc., 212 Durham Ave., Metuchen, N.J., 4, 5, 8, 9, 21, 34, 35, 36, 37, 38, 40, 43, 44, 46, 48, 50, 51, 52, 53, 59, 65, 68, 69, 74, 77, 82, 83, 84, 92, 94, 95, 99, 109, 111, Tel: 201-LIberty 8-2800, Yr: 1942, Emp: 950, ▲30, $12,000,000

Gunnar Laboratories, Inc., 3003 26th St. W., Bradenton, Fla., 41, 50, 73, 74, 81, 91, Tel: BRadenton 5-2752, Yr: 1953, Emp: 4, $15,000

Gurley Co. (W. & L. E.), 514 Fulton St., Troy, N.Y., 4, 9, 14, 40, Tel: AS 2-6300, Yr: 1845, Emp: 175, ▲1

Gwilliam Co., 342 Furman St., Brooklyn 1, N.Y., 97, Tel: 212-MAin 4-2645, Yr: 1912

Gyra Electronics Corp., P. O. Box 184, Washington & Elm Sts., La Grange, Ill., 22, 40, 43, 69, Tel: 312-FLeetwood 4-4644, Yr: 1958, Emp: 4, $25,000

Gyrex Corp., 3003 Pennsylvania Ave., Santa Monica, Calif., 2, 4, 9, 31, 35, 36, 43, 69, 99, Tel: 213-UPton 0-6058, Yr: 1956, Emp: 25, ▲2, $250,000

Gyro Electronics, Inc., 61-37 Fresh Meadow Lane, Flushing 65, N.Y., 43, 44, 45, Tel: 212-LEnox 9-7900

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H-B Instrument Co., American & Bristol Sts., Philadelphia 40, Pa., 4, 61, 73, 82, Tel: DAvenport 9-9125, Yr: 1916, Emp: 45, $10,000

H & H Machine Co., Inc., Noble & Jackson Sts., Norristown, Pa., 96, 97, 99, Tel: BRoadway 9-8190, Yr: 1956, Emp: 40, $200,000

H K Metal Craft Mfg. Corp., 3775 10th Ave., New York 34, N.Y., 90, 93, 97, Tel: 212-LOrraine 9-7500, Yr: 1923, Emp: 60, $500,000

HPL Mfg. Co., 15210 Miles Ave., Cleveland 28, Ohio, 90, 93, 96, Tel: 216-WYoming 1-5000, Yr: 1941, Emp: 250

HRB-Singer, Inc., Science Park, State College, Pa., 4, 9, 13, 30, 43, 44, 50, 95, 96, 109, Tel: 814-ADams 7-7611, Yr: 1946, Emp: 720, ▲100, $6,500,000

Hackensack Cable Corp., 110 Orchard St., Hackensack, N.J., 91, 107, Tel: 201-HUbbard 7-1100, Yr: 1940, Emp: 110

See ad in class 91

Hadfield Engineering (Bertram M.), 1295 Old Worcester Rd., Framingham Center, Mass., 95, 109, Tel: TRinity 2-3452, Yr: 1951, Emp: 2, ▲1

Hadley Co., Inc. (Robert M.), 750 W. 51st St., Los Angeles 37, Calif., 43, 51, 84, Tel: ADams 4-9091, Yr: 1929, Emp: 90, ▲2

Hadlock & Temte, Inc., 3336 W. Franklin Blvd., Chicago 24, Ill., 52, 61, 62, 63, 80, 96, 97, Tel: SAcramento 2-4200, Emp: 25

Hagan Chemicals & Controls, Inc., Hagan Center, Pittsburgh 30, Pa., 4, 28, 43, 61, 82, 83, Tel: 412-WAlnut 2-3737, Yr: 1918, Emp: 1716, ▲3, $500,000

Hake Products, Inc., 6152 Wasigo Dr., Cincinnati 30, Ohio, 90, Tel: 513-BEechmont 1-4650, Yr: 1948

Haledy Electronics Co., 99 Wall St., New York 5, N.Y., 4, 11, 73, Tel: 212-WHitehall 3-3140

Halex, Inc., 310 E. Imperial Ave., El Segundo, Calif., 40, 41, 43, 50, 53, 69, 74, 76, 83, Tel: EAstgate 2-2000, Yr: 1958, Emp: 12, ▲3

Hall-Barkan Instruments, Inc., 181 Marbledale Rd., Tuckahoe 7, N.Y., 14, 52, 77, 81, 96, 97, 109, Tel: 914-WOodbine 1-4981, Yr: 1946, Emp: 52

Hall-Sears, Inc., 2424 Branard St., Houston 6, Texas, 16, Tel: JAckson 6-2975, ▲1

Hallamore Electronics Div., Siegler Corp., 714 N. Brookhurst St., Anaheim, Calif., 1, 2, 7, 13, 19, 20, 24, 26, 32, 34, 38, 43, 44, 53, Tel: PRospect 4-1010, Yr: 1952, Emp: 973, ▲25, $10,000,000

Hallett Mfg. Co., 3910 Bowcroft St., Los Angeles 16, Calif., 59, 91, 97, 103, Tel: UPton 0-7094, Yr: 1916, Emp: 50, ▲2

Halliburton Enterprises, Inc., Mfg. Div., 4724 S. Boyle Ave., Los Angeles 58, Calif., 90, Tel: LUdlow 8-3181, Yr: 1935, Emp: 285

Hallicrafters Co., 4401 Fifth Ave., Chicago 24, Ill., 29, Tel: 312-VAn Buren 6-6300, Yr: 1933, Emp: 1600, ▲80

Hallikainen Instruments, 1341 Seventh St., Berkeley 10, Calif., 4, 5, Tel: LAndscape 4-1757, Yr: 1952, Emp: 60, $300,000

Hallmark & Assoc. (Clyde E.), 2 Werling Rd., New Haven, Ind., 95

Halm Instrument Co., Inc., Glen Head Rd., Glen Head, L.I., N.Y., 99, 109, Tel: 516-ORiole 6-6700, Emp: 70, ▲4, $500,000

Halogen Insulator & Seal Corp., 9960 Pacific Ave., Franklin Park, Ill., 107, 112, Tel: GLadstone 5-7400, Yr: 1952, Emp: 35

Hamilton Electronics Corp., 2726 W. Pratt Blvd., Chicago 45, Ill., 30, 43, 68, 95, 109, Tel: BRiargate 4-6373, Yr: 1933, Emp: 17

Hamilton Hall Resistor Corp., 227 N. Water St., Milwaukee 2, Wis., 43, 51, 74, Tel: BRoadway 3-6460, Yr: 1942, Emp: 80, ▲1, $500,000

Hamilton Standard Electronics, Div. of United Aircraft Corp., Main St., Broad Brook, Conn., 53, 69, 77, 81, 91, Tel: NAtional 3-1621, Yr: 1919, Emp: 800

Hamilton Watch Co., Industrial Products Div., Lancaster, Pa., 4, 10, 51, 61, 67, 77, 84, 97, 103, 104, Tel: EXpress 4-7161, Yr: 1892, Emp: 1400, ▲4

Hamlin, Inc., Lake & Grove Sts., Lake Mills, Wis., 75, 80, Tel: 208, Yr: 1949, Emp: 32, ▲2, $150,000

Hammarlund Mfg. Co., Inc., 460 W. 34th St., New York 1, N.Y., 26, 29, 33, 49, Tel: 212-LOngacre 5-1300, Yr: 1910, Emp: 400, ▲6, $4,500,000

Hammond Mfg. Co., Ltd., Speedvale Ave. & Edinburgh Rd., Guelph, Ontario, Canada, 49, 51, 53, 69, 84, 90, 93, 97, Tel: TAylor 2-2960, ▲3

Hamner Electronics Co., Inc., P.O. Box 513, Princeton, N.J., 10, 22, 40, 43, 69, 93, 95, Tel: PEnnington 7-1320, Yr: 1954, ▲1

Hampden Mfg. Co., Inc., P.O. Box 89, Palmer, Mass., 81, 96, Tel: ATlas 3-3451, Yr: 1952, Emp: 25, $200,000

Hampshire Engineering Co., 2300 Washington St., Newton Lower Falls 62, Mass., 2, 8, 9, 10, 27, 41, 95, Tel: BIgelow 4-5937, Yr: 1954, Emp: 7, ▲2, $250,000

Handicraft Tools, Inc., Div. of X-Acto, Inc., 48-41 Van Dam St., Long Island City 1, N.Y., 111, Tel: EXeter 2-3333, Yr: 1936, Emp: 40

Handy & Harman, 850 Third Ave., New York 22, N.Y., 91, 94, 104, 105, 110, Tel: 212-PLaza 2-3400, Yr: 1867, Emp: 950

See ad in class 104

Hannifin Co., Div. of Parker-Hannifin Corp., 501 S. Wolf Rd., Des Plaines, Ill., 4, 99, Tel: VAnderbilt 7-1171

Hansen Mfg. Co., Inc., 1001 S. Hart St., Princeton 10, Ind., 10, 67, Tel: 812-FUlton 5-3415, Yr: 1907, Emp: 225

Harder Co. (Donald C.), 258 K St., San Diego 2, Calif., 51, 84, 99, Tel: 714-BElmont 9-8021, Yr: 1951, Emp: 20, ▲1, $150,000

Hardman Co., Inc. (H. V.), 571 Cortlandt St., Belleville 9, N.J., 94, 99, 101, Tel: PLymouth 9-1242, Yr: 1906

Hardware Specialty Co., Inc., 48-75 36th St., Long Island City 1, N.Y., 97, 111, Tel: 212-EMpire 1-9393

Hardwick, Hindle, Inc., 40 Hermon St., Newark 5, N.J., 74, Tel: 201-MArket 2-8200, ▲1

See ads in class 74

Hargbol Precision Optics Laboratory (W. H.), 5 Forest St., Arlington 74, Mass., 14, 17, 32, Yr: 1951, Emp: 7

Harman-Kardon, Inc., Ames Court, Plainview, L.I., N.Y., 4, 8, 9, 10, 11, 24, 26, 30, 40, 43, 50, 53, 57, 73, 79, 88, 96, 109, Tel: 516-OVerbrook 1-4000, Yr: 1949, Emp: 350, ▲20, $4,500,000

Harmon Co., Inc. (George), 18141 Napa St., Northridge, Calif., 1, 2, 20, 69, 73, 80, 89, 96, Tel: 213-DIckens 5-1620, Yr: 1957, Emp: 38, ▲2, $750,000

Harmon Electronics Co., R.R. #1, Grain Valley, Mo., 4, 7, 24, 51, Tel: CIrcle 9-3338, Yr: 1946, Emp: 15, $122,000

Harowe Precision, Inc., Mount Rd., Lenni Mills, Pa., 67, 77, Tel: GLobe 9-3600, Yr: 1956, Emp: 175, $1,200,000

Harper Co. (H. M.), 8200 Lehigh Ave., Morton Grove, Ill., 97, Tel: 312-YOrktown 6-6000, Yr: 1923, Emp: 650

Harper-Leader, Inc., 1046 S. Main St., Waterbury 20, Conn., 109, Tel: PLaza 6-8164, Yr: 1953, Emp: 6, $100,000

Harrel, Inc., 1788 First Ave., New York 28, N.Y., 4, 43, 53, 73, 77, 98, Tel: 212-SAcramento 2-3683, ▲1

Harris Mfg. Co., Inc., 308 River St., Cambridge 39, Mass., 4, 36, 54, 98, 99, Tel: 617-UNiversity 4-4000, Yr: 1934, Emp: 25

Harrison Electrosonics, Inc. (B. M.), 80 Winchester St., Newton Highlands 61, Mass., 6, 18, 35, 40, 41, 43, 69, 83, Tel: DEcatur 2-6350, Yr: 1954, Emp: 14, ▲3, $100,000

Harrison Laboratories, Inc., 45 Industrial Rd., Berkeley Heights, N.J., 69, Tel: 201-464-1234, Yr: 1954, Emp: 56, ▲5

See ad on pages 50-51

Harristahl Laboratories, 474 E. 2nd, Brooklyn 18, N.Y., 4, 8, 9, 10, 11, 14, 29, 50, 95, Yr: 1952, Emp: 10, ▲2

Harshaw Chemical Co., Crystal Div., 1945 E. 97th St., Cleveland 6, Ohio, 5, 11, 17, 22, 41, 56, 86, 94, 102, 103, Tel: 216-RAndolph 1-8300, Yr: 1892, Emp: 2100, ▲3

Hart Mfg. Co., 265 Bartholomew Ave., Hartford 1, Conn., 73, 80, Tel: 203-JAckson 5-3491, Yr: 1896, Emp: 385

See ad in class 73

Hartford Steel Ball Co., Jefferson Ave., West Hartford, Conn., 97, Tel: 203-ADams 3-1251, Emp: 300

Hartley Products Co., 519 E. 162nd St., New York 51, N.Y., 79, Tel: 212-LUdlow 5-4239, Yr: 1955, Emp: 5, ▲1

Hartman Electrical Mfg. Co., 175 N. Diamond St., Mansfield, Ohio, 4, 21, 72, 73, 80, Tel: LAfayette 4-1411, Yr: 1902, Emp: 350, ▲4

Hartwell Corp., 9035 Venice Blvd., Los Angeles 34, Calif., 97, Tel: 213-UPton 0-3781, Yr: 1938, Emp: 275, $500,000

Hartwood Glass & Metals Co., P.O. Box 865, Martinsburg, W.Va., 91, Tel: AM 7-8411

Harvey-Wells Corp., 43 Kendall St., Framingham, Mass., 22, 40, 51, 64, 69, Tel: CEdar 5-7370, Yr: 1960, Emp: 45, ▲10, $800,000

Harvey-Wells Electronics, Inc., 14 Huron Dr., Natick, Mass., 4, 8, 9, 11, 22, 50, Tel: 617-CEdar 5-7372, Yr: 1960, Emp: 23, ▲3

Harwood Electronics Co., 466 W. Superior, Chicago 10, Ill., 32, 63, 90, 96, 97, 105, Tel: WHitehall 3-0465

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Harworth Mfg. Co., 409 El Camino Real, Menlo Park 1, Calif., 40, Tel: 415-DAvenport 2-7243, Yr: 1944, Emp: 4, $25,000

Hass Instrument Corp., 6173 Branch Ave. S.E., Washington 23, D.C., 2, 4, 40, Tel: 202-HIckory 9-5454, Yr: 1948, Emp: 13, $75,000

Hassall, Inc. (John), Westbury, L.I., N.Y., 97, Tel: EDgewood 4-6200

Hassett & Harper, Ltd., Regent Place, Birmingham 1, England, 90, Tel: CENtral 6418, Emp: 155

Hastings Plastics, Inc., 1704 Colorado Ave., Santa Monica, Calif., 94, 107, Tel: UPton 0-8503, Yr: 1956, Emp: 15, $50,000

Hastings Products, 171 Newbury St., Boston 16, Mass., 26, Tel: 617-COpley 7-2031

Hastings-Raydist, Inc., Newcomb Ave., Hampton, Va., 2, 4, 21, 40, 61, Tel: PArk 3-6531, Yr: 1944, Emp: 80, ▲6

Hatfield Wire & Cable, Div. of Continental Copper & Steel Industries, Inc., 487 Hillside Ave., Hillside, N.J., 91, Tel: 203-MUrdock 8-6400, Yr: 1920, Emp: 700

Hathaway Denver, Div. of Hathaway Instruments, Inc., 5800 E. Jewell Ave., Denver 22, Colo., 6, 14, 23, 31, 34, 35, 38, 40, 41, 45, 51, 53, 59, 69, 80, 84, Tel: 303-SKyline 6-8301, Yr: 1939, Emp: 434, ▲6, $1,100,000

Hathaway Instruments, Inc., Induction Heating Corp. (Subsid.), 181 Wythe Ave., Brooklyn 11, N.Y., 98, 99, Tel: EVergreen 4-3110, Yr: 1940, Emp: 125

Haveg Industries, Inc., Plastics Park, Wilmington 8, Del., 91, 92, 106, 107, 109, 112, Tel: WYman 8-2271, Yr: 1955, Emp: 3000, $9,000,000

Haveg Industries, Inc., Taunton Div., 330 Weir St., Taunton, Mass., 75, 81, 96, 97, 101, 106, Tel: VAndyke 4-4011, Yr: 1959, Emp: 510

Hawley Products Co., 333 N. Sixth St., Saint Charles, Ill., 79, 90, 96, Tel: 312-JUno 4-3130, Yr: 1930, Emp: 700, ▲6
See ad in class 79

Haydon Co. (A. W.), 4040 Ince Blvd., Culver City, Calif., 4, 41, 61, 73, 80, Tel: UPton 0-5461, Yr: 1952, Emp: 120

Haydon Co. (A. W.), 240 N. Elm St., Waterbury 20, Conn., 2, 4, 9, 10, 11, 31, 34, 61, 67, 73, 80, Tel: 203-PLaza 6-4481, Yr: 1945, Emp: 500, ▲3

Haydon Instrument Co., 17 Brown St., Waterbury 20, Conn., 2, 4, 8, 9, 10, 11, 67, Tel: 203-PLaza 3-4147

Haydon Switch, Inc., 536 S. Leonard St., Waterbury 20, Conn., 80, Tel: 203-Plaza 6-7441, Yr: 1953, Emp: 125

Hayes, Inc. (C. I.), 861 Wellington Ave., Cranston 10, R.I., 4, 90, 98, 99, 109, Tel: 401-HOpkins 1-3400, Yr: 1905, Emp: 130, ▲3, $150,000

Hays Corp., 742 E. 8th St., Michigan City 47, Ind., 4, 28, 40, 61, Tel: TRiangle 2-5561, Yr: 1902, Emp: 250, ▲3

Hays Mfg. Co., Automatic Controls Div., 803 W. 12th St., Erie, Pa., 99, Tel: GLendale 2-3221, ▲1

Hazeltine Corp., 59-25 Little Neck Pkwy., Little Neck 62, N.Y., 1, 2, 8, 9, 25, 34, 44, 59, Tel: 212-FAculty 1-2300, Yr: 1924, Emp: 3000, ▲350, $67,000,000

Heath Co., Subsid. of Daystrom, Inc., Benton Harbor, Mich., 3, 5, 6, 8, 9, 12, 13, 15, 16, 18, 20, 23, 24, 26, 27, 29, 30, 32, 35, 37, 38, 39, 40, 41, 43, 53, 69, 80, 88, 99, 111, Tel: 616-YUkon 3-3961, Yr: 1946, Emp: 600, ▲6

Heatron, Inc., P.O. Box 54, York, Pa., 54, Tel: 2-9594, Yr: 1947, Emp: 6

Hecht & Associates (Bernard), 5455 Wilshire Blvd., Los Angeles 24, Calif., 109, Tel: WEbster 8-5271, Yr: 1952, Emp: 2, ▲1

Hecht Rubber Co., Inc., 482-484 Riverside Ave., Jacksonville 2, Fla., 97, 107, 112, Tel: ELgin 5-3401, Yr: 1946, Emp: 22, $45,000

Hehn Engineering (Lester C.), 30 Manorhaven Blvd., Port Washington, L.I., N.Y., 4, 95, 109, Tel: 516-POrt Washington 7-2676, Yr: 1953

Heinemann Electric Co., 154 Magnetic Dr., Trenton 2, N.J., 4, 73, 80, Tel: 609-TUxedo 2-4800, Yr: 1888, ▲1

Heinn Co., 326 W. Florida St., Milwaukee 4, Wis., Tel: BRoadway 1-7230, Yr: 1896, Emp: 150

Heinze Electric Co., 685 Lawrence St., Lowell, Mass., 47, 67, Tel: GLenview 7-7556, Yr: 1900, Emp: 500, ▲1, $25,000

Heitz, Inc. (Karl), 480 Lexington Ave., New York 17, N.Y., 14, Tel: YUkon 6-4920, Yr: 1949, Emp: 20

Helco Products Corp., 7832 Balboa Blvd., Van Nuys, Calif., 74, Tel: STate 0-6091, Yr: 1946, Emp: 25, $65,000

Heldor Electronics Mfg. Co., 238 Lewis St., Paterson, N.J., 36, 52, 70, 75, 93, Tel: ARmory 1-0900, Yr: 1946, Emp: 150, ▲4

Heli-Coil Corp., Shelter Rock Lane, Danbury, Conn., 97, Tel: PIoneer 3-7651, Yr: 1949, Emp: 275

Helko Products Co., Inc., 243 W. 55th St., New York 19, N.Y., 109, Tel: 212-PLaza 7-3050, Yr: 1939, Emp 12

Hellermann Canada, Ltd., 44 Danforth Rd., Scarborough, Ontario, Canada, 52, 81, 94, 97, 101, 106, 107, 111, Tel: 416-698-2547, Yr: 1955, Emp: 10

Helwig Carbon Products, Inc., 2550 N. 30th St., Milwaukee 10, Wis., 97, Tel: HIlltop 2-7755, Yr: 1929, Emp: 125

Heminway & Bartlett Mfg. Co., 500 5th Ave., New York 36, N.Y., 97, Tel: LOngacre 4-0880

Henschel Corp., 14 Cedar St., Amesbury, Mass., 18, 67, 77, Tel: 617-388-1103, Yr: 1919, Emp: 100

Heppner Mfg. Co., Box 608, Round Lake, Ill., 79, Tel: KImball 6-2161, Yr: 1947, Emp: 225, $2,000,000

Hercules Fastener Co., 2722 N. Clybourn Ave., Chicago 14, Ill., 97, Tel: LAkeview 5-5940, Yr: 1930, Emp: 51, $500,000

Hercules Powder Co., Inc., Hercules Tower, 910 Market St., Wilmington, Del., 107

Hermaseal Co., Inc., 1101 Lafayette, Elkhart, Ind., 52, 75, 81, 105, 109, Tel: 219-COngress 4-1119, Yr: 1945, Emp: 15

Hermes Electronics Co., Div. of Itek Corp., 75 Cambridge Pkwy., Cambridge 42, Mass., 4, 8, 9, 29, 31, 34, Tel: UNiversity 4-7200, Yr: 1955, Emp: 235, ▲45, $3,500,000

Hermes Plastics, Inc., 154 W. 14th St., New York 11, N.Y., 97, 99, 107, 109, Tel: CHelsea 3-5662, Yr: 1952, Emp: 15

Hermes-Sonic Corp., 13-19 University Pl., New York 3, N.Y., 99, 109, Tel: GRamercy 7-2730, Yr: 1955, Emp: 58

Hermetic Pacific Corp., 4232 Temple City Blvd., Rosemead, Calif., 52, 75, 81, Tel: CUmberland 3-7224, Yr: 1950, Emp: 200, $2,000,000

Hermetic Seal Corp., 43 River Rd., North Arlington, N.J., 52, 60, 75, 78, 81, Tel: WYman 8-8080, Yr: 1945, Emp: 200, ▲1, $2,000,000

Hermetite Corp., 100 Ladge Dr., Avon, Mass., 52, 75, 81, 109, Tel: 617-JUniper 3-7000, Yr: 1952, Emp: 325, ▲2, $2,250,000
See ad in class 75

Herzog Miniature Lamp Works, Inc., 50-17 Fifth St., Long Island City 1, N.Y., 63, Tel: STillwell 4-2275, Yr: 1911, Emp: 9, ▲1, $1,000,000

Hess, Goldsmith & Co., Inc., Div. of Burlington Industries, 1400 Broadway, New York, N.Y., 101, Tel: WIsconsin 7-8900

Hett Associates, Inc., 24 Burton Pl., Cresskill, N.J., 14, 40, 69, Tel: LOwell 9-8838, Yr: 1952, Emp: 2, ▲1

Hevi-Duty Electric Co., Div. of Basic Products Corp., 304 Hart St., Watertown, Wis., 41, 43, 51, 59, 69, 84, 98, Tel: 3980

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 5, 6, 11, 23, 31, 35, 37, 38, 40, 43, 45, 53, 56, 57, 59, 66, 69, 83, Tel: 415-DAvenport 6-7000, Yr: 1939, Emp: 3408, ▲138, $60,200,000
See ad on pages 13-28

Hewlett-Packard Co., Dymec Div., 395 Page Mill Rd., Palo Alto, Calif., 2, 4, 9, 10, 11, 21, 25, 31, 34, 35, 37, 38, 39, 40, 41, 45, Tel: 415-DAvenport 6-1755, Yr: 1956, Emp: 285, ▲16, $3,206,000

Hewlett-Packard Co., Palo Alto Engineering Co. (Subsid.), 620 Page Mill Rd., Palo Alto, Calif., 51, 53, 57, 59, 69, 84, Tel: DAvenport 6-5360, Yr: 1951, Emp: 180, ▲3, $2,500,000

Hexacon Electric Co., 181 W. Clay Ave., Roselle Park, N.J., 111, Tel: 201-CHestnut 5-6200, Emp: 105, ▲1
See ad in class 111

Heyman Mfg. Co., 147 N. Michigan Ave., Kenilworth 7, N.J., 81, 97, Tel: 201-CHestnut 5-2345, Yr: 1927, Emp: 70
See ad in class 97

Hi-G, Inc., Bradley Field, Windsor Locks, Conn., 73, Tel: NAtional 3-2481, Yr: 1953, Emp: 149, ▲5

Hi-Grade Alloy Corp., 3634 E. 95th St., Chicago 17, Ill., 94, 105, 110, Tel: SAginaw 1-0816, Yr: 1954, Emp: 9, ▲1, $500,000

Hi-Lo Mfg. Co., 1122 W. Newport Ave., Chicago 13, Ill., 60, 109, Yr: 1947, ▲1

Hi-Spec Electronics Corp., 7328 Ethel Ave., North Hollywood, Calif., 41, 73, 78, Tel: 213-POplar 5-5075, Yr: 1958, Emp: 13

Hi-Test Chemical Corp., 722 64th St., Brooklyn 20, N.Y., 94, Tel: TErrace 6-5991

Hickok Electrical Instrument Co., 10617 Dupont Ave., Cleveland 8, Ohio, 2, 5, 23, 34, 35, 38, 39, 40, 41, 61, 80, Tel: 216-LIberty 1-8060, Yr: 1910, Emp: 550, $7,000,000

Hidyne Instrument & Engineering Co., P.O. Box 257, Tullahoma, Tenn., 40, Tel: 615-GLendale 5-9810, Yr: 1958, Emp: 8, ▲1

High Purity Metals, Inc., 340 Hudson St., Hackensack, N.J., 102, 104, 109, Tel: HUbbard 9-4650, Yr: 1959, Emp: 14

High Speed Hammer Co., Inc., 313 Norton St., Rochester 21, N.Y., 99, 111, Tel: COngress 6-6740, Yr: 1915, Emp: 40

High Vacuum Equipment Corp., 2 Churchill Rd., Hingham, Mass., 36, 40, 56, 61, 80, 98, 99, 109, Tel: 617-RIverview 9-2430, Yr: 1952, Emp: 150

High Voltage Engineering Corp., S. Bedford St., Burlington, Mass., 5, 14, 22, 40, 69, Tel: BRowning 2-1313, Yr: 1946, Emp: 700, ▲11, $12,000,000

Highland Design, Inc., 90 Magnolia Ave., Westbury, L.I., N.Y., 43, 51, 59, 69, 84, 109, Tel: 516-BAldwin 3-8885, Yr: 1949, ▲2

Highland Electric Co., 1130 Mission St., South Pasadena, Calif., 52, Tel: 213-MUrray 2-3054, Yr: 1959, Emp: 4, ▲2, $10,000

Hildebrand Engineering (John G.), 45 Brighton St., Belmont 78, Mass., 50, 96, 109, Tel: 617-IVanhoe 4-6240, Yr: 1952, Emp: 10, ▲1, $80,000

Hill & Co. (E. Vernon), P.O. Box 189, Lake Geneva, Wis., 40, 41, Tel: 414-CHestnut 8-3729, Yr: 1910, Emp: 3, $3,000

Hill Electronics, Inc., 300 N. Chestnut St., Mechanicsburg, Pa., 31, 34, 35, 38, 56, 59, Tel: 717-POplar 6-7611, Yr: 1951, Emp: 150, ▲5, $1,000,000
See ad in class 59

Hillburn Electronics Corp., 55 Greenpoint Ave., Brooklyn 22, N.Y., 73, Tel: 212-EV 3-8190

Hilliard Corp., 102 W. 4th St., Elmira, N.Y., 4

Hillman, Leon, 255 County Rd., Tenafly, N.J., 95, Tel: 201-LOwell 7-3232
See ad in class 95

Hillyer Corp., 331 Centennial Ave., Cranford, N.J., 99, Tel: BRidge 6-8710, ▲1

Himmelstein & Co. (S.), 3300 W. Peterson Ave., Chicago 45, Ill., 95, 96, Tel: IRving 8-9850, Yr: 1960, Emp: 2, ▲1

Hindle Transformer Co., Inc., R.D. #3, Box 74, Flemington, N.J., 51, 69, 84, Tel: 201-STate 2-5525, Yr: 1948, Emp: 50, ▲1

Hirschmann Co., Inc. (Carl), 30 Park Ave., Manhasset, L.I., N.Y., Importers, 4, 41, 99, 111, Tel: 516-MAnhasset 7-5300, Yr: 1948, Emp: 75
See ad in class 99

Hisonic, Inc., P.O. Box 534, Shawnee, Kans., 51, 57, 59, 84, Tel: 913-MElrose 1-8654, Yr: 1959, Emp: 20, $100,000

Hitachi New York, Ltd., 501 Fifth Ave., New York 17, N.Y., Importers, 4, 5, 7, 8, 14, 18, 19, 20, 21, 22, 26, 32, 33, 40, 41, 42, 44, 46, 47, 48, 53, 54, 58, 61, 64, 67, 71, 72, 73, 74, 77, 79, 80, 85, 86, 90, 91, 92, 93, 94, 96, 97, 98, 99, 101, 103, 104, 106, 107, 111, 112, Tel: 212-YUkon 6-5287, Yr: 1920, Emp: 45,000, ▲10

Hitchiner Mfg. Co., Inc., Milford, N.H., 96, Tel: 635

Hitemp Wires Co., Div. of Simplex Wire & Cable Co., 1200 Shames Dr., Westbury, L.I., N.Y., 91, 112, Tel: 516-EDgewood 3-4600, Yr: 1951, Emp: 235, ▲1
See ad in class 91

Hobbs, Inc. (Guy), Dallastown, Pa., 79, 90, Tel: Red Lion 33-111, Yr: 1946, Emp: 205, $2,000,000

Hobbs Mfg. Co., 26 Salisbury St., Worcester 5, Mass., 77, 97, 99, Tel: 617-PLeasant 6-8361, Yr: 1882, Emp: 102

Hoberman Engineering (Max), 60 Spruce St., Paterson 1, N.J., 95, Tel: ARmory 8-3020

Hobson Bros., Inc., 4940 W. Lawrence Ave., Chicago 30, Ill., 52, 81, 105, Tel: 312-AVenue 3-3600

Hoffman Co. (P. R.), 321 Cherry St., Carlisle, Pa., 56, 99, 102, Tel: 717-CHapel 3-2011, Yr: 1944, Emp: 90, ▲1, $1,250,000
See ad in class 99

Hoffman Electronics Corp., 3761 S. Hill St., Los Angeles, Calif., 1, 2, 4, 8, 9, 11, 21, 25, 29, 33, 34, 35, 40, 43, 46, 50, 61, 71, 73, 74, 76, 77, 80, 83, Tel: RIchmond 7-4488, Yr: 1941, Emp: 4200, ▲250

Hoffman Electronics Corp., Semiconductor Div., 1001 N. Arden Dr., El Monte, Calif., 71, 76, Tel: CUmberland 3-7191, Yr: 1953, Emp: 1000, ▲25

Hoffman Engineering Corp., 183R Sound Beach Ave., Old Greenwich, Conn., 90, 95, 97, 109, Tel: NEptune 7-3557, Yr: 1955, Emp: 5, ▲1

Hogan Faximile Corp., 635 Greenwich St., New York 14, N.Y., 9, 15, 28, 34, 38, Tel: 212-CHelsea 2-7855, Yr: 1929, Emp: 71, ▲6, $600,000

Holden-Massey Corp., 144 Allen Blvd., Farmingdale, L.I., N.Y., 90, 93, Tel: CHapel 9-2990, Yr: 1950, Emp: 54, $650,000

Hollander Co., Inc. (Allen), 385 Gerard Ave., New York 51, N.Y., 97, Tel: 212-MOtthaven 5-1818, Yr: 1946, Emp: 55

Hollingsworth Co., Solderless Terminal Div., Nutt & French Creek Rds., Phoenixville, Pa., 81, Tel: WEllington 3-8947, Yr: 1955, Emp: 150

Hollis Engineering, Inc., 669 South Ave., Weston 93, Mass., 99, Tel: 603-TUxedo 3-5862, Yr: 1959, Emp: 5, ▲1, $100,000

Hollywood Mfg. & Supply Corp., 12902 S. Spring St., Los Angeles 61, Calif., 2, 4, 66, 69, 83, 90, 93, 95, 96, Tel: FAculty 1-5300, Yr: 1939, Emp: 50, ▲1

Holmin Corp. (William A.), 1325 Seventh St., Rockford, Ill., 30, 43, Tel: 815-WOodland 8-0517, Yr: 1956, Emp: 25

Holt Instrument Laboratories, P.O. Box 230, Oconto, Wis., 31, 34, 35, 40, 43, 53, 69, Tel: 163, Yr: 1957, Emp: 55, ▲3

Holtzer-Cabot Div., National Pneumatic Co., Inc., 125 Amory St., Boston 19, Mass., 53, 67, Tel: 617-JAmaica 4-7000, Yr: 1875, Emp: 600, ▲10, $1,000,000

Holub Industries, Inc., 413 DeKalb Ave., Sycamore, Ill., 97, 105, 111, Tel: 2161, Yr: 1945, Emp: 35

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Hoover Co., Electronics Div., 110 W. Timonium Rd., Timonium, Md., 2, 4, 9, 34, 41, 43, 53, 66, 69, Tel: 301-CLearbrook 2-4000, Yr: 1952, Emp: 100, ▲10

Hoover Co., Ltd., Box 128, Postal Station B, Hamilton, Ontario, Canada, 47, 53, 67, 107, Tel: 416-LIberty 5-1151, Yr: 1919, Emp: 300. ▲1, $440,000

Hoover Electric Co., 2100 S. Stoner Ave., Los Angeles 25, Calif., 4, 47, 67, 77, Tel: BRadshaw 2-3125

Hopkins Engineering Co., 12900 Foothill Blvd., San Fernando, Calif., 48, 59, Tel: TRiangle 7-2414, Yr: 1947, Emp: 135, ▲2, $1,500,000

Horlick Co., Inc. (William I.), 266 Summer St., Boston 10, Mass., 53, 69, Tel: 617-HAncock 6-2480, Yr: 1922, Emp: 14, ▲1

Horton-Angell Co., 129 Bank St., Attleboro, Mass., 66, 104, 110, 112, Tel: CAstle 2-4866, Yr: 1914, Emp: 100, $50,000

Horton & Hubbard Mfg. Co., 141 Canal St., Nashua, N.H., 90, Yr: 1888, Emp: 500, $1,000,000

Horwitron Electro-Medical Co., 4916 N. 12th St., Philadelphia 41, Pa., 5, Tel: GLadstone 5-9310

Hoskins Mfg. Co., 4445 Lawton Ave., Detroit 8, Mich., 91, 104, Tel: Tyler 5-2860, Yr: 1908, Emp: 300

Hotwatt, Inc., 75 Maple St., Danvers, Mass., 98, Tel: SPring 4-3273, Yr: 1952, Emp: 100, $25,000

Houdaille Industries, Inc., Buffalo Hydraulics Div., 537 E. Delavan Ave., Buffalo 11, N.Y., 4, 44, Tel: 716-TX 5-8000, Yr: 1921, Emp: 3500

Houston Fearless Corp., Westwood Div., 11801 W. Olympic Blvd., Los Angeles 64, Calif., 1, 2, 3, 4, 8, 9, 10, 13, 15, 17, 18, 20, 22, 24, 32, 33, 44, 50, 61, 63, 90, 95, 96, 109, Tel: BRadshaw 2-4331, Yr: 1931, Emp: 300, ▲10

Houston Instrument Corp., P.O. Box 22234E, Houston 27, Texas, 28, 40, 43, 53, 70, Tel: 713-MOhawk 7-7405, Yr: 1959, Emp: 25, ▲2, $281,000

See ad in class 28

Howard Crystal Holders, Inc., 2600 Grand Ave., Kansas City 8, Mo., 56, Tel: 816-BAltimore 1-6733, Yr: 1953, Emp: 15, $250,000

Howard Industries, Inc., 1760 State St., Racine, Wis., 67, Tel: 414-MElrose 2-2731, Emp: 500

Howard Instrument Co., Red Bank, N.J., 2, 4, 8, 9, 10, 34, 40, 50, Tel: 201-SHadyside 1-0409, Yr: 1961, Emp: 2, ▲1

Howard Precision, Inc., 111 Roselle St., Linden, N.J., 96, 97, 105, Tel: WAbash 5-4100, Yr: 1946, Emp: 9

Howe Scale Co., Rutland, Vt., 40, Tel: PRospect 5-5541, Yr: 1857, Emp: 500, $2,000,000

Howell Instruments, Inc., 3479 W. Vickery Blvd., Fort Worth 7, Texas, 2, 4, 9, 11, 40, 53, 61, 74, Tel: EDison 6-7411, Yr: 1951, Emp: 190, ▲8, $4,600,000

Hoyles, Niblock & Assoc., 1234 Marine Dr., North Vancouver, B.C., Canada, 95, Tel: 604-YUkon 7-7664

Hoyt Electrical Instrument Works, Inc.: See Burton-Rogers Co.

Huck Mfg. Co., 2480 Bellevue Ave., Detroit 7, Mich., 97, Tel: 313-WAlnut 3-4500, Yr: 1941, Emp: 595

Hudson Bay Co., Div. of Labline, Inc., 3070-82 W. Grand Ave., Chicago 22, Ill., 36, 41, 61, 98, 99, Tel: SAcramento 2-5151, Yr: 1941, Emp: 125

Hudson Lamp Co., 528 Elm St., Kearny, N.J., 63, Tel: WYman 1-4834, Yr: 1946, Emp: 250, $1,500,000

Hudson Pacific, Inc., 12964 Panama St., Los Angeles 66, Calif., 111, Tel: EXmont 1-1712, Yr: 1956, Emp: 13

Hudson Tool & Die Co., Inc., 18 Malvern St., Newark 5, N.J., 90, 96, 97, 109, Tel: 201-MArket 4-1802, Yr: 1940, Emp: 150

Hudson Wire Co., Magnet Wire Div., 981 Main St., Winsted, Conn., 91, Tel: 203-FRontier 9-3341, Yr: 1931, Emp: 120

See ad in class 91

Hudson Wire Co., Ossining Div., 62 Water St., Ossining, N.Y., 91, Tel: 914-WIlson 1-8500, Yr: 1902, Emp: 600, ▲6

See ad in class 91

Hufco Industries, 2815 W. Olive Ave., Burbank, Calif., 73, Tel: 213-VIctoria 9-2118, Yr: 1947, Emp: 16, ▲1, $251,684

Huggins Laboratories, Inc., 999 E. Arques Ave., Sunnyvale, Calif., 34, 37, 43, 69, 86, Tel: 415-REgent 6-9330, Yr: 1952, Emp: 200, ▲7, $3,000,000

Hughes Aircraft Co., Aerospace Engineering Div., Culver City 54, Calif., ▲808

Hughes Aircraft Co., Hughes Semiconductor Div., 500 Superior Ave., Newport Beach, Calif., 49, 71, 76, Tel: LIberty 8-0671, Yr: 1953, Emp: 2000, ▲1500 (Hughes overall)

Hughes Aircraft Co., Industrial Systems Div., Box 90904, Airport Sta., Los Angeles 45, Calif., 59, Tel: 213-ORchard 0-1811, Yr: 1954, Emp: 150, ▲47

Hughes Aircraft Co., Microwave Tube Div., 11105 S. LaCienega Blvd., Los Angeles 45, Calif., 43, 86, Tel: SPring 6-1515, Yr: 1960, Emp: 450

Hughes Aircraft Co., Nuclear Electronics Laboratory, Florence Ave., & Teale St., Culver City, Calif., 4, 5, 11, 22, 43, 95, Tel: 213-UPton 0-7111, ▲1

Hughes Aircraft Co., Vacuum Tube Products Div., 2020 Short St., Oceanside, Calif., 4, 9, 86, 99, Tel: 714-SAratoga 2-2101, Yr: 1945, Emp: 450, ▲25

Hughes Industries, Riverton, N.J., 37, 66, 88, 109, Tel: 609-829-6500, Yr: 1953, Emp: 30, ▲1

Hughes Research Div. (J. Willis), 1829 Deposit Guaranty Bank Bldg., Jackson 5, Miss., 5, 30, 42, 43, 44, 45, 46, 59, 68, 95, 96, 109, Tel: 601-355-9608, Yr: 1946, Emp: 10, ▲2

Hughey & Phillips, Inc., 3200 N. San Fernando Blvd., Burbank, Calif., 4, 43, 44, 84, Tel: 213-VIctoria 9-1104, Yr: 1942, Emp: 20, ▲2

See ad in class 44

Hull Corp., Hatboro, Pa., 96, 98, 99, 109, Tel: 215-OSborne 5-5000, Yr: 1954, Emp: 60, ▲1, $500,000

See ad in class 99

Humble Mfg. Co., Ltd., 1695 W. 2nd Ave., Vancouver 9, B.C., Canada, 20, 24, 90, 93, Tel: REgent 6-0104, Yr: 1949, Emp: 18, ▲2, $126,000

Humphrey, Inc., 2805 Canon St., San Diego 6, Calif., 2, 4, 83, Tel: 714-ACademy 3-1654, Yr: 1946, Emp: 95, ▲1, $700,000

Hunt Co. (Philip A.), Roosevelt Pl., Palisades Park, N.J., 94, Tel: 201-WIndsor 4-4000, Yr: 1909, Emp: 200

Hunt Corp., 453 Lincoln St., Carlisle, Pa., 56, Tel: 717-CHapel 9-2232, Yr: 1937, Emp: 160, ▲1, $1,000,000

See ad in class 56

Hunter Mfg. Co., 30525 Aurora Rd., Cleveland 39, Ohio, 2, 54, 90, Tel: CHurchill 8-6111, Yr: 1940, Emp: 75

Hunter Spring Co., Div. of American Machine & Metals, Inc., 1 Spring Ave., Lansdale, Pa., 40, 96, 97, 105, 111, Tel: 215-ULysses 5-6815, Yr: 1918, Emp: 325

Hunter Tool Co., 9851 Alburtis Ave., Santa Fe Springs, Calif., 41, 105, 111, Tel: OXford 2-7231, Yr: 1946, Emp: 40, $80,000

Huppert Co. (K. H.), 6830-40 Cottage Grove Ave., Chicago 37, Ill., 4, 61, 98, Tel: MIdway 3-4770, Yr: 1934, Emp: 40, $100,000

Hurletron, Inc., Electric Eye Equipment Div., 1938 E. Fairchild St., Danville, Ill., 4, 35, 69, Tel: 217-HIckory 6-6500, Yr: 1937, Emp: 160, ▲4

Hurst Mfg. Corp., Princeton, Ind., 67, Tel: FUlton 5-2564, Yr: 1950, Emp: 60, $82,000

Huyck Systems Co., 360 Wolf Hill Rd., Huntington Station, L.I., N.Y., 2, 4, 8, 9, 10, 28, 37, 43, 61, 67, 77, Tel: 516-HAmilton 7-7500, Yr: 1934, Emp: 350, ▲13, $3,500,000

Hy-Gain Antenna Products Corp., 1135 N. 22nd St., Lincoln, Nebr., 44, Tel: GRover 7-8944, Yr: 1956, Emp: 70

Hycon Mfg. Co., 700 Royal Oaks Dr., Monrovia, Calif., 1, 2, 4, 9, 14, 17, 21, 22, 41, 44, 66, 69, 80, Tel: MUrray 1-3471, Emp: 471

Hydraulic Research Div. of Textron-Bell (Hyres Electrical Div.), 11675 Sheldon St., Sun Valley, Calif., 51, 74, 80, Tel: ROgers 7-9685, Yr: 1960, Emp: 30, $120,000

Hydro-Aire Co., Div. of Crane Co., 3000 Winona Ave., Burbank, Calif., 2, 4, 9, 11, 53, 69, 72, 73, 77, 83, Tel: VIctoria 9-1331, ▲3

Hydro Molding Co., Inc., 100 Sharron Ave., Plattsburgh, N.Y., 90, 96, 97, 106, Tel: 2598, Yr: 1950, Emp: 125, $2,000,000

Hyletronics Corp., 185 Cambridge St., Burlington, Mass., 43, 44, 45, 59, 66, 80, Tel: 617-BRowning 2-0670, Yr: 1960, Emp: 10, ▲3

See ad in class 66

Hyperion, Inc., 127 Coolidge Hill Rd., Watertown 72, Mass., 69, Tel: WAlnut 6-0140, Yr: 1957, Emp: 100, ▲3, $1,000,000

Hysol Corp., 322 Houghton Ave., Olean, N.Y., 94, 107, Tel: 716-FR 2-6300, Yr: 1949, Emp: 100, ▲1

I

I.D.E.A., Inc., 7900 Pendleton Pike, Indianapolis 26, Ind., 2, 9, 20, 26, 43, 59, Tel: LIberty 7-3581, Yr: 1945, Emp: 150, ▲1, $1,200,000

I.D. Precision Components Corp., 89-25 Van Wyck Expwy., Jamaica 35, N.Y., 4, 10, 61, 77, 109, Tel: 212-JAmaica 3-8700, ▲1, $636,000

IE Mfg., 3035 Carroll Ave., Chicago 12, Ill., 44, 60, 62, 63, 80, 93, 95, 96, 97, 105, 109, 111, Yr: 1941, Emp: 63

I.H. Mfg. Corp., 121 Greene St., New York 12, N.Y., 46, 51, 65, 78, 81, 84, 107, Tel: OREgon 7-1881

IMC Magnetics Corp., Eastern Div., 570 Main St., Westbury, L.I., N.Y., 40, 47, 54, 67, 77, 80, 99, Tel: 516-EDgewood 4-7070, Yr: 1951, Emp: 400, ▲6, $5,000,000

IMC Magnetics Corp., Western Div., 6058 Walker Ave., Maywood, Calif., 67, 77, 80, Tel: LUdlow 3-4785, Yr: 1951, Emp: 320

ITA Electronics Corp., 130 E. Baltimore Ave., Lansdowne, Pa., 1, 4, 15, 18, 21, 24, 26, 27, 32, 33, 40, 42, 43, 84, 88, Tel: 215-GRanite 6-1406, Yr: 1957, Emp: 65, $875,000

I-T-E Circuit Breaker Co., Special Products Div., 601 E. Erie Ave., Philadelphia 34, Pa., 2, 4, 25, 37, 44, 45, 59, 66, 77, 80, 88, 91, Tel: GArfield 6-5700, Yr: 1888, Emp: 11,000 ▲50, $10,000,000

ITI Electronics, Inc., 369 Lexington Ave., Clifton, N.J., 1, 18, 21, 23, 24, 34, 40, 41, 43, 109, Tel: 201-GRegory 3-0900, Yr: 1947, Emp: 60, ▲2, $541,000

Ichizuka Optical Industrial Co., Ltd., 568, 2-Chome, Shimoochiai, Shinjuku-ku, Tokyo, Japan, 17, 32, Tel: 951-6241, Yr: 1952, Emp: 85, $80,000

Iconix, Inc., 945 Industrial Ave., Palo Alto, Calif., 2, 4, 5, 11, 22, 31, 35, 40, 41, Tel: 415-DAvenport 3-1411, Yr: 1955, Emp: 9, ▲1

Idaho Maryland Industries, Magnetics Div., 4310 San Fernando Rd., Glendale 4, Calif., 4, 8, 9, 10, Tel: CHapman 5-5563, Yr: 1959, Emp: 500, ▲11, $1,280,300

Ideal-Aerosmith, Div. of Royal Industries, Inc., 3913 Evans Ave., Cheyenne, Wyo., 2, 4, 11, 36, 40, 99, 111, Tel: 307-634-7714, Yr: 1938, Emp: 51

Ideal Electric & Mfg. Co., First & Oak Sts., Mansfield, Ohio, 67, 69, Tel: LAfayette 2-3611, Yr: 1903, Emp: 500

Ideal Industries, Inc., 3307 Park Ave., Sycamore, Ill., 41, 111, Tel: 2114, Yr: 1916, Emp: 350

Ideal Precision Meter Co., Inc., 214-218 Franklin St., Brooklyn 22, N.Y., 61, Tel: 212-EVergreen 3-6904, Yr: 1956, Emp: 220

Ideal Stitcher Co., Div. of W. R. Pabich Mfg. Co., Inc., 2323 N. Knox Ave., Chicago 39, Ill., 99, Tel: HUmboldt 6-4141, Yr: 1933, Emp: 25

Ideas, Inc., 214 Ivinson Ave., Laramie, Wyo., 91, Tel: 307-FRanklin 5-2597

Ilex Optical Co., 690 Portland Ave., Rochester 21, N.Y., 32, 109, Tel: HAmilton 6-0700

Ilikon Corp., Natick Industrial Centre, Natick, Mass., 4, 75, 81, 104, 109, Tel: 617-CEdar 5-8220, Yr: 1960, Emp: 22, ▲1

Illinois Condenser Co., 1616 N. Throop St., Chicago 22, Ill., 48, Tel: 312-EVerglade 4-1300, Yr: 1934, ▲3, Emp: 300, $1,500,000

See ad in class 48

Illinois Tool Works, Fastex Div., 195 Algonquin Rd., Des Plaines, Ill., 96, 97, Tel: 312-CYpress 9-2222

Illinois Tool Works, Licon Div., 6615 W. Irving Park Rd., Chicago 34, Ill., 4, 9, 63, 77, 80, Tel: 312-AVenue 2-4040, Emp: 120, ▲3

See ad in class 80

Illinois Tool Works, Paktron Div., 1321 Leslie Ave., Alexandria, Va., 48, 74, 92, 109, Tel: 202-KIng 8-4400, Yr: 1954, Emp: 200, ▲10

Illinois Tool Works, Shakeproof Div., St. Charles Rd., Elgin, Ill., 97, Tel: 312-SHerwood 1-7900, Yr: 1923, Emp: 500

Illinois Water Treatment Co., 840 Cedar St., Rockford, Ill., 99, Tel: 815-WOodland 8-9691, Yr: 1938, Emp: 102, $300,000

Illumitronic Engineering Corp., 680 E. Taylor Ave., Sunnyvale, Calif., 91, 107, 112, Tel: 415-REgent 9-2395, Yr: 1948, Emp: 27, ▲2

Image Instruments, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 2, 9, 10, 14, 21, 27, 43, 86, 95, 96, 109, Tel: 617-WOodward 9-8440, Yr: 1958, Emp: 14, ▲2, $100,000

See ads in classes 9, 10, 21, 86

Impact-O-Graph Corp., 1508 B. F. Keith Bldg., Cleveland 15, Ohio, 28, 36, Tel: CHerry 1-5838, Yr: 1948, Emp: 19, ▲2, $30,000

Imtra Corp., 11 University Rd., Cambridge 38, Mass., Importers, 9, 73, 111, Tel: UNiversity 4-4350, Yr: 1952, Emp: 2

Independent Metal Fabricators, Inc., 320 Casanova St., New York 59, N.Y., 90, Tel: DAyton 9-1700

Indiana Steel Products, Div. of Indiana General Corp., 405 Elm St., Valparaiso, Ind., 41, 64, 99, Tel: 219-HOward 2-3131, Yr: 1908, Emp: 650, ▲3

See ad in class 64

Indikon Co., Inc., 76 Coolidge Hill Rd., Watertown 72, Mass., 4, 6, 41, Tel: WAtertown 4-2198, Yr: 1954, Emp: 12, ▲1

Indium Corp. of America, 1678 Lincoln Ave., Utica 4, N.Y., 102, 104, 110, 112, Tel: 315-SWift 7-1630, Yr: 1934, Emp: 30

See ad in class 104

Inductor Engineering, Inc., 117 Schley Ave., Lewis, Del., 43, 51, 59, 84, Tel: 302-645-6251, Yr: 1956, Emp: 21, ▲1, $250,000

Industrial Accessories, Inc., Line Rd., Matawan, N.J., 101, Tel: LOwell 6-0300, Yr: 1954, Emp: 25, ▲1

Industrial Acoustics Co., Inc., 341 Jackson Ave., New York 54, N.Y., 36, 103, Tel: 212-CYpress 2-0180, Yr: 1949, Emp: 154

Industrial Components, Inc., 416 N.W. Canyon Rd., P.O. Box 308, Beaverton, Ore., 4, Tel: MItchell 4-0126, Yr: 1954, Emp: 8, $100,000

Industrial Condenser Corp., 3243 N. California Ave., Chicago 18, Ill., 48, 59, Tel: INdependence 3-2200, Yr: 1940, Emp: 500

Industrial Control Co., Central Ave. at Pinelawn, Farmingdale, L.I., N.Y., 4, 5, 6, 8, 9, 16, 17, 40, 43, 44, 61, 77, Tel: 516-MYrtle 4-3000, Yr: 1949, ▲1

Industrial Development Laboratories, Inc., 982 River Rd., Edgewater, N.J., 5, 6, Tel: WHitney 3-4084, Yr: 1945, ▲1

Industrial Devices, Inc., 982 River Rd., Edgewater 5, N.J., 41, 61, 62, 63, 80, 96, 106, Tel: 201-WHitney 3-4084, Yr: 1945, Emp: 50, ▲1

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Industrial Electronic Engineering & Maintenance, 480 Lexington Ave., New York 17, N.Y., 108, Tel: YUkon 6-4242

Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif., 2, 4, 9, 10, 13, 30, 40, 61, 63, 78, 95, 109, Tel: 213-TRiangle 7-1144, Yr: 1945, Emp: 100, $1,200,000

See ads on this page and in class 63

Industrial Electronic Hardware Corp., 109 Prince St., New York 12, N.Y., 52, 78, 81, 96, Tel: ORegon 7-1881, Yr: 1945, Emp: 350, $3,500,000

Industrial Electronic Rubber Co., 31945 Aurora Rd., Solon 39, Ohio, 66, 89, 97, 101, 106, 109, Tel: 216-CHurchill 8-1388, Yr: 1958, Emp: 25, ▲1, $75,000

Industrial Engineering & Equipment Co., Inc., 24 Hanley Industrial Ct., Saint Louis 17, Mo., 98, Tel: MIssion 7-3380, Yr: 1927, Emp: 145

Industrial Engravers, Inc., 2212 McDonald Ave., Brooklyn 23, N.Y., 90, 97, 109, Tel: HIckory 9-3200, Yr: 1953, Emp: 15, $165,000

Industrial Instruments, Inc., 89 Commerce Rd., Cedar Grove, N.J., 2, 4, 6, 12, 31, 40, 41, 48, 69, 74, 95, Tel: CEnter 9-6200, Yr: 1938, Emp: 160, ▲2

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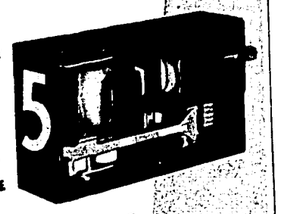

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Industrial Mica Corp., 223 S. Van Brunt St., Englewood, N.J., 105, Tel: LOwell 8-7200, Yr: 1929, Emp: 80, $750,000

Industrial Nucleonics Corp., 650 Ackerman Rd., Columbus 2, Ohio, 4, 22, 40, 41, 61, 99, Tel: AMherst 7-6351, Yr: 1950, Emp: 450, ▲30

Industrial Plastic Fabricators, Inc., Endicott St., Norwood, Mass., 47, 50, 94, 107, Tel: NOrwood 7-3411, Yr: 1948, Emp: 32

Industrial Research Products, Inc., 9400 Belmont Ave., Franklin Park, Ill., 95, Tel: 312-GLadstone 1-1320, Yr: 1947, Emp: 20, ▲3

Industrial Retaining Ring Co., 57 Cordier St., Irvington 11, N.J., 97, Tel: WAverly 6-5000, Yr: 1950, Emp: 50

Industrial Tectonics, Inc., 18301 Santa Fe Ave., Compton, Calif., 97, Tel: NEvada 6-9941, Yr: 1946, Emp: 130, ▲1

Industrial Test Equipment Co., 55 E. 11th St., New York 3, N.Y., 6, 31, 35, 40, 41, 43, 53, 69, 109, Tel: 212-GRamercy 3-4684, Yr: 1952, Emp: 25, ▲2

See ad in class 69

Industrial Timer Corp., 1407 McCarter Hwy. & 4th Ave., Newark 4, N.J., 4, 9, 10, 31, 51, 61, 73, 80, Tel: 201-HUmboldt 4-5600, Yr: 1939, Emp: 200, $3,700,000

Industrial Transformer Corp., 5 Montesand Rd., Caldwell, N.J., 6, 51, 59, 69, 84, Tel: 201-CApital 8-0910, Yr: 1948, Emp: 155, ▲2, $2,100,000

Industrial Winding Machinery Corp., P.O. Box 744, Church St. Station, New York 8, N.Y., Importers, 51, 99, 111, Tel: COrtlandt 7-2425, ▲1

Industro Transistor Corp., 35-10 36th Ave., Long Island City 6, N.Y., 43, 76, Tel: EXeter 2-8000, Yr: 1958, Emp: 150, ▲5, $1,282,000

Industron Corp., 55 Needham St., Newton 61, Mass., 69, 84, 98, Tel: 617-DEcatur 2-1477, Yr: 1954, Emp: 40, ▲2

Inertia Switch, Inc., 311 W. 43rd St., New York 36, N.Y., 61, 80, 83, Tel: 212-JUdson 6-5880, Yr: 1959, Emp: 30, ▲3

See ad in class 80

Information for Industry, Inc., 1000 Connecticut Ave., N.W., Washington 6, D.C., 108, Tel: STerling 3-4938, Yr: 1955, Emp: 21, ▲1

Information Systems, Inc., Affil. of Ling Temco Vought, Inc., 10131 National Blvd., Los Angeles 34, Calif., 4, 8, 9, 10, 27, 34, 61, 63, 70, Tel: VErmont 7-5333, Yr: 1948, Emp: 517, ▲19, $4,500,000

Infrared Industries, Inc., 62 Fourth Ave., Waltham 54, Mass., 4, 17, 43, 54, 73, 76, 81, 83, 109, Tel: 617-TWinbrook 3-5400, Yr: 1957, Emp: 175, ▲3, $1,800,000

Infrared Industries, Inc., West Coast Div., P.O. Box 989, Santa Barbara, Calif., 4, 14, 17, 20, 40, 43, 52, 54, 69, 75, 76, 83, 86, 94, 98, 109, Tel: 805-684-4181, Yr: 1957, Emp: 150, ▲3, $2,000,000

Ingraham Co., 392 N. Main St., Bristol, Conn., 4, 10, 61, 67, Tel: LUdlow 2-6321, Yr: 1829, Emp: 1200, ▲2

Injection Plastic Corp., 8124 Ridgeway Ave., Skokie, Ill., 68, 96, 97, 106, Tel: ORchard 5-0443, Yr: 1946, Emp: 25, $240,000

Inland Electronics Corp., 500 Rathbone Ave., Aurora, Ill., 1, 6, 29, 38, 42, Tel: TWin Oaks 6-7744, Yr: 1954, Emp: 60, ▲4, $1,000,000

Inland Motor Corp. of Virginia, Subsid. of Kollmorgen Corp., 501 First St., Radford, Va., 43, 53, 67, 69, Yr: 1948, Emp: 160, ▲3, $1,000,000

Insco Co., Div. of Barry Wright Corp., Main St., Groton, Mass., 4, 77, Tel: GIlbert 8-6369, Yr: 1950, Emp: 19

Insl-X Products Corp., 115 Woodworth Ave., Yonkers, N.Y., 101

Inso Electronic Products, Inc., 103-B Park Ave., Nutley, N.J., 91, Tel: 201-NOrth 7-7711, Yr: 1957, Emp: 40, $400,000

See ad in class 91

Instron Engineering Corp., 2500 Washington St., Canton, Mass., 4, 28, 36, 40, 41, 43, 77, 98, Tel: CAnton 6-2500, Yr: 1946, Emp: 125, ▲4

Instru-Lec Corp., 520 Homestead Ave., Mount Vernon, N.Y., 77, 97, Tel: MOunt Vernon 8-3754, Yr: 1951, Emp: 50

Instrulab, Inc., 1205 Lamar St., Dayton 4, Ohio, 69, Tel: BAldwin 3-2241, Yr: 1949, Emp: 14

Instrument Components of New Jersey, Inc., 312 Mount Pleasant Ave., Newark 4, N.J., 67, 77, Tel: 201-HUmboldt 3-6300, Yr: 1959, Emp: 9, ▲1, $100,000

Instrument Corp. of Florida, P.O. Box 1226, Melbourne, Fla., 1, 3, 4, 8, 9, 10, 11, 14, 15, 17, 20, 21, 23, 24, 26, 28, 29, 30, 31, 32, 33, 34, 35, 37, 38, 39, 40, 42, 43, 44, 59, 66, 69, 77, 86, 95, 96, 109, Tel: 305-PArkway 3-8112, Yr: 1957, Emp: 167, ▲2, $500,000

Instrument Development Laboratories, Inc., 67 Mechanic St., Attleboro, Mass., 9, 10, 34, 40, 80, Tel: CAstle 2-3880, Yr: 1946, Emp: 165, ▲3, $1,000,000

Instrument Electronics Corp., 90 Main St., P.O. Box 830, Port Washington, L.I., N.Y., 40, Tel: 516-PArt Washington 7-4242, Yr: 1946, Emp: 7

Instrument Laboratories, 315 W. Walton Pl., Chicago 10, Ill., 35, 41, 43, 61, 95, 96, Tel: MIchigan 2-0123, Yr: 1944, Emp: 25

Instrument Resistors Co., 1036 Commerce Ave., Union, N.J., 44, 51, 74, 84, Tel: 201-MUrdock 6-4363, Yr: 1939, Emp: 25, $100,000

Instrument Specialties Co., Inc., 244 Bergen Blvd., Little Falls, N.J., 97, 103, Tel: 201-CLifford 6-3500, Yr: 1938, Emp: 160

Instrument Systems Corp., 129-07 18th Ave., College Point 56, N.Y., Importers, 2, 4, 6, 8, 9, 10, 11, 22, 28, 37, 40, 43, 44, 45, 51, 53, 59, 61, 63, 64, 66, 70, 73, 76, 77, 80, 83, 84, 88, 96, 97, 99, 109, Tel: 212-INdependence 1-1000, Yr: 1959, Emp: 150, ▲5, $1,800,000

Instruments For Industry, Inc., 101 New South Rd., Hicksville, L.I., N.Y., 1, 2, 18, 19, 21, 26, 29, 34, 43, 59, 74, Tel: 516-OVerbrook 1-7100, Yr: 1953, Emp: 225, ▲40, $2,000,000

See ads in classes 43, 74

Instruments, Inc., 3434 Midway Dr., San Diego 10, Calif., 4, 34, 43, 80, 82, 109, Tel: 714-ACademy 3-7156, Yr: 1941, Emp: 7, ▲3

Instruments of New England, Box 324, Waltham 54, Mass., 4, 41, Tel: 617-TWinbrook 3-4037, Yr: 1957, Emp: 12, ▲3

Insulation Manufacturers Corp., 565 W. Washington Blvd., Chicago 6, Ill., 96, 101, 112, Tel: CEntral 6-7320, Yr: 1927, Emp: 125

Insulation Products Co., P.O. Box 5679, Pittsburgh 8, Pa., 96, 105, 106, Tel: 412-PEnhurst 1-2090, Yr: 1914, Emp: 6

Intaspace Corp., 135 Orange St., Bloomfield, N.J., 66, 109, Tel: PIlgrim 8-4700, Yr: 1959, Emp: 25, ▲2, $200,000

Intectron, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 4, 8, 9, 10, 34, 39, 43, 77, 95, 96, 109, Tel: 617-WOodward 9-9311, Yr: 1960, Emp: 11, ▲3, $20,000 (6 months)

See ad on this page

Intellux, Inc., Scientific Components Div., 30 S. Salsipuedes St., Santa Barbara, Calif., 10, 34, 50, 74, 76, Tel: WOodland 6-1585, Yr: 1945, Emp: 90, ▲1, $1,000,000

Intercontinental Dynamics Corp., 170 Coolidge Ave., Englewood, N.J., 2, 4, 34, 35, Tel: LOwell 7-3600, Yr: 1956, Emp: 37, ▲1

Intercontinental Electronics Corp., 300 Shames Dr., Westbury, L.I., N.Y., 2, 14, 25, 42, 43, 51, 53, 59, 69, 77, 84, 86, 96, 109, Tel: 516-EDgewood 4-8300, Yr: 1956, Emp: 150, ▲11, $1,000,000

Interelectronics Corp., 2432 Grand Concourse, New York 58, N.Y., 5, 17, 30, 40, 43, 48, 53, 69, 72, 84, Tel: 212-LUdlow 4-6200, Yr: 1949, Emp: 50, ▲12, $1,600,000

See ads in classes 34, 69

Interference Measurement Laboratory, Inc., 850 Shepherd Ave., Brooklyn 8, N.Y., 59, 109, Tel: NIghtingale 9-0303, Yr: 1952, Emp: 5, ▲1, $42,000

Interference Testing & Research Laboratory, Inc., 150 Causeway St., Boston 14, Mass., 37, 38, 88, 95, 109, Tel: 617-LAfayette 3-7826, Yr: 1952, Emp: 8, ▲6, $150,00

Interlab, Inc., 116 Kraft Ave., Bronxville, N.Y., 23, 35, 40, 45, 52, 74, 80, Tel: SPencer 9-3320

International Audio Stylus Corp., 107 Lake Ave., Tuckahoe, N.Y., 68, Tel: SWiftwater 3-6242, Yr: 1955, Emp: 4

International Business Machines Corp., 590 Madison Ave., New York 22, N.Y., 2, 4, 8, 9, 10, 27, 34, 70, Tel: 212-PLaza 3-1900, Yr: 1914, Emp: 104,241, ▲1475, $413,000,000

International Business Machines Corp., Federal Systems Div., 326 E. Montgomery Ave., Rockville, Md., 2, 8, 9, 10, 27, 50, Tel: 301-GArden 4-6700, Yr: 1955, Emp: 12,000, ▲40

International Crystal Mfg. Co., Inc., 18 N. Lee, Oklahoma City 2, Okla., 56, Tel: CEntral 6-3741, Yr: 1951, Emp: 165, ▲1

International Diode Corp., 90 Forrest St., Jersey City 4, N.J., 76, Tel: 201-HEnderson 2-0242, Yr: 1957, Emp: 15

International Eastern Co., 801 Sixth Ave., New York 1, N.Y., 99, Tel: 212-ALgonquin 5-5222, Yr: 1954

See ad in class 99

International Electric Corp., an Associate of IT.T., Rt. 17, Paramus, N.J., 109, Tel: COlfax 2-6800, Yr: 1938, Emp: 640, ▲29

International Electric Industries, Inc., 468 Grand Ave., Brooklyn 38, N.Y., 52, 62, 91, Tel: NEvins 8-0211, Yr: 1946, Emp: 50, $500,000

International Electronic Industries, Inc., Box 9036, Melrose Station, Nashville, Tenn., 48, Tel: ALpine 4-0501, Yr: 1954, Emp: 356, ▲2, $1,600,000

International Electronic Research Corp., ELIN Div., 135 W. Magnolia Blvd., Burbank, Calif., 31, 35, 40, 43, 69, Tel: VIctoria 9-2481, Yr: 1957, Emp: 359, ▲4

International Electronic Research Corp., IERC Div., 135 W. Magnolia Blvd., Burbank, Calif., 54, 78, 105, Tel: VIctoria 9-2481, Yr: 1952, Emp: 359, ▲4

International Electronic Research Corp., Riggs Nucleonics Corp. (Subsid.), 135 W. Magnolia Blvd., Burbank, Calif., 22, Tel: VIctoria 9-2481, Yr: 1957, Emp: 359, ▲4

International Electronics Corp., 81 Spring St., New York 12, N.Y., 76, 85, 86, 87, Tel: WOrth 6-0790

International Electronics Mfg. Co., Greenwood Acres, Annapolis, Md., 21, 24, 26, 29, 33, 35, 38, 43, 50, 53, 59, 69, 88, 90, 93, 95, 96, 109, Tel: 301-COlonial 3-2661, Yr: 1946, Emp: 184, ▲15, $2,000,000

International Equipment Co., 1284 Soldiers Field Rd., Boston 16, Mass., 82, 99, Tel: STadium 2-7900, Yr: 1901, Emp: 200

International Fermont Machinery Co., Inc., Route 17, Ramapo, N.Y., 2, 99, Tel: 914-SLoatsburg 3-2791, Yr: 1939, Emp: 150, ▲1, $2,000,000

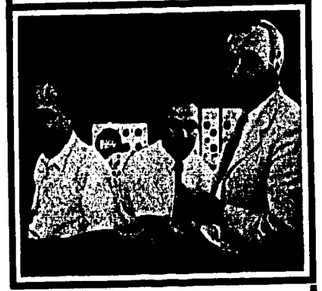
International Instruments, Inc., 88 Marsh Hill Rd., Orange, Conn., 4, 21, 40, 41, 61, 73, Tel: 203-SYcamore 5-4711, Yr: 1947, Emp: 180, ▲2, $1,400,000

See ad in class 61

International Nickel Co., Inc., Huntington Alloy Products Div., Huntington 17, W.Va., 91, 104, 112

International Physical Index, Inc., 1909 Park Ave., New York 35, N.Y., 108, Tel: 212-LEhigh 4-8412, Yr: 1957, Emp: 10, ▲2

INTECTRON
INCORPORATED
Newton Lower Falls, Massachusetts



Technical Staff Capabilities:

APPLIED RESEARCH & DEVELOPMENT
Advanced techniques for computation, control and communications.
Real time digital control, analog digital conversion.
Microphotographic information storage.
Instrumentation systems.

Complete Facilities Include: electronic and optical laboratories & model shop for custom prototype production.

For details, circle #113 on Reader Service Card

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

International Powder Metallurgy Co., Inc., 439 W. Main St., Ridgway, Pa., 43, 55, 97, 105, Tel: PR 3-3125, Yr: 1948, Emp: 126

International Pump & Machine Works, 81 Dorsa Ave., Livingston, N.J., 4, 22, 36, 40, 98, 99, Tel: 201-WYman 2-5900, Yr: 1951, Emp: 50, $50,000

See ad in class 99

International Radio & Electronics Corp., Box 261, Elkhart, Ind., 13, 27, 43, Tel: 219-JAckson 2-8583, Yr: 1946, Emp: 16, ▲2, $350,000

International Rectifier Corp., 233 Kansas St., El Segundo, Calif., 46, 71, 76, Tel: 213-ORegon 8-6281, Yr: 1947, Emp: 950, ▲10, $13,124,586

See ad on pages 74-75

International Rectifier Corp., Dallons Laboratories, Inc. (Subsid.), 5066 Santa Monica Blvd., Los Angeles, Calif., 5, 23, 34, 56, 57, 83, 99, Tel: NOrmandie 4-1951, Yr: 1930, Emp: 43, ▲10, $500,000

International Register Co., 2620 W. Washington Blvd., Chicago 12, Ill., 61, 80, Tel: VAn Buren 6-4242, Yr: 1891, Emp: 1000

International Research & Development Corp., 6150 Huntley Rd., Worthington, Ohio, 9, 21, 36, 40, 61, Tel: 614-TUxedo 5-5376, Yr: 1953, Emp: 64, ▲1

International Resistance Co., 401 N. Broad St., Philadelphia 8, Pa., 74, Tel: WAlnut 2-8900, Yr: 1923, Emp: 1600, ▲35, $21,000,000

International Systcoms, Ltd., 4940 Bourg St., Saint Laurent 9, Quebec, Canada, 20, Yr: 1957, Emp: 30, ▲2, $400,000

International Telephone & Telegraph Corp., ITT Components Div., Electron Tube Dept., 100 Kingsland Rd., P.O. Box 412, Clifton, N.J., 86, 87, Tel: 201-NOrth 7-3600, Yr: 1943, Emp: 1000, ▲20

International Telephone & Telegraph Corp., ITT Distributor Products Div., P.O. Box 99, Lodi, N.J., 48, 71, 76, 79, 91, Tel: HUbbard 9-7800

International Telephone & Telegraph Corp., ITT Federal Laboratories, 3301 Wayne Terr., Fort Wayne, Ind., 1, 2, 4, 9, 41, 50, 57, Tel: Kenmore 5436, Yr: 1938, Emp: 1000, ▲170

International Telephone & Telegraph Corp., ITT Federal Laboratories, 500 Washington Ave., Nutley 10, N.J., 1, 2, 4, 8, 9, 17, 19, 24, 25, 31, 43, 44, 50, 57, 59, 66, 77, 83, 86, 93, 109, Tel: NOrth 1-1100, Yr: 1920, Emp: 6,088, ▲600, $90,000,000

International Telephone & Telegraph Corp., ITT Industrial Products Div., 15191 Bledsoe, San Fernando, Calif., 1, 2, 17, 20, 23, 33, 34, 35, 36, 37, 39, 42, 43, 53, 69, Tel: 213-EMpire 7-6161, Yr: 1956, Emp: 230, ▲35

International Telephone & Telegraph Corp., ITT Kellogg, 6650 S. Cicero Ave., Chicago 38, Ill., 4, 9, 10, 11, 20, 33, 60, 62, 63, 65, 73, 79, 80, 95, 97, Tel: POrtsmouth 7-6900, ▲60

International Telephone & Telegraph Corp., ITT Laboratories (Components & Instrumentation Laboratory), 3700 E. Pontiac St., Fort Wayne, Ind., 2, 4, 7, 14, 17, 18, 21, 22, 25, 26, 32, 34, 40, 41, 42, 43, 54, 58, 82, 86, 94, 99, 105, Tel: E-7571, Yr: 1929, Emp: 100, ▲92, $1,500,000

International Telephone & Telegraph Corp., Royal Electric Corp. (Div.), 95 Grand Ave., Pawtucket, R.I., 60, 62, 91, Tel: 401-PAwtucket 2-8600, Yr: 1921, Emp: 1100

International Ultrasonics, Inc., 331 Centennial Ave., Cranford, N.J., 4, 43, 51, Tel: 201-BRidge 6-0780

International Wire & Cable Co., 1665 N. Milwaukee Ave., Chicago 47, Ill., 91, Tel: BRunswick 8-2362, Yr: 1952, Emp: 40

International Wire Products Corp., 300 Greenwood Ave., Midland Park, N.J., 91, Tel: 201-GIlbert 4-2151, Yr: 1948, Emp: 100, ▲3, $3,000,000

Interscience Publishers, Inc., 250 Fifth Ave., New York 1, N.Y., 108, Tel: 212-LEhigh 2-1727, Yr: 1940, Emp: 50

Interstate Electronics Corp., 707 E. Vermont Ave., Anaheim, Calif., 2, 4, 8, 9, 10, 11, 34, 40, 43, 50, 59, 96, 109, Tel: 714-PRospect 2-2222, Yr: 1956, Emp: 382, ▲37, $6,500,000

Invar Electronics Corp., 1723 Cloverfield Blvd., Santa Monica, Calif., 41, 43, 53, 69, Tel: EXbrook 3-9611, Yr: 1956, Emp: 68, ▲5, $1,000,000

Invengineering, Inc., P.O. Box 360, Belmar, N.J., 5, 28, 99, 109, Tel: 201-PRospect 5-6800, Yr: 1953, Emp: 12, ▲2

Investment Casting Co., 60 Brown Ave., Springfield, N.J., 96, Tel: DRexel 6-6260, Yr: 1947, Emp: 105

Ionic Electrostatic Corp., 111 Monroe St., Garfield, N.J., 69, 98, 99, Yr: 1957, Emp: 30, $500,000

Ippolito & Co., Inc. (James), 1624 Stillwell Ave., New York 61, N.Y., 14, 69, 81, 97, 105, Tel: TYrone 2-3700, Yr: 1931, Emp: 48, $500,000

Irco Corp., 16 Hudson St., New York 13, N.Y., 17, Tel: REctor 2-5390, Yr: 1952, Emp: 10, ▲3

Iron Fireman Mfg. Co., Electronics Div., 2838 S.E. 9th Ave., Portland 2, Ore., 2, 73, Tel: BElmont 4-6551, Yr: 1923, Emp: 1500, ▲8, $5,000,000

Irvan Engineering Co., Inc., 13856 Saticoy, Van Nuys, Calif., 10, 43, 44, 45, 48, 51, 55, 56, 66, 80, 92, 100, 101, 109, Tel: 213-STate 1-2620, Yr: 1958, Emp: 25, ▲2, $250,000

Isochem Resins Co., 221 Oak St., Providence 9, R.I., 75, 94, 101, 109, Tel: JAckson 1-5768, Emp: 21, ▲1, $400,000

Isolantite Mfg. Corp., 337 Warren Ave., Stirling, N.J., 55, 75, 86, 92, 97, 101, 105, 106, 112, Tel: 201-CRestview 7-3737, Yr: 1920, Emp: 30, ▲1, $200,000

See ad in class 92

Isomet Corp., 433 Commercial Ave., Palisades Park, N.J., 17, 22, 43, 94, Tel: WIndsor 4-4100, Yr: 1950, ▲2

Isotope Developments, Ltd., Bath Rd., Beenham, Reading, Berkshire, England, 4, 11, 22, 40, 43, 61, 69, Tel: WOolhampton 5-2121, Yr: 1950, Emp: 170, ▲1, $1,000,000

Isotopes, Inc., 123 Woodland Ave., Westwood, N.J., 22, Tel: 201-NOrth 4-7070, Yr: 1955, Emp: 62, ▲2, $65,436

Isotopes Specialties Co., P.O. Box 688, Burbank, Calif., 22, 94, 95, 103, 107, 109, Tel: VIctoria 9-2273, Yr: 1950, Emp: 40, ▲1

Isotronics, Inc., Franklin Ave., Route #46, Lodi, N.J., 52, 75, 99, 109, Tel: GRegory 1-0100, Yr: 1960, Emp: 350, $2,000,000

Itek Electro-Products Co., Div. of Itek Corp., 75 Cambridge Pkwy., Cambridge, Mass., 29, 35, 37, 38, 43, 56, 59, 88, Tel: 617-UNiversity 4-7200, Yr: 1955, Emp: 150, ▲15, $1,000,000

See ad in class 59

Itek Laboratories, Div. of Itek Corp., 10 Maguire Rd., Lexington 73, Mass., 9, 10, 13, 14, 15, 27, 31, 43, 44, 57, 59, 86, 87, Tel: 617-VOlunteer 2-6200, Yr: 1957, Emp: 1287, ▲2

Iwasaki Communication Apparatus Co., Ltd. (Iwasaki Tsushinki K. K.), 710, 2-chome, Kugayama, Suginami-ku, Tokyo, Japan, 5, 11, 23, 30, 35, 36, 37, 38, 41, 65, 72, Tel: 391-2231, Yr: 1938, Emp: 2,057, ▲2, $1,100,000

J

J B L Instrument Co., Sycamore & Mill St., Clifton Heights, Pa., 80, Tel: MAdison 3-4377, Yr: 1937, Emp: 10

J-B-T Instruments, Inc., 133 Hamilton St., New Haven 8, Conn., 40, 61, 73, 80, 82, Tel: 203-STate 7-5825, Yr: 1939, Emp: 160, $502,000

See ads in classes 61, 80

JFD Electronics Corp., 6101 16th Ave., Brooklyn 4, N.Y., 44, 49, 51, 57, 59, 84, 88, 91, 92, 109, 111, 112, Tel: 212-DEwey 1-1000, Yr: 1929, Emp: 800, ▲15

See ad on pages 56-57

J.V.M. Microwave Co., 9300 47th St., Brookfield, Ill., 43, 44, 45, 56, 59, 66, Tel: BRoadway 4-3756, Yr: 1953, Emp: 60, ▲3, $800,000

Jack & Heintz, Div. of Siegler Corp., 17600 Broadway, Cleveland 1, Ohio, 4, 43, 51, 53, 67, 69, 72, 73, 77, 84, 109, Tel: 216-MOntrose 2-1000, Yr: 1940, Emp: 1200, ▲12, $2,000,000

Jack Scientific Instrument Co. (Bill), 143 S. Cedros Ave., Solana Beach, Calif., 11, 14, 17, 41, 52, 53, 67, Yr: 1950, Emp: 150, ▲2, $1,500,000

Jackson Bros. (London), Ltd., 258 Broadway, New York 7, N.Y., Importers, 49, 77, 92, 97, Tel: WOrth 2-5485

Jackson Electrical Instrument Co., 124 McDonough St., Dayton 2, Ohio, 6, 23, 35, 38, 39, 40, 41, 69, Tel: BAldwin 4-0367, Yr: 1934, Emp: 70

Jackson Electronic & Mfg. Div., International Basic Economy Corp., 695 Johnson St., Akron 6, Ohio, 2, 4

Jacobs Instrument Co., Bethesda 14, Md., 2, 4, 8, 9, 10, 11, 14, 31, 37, 40, 57, 95, 109

Jacobson Nut Mfg. Corp., P.O. Box 177, Kenilworth, N.J., 97, Tel: MUrdock 6-0200, Yr: 1950, Emp: 80

Jadow, Inc. (B.), 860 Broadway, New York 3, N.Y., 97, 111, Tel: 212-GRamercy 5-4450, Yr: 1923, Emp: 60

Jaidinger Mfg. Co., Inc., 1921 W. Hubbard St., Chicago 22, Ill., 73, 80, Tel: HAymarket 1-1090, Yr: 1949, Emp: 60, ▲1, $500,000

James Electronics, Inc., 4050 N. Rockwell St., Chicago 18, Ill., 43, 51, 53, 68, 73, 83, 84, Tel: 312-COrnelia 7-6333, Yr: 1949, Emp: 155, ▲4, $1,500,000

See ad in class 53

Jamieson Laboratories, Inc., Thermocal Div., 7900 Haskell Ave., Van Nuys, Calif., 60, 61, 72, 80, 82, Tel: STate 1-1641, Yr: 1958, Emp: 20, ▲2

Jampro Antenna Co., 7500 14th Ave., Sacramento 20, Calif., 44, Tel: GLadstone 1-4375, Yr: 1958, Emp: 35, ▲5

Jan Engineering, 2018 Pico Blvd., Santa Monica, Calif., 81, Tel: EXbrook 6-8798, Yr: 1953, Emp: 5

Jan Hardware Mfg. Co., Inc., 38-01 Queens Blvd., Long Island City 1, N.Y., 36, 62, 77, 89, 90, 96, 97, 103, 105, 106, Tel: 212-EMpire 1-0800, Yr: 1948, Emp: 25, ▲1

Janco Corp., 3111 Winona Ave., Burbank, Calif., 41, 60, 73, 80, 91, 106, Tel: THornwall 8-5792, Yr: 1942, Emp: 100

Jandor, Inc., 948 Irving Ave., Dayton 19, Ohio, 90, 93, 96, 97, 109, Yr: 1946, Emp: 30, $450,000

Janette Div., National Pneumatic Co., Inc., 125 Amory St., Boston 19, Mass., 4, 47, 53, 67, 77, Tel: 617-JAmaica 4-7000, Yr: 1910, Emp: 500, ▲15

Janitrol Aircraft Div., Midland-Ross Corp., 4200 Surface Rd., Columbus 4, Ohio, 51, 54, Tel: 614-BRoadway 6-3561, Emp: 5500

Jansen Electronics Mfg., Inc., 2285 University Ave., Saint Paul 4, Minn., Tel: 612-MIdway 6-7458, Yr: 1957, Emp: 20

Jansky & Bailey, Div. of Atlantic Research Corp., Shirley Hwy. & Edsall Rd., Alexandria, Va., 109, Tel: 703-FLeetwood 4-2400, Yr: 1930, Emp: 150, ▲60, $1,750,000

Japan Electric Industry, Div. of Dempa Shinbun, Inc., 2 Kanda Matsuzumi-cho, Chiyoda-ku, Tokyo, Japan, 108, Tel: (Chicago) 312-LO 1-4827, Yr: 1946, Emp: 200, ▲1, $400,000

Japan Servo Co., Ltd., c/o Asahi-New York, Inc., 19 Rector St., New York 6, N.Y., 40, 67, 77, Tel: 212-HAnover 2-8435

Jarrell-Ash Co., 26 Farwell St., Newtonville 60, Mass., 40, Tel: 617-DEcatur 2-2130

Javex Electronics, P.O. Box 646, Redlands, Calif., 44, 45, 50, 52, 56, 62, 78, 80, 81, Tel: PYramid 3-5752, Yr: 1949, Emp: 65, $300,000

Jefferson Electric Co., 25th & Madison St., Bellwood, Ill., 84, Tel: MAnsfield 6-7161, Yr: 1915, Emp: 1200

Jefferson Electronic Products, Div. of Jefferson Electric Co., 322 State St., Santa Barbara, Calif., 17, 41, 52, 67, 90, 91, 94, 96, 99, 109, Tel: 805-WOodland 5-8505, Yr: 1953, Emp: 93, ▲1, $1,500,000

Jefferson, Inc. (Ray), Main & Cotton Sts., Philadelphia 27, Pa., 18, 20, 35, 39, 41, 44, 56, 83, Tel: IVyridge 2-7660, Yr: 1950, Emp: 200, $2,700,000

Jefferson Wire & Cable Corp., Pleasant Valley Rd., Sutton, Mass., 91, Tel: 617-UNion 5-4447, Yr: 1954, Emp: 35

Jelliff Mfg. Corp. (C. O.), Pequot Rd., Southport, Conn., 91, Tel: CLearwater 9-1615, Yr: 1880

Jennings Machine Corp., 3452 Ludlow St., Philadelphia 4, Pa., 99, Tel: 215-EVergreen 6-2420

Jennings Radio Mfg. Corp., 970 McLaughlin Ave., San Jose 8, Calif., 48, 49, 61, 73, 80, Tel: 408-CYpress 2-4025, Yr: 1942, Emp: 500, ▲5, $6,250,000

See ad in class 49

Jensen Industries, Inc., 7333 W. Harrison St., Forest Park, Ill., 68, Tel: FOrest 6-0180

Jensen Mfg. Co., Div. of Muter Co., 6601 S. Laramie Ave., Chicago 38, Ill., 79, 84, Tel: 312-POrtsmouth 7-7600, Yr: 1927, ▲8

Jerrold Electronics Corp., Dept. ITE-104, 15th & Lehigh Ave., Philadelphia 32, Pa., 37, 38, 39, 43, 45, 52, 69, 88, Tel: 215-BAldwin 6-3456, Yr: 1948, Emp: 800, ▲35

See ad in class 38

Jersey Specialty Co., Inc., Burgess Pl., Wayne, N.J., 91, Tel: 201-OXbow 4-6200, Yr: 1931, Emp: 20

Jet Electronics Corp., 451 S. Irwindale Ave., Azusa, Calif., 51, 57, 84, 86, 105, Tel: EDgewood 4-7847, Yr: 1957, Emp: 15, ▲2, $75,000

Jetronic Industries, Inc., Main & Cotton Sts., Philadelphia 27, Pa., 11, 18, 20, 23, 26, 30, 35, 37, 38, 40, 44, 51, 59, 88, Tel: 215-IVyridge 2-7660, Yr: 1950, Emp: 200, ▲2, $2,689,645

Jettron Products, Inc., #56 Route 10, Hanover, N.J., 52, 72, 105, 109, Tel: TUcker 7-0571, Yr: 1956, Emp: 30, $400,000

Jo-Line Tools, Inc., 8442 Otis St., South Gate, Calif., 41, 111, Tel: LOrain 7-1366, Yr: 1954, Emp: 25

Jodee Plastics, Inc., 36 Crescent St., Brooklyn 8, N.Y., 90, 96, 97, 101, 106, 107, 111, Tel: APplegate 7-4774, Yr: 1953

Johanson Mfg. Corp., Rockaway Valley Rd., Boonton, N.J., 49, Tel: DEerfield 4-2676, Yr: 1945, Emp: 50, ▲2

Johns-Manville Co., 22 E. 40th St., New York 16, N.Y., 94, 96, 97, 101, 103, 107, 112, Tel: LExington 2-7600, Yr: 1858, Emp: 22,000

Johnson & Associates, Inc. (Wm. B.), Mountain Lakes, N.J., 11, 22, 43, 69, 86, 95, Tel: DEerfield 4-9222, Yr: 1952, Emp: 12, ▲1, $100,000

Johnson & Bassett, Inc., 114 Foster St., Worcester 8, Mass., 99, Tel: 617-PLeasant 5-1216, Yr: 1870, Emp: 35, $30,000

Johnson Bronze Co., 500 S. Mill St., New Castle, Pa., 97, Tel: OLiver 4-6631, Yr: 1901, Emp: 1200

Johnson Co. (E. F.), 299 10th Ave. S.W., Waseca, Minn., 1, 3, 20, 24, 29, 33, 44, 45, 49, 51, 52, 59, 62, 63, 73, 78, 80, 88, 92, Tel: 507-835-2050, Yr: 1923, Emp: 450, ▲3

Johnson Co., Inc. (Corydon M.), Route 107, Bethpage, L.I., N.Y., 108, Tel: 516-WElls 8-4600, Yr: 1931, Emp: 130, ▲3, $150,000

Johnson Co., Inc. (K. W.), 1825 Webster St., Dayton 4, Ohio, 89, 95, Tel: BA 4-1078, Yr: 1953, Emp: 35

Johnson Electronics, Inc., P.O. Box 1675, Casselberry, Fla., 1, 2, 4, 26, 43, 51, 53, 57, 59, 69, 77, 84, 88, Tel: TErrace 8-2111, Yr: 1951, Emp: 100, ▲3, $400,000

Johnson & Hoffman Mfg. Corp., 31 E. Second St., Mineola, L.I., N.Y., 96, 97, 105, Tel: 516-PIoneer 2-3333, Yr: 1949, Emp: 107, ▲4, $1,500,000

Johnson Mfg. Co., Inc., 616 1st Ave. N., Mount Vernon, Iowa, 110, Tel: 3651, Yr: 1909, Emp: 10, $50,000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Johnson Matthey & Mallory, Ltd., 110 Industry St., Toronto 15, Ontario, Canada, 48, 71, 80, 104, 109, 110, Tel: 763-5111, Emp: 300

Johnson Service Co., 507 E. Michigan St., Milwaukee 1, Wis., 4, 9, 61, Tel: BRoadway 6-9200, Yr: 1885, Emp: 3000, ▲4, $60,000

Jonathan Mfg. Co., 720 E. Walnut, Fullerton, Calif., 93, 97, Tel: LAmbert 6-4651, Yr: 1954, Emp: 75, $1,000,000

Jones Electronics (Hiram), 1010 Oak St., Burbank, Calif., 7, 52, 62, 77, 81, 105, 106, Tel: 213-VIctoria 9-5311, Yr: 1956, Emp: 12, $125,000

Jones & Lamson Machine Co., 576 Clinton St., Springfield, Vt., 14, 99, Tel: TUrner 5-2121, Yr: 1874, Emp: 900

Jones Optical Works (A. D.), 2400 Massachusetts Ave., Cambridge 40, Mass., 66, 92, Tel: TRowbridge 6-3368, Yr: 1921, Emp: 50

Jones & Roy Co., 620 Commercial St., Covina, Calif., 81, 91, 96, 97, 105, Tel: EDgewood 2-0504, Yr: 1956, Emp: 35

Jones & Wettlaufer Engineering Corp., 11780 W. Pico Blvd., West Los Angeles 64, Calif., 9, 11, Tel: GRanite 7-3247, Yr: 1955, Emp: 9, ▲2

Jonesville Paper Tube Corp., 474 Peck Rd., Jonesville, Mich., 101, 112, Tel: VIctor 9-2951, Yr: 1955, Emp: 27

Jontz Mfg. Co., Inc., 1101 E. McKinley Ave., Mishawaka, Ind., 44, Tel: BLackburn 9-2496, Yr: 1946, Emp: 25

Jordan Controls, Inc., 3235 W. Hampton Ave., Milwaukee 9, Wis., 4, 43, 77, Tel: UPtown 1-9240, Yr: 1956, Emp: 27

Jordan Electronics, Div. of Victoreen Instrument Co., 121 S. Palm Ave., Alhambra, Calif., 4, 11, 22, 31, 43, 50, 53, 61, 69, 73, 77, 80, Tel: CUmberland 3-6425, Yr: 1951, Emp: 125, ▲3, $1,500,000

Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Pa., 47, 52, 62, 69, 80, 99, Tel: GRant 1-2140, Yr: 1880, Emp: 4000

Joy Mfg. Co., Electrical Products Div., 1201 Macklind, Saint Louis 10, Mo., 52, 62, 69, 80, 81, Tel: MIssion 5-6670, Yr: 1851, Emp: 300

Juall Gear Co., Inc., 1108 Goffle Rd., Hawthorne, N.J., 77, Tel: 201-HAwthorne 7-4220, Yr: 1951, Emp: 26

Judd Wire Mfg. Corp., Turner's Falls, Mass., 91, Tel: UNderhill 3-4358, Yr: 1954, Emp: 25, $125,000

Julie Research Laboratories, Inc., 603 W. 130th St., New York 27, N.Y., 2, 6, 12, 31, 40, 69, 74, Tel: 212-AUdubon 6-9200, Yr: 1954, Emp: 55, ▲2, $1,400,000

Justrite Mfg. Co., 2061 N. Southport Ave., Chicago 14, Ill., 63, Tel: DIversey 8-2114, Yr: 1906, Emp: 135

K

K-D Mfg. Co., 526 N. Plum St., Lancaster, Pa., 97, 111, Tel: EX 7-8176, Yr: 1919, Emp: 130

K-F Development Co., 2606 Spring St., Redwood City 1, Calif., 74, Tel: 415-EMerson 8-5670, Yr: 1948, Emp: 10, $108,019

See ad in class 74

K. F. R. Corp., 6006 Washington Blvd., Culver City, Calif., 87, Tel: VErmont 8-3763, Yr: 1957, Emp: 9, $400,000

K. G. S. Electronics, 157 Winston Way, Pasadena, Calif., 51, 84, Tel: MUrray 1-0054, Yr: 1960, Emp: 6, ▲1, $25,000

KLH Research & Development Corp., 30 Cross St., Cambridge 39, Mass., 26, 79, Tel: KIrkland 7-3815, Yr: 1957, Emp: 75

KTV Tower & Communication Equipment Co., P.O. Box 294, Sullivan, Ill., 44, Yr: 1956, Emp: 15, $80,000

K. V. Transformer Corp., 20 E. Franklin St., Danbury, Conn., 51, 84, Tel: PIoneer 3-5531, Yr: 1945, Emp: 55, ▲2

K-W Engineering Works, N50-W16328 Pin Oak Court, Butler, Wis., 44, 96, 97, Tel: 414-SUnset 1-8616, Yr: 1953, ▲1

Kaar Engineering Corp., 2995 Middlefield Rd., Palo Alto, Calif., 1, 18, 20, 21, 24, 44, 59, 69, 93, 96, Tel: 415-DAvenport 6-5050, Yr: 1936, Emp: 100, ▲5, $1,600,000

Kaddis Mfg. Corp., 300-316 Hudson Ave., Rochester 5, N.Y., 62, 81, 96, 97, 109, Tel: 716-BA 5-3486, Yr: 1949, Emp: 165, $300,000

Kahl Scientific Instrument Corp., P.O. Box 1166, El Cajon, Calif., 11, 22, 36, 37, 40, 41, 61, 66, 73, 75, 80, 82, 86, 109, 112, Tel: 714-HIckory 4-5944, Yr: 1948, Emp: 15, $70,000

Kahle Engineering Co., 3319 Hudson Ave., Union City, N.J., 56, 75, 95, 96, 98, 99, 105, 109, Tel: 201-UNion 7-6500, Yr: 1931, Emp: 68, ▲1

See ad in class 99

Kahlenberg Bros. Co., 1302 Monroe St., Two Rivers, Wis., 95, 96, Tel: 307, Yr: 1895

Kahn & Co., Inc., 885 Wells Rd., Wethersfield, Conn., 2, 4, 6, 21, 37, 40, 41, 61, 99, Tel: 203-JAckson 9-8643, Yr: 1945, Emp: 70, ▲2, $200,000

Kahn, Leonard R., 81 S. Bergen Pl., Freeport, L.I., N.Y., 95, Tel: 516-FReeport 9-8800

See ad in class 95

Kahn Research Laboratories, Inc., 81 S. Bergen Pl., Freeport, L.I., N.Y., 1, 24, 26, 29, 32, 33, 42, 95, Tel: 516-FReeport 9-8800, Yr: 1952, Emp: 30, ▲5

Kaiser Aircraft & Electronics, Div. of Kaiser Industries Corp., West Coast Electronics Laboratory, 1680 Page Mill Rd., P.O. Box 275, Station A, Palo Alto, Calif., 2, 4, 21, 26, 42, 85, 86, 109, Tel: 415-DAvenport 1-3320, Yr: 1954, Emp: 110, ▲12, $1,929,990

Kaiser Aluminum & Chemical Sales, Inc., 300 Lakeside Dr., Oakland 12, Calif., 91, 104, Tel: CRestview 1-2211, Yr: 1946, Emp: 18,958

Kaiser Electronics, Inc., 3 Monroe St., Union, N.J., 17, 53, 69, Tel: Murdock 7-2525, Yr: 1957, Emp: 30, ▲3, $200,000

Kalart Co., Inc., Hultenius St., Plainville, Conn., 13, 65, 70, Tel: SHerwood 7-1663, Yr: 1932, Emp: 150, ▲1

Kalite Technical Co., Inc., 715 Mattison Ave., Asbury Park, N.J., 108, Tel: PRospect 4-2100

Kall, Albert R., P.O. Box 172, Willow Grove, Pa., 95, Tel: 215-OLdfield 9-4121

See ad in class 95

Kaman Aircraft Corp., Old Windsor Rd., Bloomfield, Conn., 1, 2, 4, 13, 34, 44, 77, 90, 93, Tel: CHapel 2-4481, Yr: 1945, Emp: 4800, ▲22

Kaman-Nuclear, Div. of Kaman Aircraft Corp., Industrial Park, Garden of the Gods Rd., Colorado Springs, Colo., 2, 4, 5, 10, 22, 25, 30, 40, 44, 50, 66, 73, 88, 94, 95, 96, 103, 105, Tel: MElrose 4-2826, Yr: 1957, Emp: 72, ▲8, $270,000

Kane Engineering Laboratories, 845 Commercial St., Palo Alto, Calif., 43, 59, 66, 86, 99, Tel: DAvenport 1-2487, Yr: 1959, Emp: 18, ▲3, $150,000

Kanthal Corp., Amelia Pl., Stamford, Conn., 98, 104, 112, Tel: 203-DAvis 5-2206, Yr: 1951, Emp: 73, ▲1

Kapitol Magnetic Corp., 2241 N. Knox Ave., Chicago 39, Ill., 84, Tel: DIckens 2-8500, Yr: 1953, Emp: 102

Karg Laboratories, Inc., 162 Ely Ave., South Norwalk, Conn., 26, 88, Tel: 203-VOlunteer 6-3200, Yr: 1957, Emp: 11, ▲2, $200,000

Kartron, Inc., P.O. Box 472, 7882 Kartron St., Huntington Beach, Calif., 41, Yr: 1946, Emp: 10, ▲1, $25,000

Kassel Industries, Inc., 100 S. Van Brunt St., Englewood, N.J., 91, 104, 105, 107, 112, Tel: 201-LOwell 7-3771, Yr: 1943

Kasson Die & Motor Corp., 34-08 Northern Blvd., Long Island City 1, N.Y., 63, 67, Tel: EXeter 2-6633, Yr: 1919, Emp: 100, $50,000

Kato Engineering Co., 1420 First Ave., Mankato, Minn., 2, 53, 67, 99, Tel: 8-2941, Yr: 1928, Emp: 200, ▲1, $500,000

See ad in class 67

Kauke & Co., Inc., 1632 Euclid St., Santa Monica, Calif., 9, 23, 34, 59, Tel: GLadstone 1-1424, Yr: 1957, Emp: 58, ▲4, $500,000

Kawecki Chemical Co., 220 E. 42nd St., New York 17, N.Y., 91, 94, 102, 104, Tel: 212-MUrray Hill 2-7143, Yr: 1950, Emp: 325, $9,000,000

See ads in classes 102, 104

Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 2, 25, 35, 36, 37, 38, 39, 40, 42, 43, 45, 80, Tel: 201-CApital 6-4000, Yr: 1947, Emp: 110, ▲6

See ad on pages 72-73

Kaydon Engineering Corp., Muskegon, Mich., 97, 109, Tel: 616-PLaza 5-3741, Yr: 1941, Emp: 400

Kaynar Mfg. Co., Inc., Kaylock Div., Box 2001, Terminal Annex, Los Angeles 54, Calif., 97, Tel: SPruce 3-3070, Yr: 1944, Emp: 500

Kedman Co., 233 S. 5th West St., Salt Lake City 1, Utah, 111, Tel: 801-EMpire 3-8869, Yr: 1946, Emp: 30

Keil Engineering Products, Inc., 4356 Duncan Ave., Saint Louis 10, Mo., 50, 94, 97, Tel: OLive 2-7005 Yr: 1955, Emp: 20, ▲3, $175,000

Keiser's Industries, Inc., Lauman St., Mount Holly Springs, Pa., 91, Tel: 717-HUnter 6-3611

Keith Co. (W. P.), 9128 S. Norwalk Blvd., Santa Fe Springs, Calif., 82, 86, 92, 98, 101, Tel: RAymond 3-2267, Yr: 1955, Emp: 9, $100,000

Keithley Instruments, Inc., 12415 Euclid Ave., Cleveland 6, Ohio, 6, 40, 43, 61, 69, Tel: 216-SWeetbriar 3-2666, Yr: 1953, Emp: 78, ▲10

Keller Engineering (Hugo P., Jr.), 50 E. 42nd St., New York 17, N.Y., 17, 68, 97, Tel: MUrray Hill 2-8450, Yr: 1853, Emp: 8

Kelsey-Hayes Co., 3600 Military, Detroit 32, Mich., 2, 4, 44, 106, 107, 111, Tel: TAshmoo 5-5500, Yr: 1909, Emp: 10,000

Kelsey-Hayes Co., Utica Drop Forge & Tool Div., 2415 Whitesboro St., Utica 4, N.Y., 111, Tel: 315-REdwood 6-3331, Yr: 1895, Emp: 2200

Kelvin Electric Co., 5907 Noble Ave., Van Nuys, Calif., 74, Tel: STate 2-6662, Yr: 1956, Emp: 100, ▲2, $1,000,000

Kemet Co., Div. of Union Carbide Corp., P.O. Box 6087, Cleveland 1, Ohio, 48, 102, 105, Tel: 216-ACademy 6-3330, Yr: 1925, Emp: 300, ▲4, $3,000,000

Kemlite Laboratories, Inc., 1819 W. Grand Ave., Chicago 22, Ill., 1, 40, 43, 44, 63, 86, Tel: 312-TAylor 9-6050, Yr: 1940, Emp: 72, ▲5, $650,000

Kemp Mfg. Co. (C. M.), 405 E. Oliver St., Baltimore 2, Md., 99, Tel: 301-VErnon 7-1190, Yr: 1880, Emp: 135

Kemtron Electron Products, Inc., 14 Prince St., Newburyport, Mass., 71, 76, Tel: HOmestead 2-4464, Yr: 1948, Emp: 100

Ken-Tron Corp., 395 Lynnway, Lynn, Mass., 52, 62, Tel: LYnn 8-4750, Yr: 1946, Emp: 150

Kenn Equipment Co., 16-18 S. Marshall St., Phialdelphia 6, Pa., 99, Tel: WAlnut 5-7878, Yr: 1949

Kennedy Co., 2029 N. Lake Ave., Altadena, Calif., 10, 27, 31, 41, 83, Tel: MUrray 1-0028, ▲1

Kennedy & Co. (D. S.), 155 King St., Cohasset, Mass., 25, 37, 44, 58, 66, 96, 109, Tel: 617-EVergreen 3-1200, Yr: 1945, Emp: 700, ▲16, $7,000,000

Kennedy Industries, 1581 E. Charles St., Banning, Calif., 52, Tel: 714-849-4721, Yr: 1954, Emp: 37

Kenru Co., Box 121, Parsippany, N.J., 78, Tel: CHestnut 5-9800, Yr: 1952, Emp: 7, ▲1

Kent Corp. (F. C.), Div. of Bart Mfg. Corp., 135 Manchester Pl., Newark 4, N.J., 66, 83, 109, Tel: 201-PLymouth 9-0200, Yr: 1915, Emp: 52, ▲3

Kentron Hawaii, Ltd., 1140 Waimanu St., Honolulu 14, Hawaii, 40, 95, 109, Tel: Honolulu 53-975, Yr: 1956, Emp: 50, ▲4, $700,000

Kentucky Electronics, Inc., 2208 W. Second St., Owensboro, Ky., 96, 105, Yr: 1955, Emp: 25, ▲2

Kenyon Transformer Co., Inc., 1057 Summit Ave., Jersey City 7, N.J., 51, 53, 72, 84, Tel: OLdfield 6-1100, Yr: 1929, Emp: 70, ▲5, $1,000,000

Kepco, Inc., 131-38 Sanford Ave., Flushing 55, N.Y., 69, 72, 84, Tel: 212-INdependence 1-7000, Yr: 1946, ▲5

See ad in class 69

Kern Instruments, Inc., 120 Grand St., White Plains, N.Y., Importers, 2, 14, Yr: 1954, Emp: 7

Kerrco, Inc., 3731 N. 58th St., Lincoln 6, Nebr., 90, 106, 107, Tel: IN 6-5105

Kessler Co., Inc. (Frank), 41-45 47th St., Long Island City 4, N.Y., 84, Tel: STillwell 4-0263, Yr: 1939, Emp: 25, ▲1

Kester Solder Co., 4219 Wrightwood Ave., Chicago 39, Ill., 110, Tel: 312-BElmont 5-1601, Yr: 1899, Emp: 350

See ad in class 110

Keuffel & Esser Co., 300 Adams St., Hoboken, N.J., 50, Tel: 201-OL 9-1100, ▲2

Kewaunee Scientific Equipment Co., 4018 Logan St., Adrian, Mich., 36, 90, 96, 98, Tel: 313-COlfax 5-7131, Yr: 1941, Emp: 75, $250,000

Key Resistor Corp., 321 W. Redondo Beach Blvd., Gardena, Calif., 12, 50, 59, 74, Tel: DAvis 3-5000, Yr: 1957, Emp: 110, ▲7, $1,000,000

Keystone Bolt & Nut Corp., 125 Church St., New York 7, N.Y., 97, Yr: 1922, Emp: 150

Keystone Carbon Co., Thermistor Div., 1935 State St., Saint Marys, Pa., 74, Tel: 814-TErminal 4-1591, Yr: 1927, Emp: 504, ▲4, $1,235,000

See ad on page 41

Keystone Electronics Co., 65 Seventh Ave., Newark 4, N.J., 56, 59, Tel: 201-HUmboldt 2-0630, Yr: 1950, Emp: 100

Keystone Mfg. Co., Div. of Avis Industrial Corp., 23338 Sherwood Ave., Warren, Mich, 90, Tel: SL 7-4400

Keystone Products Co., 904-6 23rd St., Union City, N.J., 43, 51, 59, 84, Tel: UNion 6-5400, Yr: 1950, Emp: 125, ▲4, $900,000

Kibbey Instrument Co., P.O. Box 50, Perkins, Calif., 62, 81, 93, 97, 109, Tel: 916-GLadstone 1-6571, Yr: 1953, Emp: 2, ▲1, $3,500

Kickhaefer Mfg. Co., 901 S. 2nd St., Milwaukee 4, Wis., 62, 96, 97, Tel: 414-MItchell 5-1630, Yr: 1908, Emp: 30

Kidco, Inc., P.O. Box 278, Medford, N.J., 74, Tel: OLive 4-8494, Yr: 1959, Emp: 65, ▲1, $500,000

Kidde Electronics Laboratories, Walter Kidde & Co., Inc., 577 Brighton Rd., Clifton, N.J., 43, 53, 69, 73, 74, Tel: GRegory 2-5000, Yr: 1918, Emp: 1700, ▲1

Kidde Ultrasonic & Detection Alarms Div., Walter Kidde & Co., Inc., 577 Brighton Rd., Clifton, N.J., 4, Tel: GRegory 2-5000

Kilo Engineering Co., 2011 Third St., La Verne 4, Calif., 97, Tel: 714-LYcoming 3-4626, Yr: 1956, Emp: 23

Kilovolt Corp., 238 High St., Hackensack, N.J., 41, 69, Tel: 201-HUbbard 8-7373, Yr: 1959

See ad in class 69

Kimble Glass Co., Subsid. of Owens-Illinois, P.O. Box 1035, Toledo 1, Ohio, 75, 85, 86, 105, 112, Tel: CHerry 2-6543

Kin Tel, Div. of Cohu Electronics, Inc., 5725 Kearny Villa Rd., San Diego 11, Calif., 4, 9, 12, 16, 21, 31, 32, 34, 35, 40, 42, 43, 50, 53, 61, 63, 69, 70, 74, 84, 88, 95, 96, Tel: 714-BRowning 7-6700, Yr: 1944, Emp: 500, ▲25, $10,000,000

Kinetic Instrument Corp., 1070 Linwood St., Brooklyn 8, N.Y., 4, 11, 67, 77, Tel: NIghtingale 9-8800, Yr: 1959, Emp: 80, $1,000,000

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Kinetics Corp., 410 S. Cedros, Solana Beach, Calif., 34, 53, 69, 80, Tel: SKyline 5-1181, Yr: 1957, Emp: 160, ▲4, $300,000

King Radio Corp., 139 S. Brockway, Olathe, Kans., 1, 2, 44, Tel: 816-STate 2-0400, Yr: 1959, Emp: 75, ▲3, $1,050,000

Kings Electronics Co., Inc., 40 Marbledale Rd., Tuckahoe 7, N.Y., 43, 45, 52, 59, 62, 66, 80, 81, Tel: 914-SWiftwater 3-5000, Yr: 1942, Emp: 240, $3,800,000

Kingsley Machine Co., 850 Cahuenga Blvd., Hollywood 38, Calif., 99, Tel: 213-HOllywood 9-7243, Yr: 1923, Emp: 102

See ad in class 99

Kingston Electronics, Div. of Kingston Industries, Inc., Medfield, Mass., 4, 13, 23, 69, Tel: FLeetwood 9-4347, Yr: 1955, Emp: 10

Kinn Electronics Corp., 4125 Hayward Ave., Baltimore 15, Md., 1, 2, 4, 18, 21, 36, 41, 43, 53, 61, 90, 96, 98, 107, Tel: 301-LIberty 2-7977, Yr: 1957, Emp: 13, ▲1, $125,000

Kinn Engineering (Theodore P., Sr.), 7007 Lancaster Rd., Baltimore 7, Md., 95, Tel: 301-HUnter 6-8988, Emp: 1, ▲1

Kirchberger & Co., Inc. (M.), 250 Humphrey St., Englewood, N.J., 66, 92, 100, 105, 106, Tel: LOwell 8-4555, Yr: 1890

Kirkland Co. (H. R.), 8-10 King St., Morristown, N.J., 4, 63, 80, Tel: JEfferson 8-2777, Yr: 1931, Emp: 15, $25,000

Kirsch Music Corp., 36-27 Prince St., Flushing 54, N.Y., 13, 14, 70, 94, Tel: 212-HIckory 5-7200

Kistler Instrument Corp., 15 Webster St., North Tonawanda, N.Y., 40, 43, 83, Tel: NX 2-2099, Yr: 1954, Emp: 25, ▲3

Klann Organ Supply Co., 4th & Charlotte, Waynesboro, Va., 73, 80, 81, 96, 97, 99, 109, Tel: WHitehall 2-8351, Yr: 1910, Emp: 102, ▲2, $175,000

Kleer Vue Mfg. Co., Inc., P.O. Box 10326, Pittsburgh 34, Pa., 90, Tel: 301-TEnnyson 5-2662, Yr: 1947, Emp: 16

Klein & Sons, Inc. (Mathias), 7200 McCormick Rd., Chicago 45, Ill., 111, Tel: JUniper 8-6820, Yr: 1857, Emp: 200

Kline Iron & Steel Co., 1225 Huger St., Columbia, S.C., 44, Tel: ALpine 4-0301, Yr: 1923, Emp: 225

Kling Metal Spinning & Stamping Co., 247 Centre St., New York 13, N.Y., 96, Tel: 212-CAnal 6-5580, Yr: 1918, Emp: 18, $290,000

Klipsch & Associates, Inc., P.O. Box 96, Hope, Ark., 26, 79, Tel: 501-PRospect 7-6751, Yr: 1946, Emp: 6, ▲1

Knapic Electro-Physics, Inc., 936-40 Industrial Ave., Palo Alto, Calif., 17, 41, 56, 102, Tel: 415-DAvenport 1-5544, Yr: 1957, Emp: 99, ▲2, $3,250,000

Knight Electronics Corp., Subsid. of Allied Radio Corp., P.O. Box 449, 2200 Maywood Dr., Maywood, Ill., 3, 6, 20, 23, 26, 27, 30, 35, 38, 39, 40, 41, 43, 69, 88, Tel: 312-MUrray 1-2700, Yr: 1921, Emp: 1,000, ▲8

Knights Co. (James), 101 E. Church St., Sandwich, Ill., 21, 31, 35, 38, 56, 59, Tel: 2141, Yr: 1942, Emp: 325, ▲10, $3,500,000

See ad in class 56

Knob Corp. of America, 469 Jericho Tnpke., Mineola, L.I., N.Y., 97, Tel: PIoneer 7-3900, Yr: 1958, Emp: 25, ▲1

Knopp, Inc., 1307 66th St., Oakland 8, Calif., 6, 12, 31, 40, 41, 43, 51, 59, 64, 69, 84, 95, 96, 97, 109, Tel: OLympic 3-1661, Yr: 1928, Emp: 25, ▲1

Knowles Electronics, Inc., 10545 Anderson Pl., Franklin Park, Ill., 65, 79, Tel: 312-GLadstone 5-3600, Yr: 1953, ▲1

Koch & Sons (H.), Box 127, Corte Madera, Calif., 90, 96, 107, Tel: 415-WAbash 4-3510, Yr: 1909, Emp: 200, ▲1, $750,000

Koehring Co., H-P-M Div., Marion Rd., Mount Gilead, Ohio, 99, Tel: 9351, Yr: 1877, Emp: 650

Koiled Kords, Inc., Box K, New Haven 14, Conn., 41, 91, Tel: 203-CHestnut 8-5515, Yr: 1899, Emp: 600, ▲2

Koito Electronics Co., Ltd., 113, Kaminegishi, Daito-ku, Tokyo, Japan, 29, 43, Tel: 921-5344, Yr: 1959, Emp: 37, $200,000

Kollman Case Corp., P.O. Box 180, Fort Wayne, Ind., 90, Tel: Harrison 0919, Yr: 1931

Kollmorgen Corp., 347 King St., Northampton, Mass., 14, 43, 77, Tel: 413-JUstice 4-0280, Yr: 1916, Emp: 310, ▲4, $1,500,000

Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., 80-08 45th Ave., Elmhurst 73, N.Y., 2, 4, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 22, 27, 31, 34, 36, 40, 43, 46, 48, 50, 52, 55, 57, 59, 61, 63, Tel: 212-TWining 9-5600, Yr: 1927, Emp: 5000, ▲40

Kollsman Motor Corp., Mill St., Dublin, Pa., 67, 77, Tel: 215-CHerry 9-3561, Yr: 1959, Emp: 280, ▲3, $2,000,000

Kolton Electric Mfg. Co., 123 New Jersey R.R. Ave., Newark 5, N.J., 60, 81, 84, 90, 96, Tel: 201-MItchell 2-4622, Yr: 1933, Emp: 35

Kooltronic Fan Co., Box 504, Princeton, N.J., 47, Tel: 609-JUniper 6-1466, Yr: 1955, Emp: 7, $150,000

Kopp Glass, Inc., Swissvale, Pittsburgh 18, Pa., 17, Tel: BRandywine 1-0190, Yr: 1926, Emp: 160

Koppers Co., Inc., Koppers Bldg., Pittsburgh 19, Pa., 107, Tel: EXpress 1-3300, Yr: 1912

Koppers Co., Inc., Metal Products Div., P.O. Box 298, Baltimore 3, Md., ▲1

Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 5, 9, 23, 28, 35, 36, 37, 40, 43, 59, 61, 83, 89, Tel: 516-RAvenswood 9-7580, Yr: 1924, Emp: 110, ▲2

See ad in class 89

Korry Mfg. Co., 223 Eighth Ave. N., Seattle 9, Wash., 2, 9, 63, Tel: 206-MAin 4-4066, Yr: 1937, Emp: 83, ▲1, $500,000

Kost Products Co., Inc., 4240 N. Sayre Ave., Norridge 34, Ill., 56, 60, 66, 78, 96, 97, 98, 105, 109, Tel: 312-GLadstone 7-0644, Yr: 1954, Emp: 40, ▲1, $200,000

Kraeuter & Co., Inc., 585 18th Ave., Newark 3, N.J., 111, Tel: ESsex 3-4000, Yr: 1860, Emp: 150

Kreckman Co. (Herb), Cresco, Pa., 44, Tel: 717-LYndhurst 5-2212, Yr: 1954, Emp: 3, $90,000

Krengel Mfg. Co., Inc., 227 Fulton St., New York 7, N.Y., 96, 97, 99, Tel: 212-COrtlandt 7-5714, Yr: 1888, Emp: 55

Kriss Electronics, Inc., 191-195 Oraton St., Newark 4, N.J., 85, Tel: 201-HUmboldt 4-3137, Yr: 1954, Emp: 24, ▲1

Krohn-Hite Corp., 580 Massachusetts Ave., Cambridge 39, Mass., 35, 40, 43, 59, 69, Tel: 617-UNiversity 4-4272, Yr: 1949, Emp: 80, ▲1, $900,000

Krylon, Inc., Ford & Washington Sts., Norristown, Pa., 94, 109, Tel: 215-BRoadway 9-1950, Yr: 1948, Emp: 250

Krystinel Corp., P.O. Box 6, Fox Island Rd., Port Chester, N.Y., 55, 92, 100, Tel: 914-WEstmore 7-5252, Yr: 1954, Emp: 30, ▲1, $300,000

See ad in class 55

Kuhn & Jacob Molding & Tool Co., 1205 Southard St., Trenton 8, N.J., 52, 90, 106, Tel: 609-EXport 4-5391, Yr: 1919, Emp: 150, ▲3, $500,000

Kuhnke (H.), Elektrotechnische Fabrik GmbH, Malente/Holstein, Germany, 4, 72, 73, 80, 84, Tel: Malente 397-398, Yr: 1928, Emp: 300, ▲1

Kulicke & Soffa Mfg. Co., 401 N. Broad St., Philadelphia 8, Pa., 4, 41, 95, 99, 109, Tel: 215-WAlnut 5-4270, Yr: 1951, Emp: 135, ▲2, $1,300,000

Kulite-Bytrex Corp., 50 Hunt St., Newton 58, Mass., 40, 83, Yr: 1959, Emp: 34, $30,000

Kulite Semiconductor Products, Inc., 1030 Hoyt St., Ridgefield, N.J., 40, 74, 83, Tel: WH 5-3000, Yr: 1959, Emp: 10, ▲3, $100,000

Kulka Electric Corp., 633-643 S. Fulton Ave., Mount Vernon, N.Y., 52, 60, 78, 80, 81, Tel: 914-MOunt Vernon 4-4024, Yr: 1939, Emp: 250, ▲2

See ads in classes 80, 81

Kupfrian Mfg. Div., Robinson Technical Products, Inc., 157 Prospect Ave., Binghamton, N.Y., 17, 53, 55, 69, 84, 91, 97, Tel: 607-RAymond 3-9561, Yr: 1950, Emp: 450

See ad in class 69

Kurman Electric Co., Subsid. of Crescent Petroleum Corp., 191 Newel St., Brooklyn 22, N.Y., 73, Tel: 212-EVergreen 3-8000, Yr: 1929, Emp: 150, ▲1, $2,000,000

See ad in class 73

Kurtston Electronics, 702 Bay St., Staten Island 4, N.Y., 5, 6, 12, 16, 35, 38, 62, 69, 96, Tel: 212-GIbraltar 8-6414, Yr: 1959, Emp: 6

Kurz-Kasch, Inc., 1421 S. Broadway, Dayton 1, Ohio, 90, 96, 97, 106, Tel: BAldwin 3-8161, Yr: 1916, Emp: 350, $1,500,000

Kwikheat Mfg. Co., 3732 San Fernando Rd., Glendale 4, Calif., 111, Tel: 213-CHapman 5-2376, Yr: 1941, $90,000

L

L. A. B. Corp., 990 Onondaga St., Skaneateles, N.Y., 36, 40, 96, 109, Tel: 315-OVerbrook 5-5781, Yr: 1933, Emp: 40

LEL, Inc., 77 Akron St., Copiague, L.I., N.Y., 1, 19, 29, 34, 43, 53, 66, 88, Tel: 516-AMityville 4-2200, Yr: 1952, Emp: 70, ▲6, $700,000

See ad in class 43

L & L Mfg. Co., 136 8th St., Upland, Pa., 98, Yr: 1946, Emp: 25

L & R Mfg. Co., 577 Elm St., Kearny, N.J., 67, 70, 94, 99, Tel: WYman 1-5330, Yr: 1930, Emp: 70

Lab-Tronics, Inc., 3656 N. Lincoln Ave., Chicago 13, Ill., 5, 52, 62, 78, 81, 91, 96, Tel: 312-GRaceland 7-7900, Yr: 1947, Emp: 100, $850,000

See ad in class 62

Labelon Corp., 10 Chapin St., Canandaigua, N.Y., 28, 97, 109, Tel: 2925, Yr: 1949, Emp: 110

Labko Scientific, Inc., 413 E. 14th St., Stillwater, Okla., 5, 22, 43, 109, Tel: FRontier 2-7167, Yr: 1956, Emp: 25, ▲5

Labline, Inc., 3070-82 W. Grand Ave., Chicago 22, Ill., 36, 41, 61, 98, 99, Tel: SAcramento 2-5151, Yr: 1952, Emp: 125

Laboratory Equipment Corp., Hilltop Rd., Saint Joseph, Mich., 40, 92, 98, Tel: YUkon 3-5533, Yr: 1936, Emp: 120

Laboratory For Electronics, Inc., 1079 Commonwealth Ave., Boston 15, Mass., 1, 2, 8, 9, 10, 23, 25, 27, 34, 35, 37, 50, 55, 57, 66, 70, 72, 77, 84, 109, Tel: 617-ALgonquin 4-4235, Yr: 1946, Emp: 3,300, ▲82, $38,500,000

Laboratory Furniture Co., Inc., Old Country Rd., Mineola, L.I., N.Y., 90, 99, Tel: PIoneer 2-3600, Yr: 1920, Emp: 300

LaCesa Engineering Corp., 5614 W. Grand Ave., Chicago 39, Ill., 99, 111, Tel: BErkshire 7-0060, Yr: 1946, Emp: 15, $150,000

Lacey Engineering & Mfg. Co., 115 S. Lombard, Oak Park, Ill., 50, 109, Tel: 312-EUclid 6-3210, Yr: 1940, Emp: 25, $125,000

Lake Chemical Co., 3052 W. Carroll Ave., Chicago 12, Ill., 94, 110, Tel: SAcramento 2-6085, Yr: 1938, Emp: 30

Lake City, Inc., 110 Woodstock St., Crystal Lake, Ill., 9, 10, 61, 67, Yr: 1954, Emp: 250

Lake Mfg. Co., 2323 Chestnut St., Oakland 7, Calif., 30, 43, Tel: 415-TEmplebar 4-6333, Yr: 1925, Emp: 30, $300,000

Lakeshore Industries Div., Aitken-Reed, Inc., 2802 Wollmer St., Manitowoc, Wis., 3, 4, 20, 29, 43, 61, 69, 90, 98, Tel: 414-MUrray 4-3327, Yr: 1946, Emp: 20, $50,000

LaMarche Mfg. Co., 3955 25th Ave., Schiller Park, Ill., 53, 69, 71, Tel: 678-6855, Yr: 1945, Emp: 30

Lamb Electric Co., Div. of American Machine & Metals, Inc., 627 Lake St., Kent, Ohio, 67, Tel: 216-ORchard 3-3451, Yr: 1917, Emp: 750, ▲1

Lambda Electronics Corp., 515 Broad Hollow Rd., Huntington, L.I., N.Y., 69, Tel: 516-MYrtle 4-4200

See ads on pages 33-38 and in class 69

Laminair, Inc., 18530 S. Broadway, Gardena, Calif., 44, 107, Tel: 213-FAculty 1-0545, Yr: 1957, ▲1

Laminated Sheet Products Corp., 449 Neponset St., Norwood, Mass., 96, 107, 109, 112, Tel: 617-762-3500, Yr: 1927, Emp: 60, $250,000

Laminated Shim Co., Inc., Union St., Glenbrook, Conn., 93, 96, 97, 104, 109, Tel: 203-DAvis 5-2631, Yr: 1913, Emp: 160, $500,000

Lampkin Laboratories, Inc., Monitor Div., Bradenton, Fla., 21, 38, Tel: 6-4175, Yr: 1942, Emp: 22, ▲1

Lamson Corp., Lamson St., Syracuse 1, N.Y., 47, Tel: HOward 3-0221

Lamson & Sessions Co., 5000 Tiedeman Rd., Cleveland 9, Ohio, 97, Tel: CLearwater 2-3700, Yr: 1866, Emp: 2000

Lamtex Industries, Inc., Motor Ave., Farmingdale, L.I., N.Y., 44, 66, 96, 107, 112, Tel: 516-Myrtle 4-2000

Lancaster Glass Corp., 226 W. Main St., Lancaster, Ohio, 105, 112, Tel: OLive 3-0311, Yr: 1910, Emp: 525, ▲1, $1,500,000

Lance Antenna Corp., 1730-1802 First St., San Fernando, Calif., 44, Tel: 213-EMpire 1-8645, Yr: 1954, Emp: 40

Land-Air, Inc., 7444 W. Wilson Ave., Chicago 31, Ill., 1, 2, 5, 21, 44, 69, 73, 84, 95, 108, Tel: UNderhill 7-7550, Yr: 1949, Emp: 500, ▲20

Land-Air, Inc., Stepper Motors Div., 16226 S. Broadway, P.O. Box 150, Gardena, Calif., 11, 37, 43, 45, 67, 73, 80, Tel: 213-FAculty 1-5811, Yr: 1946, Emp: 2500, ▲26, $1,200,000

Landis & Gyr, Inc., 45 W. 45th St., New York 36, N.Y., Importers, 11, 22, 34, 84, 86, 97, Tel: 212-JUdson 6-4644, Yr: 1927, Emp: 10,570, ▲3

Landsberger Plastics Co., 550 Fifth Ave., New York 36, N.Y., 90, 96, Tel: 212-PLaza 7-3638, Yr: 1955

Langevin, Div. of Sonotec, Inc., 503 S. Grand Ave., Santa Ana, Calif., 12, 27, 30, 32, 43, 45, 50, 59, 60, 62, 68, 69, 74, 80, 84, 90, 93, 109, Tel: 714-KImberly 7-6204, Yr: 1927, Emp: 50, ▲2, $500,000

Lansing Sound, Inc. (James B.), 3249 Casitas Ave., Los Angeles 39, Calif., 43, 49, Tel: NOrmandy 5-4101, ▲1

Lansky Die Cutting Corp., 473 President St., Brooklyn 15, N.Y., 79, 97, Tel: ULster 2-5346

LaPointe Industries, Inc., 155 W. Main St., Rockville, Conn., 1, 2, 9, 19, 20, 23, 24, 25, 29, 31, 34, 35, 37, 38, 41, 43, 44, 45, 49, 50, 59, 69, 88, 112, Tel: 203-TRemont 5-3351, Yr: 1943, Emp: 200, $1,000,000

Lapp Insulator Co., Inc., Radio Specialties Div., 150 Sumner St., LeRoy, N.Y., 44, 48, 49, 92, 101, Tel: 385, Yr: 1916, Emp: 820, ▲3, $1,000,000

See ad on pages 52-53

Larson Instrument Co., Greenbush Rd., Orangeburg, N.Y., 4, 28, 61, 73, Tel: 914-ELmwood 9-2310, Yr: 1954, Emp: 30

See ad in class 61

Las-Lab, Inc., Route 32, Sykesville, Md., 28, 95, 109, Tel: 301-328-2202, Yr: 1950, Emp: 5, ▲1, $5,000

Lattin Radio Laboratories, 1431 Sweeney St., P.O. Box 44, Owensboro, Ky., 36, 44, 96, Tel: 502-MUrray 3-2868, Yr: 1947, Emp: 5, ▲1, $4,000

Lavelle Aircraft Corp., Sterling St., Newtown, Bucks County, Pa., 44, 90, 93, 96, Tel: 215-WOrth 8-3838, Yr: 1940, Emp: 160, $400,000

Lavezzi Machine Works, 4635 W. Lake St., Chicago 44, Ill., 77, 96, Tel: ESTebrook 8-1636, Yr: 1908, Emp: 45

Lavoie Laboratories, Inc., Matawan-Freehold Rd., Morganville, N.J., 1, 11, 23, 31, 37, 38, 41, 56, Tel: 201-LOwell 6-2600, Yr: 1942, Emp: 460, ▲14, $6,500,000
See ad in class 37

Lawrence Adhesive & Chemical Co., Inc., 19 S. Canal, Lawrence, Mass., 94, 96, 101, 106, 109, Tel: MUrdock 2-0839, Yr: 1950, Emp: 14, $180,000

Lawrence Laboratory, 1668 Euclid St., Santa Monica, Calif., 66, 97, Yr: 1947, Emp: 35, $200,000

Le-Hi Electrical Co., 604 Market St., Newark 5, N.J., 56, 71, 85, 86, 87, Tel: MArket 3-4900, ▲1

Leach Corp., 18435 Susana Rd., Compton, Calif., 1, 4, 27, 34, 43, 67, 69, 73, 80, Tel: 213-NEvada 6-1061, Yr: 1919, Emp: 1000, ▲8, $15,000,000
See ad in class 73

Leach & Garner Co., Industrial Div., Leach & Garner Bldg., Attleboro, Mass., 66, 91, 104, 110, 112, Tel: CAstle 2-1156, Yr: 1898, Emp: 200

Lear, Inc., 3171 S. Bundy Dr., Santa Monica, Calif., 1, 2, 4, 5, 8, 9, 10, 13, 18, 19, 21, 34, 40, 43, 61, 67, 77, 95, Tel: EXmont 1-7271, Yr: 1930, Emp: 5649, ▲16, $90,000,000

Lear, Inc., Instrument Div., 110 Ionia N.W., Grand Rapids 2, Mich., 2, 4, 8, 40, Tel: GL 1-1542, Yr: 1930, Emp: 5200, ▲35, $60,000,000

Lear, Inc., Lear-Romec Div., Abbe Rd., Elyria, Ohio, 4, 47, 54, 67, 80, 99, Tel: 216-FAirfax 3-3211, Yr: 1930, Emp: 4500, ▲15, $50,000,000

Lebell Associates (Don), 15366 W. Longbow Dr., Sherman Oaks, Calif., 95, Tel: STate 8-2832

Lebow Associates, Inc., 14857 W. Eleven-Mile Rd., Oak Park 37, Mich., 83, Yr: 1955, Emp: 16, ▲2, $150,000

LeClanche S. A., 48 Av. de Grandson, Yverdon, VD, Switzerland, 46, 48, Tel: 024-2-47-21, Yr: 1909, Emp: 600, ▲20

Lectrohm, Inc., 5560 Northwest Hwy., Chicago 30, Ill., 74, Tel: ROdney 3-1700, Yr: 1935, Emp: 450

Ledex, Inc., 123 Webster St., Dayton 2, Ohio, 51, 67, 71, 73, 80, Tel: BAldwin 4-9891, Yr: 1947, Emp: 300, ▲1

Lee Electric, Inc., 566 52nd St., West New York, N.J., 4, 51, 84, 97, Tel: UNion 6-3656, Yr: 1950, Emp: 20, ▲1

Lee Spring Co., Div. of Leetronics, Inc., 30 Main St., Brooklyn 1, N.Y., 97, 105, Tel: 212-UL 5-7163

Leecraft Mfg. Co., Inc., 60 Greene St., New York 12, N.Y., 63, 78, 91, Tel: 212-WOrth 6-2855

Leedal, Inc., 2929 S. Halsted, Chicago, Ill., 96, Tel: 312-VIctory 2-6588, Yr: 1947, Emp: 40, $720,000

Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Pa., 4, 6, 8, 12, 28, 31, 34, 40, 43, 45, 48, 49, 69, 74, 80, 82, 91, Tel: 215-DAvenport 9-4900, Yr: 1899, Emp: 2900, ▲40

Leesona Corp., P.O. Box 6088, Providence 4, R.I., 99, Tel: 401-WIlliams 1-5200, Yr: 1893, Emp: 1500
See ad in class 99

Leesona Corp., Leesona Moos Laboratories Div., 90-28 Van Wyck Expwy., Jamaica 18, N.Y., 2, 4, 10, 17, 22, 54, 58, 80, 83, 95, 109, Tel: 212-AXtel 7-4400, Yr: 1949, Emp: 90, ▲5, $250,000

Lehigh Design Co., Inc., 62 Mulberry St., Newark 2, N.J., 95, 96, 108, Tel: 201-MItchell 2-3155, Yr: 1950, Emp: 450, ▲20

Lehigh Valley Electronics Engineering & Mfg., Inc., 215 S. 3rd St., Allentown, Pa., 5, 11, 28, 30, 38, 41, 90, 93, 95, 96, Tel: HEmlock 4-6241, Yr: 1951, Emp: 22, ▲1, $50,902

Leighton Laboratories (H. W.), York Rd. & Sunset Lane, Hatboro, Pa., 86, Tel: OSborne 5-3300

Leiman Brothers, Inc., P.O. Box 1339, 146-181 Christie St., Newark 1, N.J., 99, Tel: 201-MArket 3-7520, Yr: 1889, Emp: 75

Leitch-Huard Corp., Stark & Commercial Sts., Manchester, N.H., 40, 96, Yr: 1936, Emp: 72, $456,000

Lektra Laboratories, Inc., 154 11th Ave., New York 11, N.Y., 4, 40, 61, 80, Tel: 212-ALgonquin 5-2013, Yr: 1040, Emp: 35

Lelanite Corp., Webster, Mass., 109, Tel: 943-1969, Yr: 1956, Emp: 32

Lemert Engineering Co., Inc., 1313 Western Ave., Plymouth, Ind., 99, Tel: 219-WEbster 6-3430, Yr: 1949, Emp: 25

Lenk Mfg. Co., Franklin, Ky., 110, 111, Tel: JUstice 6-3231, Yr: 1919, Emp: 125

Lenkurt Electric Co., Inc., 1105 County Rd., San Carlos, Calif., 7, 24, 33, 34, 62, 69, 90, Tel: 415-LYtell 1-8461, Yr: 1944, Emp: 1700, ▲70

Lennard Co., Inc. (P. M.), 1061 E. Eighth St., Jacksonville 6, Fla., 4, 36, 75, 90, 98, Tel: 305-ELgin 4-5604, Yr: 1954, Emp: 36, $49,000

Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago 47, Ill., 91, Tel: ARmitage 6-4454, Yr: 1904, Emp: 145, ▲1

Leonard Electric Products Co., 67 34th St., Brooklyn 32, N.Y., 44, 51, 84, Tel: STerling 8-2023, Yr: 1947, Emp: 200, ▲2

Leonard's Precision Mfg. Co., Inc., 750 Bound Brook Rd., Dunellen, N.J., 66, Tel: 201-Plymouth 2-4929, Yr: 1950, Emp: 18
See ad in class 66

Lepel High Frequency Laboratories, Inc., 54-18 37th Ave., Woodside 77, N.Y., 38, 98, 99, Tel: 212-HAvemeyer 6-4580, Yr: 1926, Emp: 167, ▲1
See ad in class 98

Lesa Costruzioni Elettromeccaniche S.P.A., via Bergamo 21, Milano, Italy, 27, 30, 43, 65, 67, 68, 74, Tel: 55-43-41, Yr: 1929, Emp: 1900

Lessells & Associates, Inc., 916 Commonwealth Ave., Boston 15, Mass., 4, 36, 43, 83, 95, 96, 108, 109, Tel: 617-BEacon 2-2380, Yr: 1937, Emp: 23, ▲1, $15,000

Lettine Radio Mfg. Co., 62 Berkeley St., Valley Stream, L.I., N.Y., 3, 42, 88, Tel: 516-PYramid 1-9397, Yr: 1948, Emp: 2

Leupold & Stevens Instruments, Inc., 4445 N.E. Glisan, Box 5082, Portland, Ore., 28, 34, 61, 63, Tel: BElmont 4-7423, Yr: 1907, Emp: 125, $200,000

Levey Laboratories (Harold A.), 8127-33 Oleander St., New Orleans 18, La., 94, 95, Tel: HUnter 2-1501, Yr: 1926, Emp: 7

Levi, Leo, 452 Fort Washington Ave., New York 33, N.Y., 95, Tel: 212-WAdsworth 7-7617
See ad in class 95

Leviton Mfg. Co., Inc., 236 Greenpoint Ave., Brooklyn 22, N.Y., 52, 60, 78, 80, 91, Tel: EVergreen 3-4500

Lewis Co., Inc. (E. B.), 11 Bragg St., East Hartford 8, Conn., 31, 56, 57, 59, 92, Tel: BUtler 9-5428, Yr: 1948, Emp: 30, ▲1, $200,000

Lewis Engineering Co., 339 Church St., Naugatuck, Conn., 40, 61, 82, 83, 91, Tel: PArk 9-5253, Yr: 1932, Emp: 300

Lewis Instruments, Inc., P.O. Box 397, Lockport, N.Y., 4, 40, 61, Tel: 716-HF 3-9135, Yr: 1957, Emp: 7, $15,000

Lewis & Kaufman Electronics Corp., 5245 San Fernando Rd., Los Angeles 39, Calif., 44, 45, 50, 66, Tel: 213-CHapman 5-6966, Yr: 1960, Emp: 70, ▲4, $1,200,000

Lewis & Kaufman Electronics Corp., Tube Div., 213 Bean Ave., P.O. Box 337, Los Gatos, Calif., 86, 87, Tel: ELgato 4-3540, Yr: 1949, Emp: 40, ▲2, $134,828

Leyman Corp., Magnetics Div., 5178B Crookshank Rd., Cincinnati 38, Ohio, 64, 100, Tel: 513-MOntana 2-0941, Yr: 1934, Emp: 100

Leyse Aluminum Co., Kewaunee, Wis., 97, Tel: 335, Yr: 1901, Emp: 180

Liebel Flarsheim Co., Div. of Ritter Co., Inc., 111 E. Amity Rd., Cincinnati 15, Ohio, 61, Tel: POplar 1-2700, Yr: 1917, Emp: 220, ▲1

Lieco, Inc., 130 Eileen Way, Syosset, L.I., N.Y., 37, 44, 45, 59, 66, 88, Tel: 516-WAlnut 1-6300, Yr: 1951, Emp: 95, ▲6
See ad in class 66

Life Instrument Co., Inc., 260 Brook St., Franklin, Mass., 51, 73, 90, Tel: 332-W, Yr: 1954, Emp: 40, ▲2, $400,000

Light Electric Corp., 214 Lackawanna Ave., Newark 3, N.J., 51, 84, Tel: 201-HUmboldt 3-4110, Emp: 35, ▲1, $571,000

Lignes Telegraphiques et Telephoniques, 89 rue de la Faisanderie, Paris 16, France, 2, 4, 9, 10, 30, 33, 37, 40, 41, 43, 45, 48, 51, 57, 66, 71, 75, 76, 82, 102, Yr: 1921, Emp: 2500, ▲24

Lincoln Research Laboratory, 2215 S. 70th St., Lincoln, Nebr., 5, 11, 22, Tel: IV 8-1757, Yr: 1953, Emp: 5, ▲2, $2000

Lind Instruments, Inc., 2294 Mora Dr., Mountain View, Calif., 10, 34, 80, 83, Tel: 415-YOrkshire 8-0083, Yr: 1958, Emp: 15, ▲3, $150,000

Lindberg Engineering Co., 2450 W. Hubbard St., Chicago 12, Ill., 84, 98, Tel: MOnroe 6-3443, Yr: 1935, Emp: 400, ▲1

Lindgren & Associates, Inc. (Erik A.), 4515 N. Ravenswood Ave., Chicago 40, Ill., 36, 103, Tel: SUnnyside 4-0710, Yr: 1950, Emp: 30

Lindly & Co., Inc., 248 Herricks Rd., Mineola, L.I., N.Y., 4, 14, 17, 40, 41, 43, 83, Tel: 516-PIoneer 6-6505, Yr: 1949, Emp: 33, ▲1, $500,000

Lindsay Antenna & Specialty Products, Ltd., 50 Mary St., Lindsay, Ontario, Canada, 44, Tel: FA 4-2196, Yr: 1953

Line Electric Co., 229 River St., Orange, N.J., 19, 30, 41, 51, 73, 78, 80, Tel: 201-ORange 2-8200, Yr: 1951, Emp: 53, $770,000

Linell Engineering Corp. (Charles S.), 3974 N. Avondale Ave., Chicago 41, Ill., 51, 84, Tel: AVenue 3-0451, Yr: 1948, ▲1

Linemaster Switch Corp., Woodstock, Conn., 80, Tel: 203-WAlnut 8-6538, Yr: 1937, Emp: 30

Ling Temco Vought, Inc., P.O. Box 5003, Dallas 22, Texas, 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 18, 21, 24, 25, 26, 28, 30, 32, 34, 35, 36, 38, 41, 42, 43, 44, 45, 50, 51, 53, 57, 59, 64, 65, 66, 69, 70, 71, 73, 74, 77, 79, 80, 83, 84, 86, 87, 88, 90, 91, 93, 95, 96, 99, 103, 109, Tel: BRoadway 6-7111, Yr: 1960, Emp: 12,000, ▲125, $148,447,484

Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid.), 1515 S. Manchester Ave., Anaheim, Calif., 7, 26, 30, 32, 36, 43, 51, 59, 65, 69, 79, 83, 84, 88, 90, 96, Tel: 714-PRospect 4-2900, ▲5

Ling Temco Vought, Inc., Altec Service Co., (Div. of Altec Companies, Inc.), 161 Sixth Ave., New York 13, N.Y., 30, 32, 95, 109, Tel: ALgonquin 5-3636, ▲2

Ling Temco Vought, Inc., Calidyne Co., Inc. (Div.), 120 Cross St., Winchester, Mass., 36, Tel: 617-PArkview 9-3810, Yr: 1948, Emp: 100, ▲2, $2,000,000

Ling Temco Vought, Inc., Electron Corp. (Subsid.), P.O. Box 5570, Dallas, Texas, 3, 4, 13, 21, 24, 26, 32, 42, 43, 44, 65, 88, Tel: ADdison 5-3424, Yr: 1956, Emp: 25, ▲4, $500,000

Ling Temco Vought, Inc., F F & M Electronics, Inc. (Subsid.), 12820 Panama St., Los Angeles 66, Calif., 2, 4, 8, 9, 13, 14, 28, 34, 43, 69, 77, 90, 91, 93, 96, Tel: UPton 0-6041, Yr: 1955, Emp: 502, ▲40, $7,000,000

Ling Temco Vought, Inc., Ling-Altec Research Div., 1515 S. Manchester, Anaheim, Calif., 109, Tel: 714-PRospect 4-2900

Ling Temco Vought, Inc., Ling Electronics Div., 1515 S. Manchester Ave., Anaheim, Calif., 17, 34, 35, 36, 37, 43, 69, 79, Tel: 714-PRospect 4-2900, Yr: 1953, Emp: 355, ▲15, $6,500,000

Ling Temco Vought, Inc., Micromodular Components Div., 1859 S. Manchester Blvd., Anaheim, Calif., 45, 50, 53, 71, 73, 74, 80, 96, 109

Ling Temco Vought, Inc., Peerless Electrical Products Div., 7004 McKinney Ave., Los Angeles, Calif., 51, 59, 69, 84, Tel: 213-PL 8-4175, ▲1

Ling Temco Vought, Inc., Temco Electronics Div., P.O. Box 6191, Dallas 22, Texas, 1, 2, 3, 4, 8, 9, 10, 11, 18, 21, 25, 53, 69, 71, Tel: 214-BRoadway 6-7111, ▲50

Ling Temco Vought, Inc., Temco Missiles & Aircraft Div., P.O. Box 6191, Dallas 22, Texas, 90, 96, 109, Tel: 214-BRoadway 6-7111, ▲20

Ling Temco Vought, Inc., United Electronics Co. (Subsid.), 42 Spring St., Newark, N.J., 86, 87

Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), 80 S. Kensico Ave., White Plains, N.Y., 4, 5, 6, 12, 13, 16, 18, 26, 30, 32, 35, 38, 41, 43, 50, 51, 57, 59, 64, 65, 69, 70, 77, 79, 80, 83, 88, 90, 91, 95, 96, 99, 103, 109, Tel: 914-WHite Plains 6-7700, Yr: 1938, Emp: 200, ▲4

Lingo & Son, Inc. (John E.), 2814 Buren Ave., Camden 5, N.J., 44, Tel: WOodlawn 4-0487, Yr: 1897, Emp: 41, $200,000

Lionel Corp., Hoffman Pl., Hillside, N.J., 1, 2, 3, 5, 7, 11, 18, 19, 20, 21, 22, 23, 24, 25, 29, 30, 33, 34, 35, 37, 38, 39, 40, 41, 43, 44, 45, 51, 52, 53, 59, 62, 65, 66, 67, 69, 73, 74, 75, 77, 78, 80, 81, 84, 86, 87, 88, 91, Tel: 201-ESsex 3-8600, Yr: 1900, Emp: 3000, ▲10, $17,000,000

Lionel Corp., Lionel Electronic Laboratories (formerly Anton Electronic Laboratories), Dept. X-2, 1226 Flushing Ave., Brooklyn 37, N.Y., 11, 22, 52, 62, 69, 74, 75, 78, 81, 86, 109, Tel: 212-EVergreen 6-5715, Yr: 1949, Emp: 300, ▲30
See ad in class 52

Lionel Corp., Telerad Div., Rt. 69, Flemington, N.J., 1, 37, 44, 45, 52, 59, 66, 91, ▲2

Lionel Corp., Telerad Div., 1440 Broadway, New York 18, N.Y., 2, 19, 25, 37, 38, 43, 44, 88, 96, Tel: 212-BRyant 9-0892, Yr: 1945, Emp: 200, ▲2, $2,500,000

Lipps Engineering (Edwin A.), 1511 Colorado Ave., Santa Monica, Calif., 70, Tel: EXbrook 3-0449, Yr: 1948, Emp: 20, ▲2

Liquidometer Corp., 41-03 36th St., Long Island City 1, N.Y., 4, 43, 52, 61, 73, 74, 77, 83, 84, Tel: 212-STillwell 4-1440, Yr: 1920, Emp: 900, ▲2

Lisk Co., Inc. (G. W.), Clifton Springs, N.Y., 51, 80, Tel: 315-HOward 2-2611, Yr: 1910, Emp: 65, ▲1, $700,000

Littelfuse, Inc., 1865 Miner St., Des Plaines, Ill., 60, Tel: VAnderbilt 4-1188, ▲3

Little Falls Alloys, Inc., 189 Caldwell Ave., Paterson 1, N.J., 91, 104, Tel: 201-LAmbert 5-1014, Yr: 1943, Emp: 30, $500,000
See ad in class 91

Little, Inc. (Arthur D.), 25 Acorn Park, Cambridge 40, Mass., 54, 95, 109, Tel: UNiversity 4-5770, Yr: 1886, Emp: 1450, ▲17

Litton Engineering Laboratories, P.O. Box 949, Grass Valley, Calif., 40, 75, 86, 92, 98, 99, 105, 109, Tel: 916-273-6176, Yr: 1932, Emp: 57, ▲2
See ad in class 99

Litton Industries, Inc., Components Group, Airtron Div., 200 E. Hanover Ave., Morris Plains, N.J., 1, 2, 19, 25, 43, 44, 45, 55, 56, 59, 66, 76, 80, 81, 91, 92, 100, Tel: 201-JEfferson 9-5500, Yr: 1946, Emp: 600, ▲12

Litton Industries, Inc., Components Group, Potentiometer Div., 200 E. Third St., Mount Vernon, N.Y., 74, Tel: 914-MOunt Vernon 7-6607, Yr: 1954, Emp: 400, ▲10

Litton Industries, Inc., Components Group, Triad Transformer Corp., 4055 Redwood Ave., Venice, Calif., 43, 51, 53, 59, 75, 81, 84, 97, Tel: 213-UPton 0-5381, Yr: 1942, Emp: 500, ▲12

Litton Industries, Inc., Components Group, U.S. Engineering Co. Div. (USECO), 13536 Saticoy St., Van Nuys, Calif., 50, 81, 97, 105, 106, 109, Tel: 714-TRiangle 3-3520, Yr: 1954, Emp: 300, ▲10

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Litton Industries, Inc., Components Group, Utrad Corp., 305 N. Briant St., Huntington, Ind., Tel: 4088, Yr: 1956, Emp: 125, ▲1, $1,200,000

Litton Industries, Inc., Electron Tube Div., 960 Industrial Rd., San Carlos, Calif., 39, 43, 51, 59, 64, 66, 69, 78, 80, 86, 87, Tel: 415-LYtell 1-8411, Yr: 1932, Emp: 1200, ▲35

See ad in class 86

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), 336 Foothill Rd., Beverly Hills, Calif., 1, 2, 4, 5, 8, 9, 10, 11, 13, 18, 25, 27, 34, 40, 41, 43, 44, 50, Tel: 213-CRestview 4-7411, Yr: 1961, Emp: 5500, ▲250

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., 4910 Calvert Rd., College, Park, Md., 1, 2, 4, 5, 6, 8, 9, 10, 11, 13, 16, 18, 20, 21, 24, 25, 26, 27, 28, 31, 33, 34, 35, 36, 37, 38, 39, 42, 43, 44, 45, 50, 51, 52, 53, 58, 59, 66, 69, 77, 83, 88, 93, 96, 109, Tel: 309-UNion 4-5678, Yr: 1955, Emp: 700, ▲40, $12,000,000

Litton Industries, Inc., Monroe Calculating Machine Co. (Subsid.), 555 Mitchell St., Orange, N.J., 4, 8, 9, 97, 109, Tel: 201-ORange 3-6600

Litton Industries, Inc., Monroe Calculating Machine Co., (Electronics Components Div.), 60 Main St., San Francisco 5, Calif., 8, 9, 11, 34, Tel: 415-DOuglas 2-7328

Lockheed Aircraft Corp., California Div., 2400 N. Hollywood Way, Burbank, Calif., Tel: 213-TRiangle 7-2711, ▲95

Lockheed Aircraft Corp., Missiles & Space Div., P.O. Box 504, Sunnyvale, Calif., Tel: REgent 9-4321, Yr: 1954, Emp: 26,300, ▲700

Lockheed Electronics Co., U.S. Hwy. 22, Plainfield, N.J., 1, 2, 4, 5, 8, 9, 10, 11, 13, 14, 18, 19, 21, 25, 27, 31, 33, 34, 41, 42, 44, 50, 53, 55, 57, 61, 69, 70, 74, 83, 109, Tel: 201-PLainfield 7-1600, Yr: 1945, Emp: 2000, ▲90, $12,200,000

Lockheed Electronics Co., Avionics & Industrial Products Div., 6201 E. Randolph St., Los Angeles 22, Calif., 2, 10, 18, 34, 40, 43, 48, 50, 55, 74, 83, 84, 92, Tel: 213-OVerbrook 5-7070, Yr: 1959, Emp: 500, ▲5

LogEtronics, Inc., 500 E. Monroe Ave., Alexandria, Va., 14, Tel: 703-TEmple 6-5180, Yr: 1954, Emp: 50, ▲6, $1,000,000

Loge Electronics, Inc., 2171 W. Washington Blvd., Los Angeles 18, Calif., 30, Tel: REpublic 4-9178, Yr: 1923, Emp: 25

Lome Electronics, Inc., 8526 N. New Braunfels, San Antonio 9, Texas, 4, 5, 9, 34, 40, 96, 109, Tel: 512-TAylor 4-4513

London Chemical Co., Inc., 1535 N. 31st Ave., Melrose Park, Ill., 94, 110, Tel: 312-AUstin 7-9495, Emp: 10

Lone Star Plastics Co., Inc., 124 Roberts Cutoff, P.O. Box 12007, Fort Worth 16, Texas, 90, 96, 97, 106, 107, Tel: 817-PErshing 2-1435, Yr: 1944, Emp: 50, $150,000

Long, Inc. (Thomas J.), 215 Stonehinge Lane, Carle Place, L.I., N.Y., 81, 96, 97, 101, 107, 109, 112, Tel: 516-EDgewood 4-2300, Yr: 1946, Emp: 75

Long-Lok Corp., 4101 Redwood Ave., Los Angeles, Calif., 97, Tel: UP 0-6335, Yr: 1954, Emp: 45, $300,000

Loral Electronics Corp., 825 Bronx River Ave., New York 72, N.Y., 2, 8, 9, 10, 11, 23, 25, 37, 38, Tel: TIvoli 2-9500, Yr: 1948, Emp: 2100, ▲100, $35,000,000

Lord Mfg. Co., 1635 W. 12th St., Erie, Pa., 89, 97, Tel: GLendale 6-8511, Yr: 1924, Emp: 1000

Louthan Plant, Refractories Div., Ferro Corp., P.O. Box 781, East Liverpool, Ohio, 55, 86, 92, Tel: 216-FUlton 5-1538, Yr: 1901, Emp: 100

Lowell Mfg. Co., 3030 Laclede Station Rd., Saint Louis 17, Mo., 79, 90, Tel: STerling 1-9058, Yr: 1945, Emp: 105, ▲1, $1,000,000

Loyola Laboratories, P.O. Box 90074, Airport Station, Los Angeles 45, Calif., 4, 17, 72, 95, Tel: OREgon 8-1686, Yr: 1956, Emp: 3, ▲1, $15,000

Lubcke Engineering (Harry R.), 2443 Creston Way, Hollywood 28, Calif., 95, Tel: 213-HOllywood 9-3266

Lucerne Products, Inc., Northfield, Ohio, 80, Tel: 216-OLympic 3-6661, Yr: 1946, Emp: 25

Ludlow Corp., Plastics & Textile Products Divs., Needham Heights 94, Mass., 97, 107, Tel: HIllcrest 4-4900

Luhrs & Co. (C. H.), 297 Hudson St., Hackensack, N.J., Tel: 201-DIamond 2-4749, Yr: 1950, Emp: 1, ▲1

Luma Electric Equipment Co., 1607 Coining Dr., Toledo 12, Ohio, 99, 111, Tel: 419-479-8481, Yr: 1920, Emp: 12, $150,000

Lumatron Electronics, Inc., 116 County Courthouse Rd., New Hyde Park, L.I., N.Y., 2, 23, 37, 41, 45, 57, 73, 80, Tel: 516-PIoneer 7-3200, Yr: 1959, Emp: 50, ▲5

See ad in class 23

Lundell & Co., 7730 S. Stony Island, Chicago 49, Ill., 4, 9, 10, 24, 34, 41, 69, 73, Tel: 374-2525, Yr: 1957, Emp: 35, ▲1, $250,000

Lundey Associates, Inc., 694 Main St., Waltham 54, Mass., 75, 81, Tel: 617-TWinbrook 3-6064, Yr: 1944, Emp: 15, ▲2, $400,000

Lundy Mfg. Corp., Robert Lane, Glen Head, L.I., N.Y., 44, 47, 50, 64, 67, 69, 77, 80, 83, 99, 109, Tel: 516-ORiole 6-1440, Yr: 1934, Emp: 400, ▲12

Luxo Lamp Corp., Dock St., Port Chester, N.Y., 63, Tel: WEstmore 7-4433, Yr: 1951, Emp: 35, ▲4

Lyman Electronic Corp., 12 Cass St., Springfield 4, Mass., 40, 41, 90, 93, 96, 109, Tel: REpublic 7-5361, Yr: 1944, Emp: 10, ▲1, $100,000

Lyn-Tron, Inc., 5350 Riverton Ave., North Hollywood, Calif., 78, 81, 97, 106, Tel: TRiangle 7-9023, Yr: 1957, Emp: 11, $147,288

Lynch Communication Systems, Inc., 695 Bryant St., San Francisco 7, Calif., 4, 7, 19, 21, 24, 29, 33, 34, 35, 51, 59, Tel: 415-EXbrook 7-1471, Yr: 1945, Emp: 250, ▲7

Lynch Mfg. Co. (R. H.), 7831 E. Arroyo Dr., South San Gabriel, Calif., 90, 93, Tel: 213-ATlantic 0-3810, Yr: 1932, Emp: 10

Lyncoach & Truck Co., Inc., 443 Chestnut St., Oneonta, N.Y., 13, 90, Tel: GEneral 2-2900, Yr: 1929, Emp: 200

Lyon Metal Products, Inc., P.O. Drawer 671, Aurora, Ill., 90, Tel: 312-TWInoaks 7-8421, Yr: 1901, Emp: 1500

Lyons Engineering (Leonard), 3710 Crestway Dr., Los Angeles 43, Calif., 95, 109, Tel: 213-AXminster 1-5446, Yr: 1953, Emp: 1, ▲1

Lytle Corp., 1404 San Mateo S.E., Albuquerque, N.M., 50, 67, Tel: 505-ALpine 5-8169, Yr: 1950, Emp: 500, ▲3

M

MB Electronics, Div. of Textron Electronics, Inc., 781 Whalley Ave., New Haven, Conn., 18, 35, 36, 43, 89, 109, Tel: 203-FUlton 9-1511, Yr: 1938, Emp: 552, ▲12

M.C.O. Industries, Inc., P.O. Box 1711, Rochester 3, N.Y., Tel: 716-BEverly 5-5990

M.C.S. Corp., 1001 S. Mountain Ave., Monrovia, Calif., 45, 66, 88, Tel: 213-ELliott 7-3285, Yr: 1960, ▲1, $250,000

M.E.C., Inc., 796-Berry Rd., Nashville 4, Tenn., 48, Tel: CYpress 8-3376, ▲1

M F Electronics Corp., 118 E. 25th St., New York 10, N.Y., 10, 11, 35, 43, 50, Tel: 212-OREgon 4-5360, Yr: 1956, Emp: 10, ▲1

See ads in classes 10, 35, 50

M & G Metal Products Co., 1217 Webster Ave., Chicago 14, Ill., 80, 111, Tel: 312-LIncoln 9-2100, Yr: 1945, Emp: 56, $360,000

M-H Standard Corp., 517 Communipaw Ave., Jersey City 4, N.J., 96, Tel: HEnderson 3-5834

MM Enclosures, Inc., 111 Bloomingdale Rd., Hicksville, L.I., N.Y., 90, 93, 96, Tel: 516-WEIls 1-1770, Yr: 1957, Emp: 40

See ad adjacent to Index to Advertisers, back of book

M & M Metal Products Corp., 7235 Almeda Ave., Arverne 92, N.Y., 62, 90, 91, 93, 96, 97, Tel: 212-NEptune 4-2800, Yr: 1947, Emp: 35, $280,000

MP Engineering Co., Fairfield 1, Conn., 13, 30, 43, 68, 69, 79, 90, Tel: 203-AMherst 8-2385, Yr: 1930, Emp: 17, ▲1, $128,000

Macallen Co., Inc., Bay Rd., Newmarket, N.H., 101, Tel: 603-OLdfield 9-5555, Yr: 1892, Emp: 350, ▲1

Macarr, Inc., 4360 Bullard Ave., New York 66, N.Y., 4, 99, Tel: FAirbanks 5-5510

MacDermid, Inc., 526 Huntingdon Ave., Waterbury 20, Conn., 94, Tel: 203-PLaza 4-6161, Yr: 1922, Emp: 80

MacDonald & Co., 714 E. California Ave., Glendale 6, Calif., 93, 99, 111, Tel: 213-CItrus 1-6481, Yr: 1940, Emp: 6

Machine-O-Matic, Inc., 717 Chicago Ave., Evanston, Ill., 4, Tel: UNiversity 9-1700, Yr: 1948, Emp: 8

Machinery Electrification, Inc., 56 Hudson St., Northboro, Mass., 4, 11, 90, Tel: 617-PLeasant 6-7144, Yr: 1948, Emp: 145, $350,000

Machlett Laboratories, Inc., Subsid. of Raytheon Co., 1063 Hope St., Springdale, Conn., 5, 86, 87, Tel: 203-FIreside 8-7511, Yr: 1932, Emp: 900, ▲13, $12,000,000

See ad in class 86

Mack Electric Devices, Inc., 32 Glenside Ave., Wyncote, Pa., 4, 73, Tel: 215-TUrner 4-8123, Yr: 1946, $60,000

Mackay, Inc. (A.D.), 198 Broadway, New York 38, N.Y., 94, 102, 104, 105, Tel: BArclay 7-8532, Yr: 1926, Emp: 6, $25,000

Mackay Radio & Telegraph Co., 133 Terminal Ave., Cranford, N.J., 18, 29, 33, 44, 46, Tel: FUlton 1-2828, Yr: 1912, Emp: 100

MacKay Research Laboratories, P.O. Box 148A, Benson, Ariz., 1, 5, 13, 17, 76, 85, 86, Yr: 1945, Emp: 10

MacLaren & Co., Inc. (F. B.), 15 Stepar Pl., Huntington Station, L.I., N.Y., 4, 8, 10, 43, 50, 77, Tel: 516-HAmilton 3-4433, Yr: 1950, Emp: 11, $100,000

MacLeod & Hanopol, Inc., 10 Roland St., Charlestown 29, Mass., 6, 12, 40, 50, 51, 78, 96, Tel: MOnument 6-2171, Yr: 1949, Emp: 20, ▲1

MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 2, 4, 8, 9, 10, 13, 17, 18, 34, 40, 43, 61, 77, 83, 95, 96, 109, Tel: 305-LOgan 4-8518, Yr: 1960, Emp: 75, ▲4

See ad in class 4

Macmillan Co., 60 Fifth Ave., New York 11, N.Y., 108, Tel: 212-OREgon 5-4000

See ad in class 108

Madigan Electronic Corp., 200 Stonehinge Lane, Carle Place, L.I., N.Y., 1, 2, 4, 7, 8, 9, 10, 17, 18, 19, 20, 21, 24, 25, 29, 33, 34, 35, 37, 38, 39, 41, 95, 96, 108, 109, Tel: 516-EDgewood 4-2500, Yr: 1947, Emp: 312, ▲32, $3,000,000

Magnalectric Corp., 2635 N. Iroquois, P.O. Box 6008, Tulsa 6, Okla., 22, 43, 51, 53, 59, 64, 69, 84, 95, Tel: 918-FIllmore 5-7278, Yr: 1955, Emp: 10, ▲2, $60,000

See ad in class 84

Magnasync Corp., 5546 Satsuma Ave., North Hollywood, Calif., 10, 27, 32, 43, 70, Tel: POplar 9-2170, Yr: 1953, Emp: 65, ▲3, $600,000

Magnatran, Inc., P.O. Box 211, Kearny, N.J., 41, 84, Tel: WYman 1-6633, Yr: 1951, Emp: 100

Magnavox Co., Magnavox Research Laboratories, 2829 Maricopa St., Torrance, Calif., 1, 2, 4, 8, 9, 10, 14, 15, 19, 20, 25, 34, 41, 50, 53, 73, 80, Tel: 213-FAirfax 8-0770, Yr: 1911, Emp: 6000, ▲108, $125,000,000

Magnecessories, Box 6960, Washington 20, D.C., 70, Tel: LOgan 7-1383, Yr: 1949

Magnecraft Electric Co., 3352 W. Grand Ave., Chicago 51, Ill., 73, Tel: EVerglade 4-6868, Yr: 1951, Emp: 105, ▲1, $1,000,000

Magnetic Amplifiers Div., Siegler Corp., 632 Tinton Ave., New York 55, N.Y., 2, 4, 8, 43, 69, 72, 73, 77, 80, 84, Tel: 212-CYpress 2-6610, Yr: 1950, ▲4

See ad in class 69

Magnetic Circuit Elements, Inc., 3722 Park Pl., Montrose, Calif., 4, 43, 51, 59, 69, 84, Tel: 213-CHapman 5-2012, Yr: 1957, Emp: 15, ▲2, $200,000

Magnetic Controls Co., 6405 Cambridge St., Minneapolis 26, Minn., 2, 4, 43, 69, Tel: WEst 9-4691, Yr: 1952, Emp: 155, ▲2

Magnetic Core Corp., John & Lawrence Sts., New Windsor, Newburgh, N.Y., 55, Tel: 914-JOhn 1-5116, Yr: 1946, Emp: 46, ▲4

See ad in class 55

Magnetic Corp., 7232 Eton St., Canoga Park, Calif., 4, 43, 51, 77, 80, 99, 111, Yr: 1952, Emp: 15, $110,000

Magnetic Devices, Inc., 712 East St., Frederick, Md., 73, Tel: 301-MOnument 2-2144, Yr: 1943, Emp: 50, ▲31 $500,000

Magnetic Devices, Ltd., Exning Rd., Newmarket, Suffolk, England, 52, 73, 78, 81, Tel: NEwmarket 3451

Magnetic Industries, Inc., 2640 Huldy, Houston 6, Texas, 4, 90, 95, Tel: JAckson 6-3866, Yr: 1950, Emp: 8, $100,000

Magnetic Instruments Co., Inc., 637 Commerce St., Thornwood, N.Y., 4, 10, 43, 53, 61, 69, 77, Tel: 914-ROgers 9-5312, Yr: 1957, Emp: 20, ▲3

See ad in class 43

Magnetic Metals Co., 2200 River Rd., Camden 1, N.J., 41, 55, 103, 109, Tel: 609-WOodlawn 4-7842, Yr: 1942, Emp: 500, ▲6

See ads in class 55

Magnetic Powders, Inc., Fairview Ave., Johnsonburg, Pa., 104, Tel: WO 5-2015

Magnetico, Inc., 6 Richter Court, East Northport, L.I., N.Y., 4, 6, 31, 43, 51, 53, 77, 84, Tel: 516-ANdrew 1-4502, Yr: 1956, Emp: 50, ▲5

Magnetics, Inc., Butler, Pa., 4, 43, 51, 55, 69, 80, 90, 96, 103, 109, Tel: 412-BU 7-3787, Yr: 1949, Emp: 370, ▲2, $5,297,237

Magnetics, Inc., Control Div., Butler, Pa., Tel: 412-BU 7-1745

Magnetics Research Co., Inc., 179 Westmoreland Ave., White Plains, N.Y., 8, 10, 11, 34, 43, 50, 51, 77, 84, Tel: 914-WHite Plains 9-9588, Yr: 1951, Emp: 50, ▲2

Magtrol, Inc., 240 Seneca St., Buffalo 4, N.Y., 4, 40, 77, Tel: 716-TL 6-7451, Yr: 1953, Emp: 85

Maico Electronics, Inc., 21 N. Third St., Minneapolis 1, Minn., 4, 5, 18, 40, 43, 70, Tel: 612-FEderal 9-7041, Yr: 1937, Emp: 266, ▲13, $5,000,000

See ad in class 70

Maida Development Co., 214 Academy St., Hampton, Va., 48, 49, Tel: 703-PArk 3-5962, Yr: 1947, Emp: 300

Malaker Laboratories, 191 Mill Lane, Mountainside, N.J., 4, 6, 22, 51, 54, 58, 61, 64, 82, 94, 95, 96, 97, 108, 109, Tel: 201-ADams 3-4014, Yr: 1959, Emp: 20, ▲2, $158,000

Malco Mfg. Co., 4025 W. Lake St., Chicago 24, Ill., 52, 81, 97, Tel: VAn Buren 6-9300, Yr: 1946, Emp: 200

Malkin-Illion Co., 400 Coit St., Irvington 11, N.J., 90, 93, 96, Tel: 201-ESsex 2-3405, Yr: 1930, Emp: 60, $600,000

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., Saint Louis 7, Mo., 94, Tel: 314-CEntral 1-8980, Yr: 1867, Emp: 2500, ▲1

Mallory & Co., Inc. (P. R.), 3029 E. Washington St., Indianapolis 6, Ind., 2, 4, 10, 11, 17, 20, 29, 34, 38, 40, 46, 48, 53, 62, 69, 71, 73, 74, 76, 80, 88, 103, 104, 106, Tel: MElrose 6-5353, Yr: 1916, Emp: 5500, ▲35, $83,586,000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Mallory Controls Co., Div. of P. R. Mallory & Co., Inc., Frankfort, Ind., 45, 52, 62, 66, 74, 80, 97, Tel: 5501, ▲1

Mamco Corp., 532-542 Fourth St., Racine, Wis., 47, 67, Tel: 414-MElrose 4-1923, Yr: 1933, Emp: 172, $400,000

Management-Engineering Publications, Inc., Cheltenham, Pa., 108, Tel: 215-TUrner 7-7470

Mandex Mfg. Co., Inc., 2614 W. 48th St., Chicago 32, Ill., 52, 62, 78, 81, Tel: CLiffside 4-4200, Yr: 1948, Emp: 100, $1,500,000

Mandrel Industries, Inc., Stanford Business & Professional Center, 800 Welch, Palo Alto, Calif., 2, 4, 9, 16, 53, 91, Tel: MOhawk 7-6561, Yr: 1956, Emp: 600, ▲15, $11,500,000

Mandrel Industries, Inc., Electronic Research & Development Co. (Div.), 322 Tenth St. N.W., Calgary, Alberta, Canada, 20, 21, 34, 44, Tel: ATlas 3-0771, Yr: 1948, Emp: 40, ▲3, $500,000

Mandrel Industries, Inc., Greenleaf Mfg. Div., 7814 Maplewood Industrial Ct., Saint Louis 17, Mo., 2, 4, 67, 83, 96, Tel: 314-STerling 1-9888, Yr: 1945, Emp: 92, ▲1

Mandrel Industries, Inc., Houston Div., 5134 Glenmont Dr., Houston, Texas, 4, 16, 23, Tel: 713-MOhawk 7-6561, ▲7

Mandrel Industries, Inc., MEG Products Div., 1238 Weller St., Seattle 44, Wash., 91, 96, Tel: EAst 3-2582, Emp: 49, ▲1

Manger Electric Co., Inc., N. State St., Stamford, Conn., 91, 105, 109, Tel: 203-FIreside 8-7761

Manhattan Physical Research Group, Inc., 80 La Salle St., New York 27, N.Y., 95, 109, Tel: 212-ACademy 2-5877, Yr: 1958, Emp: 10, ▲1

Manning, Maxwell & Moore, Inc., 250 E. Main St., Stratford, Conn., 4, 24, 40, 83, 99, Tel: 203-DRexel 8-8281

Manostat Corp., 20 N. Moore St., New York 13, N.Y., 4, Tel: WOrth 6-1190

Mansol Ceramics Co., 140 Little St., Belleville, N.J., 101, 105, Tel: PLymouth 9-8600, Yr: 1950, Emp: 300, $2,000,000

Manson Laboratories, Inc., 375 Fairfield Ave., Stamford, Conn., 1, 9, 10, 11, 18, 24, 25, 29, 31, 34, 37, 38, 39, 41, 42, 43, 47, 50, 56, 61, 66, 69, 84, 96, 109, Tel: 203-DAvis 5-1391, Yr: 1950, Emp: 200, ▲20

Manufacturers' Engineering & Equipment Corp., York Rd. & Sunset Lane, Hatboro, Pa., 39, 40, 41, Tel: OSborne 5-3300, Emp: 50

Mar-Cone Corp., 51 Kenneth St., Newton Highlands 61, Mass., 54, 58, 69, Tel: DEcatur 2-8201, Yr: 1960, Emp: 10, ▲2

Marantz Co., Inc., 25-14 Broadway, Long Island City 6, N.Y., 43, Tel: RAvenswood 1-6500, Yr: 1954, Emp: 50, ▲2

Marathon Electric Mfg. Corp., Wausau, Wis., 53, 67, 81, Tel: VIking 2-2011, Yr: 1913, Emp: 1500, ▲1

Marblette Corp., 37-31 13th St., Long Island City 1, N.Y., 75, Tel: 212-STillwell 4-8100, Yr: 1929, Emp: 125, ▲1

Marco Industries Co., 207 S. Helena St., Anaheim, Calif., 63, 80, Tel: 213-KEystone 5-6037, Yr: 1947, Emp: 60

Marconi Instruments, Ltd., 111 Cedar Lane, Englewood, N.J., 3, 6, 20, 23, 26, 34, 35, 38, 40, Tel: 201-LOwell 7-0607, Yr: 1936, Emp: 1600, ▲10, $10,000,000

See ad on pages 66-67

Marconi's Wireless Telegraph Co., Ltd., 750 Third Ave., New York 17, N.Y., Importers, 1, 2, 8, 18, 19, 20, 21, 24, 25, 29, 31, 32, 33, 39, 42, 43, 44, 52, 56, 57, 65, 66, 84, 86, 87, Tel: 212-YUkon 6-9855, Yr: 1897, ▲25

Marine View Electronics, Inc., 8806 Van Wyck Expwy., Jamaica 18, N.Y., 1, 7, 13, 18, 19, 21, 26, 29, 33, 35, 41, 43, 50, 52, 56, 62, 69, 78, 81, 89, 90, 93, 96, 97, 105, 106, 107, Tel: AXtel 7-6900, Yr: 1954, Emp: 80, ▲3, $600,000

Mark Products Co., 5439 W. Fargo Ave., Skokie, Ill., 44, 52, 66, 112, Tel: 312-ORchard 5-1500, Yr: 1948, Emp: 30, ▲3

Markal Co., 3052 W. Carroll Ave., Chicago 12, Ill., 61, 94, 109, Yr: 1938, Emp: 30

Markel & Sons (L. Frank), School Lane, Norristown, Pa., 91, 101, 107, 112, Tel: 215-BRoadway 2-8960, Yr: 1922, Emp: 240

See ad in class 107

Markem Machine Co., 150 Congress St., Keene 5, N.H., 99, Tel: ELmwood 2-1130, Yr: 1911, Emp: 350

Markite Corp., 155 Waverly Pl., New York 14, N.Y., 74, 80, Tel: 212-OREgon 5-1384, Yr: 1946, Emp: 320, ▲6

Marlane Development Co., Inc., 153 E. 26th St., New York 10, N.Y., 94, 99, 109, Tel: 212-MUrray Hill 5-9427, Yr: 1954, Emp: 10, $140,000

Marlin-Rockwell Corp., 402 Chandler St., Jamestown, N.Y., 97, Tel: 61-541, Yr: 1915

Marquardt Corp., Pomona Div., 2709 N. Garey Ave., Pomona, Calif., 1, 2, 4, 9, 10, 43, 96, 108, Tel: 714-LYcoming 3-1311, Yr: 1944, Emp: 250, ▲40

Marshall Associates, Inc., (John), Box 2463, Bridgeport 8, Conn., 81, Tel: 203-DRexel 8-7566, Yr: 1952, Emp: 30, $25,000

Marshall of Cambridge Electronics, Ltd., The Aerodrome, Cambridge, England, 11, 22, 27, 37, 96, 108, Tel: 5-6291, Yr: 1920, Emp: 2000

Marsland Engineering, Ltd., 154 Victoria St., South Kitchener, Ontario, Canada, 22, 28, 43, 49, 64, 66, 73, 74, 77, 79, 80, 88, Tel: SHerwood 5-9486, Yr: 1933, Emp: 260, ▲6, $2,800,000

Marstan Electronics Corp., 204 Babylon Tnpke., Roosevelt, L.I., N.Y., 4, 6, 11, 12, 31, 37, 41, 43, 48, 49, 50, 61, 69, 73, 74, 80, 95, 96, 106, 109, Tel: 516-MAyfair 3-3100, Yr: 1959, Emp: 31, ▲4, $200,000

Martin Co. (Martin-Marietta Corp.), Baltimore 3, Md., 1, 2, 8, 9, 17, 18, 20, 24, 43, 44, 50, 54, 58, 77, 91, Tel: 301-MUrdock 7-3800, Yr: 1908, Emp: 54,000, ▲800

Martin Co. (Martin-Marietta Corp.), Electronics Div., Baltimore 3, Md., 2, 17, 50, 90, Tel: 301-MUrdock 7-3800, ▲175

Martin Co. (Martin-Marietta Corp.), Orlando Div., P.O. Box 5837, Sand Lake Rd., Orlando, Fla., 1, 2, 4, 8, 9, 17, 19, 24, 25, 31, 34, 37, 38, 41, 43, 44, 50, 52, 53, 69, 76, 77, 92, 109, Tel: CHerry 1-2411, Yr: 1957, Emp: 9800, ▲230, $18,000,000

Martin-Marietta Corp.: See also American-Marietta Co.

Martindale Electric Co., P.O. Box 617, Edgewater Branch, Cleveland 7, Ohio, 40, 41, 61, 99, 111, Tel: 216-LAkewood 1-8567, Yr: 1917, Emp: 60

Maryland Etching Co., Inc., Eudowood Lane, Towson 4, Md., 63, 97, Tel: 301-VAlley 5-0700, Yr: 1946, Emp: 40, ▲1, $300,000

Maryland Lava Co., Box 305, Bel Air, Md., 92, 101, 106, 107, 112, Tel: 301-TE 8-4114, Yr: 1930, Emp: 60

Mason Instrument Co., Inc., 222 Valley Pl., Mamaroneck, N.Y., 4, 14, 17, 40, 43, Tel: 914-OWens 8-6222, Yr: 1954

Mason, Shaver & Rhoades, Inc., P.O. Box 551, Irwin, Pa., 4, 77, 99, 109

Masonware Co., Dexter Rd., East Providence 14, R.I., 70, 97, Yr: 1908, Emp: 120

Massa Div., Cohu Electronics, Inc., 280 Lincoln St., Hingham, Mass., 16, 18, 28, 36, 40, 43, 65, 83, Tel: RIverview 9-4800, Yr: 1945, Emp: 200, ▲4, $620,000

Massey, Inc. (A. H.), 111 Third St., Derby, Conn., 52, 62, 78, 80, 91, 106, Tel: 203-REgent 4-2529, Yr: 1936, Emp: 50

Mast Development Co., 2212 E. 12th St., Davenport, Iowa, 9, 11, 13, 14, 36, 40, 61, 95, 96, 109, Tel: 319-323-9729, ▲1

Master Engraving Studios, 135 Liberty St., New York 6, N.Y., 97, Tel: 212-WOrth 2-4230, Yr: 1955, Emp: 6

Master Etching Corp., 50 Honeck St., Englewood, N.J., 90, 97, 104, Tel: LOwell 9-0100, Yr: 1948, Emp: 130, $500,000

Master Mechanics Mfg. Co., Inc., 541 Sixth Ave., New York 11, N.Y., 96, 97, 105, Yr: 1954, Emp: 12, $40,000

Master Mobile Mounts, Inc., 4125 W. Broadway, Los Angeles 16, Calif., 44, 51, 88, Tel: REpublic 1-2251, Yr: 1946, Emp: 25, $300,000

Master Specialties Co., 956 E. 108th St., Los Angeles 59, Calif., 63, 73, 80, Tel: LOrain 4-4481, Yr: 1941, Emp: 125, ▲2

Master Tape Printers, Inc., 3400 N. Halsted, Chicago 13, Ill., 97, 109, Tel: EAstgate 7-3322, Yr: 1954, Emp: 8, $25,000

Mastertone Recording Studios, Inc., 130 W. 42nd St., New York 36, N.Y., 32, Tel: 212-WIsconsin 7-2940, Yr: 1953, Emp: 7, ▲1

Mastra Co., 2104 Superior Ave., Cleveland 14, Ohio, 90, Tel: 216-CH 1-2945, Yr: 1950, Emp: 8, $100,000

Materials Electronic Products Corp., 990 Spruce St., Trenton 8, N.J., 54, 58, Tel: 609-EXport 3-4178, Yr: 1959, Emp: 25, ▲2

See ad in class 54

Materials for Electronics, Inc., 152-25 138th Ave., Jamaica 34, N.Y., 44, 46, 48, 55, 56, 60, 62, 79, 81, 84, 92, 97, 101, 102, 104, 105, Tel: 212-FIeldstone 1-1611, Yr: 1920, Emp: 900, ▲1

Materials Research Corp. (MRC), 47 Buena Vista Ave., Yonkers, N.Y., 56, 98, 104, 109, Tel: GReenleaf 6-3370, Yr: 1957, Emp: 60, $300,000

Mathes Mfg. Co. (Curtis), 2220 Young St., Dallas 1, Texas, 26, 43, Tel: 214-RIverside 8-8311, Yr: 1899, Emp: 800, ▲3

Matrix Research & Development Corp., 11 Mulberry St., Nashua, N.H., 2, 22, 34, 43, 69, 84, Tel: TUxedo 3-3383, Yr: 1960, Emp: 30, ▲3

Matsushita Communication Industrial Co., Ltd., 880 Hiromachi, Tsunashima-cho, Kohoku-ku, Yokohama, Japan, 2, 6, 8, 9, 11, 20, 23, 26, 28, 29, 30, 32, 34, 35, 38, 39, 40, 42, 43, 65, 69, Tel: YOkohama 45-1231, Yr: 1958, Emp: 1300, ▲5, $1,500,000

Mattatuck Mfg. Co., 1981 E. Main St., Waterbury 20, Conn., 96, 97, 105, 109, Tel: 203-PLaza 6-4661, Yr: 1896, Emp: 350, $100,000

Matthew Laboratories, 4 Warburton Ave., Yonkers, N.Y., 4, 17, 28, 40, 69, 72, 99, Tel: 914-GReenleaf 6-1202, Yr: 1953, Emp: 8, ▲2

Matthews & Co. (James H.), Industrial Marking Products Div., 6519 Penn Ave., Pittsburgh 6, Pa., 99, Tel: 412-MUseum 1-8500, Yr: 1850, Emp: 350, $25,000

Maurer, Inc. (J. A.), 37-01 31st St., Long Island City 1, N.Y., 2, 4, 8, 9, 10, 14, 16, 17, 27, 32, 34, 40, 43, 53, 61, 69, 77, 90, Tel: STillwell 4-4600, Yr: 1934, Emp: 200, ▲4

Maurey Instrument Corp., 7917 S. Exchange Ave., Chicago 17, Ill., 74, 80, Tel: REgent 1-1717, Yr: 1955, Emp: 66, ▲1, $500,000

Maury & Associates, 10373 Mills Ave., Montclair, Calif., 1, 19, 34, 37, 38, 44, 45, 59, 66, 80, 84, 88, Tel: NAtional 6-0441, Yr: 1957, Emp: 12, ▲1

Maxson Electronics Corp., 475 Tenth Ave., New York 18, N.Y., 1, 2, 4, 18, 19, 25, 29, 35, 44, 50, 66, 80, 83, Tel: LOngacre 5-1900, Yr: 1935, Emp: 995, ▲100, $18,355,900

Maxson Electronics Corp., Unimax Switch Div., Ives Rd., Wallingford, Conn., 80, Tel: 203-COlony 9-8701

Maxson Electronics Corp., United Mfg. Co. (Div.), 41 Haig St., Hamden 14, Conn., Tel: 203-CHestnut 8-4491, Yr: 1942, Emp: 100, ▲1

Maxwell Electronics Corp., 229 Garvon St., Garland, Texas, 1, 11, 20, 24, 53, 84, Tel: BRoadway 6-8341, Yr: 1958, Emp: 100, $1,000,000

May Engineering Co., 14549 Victory Blvd., Van Nuys, Calif., 4, 51, 57, 59, 69, Tel: TRiangle 3-1190, Yr: 1946, Emp: 25

Mayberry Electronics Co., 111 S. Oak St., P.O. Box 299, Inglewood, Calif., 1, 4, 5, 8, 9, 10, 27, 34, 35, 40, 43, 50, 53, 69, 77, 84, Tel: 714-OREgon 8-4847, ▲1

Mayberry, Len, 111 S. Oak St., Inglewood, Calif., 95, Tel: 714-OREgon 8-4847, ▲1

See ad in class 95

Mayer Engineering Co. (Frank), 6442 Santa Monica Blvd., Los Angeles 38, Calif., 109, Yr: 1946, Emp: 98

Maysteel Products, Inc., 740 N. Plankinton Ave., Milwaukee 3, Wis., 90, Tel: 414-BRoadway 1-2445

McCormick Selph Associates, Inc., Hollister Airport, Hollister, Calif., 58, 69, Tel: 408-MErcury 7-3731, Yr: 1951, Emp: 177

McCoy Electronics Co., Chestnut & Watts Sts., Mount Holly Springs, Pa., 56, 59, Tel: 717-HUnter 6-3411, Yr: 1952, Emp: 200, $1,500,000

See ad in class 56

McDonnell Aircraft Corp., P.O. Box 516, Saint Louis 66, Mo., 1, 2, 4, 8, 9, 14, 18, 25, 43, 44, 50, 77, 82, 95, Tel: 314-PErshing 1-2121, Yr: 1939, Emp: 2000, ▲180, $25,000,000

McDonnell & Miller, Inc., 3500 N. Spaulding Ave., Chicago 18, Ill., 4, Tel: COrnelia 7-1600, Yr: 1925, Emp: 250

McDowell Electronics, Inc., 105 Forrest St., Metuchen, N.J., 4, 61, 98, Tel: 201-LIberty 8-9109, Yr: 1956, Emp: 18

McElroy Electronics Corp., 6 Taylor St., Littleton, Mass., 4, 5, 7, 10, 13, 28, 37, 44, 61, 73, 74, 80, 81, 96, Tel: HUnter 6-3525, Yr: 1957, Emp: 10, ▲1, $40,000

McGohan, Inc. (Don), 3700 W. Roosevelt Rd., Chicago 24, Ill., 30, 43, Tel: NEvada 2-1213, Yr: 1945, Emp: 10, $150,000

McGraw-Edison Co., Pittsburgh Lectrodryer Div., P.O. Box 1766, Pittsburgh 30, Pa., 99, Tel: 412-GRant 1-8782, Yr: 1932, Emp: 100, ▲7

McGraw-Hill Book Co., Inc., Dept. IRE-D62, 327 W. 41st St., New York 36, N.Y., 108, Tel: 212-LOngacre 4-3000, ▲ 14

See ad in class 108

McGregor Electronic Industries, Inc., 132 First St., McGregor Iowa, 79, 84, Tel: 682, Yr: 1952, Emp: 85

McIntosh Laboratory, Inc., 2 Chambers St., Binghamton, N.Y., 26, 43, 88, Tel: 607-723-5491, Yr: 1947, Emp: 110, ▲2, $1,500,000

McIntyre Associates, 3449-B Oceanview Blvd., Glendale 8, Calif., 109, Tel: MUrray 1-6981, Yr: 1958, Emp: 7, ▲1

McKenna Laboratories, 2438 Seventh St., Santa Monica, Calif., 83, 95, 99, Tel: EXbrook 9-8846, Yr: 1953, Emp: 11, $130,000

McKiernan-Terry Corp., 505 Manor Ave., Harrison, N.J., 2, 4, 14, 18, 25, 36, 44, 54, 66, 90, 95, 96, 99, 109, Tel: 201-HUmboldt 3-4361, Yr: 1895, Emp: 700, ▲5, $10,000,000

McLean Development Laboratories, Inc., 230 Park Ave., New York 17, N.Y., 41

McLean Engineering Laboratories, 70 Washington Rd., P.O. Box 228, Princeton, N.J., 47, Tel: 609-WAlnut 4-4400, Yr: 1940, Emp: 53, ▲2, $1,250,000

See ad in class 47

McLean Syntorque Corp., Route 28, West Hurley, N.Y., 53, 67, Tel: 914-ORiole 9-2451, Yr: 1951, Emp: 24, $1,000,000

McMillan Laboratory, Inc., McMillan Industrial Corp., Brownville Ave., Ipswich, Mass., 36, 44, 59, 91, 95, 96, 103, Tel: 617-ELmwood 6-2926, Yr: 1950, Emp: 80, ▲4, $1,100,000

McNally Bros. Machine & Gear Co., Inc., Grantsburg, Wis., 52, 77, 97, Tel: 612-FEderal 5-0458, Yr: 1949, Emp: 135, $950,000

McPherson Instrument Corp., 530 Main St., Acton, Mass., 4, 16, 17, 40, 69, Yr: 1943, Emp: 30, ▲1

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Measurements, A McGraw-Edison Div., Boonton, N.J., 6, 12, 21, 31, 35, 37, 38, 39, 40, 41, 44, 45, 49, 95, 109, Tel: 201-DEerfield 4-2131, Yr: 1939, Emp: 150, ▲3

Measurements Research Co., Castor &. Kensington Ave., Philadelphia 24, Pa., 4, 61, 69, 77, 96, 99, Tel: 215-JEfferson 5-3700, Yr: 1957, Emp: 12

Mech-Tronic Equipment Co., P.O. Box 510, Silver Spring, Md., 98, 99, Tel: 202-TUckerman 2-4851, Yr: 1951, Emp: 6, ▲1

Mech-Tronics Corp., 1635 N. 25th Ave., Melrose Park, Ill., 69, 80, 81, 90, 91, 93, 96, 97, 109, Tel: FIllmore 4-9823, Yr: 1947, Emp: 120, $1,425,000

Mechanical Engraving Co., Inc., 10 Van Cortlandt Ave. E., New York 68, N.Y., 9, 17, 28, 63, 66, 81, 90, 96, 97, 109, Tel: LUdlow 4-8600, Yr: 1890, Emp: 40, $400,000

Mechanical Products, Inc., 1824 River St., Jackson, Mich., 80, Tel: STate 2-0391, Yr: 1940, Emp: 380, $3,000,000

Mechanical Products, Inc., Electronic Systems Div., 1824 River St., Jackson, Mich., 19, Tel: STate 4-0548, Yr: 1941, Emp: 450

Mechtronics Corp., Subsid. of Mech-metal-Tronics, Inc., 11431 Joanne Pl., Culver City, Calif., 40, 54, 75, 77, 80, 83, 97, 104, Tel: EXmont 1-6787, Yr: 1956, Emp: 35, $500,000

Mectron Co., 501 E. First Ave., Roselle, N.J., 52, 73, 78, 91, 99, Tel: 201-CHestnut 5-1112, Yr: 1957, Emp: 26

Medistor Instrument Co., 1443 N. Northlake Pl., Seattle 3, Wash., 5, 23, 31, 40, 43, Tel: ME 3-5145, Yr: 1957, Emp: 7, ▲1

Medtronic, Inc., 3055 Hwy. #8, Minneapolis 18, Minn., 5, Tel: 612-STerling 1-2718, Yr: 1949, Emp: 44, ▲5, $300,000

Mel-Rain Corp., 2100 Fletcher Ave., Indianapolis 3, Ind., 74, 80, 82, 106, Tel: MElrose 7-3531, Yr: 1953, Emp: 100

Melabs, 330 Hillview Ave., Palo Alto, Calif., 1, 19, 21, 24, 34, 37, 38, 43, 45, 59, 66, 100, 109, Tel: DAvenport 6-9500, Yr: 1956, Emp: 200, ▲30, $2,500,000

Melco Products, Inc., 301 5th Ave. S., Minneapolis 15, Minn., 51, 84, Tel: 612-FEderal 9-2791, Yr: 1945, Emp: 50, ▲1, $500,000

Melcor Electronics Corp., Dept. ID, 48 Toledo St., South Farmingdale, L.I., N.Y., 43, 50, 53, 77, 84, Tel: MYrtle 4-5570, Yr: 1960, Emp: 8, ▲1

See ad in class 43

Meletron Corp., 950 N. Highland Ave., Los Angeles 38, Calif., 80, Tel: 213-HOllywood 3-4841, Yr: 1936, Emp: 175

Meller Co. (Adolf), P.O. Box 6001, Providence 4, R.I., 17, 43, 56, 66, Tel: 401-DExter 1-3717, Yr: 1921, Emp: 30

Melody Master Mfg. Co., 2149-51 W. Roscoe St., Chicago 18, Ill., 4, 13, 30, 55, 65, 79, Tel: LAkeview 5-5559, Yr: 1945, Emp: 11, ▲3

Melpar, Inc., 3000 Arlington Blvd., Falls Church, Va., 1, 2, 4, 5, 8, 9, 10, 11, 15, 17, 19, 25, 33, 44, 59, 66, 92, 94, 96, 109, Tel: 703-JEfferson 4-6000, Yr: 1945, Emp: 3000, ▲300, $56,000,000

Melpar, Inc., Special Products Div., 3000 Arlington Blvd., Falls Church, Va., 4, 31, 50, 83, 94, 99, 101, Tel: 703-JEfferson 4-6000, Emp: 3400, ▲100

Menlo Park Engineering, 711 Hamilton Ave., Menlo Park, Cailf., 1, 2, 19, 25, 37, 38, 43, 69, Tel: 415-DAvenport 6-9080, Yr: 1955, Emp: 36, ▲2, $1,000,000

See ad in class 43

Menlo Research Laboratory, 1627 Bay Rd., East Palo Alto, Calif., 5, 40, 95, 108, Tel: DAvenport 3-4121, Yr: 1949, Emp: 55

Mepco, Inc., 35-37 Abbett Ave., Morristown, N.J., 74, Tel: 201-JEfferson 9-2000, Yr: 1947, Emp: 230, ▲3

Merck & Co., Inc., Electronic Chemicals Div., Lincoln Ave., Rahway, N.J., 102, Tel: 201-FUlton 1-5000, Yr: 1957, Emp: 300, ▲10, $5,000,000

See ad on page 126

Merco Products, Inc., 1298 Bethel Dr., Eugene, Ore., 98, Tel: DIamond 3-1276, Yr: 1956, Emp: 4

Mercoid Corp., 4201 Belmont Ave., Chicago 41, Ill., 4, 80, Tel: PEnsacola 6-2100, Yr: 1922, Emp: 450

Mercury Air Parts Co., Inc., 9310 W. Jefferson Blvd., Culver City, Calif., 97, Yr: 1951, Emp: 41, ▲4, $150,000

Mercury Contacts, Inc., 1950 Neva Dr., Dayton 14, Ohio, 80, Tel: CRestview 8-4719, Yr: 1953

Mercury Electronic Co., Box 450A, Red Bank, N.J., 40, Tel: ATlantic Highlands 1-1600, Yr: 1952, Emp: 65, ▲4, $600,000

Mercury Engineering Corp., 339 E. Cottage Pl., York, Pa., 91, Tel: YOrk 2-9557, Yr: 1947, Emp: 50, $250,000

Mereco Products Div., Metachem Resins Corp., 539 Wellington Ave., Cranston 10, R.I., 94, 96, 101, 107, 109, Tel: 401-STuart 1-4070, Yr: 1960, Emp: 10, ▲1

Mergenthaler Linotype Co., 29 Ryerson St., Brooklyn 5, N.Y., 2, 8, 9, 53, Tel: 212-ULster 5-0300, Yr: 1885, Emp: 2200, ▲15, $3,000,000

Meridian Metalcraft, Inc., 8739 S. Millergrove Dr., Whittier, Calif., 37, 43, 44, 45, 54, 59, 66, 84, 88, 93, 109, Tel: OXford 2-3761, Yr: 1945, Emp: 140, ▲2

Merit Coil & Transformer Corp., 2027 Sherman St., Hollywood, Fla., 51, 84, Tel: WAbash 3-1536, Yr: 1924, Emp: 250, ▲2, $600,000

Merit Plating Co., Inc., 218 E. 141st St., New York 51, N.Y., 109, Tel: CYpress 2-6380, Yr: 1946

Merix Chemical Co., 2234 E. 75th St., Chicago 49, Ill., 94, Tel: BAyport 1-8242, Yr: 1940, Emp: 15

Merkle-Korff Gear Co., 213 N. Morgan St., Chicago 7, Ill., 67, Tel: MOnroe 6-1900, Yr: 1911, Emp: 300

Merlang Mfg. Corp., 19 W. 34th St., New York 1, N.Y., 97, Tel: WIsconsin 7-3094, Yr: 1938

Merrimac Research & Development, Inc., 517 Lyons Ave., Irvington, N.J., 37, 45, 59, 66, 84, 88, Tel: 201-ESsex 1-1616, Yr: 1955, Emp: 26, ▲2

See ad in class 45

Mesa Plastics Co., 12270 Nebraska, Los Angeles 25, Calif., 103, 107, Tel: BRadshaw 2-4471, Yr: 1950, Emp: 68, $2,500,000

Mesur-Matic Electronics Corp., Bradford, N.H., 4, 5, 35, 40, 43, Tel: 118-R2, Yr: 1960, Emp: 11, $100,000 (6 months)

Metal Findings Corp., 152 W. 22nd St., New York 11, N.Y., 96, Tel: 212-ALgonquin 5-1234, Yr: 1931

Metal Finishers, Inc., 78 S. Franklintown Rd., Baltimore 23, Md., 94, 109, Tel: WIlkens 5-6100, Yr: 1952, Emp: 20

Metal Hydrides, Inc., Affil. of Ventures, Ltd., 12-24 Congress St., Beverly, Mass., 104, Tel: WAlker 2-1875, Yr: 1937, Emp: 120

Metal Powder Industries Federation, 60 E. 42nd St., New York 17, N.Y., 108

Metal Processing Co., Inc., 41 Canfield Rd., Cedar Grove, N.J., 99, 109, Tel: 201-CEnter 9-5378, Yr: 1916, Emp: 6, $40,000

Metal Textile Corp., Div. of General Cable Corp., 647 E. First Ave., Roselle, N.J., 80, Tel: CHestnut 5-3000, Yr: 1923, Emp: 500, ▲1

Metal & Thermit Corp., Rahway, N.J., 94, 109, Tel: 201-FUlton 1-3000, Emp: 1000

Metal Works, Inc., 9th & Jefferson, Hermann, Mo., 90, 93, Tel: 699, Yr: 1956, Emp: 30, $197,000

Metalcraft, Inc., Roosevelt Field, Garden City, L.I., N.Y., 52, 90, 93, 96, 99, 109, Tel: PIoneer 1-5200, Yr: 1945, Emp: 95, $1,000,000

Metalizing Industries, Inc., 338 Hudson St., Hackensack, N.J., 75, 81, 92, 109, Tel: 201-HUbbard 9-4650, Yr: 1959, Emp: 50, ▲12, $480,000

Metallic Arts of New England, Inc., 150 Broadway, Cambridge 42, Mass., 90, 93, 96, 103, 105, Tel: 617-KIrkland 7-5790, Yr: 1932, Emp: 60, $250,000

Metallic Plastics Corp., P.O. Box 424, Jamaica 31, N.Y., 97, 107, Tel: 212-OXford 7-4990

Metallized Products Co., Inc., 29 Knight St., Norwalk, Conn., 101, Tel: 203-TEmple 8-4703, Yr: 1945, Emp: 32

Metalphoto Corp., 6811 Superior Ave., Cleveland 3, Ohio, 104, Tel: 216-UTah 1-7575, Yr: 1954, Emp: 14

Metaplast Co., Inc., 34-51 56th St., Woodside 77, N.Y., 4, 5, 40, 43, 48, 49, 59, 75, 92, 94, 109, Tel: 212-HA 6-9843, Emp: 50, ▲1

Metavac, Inc., 45-68 162nd St., Flushing 58, N.Y., 17, 45, 48, 66, 74, 94, 97, 103, 109, Tel: HIckory 5-0400, Yr: 1945, Emp: 20, $250,000

Metcom, Inc., P.O. Box 272, Salem, Mass., 86, Tel: 617-PIoneer 4-8400, ▲1

See ads on this page and in class 86

Meteorology Research, Inc., 2420 N. Lake Ave., Altadena, Calif., 2, 40, 109, Tel: 213-SYcamore 8-4297, Yr: 1951, Emp: 20, ▲1, $125,000

Meters, Inc., 5353 N. Keystone Ave., Indianapolis 20, Ind., 17, 35, 40, 61, Tel: CLifford 5-3570, Yr: 1942

Methode Electronics, Inc., 7447 W. Wilson Ave., Chicago 31, Ill., 50, 52, 75, 78, 81, Tel: 312-UNderhill 7-9600, Yr: 1947, Emp: 100

See ad adjacent to Index to Advertisers, back of book.

Metrologie, Compagnie Generale de, Chemin de la Croix Rouge, P.O. Box 30, Annecy, France, 6, 23, 35, 37, 38, 39, 40, 41, 61, 69, Tel: 8-70, Yr: 1936, Emp: 350, ▲1, $2,000,000

Metron Instrument Co., 432 Lincoln St., Denver 3, Colo., 77, 97, Tel: 303-PEarl 3-3764, Yr: 1943, Emp: 50

Metronix, Inc., Subsid. of Assembly Products, Inc., 75 Wilson Mills Rd., Chesterland, Ohio, 4, 6, 40, 41, Tel: 216-HAmilton 3-4440, Yr: 1954, Emp: 10, ▲2, $130,000

See ad in class 40

Metropolitan Telecommunications Corp., Ames Ct., Plainview, L.I., N.Y., 7, 33, 35, 43, 48, 50, 51, 53, 59, 69, 81, 84, Yr: 1946, Emp: 150, ▲4, $2,400,000

Metz Refining Co., 369 Mulberry St., Newark 2, N.J., 104, 110, Tel: 201-MArket 2-0866, Yr: 1921, Emp: 28, ▲1, $400,000

Meyercord Co., 5323 W. Lake St., Chicago 44, Ill., 97, Yr: 1896, Emp: 1000

Mica Corp., 4031 Elenda St., Culver City, Calif., 107, Tel: 213-UPton 0-6861, Yr: 1950, Emp: 65, $1,000,000

Mica Fabricating Co., 53 Central Ave., Rochelle Park, N.J., 101, 107, Tel: HUbbard 7-5717, Yr: 1927, Emp: 60

Mica Industry Association, Inc., 420 Lexington Ave., New York 17, N.Y., Tel: LExington 2-3988

Micacraft Products, Inc., 49-55 Liberty St., Newark, N.J., 66, 96, 101, 105, Tel: MArket 3-6921

Micarta Fabricators, Inc., 5324 N. Ravenswood Ave., Chicago 40, Ill., 43, 48, 50, 52, 56, 60, 62, 66, 74, 78, 81, 96, 97, 107, 112, Tel: 312-LOngbeach 1-9700 Yr: 1926, Emp: 80, $1,000,000

Michigan Chemical Corp., 500 N. Bankson St., Saint Louis, Mich., 94, 104, Tel: 4511, Yr: 1935, Emp: 560

Michigan Magnetics, Inc., W. Third St., Vermontville, Mich., 70, Tel: CLifford 9-8911, Yr: 1953, Emp: 150, ▲2

Mico Instrument Co., 80 Trowbridge St., Cambridge 38, Mass., 37, 99, 110, Tel: 617-KIrkland 7-8660, Yr: 1936, Emp: 15, ▲1

Micon Electronics, Inc., Roosevelt Field, Garden City, L.I., N.Y., 52, Tel: 516-PIoneer 1-4480, Yr: 1961, Emp: 15, ▲1

See ad in class 52

Micro Balancing, Inc., 191 Herricks Rd., Garden City Park, L.I., N.Y., 4, 41, 99, Tel: PIoneer 6-0851, Yr: 1947, Emp: 60, ▲2

Micro-Circuits Co., New Buffalo, Mich., 74, 94, Tel: 1163, Yr: 1948

Micro-Electronics, Inc., 99 Bald Hill Rd., Cranston, R.I., 50, Tel: 401-REgent 7-3200

Micro Gee Products, Inc., 6319 W. Slauson Ave., P.O. Box 1005, Culver City, Calif., 2, 43, 77, Tel: EXmont 1-6719, Yr: 1954, Emp: 25, ▲2, $300,000

Micro-Lectric, Inc., 19 Debevoise Ave., Roosevelt, L.I., N.Y., 52, 74, 78, 80, Tel: 516-FReeport 8-3222, Yr: 1950, Emp: 25, $250,000

Micro-Now Instrument Co., 6340 N. Tripp, Chicago, Ill., 31, 37, Tel: 312-AVenue 2-0846, Yr: 1959, Emp: 3, ▲1

Micro Systems, Inc., 319 Agostino Rd., San Gabriel, Calif., 40, 74, 76, 83, Tel: ATlantic 7-0584, Yr: 1959, Emp: 50

Micro-Tel Corp., 2127 Maryland Ave., Baltimore 18, Md., 19, 31, 34, 37, Tel: HOpkins 7-2992, Yr: 1960, Emp: 15, ▲4, $120,000

Microdot, Inc., 220 Pasadena Ave., South Pasadena, Calif., 34, 40, 42, 43, 52, 53, 69, 73, 80, 81, 83, 84, 91, 97, Tel: Murray 2-3351, Yr: 1950, Emp: 430, ▲5

Microflect Co., Inc., 3450 25th S.E., Salem, Ore., 44, 66, Tel: 503-EMpire 3-1128

Microlab, 570 W. Mount Pleasant Ave., Livingston, N.J., 37, 45, 52, 56, 59, 66, 88, Tel: 201-WYman 2-5700, Yr: 1950, Emp: 148, ▲10, $1,000,000

See ad in class 56

Microlectron, Inc., 1547 18th St., Santa Monica, Calif., 50, 60, 72, 74, 92, Tel: 213-EXbrook 3-0356, Yr: 1954, Emp: 30, $150,000

See ads in classes 50, 60, 74

Micromatic Machine Corp., 45 Morgan Ave., Brooklyn 37, N.Y., 96, Tel: HYacinth 7-4117, Yr: 1950, Emp: 35

Micromech Mfg. Corp., 695 Rahway Ave., Union, N.J., 99, Tel: 201-MUrdock 7-3200, Yr: 1952, Emp: 15

Micromega Corp., 4134 Del Rey Ave., Venice, Calif., 34, 43, 45, 59, 66, 80, Tel: EXmont 1-7137, Yr: 1960, Emp: 24, ▲10

Microphase Corp., River Rd., Cos Cob, Conn., 26, 43, 45, 50, 53, 56, 59, 66, 69, 80, 88, Tel: 203-NOrmandy 1-6200, Yr: 1955, Emp: 83, ▲4, $846,000

Microsecond Electronics, Inc., McKellips Rd., Mesa, Ariz., 39, 41, 51, 57, 59, 84, 95, 96, 109, Tel: 602-273-1226, Yr: 1959, Emp: 25, ▲2, $120,000

Microsemiconductor Corp., 11250 Playa Ct., Culver City, Calif., 50, 76, Tel: 213-EXmont 1-8271, Yr: 1960, Emp: 41

Microsonics, Inc., Hingham Industrial Center, Hingham, Mass., 57, Tel: 617-RIverview 9-3100, Yr: 1957, Emp: 25, ▲2, $500,000

See ad in class 57

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Microtech, Inc., Milldale Rd., Cheshire, Conn., 37, 45, 66, Tel: 203-BRowning 2-3234, Yr: 1957, Emp: 75, ▲3, $700,000

Microtran Co., Inc., 145 E. Mineola Ave., Valley Stream, L.I., N.Y., 51, 84, Tel: 516-LOcust 1-6050, Yr: 1951, Emp: 85, ▲3

See ad in class 84

Microwave Associates, Inc., South Ave., Burlington, Mass., 37, 43, 44, 45, 52, 56, 59, 66, 69, 76, 80, 86, 88, Tel: 617-BRowning 2-3000, Yr: 1951, Emp: 680, ▲40, $8,600,000

See ad on this page

Microwave Chemicals Laboratory, Inc., 282 Seventh Ave., New York 1, N.Y., 17, 56, 92, 100, Tel: 212-WAtkins 4-6725

Microwave Corp. of America, Bldg. #29, 200 Henry St., Stamford, Conn., 1, 20, 34, 43, 44, 45, 59, 66, Tel: 203-DAvis 5-1536, Yr: 1960, Emp: 31, ▲2

Microwave Development Laboratories, Inc., 15 Strathmore Rd., Natick, Mass., 45, 59, 66, Tel: 617-CEdar 5-6252, Yr: 1948, Emp: 175, ▲20, $5,000,000

Microwave Dynamics Corp., 7 Fairchild Ct., Plainview, L.I., N.Y., 1, 19, 37, 38, 43, 45, 59, 66, 69, 80, Tel: 516-OVerbrook 1-6811, Yr: 1960, Emp: 80, ▲20, $500,000

MICROWAVE ASSOCIATES INC

BURLINGTON, MASS.
BROWNING 2-3000
WESTERN UNION: FAX
TWX: Burlington, Mass., 942

ELECTRON TUBE AND DEVICE DIVISION

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- HIGH-SPEED SILICON COMPUTER DIODES
- SPECIAL PURPOSE MICROWAVE DIODES

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- COAXIAL LINE COMPONENTS
- CAST WAVEGUIDE COMPONENTS
- WAVEGUIDE PRESSURE WINDOWS
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Microwave Electronics Corp., 4061 Transport St., Palo Alto, Calif., 43, 59, 66, 80, 86, 88, Tel: 415-DAvenport 1-1770, Yr: 1959, Emp: 90, ▲10, $1,500,000

Microwave Semiconductor & Instruments, Inc., 116-06 Myrtle Ave., Richmond Hill 18, N.Y., 37, 43, 44, 45, 59, 66, 69, 76, 80, Tel: 212-HIckory 1-6420, Yr: 1960, Emp: 12, ▲4

Microwave Services International, Inc., U.S. Route 46 & Cisco Rd., Denville, N.J., 95, Tel: 201-OAkwood 7-7400, Yr: 1952, Emp: 50, ▲20, $1,000,000

See ad in class 95

Mid-Eastern Electronics, Inc., 32 Commerce St., Springfield, N.J., 6, 17, 31, 40, 41, 53, 69, 72, 74, 84, 109, Tel: DRexel 6-7130, Yr: 1957, Emp: 26, ▲3, $411,000

Mid-West Metal Products, Inc., 450 E. Donovan Rd., Kansas City 15, Kans., 90, 93, 96, Tel: 816-MAyfair 1-1980, Yr: 1958, Emp: 75, $750,000

Mid-West Spring Mfg. Co., Etna St., Mentone, Ind., 97, Tel: 219-EL 3-2415, Yr: 1928, Emp: 300, ▲3, $2,000,000

Middlesex Paper Tube Co., 345 Chelmsford, Lowell, Mass., 48, 112, Tel: 617-GLenview 7-7687, Yr: 1919, Emp: 67

Mideast Aluminum Corp., U.S. Hwy. 130, Dayton, N.J., 96, 104, Tel: DAvis 9-8113, Yr: 1959, Emp: 43, $150,000

Midget Louver Co., 6-8 Wall St., Norwalk, Conn., 97, Tel: 203-VOlunteer 6-2342, Yr: 1948, Emp: 10

Midland Mfg. Co., 3155 Fiberglas Rd., Kansas City 15, Kans., 56, 59, Tel: FInley 2-7950, Yr: 1949, Emp: 375, ▲4, $3,000,000

Midwest Automatic, Inc., 510 Third St., Des Moines 9, Iowa, 4, 77, 95, 109, Tel: CHerry 4-3103, Yr: 1945, Emp: 16

Midwest Foam Products Co., 1632 Chicago Ave., Evanston, Ill., 59, 96, 97, 101, Tel: DAvis 8-6905, Yr: 1959, Emp: 60

Midwest Plastic Products Co., 3251 Chicago Rd., Steger, Ill., 107, Tel: 312-SKyline 4-3476, Yr: 1942, Emp: 30

Midwest Research Institute, 425 Volker Blvd., Kansas City 10, Mo., 109, Tel: LOgan 1-0202, Yr: 1944, Emp: 270, ▲8

Midwest Technical Development Corp., 2615 First National Bank Bldg., Minneapolis 2, Minn., 109

Midwestern Instruments, Inc., 41st & Sheridan Rd., P.O. Box 7509, Tulsa 18, Okla., 2, 4, 9, 10, 13, 14, 15, 16, 27, 28, 34, 43, 67, 70, 77, 83, 109, Tel: 918-NAtional 7-1111, Yr: 1950, Emp: 500, ▲5, $5,500,000

Mikros, Inc., 7620 S.W. Macadam Ave., Portland 19, Ore., 4, 5, 14, 69, Tel: 503-CHerry 6-6122, Yr: 1961, Emp: 10, ▲3

Miles Reproducer Co., Inc., 812 Broadway, New York 3, N.Y., 9, 13, 20, 27, 30, 65, Tel: SPring 7-7670, Yr: 1924, Emp: 70, ▲10, $500,000

Milford Rivet & Machine Co., 857 Bridgeport Ave., Milford, Conn., 81, 97, Tel: 203-TRinity 8-4631, Yr: 1929, Emp: 500, ▲1, $100,000

Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 2, 4, 8, 9, 10, 11, 24, 28, 31, 33, 34, 43, 50, 63, 74, 77, 90, 95, 109, Tel: 305-OXford 1-1220, Yr: 1956, Emp: 285, ▲10, $4,800,000

See ad in class 28

Millen Mfg. Co., 90 Summit Ave., Brookline 46, Mass., 111, Tel: LOngwood 6-4305, Yr: 1923

Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 3, 6, 11, 21, 23, 40, 43, 49, 50, 51, 52, 57, 69, 78, 81, 84, 92, 96, 97, 103, 106, Tel: 617-DAvenport 4-4108, Yr: 1938, ▲5

See ad in class 51

Miller Associates, P.O. Box 369, Lakeville, Conn., 2, 37, 109, Yr: 1950, Emp: 3

Miller Co. (J. W.), 5917 S. Main St., Los Angeles 3, Calif., 44, 51, 59, 84, 88, Tel: ADams 3-4294, Yr: 1924, Emp: 75, ▲2, $1,000,000

Miller Dial & Name Plate Co., 4400 N. Temple City Blvd., El Monte, Calif., 63, 97, Tel: GIlbert 4-4555, Yr: 1937, Emp: 260

Miller Electric Co., 120 Main St., Pawtucket, R.I., 91, 96, Tel: 401-PAwtucket 5-0420, Yr: 1945, Emp: 200, $500,000

Miller Electric Mfg. Co., 718 S. Bounds St., Appleton, Wis., 69, 71, 99, Tel: REgent 4-9821, Yr: 1929, Emp: 400

Miller Electro-Research Laboratories, 5529 S. 5th St., Milwaukee 7, Wis., 74, Tel: HUmboldt 3-6303, Yr: 1935, Emp: 5, $50,000

Miller-Harris Instrument Co., 1134 S. First St., Milwaukee 4, Wis., 4, 61, 80, Tel: EVergreen 3-7256, Yr: 1942, Emp: 65

Miller Industries, Inc. (R. A.), 1525 Marion St., Grand Haven, Mich., 1, 44, 59, Tel: 842-9450, Yr: 1956, Emp: 11

Miller Laboratories, 18 Raymond St., Latham, N.Y., 40, Tel: 518-STate 5-8122, Yr: 1945, Emp: 7, $150,000

Miller Tool & Mfg. Co., Inc. (K.), 857 Elm St., West Springfield, Mass., 111, Tel: REpublic 3-1360, Yr: 1927, Emp: 15, $308,000

Miller-Trojan Co., Inc., 3 N. Ridge Ave., Troy, Ohio, 14, 40, 99, Tel: FEderal 2-7336, Yr: 1945, Emp: 42

Milli-Switch Corp., 1400 Mill Creek Rd., Gladwyne, Pa., 80, Tel: MIdway 2-9222, Emp: 21

Millitest Corp., 88 Madison Ave., Hempstead, L.I., N.Y., 41, Tel: IVanhoe 9-9672, Yr: 1949, Emp: 25, ▲5

Millivac Instruments, Inc., Box 997, Schenectady, N.Y., 40, 43, 53, Tel: 518-FRanklin 2-4781, Yr: 1947, Emp: 36, ▲1, $400,000

See ad in class 40

Milman Engineering Co., Inc., 11162 Santa Monica Blvd., Los Angeles 25, Calif., 9, 99, Tel: 213-GRanite 3-0616, Yr: 1956, Emp: 10, $70,000

Milro Controls Co., Inc., 280 Midland Ave., Saddle Brook, N.J., 4, 17, 21, 43, 51, 53, 69, 84, 95, Tel: SWarthmore 1-1850, Yr: 1956, Emp: 30, ▲8, $396,000

Miltronics Co., 3733 N. 7th St., Milwaukee 6, Wis., 4, 50, 96, Tel: FRanklin 2-8100, Yr: 1955, Emp: 5, ▲1

Milwaukee Resistor Co., 700 W. Virginia St., Milwaukee 4, Wis., 74, Tel: 414-BRoadway 1-9900, Yr: 1946, Emp: 160

Milwaukee Transformer Co., 5231 N. Hopkins, Milwaukee 9, Wis., 51, 69, 84, Tel: 414-HOpkins 6-5532, Yr: 1950, Emp: 125, $1,250,000

Minatron Corp., 8 Cliveden St., Belle Meade, N.J., 83, 84, Tel: FLanders 9-6400, Yr: 1952, ▲1

Minco Products, Inc., 740 Washington Ave. N., Minneapolis 1, Minn., 61, 74, 82, 98, Tel: 612-FEderal 8-6753, Yr: 1956, Emp: 25, ▲1

Minerals & Insulation Co., Rochelle Park, N.J., 66, 69, 97, 98, 101, 105, 107, 112, Tel: HUbbard 7-5717, Yr: 1917, Emp: 60, ▲1

Miniature Electronic Components Corp., 21 Plymouth St., Holbrook, Mass., 51, 73, 74, Tel: WOodlawn 3-7717, Yr: 1956, Emp: 50, ▲1, $200,000

Miniature Precision Bearings, Inc., Precision Park, Keene, N.H., 97, Tel: 603-ELmwood 2-0310, Yr: 1946, Emp: 850, ▲1

Minicord Corp. of America, 1915 Atlantic Ave., Atlantic City, N.J., 18, 20, 25, 27, 61, 67, 70, 85, Tel: 609-345-0800, Yr: 1954, Emp: 138

Minitec, 5423 Delaware Ave., Los Angeles 41, Calif., 80

Minneapolis-Honeywell Regulator Co., 2747 Fourth Ave. S., Minneapolis 8, Minn., Tel: 612-FEderal 2-5225, Yr: 1885, Emp: 40,000, ▲400

Minneapolis-Honeywell Regulator Co., Boston Div., 40 Life St., Boston 35, Mass., 43, Tel: 617-ALgonquin 4-5200, Yr: 1885, Emp: 1000, ▲15

Minneapolis-Honeywell Regulator Co., Electronic Data Processing Div., 60 Walnut St., Wellesley Hills 81, Mass., 8, 109, Tel: 617-CEdar 5-7450, ▲55

Minneapolis-Honeywell Regulator Co., Fall River Div., 21 Penn St., Fall River, Mass., 4, 9, 28, 40, 43, 52, 53, 61, 62, 69, 77, 81, Tel: 617-OSborne 8-8331, Yr: 1958, Emp: 400, ▲2

Minneapolis-Honeywell Regulator Co., Industrial Products Group, Wayne & Windrim Aves., Philadelphia 44, Pa., 1, 4, 5, 6, 9, 12, 13, 16, 17, 23, 27, 28, 31, 34, 36, 40, 43, 53, 61, 67, 70, 74, 77, 82, 83, 93, Tel: 215-DAvenport 9-8300, ▲20

Minneapolis-Honeywell Regulator Co., Industrial Systems Div., 10721 Hanna St., Beltsville, Md., 27, Tel: 301-GRanite 4-6700, Yr: 1946, Emp: 375, ▲11

Minneapolis-Honeywell Regulator Co., Micro Switch Div., 11 W. Spring St., Freeport, Ill., 80, Tel: ADams 2-1122, Yr: 1937, ▲5

Minneapolis-Honeywell Regulator Co., Military Products Group, 2747 Fourth Ave. S., Minneapolis 8, Minn., 1, 2, 4, 8, 9, 15, 17, 18, 27, 33, 37, 40, 43, 50, 53, 54, 56, 61, 67, 69, 76, 77, 83, 90, 93, 95, 109, Tel: 612-FEderal 2-5225, ▲100

Minneapolis-Honeywell Regulator Co., Precision Meter Div., Grenier Field, Manchester, N.H., 2, 40, 61, 73, 98, Tel: NAtional 5-6971, ▲2

Minneapolis-Honeywell Regulator Co., Rubicon Div., Ridge Ave. at 35th St., Philadelphia 32, Pa., 12, 31, 40, 41, Tel: 215-BAldwin 5-3737, ▲5

Minneapolis-Honeywell Regulator Co., Semiconductor Products Div., 1015 S. Sixth St., Minneapolis 4, Minn., 14, 76, Tel: 612-FEderal 2-5225, ▲10

Minneapolis-Honeywell Regulator Co., Special Systems Div., Queen & S. Bailey Sts., Pottstown, Pa., 4, 8, 9, 80, Tel: 215-FAculty 3-4000, ▲6

Minnesota Engineering Co., 8001 Bloomington Freeway, Minneapolis 20, Minn., 95, 96, 108, 109, Tel: TUxedo 8-5511, Yr: 1945, Emp: 212

Minnesota Mining & Mfg. Co., Electrical Products Div., 900 Bush Ave., Saint Paul 6, Minn., 58, 94, 97, 101, 107, 112, Tel: PRospect 6-8511, Yr: 1913, ▲5

Minnesota Mining & Mfg. Co., Magnetic Products Div., 900 Bush Ave., Saint Paul 6, Minn., 9, 10, 27, 68, 70, Tel: PRospect 6-8511, Emp: 25,000, ▲20

Minnesota Mining & Mfg. Co., Mica Insulator Div., 797 Broadway, Schenectady 6, N.Y., 101, 107, 112, Tel: FRanklin 4-4191, Yr: 1893, Emp: 300, ▲3

Minnesota Mining & Mfg. Co., Mincom Div., 2049 S. Barrington Ave., Los Angeles 25, Calif., 27, 34, Tel: BRadshaw 2-9971, Yr: 1956, Emp: 250, ▲2

Minnesota Mining & Mfg. Co., Paper Products Div., 900 Bush Ave., Saint Paul 6, Minn., 101, Tel: 612-PRospect 6-8511, Yr: 1893, Emp: 225, ▲15

See ad in class 101

Minnesota Rubber Co., 3630 Wooddale Ave., Minneapolis 16, Minn., 89, 97, 101, 112, Tel: WEst 9-6781, Yr: 1945, Emp: 470

Minor Rubber Co., Inc., 39 Ackerman St., Bloomfield, N.J., 97, 101, 112, Tel: EDison 8-6800, Yr: 1914, Emp: 105

Minshall Organ & Electronics, Inc., 28 Birge St., Brattleboro, Vt., 43, 50, 69, 74, 79, 81, 89, 90, 95, 96, 97, 101, 107, 109, Tel: ALpine 4-2391, Yr: 1945, Emp: 47, $237,000

Mira Corp., 2656 N. Pasadena Ave., Los Angeles 31, Calif., 34, 43, 69, Tel: 213-CApitol 1-1129, Yr: 1950, Emp: 10, ▲1

Miratel Electronics, Inc., 1st St. S.E. & Richardson, New Brighton, Saint Paul 12, Minn., 20, 21, 26, 32, 43, 69, 88, Tel: 612-MElrose 3-1742, Yr: 1955, Emp: 45, ▲2, $500,000

Mirro Aluminum Co., 1512 Washington St., Manitowoc, Wis., 96, 97, 105, Tel: 414-MUrray 4-4421, Yr: 1895, Emp: 2800

Miskella Infra-Red Co., E. 73rd & Grand Ave., Cleveland 4, Ohio, 98, 99, Tel: 615-431-2210, Yr: 1939

Missile Systems Corp., California Div., 11949 Vose St., North Hollywood, Calif., 19, 21, 26, 32, 34, 42, 45, 52, 90, 91, 108, Tel: POplar 5-9041, Yr: 1959, Emp: 60, ▲2, $1,000,000

Missimers, Inc., 3737 San Fernando Rd., Glendale 4, Calif., 36, 99, Tel: CHapman 5-8471, Yr: 1932, Emp: 48, $200,000

Missouri Research Laboratories, Inc., 2109 Locust St., Saint Louis 3, Mo., 2, 4, 8, 23, 37, 38, 41, 43, 50, 59, 69, 77, 90, 96, 109, Tel: CHestnut 1-7875, Yr: 1946, Emp: 250, ▲6, $1,000,000

Mitchell Co. (E. C.), Boston St., Middleton, Mass., 94, Tel: 617-SPring 4-1191, Yr: 1920

Mitchell Electronics Corp., 58 Marbledale Rd., Tuckahoe, N.Y., 51, 84, Tel: 914-WOodbine 1-4001, Yr: 1957, Emp: 12

Mitchell Industries, Inc., P.O. Box 17, Mineral Wells, Texas, 1, 2, 111, Tel: FA 5-2517, Yr: 1948, Emp: 45, ▲1, $800

Mitchell Radiation Products Corp., E. Washington St., Norristown, Pa., 5, 41, 86, Tel: BRoadway 9-4847

Mite Corp., Engineering Laboratories, 26 Park Pl., Paramus, N.J., 9, 33, 53, Tel: 201-COlfax 1-0600, Yr: 1892, Emp: 465, ▲10

Mitre Corp., P.O. Box 208, Bedford, Mass., ▲100

Mitronics, Inc., 132 Floral Ave., Murray Hill, N.J., 49, 50, 55, 66, 75, 81, 92, Tel: 201-277-3400, Yr: 1953, Emp: 105, ▲3, $1,500,000

See ad in class 92

Mittelmann Engineering (Eugene), 549 W. Washington Blvd., Chicago 6, Ill., 4, 5, 9, 31, 40, 95, 98, Tel: 312-CEntral 6-2983

Mnemotron Corp., 49 S. Main St., Pearl River, N.Y., 4, 5, 8, 9, 10, 27, 34, Tel: 914-PEarl River 5-4015, Yr: 1959, ▲3

See ad in class 9

Mobay Chemical Co., Subsid. of Monsanto Chemical Co., Penn Lincoln Pkwy. W., Pittsburgh 5, Pa., 97, 109

Mobil Electronics, Inc., 1111 State Rd. #67 E., P.O. Box 1132, Anderson, Ind., 4, 20, 38, 73, 90, 93, 96, 108, 109, Tel: 317-643-7787, Yr: 1946, Emp: 8

Model Engineering & Mfg. Corp., 50 Frederick, Huntington, Ind., 1, 2, 4, 5, 6, 8, 9, 10, 11, 12, 18, 22, 23, 25, 29, 35, 37, 38, 40, 43, 45, 48, 52, 53, 59, 61, 66, 67, 69, 74, 77, 80, 88, 91, 99, Tel: 104, Yr: 1946, Emp: 769, ▲2

Model Rectifier Corp., 1675 Utica Ave., Brooklyn 34, N.Y., 53, 69, 74, Tel: 212-CLoverdale 8-6800, Yr: 1948, Emp: 40

Modelectric Products Corp., Asbury Park, N.J., 51, 62, 84, 91, Tel: PRospect 4-2519, Yr: 1945, Emp: 26, ▲1, $385,000

Modern Design, Div. of H. C. Schloer, Inc., Vestal Pkwy. E., Vestal, N.Y., 4, 8, 9, 10, 11, 12, 26, 30, 35, 36, 40, 41, 43, 50, 69, 72, 88, 95, 96, 108, 109, Tel: 607-STillwell 5-9901, Yr: 1943, Emp: 200, ▲3, $600,000

Modern Laboratory Equipment Co., 1811 First Ave., New York 28, N.Y., 36, 54, 82, 98, 99, Tel: 212-TRafalgar 6-4700, Yr: 1951, Emp: 15, $15,000

Modern Mfg. Co., Inc., 680 Davisville Rd., Willow Grove, Pa., 52, 97, 111, Tel: OLdfield 9-4820

Modine Mfg. Co., 1619 DeKoven Ave., Racine, Wis., 54, Tel: MElrose 3-2411, Yr: 1916, Emp: 2400, $60,000

Moeller Instrument Co., Inc., Electronics Div., 132nd St. & 89th Ave., Richmond Hill 18, N.Y., 72, Tel: 212-VIrginia 9-2100, Yr: 1864, Emp: 150, ▲3

Mohawk Business Machines Corp., 944 Halsey St., Brooklyn 33, N.Y., 1, 9, 10, 13, 23, 27, 34, 35, 43, 59, 69, 84, 96, Tel: 212-GLenmore 5-9570, Yr: 1911, Emp: 150, ▲3, $2,500,000

Mohawk Wire & Cable Corp., 45 Summer St., Leominster, Mass., 91, Tel: KEystone 7-0771, Yr: 1950, Emp: 61

Mole-Richardson Co., 937 N. Sycamore Ave., Hollywood 38, Calif., 32, 91, Tel: OLdfield 4-3660, Yr: 1927, Emp: 50

Molectronics, Div. of Motec Industries, 6344 Arizona Circle, Los Angeles 45, Calif., 2, 4, 8, 9, 33, 40, 41, 69, Tel: ORchard 1-7681

Molecu-Wire Corp., Route 537, Scobeyville, N.J., 91, 104, 105, Tel: LIberty 2-1200, Yr: 1958, Emp: 70, ▲2, $1,000,000

Molecular Electronics Co., 71 Monroe St., Garfield, N.J., 75, 81, 92, Yr: 1960, Emp: 7

Molecular Electronics, Inc., 85 Weyman Ave., New Rochelle, N.Y., 41, Tel: 914-BEverly 5-4300, Yr: 1960, Emp: 130, ▲2

Molex Products Co., 9515 Southview Ave., Brookfield, Ill., 52, 80, 81, Tel: HUnter 5-5881, Yr: 1938, Emp: 75, ▲2

Molly Corp., 230 N. Fifth St., Reading, Pa., 97, Tel: 215-FRanklin 6-7413, Yr: 1948, Emp: 50

Molon Motor & Coil Corp., 3737 Industrial Ave., Rolling Meadows, Ill., 67, Tel: CLearbrook 9-3750, Yr: 1954, Emp: 150, $1,500,000

Moloney Electric Co., 5390 Bircher Blvd., Saint Louis 20, Mo., 55, 59, 69, 84, Tel: 314-EVergreen 3-3300, Yr: 1896, Emp: 1300, ▲2

Mona Industries, Inc., 65 E. 23rd St., Paterson 17, N.J., 94, Tel: 201-ARmory 4-8220, Yr: 1951, Emp: 24

Monadnock Mills, 1977 First Ave., San Leandro, Calif., 52, 96, 97, 107, Tel: ELgin 7-3700, Yr: 1943, Emp: 145, ▲1

Monarch Electric Div., El-Tronics, Inc., 118 E. 1st St., Jamestown, N.Y., 60, Tel: 3-1565, Yr: 1909, Emp: 84, $587,000

Monitor Products Co., Inc., 815 Fremont Ave., South Pasadena, Calif., 10, 31, 34, 37, 38, 56, Tel: 213-MUrray 2-3761, Yr: 1929, Emp: 125, ▲2, $800,000

Monitor Relays, Inc., P.O. Box 1154, Joliet, Ill., 73, Tel: 815-SA 6-4308, Yr: 1958, Emp. 38, $100,000

Monroe Electronic Laboratories, Inc., 5 Vernon St., Middleport, N.Y., 4, 8, 11, 40, 41, 43, 69, Tel: 716-REpublic 5-3721, Yr: 1953, Emp: 16, ▲1

Monsanto Chemical Co., 800 N. Lindbergh Blvd., Saint Louis 66, Mo., 102, Tel: 314-WYdown 3-1000, Yr: 1901, Emp: 35,000, ▲20

Monsanto Chemical Co., Plastics Div., 812 Monsanto Ave., Springfield 2, Mass., 56, 58, 101, 102, 104, 107, 112

Montek, Inc., 4675 S. State St., Salt Lake City 7, Utah, 1, 2, 4, 9, 11, 21, 38, 43, 50, 53, 69, 72, 74, 80, 106, 109, Tel: AM 2-2464, Yr: 1955, Emp: 40, ▲1

Montgomery Co., Canal Bank, Windsor Locks, Conn., 91, Yr: 1871, Emp: 225

Montgomery Mfg. Co., Inc., 202-204 S. Main St., Owensville, Ind., 4, 80, Tel: SA 4-2505, Yr: 1935, Emp: 20

Moody Machine Products Co., Inc., 42-46 Dudley St., Providence 5, R.I., 97, 111, Tel: 401-GAspee 1-3317, Yr: 1940, Emp: 16, $25,000

Moog Servocontrols, Inc., Industrial Div., P.O. Box 8, East Aurora, N.Y., 4, 36, 77, Tel: 716-NL 2-0220, Yr: 1951, Emp: 750, ▲5, $10,000,000

Mooradian High Frequency Laboratories, 13 E. Fort Lee Rd., Bogota, N.J., 5, Tel: DIamond 2-2115, Yr: 1939

Moore Associates, Inc., 893 American St., San Carlos, Calif., 4, 7, 8, 9, 10, 19, 21, 33, 34, 42, 53, 73, Tel: 416-LY 1-5363, Yr: 1957, Emp: 30, ▲2

Moore Corp. (John B.), 384 Franklin Ave., P.O. Box 3, Nutley 10, N.J., 94, Tel: 201-NOrth 7-6666, Yr: 1952, Emp: 25

Moran Co., 721 E. El Segundo Blvd., El Segundo, Calif., 97, Tel: SPring 2-1574, Yr: 1952, Emp: 5, $30,000

Moran Instrument Corp., 170 E. Orange Grove Blvd., Pasadena 3, Calif., 4, 9, 16, 22, 23, 43, 69, 77, 111, Tel: SYcamore 6-7158, Yr: 1949, Emp: 15, ▲2, $100,000

Morey Corp., 2014 N. Major St., Chicago 39, Ill., 48, 51, 57, 59, 84, 91, 97, 101, Tel: BErkshire 7-8800, Yr: 1934, Emp: 35, ▲2, $600,000

Morgan Electronics, P.O. Box 1294, Boston 9, Mass., 6, 28, 35, 40, 41, 69, Tel: 617-ASpinwall 7-5178, Yr: 1959, ▲1

Morningstar-Paisley, Inc., 630 W. 51st St., New York 19, N.Y., 94, 101

Morris Co. (J. L.), 394 Elm St., Southbridge, Mass., 97, Tel: 617-764-4394, Yr: 1920, Emp: 40

Morris Co. (Robert E.), Box 41, West Hartford, Conn., 90, 99, Tel: 203-ADams 3-3663

Morris Engineering & Management Consultants (Fred W., Jr.), 11600 Fairway Dr., Los Altos, Calif., 95, 109, Tel: 415-WHitecliff 8-3928, Yr: 1954, Emp: 4, ▲4

Morrow Radio Mfg. Co., 2794 Market St., Salem, Ore., 20, Tel: EMpire 3-6952, Yr: 1948, Emp: 42, ▲2, $400,000

Morse Co. (Frank W.), 354 Congress St., Boston 10, Mass., 52, 62, 78, 81, 91, 97, Tel: HAncock 6-5398, Yr: 1895, Emp: 22

Mosaic Fabrications, Inc., 205 Chapin St., Southbridge, Mass., 9, 14, 23, 86, 112, Tel: 617-765-5286, Yr: 1959, Emp: 20, ▲1

Moseley Co. (F. L.), Div. of Hewlett-Packard Co., 409 N. Fair Oaks, Pasadena, Calif., 4, 9, 28, 53, Tel: 714-SYcamore 2-1176, Yr: 1951, Emp: 200, ▲3, $2,339,000

Mosinee Paper Mills Co., Mosinee, Wis., 101, Tel: OXbow 3-2111, Yr: 1911, Emp: 650

Mosler Research Products, Inc., 9 South St., Danbury, Conn., 4, Tel: 203-PIoneer 3-6766, Yr: 1911, Emp: 65, ▲4, $200,000

Mosley Electronics, Inc., 4610 N. Lindbergh, Bridgeton, Mo., 44, 78, 84, 91, Tel: 314-PErshing 1-3036, Yr: 1946, Emp: 90, ▲2, $850,000

Mossman, Inc. (Donald P.), P.O. Box 265, Brewster, N.Y., 80, Tel: 914-BRewster 9-3725, Yr: 1941, Emp: 101

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Motor Generator Corp., W. Water St., Box IRE-61, Troy, Ohio, 53, 67, 69, 99, Tel: FEderal 2-1223, Yr: 1940, Emp: 850, ▲1, $5,000

Motordyne, Inc., Subsid. of Air-Marine Motors, Inc., 2221 Barry Ave., Los Angeles 64, Calif., 47, 67, 72, Tel: BRadshaw 2-0411, Yr: 1950, Emp: 70, ▲1, $55,000

Motorola, Inc., Yr: 1928, Emp: 14,000, ▲600, $300,000,000

Motorola Aviation Electronics, Inc., 10916 W. Washington Blvd., Culver City, Calif., 1, 2, 18, 44, Tel: UPton 0-0131, Yr: 1960, Emp: 350, ▲20

Motorola Communications & Electronics, Inc., 4501 W. Augusta Blvd., Chicago 51, Ill., 4, 13, 18, 19, 20, 21, 24, 26, 29, 30, 31, 32, 38, 40, 65, Tel: 312-SPaulding 2-6500, ▲200

Motorola, Inc., Military Electronics Div., 8201 E. McDowell Rd., Scottsdale, Ariz., 1, 2, 4, 8, 9, 10, 19, 20, 21, 24, 25, 29, 33, 34, 38, 43, 44, 50, 52, 55, 59, 66, 73, 80, 81, 83, 92, 108, 109, Tel: 602-WHitney 5-4311, ▲100

Motorola Semiconductor Products, Inc., 5005 E. McDowell Rd., Phoenix 10, Ariz., 71, 76, Tel: 602-273-6900, Yr: 1952, Emp: 3000, ▲100, $299,065,992

Motson Co. (J. Frank), 1717 Bethlehem Pike, Flourtown, Pa., 48, 50, 92, 94, 109, Tel: CHestnut Hill 7-1900, Yr: 1932, Emp: 44, $500,000

Moulic Specialties Co., 1005-7 W. Washington St., Bloomington, Ill., 13, 27, 36, 43, 69, 90, 93, 95, Tel: 309-966-1235, Yr: 1945, Emp: 30, ▲1

Moxness Products, Inc., 1914 Indiana St., Racine, Wis., 97, 101, 112, Tel: MElrose 7-4425, Yr: 1955, Emp: 140, $250,000

Muckle Mfg. Co., 218 Robert St., Owatonna, Minn., 90, Tel: 507-451-7115, Yr: 1925, Emp: 36

Mucon Corp., 9 Saint Francis St., Newark 5, N.J., 48, Tel: 201-MItchell 2-1476, Yr: 1950

See ad in class 48

Mueller Brass Co., 1925 Lapeer Ave., Port Huron 12, Mich., 55, 97, 104, 105, 112, Tel: YUkon 5-5111, Yr: 1917, Emp: 3000, $65,000

Mueller Electric Co., 1583 E. 31st St., Cleveland 14, Ohio, 97, Tel: 216-PRospect 1-5225, Yr: 1908, Emp: 120

Mueller Engineering Co., Inc. (Heinz), 4725 W. Iowa St., Chicago 51, Ill., 40, 47, 53, 67, Tel: 312-ESTebrook 8-4761, Yr: 1955, Emp: 60, $500,000

Muirhead & Co., Ltd., Beckenham, Kent, England, 6, 12, 15, 18, 27, 28, 31, 33, 35, 36, 38, 40, 41, 45, 48, 49, 53, 61, 67, 69, 73, 74, 77, 80, 97, 106, Tel: BEckenham 4888, Yr: 1880

Muirhead Instruments, Inc., 441 Lexington Ave., New York 17, N.Y., Importers, 4, 6, 9, 10, 12, 15, 22, 27, 31, 35, 36, 38, 40, 41, 43, 45, 48, 49, 53, 59, 67, 73, 74, 77, 80, Tel: 212-MUrray Hill 2-8131, Yr: 1896, Emp: 1600, ▲3

Multi-Amp Electronic Corp., 61 Myrtle St., Cranford, N.J., 40, 41, 69, Tel: 201-BRidge 6-8200, Yr: 1950, Emp: 20

Multi Products Co., Inc., 21470 Coolidge Hwy., Oak Park 37, Mich., 3, 4, 18, 20, 21, 37, 43, 53, 69, 90, 93, Tel: 313-JOrdan 6-2377, Yr: 1946, Emp: 96, ▲1, $1,500,000

Multitone Electronics, Ltd., 130 Merton St., Toronto 7, Ont., Canada, 4, 5, 13, 20, 30, Tel: 416-HUdson 1-0731, Yr: 1958, Emp: 8, ▲2, $135,000

Multronics, Inc., 1747 E. Montgomery Ave., Rockville, Md., 20, 29, 44, 51, 59, 69, 73, Tel: HAzelwood 7-4666

Mundt & Sons (Charles), 53 Fairmount Ave., Jersey City 4, N.J., 79, 97, 103, Tel: 201-DElaware 3-6200, Yr: 1869, Emp: 70

Munzig International, Inc., 212 S. Western Ave., Los Angeles 4, Calif., Export only, 5, 9, 10, 14, 18, 20, 26, 27, 46, 48, 59, 61, 68, 70, 73, 74, 76, 88, 98, 99, 102, 104, 110, Tel: 213-DUnkirk 2-1276, Yr: 1959, ▲2

Murata Mfg. Co., Ltd., Nagaoka-cho, Otokuni-gun, Kyoto, Japan, 31, 48, 49, 55, 59, 83, 92, Tel: KOtari 236, Yr: 1944, Emp: 2025, ▲1, $4,150,000

See ad on page 214

Murdock Corp., 158 Carter St., Chelsea 50, Mass., 30, 79, 81, Tel: TUrner 4-0076, Yr: 1896, Emp: 52, $300,000

Murray Mfg. Corp., 1250 Atlantic Ave., Brooklyn 16, N.Y., 80, Tel: 212-PResident 1-8600, Yr: 1899, Emp: 600

Murray Plastics Co., River Rd., New Hamburg, N.Y., 105, 107, 112, Tel: 914-AX 7-2943

Muter Co., Muter Div., 1255 S. Michigan Ave., Chicago 5, Ill., 46, 48, 49, 74, 80, Tel: 312-WAbash 2-8800, Yr: 1929, Emp: 500, ▲6

Mutron Corp., 125 Perkins Ave., Brockton, Mass., 37, 41, 43, 50, 53, 69, 91, 96, 109, Tel: 617-JUniper 3-0033, Yr: 1951, Emp: 35, ▲1

Mycalex Corp. of America, 125A Clifton Blvd., Clifton, N.J., 50, 75, 92, 96, 101, 103, 107, Tel: 201-PRescott 9-8866, ▲1

See ad in class 101

Mycalex Electronics Corp., Clifton Blvd., Clifton, N.J., 34, 80, Tel: 201-PRescott 9-8866, ▲1

Mycalex Tube Socket Corp., Clifton Blvd., Clifton, N.J., 78, Tel: 201-PRescott 9-8866, ▲1

Myers & Sons, Inc. (E. A.), Radiocar Bldg., 365-375 Valley Brook Rd., Canonsburg, Pa., 43, Tel: 412-WIlson 1-9000, Yr: 1924, Emp: 50, ▲2

Mystic Transformers, Inc., 114 West St., Wilmington, Mass., 51, 84, Tel: 617-PA 9-0887, Yr: 1945, Emp: 18

Mystik Adhesive Products, Inc., 2635 N. Kildare Ave., Chicago 39, Ill., 97, 101, Tel: 312-SPaulding 2-1600, Yr: 1932, Emp: 350

Mystik Tape Products of California, 3630 Tyburn St., Los Angeles 65, Calif., 101, 107, Tel: 213-CLinton 6-4168

Mytron, Inc., 362 Middlesex Ave., North Wilmington, Mass., 45, 56, 66, Tel: 617-PArkview 9-4455, Yr: 1951, Emp: 35, $300,000

Mytron Mfg. Co., 4522 Brazil St., Los Angeles 39, Calif., 98, 99, Tel: 213-CHapman 5-4931, Yr: 1952

N

NJE Corp., 20 Boright Ave., Kenilworth, N.J., 2, 17, 31, 41, 43, 53, 69, 72, Tel: 201-BRidge 2-6000, Yr: 1954, Emp: 159, ▲2

See ad in class 69

NRC Equipment Corp., 160 Charlemont St., Newton 61, Mass., 2, 4, 22, 36, 40, 54, 56, 94, 95, 96, 98, 99, 100, 104, 109, Tel: 617-DEcatur 2-5800, Yr: 1927, Emp: 500, ▲8, $12,000,000

Nameplates, Inc., 421 E. 101st St., Brooklyn 36, N.Y., 97, Tel: NIghtingale 9-2524, Yr: 1953, Emp: 35

Naniloa Corp., P.O. Box 2791, Station B, Toledo 6, Ohio, 2, 4, 9, 10, 11, 22, 41, 43, 50, 69, 96, Tel: 419-CHerry 1-8065, Yr: 1956, Emp: 15, ▲3, $75,000

Narda Microwave Corp., Dept. IRED-61-3, 118-160 Herricks Rd., Mineola, L.I., N.Y., 37, 38, 43, 44, 45, 59, 66, 69, 88, Tel: 516-PIoneer 6-4650, Yr: 1954, Emp: 175, ▲15, $2,225,000

See ad in class 66

Narrow Fabric Co., P.O. Box 742, Reading, Pa., 97, Tel: FRanklin 6-2891, Yr: 1900, Emp: 800

Nash & Thompson, Ltd. (Messers.), Hook Rise S., Tolworth, Surbiton, Surrey, England, 4, 5, 6, 8, 9, 10, 11, 13, 14, 16, 21, 22, 32, 35, 40, 41, 69, 96, Tel: ELmbridge 5252, Yr: 1933, Emp: 200, $450,000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Nashua Corp., Gubelman Charts Div., 100 E. Kinney St., Newark 5, N.J., 15, 28, Tel: 201-MItchell 2-5970

Nashville Electronics, Inc., 2950 Foster Creighton Dr., Nashville 4, Tenn., 48, Tel: ALpine 4-5576, Yr: 1958, Emp: 100

Natel Engineering Co., 15922 Strathern St., Van Nuys, Calif., 4, 5, 10, 11, 21, 35, 38, 40, 43, 50, 51, 53, 61, 66, 73, 77, Tel: 213-STate 2-4161, Yr: 1959, Emp: 20, ▲3, $150,000

National Aeronautical Corp., Commerce Dr., Fort Washington, Pa., 1, 2, 5, Tel: 215-MItchell 6-2900, Yr: 1945, Emp: 300, ▲8, $8,000,000

National Beryllia Corp., First & Haskell Aves., Haskell, N.J., 44, 55, 66, 75, 81, 86, 92, 101, 103, 104, 105, Tel: 201-TEmple 9-1600, Yr: 1956, Emp: 65, ▲2, $350,000
See ad in class 92

National Cash Register Co., Main & K Sts., Dayton 9, Ohio, 8, 9, Tel: 513-BAldwin 6-1411, Yr: 1884, Emp: 17,000, ▲100

National Cash Register Co., Electronics Div., 1401 E. El Segundo Blvd., Hawthorne, Calif., 2, 8, 9, Tel: 213-PLymouth 7-1811, Emp: 600, ▲54

National Ceramic Co., 500 Southard St., Trenton 2, N.J., 55, 86, 92, 101, Tel: EXport 4-5373, Yr: 1906, Emp: 65, $300,000

National Cine Equipment, Inc., 209 W. 48th St., New York 36, N.Y., 13, 14, 32, Tel: 212-CIrcle 6-0348, Yr: 1948, Emp: 12

National Coil Co., P.O. Box 1237, Sheridan, Wyo., 51, 59, 84, Tel: ORchard 4-7644, Yr: 1950

National Co., Inc., 61 Sherman St., Malden 48, Mass., 1, 2, 3, 4, 8, 18, 19, 20, 21, 22, 24, 25, 26, 29, 31, 43, 51, 55, 59, 60, 62, 67, 77, 78, 79, 95, 97, Tel: 617-DAvenport 2-7950, Yr: 1914, Emp: 600, ▲65, $11,000,000

National Connector Corp., Science Industry Center, Minneapolis 27, Minn., 52, 81, Tel: 612-KEllogg 3-5361, Yr: 1960, Emp: 40

National Electric Controller Co., 7070 Glenwood, Chicago 26, Ill., 74, Tel: BRiargate 4-4050, Yr: 1910

National Electronics, P.O. Box 1237, Sheridan, Wyo., 4, 21, 40, 41, 61, 69, 84, Tel: ORchard 4-7644, Yr: 1957, Emp: 21

National Electronics Metal Co., Monmouth County Airport, Belmar, N.J., Yr: 1945, Emp: 22

National File Co., 530 N. Cedar St., Lansing 12, Mich., 99, 109, Tel: IVanhoe 2-7236

National Gasket & Washer Mfg. Co., 124 E. 25th St., New York 10, N.Y., 97, 101, Tel: GR 5-1866

National Instrument Laboratories, Inc., 858 Evarts St. N.E., Washington 18, D.C., 4, 14, 40, Tel: 202-NOrth 7-7582, Yr: 1951, Emp: 24, ▲2, $75,000

National Lead Co., 111 Broadway, Rm. 1815, New York 6, N.Y., 94, 97, 103, 104, 110, 111, Tel: 212-REctor 2-9400, Yr: 1891, Emp: 20,000, ▲3
See ad in class 110

National Lead Co., Goldsmith Bros. Div., 900 W. 18th St., Chicago 8, Ill., 91, 104, 105, 110, Tel: CAnal 6-3700, Yr: 1867, Emp: 200, ▲1

National Lead Co., Titanium Alloy Mfg. Div., 111 Broadway, New York 6, N.Y., 94, Tel: 212-BArclay 7-0943, Emp: 500

National Missile & Electronics, Inc., 5307 W. Century Blvd., Los Angeles 45, Calif., 95, 96, 109, 111, Yr: 1955, Emp: 100, ▲8, $750,000

National Moldite Co., Inc., 250 South St., Newark 5, N.J., 44, 54, 64, 92, 97, 103, 104, 106, Tel: 201-MItchell 2-6860, Yr: 1945, Emp: 60, $1,000,000

National Multi-Products Co., 6335 N. Broadway, Chicago 40, Ill., 62, 91, 96, 97, 109, Tel: AMbassador 2-4781, Yr: 1949, Emp: 25

National Radiac, Inc., 475 Washington St., Newark 2, N.J., 22, 56, 95, 97, Tel: MArket 3-7524, Yr: 1950, Emp: 12, ▲2, $122,000

National Radio Co., Inc., Subsid. of National Co., Inc., 37 Washington St., Melrose 76, Mass., 1, 3, 18, 20, 24, 26, 29, 33, 34, 49, 51, 56, 59, 62, 66, 78, 79, 80, 84, 91, 92, 93, 97, 105, 106, Tel: 617-NOrmandy 5-4800, Yr: 1914, ▲25

National Radio Institute, 3939 Wisconsin Ave., Washington 16, D.C., Educational Institution, Tel: 202-EMerson 2-9700, Yr: 1914, Emp: 50, ▲8

National Research Corp., 70 Memorial Dr., Cambridge 42, Mass., 36, 40, 91, 94, 98, 99, 104, 109, Tel: 617-ELiot 4-5400, Yr: 1940, Emp: 425, ▲10, $7,000,000

National Resistance Co., Walter St., Pearl River, N.Y., 50, 74, Tel: 914-PEarl River 5-4824, Yr: 1955, Emp: 110, ▲2, $500,000

National Rivet & Mfg. Co., 21 E. Jefferson St., Waupun, Wis., 97, Tel: 324-5511, Emp: 350

National Scientific Laboratories, Inc., 2010 Massachusetts Ave. N.W., Washington 6, D.C., 4, 8, 10, 23, 34, 35, 43, 50, 59, 95, 96, 109, Tel: HUdson 3-4030, Yr: 1948, Emp: 240, ▲40, $2,400,000

National Semiconductor Corp., Sugar Hollow Rd., Danbury, Conn., 76, Tel: 203-PIoneer 3-7624, Yr: 1959, Emp: 260, ▲12
See ad on pages 39-40

National Semiconductors, Ltd., 230 Authier St., Montreal 9, Quebec, Canada, 83, Tel: RIverside 4-2946, Yr: 1958, Emp: 20, ▲1

National Specialties Co., Inc., 1902 Howell St., Fort Wayne 7, Ind., 111, Tel: ANthony 2341, Yr: 1920, Emp: 5

National-Standard Co., 601 N. 8th St., Niles, Mich., 91, Tel: 616-MUtual 3-8100, Yr: 1908, Emp: 2100

National Tel-Tronics Corp., 52 Saint Casimir Ave., Yonkers, N.Y., 7, 50, 60, 62, 81, 96, 97, 105, Tel: 914-YOnkers 8-6400, Yr: 1947, Emp: 115, ▲1, $1,000,000
See ad in class 62

National Television Tube, Inc., Route 46, Saddle Brook, N.J., 85, Tel: PRescott 8-5900

National Transistor Mfg., Inc., 500 Broadway, Lawrence, Mass., 76, Tel: 617-MUrdock 8-1881, Yr: 1961, Emp: 200, ▲20

National Ultrasonic Corp., 95 Park Ave., Nutley 10, N.J., 40, 43, 57, 83, 84, 99, 109, Tel: 201-NOrth 1-1515, Yr: 1959, Emp: 25, ▲3

National Union Electric Corp., Electronics Div., 1201 E. Bell St., Bloomington, Ill., 2, 23, 63, 86, Tel: 150-967-6041, Yr: 1929, Emp: 1800, ▲2

National Video Corp., 4300 W. 47th St., Chicago 32, Ill., 41, 85, 86, 99, 105, Tel: 312-CLiffside 4-5600, Yr: 1948, Emp: 850, ▲2, $17,000,000

National Vulcanized Fibre Co., Maryland Ave. & Beech Sts., Wilmington 99, Del., 90, 96, 101, 107, 112, Tel: 302-OLympia 5-6371, Yr: 1922, Emp: 1800, $2,000,000

National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles 31, Calif., 91, Tel: 213-CApitol 5-3611, Yr: 1935, Emp: 55, ▲2, $1,000,000

Nationwide Engineering Service, Inc., 6138 Washington Blvd., Culver City, Calif., 99, Tel: UPton 0-4739, Yr: 1951, Emp: 20

Natural Lighting Corp., 630 S. Flower St., Burbank, Calif., 32, 63, 84, Tel: VI 9-5991, Yr: 1953, Emp: 35, ▲1, $600,000

Natvar Corp., 211 Randolph Ave., Woodbridge, N.J., 101, 107, 112, Tel: 201-FUlton 8-8800, Yr: 1941, Emp: 200, ▲2

Naugler Engineering, Inc., 19 Madison Ave., Beverly, Mass., 97, Tel: 617-WAlker 2-5634, Yr: 1954, Emp: 7

Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 2, 4, 8, 9, 10, 11, 22, 34, 35, 37, 43, 50, 61, 69, 96, Tel: 215-GLendale 2-6531, Yr: 1955, Emp: 95, ▲6, $824,000
See ad in class 10

Naybor Laboratories, Inc. (E. V.), 26 Manorhaven Blvd., Port Washington, N.Y., 63, 73, Tel: 516-POrt Washington 7-4300, Yr: 1954, Emp: 12, ▲2, $60,000

Naz-Dar Co., 461 Milwaukee Ave., Chicago 10, Ill., 94, 99, Tel: 312-CHesapeake 3-1630, Yr: 1922, Emp: 40

Neal Feay Co., 133 La Patera, Goleta, Calif., 90, 96, 97, 107, 109, Yr: 1950, Emp: 30, $150,000

Nebel Laboratory (R. E.), 1634 E. 12th St., Brooklyn 29, N.Y., 56, Tel: 212-NIghtingale 5-7427, Yr: 1934, Emp: 2, $10,000

Needco Cooling Semiconductors, Ltd., 5701 Côte Saint Paul Rd., Montreal, Quebec, Canada, 4, 5, 36, 54, 58, 98, Tel: WEllington 4-1716, Yr: 1959, Emp: 70

Needco of America, Inc., P.O. Box 174, Princeton, N.J., 54, 58, 69, 82, 99, 103, 104, Tel: 609-WAlnut 1-7877, Yr: 1960, Emp: 6, ▲1, $180,000

Neff Instrument Corp., 1088 Hamilton Rd., Duarte, Calif., 43, 69, Tel: 213-ELliott 7-2281, Yr: 1956, Emp: 25, ▲1, $500,000

Neil Co., 1336 Calkins Rd., Pittsford, N.Y., 3, 20, Tel: 716-DIamond 3-6650

Nelson Electric Mfg. Co., P.O. Box 5385, Tulsa, Okla., 80, 90, 97, Tel: NAtional 7-5530, Yr: 1938, Emp: 300, $10,000

Nelson Products, Div. of Finn-Jaske, Inc., P.O. Box 6094, Cincinnati 6, Ohio, 97, Yr: 1940, Emp: 14

Nelson Vacuum Pump Co., 2133 Fourth St., Berkeley 10, Calif., 99, Tel: 415-THornwall 8-2277, Yr: 1928, Emp: 6, $10,000

Neptune Electronics Co., 30 W. 15th St., New York 11, N.Y., 2, 6, 7, 12, 30, 34, 43, 45, 48, 52, 62, 74, 91, 96, Tel: 212-CHelsea 3-8130, Yr: 1945, Emp: 15, ▲1, $250,000

Neshaminy Electronic Corp., 382 Easton Rd., Neshaminy, Pa., 51, 64, 69, 72, 79, 84, Tel: 215-DIamond 3-6550, Yr: 1950, Emp: 40, $350,000

Nesor Alloy Products Co., 666 Passaic Ave., West Caldwell, N.J., 91, 104, Tel: 201-CApital 8-0400, Yr: 1939, Emp: 100, $100,000

Network Industries, Inc., 210-216 Orient St., Bayonne, N.J., 38, 40, 41, 43, 66, 69, 80, 91, Tel: HEmlock 7-3929, Yr: 1946, Emp: 21, ▲1

Networks Electronic Corp., 9750 DeSoto Ave., Chatsworth, Calif., 43, 50, 51, 52, 53, 59, 69, 73, 75, 77, 84, Tel: DIamond 1-0440, Yr: 1953, Emp: 180, ▲2

Neumade Products Corp., 250 W. 57th St., New York 19, N.Y., 10, 13, 70, 90, 97, Tel: JUdson 6-5810, Yr: 1916, Emp: 100

Neuses, Inc. (P. K.), 511 N. Dwyer St., Arlington Heights, Ill., 111, Tel: 312-253-6555, Yr: 1956, Emp: 8

Neutronic Associates, Inc., 32 Tennessee Ave., Hempstead, L.I., N.Y., 69, Tel: 516-IVanhoe 9-9840, Yr: 1951, Emp: 5, ▲1

Nevada Air Products Co., P.O. Box 1090, Reno, Nev., 47, 50, 67, 96, 109, Tel: FAirview 2-9421, Yr: 1951, Emp: 110, ▲2, $1,300,000

Nevada Antenna Co., P.O. Box 530, Colusa, Calif., 44, Tel: GLenview 8-4191, Yr: 1956, Emp: 4, ▲2, $30,000

New Brunswick General Sheet Metal Works, 425 Cleveland Ave., Highland Park, N.J., 90, Tel: CHarter 9-1470, Yr: 1947, Emp: 50, $150,000

New England Electrical Works, Inc., Subsid. of Montgomery Co., 300 Electronic Ct., Lisbon, N.H., 91, Tel: LIsbon 8-6629, Yr: 1898, Emp: 30, ▲1

New England Etching Co., Inc., 25 Spring St., Holyoke, Mass., 97, 109, Tel: 617-JEfferson 2-9482, Yr: 1929, Emp: 30

New England Instrument Co., 39 Green St., Waltham, Mass., 37, 45, 66, 74, Tel: 617-TWinbrook 9-8370, Yr: 1957, Emp: 125, ▲3, $1,000,000

New England Laminates Co., Inc., 43 Canal St., Stamford, Conn., 107, Tel: 203-DAvis 4-4181, Yr: 1955, Emp: 80

New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy., Somerville 43, Mass., 1, 4, 5, 10, 16, 36, 41, 43, 50, 51, 57, 69, 77, 84, 96, Tel: 617-625-6100, Yr: 1946, Emp: 100
See ad in class 84

New Hampshire Ball Bearings, Inc., Route 202, Peterborough, N.H., 97, Tel: WAlnut 4-3311, Yr: 1946, Emp: 1000

New Haven Wire & Cable, Inc., Box 183, New Haven, Ind., 91, Tel: WIndsor 1155, Yr: 1946, Emp: 100, $1,500,000

New Hermes Engraving Machine Corp., 154 W. 14th St., New York 11, N.Y., 97, 99, 107, 109, Tel: 212-WAtkins 4-7373
See ad in class 99

New Jersey Wood Finishing Co., Amboy Ave., Woodbridge, N.J., 101, 107, 112, Tel: MErcury 4-1430, Yr: 1907, Emp: 100

New Jersey Zinc Co., 160 Front St., New York 38, N.Y., 104, Tel: 212-WHitehall 3-5700, ▲1

New London Instrument Co., 82 Union St., New London, Conn., 21, 34, 35, 37, 38, 41, 43, 45, 83, 95, Tel: 203-GIbson 3-8451, Yr: 1950, Emp: 10, ▲2, $200,000

New Rochelle Thermatool Corp., 85 Beechwood Ave., New Rochelle, N.Y., 98, 99, Tel: NEw Rochelle 2-5555, Yr: 1950, Emp: 75, ▲2

New York Air Brake Co., Feedback Controls Subsid., 8 Erie Dr., Natick, Mass., 4, 8, 9, 43, 77, 95, 96, 109, Tel: 617-OLympic 3-3441, Yr: 1954, Emp: 100, ▲5, $1,000,000

New York Air Brake Co., Kinney Vacuum Div., 3529 Washington St., Boston 30, Mass., 36, 94, 98, 99, Tel: JAmaica 2-7100, Yr: 1907, Emp: 2700, ▲2

New York Coil Co., Inc., 40-48 Second Ave., Phoenixville, Pa., 48, 51, 84, Tel: 215-WEllington 3-8851, Yr: 1903, Emp: 98, $300,000

New York Engineering Co., 75 West St., New York 6, N.Y., 98, 99, Tel: 212-WHitehall 4-5380, Yr: 1906, Emp: 125, ▲1, $50,000

New York Solder Co., Inc., 684 E. 133rd St., New York 54, N.Y., 110, Tel: CYpress 2-3740, Yr: 1930, Emp: 25

New York Testing Laboratories, Inc., 47 West St., New York 6, N.Y., 95, 109, Tel: BOwling Green 9-6220, Yr: 1919, Emp: 30, ▲1

New York Transformer Co., Inc., Third Ave., Alpha, N.J., 51, 69, 84, Tel: 201-GL 4-1143, Yr: 1938, Emp: 283, ▲2

Newage Industries, Inc., 222 York Rd., Jenkintown 42, Pa., 107, 112, Yr: 1950, Emp: 8

Newark Controls Co., 15 Ward St., Bloomfield, N.J., 2, 4, 40, 80, Tel: 201-PIlgrim 8-2971, Yr: 1931, Emp: 30, ▲1, $250,000

Newark Wire Cloth Co., 351 Verona Ave., Newark 4, N.J., 91, Tel: 201-HUmboldt 3-7700, Yr: 1910, Emp: 150

Newberg Industrial Case Co., 61 Greenpoint Ave., Brooklyn 22, N.Y., 90, Tel: EVergreen 3-8282, Yr: 1946, Emp: 100, $1,000,000

Newbury Industries, Inc., Kinsman Rd., Newbury, Ohio, 99, Tel: 216-JOrdan 4-2286, Yr: 1955, Emp: 15

Newcastle Fabrics Corp., 80 Wythe Ave., Brooklyn 11, N.Y., 90, Tel: 212-STagg 2-5560, Yr: 1936, Emp: 30, $600,000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Newcomb Audio Products Co., 6824 Lexington Ave., Hollywood 38, Calif., 13, 26, 27, 30, 43, 68, 90, Tel: 213-HOllywood 9-5381

Newcomb Spring Corp., 77 E. Hawthorne Ave., Valley Stream, L.I., N.Y., 96, 97, Tel: 516-VAlley Stream 5-1178, Yr: 1895, Emp: 100

Newman Corp. (M. M.), 79 Clifton Ave., Marblehead, Mass., 91, 97, 111, Tel: 617-NEptune 1-0637, Yr: 1958, Emp: 6

Newport Scientific Co., 638 W. 17th St., Costa Mesa, Calif., 4, 16, 28, 43, 69, 77, 84, Tel: KImberly 9-0311, Yr: 1959, Emp: 15, ▲2, $100,000

Newton Co., 55 Elm St., Manchester, Conn., 2, 4, 8, 9, 10, 11, 17, 21, 22, 35, 36, 69, Tel: MItchell 3-1543, Yr: 1947, Emp: 75, ▲1, $300,000

Nexon Co., U.S. Route 46 & Cisco Rd., Denville, N.J., 95, Tel: 201-OAkwood 7-7400, Yr: 1952, Emp: 50, ▲20

Ney Co. (J. M.), Maplewood Ave., Bloomfield, Conn., 52, 80, 91, 97, 104, 109, Tel: 203-CHapel 2-2281 (Hartford), Yr: 1813, Emp: 300, ▲2, $2,000,000
See ad in class 104

Niagara Electron Laboratories, Main St., Andover, N.Y., 4, 40, Tel: 2684, Yr: 1946, Emp: 4, $62,000

Nichols & Clark, Inc., 321 Newburyport Tnpke., Hathorne, Mass., 5, 43, Tel: 617-SPring 4-3300, Yr: 1938, Emp: 35, ▲1

Nichols, Ltd. (R. H.), 4544 Dufferin St., Toronto, Ont., Canada, 4, 34, 53, 63, 69, 72, 91, 96, 98, 99, 109, Tel: MElrose 3-8190, Yr: 1928, Emp: 75, ▲3

Nichols Products Co., 325 W. Main St., Moorestown, N.J., 37, 52, 66, 81, 95, 96, 97, 109, Tel: BElmont 5-0877, Yr: 1937, Emp: 16, $108,200

Nielsen Hardware Corp., 770 Wethersfield Ave., Hartford 1, Conn., 97, Tel: 203-JAckson 2-8145, Yr: 1941, Emp: 125
See ad in class 97

Nife, Inc., Nickel Cadmium Battery Div., 70 Lambert Ave., Copiague, L.I., N.Y., 46, Tel: 516-TUrner 4-2650, Yr: 1948, Emp: 50

Nikon, Inc., Dept. IR-62, 111 Fifth Ave., New York 3, N.Y., Importers, 14, 32, 111, Tel: 212-ORegon 4-7970
See ad in class 14

Nilsen Mfg. Co., P.O. Box 127, Haines City, Fla., 49, 50, 83, 97, Tel: HAmilton 2-1197, Yr: 1923, Emp: 75, ▲1, $200,000

Nippert Electric Products Co., 1759 W. Mound St., Columbus 23, Ohio, 80, 91, 104, 105, Tel: 614-274-1114, Yr: 1936, Emp: 90, $1,290,000

Nippon Electric Co., Ltd., P.O. Box 1, Takanawa, Tokyo, Japan, 7, 17, 19, 20, 32, 42, 71, 72, 73, 76, 85, 86, 87, Tel: 451-5221, Yr: 1899, ▲21, $73,610,000

Nixon Gear & Machine Co., Inc., 185 Ainsley Dr., Syracuse 5, N.Y., 77, 93, Tel: 315-GRanite 6-9035, Yr: 1920, Emp: 40, $175,000

Noble & Westbrook Mfg. Co., 20 Westbrook St., East Hartford 8, Conn., 97, 99, Tel: 203-BUtler 9-2717, Yr: 1930, Emp: 50

Noel Mfg. Co., Inc., 3 W. 18th St., New York 11, N.Y., 61, 62, 82, 84, 91, Yr: 1946, Emp: 15

Noesting Pin Ticket Co., Inc., 732 E. 136th St., New York 54, N.Y., 81, 91, 96, 97, 105, Tel: 212-MO 9-6465
See ad in class 105

Non-Linear Systems, Inc., P.O. Box 728, Del Mar, Calif., 4, 9, 40, 41, 53, 61, 63, 74, 80, Tel: 213-SKyline 5-1134, Yr: 1952, Emp: 265, ▲2, $4,900,000
See ad on pages 76-77

Nonotuck Mfg. Co., Canal St., South Hadley Falls, Mass., 91, Tel: 617-JEfferson 4-0271, Yr: 1937, Emp: 108, $3,200,000

Nopco Chemical Co., Plastics Div., 175 Schuyler Ave., North Arlington, N.J., 94, 107, Tel: WYman 8-3555, Yr: 1907, Emp: 1200

Norbatrol Electronics Corp., 356 Collins Ave., Pittsburgh 6, Pa., 4, 34, 43, 51, 53, 69, 72, 73, 77, Tel: 412-EMerson 2-2020, Yr: 1960, Emp: 40, ▲3, $500,000

Norden Div., United Aircraft Corp., Helen St., Norwalk, Conn., 2, 4, 9, 10, 25, 40, 44, 67, 77, 83, Tel: 203-TEmple 8-4471, Yr: 1928, Emp: 2400, ▲75

Norden Div., United Aircraft Corp., Data Systems Dept., 3501 Harbor Blvd., Costa Mesa, Calif., 4, 8, 9, 63, 69, 77, Tel: KImberly 5-9351, ▲10, $10,000,000

Norden Div., United Aircraft Corp., Ketay Dept., Jericho Tnpke., Commack, L.I., N.Y., 2, 4, 9, 10, 43, 67, 74, 77, Tel: 516-FOrest 8-5500, Yr: 1924, Emp: 500, ▲4

Norrich Plastics Corp., 206 Babylon Tnpke., Roosevelt, L.I., N.Y., 44, 52, 55, 62, 75, 78, 81, 85, 86, 90, 92, 97, 101, 105, 106, 107, 109, 112, Tel: MAyfair 3-3100, Yr: 1955, Emp: 50, $300,000

Norrman Laboratories (Ernst), Williams Bay, Wis., 10, 31, 38, Tel: 414-CIrcle 5-5516, Yr: 1932, Emp: 10, ▲2, $100,000
See ad in class 31

North America Electronics, 723 3rd Ave. W., Birmingham 4, Ala., 21, 41, 50, 90, 93, 95, 105, Tel: 205-STate 5-7421, Yr: 1957, Emp: 5, $50,000

North American Aviation, Inc., Atomics International (Div.), P.O. Box 309, Canoga Park, Calif., 4, 17, 22, 40, 58, 92, 95, 96, 101, 109, Tel: DIamond 1-1000, Yr: 1955, Emp: 2250, ▲600 (North American Aviation overall)

North American Aviation, Inc., Columbus Div., 4300 E. Fifth Ave., Columbus 16, Ohio, 44, 66, Tel: BElmont 1-1851, Yr: 1928, ▲64

North American Electronics, Inc., 71 Linden St., West Lynn, Mass., 71, 76, Tel: 617-LYnn 8-4800, Yr: 1958, Emp: 160
See ad in class 71

North American Philips Co., Inc., 100 E. 42nd St., New York 17, N.Y., Tel: 212-OXford 7-3600, ▲100

North Atlantic Industries, Inc., Terminal Dr., Plainview, L.I., N.Y., 2, 9, 35, 40, 45, 53, 77, 84, Tel: 516-OVerbrook 1-8600, Yr: 1954, Emp: 100, ▲4, $1,100,000
See ad in class 35

North Electric Co., 557 S. Market St., Galion, Ohio, 9, 30, 41, 52, 59, 60, 62, 69, 73, 80, 81, 95, 108, Tel: HOward 8-2420, Yr: 1884, Emp: 1800, ▲11

North Hills Electronics, Inc., Alexander Pl., Glen Cove, L.I., N.Y., 31, 41, 51, 69, 72, 84, Tel: 516-ORiole 1-5700, Yr: 1953, Emp: 45, ▲5
See ads in classes 69, 84

Northeast Electronics Corp., Airport Rd., Concord, N.H., 35, 38, 43, 77, Tel: 603-CApitol 5-6641, Yr: 1952, Emp: 28, ▲3, $290,000

Northeast Scientific Corp., 30 Wetherbee St., Acton, Mass., 37, 69, Tel: 617-COlonial 3-7706, Yr: 1953, Emp: 20, ▲1
See ad in class 69

Northeastern Engineering, Inc., 25 S. Bedford St., Manchester, N.H., 2, 10, 11, 31, 34, 37, 38, 40, 96, Tel: NAtional 2-6485, Yr: 1945, Emp: 252, ▲6, $2,000,000

Northern Electronic & Vacuum Industries, P.O. Box 105, Saint Sauveur d.M., P.Q., Canada, 8, 43, 51, 84, Tel: CA 7-2629

Northern Electronics, Inc., 8440 Pillsbury Ave., Minneapolis 20, Minn., 2, 4, 32, 40, 43, 69, 90, 93, 99, Tel: 612-TUxedo 8-4489, Yr: 1960, Emp: 18

Northern Engineering Laboratories, Inc., 845 Beloit St., Burlington, Wis., 31, 34, 56, Tel: 414-ROckwell 3-3591, Yr: 1954, ▲1
See ad in class 56

Northern Engraving & Mfg. Co., La Crosse, Wis., 97, Tel: 4-6000, Yr: 1925, Emp: 1000

Northern Plastics Corp., 2nd & Market Sts., La Crosse, Wis., 96, 107, 112, Tel: 4-6070, Yr: 1946, Emp: 236, ▲4, $4,002,209

Northern Radio Co., Inc., 147 W. 22nd St., New York 11, N.Y., 4, 7, 33, 35, Tel: 212-WAtkins 9-9117, Yr: 1947, Emp: 75, ▲6, $5,000,000
See ad on pages 58-61

Northern Research & Engineering Corp., 238 Main St., Cambridge 42, Mass., 54, 95, Tel: 617-KIrkland 7-5873, Yr: 1956, Emp: 25

Northfield Precision Instrument Corp., 4400 Austin Blvd., Island Park, L.I., N.Y., 77, 97, Tel: 516-GEneral 1-1112, Yr: 1953, Emp: 20, $300,000

Northrop Corp., 9744 Wilshire Blvd., Beverly Hills, Calif., 2, 4, 8, 9, 10, 14, 17, 27, Tel: CRestview 4-8061, Yr: 1939, Emp: 15,000, ▲250

Northrop Corp., Nortronics Div., Precision Products Dept., 160 Morse St., Norwood, Mass., 2, Tel: 617-NOrwood 7-5300, Yr: 1948, Emp: 950, ▲20, $15,000,000

Northwest Industries, Ltd., P.O. Box 517, Municipal Airport, Edmonton, Alberta, Canada, 44, 52, 66, 90, 91, 93, 95, 96, 108, 109, Tel: GLendale 5-3161, Yr: 1946, Emp: 550, ▲1

Northwest Plastics, Inc., 65 E. Plato Ave., Saint Paul 7, Minn., 106, Tel: CApital 7-6686, Yr: 1937, Emp: 240

Norton Associates, Inc., 240 Old Country Rd., Hicksville, L.I., N.Y., 10, 70, Tel: 516-OVerbrook 1-6181, Yr: 1955, Emp: 10, ▲1, $100,000

Norton Co., 1 New Bond St., Worcester 6, Mass., 55, 94, 101, Tel: SWift 8-2511, Yr: 1885, Emp: 12,000

Nortronics Co., Inc., 1015 S. 6th St., Minneapolis 4, Minn., 43, 70, Tel: FEderal 9-7417, Yr: 1955, Emp: 100, ▲2

Norwalk Thermostat Co., 100 N. West St., Norwalk, Ohio, 80, 82, Tel: 162-663-0821, Yr: 1957, Emp: 30

Nostrand Metal Fabricators Corp., 321 Lexington Ave., Brooklyn 16, N.Y., 90, 93, 96, Yr: 1953, Emp: 50, $60,000

Nothelfer Winding Laboratories, Inc., P.O. Box 455, Trenton 8, N.J., 84, Tel: TUxedo 2-2500, Yr: 1920, Emp: 45, ▲2

Nu-Line Industries, Inc., 1015 S. Sixth St., Minneapolis 4, Minn., 52, 109, Tel: FEderal 9-8301, Yr: 1951, Emp: 200

Nuclear-Chicago Corp., 333 E. Howard Ave., Des Plaines, Ill., 11, 22, Tel: VAnderbilt 7-4456, Yr: 1946, Emp: 375, ▲15

Nuclear Corp. of America, Central Electronic Mfrs. (Div.), 2 Richwood Pl., Denville, N.J., 40, 66, 78, 80, 86, 87, Tel: 201-OAkwood 7-4200, Yr: 1945, Emp: 200, ▲6, $2,000,000

Nuclear Corp. of America, Instrument & Control Div., 2 Richwood Pl., Denville, N.J., 4, 11, 22, Tel: OAkwood 7-4200, Yr: 1953, Emp: 40, ▲4

Nuclear Corp. of America, Research Chemicals Div., 170 W. Providencia, Burbank, Calif., 104, Tel: VIctoria 9-6276, ▲1

Nuclear Corp. of America, Semcor Solid State Div.: See U. S. Semiconductor Products, Inc.

Nuclear Development Corp. of America, 5 New St., White Plains, N.Y., 90, 93, 95, 96, 103, 104, Yr: 1948, Emp: 300, ▲25, $75,000

Nuclear Development Laboratory, Inc., P.O. Box 7034, Kansas City 13, Mo., 11, 22, 86, Tel: DElmar 3-7692, Yr: 1948, Emp: 2, $5000

Nuclear Measurements Corp., 2460 N. Arlington Ave., Indianapolis 18, Ind., 11, 22, 40, Tel: LIberty 6-2415, Yr: 1948, Emp: 40

Nuclear Research Corp., Southampton, Pa., 11, 22, Tel: EL 7-5015

Nuclear Science & Engineering Corp., P.O. Box 10901, Pittsburgh 36, Pa., 4, 22, 40, 94, 95, 103, 109, Yr: 1954, Emp: 67, ▲2

Nucleonic Corp. of America, 196 DeGraw St., Brooklyn 31, N.Y., 10, 11, 22, 86, Tel: MAin 4-7370, Yr: 1949, Emp: 75, ▲1, $500,000

Nucleonic Products Co., Inc., 3133 E. 12th St., Los Angeles 23, Calif., 71, 72, 74, 76, 85, Tel: 213-ANgelus 8-3464, Yr: 1954, ▲5, $1,000,000

Nugent Electronics Co., Inc., 802 E. 8th St., New Albany, Ind., 4, 52, 78, Tel: WH 5-0211, Yr: 1955, Emp: 33, ▲1, $250,000

Nutron Mfg. Co., Inc., 25 Brown Ave., Springfield, N.J., 69, Tel: DRexel 6-1831

Nutt-Shel, 2701 S. Harbor Blvd., Santa Ana, Calif., 97, Tel: KI 5-9311

Nylogrip Products, 570 Pleasant St., Watertown 72, Mass., 97, Tel: WAlnut 6-0100, Yr: 1955, Emp: 30, $100,000

Nylok Corp., 611 Industrial Ave., Paramus, N.J., 97, Tel: 201-COlfax 1-9400, Yr: 1947, Emp: 160, $600,000

Nytronics, Inc., Essex Electronics Div., 550 Springfield Ave., Berkeley Heights, N.J., 51, 57, 59, 84, Tel: 464-9300, Emp: 255, ▲4, $2,000,000

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O & S Research, Inc., 1912 Bannard St., Riverton, N.J., 14, 17, 63, 80, 92, 96, 97, Tel: 609-829-2800, Yr: 1941, Emp: 50, $350,000

Oak Mfg. Co., Crystal Lake, Ill., 49, 53, 73, 80, 88, Tel: 312-459-5000, Yr: 1932, Emp: 2300, ▲10, $17,642,295

Oaktron Electric Co., 17368 S. 68th Ct., Tinley Park, Ill., 51, 84, Tel: WAterfall 8-0771, Yr: 1950, Emp: 260, $650,000

Offner Electronics, Inc., Div. of Beckman Instruments, Inc., 3912 River Rd., Schiller Park, Ill., 5, 9, 16, 28, 43, Tel: GLadstone 1-0050, Yr: 1939, ▲2

Ogilvie Press, Inc., 33 Rockwell Pl., Brooklyn 17, N.Y., 28, 107, 108, Tel: ULster 8-2113, Yr: 1875, Emp: 40

Ohio Carbon Co., 12508 Berea Rd., Cleveland 11, Ohio, 74, 80, 97, Tel: 216-CLearwater 2-6100, Yr: 1916, Emp: 118, ▲1, $489,000

Ohio Crankshaft Co., Tocco Div., 3800 Harvard Ave., Cleveland 5, Ohio, 98, 99, Tel: 216-DIamond 1-2300, Yr: 1920, Emp: 1200, ▲3

Ohio Semiconductors, Div. of Tecumseh Products Co., 1205 Chesapeake Ave., Columbus 12, Ohio, 9, 10, 17, 54, 61, 76, 83, 98, 102, 104, Tel: 614-HUdson 6-9561, Yr: 1956, Emp: 75, ▲5
See ad on page 45

Ohmite Mfg. Co., 3617 Howard St., Skokie, Ill., 12, 44, 45, 48, 51, 72, 73, 74, 76, 80, 84, Tel: 312-ORchard 5-2600, Yr: 1925, Emp: 750, ▲6

Oilgear Co., 1560 W. Pierce St., Milwaukee 4, Wis., 4, Tel: 414-MItchell 5-6715, Yr: 1921, Emp: 450

Oilgear Co., Servocontrol Div., 160 Bear Hill Rd., Waltham 54, Mass., 4, 40, 43, 44, 77, 99, Tel: 617-TWinbrook 4-6973, Yr: 1921, Emp: 475, ▲1

Oiljak Mfg. Co., Inc., 18 Depot St., Montclair, N.J., 90, 96, 99, 109, Tel: 201-PIlgrim 6-3200, Yr: 1927, Emp: 150, $50,000

Oki & Willadsen, Ltd., 47 Crockford Blvd., Toronto, Ont., Canada, 50, 52, 63, 78, 90, 96, 97, 101, 107, 109, 112, Tel: 416-PLymouth 7-6263, Yr: 1952, Emp: 130, $500,000

Olsen Corp. (Gunnar A.), 215-11 42nd Ave., Bayside 61, N.Y., 44, Tel: 212-BAyside 9-8092

Oltronix, Inc. (Stockholm), 247 Underwood Dr. N.W., Atlanta 5, Ga., Importers, Tel: 404-BLackburn 5-1427, ▲1

Olympic Instruments, Inc., Dept. 185, Vashon, Wash., 99, Tel: HOward 3-5641, Yr: 1946, Emp: 7

Olympic Plastics Co., Inc., 3471 S. La Cienega Blvd., Los Angeles 16, Calif., 81, 96, 97, 105, 106, Tel: 213-UPton 0-1121, Yr: 1946, Emp: 225, ▲2, $500,000

Olympic Radio & Television, Div. of Siegler Corp., 34-01 38th Ave., Long Island City 1, N.Y., 1, 2, 4, 8, 9, 18, 21, 25, 26, 27, 43, 77, 109, Tel: EXeter 2-5200, Yr: 1935, Emp: 1200, ▲20

Omco, Box 1110, Kingman, Ariz., 11, 16, 40, Tel: SKyline 3-2686, Yr: 1955

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year

Omega Dynamics Corp., 75 W. Green St., Pasadena, Calif., 4, 16, 17, 34, 36, 40, 41, 43, 61, 65, 83, 95, 99, 109, Tel: 213-MUrray 1-6761, Yr: 1957, Emp: 15

Omega Laboratories, Inc., Haverhill St., Rowley, Mass., 37, 44, 45, 59, 66, 84, 88, 96, Tel: 617-WHitney 8-7757, Yr: 1955, Emp: 30, ▲2, $250,000
See ad in class 66

Omega Mfg. Co., 2243 Washington Ave., New York 57, N.Y., 69, 72, 84, 96, Tel: 212-OX 7-2989, Yr: 1950, Emp: 24

Omnitronics, Inc.: See Borg-Warner Corp.

Omtronics Mfg., Inc., 2406 Leavenworth, P.O. Box 1419, Peony Pk. Sta., Omaha 14, Nebr., 4, 36, 50, 61, 74, Tel: 402-345-8408, Yr: 1961, Emp: 25, ▲2

On Mark Couplings, Inc., 4440 York Blvd., Los Angeles 41, Calif., 52, 54, 66, 77, 97, Tel: CLinton 4-2501, Yr: 1956, Emp: 150, ▲3, $500,000

Opad Electric Co., 43-8 Walker St., New York 13, N.Y., 2, 17, 40, 41, 69, 71, 96, 99, Tel: 212-WOrth 6-0380, Yr: 1948
See ad in class 69

Optical Coating Laboratory, Inc., 2789 Giffen Ave., Santa Rosa, Calif., 17, 59, Tel: 707-LIberty 5-6440, Yr: 1945, Emp: 80

Optical Gaging Products, Inc., Subsid. of Ex-Cell-O Corp., 26 Forbes St., Rochester 11, N.Y., 14, Tel: FAirview 8-9090, Yr: 1941, Emp: 100

Optics Technology, Inc., 248 Harbor Blvd., Belmont, Calif., 4, 11, 14, 17, 22, 109, Tel: 415-LYtell 1-0358, Yr: 1961, Emp: 60, ▲5

Optimized Devices, Inc., 864 Franklin Ave., Thornwood, N.Y., 2, 4, 21, 41, Tel: 914-ROgers 9-6110, Yr: 1947, Emp: 22, ▲1

OPTOmechanisms, Inc., 216 E. Second St., Mineola, L.I., N.Y., 14, 23, 40, 43, 77, Tel: 516-PIoneer 6-5576, Yr: 1951, Emp: 35, ▲1

Optron Corp., 335 S. Salinas St., Santa Barbara, Calif., 14, 36, Tel: WOodland 5-6140, Yr: 1956, Emp: 14, ▲1, $250,000

Orange Roller Bearing Co., Inc., 557 Main St., Orange, N.J., 97, Tel: ORange 3-6161, Yr: 1922, Emp: 170

Orbit Instrument Corp., 131 Eileen Way, Syosset, L.I., N.Y., 61, 77, Tel: WAlnut 1-6310, Yr: 1957, Emp: 65, $750,000

Oregon Electronic Mfg. Co., 2105 S.E. 6th Ave., Portland 14, Ore., 8, 44, 69, 84, Tel: 503-BElmont 6-9292, Yr: 1948, Emp: 20, ▲1, $150,000

Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 1, 2, 5, 15, 17, 25, 29, 33, 34, 35, 37, 38, 40, 43, 53, 66, 69, 77, Tel: 914-DEerfield 7-6132, Yr: 1960, Emp: 36, ▲6, $500,000
See ad in class 43

Ortho Industries, Inc., 7 Paterson St., Paterson 1, N.J., 43, 45, 59, 84, Tel: 201-MUlberry 4-5858, Yr: 1946, Emp: 162, ▲5, $1,200,000
See ad in class 59

Ortho Magnetics, Inc., P.O. Box 240, Kutztown, Pa., 51, 53, 57, 84, Tel: 215-OVerbrook 3-7307, Yr: 1956, Emp: 66, ▲1, $510,000

Ortronix, Inc., P.O. Drawer 8217, Orlando, Fla., 4, 8, 9, 10, 33, 34, 35, 38, 40, 41, 50, 53, 63, 69, 109, Tel: 305-MIdway 7-4807, Yr: 1959, Emp: 65, ▲3, $1,100,000

Oryx Co., 13804 Ventura Blvd., Sherman Oaks, Calif., 111, Tel: 213-TRiangle 3-4874, Yr: 1956, Emp: 4, ▲1, $100,000

Osborne Electric Co., Ltd., 95 Wesley St., Toronto 18, Ontario, Canada, 73, 84, Tel: 416-259-8876, Yr: 1921, Emp: 30, ▲1, $65,000

Osborne Electronics Corp., 712 S.E. Hawthorne Blvd., Portland 14, Ore., 1, 3, 6, 18, 20, 24, 40, 43, 51, 57, 59, 84, 94, 106, Tel: BElmont 2-0161, Yr: 1947, Emp: 450, ▲1, $3,500,000

Osborne Transformer Corp., 3834 Mitchell Ave., Detroit 7, Mich., 51, 84, Tel: 313-LOrain 8-0700, Yr: 1932, Emp: 25, ▲1, $220,000

Oster Mfg. Co. (John), Avionic Div., 1 Main St., Racine, Wis., 2, 8, 67, 77, 83, 108, Tel: MElrose 7-4445, Yr: 1950, Emp: 1000, ▲5, $12,000,000

Ostlund Associates (E. M.), Andover, N.J., 19, 24, 29, 42, 43, 44, 66, 96, 109, Tel: 201-PArkway 9-6635, ▲1

Ostlund, E. M., Andover, N.J., 95, Tel: 201-PArkway 9-6635, ▲1
See ad in class 95

Otarion Listener Corp., Route 9, Ossining, N.Y., 5, 43, Tel: 914-WIlson 1-6700, Yr: 1938, Emp: 190, ▲3, $2,000,000

Otis Elevator Co., Defense & Industrial Div., 35 Ryerson St., Brooklyn 5, N.Y., 1, 2, 4, 7, 8, 9, 10, 13, 17, 20, 25, 33, 36, 37, 50, 97, Tel: 212-ULster 5-6800, Yr: 1854, Emp: 12,223, ▲15

Otis Radio & Electric Corp., 222 Avenue E, Hawarden, Iowa, 51, 84, Tel: 550, Yr: 1948, Emp: 175, $1,000,000

Ovenaire, Inc., 706 Forrest St., Charlottesville, Va., 56, Tel: 3-5148, Yr: 1959, Emp: 30, ▲1

Ovitron Corp., Hodge Controls Div., 105 River Rd., Cos Cob, Conn., 4, 67, 77, Tel: 203-TOwnsend 9-8880, Yr: 1958, Emp: 95

Ovitron Corp., Power Controls Div., 105 River Rd., Cos Cob, Conn., 4, 17, 43, 51, 53, 69, 72, 73, 77, 80, Tel: 203-TOwnsend 9-8880, Yr: 1958

Ovitron Corp., Standard Winding Co. (Div.), 44-62 Johnes St., Newburgh, N.Y., 44, 45, 50, 51, 59, 84, 109, Tel: 914-JOhn 1-1541, Yr: 1937, Emp: 95
See ad in class 51

Owatonna Tool Co., 93 Cedar St., Owatonna, Minn., 90, 111, Tel: 507-451-5310, Yr: 1925, Emp: 300

Owen Laboratories, Inc., 55 Beacon Pl., Pasadena, Calif., 41, Tel: MUrray 1-6901, Yr: 1947, Emp: 10, ▲1, $200,000

Owens-Illinois Glass Co., Toledo 1, Ohio, 40, 75, 85, 86, 105, 112, Tel: CH 3-6543, ▲5

Oxford Components, Div. of Oxford Electric Corp., 3911 S. Michigan Ave., Chicago 53, Ill., 63, 64, 79, 84, Tel: ATlantic 3-6161 Yr: 1946, Emp: 800, $8,700,000

Oxford Engineering Corp., 47A River St., Wellesley 81, Mass., 4, 11, 22, Tel: 617-CEdar 5-7770, Yr: 1958, Emp: 8, ▲1, $60,000

Ozalid Div., General Aniline & Film Corp., Ozalid Rd., Johnson City, N.Y., 13, 15, 99, Tel: SWarthmore 7-2301, Yr: 1937, Emp: 1200, ▲2

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PCA Electronics, Inc., 16799 Schoenborn St., Sepulveda, Calif., 51, 57, 59, 84, Tel: 213-EMpire 2-0761, Yr: 1948, Emp: 120, ▲1
See ad in class 57

PLC, Inc.: See Pitometer Log Corp.

PRD Electronics, Inc., 202 Tillary St., Brooklyn 1, N.Y., 31, 35, 37, 43, 45, 59, 66, 69, 88, 97, Tel: 212-ULster 2-6800, Yr: 1944, Emp: 340, ▲50
See ad in class 37

PRL Electronics, Inc., 232 Westcott Dr., Rahway, N.J., 41, 53, 69, Tel: 201-FUlton 1-5800, Yr: 1960, Emp: 15, $20,000 (4 months)

Pabst Engineering Equipment Co., Inc., 676 Pennsylvania Ave., Elizabeth 3, N.J., 18, 25, 40, 43, 44, 47, 54, 55, 59, 64, 66, 88, 90, 93, 94, 96, 97, 98, 99, 105, 109, Tel: 201-ELizabeth 3-2880, Yr: 1926, Emp: 100, ▲2, $300,000

Pac-Tron, Inc., 73 Main St., Webster, Mass., 90, 96, 101, 107, 109, Tel: 617-943-4085, Yr: 1960, Emp: 14, $150,000

Pace Circuits Corp., 393 Sagamore Ave., Mineola, L.I., N.Y., 13, 30, 43, 50, 96, 109, Tel: 516-PIoneer 1-3360, Yr: 1958, Emp: 35, ▲1, $200,000

Pace Controls Corp., 661 Highland Ave., Needham Heights, Mass., 4, 28, 67, Tel: 617-HIllcrest 4-8844, Yr: 1960, Emp: 23, ▲3

Pace Electrical Instruments Co., Inc., Subsid. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 35, 61, Tel: 212-TWining 4-4290, Yr: 1932, Emp: 150, ▲1
See ad in class 61

Pace Engineering Co., 13035 Saticoy St., North Hollywood, Calif., 4, 34, 83, Tel: 213-TRiangle 7-7139, Yr: 1955, Emp: 60, ▲2

Pacific Coast Electronics Corp., 2457 Chico Ave., South El Monte, Calif., 81, Tel: CUmberland 3-9496, Yr: 1961, Emp: 13

Pacific Communications, P.O. Box 555, Livingston, N.J., 1, 20, 33, Tel: 201-WYman 2-1461

Pacific Electrical Instrument Laboratory, 111 Main St., San Francisco 5, Calif., 61, 74, Tel: GArfield 1-7185, Yr: 1909, Emp: 14, $200,000

Pacific Electricord Co., 3217 Exposition Pl., Los Angeles 18, Calif., 62, 91, 106, 107, Tel: 213-AXminster 3-7205, Yr: 1938, Emp: 150

Pacific Electro Kinetics, P.O. Box 2067, Points Branch, El Monte, Calif., 83, Tel: 213-GIlbert 3-6147

Pacific Electro Magnetics Co., Inc., 942 Commercial St., Palo Alto, Calif., 1, 2, 4, 9, 27, 31, 34, 43, 50, 51, 53, 59, 69, 70, 95, 109, Tel: 415-DAvenport 1-1177, Yr: 1959, Emp: 22

Pacific Instrument Co., 4926 E. 12th St., Oakland 1, Calif., 12, 43, 51, 53, 59, 69, 84, Tel: 415-KEllogg 2-2035, Yr: 1956, Emp: 12, ▲1, $150,000

Pacific Magnetic Corp., Electronic Center, Romoland, Calif., 2, 43, 51, 53, 69, 84, Tel: 714-657-2637, Yr: 1946, Emp: 30, ▲1, $300,000

Pacific Mercury Electronics, Div. of Thomas Organ Co., 8345 Hayvenhurst, Sepulveda, Calif., 26, 34, 43, 90, Tel: EMpire 2-3129, Yr: 1946, Emp: 1300, ▲4

Pacific Relays, Inc., 13915 Saticoy, Van Nuys, Calif., 73, Tel: 213-STate 2-2360, Yr: 1953, Emp: 32, $174,500

Pacific Resistor Co., 2320 Pontius Ave., Los Angeles 64, Calif., 74, Tel: 213-BRadshaw 2-2689, Yr: 1956, Emp: 40, ▲2, $300,000

Pacific Scientific Co., 6280 Chalet Dr., Bell Gardens, Calif., 2, 41, 52, 73, 80, 98, Tel: SPruce 3-2020, Yr: 1919, Emp: 366, ▲1

Pacific Scientific Instrument Laboratory, 5707 Centinela, Culver City, Calif., 4, 36, 40, 54, 98, 111, Tel: EX 8-8752, Yr: 1958, Emp: 15, ▲3, $200,000

Pacific Semiconductors, Inc., 14520 Aviation Blvd., Lawndale, Calif., 71, 76, Tel: OSborne 9-2281, Yr: 1954, Emp: 2669, ▲12

Pacific Transducer Corp., 11836 W. Pico Blvd., Los Angeles 64, Calif., 35, 68, 82, 97, Tel: 213-GR 8-1134, Yr: 1946, Emp: 12

Pacific Universal Products Corp., 168 Vista Ave., Pasadena, Calif., 66, 75, Tel: 213-MUrray 1-7646, Yr: 1948, Emp: 12, $25,000

Packard-Bell Computer Corp., 1905 Armacost Ave., Los Angeles 25, Calif., 4, 8, 9, 11, 17, 33, 34, 43, 50, Tel: 213-BRadshaw 2-9161, Yr: 1957, Emp: 350, ▲35

Packard-Bell Electronics Corp., 12333 W. Olympic Blvd., Los Angeles 64, Calif., 1, 2, 4, 8, 9, 10, 13, 17, 18, 26, 29, 42, 50, 57, 83, 109, Tel: BRadshaw 2-6141, Yr: 1934, Emp: 2200, ▲100, $20,000,000

Page Communications Engineers, Inc., Subsid. of Northrop Corp., 2001 Wisconsin Ave. N.W., Washington 7, D.C., 95, 109, Tel: 202-FEderal 7-7600, Yr: 1947, Emp: 565, ▲60

Paillard, Inc., 100 Sixth Ave., New York 13, N.Y., Importers, 32, Tel: 212-CAnal 6-8420, Yr: 1814, Emp: 130, $100,000

Palmer Electric Mfg. Co., 11011 Palmer Ave., South Gate, Calif., 53, 67, 69, Tel: SPruce 3-4545, Yr: 1937, Emp: 10, $50,000

Palmer Instruments, 1017 Mission St., South Pasadena, Calif., 56, Tel: 213-MUrray 2-1194, Yr: 1950, Emp: 25, $100,000

Palomar Scientific Corp., 4039 Transport St., Palo Alto, Calif., 2, 4, 8, 40, 61, 80, 83, Tel: 415-DAvenport 3-9005, Yr: 1960, Emp: 28, ▲3

Palumbo Bros., Inc., Platronics Div., 500 Commerce Rd., Linden, N.J., 109, Tel: WAbash 5-3600, Yr: 1946, Emp: 30, $1,000,000

Pamar Electronics, Inc., Subsid. of Hoke, Inc., 1 Tenakill Park, Cresskill, N.J., 80, Tel: 201-LOwell 8-9100

Pan American Trade Development Corp., 2 Park Ave., New York 16, N.Y., Importers, 112, Tel: 212-MUrray Hill 6-7960, Yr: 1940, Emp: 80

Panduit Corp., 17301 Ridgeland Ave., Tinley Park, Ill., 96, 97, 106, Tel: 312-HIlltop 5-3134, Yr: 1954, Emp: 15

Panob Corp., 49 Beech St., Port Chester, N.Y., 96, 97, Tel: 914-WEstmore 9-3066, Yr: 1953, Emp: 22, ▲1

Panoramic Electronics, Inc. (Panoramic Radio Products, Inc.), 528 S. Fulton Ave., Mount Vernon, N.Y., 2, 3, 21, 34, 35, 36, 37, 38, 40, 41, Tel: 914-OWens 9-4600, Yr: 1949, Emp: 150, ▲14
See ad on page 80

Par-Metal Products Corp., 32-42 49th St., Long Island City 3, N.Y., 90, 93, Tel: 212-AStoria 8-8905, Yr: 1926, Emp: 75
See ad in class 90

Par Products Corp., 602 Colorado Ave., Santa Monica, Calif., 5, 14, 23, 95, 96, 109, Tel: EXbrook 4-4219, Yr: 1948, Emp: 10

Parabam, Inc., 12822 Yukon Ave., Hawthorne, Calif., 4, 9, 10, 35, 44, Tel: OSborne 9-3393, Yr: 1958, Emp: 35, ▲3, $850,000

Parametrics, P.O. Box 629, 929 Baker St., Costa Mesa, Calif., 4, 31, 33, 35, 53, 68, Tel: 714-KImberly 9-2221, Yr: 1947, Emp: 25, ▲2

Paramount Paper Tube Corp., 618 S. Lafayette St., Fort Wayne 2, Ind., 97, 112, Tel: ANthony 4197, Yr: 1935, Emp: 30, $375,000
See ad in class 97

Paramount Products Co., Inc., 759 Ramsey Ave., Hillside 5, N.J., 105, Tel: MUrdock 8-8150

Paraplegics Mfg. Co., Inc., 304 N. York Rd., Bensenville, Ill., 43, 91, 96, Tel: POrter 6-0350, Yr: 1951, Emp: 100, ▲3, $757,000

Parisier & Co. (Maurice I.), 741-745 Washington St., New York 14, N.Y., 29, 42, 95, Tel: 212-ALgonguin 5-8900, ▲1

Park Electrochemical Corp., 34-10 Linden Pl., Flushing 54, N.Y., 50, 97, Tel: 212-FLushing 9-7000, Yr: 1954, Emp: 225, $500,000

Parke, Nathan Grier, Bedford Rd., Carlisle, Mass., 95, Tel: 617-EMerson 9-3818, Yr: 1951, Emp: 16, ▲1, $120,000
See ad in class 95

Parker & Co., Inc. (S. C.), 1031 Ellicott Sq., Buffalo 3, N.Y., Tel: TL 2-6858

Parker Electrical Instrument Corp., 375 Fairfield Ave., Stamford, Conn., 35, 40, 61, Tel: 203-DAvis 5-3841, Emp: 24, ▲4
See ad in class 61

Parker-Hannifin Corp., Parker Fittings & Hose Div., 17325 Euclid Ave., Cleveland 12, Ohio, 97, Tel: KEnmore 1-3000, Yr: 1924

Parker-Hannifin Corp., Parker Hydraulics Div., 17325 Euclid Ave., Cleveland 12, Ohio, 99, Tel: KEnmore 1-3000, Yr: 1924

Parker-Hannifin Corp., Parker Seal Co. (Div.), 10567 Jefferson Blvd., Culver City, Calif., 66, 75, 97, Tel: 213-VErmont 9-1161, Yr: 1947, Emp: 1000, ▲1
See ad in class 97

Parker-Kalon, Div. of General American Transportation Corp., 1 Peekay Dr., Clifton, N.J., 97, Tel: GRegory 1-1000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Parker Metal Goods Co., 85 Prescott St., Worcester, Mass., 44, 80, 81, Tel: PL 4-6821

Parks Co., Inc. (Robert M.), 7421 Woodrow Wilson Dr., Hollywood, Calif., 53, Tel: OL 6-5454, Yr: 1957

Parks Laboratory (Henry Francis), 7544 23rd Ave. N.E., Seattle 15, Wash., 31, 35, 41, 69, 95, Tel: 206-LAkeview 3-4832, Yr: 1933, Emp: 21, ▲2

Parkway Specialties Co., 22519 Plymouth Rd., Detroit 39, Mich., 30, 79, 90, 94, 97, 106, Tel: 313-KEnwood 5-0796, Yr: 1955

Parsons Co. (Ralph M.), Electronics Div., 151 S. DeLacey Ave., Pasadena, Calif., 2, 10, 31, 34, 50, 59, 69, 109, Tel: 213-MUrray 1-0461, Yr: 1952, Emp: 200, ▲9

Partlow Corp., 245 Campion Rd., New Hartford, N.Y., 28, 82, Tel: SW 7-2222, Yr: 1921, Emp: 150

Partridge Transformers, Ltd., Roebuck Rd., Chessington, Surrey, England, 51, 84, Tel: ELMbridge 6737, Yr: 1934, Emp: 105

Parzen, Benjamin, 241 E. 76th St., New York 21, N.Y., 95, Tel: 212-REgent 7-7413

See ad in class 95

Pass & Seymour, Inc., 50 Boyd Ave., Syracuse 9, N.Y., 80, Tel: 315-HOward 8-6211, Yr: 1890, Emp: 500

Pastoriza Electronics, Inc., 285 Columbus Ave., Boston 16, Mass., 2, 4, 5, 8, 9, 10, 11, 13, 22, 35, 40, 43, 50, 57, 95, 96, 109, Tel: 617-COmmonwealth 6-1918, Yr: 1944, Emp: 28, ▲1, $335,000

Patent Button Co., Patwin Div., 41 Brown St., Waterbury 20, Conn., 63, Tel: 203-PLaza 6-3636, Yr: 1876, Emp: 120, ▲1, $50,000

Patent Button Co. of Tennessee, Inc., 2200 Century St., Knoxville 1, Tenn., 96, 109, Tel: 615-522-9621, Yr: 1931, Emp: 150

Paterson Parchment Paper Co., Bristol, Pa., 101, Tel: 215-WIndsor 5-2200, Yr: 1875, Emp: 800

Paul & Stein Bros., Inc. (F. H.), 235 Fifth Ave., New York 16, N.Y., 103, 104, 110, Tel: 212-MUrray Hill 4-6370, Yr: 1943, Emp: 18, ▲1, $800,000

Pearce-Simpson, Inc., 2295 N.W. 14th St., Miami 42, Fla., 2, 18, 20, 41, 90, 91, 93, 96, 106, Tel: NEwton 3-6976, Yr: 1949, Emp: 225, ▲1, $1,500,000

Pearson Electronics, Inc., 707 Urban Lane, Palo Alto, Calif., 40, 66, 69, 84, Tel: 415-DAvenport 6-7285, Yr: 1956, Emp: 8, ▲1, $200,000

See ad in class 84

Peck Spring Co., 89 Whiting St., Plainville, Conn., 62, 96, 97, 98, Tel: 203-SHerwood 7-2767, Yr: 1906, Emp: 25

Peck, Stow & Wilcox Co., 217 Centre St., Southington, Conn., 99, 111, Tel: 203-MArket 8-9621, Yr: 1785, Emp: 200

Pedersen Electronics Corp., P.O. Box 458, Lafayette, Calif., 26, 90, 93, 96, Tel: ATlantic 3-3434, Yr: 1948, Emp: 25

Pee Wee Molding Corp., 1720 Atlantic Ave., Brooklyn 13, N.Y., 96, 97, 106, Tel: PResident 4-3440, Yr: 1952, Emp: 9

Peeco Corp., 2760 Whittier Blvd., Los Angeles 23, Calif., 95, 98, Tel: 213-ANgelus 9-4164, Yr: 1952, Emp: 3

Peer, Inc., 2426 Shelby St., Dallas 19, Texas, 1, 3, 4, 15, 18, 19, 20, 21, 24, 29, 32, 34, 42, 43, 44, 59, 69, 95, Tel: LAkeside 6-8353, Yr: 1960, Emp: 5, ▲3, $10,000

Peerless Photo Products, Inc., Route 25A, Shoreham, N.Y., 15, Tel: SHoreham 4-2817, Yr: 1939, Emp: 150

Peerless Products Industries, 812 N. Pulaski Rd., Chicago 51, Ill., 44, 96, Tel: 312-BElmont 5-9883, Yr: 1940, Emp: 50, $750,000

Pegasus Laboratories, Inc., 3500 W. Eleven-Mile Rd., Berkeley, Mich., 4, 43, 44, 77, 93, 99, Tel: LIncoln 7-8700, Yr: 1952, Emp: 70, $150,000

Pek Laboratories, Inc., 4024 Transport St., Palo Alto, Calif., 17, 40, 75, 86, 87, 105, Tel: 415-DAvenport 1-2787, Yr: 1955, Emp: 17, ▲1

Pelco Sales, Inc., 351 E. Alondra Blvd., Gardena, Calif., 32, 90, 95, Tel: 213-DAvis 3-1628, Yr: 1958, Emp: 12, ▲1, $350,000

Pelley Co., Inc. (E. H.), 37 Hurley St., Cambridge, Mass., 50, Tel: 617-UNiversity 4-9788

See ad in class 50

Pendar, Inc., 14744 Arminta St., Van Nuys, Calif., 63, 74, 80, Tel: TRiangle 3-3136, Yr: 1946, Emp: 50

Penfield Mfg. Co., Inc., 19 High School Ave., Meriden, Conn., 99, Yr: 1946, Emp: 15, $10,000

Penn Engineering & Mfg. Corp., Box 311, Doylestown, Pa., 97, 105, Tel: ROger 6-8853, Yr: 1942, Emp: 36

Penn Fibre & Specialty Co., Inc., 2020 E. Westmoreland St., Philadelphia 34, Pa., 81, 96, 97, 101, 105, 107, 112, Tel: 215-REgent 9-4862, Yr: 1937, Emp: 21, $300,000

Penn Keystone Corp., P.O. Box 350, Derby, Conn., 2, 4, 43, 50, 53, 61, 63, 69, 73, 80, Tel: 203-REgent 4-3301, Yr: 1956, Emp: 55, ▲2, $700,000

Penn Metal Co., Inc., 40 Central St., Boston 9, Mass., 91, Tel: 617-CApitol 7-1932

Penn Rare Metals, Inc., P.O. Box 1A, Revere, Pa., 94, 102, 104, Tel: FErndale 4-7711, Yr: 1959, Emp: 25

Penn Resistor Corp., 526 N. Broad St., Lansdale, Pa., 74, Tel: 215-ULysses 5-9516, Yr: 1958, Emp: 25, ▲1, $165,000

See ad in class 74

Penn Transformer Corp., Box 149, Bellefonte, Pa., 51, 84, 99, Tel: ELgin 5-4747, Yr: 1946, Emp: 60

Penn-Union Electric Corp., 315 State St., Erie, Pa., 52, 81, 91, 97, Tel: GLendale 6-7501, Yr: 1928, Emp: 250

Pennon Electronics, Inc., 7500 S. Garfield Ave., Bell Gardens, Calif., 4, 43, 51, 53, 69, 72, 73, 77, 84, 99, Yr: 1958, Emp: 22, ▲3, $130,000

Pennsylvania Tool & Mfg. Co., 130 S. Hartman St., York, Pa., 40, 96, 97, 109, 111, Tel: 8-1855, Yr: 1919, Emp: 50, $75,000

Pennwood Numechron Co., 7249 Frankstown Ave., Pittsburgh 8, Pa., 4, 8, 9, 10, 11, 31, 57, 61, 67, 90, Tel: 412-FRemont 1-4200, Yr: 1925, Emp: 50

See ad in class 11

Penta Laboratories, Inc., 312 N. Nopal St., Santa Barbara, Calif., 80, 86, 87, Tel: 805-WOodland 5-4581, Yr: 1951, Emp: 105, ▲1, $1,054,000

Pereny Equipment Co., Inc., 895 Chambers Rd., Columbus 12, Ohio, 98, Tel: 614-AXminster 4-3577, Yr: 1934, Emp: 30, $75,000

Perfecting Service Co., 332 Atando Ave., Charlotte 6, N.C., 90, 97, Tel: 704-FRanklin 6-4811

Perfection Electronics, Inc., 73-03 Grand Ave., Maspeth 78, L.I., N.Y., 3, 4, 21, 43, 50, 69, 90, 91, 96, 109, Tel: 212-OLympia 1-7513, Yr: 1960, Emp: 10, ▲3

Perfection Mica Co., Magnetic Shield Div., 1322 N. Elston Ave., Chicago 22, Ill., 101, 103, 104, 105, Tel: 312-EVerglade 4-2122, Yr: 1940, Emp: 386, ▲3

See ad in class 103

Performance Measurements Co., 15120 Third Ave., Detroit 3, Mich., 2, 4, 8, 9, 11, 31, 40, 41, 50, 69, Tel: 313-TOwnsend 9-6400, Yr: 1952, Emp: 60, ▲1

Pergamon Press, Inc., 122 E. 55th St., New York 22, N.Y., 108, Tel: 212-PLaza 3-9651

See ad in class 108

Perkin Electronics Corp., 345 Kansas St., El Segundo, Calif., 53, 69, Tel: 213-SPring 2-2171, Yr: 1945, Emp: 200, ▲4, $3,000,000

Perkin-Elmer Corp., Main Ave., Norwalk, Conn., 2, 4, 5, 14, 17, 40, 54, Tel: 203-VIctor 7-0414, Yr: 1939, Emp: 1600, ▲34

Perkin-Elmer Corp., Vernistat Div., 774 Main Ave., Norwalk, Conn., 40, 41, 74, 80, 84, Tel: 203-VIctor 7-0411, Yr: 1955, Emp: 70, ▲2, $1,000,000

Perkins Machine & Gear Co., Circuit Ave., West Springfield, Mass., 77, 97, 99, Tel: 413-REpublic 7-4751, Yr: 1918, Emp: 400

Perma-Power Co., 3100 Elston Ave., Chicago 18, Ill., 4, 20, Tel: 312-KEystone 9-7171, Yr: 1928, ▲2

Permacel, U.S. Highway #1, New Brunswick, N.J., 94, 97, 101, Tel: CHarter 7-7900, Yr: 1931, Emp: 805

Permag Corp., 88-06 Van Wyck Expwy., Jamaica 18, N.Y., 64, 92, Tel: 212-OLympia 7-1818, Yr: 1946, Emp: 45

See ad in class 64

Permali, Inc., P.O. Box 718, Mount Pleasant, Pa., 44, 96, 97, 103, 107, Tel: 412-KImbell 7-2353, Yr: 1950, Emp: 60, ▲2

Permaluster, Inc., 2012 W. Burbank Blvd., Burbank, Calif., 51, 91, 94, 101, Tel: VIctoria 9-4543, Yr: 1956

Permoflux Products Co., Div. of Linlar, Inc., 4101 San Fernando Rd., Glendale 4, Calif., 13, 16, 17, 20, 30, 43, 53, 65, 68, 69, 79, 84, Tel: 213-CHapman 5-5111, Emp: 100

Permonite Mfg. Co., 910 W. Jackson Blvd., Chicago 7, Ill., 52, 60, 62, 78, 81, 96, 109, Tel: 312-SEeley 8-2220, Yr: 1953, Emp: 200, $1,500,000

Perrott Engineering Laboratories, Inc., Subsid. of Federated Electronics, Inc., 3305 N. Pershing Dr., Arlington 1, Va., 46, 52, 56, 59, 68, 78, 98, 99, 100, 102, 104, 105, 106, 109, Tel: JAckson 8-5861, Yr: 1955, Emp: 12, ▲2, $150,000

Peschel Electronics, Inc., Towners, R.F.D. 1, Patterson, N.Y., 2, 17, 40, 41, 69, 84, 109, Tel: 914-TRinity 8-3251, Yr: 1949, Emp: 11, $250,000

See ad in class 41

Peter Partition Corp., 124 Boerum Pl., Brooklyn 1, N.Y., 109, Tel: 212-TRiangle 5-4033, Yr: 1945, Emp: 95

Petersen Radio Co., Inc., 2800 W. Broadway, Council Bluffs, Iowa, 56, Tel: 712-322-2760, Yr: 1934, Emp: 35, ▲1, $233,847

Peterson & Neville, Inc., 365 Dorchester Ave., South Boston 27, Mass., 90, 93, 96, Tel: 617-ANdrew 8-2548, Yr: 1921, Emp: 35

Pettinos Graphite Corp. (Charles), 1 E. 42nd St., New York 17, N.Y., 94, Tel: MUrray Hill 7-7337, Yr: 1895

Pfaff & Kendall, 84 Foundry St., Newark 5, N.J., 44, Tel: MArket 3-2215, Yr: 1902, Emp: 210

Pfaudler Permutit, Inc., 50 W. 44th St., New York 36, N.Y., 99, Tel: 212-OXford 7-6600, Yr: 1913, Emp: 4500

Pfister Aluminum Corp., 54 W. Allendale Ave., Allendale, N.J., 112, Tel: 201-OLiver 2-5220, Yr: 1948, Emp: 300

Phalo Plastics Corp., 530 Boston Tnpke., Shrewsbury, Mass., 91, Tel: 617-VIking 4-4021, Yr: 1943, Emp: 400

Phaostron Instrument & Electronic Co., 151 Pasadena Ave., South Pasadena, Calif., 35, 37, 38, 40, 41, 61, 73, 74, Tel: CLinton 5-1471, Yr: 1937, Emp: 350, $2,801,791

Phelps Dodge Copper Products Corp., 300 Park Ave., New York 22, N.Y., 52, 62, 66, 91, 104, 112, Tel: 212-PLaza 1-3200, Yr: 1834, Emp: 14,000, ▲6

See ad in class 91

Phelps Dodge Copper Products Corp., Inca Mfg. Div., 4400 New Haven Ave., Fort Wayne, Ind., 91, Tel: EAstbrook 0511, Emp: 700

Pheoll Mfg. Co., Inc., 5700 W. Roosevelt Rd., Chicago 50, Ill., 75, 97, Tel: 312-CO 1-0300, Yr: 1907, Emp: 650

Philadelphia Handle Co., 1643 Haddon Ave., Camden 3, N.J., 97, Tel: WOodlawn 6-0980, Yr: 1900

Philadelphia Insulated Wire Co., 333 New Albany Rd., Moorestown, N.J., 91, Tel: 609-BElmont 5-6700, Yr: 1820, Emp: 115, $1,000,000

Philadelphia Scientific Glass Co., 468 W. Paletown Rd., Quakertown, Pa., 41, 66, 73, 75, 80, 82, 85, 86, 109, Tel: KEystone 6-4203, Yr: 1947, Emp: 8

Philamon Laboratories, Inc., 90 Hopper St., Westbury, L.I., N.Y., 31, 35, 43, Tel: 516-EDgewood 3-1700, Yr: 1946, Emp: 52, ▲2

Philbrick Researches, Inc. (George A.), 127 Clarendon St., Boston 16, Mass., 4, 5, 8, 9, 10, 17, 23, 43, 50, 69, 77, 109, Tel: 617-COmmonwealth 6-5375, Yr: 1946, Emp: 150, ▲8, $2,400,000

Philco Corp., Tioga & C Sts., Philadelphia 34, Pa., 1, 2, 4, 7, 8, 9, 13, 17, 19, 23, 24, 25, 26, 28, 29, 34, 37, 40, 41, 44, 54, 61, 68, 71, 73, 74, 76, 85, 86, 99, Tel: 215-NEbraska 4-5100, Yr: 1892, Emp: 24,000, ▲900, $400,000,000

Philco Corp., Government & Industrial Group, 4700 Wissahickon Ave., Philadelphia 44, Pa., 1, 2, 4, 7, 8, 9, 10, 13, 17, 18, 19, 23, 24, 25, 27, 29, 33, 34, 35, 38, 42, 43, 44, 57, 66, 88, 109, Tel: 215-VIctor 3-4000, Yr: 1892, ▲264

Philco Corp., Lansdale Div., 504 Church Rd., Lansdale, Pa., 4, 14, 17, 22, 36, 41, 43, 53, 54, 56, 66, 76, 85, 86, 87, 90, 94, 95, 96, 98, 99, 105, 108, 109, Tel: 215-ULysses 5-4681, Yr: 1892, ▲65

Philco Corp., Philco Computer Div., 3900 Welsh Rd., Willow Grove, Pa., 8, 9, 10, Tel: 215-OLdfield 9-7700, Emp: 1500, ▲64

Philco Corp., Sierra Electronic Corp. (Div.), 3885 Bohannon Dr., Menlo Park, Calif., 23, 34, 35, 37, 38, 40, 41, 42, 43, 44, 59, 66, 82, 90, Tel: 415-DAvenport 6-2060, Yr: 1947, Emp: 254, ▲20

Philco Corp., TechRep Div., Box 4730, Philadelphia 34, Pa., Tel: 215-BAldwin 3-1800, ▲80

Philco Corp., Western Development Laboratories, 3875 Fabian Way, Palo Alto, Calif., Tel: 415-DAvenport 6-4350, ▲146

Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., 750 S. Fulton Ave., Mount Vernon, N.Y., 4, 5, 11, 14, 22, 23, 25, 26, 28, 32, 35, 36, 37, 38, 39, 40, 41, 43, 45, 49, 61, 66, 69, 86, 96, 98, Tel: 914-MOunt Vernon 4-4500, Yr: 1942, Emp: 350, ▲3

Philips Electronics Industries, Ltd., 116 Vanderhoof Ave., Toronto 17, Ontario, Canada, 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 33, 35, 36, 37, 38, 39, 40, 41, 42, 43, 48, 49, 51, 52, 54, 55, 56, 61, 63, 64, 65, 67, 68, 69, 70, 71, 73, 74, 76, 78, 79, 80, 83, 85, 86, 87, 88, 98, Tel: HUdson 7-5161, Yr: 1945, Emp: 1500, ▲22

Philips Elmet Corp., Subsid. of North American Philips Co., Inc., Lisbon Rd., Lewiston, Me., 91, 94, 98, 104, 105, Tel: 784-5478, Yr: 1942, Emp: 200

Philips Metalonics, Div. of Philips Electronics & Pharmaceutical Industries Corp., 888 S. Columbus Ave., Mount Vernon, N.Y., 104, 105, Tel: 914-MOunt Vernon 4-5115, Yr: 1918, Emp: 500, ▲3

Phillips Control Co., Div. of Phillips-Eckardt Electronic Corp., 59 W. Washington St., Joliet, Ill., 73, Tel: SAratoga 3-3431, Yr: 1945, Emp: 350, ▲2, $4,000,000

Phillips Mfg. Co., 3475 W. Touhy Ave., Chicago 45, Ill., 94, 99, Tel: 312-AMbassador 2-6020

Phillips Process Co., Inc., 192 Mill St., Rochester 14, N.Y., 94, Tel: 716-BAker 5-8201, Yr: 1932, Emp: 25

Philmore Mfg. Co., Inc., 130-01 Jamaica Ave., Richmond Hill 18, N.Y., 3, 20, 26, 43, 44, 69, Tel: 212-HIckory 1-5000, Yr: 1921, Emp: 50, ▲2, $1,000,000

Phoenix Precision Instrument Co., Inc., 3803-05 N. 5th St., Philadelphia 40, Pa., 4, 40, 69, Tel: 215-BA 8-7417, Yr: 1945, Emp: 55

Phoenix Transformer Co., 1818 E. Madison St., Phoenix 34, Ariz., 51, 59, 72, 84, Tel: 602-ALpine 4-9747, Yr: 1956, Emp: 65

Photo Chemical Products, Inc., 999A Stewart Ave., Garden City, L.I., N.Y., 90, 96, 106, 109, Tel: 516-PIoneer 1-6500, Yr: 1944, Emp: 100, ▲2, $1,200,000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Photo-Color Process Corp., 400 W. Commercial St., East Rochester, N.Y., 43, 50, Tel: LUdlow 6-2120, Yr: 1948, Emp: 65, ▲3, $600,000

Photo-Crystals, Inc., 15 S. First St., Geneva, Ill., 45, 73, 86

Photo-Research Corp., 837 N. Cahuenga Blvd., Hollywood 38, Calif., 4, 17, 32, 40, Tel: 213-HOllywood 2-6674, Yr: 1941, Emp: 15, ▲2, $350,000

Photo-Sonics, Inc., 820 S. Mariposa St., Burbank, Calif., 14, 23, 32, Tel: 213-VIctoria 9-6251, Yr: 1952, Emp: 105

Photobell Co., Inc., 12 E. 22nd St., New York 10, N.Y., 4, 14, 17, 40, 43, 73, 83, Tel: 212-ORegon 4-2121, Yr: 1930, Emp: 23, ▲3, $500,000

Photochron Instruments, Inc., 662 Main St., Westbury, L.I., N.Y., 43, 53, Tel: 516-EDgewood 3-2200, Yr: 1961, Emp: 6, ▲1

Photocircuits Corp., 31 Sea Cliff Ave., Glen Cove, L.I., N.Y., 9, 48, 50, 67, 74, Tel: 516-ORiole 6-8000, Yr: 1951, Emp: 400, ▲14, $5,000,000

See ad in class 50

Photocon Research Products, 421 N. Altadena Dr., Pasadena, Calif., 4, 11, 80, 83, Tel: SYcamore 2-4131, Yr: 1946, Emp: 100, ▲2

Photographic Analysis, Inc., 13272 Ventura Blvd., North Hollywood, Calif., 2, 4, 9, 10, 11, 14, 23, 32, 34, 61, 109

Photographic Instrumentation Development Co., 19458 Ventura Blvd., Tarzana, Calif., 14, Tel: DIckens 5-5261, Yr: 1958, Emp: 15

Photomation, Inc., 96 S. Washington Ave., Bergenfield, N.J., 4, 43, 61, 83, Tel: DUmont 4-3411, Yr: 1930, Emp: 22, $500,000

Photomechanisms, Inc., 15 Stepar Pl., Huntington Station, L.I., N.Y., 9, 13, 14, 15, 21, 23, 34, 96, 109, Tel: 516-HAmilton 3-4411, Yr: 1952, Emp: 70, ▲1, $150,000

See ads in classes 14, 34

Photovolt Corp., 1115 Broadway, New York 10, N.Y., 40, Tel: YUkon 9-2900

Photron Instrument Co., 6516 Detroit Ave., Cleveland 2, Ohio, 16, 23, 28, 34, 40, 43, 61, Tel: 216-ATlantic 1-7020, Yr: 1941, ▲1

Photronics Corp., 134-08 36th Rd., Flushing 54, N.Y., 2, 4, 8, 9, 14, 17, 43

Physical Sciences Corp., Affil. of Packard-Bell Electronics, 389 N. Fair Oaks Ave., Pasadena, Calif., 4, 36, 40, 52, 61, 75, 81, 83, 91, 92, 94, 101, Yr: 1959, Emp: 90

Physics Research Laboratories, Inc., Dept. SA-1, P.O. Box 555, Hempstead, L.I., N.Y., 6, 12, 31, 40, 61, 71, 84, 109, Tel: 516-IVanhoe 3-8299, Yr: 1952, Emp: 7

See ad in class 40

Pic Design Corp., Subsid. of Benrus Watch Co., Inc., 477 Atlantic Ave., East Rockaway, L.I., N.Y., 10, 77, 96, 97, 109, Tel: LYnbrook 3-6470, Yr: 1954

Picco Industries, 1729 N. Chico, El Monte, Calif., 96, 97, 104, Tel: 213-CUmberland 3-7246, Yr: 1952, Emp: 40

Pick Enterprises, P.O. Box 67, Saratoga, Calif., 5, 16, Tel: UNion 7-3481, Yr: 1954, Emp: 15, ▲2

Pickard & Burns, Inc., Subsid. of Gorham Corp., 103 Fourth Ave., Waltham R & D Park, Waltham 54, Mass., 4, 25, 26, 31, 38, 44, 50, 59, 66, 95, 96, 109, Tel: 617-HIllcrest 4-3345, Yr: 1945, Emp: 130, ▲20, $2,000,000

See ads on this page and in classes 31, 44

Picker X-Ray Corp., White Plains, N.Y., 11, 22, Tel: 914-WH 8-0080, ▲1

Pickering & Co., Inc., Sunnyside Blvd., Plainview, L.I., N.Y., 32, 51, 68, 70, 79, 80, 83, Tel: 516-OVerbrook 1-0200, Yr: 1943, Emp: 150, ▲10, $1,000,000

Piezo Crystal Co., 265 E. Pomfret St., Carlisle, Pa., 56, 59, Tel: 717-CHapel 9-2151, Yr: 1936, Emp: 151, ▲2, $1,200,000

Piezo Products Co., Whitney St., Sherborn, Mass., 4, 17, 43, 61, 95, 109, Tel: 617-TRinity 5-0841, Yr: 1947

Pilot Chemicals, Inc., 36 Pleasant St., Watertown 72, Mass., 22, 94, Tel: 617-WAtertown 4-7775, Yr: 1949, Emp: 12

Pinol & Staff (D. G.), 314 Vista Del Mar, Redondo Beach, Calif., 95

Pioneer Electric & Research Corp., 743 Circle Ave., Forest Park, Ill., 4, 40, 43, 47, 61, 67, 76, 83, 96, 109, Tel: PResident 1-8242, Yr: 1956, Emp: 60, ▲5, $800,000

Pioneer Electronics Corp., 2235 S. Carmelina, Los Angeles 64, Calif., 85, 86, Tel: 213-BRadshaw 2-8053

Pioneer Foot Switch Co., 3720 N. New England, Chicago 34, Ill., 80, Tel: 312-MUlberry 5-3119, Yr: 1946

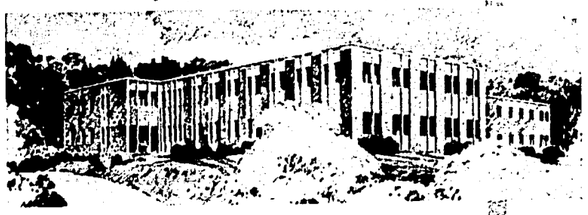
Pioneer Gen-E-Motor Corp., 5841 W. Dickens Ave., Chicago 39, Ill., 69, 99, Tel: 312-BErkshire 7-4100, Yr: 1932, Emp: 350

Pioneer Industries, Inc., 2700 Hawkeye Dr., Sioux City, Iowa, 44, 96, 109, Tel: 2-0568, Yr: 1891, Emp: 50, $200,000

Pioneer Machine Works, Inc., 6136 Adam St., West New York, N.J., 99, Tel: 201-UNion 3-3838, Yr: 1946, Emp: 5

PICKARD & BURNS, Inc.

Subsidiary of the Gorham Corp.



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Pioneer Magnetics, Inc., 850 Pico Blvd., Santa Monica, Calif., 2, 4, 9, 21, 43, 53, 69, Tel: EXbrook 9-9292, Yr: 1958, Emp: 19, ▲1

Pioneer Scientific Co., 645 Saint Paul St., Rochester 2, N.Y., 40, Tel: 716-LOcust 2-3000

Pitometer Log Corp., 237 Lafayette St., New York 12, N.Y., 37, Tel: 212-CAnal 6-7250, Yr: 1927, ▲5

Pitt Precision Products, Inc., 261 Madison Ave., New York 16, N.Y., 98, Tel: YUkon 6-1228, Yr: 1959, Emp: 24

Pittman Electrical Developments Co., Sellersville, Pa., 67, Tel: ALpine 7-2433, Yr: 1933, Emp: 40

Pix Mfg. Co., 75 Hudson St., Newark 3, N.J., 105, Tel: HUmboldt 4-5460, Yr: 1951, Emp: 104

Planer Ltd. (G. V.), Windmill Rd., Sunbury-on-Thames, Middlesex, England, 92, 96, 109, Tel: 2266

Planet Instrument, Inc., 616 S. Lafayette St., Fort Wayne, Ind., 11, 77, Tel: EAstbrook 1495, Yr: 1959, Emp: 30

Planet Mfg. Corp., 225 Belleville Ave., Bloomfield, N.J., 48, Tel: 201-PIlgrim 3-2874, Yr: 1949, Emp: 150, $1,000,000

See ad in class 48

Planet Mfg. Corp., 195 Grand St., Brooklyn 11, N.Y., 32, Tel: EVergreen 4-1882, Yr: 1945, Emp: 40

Planetronics, Inc., Centre & Glendale Sts., Easton, Pa., 1, 18, 24, 29, 35, 37, 38, 43, 69, 95, Tel: BLackburn 8-0801, Yr: 1932, Emp: 65, ▲6, $800,000

Plas-Ties Co., 624 Poinsettia, Santa Ana, Calif., 91, 97, Tel: 714-KImberly 2-4487, Yr: 1950, Emp: 50, $5000

Plasteck, Inc., 300 S. McKenna, Poteau, Okla., 63, 97, 106, 107, 109, Tel: 705, Yr: 1945, Emp: 100

Plastic Associates, 495 Broadway, Laguna Beach, Calif., 75, 81, 94, 97, Tel: HYatt 4-7857

Plastic Capacitors, Inc., 2620 N. Clybourn Ave., Chicago 14, Ill., 48, 69, Tel: 312-DIversey 8-3735, Yr: 1952, Emp: 105

See ad in class 48

Plastic Mold & Engineering Co., P.O. Box 4265, Wampanoag Trail, East Providence 14, R.I., 13, 27, 62, 76, 78, 79, 83, Tel: GEneva 8-2424, Yr: 1944, Emp: 350

Plastic Wire & Cable Corp., E. Main St., Jewett City, Conn., 62, 91, Tel: 203-DR 6-4411, Yr: 1943, Emp: 600, ▲4

Plastofilm, Inc., 916 W. Union Ave., Wheaton, Ill., 90, 96, Tel: MOntrose 8-2838, Yr: 1941, Emp: 70

Plastoid Corp., 42-61 24th St., Long Island City 1, N.Y., 91, Tel: 212-STillwell 6-6200, Yr: 1941, Emp: 306, ▲3, $7,000,000

See ad in class 91

Plastronic Engineering Co., 721 Boston Post Rd., Marlborough, Mass., 75, 80, 81, 90, 94, 96, 97, 101, 105, 106, 107, 109, Tel: 617-HUntley 5-0699, Yr: 1955, Emp: 15, $128,000

Plectron Corp., Overton, Nebr., 5, 20, 34, 35, 38, 44, Yr: 1955, Emp: 40, ▲4

Plug-In Instruments, Inc., 1416 Lebanon Rd., Nashville 10, Tenn., 4, 10, 11, 41, 43, 50, 53, 57, 69, 72, 77, 93, 95, 96, 97, 109, Tel: ALpine 4-8829, Yr: 1958, Emp: 55, ▲5, $350,000

Pneu Hydro Valve Corp., 52 Horse Hill Rd., Cedar Knolls, N.J., 99, Tel: 201-JEfferson 8-7200, Yr: 1955, Emp: 32

Poinsettia Co., Inc., 112 Cedar Ave., Pitman 6, N.J., 109, Tel: 609-LUther 9-7666, Yr: 1936, Emp: 69, $100,000

Point Consulting Co., Box 8656, Pittsburgh 21, Pa., 95, Tel: 412-FAirview 7-5338, Yr: 1947, Emp: 5, ▲2, $22,000

Polacoat, Inc., 9750 Conklin Rd., Blue Ash 42, Ohio, 13, 17, 32, Tel: 513-SYcamore 1-1300, Yr: 1947, Emp: 36

Polarad Electronics Corp., 43-20 34th St., Long Island City 1, N.Y., 1, 2, 18, 19, 24, 25, 27, 34, 37, 38, 40, 44, 108, 109, Tel: 212-EXeter 2-4500, Yr: 1945, Emp: 1000, ▲45, $15,000,000

See ads in class 37

Polaris Engineering Corp., 5317 Cottage Grove Ave., Chicago 15, Ill., 85, 86, Tel: 312-DOrchester 3-5344, Yr: 1955, Emp: 30, ▲2, $500,000

Pollak Corp. (Joseph), 75-95 Freeport St., Boston 22, Mass., 73, 80, Tel: 617-AVenue 2-9550, Yr: 1909, Emp: 275, ▲3

See ad in class 73

Poly-Kote, Inc., 82 Chestnut St., North Attleboro, Mass., 50, 94, Tel: 617-MYrtle 9-8332, Yr: 1959, Emp: 5, $10,000

Poly-Scientific Corp., Route 460 N., Blacksburg, Va., 34, 52, 80, 97, Tel: 703-PRescott 2-8212, Yr: 1953, Emp: 400, ▲3, $2,500,000

Polydoroff & Associates (W. J.), Carry Bldg., 927 15th St., Washington 5, D.C., 2, 18, 44, 51, 55, 95, 109, Tel: 202-EM 2-2734

Polymer Corp., 2120 Fairmont Ave., Reading, Pa., 55, 94, 96, 97, 101, 106, 107, 112, Tel: 215-FRanklin 6-5791, Yr: 1946, Emp: 350, ▲3, $750,000

Polymer Industries, Inc., Viaduct Rd., Springdale, Conn., 94, Tel: 203-FIreside 8-4221, Yr: 1946, Emp: 125

Polymica & Insulation Co., Inc., 683 Main St., Willimantic, Conn., 66, 101, Tel: 203-HArrison 3-0584, Yr: 1955, Emp: 10

Polyphase Instrument Co., E. Fourth St., Bridgeport, Pa., 51, 53, 57, 59, 84, Tel: BRoadway 9-4660, Yr: 1948, Emp: 300, ▲4

Polytronic Research, Inc., 7326 Westmore Rd., Rockville, Md., 1, 3, 5, 13, 18, 20, 23, 24, 26, 29, 30, 32, 34, 35, 38, 40, 41, 42, 43, 44, 45, 50, 61, 69, 88, 96, 109, Tel: 301-GArden 4-6666, Yr: 1955, Emp: 40, ▲3, $700,000

Polytronics Co., 582 Bathhurst St., Toronto 4, Ontario, Canada, 4, 6, 12, 31 40, 41, 74, Yr: 1944, Emp: 14, $70,000

Pomona Electronics Co., Inc., 1500 E. Ninth St., Pomona, Calif., 52, 62, 78, 91, 97, 106, Tel: 714-NAtional 9-9549, Yr: 1952, Emp: 25

Poole Instruments, Inc., 150 Express St., P.O. Box 1532, Dallas 7, Texas, 4, 40, Tel: RIverside 7-2353, Yr: 1938, Emp: 25, ▲1

Popper & Sons, Inc., 30 Park Ave. S., New York 10, N.Y., 99, Tel: 212-OR 4-5500

Porcelain Products Co., 225 N. Patterson St., Carey, Ohio, 92, 101, Tel: 396-2211, Yr: 1894, Emp: 150, $37,000

Port-O-Vox Corp., 521 W. 43rd St., New York 36, N.Y., 20, 26, 30, 42, 65, Tel: 212-LOngacre 3-4073

Portchester Instrument Corp., Subsid. of Premier Microwave Corp., 114 Wilkins Ave., Port Chester, N.Y., 37, 43, 45, 59, 66, Tel: 914-WEstmore 9-4092, Yr: 1952, Emp: 30, ▲1

See ad in class 66

Porter Co., Inc. (H. K.), National Electric Div., Porter Bldg., Pittsburgh 19, Pa., 91, Tel: EXpress 1-1800, Yr: 1905, Emp: 900, ▲1

Porter Co., Inc. (H. K.), Riverside-Alloy Metal Div., 1 Pavilion Ave., Riverside, N.J., 91, 104, Tel: 201-HObart 1-3000, Yr: 1853, Emp: 1000

Potter Aeronautical Corp., Route 22, Union, N.J., 4, 11, 34, 40, 53, 61, 83, Tel: 201-MUrdock 6-3010, Yr: 1937, Emp: 200, ▲5

Potter & Brumfield, Div. of American Machine & Foundry Co., Princeton, Ind., 73, Tel: 812-FUlton 5-5251, Yr: 1933, Emp: 1396, ▲3

See ad in class 73

Potter Co., 7531 Lawndale, Skokie, Ill., 48, 59, 69, Tel: 312-761-8450, Yr: 1925, Emp: 150, ▲1, $1,250,000

Potter Instrument Co., Inc., Sunnyside Blvd., Plainview, L.I., N.Y., 2, 4, 9, 10, 27, 40, 41, 70, Tel: 516-OVerbrook 1-3200, Yr: 1942, Emp: 300, ▲28, $6,000,000

Power Designs, Inc., 1700 Shames Dr., Westbury, L.I., N.Y., 53, 69, Tel: 516-EDgewood 3-6200, Yr: 1952, Emp: 107, ▲1, $1,500,000

See ad in class 69

Power Equipment Co., Portland Way N., Galion, Ohio, 51, 69, 84, Tel: 419-HOward 8-3520, Yr: 1934, Emp: 850, ▲4, $13,300,000

Power Industries, Inc., 2655 W. 19th St., Chicago 8, Ill., 51, 53, 57, 59, 69, 84, 96, 109, Tel: 312-FRontier 6-7555, Yr: 1953, Emp: 86, ▲2

Power Instruments Corp., Inc., 235 Oregon St., El Segundo, Calif., 4, 43, 53, 69, 72, 73, 77, 80, Tel: 213-EA 2-5690, Yr: 1960, Emp: 15, ▲4, $250,000

Power Instruments, Inc., 7352 N. Lawndale Ave., Skokie, Ill., 40, 41, Tel: 312-ORchard 6-2300, Yr: 1960, Emp: 10, ▲1

Power Sources, Inc., Subsid. of Technical Operations, Inc., South Ave., Burlington, Mass., 53, 69, Tel: 617-BRowning 2-2000, Yr: 1956, Emp: 75, ▲4, $750,000

Power-Tronic Systems, Inc., 10-12 Pine Ct., New Rochelle, N.Y., 2, 4, 8, 10, 11, 18, 31, 35, 36, 40, 43, 53, 57, 69, 72, 77, 83, Tel: 914-NEw Rochelle 2-2200, Yr: 1958, Emp: 50, ▲4

Powers Co. (J. J.), 818 N. 22nd Ave., P.O. Box 254, Melrose Park, Ill., 79, 90, Tel: FIllmore 5-3500, Yr: 1955, Emp: 10, $100,000

Powertron Ultrasonics Corp., Patterson Pl., Roosevelt Field, Garden City, L.I., N.Y., 4, 18, 41, 43, 83, 94, 99, 109, Tel: 516-PIoneer 1-3220, Yr: 1959, Emp: 380, ▲22, $2,000,000

Poxylube, Inc., 541 S. Webster, Indianapolis 19, Ind., 94, Tel: FLeetwood 9-5407, Emp: 90, ▲1

Precise Electronics & Development Corp., Subsid. of Designatronics, Inc., 17 Matinecock Ave., Port Washington, L.I., N.Y., 11, 12, 23, 35, 38, 39, 40, 41, 43, 61, 69, 88, Tel: 516-POrt Washington 7-8200, Yr: 1951, Emp: 250, ▲5, $1,000,000

Precise Instrument Parts Co., 4520 San Fernando Rd., Glendale 4, Calif., 97, Yr: 1945, Emp: 15, $75,000

Precise Measurements Co., Millbrook Lane, P.O. Box 172, Flemington, N.J., 17, 41, 69, 84, Tel: 201-STate 2-3000, Yr: 1950, Emp: 10
See ad in class 69

Precision Apparatus Co., Inc., Subsid. of Pacotronics, Inc., 70-31 84th St., Glendale 27, L.I., N.Y., 12, 13, 23, 30, 35, 38, 39, 41, 43, 69, 79, 88, Tel: 212-TWining 4-4290, Yr: 1932
See ad in class 39

Precision Circuits, Inc., 85 Weyman Ave., New Rochelle, N.Y., 50, Tel: 914-BEverly 5-4300, Yr: 1957, Emp: 130, $775,000

Precision Connectors, Inc., 134-20 Jamaica Ave., Jamaica 18, N.Y., 52, Tel: AXtel 1-8787, Yr: 1960, Emp: 30, ▲1, $300,000

Precision Crystal Laboratory, 2223 Warwick Ave., Santa Monica, Calif., 56, 59, Tel: EXbrook 4-7004, Yr: 1946, Emp: 1, $50,000

Precision Electronics Co., 427 Plain St., Marshfield, Mass., 69, 84, Tel: 617-TEmple 4-6677, Yr: 1954, Emp: 8

Precision Electronics, Inc., 9101 King St., Franklin Park, Ill., 26, 30, 43, 88, Tel: GLadstone 5-5350, Yr: 1946, $1,000,000

Precision Electronics, Inc., 48 Merrick Rd., Rockville Centre, L.I., N.Y., 51, 84, Tel: 516-ORiole 8-4182, Yr: 1958, Emp: 32, ▲1, $248,000

Precision Electroplating Co., 6045 N. Keystone Ave., Chicago 46, Ill., 109, Tel: 312-JU 3-3333, Yr: 1904, Emp: 35

Precision Engraving Co., 13 Ridgedale Ave., Hanover, N.J., 97, 109, Tel: TUcker 7-3350

Precision Instrument Co., 1011 Commercial St., San Carlos, Calif., 9, 27, 34, Tel: 415-LYtell 1-4441, Yr: 1958, Emp: 200, ▲25

Precision Lapping Co., Inc., 34 Clinton Ave., Valley Stream, L.I., N.Y., 17, Tel: 516-LOcust 1-2770
See ad in class 17

Precision Line, Inc., 63 Main St., Maynard, Mass., 74, 80, Tel: 617-TWinoaks 7-2451, Yr: 1955, Emp: 30, ▲1

Precision Mechanisms Corp., 44 Brooklyn Ave., New Cassel, Westbury, L.I., N.Y., 2, 4, 8, 77, 80, 97, Tel: 516-IVanhoe 3-8955, Yr: 1957, Emp: 21, ▲1, $300,000

Precision Metal Products Co., 41 Elm St., Stoneham 80, Mass., 78, 81, 92, 96, 97, 109, 111, Tel: 617-438-3650, Yr: 1948, Emp: 80

Precision Metalsmiths, Inc., 1081 E. 200th St., Cleveland 17, Ohio, 96, Tel: 216-IVanhoe 1-8900, Yr: 1946, Emp: 235, $750,000

Precision Microwave Corp., Main St., Millis, Mass., 45, 59, 66, 88, 96, 109, Tel: 617-DAvis 6-3635, Yr: 1959, Emp: 50, ▲3, $1,000,000

Precision Paper Tube Co., 2062 W. Charleston St., Chicago 47, Ill., 106, 107, 112, Tel: 312-ARmitage 6-5200, Yr: 1937, Emp: 150, ▲2
See ad in class 112

Precision Piezo Service, 427 Mayflower St., Baton Rouge 2, La., 56, Tel: DIckens 2-5359, Yr: 1929

Precision Resistor Co., Inc., 121 U. S. Hwy. #22, Hillside, N.J., 74, Tel: 201-BIgelow 3-3809, Yr: 1932
See ad in class 74

Precision Scientific Co., 3737 W. Cortland St., Chicago 47, Ill., 61, 82, 98, 99, Tel: 312-CApitol 7-2660, Yr: 1920, Emp: 300

Precision Specialties, Inc., P.O. Box 118, Pitman, N.J., 9, 11, 77, 95, Tel: LUther 9-0815, Yr: 1956, Emp: 51

Precision Thermometer & Instrument Co., 1434 Brandywine St., Philadelphia 30, Pa., 4, 70, 80, 82, Tel: 215-LOcust 3-6671, Emp: 100, ▲3, $75,000

Precision Tube Co., Inc., Church Rd. & Wissahickon Ave., North Wales, Pa., 104, 112, Tel: OXbow 9-4806, Yr: 1932, Emp: 125

Preferred Coils, Inc., 168 Elm St., Agawam, Mass., 43, 51, 84, Tel: 413-REpublic 6-8483, Yr: 1959, Emp: 30

Preis Engraving Machine Co. (H. P.), 651 U.S. Hwy. #22, Hillside, N.J., 99, Tel: 201-MUrdock 6-7736, Yr: 1923, Emp: 20, ▲2

Premax Products Div., Chisholm-Ryder Co., Inc., College & Highland Aves., Niagara Falls, N.Y., 44, Tel: 716-BUtler 5-9186, Yr: 1925, Emp: 150, $350,000

Premier Metal Etching Co., 143 E. Merrick Rd., Freeport, L.I., N.Y., 90, 97, Tel: 516-FReeport 8-5103

Premier Metal Products Co., 337 Manida St., New York 59, N.Y., 79, 90, 93, Tel: 212-WYandotte 1-6600, Yr: 1948, Emp: 75
See ads in classes 90, 93

Premier Microwave Corp., 33 New Broad St., Port Chester, N.Y., 37, 43, 44, 45, 50, 54, 57, 59, 66, 109, Tel: 914-WEstmore 9-8900, Yr: 1940, Emp: 175, ▲4, $2,500,000
See ad in class 50

Premier Research Laboratories, Inc., 83-89 Seventh Ave., New York 11, N.Y., 56, Tel: 212-ALgonquin 5-0700, Yr: 1952, Emp: 35, $250,000

Prentice-Hall, Inc., Englewood Cliffs, N.J., 108, Tel: 201-WIndsor 7-1000, Yr: 1913, Emp: 2000, ▲2

Preservation Packaging, Inc., 1407 Chestnut Ave., Hillside, N.J., 89, 96, 97, Tel: 201-WAverly 6-0915, Yr: 1951, Emp: 23, $100,000

Presin Co., Inc., 2014 Broadway, Santa Monica, Calif., Importers, 9, 11, 17, 48, 73, Tel: EXbrook 3-9738, Yr: 1953, Emp: 10, ▲1, $500,000

Presray Corp., Main St., Pawling, N.Y., 96, 101, 103, Tel: 914-ULysses 5-9171, Yr: 1956, Emp: 45

Pressteel Co., 9705 E. Garvey, El Monte Calif., 90, Tel: 213-CUmberland 3-1225, Yr: 1940, Emp: 35, $300,000

Pressure Elements, Inc., 364 Glenwood Ave., East Orange, N.J., 4, 80, 83, Tel: 201-ORange 7-1221, Emp: 110, ▲1, $600,000

Prestole Corp., 1345 Miami St., Toledo 5, Ohio, 97, Tel: OXford 1-2465, Yr: 1948, Emp: 150, $700,000

Prestoseal Mfg. Corp., 37-27 33rd St., Long Island City 1, N.Y., 70, Tel: 212-STillwell 4-6832, Yr: 1947

Price Electric Corp., 316 E. Church St., Frederick, Md., 73, Tel: 301-MOnument 3-5141, Yr: 1920, Emp: 400, ▲3
See ad in class 73

Princeton Electronics Corp., 178 Alexander St., Princeton, N.J., 76, Tel: 609-WAlnut 1-2020, Yr: 1960, Emp: 25, ▲2

Printed Motors, Inc., 30 Rockefeller Plaza, New York 20, N.Y., 4, 9, 67, Tel: 516-ORiole 6-8000, Yr: 1951, Emp: 400, ▲23

Printloid, Inc., 44-05 10th St., Long Island City 1, N.Y., 96, 107, Tel: 212-EMpire 1-1770, Yr: 1936, Emp: 35

Private Tele-Communications, Inc., 1010 W. Diversey Pkwy., Chicago 14, Ill., 30, 43, 69, 79, 95, Tel: 312-477-0100, Yr: 1946, Emp: 30, $400,00

Pro-Chem, Inc., 1571 Merwin Ave., Cleveland 13, Ohio, 94, 109, Tel: PRospect 1-0188, Yr: 1952, Emp: 7

Probescope Co., Inc., 8 Sagamore Hill Dr., Port Washington, L.I., N.Y., 21, 23, 29, 34, 35, 36, 38, 40, Tel: 516-POrt Washington 7-8150, Yr: 1954, Emp: 25, ▲2, $300,000

Process & Instruments Corp., 15 Stone Ave., Brooklyn 33, N.Y., 5, 14, 40, 64, Tel: 212-GL 2-8380, Yr: 1945, Emp: 12, ▲3

Prodelin, Inc., 307 Bergen Ave., Kearny, N.J., 66, 91, Tel: 201-WYman 1-8600, Yr: 1945, ▲10

Product & Industrial Engineering Corp., 3806 S. Four Mile Run Dr., Arlington 6, Va., 26, 43, 68, 79, 88, 95, 108, 109, Tel: 703-JAckson 4-6565, Yr: 1955, Emp: 150, ▲5, $470,000

Production Services Corp., 81 Market Sq., Newington 11, Conn., 95, 96, 109, Tel: 203-MOhawk 6-3363, Yr: 1949, Emp: 47

Production Tool & Fixture Co., 37 W. Main St., Oyster Bay, L.I., N.Y., 111, Tel: 516-WAlnut 2-4334
See ad in class 111

Products Research Co., 2919 Empire Ave., Burbank, Calif., 94, Tel: 213-VIctoria 9-3992, Yr: 1945, Emp: 223, $765,000

Profile Electronics, Inc., 6 Bridge St., Concord, N.H., 51, Tel: 603-CApital 4-1232, Yr: 1957, Emp: 20, $60,000
See ad in class 51

Protection Controls, Inc., 7317 N. Lawndale Ave., Skokie, Ill., 4, 95, 96, Tel: 312-ORchard 4-7676, Yr: 1953, Emp: 15

Protection Equipment Co., Inc., 1025 Hill St., Hopkins, Minn., 4, 26, 30, 63, 68, 88, Tel: WEst 5-5548, Yr: 1947, Emp: 50, ▲2, $200,000

Proto Tool Co., Div. of Pendleton Tool Industries, Inc., 2209 S. Santa Fe Ave., Los Angeles 54, Calif., 111, Tel: 213-LUdlow 9-3311, Yr: 1907, Emp: 1500

Prototype Transformer Corp., 1 Henry St., Bloomfield, N.J., 51, 69, 84, Tel: 201-PIlgrim 8-8080, Yr: 1954, Emp: 43, ▲2, $378,000

Pry Welding & Mfg., Inc., Modena, Pa., 90, 96, Tel: DUdley 4-8321

Publication Engineering Consultants, 93 Nassau St., New York 38, N.Y., 95, 108, Tel: 212-WOrth 2-6835, Yr: 1951, Emp: 14, ▲1

Pulse Engineering, Inc., 560 Robert Ave., Santa Clara, Calif., 51, 59, 84, Tel: 408-CHerry 8-6040, Yr: 1955, Emp: 110, ▲2, $800,000

Pulse Techniques, Inc., 1411 Palisade Ave., West Englewood, N.J., 43, 59, Tel: TEaneck 7-2575, ▲1

Pure Carbon Co., Inc., 441 Hall Ave., Saint Marys, Pa., 97, Tel: TErminal 4-1573, Yr: 1906, Emp: 450, ▲2

Pye Corp. of America, 1149 Raritan Ave., Highland Park, N.J., 1, 2, 18, 20, 24, Tel: 201-COrtlandt 7-4930, Yr: 1954, Emp: 12, ▲2

Pye Telecommunications, Ltd., Newmarket Rd., Cambridge, England, 1, 2, 18, 19, 20, 23, 24, 37, Tel: TEVersham 3131, Yr: 1944, Emp: 1450, ▲4

Pylam Products Co., Inc., 95-10 218th St., Queens Village 29, N.Y., 94, Tel: HOllis 4-0860, Yr: 1917, Emp: 7, $200,000

Pyle-National Co., 1334 N. Kostner Ave., Chicago 24, Ill., 52, Tel: 312-DIckens 2-6300, Yr: 1897, Emp: 950, ▲3, $200,000

Pylon Co., Inc., 200 N. Main St., Attleboro, Mass., 52, 80, 81, 96, 97, Tel: 617-CAstle 2-3726, Yr: 1955, Emp: 12

Pylon Electronic Development Co., Ltd., 161 Clement St., LaSalle, Quebec, Canada, 45, 53, 69, 90, Tel: 514-DOminic 6-1510, Yr: 1955, Emp: 14, ▲2, $176,000

Pyramid Electric Co.: See General Instrument Corp., Capacitor Div.

Pyramid Instrument Corp., 630 Merrick Rd., Lynbrook, L.I., N.Y., 40, 41, 80, Tel: 516-LYnbrook 3-5600, Yr: 1948, Emp: 175, ▲2

Pyro-Electric, Inc., Muskin Rd., Walkerton, Ind., 7, 40, 54, 82, 109, Tel: 219-586-3144, Yr: 1957, Emp: 25, ▲2

Pyrocircuits Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 10, 48, 50, 55, 56, 74, 75, 80, 84, 92, 99, 101, 105, 109, Tel: 516-POrt Washington 7-3949, Yr: 1956, ▲1
See ad in class 50

Pyrofilm Resistor Co., Inc., U.S. Hwy. 46, Parsippany, N.J., 66, 74, Tel: DEerfield 4-8282, Yr: 1953, Emp: 25

Pyromet Co., 595 Industrial Rd., San Carlos, Calif., 109, Tel: LYtell 1-7161, Yr: 1950, Emp: 35, $350,000

Pyrometer Co. of America, Inc., 600 E. Lincoln Hwy., Penndel, Pa., 82, 91, 104, Tel: 215-HObart 4-1200, Yr: 1958, Emp: 50, ▲3, $50,000

Pyrometer Instrument Co., Inc., 92 Portland Ave., Bergenfield, N.J., 17, 40, 61, 82, Tel: 201-DUmont 4-5140, Yr: 1919, Emp: 27

Q

Q.I.C. Corp., 409 Main St., Greenport, N.Y., 44, 51, 84, Tel: GReenport 7-1481, Yr: 1946, Emp: 10, $60,000

Q-Line Mfg. Corp., 1562 61st St., Brooklyn 19, N.Y., 5, 44, 49, 54, 59, 90, 93, 96, 99, Tel: 212-BEnsonhurst 6-9320, Yr: 1953, Emp: 50, ▲2

Q-max Corp., Route 79, Marlboro, N.J., 44, 52, 91, 94, Tel: HOpkins 2-1880, Yr: 1933, Emp: 60, ▲3, $3,000,000

QVS, Inc., 20 N. 15th St., East Orange, N.J., 61, Tel: 201-ORange 3-3996, Yr: 1945, Emp: 50, ▲1

Quadriga Mfg. Co., 213 W. Grand Ave., Chicago 10, Ill., 96, Tel: 312-DElaware 7-0610, Yr: 1896, Emp: 75, $25,000

Qualitone Co., Inc., 4318 Upton Ave. S., Minneapolis 10, Minn., 5, 43, Yr: 1954, Emp: 60, $2,500,000

Quality Components, Inc., Saint Marys, Pa., 48, 55, 106, Tel: TErminal 4-2817, Yr: 1950, ▲1

Quality Electronics, Inc., 325 Church St., New York 13, N.Y., 26, 43, 88, Yr: 1955

Quality Hermetics, Ltd., 45 Hollinger Rd., Toronto 16, Ontario, Canada, 52, 75, 81, Tel: 416-PLymouth 7-2869, Yr: 1955, Emp: 20, ▲1

Quality Name Plate, Inc., P.O. Box 344, Ridgewood, N.J., 90, 97, Tel: 201-GIlbert 4-5392

Quam-Nichols Co., 234 E. Marquette Rd., Chicago 37, Ill., 79, 84, Tel: 312-HUdson 8-5800, Yr. 1930, Emp: 250

Quan-Tech Laboratories, Inc., 60 Parsippany Blvd., Boonton, N.J., 35, 41, 43, 61, 69, Tel: 201-DEerfield 4-8500, Yr: 1958, Emp: 50, ▲2, $500,000

Quartz Radiation Corp., 54 Summer Ave., Newark 4, N.J., 63, 88, Yr: 1958, Emp: 25, ▲2

Quartzite Processing, Inc., 6 Holyoke St., Malden 48, Mass., 55, 92, 100, 109, Tel: 617-DAvenport 2-1380, Yr: 1957, Emp: 11, $100,000
See ad in class 109

Queens Tool Mfg. Co., Inc., 15 Front St., Rockville Centre, L.I., N.Y., 96, 97, 99, Tel: 516-ROckville Centre 4-2010, Yr: 1946, Emp: 26

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Quietrole Co., 395 Saint John St., Spartanburg, S.C., 94, Tel: 803-582-8996, Yr: 1947

Quincy Speaker Mfg. Corp., 221-231 Oak St., Quincy, Ill., 79, 88, 90, 91, Tel: 217-BAldwin 3-2500, Yr: 1950, Emp: 150, ▲1, $2,500,000

Qutronic Transformer Corp., 525 Broadway, New York 12, N.Y., 43, 84, Tel: 212-WOrth 2-3639, Yr: 1950, Emp: 55, $321,000

R

RCA Communications, Inc., 66 Broad St., New York 4, N.Y., Tel: 212-HAnover 2-1811, Yr: 1929, Emp: 3300, ▲40

RCA Institutes, Inc., 350 W. 4th St., New York 14, N.Y., Educational Institution, Tel: 212-YUkon 9-2000, Yr: 1909, Emp: 250, ▲25

RCA Victor Co., Ltd., 1001 Lenoir St., Montreal, Quebec, Canada, 2, 13, 14, 17, 18, 19, 22, 23, 24, 25, 26, 27, 29, 32, 35, 37, 38, 39, 40, 41, 42, 44, 45, 46, 51, 59, 69, 70, 72, 76, 84, 85, 86, 87, 95, 109, Tel: 514-WEllington 3-7551, ▲74

RDF Corp., Hudson, N.H., 4, 6, 61, 82, Tel: TUxedo 2-5195, Yr: 1955, Emp: 80, ▲3, $750,000

R.E.C., Inc., P.O. Box 216, Pacific Palisades, Calif., Importers, 55, 104, Tel: 213-GLadstone 4-4043, Yr: 1959, Emp: 2, ▲1

REF Dynamics Corp., 393 Jericho Tnpke., Mineopla, L.I., N.Y., 96, 107, Tel: 516-Pioneer 2-8400, Yr: 1940, Emp: 200

R F Communications Associates, Inc., 13 Canal St., Rochester 8, N.Y., 1, 18, 20, 24, 29, 31, 95, Tel: BAker 5-8332, Yr: 1961, Emp: 8, ▲4

R F Products, Div. of Amphenol-Borg Electronics Corp., 33 E. Franklin St., Danbury, Conn., 44, 52, 56, 59, 62, 66, 73, 80, 91, Tel: 203-PIoneer 3-9272, Yr: 1919, Emp: 800, ▲6, $11,500,000
See ad in class 80

R.I. Metpro, Inc., 230 Toronto Ave., Providence 5, R.I., 97, 105, Tel: 401-STuart 1-0090, Yr: 1951, Emp: 18, $250,000

R-K Laboratories Co., 1021 Stuart Pl., Seaford, L.I., N.Y., Importers, 2, 4, 5, 9, 10, 11, 12, 18, 21, 23, 31, 32, 35, 37, 38, 39, 40, 41, 45, 69, 77, 80, 95, 109, Tel: 516-PYramid 9-6525, Yr: 1946, Emp: 12, ▲2, $18,000

RLC Electronics, Inc., 805 Mamaroneck Ave., Mamaroneck, N.Y., 1, 19, 26, 43, 44, 45, 59, 66, 88, Tel: 914-OWens 8-7440, Yr: 1959, Emp: 20, ▲3, $250,000
See ads in classes 45, 59

RMS Associates, Inc., 805 Mamaroneck Ave., Mamaroneck, N.Y., 2, 4, 8, 9, 10, 11, 13, 21, 32, 37, 43, 50, 95, 96, 109, Tel: 914-OWens 8-3913, Yr: 1945, Emp: 30, ▲4, $300,000

R.N.R. Metal Products, Inc., 986 Linwood St., Brooklyn 8, N.Y., 90, 93, Tel: 212-NI 9-8200, Yr: 1946, Emp: 35

RS Electronics Corp., 435 Portage Ave., P.O. Box 11368, Sta. A, Palo Alto, Calif., 1, 25, 34, 38, 43, 45, 53, 95, Tel: 415-DAvenport 1-1130, Yr: 1954, Emp: 59, ▲14, $925,000
See ad in class 43

Rabinow Engineering Co., Inc., 7212 New Hampshire Ave., Washington 12, D.C., 2, 4, 8, 9, 10, 14, 27, 44, 95, Tel: 202-JUniper 9-8040, Yr: 1954, Emp: 95, ▲8, $900,000

Racal Engineering, Ltd., Bracknell, Berkshire, England, 1, 3, 9, 11, 18, 20, 21, 24, 29, 31, 33, 95, 96, Tel: Bracknell 941, Yr: 1951, Emp: 550, ▲1, $1,800,000

Racon Electric Co., Inc., 1261 Broadway, New York 1, N.Y., 79, 84, Tel: 212-MUrray Hill 4-6258, Yr: 1922, Emp: 35, ▲1

Radar Design Corp., 104 Pickard Dr., Syracuse 11, N.Y., 37, 45, 59, 66, 88, 103, Tel: Glenview 4-4418, Yr: 1956, Emp: 20, ▲2, $400,000

Radar Engineers, 4719 Brooklyn St., Seattle 5, Wash., 5, 43, Tel: 206-LAkeview 5-5335

Radar Measurements Corp., 190 Duffy Ave., Hicksville, L.I., N.Y., 37, 45, 66, 88, Tel: 516-OVerbrook 1-5600, Yr: 1958, Emp: 27, ▲3
See ad in class 37

Radar Relay, Inc., 2322 Michigan Ave., Santa Monica, Calif., 4, 9, Tel: EXbrook 4-2230, Yr: 1954, Emp: 70, ▲1, $1,200,000

Radex Corp., 2076 Elston Ave., Chicago 14, Ill., 90, Tel: 312-ARmitage 6-6900, Yr: 1940, Emp: 35

Radiant Lamp Corp., 300 Jelliff Ave., Newark 8, N.J., 63, Tel: 201-BIgelow 3-6850, Yr: 1937, Emp: 200

Radiaphone Co., Inc., 600 E. Evergreen Ave., Monrovia, Calif., 3, 34, 90, Yr: 1949, Emp: 100, ▲1, $3,000,000

Radiation Applications, Inc., 36-40 37th St., Long Island City 1, N.Y., 22, 46, 94, 95, 101, 107, 109, Tel: 212-EMpire 1-2170, Yr: 1954, Emp: 75, ▲1, $50,000

Radiation at Stanford, 3180 Hanover St., Palo Alto, Calif., 19, 25, 29, 37, 41, 42, 43, 51, 69, 84, 109, Tel: 415-DAvenport 6-1640, Yr: 1953, Emp: 135, ▲25, $1,600,000

Radiation Counter Laboratories, Inc., 5121 W. Grove St., Skokie, Ill., 11, 22, 43, 56, 69, Tel: 312-YOrktown 6-8700, Yr: 1946, Emp: 135, ▲7, $2,700,000

Radiation Dynamics, Inc., 1800 Shames Dr., Westbury, L.I., N.Y., 22, 69, Tel: EDgewood 4-3990, Yr: 1958, Emp: 70, ▲6, $1,000,000

Radiation Engineering Laboratory, Inc., Main St., Maynard, Mass., 44, 66, 96, 109, Tel: 617-TWinoaks 7-2996, Yr: 1955, Emp: 40, ▲4, $1,000,000

Radiation, Inc., Melbourne, Fla., 1, 2, 9, 19, 33, 34, 43, 50, 72, Tel: 305-PArkway 3-1511, Yr: 1950, Emp: 2000, ▲107, $23,000,000

Radiation Instrument Development Laboratories, Inc., 61 E. North Ave., Northlake, Ill., 11, 22, 28, 43, 69, Yr: 1950, Emp: 100, ▲6, $2,000,000

Radiatronics, Inc., 14801 Califa St., Van Nuys, Calif., 1, 2, 19, 24, 25, 34, 43, 44, 51, 66, 69, 77, 84, 88, 90, 96, Yr: 1954, Emp: 45, ▲5, $600,000

Radio Activities, Inc., 119 Dawson Ave., Boonton, N.J., 44, 50, 59, 109, Tel: 201-DEerfield 4-5750, Yr: 1956, Emp: 5, ▲2

Radio Communication Co., 1020 E. Land Pl., Milwaukee 2, Wis., 20, 24, 30, 33, 34, 44, Tel: BRoadway 2-1161, Yr: 1950, Emp: 18, $185,000

Radio Cores, Inc., 9540 S. Tulley Ave., Oak Lawn, Ill., 55, Tel: 312-GArden 2-3353, Yr: 1947, Emp: 75, ▲2, $1,500,000
See ad in class 55

Radio Corp. of America, Astro-Electronics Div., P.O. Box 800, Princeton, N.J., 4, 27, 96, 109, Tel: 609-WAlnut 4-2700, Yr: 1958, Emp: 525, ▲2800 (overall RCA)

Radio Corp. of America, Defense Electronic Products, Front & Cooper Sts., Camden 2, N.J., 1, 2, 4, 5, 8, 9, 10, 11, 13, 14, 16, 17, 18, 19, 20, 23, 24, 25, 26, 27, 29, 30, 32, 33, 34, 38, 42, 43, 44, 46, 50, 55, 65, 68, 76, 77, 79, 85, 86, 87, 88, 109, Tel: 609-WOodlawn 3-8000, ▲872

Radio Corp. of America, RCA Electron Tube Div., 415 S. Fifth St., Harrison, N.J., 10, 17, 22, 23, 35, 38, 39, 40, 41, 46, 48, 50, 55, 63, 70, 71, 76, 85, 86, 87, 92, 99, 105, 109, Tel: 201-HUmboldt 5-3900, ▲180

Radio Corp. of America, Semiconductor & Materials Div., Section J-22-NN, Route 202, Somerville, N.J., 10, 48, 50, 55, 71, 76, 92, 109, Tel: 609-RAndolph 2-3200, ▲120
See ad on pages 54-55

Radio Development & Research Corp., 100 Pennsylvania Ave., Paterson 3, N.J., 2, 4, 18, 43, 47, 50, 51, 53, 67, 69, 71, 76, 77, 83, 84, 98, 99, Tel: 201-LAmbert 5-2200, Yr: 1890, Emp: 475, ▲16, $6,000,000

Radio Engineering Laboratories, Inc., 29-01 Borden Ave., Long Island City 1, N.Y., 3, 19, 24, 29, 35, 41, 42, 43, 51, 59, 66, 69, 71, 84, 88, 96, 98, Tel: 212-STillwell 6-2100, Yr: 1922, Emp: 700, ▲30, $1,000,000

Radio Engineering Products, Ltd., 325 Decelles St., Granby, Quebec, Canada, 7, 33, 62, 73, Tel: FRontenac 2-5821, Yr: 1948, Emp: 450, ▲12, $7,500,000

Radio Frequency Laboratories, Inc., Powerville Rd., Boonton Township, N.J., 2, 31, 33, 34, 40, 41, 43, 53, 69, 90, 93, 97, 99, Tel: 201-DEerfield 4-3100, Yr: 1922, Emp: 195, ▲4, $2,250,000

Radio Industries, Inc., 1307 Central Ave., Kansas City 2, Kans., 1, 2, 3, 4, 20, 29, 36, 41, 44, 69, Tel: FIuley 2-5286, Yr: 1949, Emp: 15, ▲2, $208,000

Radio Mfg. Engineers, Inc., 501 Walnut St., Washington, Ill., 3, 20, 29, 43, Tel: 427, Yr: 1933, Emp: 125, ▲3

Radio Materials Co., Div. of P. R. Mallory & Co., Inc., 4242 W. Bryn Mawr Ave., Chicago 46, Ill., 48, Tel: 312-IRving 8-3600, Yr: 1947, Emp: 1000, ▲20

Radio-Matic of America, Inc., 1550 Springfield Ave., Maplewood, N.J., 90, Tel: POplar 1-4800, Yr: 1945, Emp: 30

Radio Specialty Mfg. Co., 2023 S.E. 6th Ave., Portland 14, Ore., 20, 38, Tel: 503-BElmont 2-8123, Yr: 1932, Emp: 40, ▲1, $300,000

Radio Switch Corp., Route 79, Marlboro, N.J., 80, Tel: 201-HOpkins 2-6100, Yr: 1933, Emp: 12, ▲1, $213,104

Radio Television Products Corp., 304 N. Lake St., Grass Lake, Mich., 44, 51, 84, Tel: 2511, Yr: 1944, Emp: 180, $1,500,000

Radiometer, 72 Emdrupvej, Copenhagen, NV-2, Denmark, 6, 23, 28, 35, 38, 39, 40, Tel: SQ 5000, Yr: 1935, Emp: 400, ▲3

Radionics, Inc., 76 Cambridge St., Burlington, Mass., 38, 40, 41, 43, 77, 95, 109, Tel: 617-BRowning 2-1233, Yr: 1954, Emp: 15, ▲1, $100,000
See ads in classes 40, 77

Radiotronix Communications Laboratories, 745 Washington St., New York 14, N.Y., 19, ▲1

Rae Motor Corp., Highway 120 W., McHenry, Ill., 67, Tel: 815-EV 5-3500, Yr: 1945, Emp: 125, ▲1

RaeCo, Inc., 1351 Deloss, Indianapolis 3, Ind., 84, Tel: 317-MElrose 8-6443, Yr: 1953, Emp: 25, $175,000

Railroad Electronic Laboratories of Omaha, Inc., 6614 Blondo St., Omaha 4, Nebr., 1, 3, 4, 5, 11, 20, 24, 26, 29, 30, 32, 42, 43, 51, 53, 59, 69, 79, 84, 95, 109, Tel: 556-1513, Yr: 1952, Emp: 7, ▲2, $20,000

Railway Communications, Inc., 9351 E. 59th St., Raytown 33, Mo., 5, 35, 38, 51, 59, 84, Tel: FLeming 3-2100, Yr: 1946, Emp: 20, ▲2

Rainier Co., Inc., 86 Magnolia Ave., Westbury, L.I., N.Y., 2, 8, 10, 12, 18, 24, 26, 30, 35, 38, 40, 41, 43, 44, 53, 61, 69, 77, 88, 96, 97, 109, Tel: 516-EDgewood 4-6222, Yr: 1958, Emp: 100, $1,500,000

Ram Chemicals, Inc., 210 E. Alondra Blvd., P.O. Box 192 Gardena, Calif., 94, 101, Tel: FAculty 1-0710, Yr: 1951, Emp: 22, ▲1, $28,000

Ram Electronics, Inc., 600 Industrial Ave., Paramus, N.J., 43, 51, 57, 59, 69, 84, 91, Tel: 201-COlfax 1-6900, Yr: 1948, Emp: 50, ▲2, $700,000

Ram Meter, Inc., 1100 Hilton Rd., Ferndale, Detroit 20, Mich., 4, 11, 35, 37, 40, 41, 51, 73, 96, 97, Tel: LIncoln 7-1000, Yr: 1936, Emp: 50, ▲2, $500,000

Ramage & Miller, Inc., 150 S. Second St., Richmond, Calif., 1, 24, 37, 38, 43, 69, Tel: BEacon 4-7061, Yr: 1953, Emp: 21, ▲3, $100,000

Ramapo Instrument Co., Inc., 8 First St., Bloomingdale, N.J., 4, 40, 43, 53, 61, 83, Tel: TErminal 8-4586, Yr: 1955, Emp: 8, $180,000

Rampe Mfg. Co., 14915 Woodworth Ave., Cleveland 10, Ohio, 40, 97, Tel: 216-MUlberry 1-2800

Ramyr Mfg. Co., 1779 N. Main St., Los Angeles 31, Calif., 69, 71, 84, 99, Tel: 213-CApitol 3-1071, Yr: 1948, Emp: 23, $750,000

Randall Mfg. Co., Inc., 801 Edgewater Rd., New York 59, N.Y., 98, 99, Tel: DAyton 3-3900, Yr: 1947, Emp: 35

Rangertone, Inc., 73 Winthrop St., Newark 4, N.J., 27, 35, 43, 53, 70, 95, 109, Tel: 201-HUmboldt 5-2550, Yr: 1932, Emp: 22, ▲1, $73,500

Ransom Research, Inc., 374 W. Eighth St., P.O. Box 269, San Pedro, Calif., 4, 8, 9, 10, 11, 22, 50, 69, Tel: TErminal 2-1128, Yr: 1955, Emp: 55, ▲2, $500,000

Rantec Corp., 23999 Ventura Blvd., Calabasas, Calif., 1, 37, 43, 44, 45, 59, 66, 80, 84, 88, Tel: DIamond 7-5446, Yr: 1956, Emp: 130, ▲25, $2,000,000

Rapid Electric Co., Inc., 2881 Middletown Rd., New York 61, N.Y., 69, 71, Tel: 212-TAlmadge 8-2200, Yr: 1946, Emp: 186, ▲1
See ad in class 69

Rapid Electroplating Process, Inc., 1414 S. Wabash Ave., Chicago 5, Ill., 99, Tel: 312-WAbash 2-0952, Yr: 1928, Emp: 18

Rapid Specialties Co., 327 W. Huron St., Chicago 10, Ill., 62, Tel: 312-DElaware 7-1440, Yr: 1945, Emp: 5
See ad in class 62

Ratelco, Inc., 820 Minor Ave. N., Seattle 9, Wash., 26, 43, 44, 53, 69, 84, Tel: 206-MAin 4-7770, Yr: 1945, Emp: 17, ▲1, $258,000

Rattray & Co. (George): See Instruments For Industry, Inc.

Rauland-Borg Corp., 3535 W. Addison, Chicago 18, Ill., 1, 26, 30, 69, 88, 90, 93, Tel: 312-COrnelia 7-1300, Yr: 1930, Emp: 300, ▲4

Rauland Corp., 4245 N. Knox Ave., Chicago 41, Ill., 76, 85, 86, 109, Tel: 312-MUlberry 5-5000, Yr: 1929, Emp: 850, ▲20

Raway Bearing Co., Inc., 141-5 Chrystie St., New York 2, N.Y., 97, Tel: 212-WAlker 5-8150, Yr: 1946, Emp: 6, $100,000
See ad in class 97

Rawco Instruments, Inc., P.O. Box 7393, Fort Worth 11, Texas, 4, 10, 50, 53, Tel: 817-EDison 5-1228, Yr: 1957, Emp: 25, ▲2, $100,000

Rawson Electrical Instrument Co., Inc., 118 Potter St., Cambridge 42, Mass., 35, 40, 41, 61, 109, Tel: 617-KIrkland 7-4041, Yr: 1918, ▲1, $500,000
See ad in class 61

Ray, Daisley Co., Inc., 585 W. Hoffman Ave., Lindenhurst, L.I. N.Y., 2, 16, 32, 36, 54, 93, 96, 98, 103, 109, 111, Tel: 516-TUrner 4-5520, Yr: 1855, Emp: 48

Ray Proof Corp., 843 Canal St., Stamford, Conn., 36, 103, Tel: 203-DAvis 5-2201, Yr: 1930, Emp: 45

Raybestos-Manhattan, Inc., Manheim, Pa., 94, 101, 107, 112, Tel: MOhawk 5-2211, ▲1

Raychem Corp., Oakside at Northside, Redwood City, Calif., 91, 105, 107, 112, Tel: 415-EMerson 9-3376, Yr: 1957, Emp: 300, ▲2, $3,500,000

Rayline, Inc., 161 First St., Mineola, L.I., N.Y., 110, Tel: 516-Pioneer 2-5353, Yr: 1956

Raymond Engineering Laboratory, Inc., Smith St., Middletown, Conn., 27, 80, Tel: 203-DIamond 7-5611, Yr: 1938, Emp: 250, ▲3

Raypar, Inc., 7800 W. Addison St., Chicago 34, Ill., 20, 43, 51, 53, 62, 69, 78, 84, 91, Tel: 312-TUxedo 9-3700, Yr: 1945, Emp: 150, ▲7, $1,300,000

Raytheon Co., Yr: 1923, Emp: 40,000, ▲950, $540,000,000

Raytheon Co., Commercial Apparatus & Systems Div., 225 Crescent St., Waltham 54, Mass., 4, 5, 18, 20, 25, 37, 38, 40, 41, 43, 44, 53, 69, 72, 83, 98, 99, 111, Tel: 617-TWinbrook 9-8040, ▲5

Raytheon Co., Communications & Data Processing Operation, 1415 Boston-Providence Tnpke., Norwood, Mass., 9, 19, 24, 44, 66, 109, Tel: 617-NOrwood 7-6700, ▲5

Raytheon Co., Government Marketing, Spring Rd., Lexington 73, Mass., 2, 9, 17, 18, 25, 34, 44, 109, Tel: 617-VOlunteer 2-6600

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Raytheon Co., Industrial Components Div., 55 Chapel St., Newton 58, Mass., 35, 38, 50, 57, 59, 60, 62, 73, 80, 83, 85, 86, 87, 97, 100, Tel: 617-BIgelow 4-7500, ▲35

Raytheon Co., Microwave & Power Tube Div., Spencer Laboratory, Burlington, Mass., 17, 43, 45, 51, 55, 66, 80, 84, 86, 92, 101, Tel: 617-BRowning 2-9600, ▲53

Raytheon Co., Semiconductor Div., 150 California St., Newton 58, Mass., 50, 71, 76, 80, Tel: 617-DEcatur 2-7177, ▲31

Raytheon Co., Special Microwave Devices Operation, Waltham Industrial Park, Waltham 54, Mass., 59, 66, 92, Tel: 617-TWinbrook 9-8080, ▲5

Rea Magnet Wire Co., Inc., Subsid. of Aluminum Co. of America, 3610 E. Pontiac St., Fort Wayne 4, Ind., 91, 99, Tel: EAstbrook 8022, Yr: 1933, Emp: 600

Recora Co., Inc., Powis Rd., Box 68, Saint Charles, Ill., 4, 80, Tel: JUno 4-3000

Recoton Corp., 52-35 Barnett Ave., Long Island City 4, N.Y., 68, Tel: 212-DEfender 5-3344, Yr: 1935, Emp: 100, ▲2

Rectico, Inc., 20 Factory St., Cedar Grove, N.J., 69, 71, 96, Tel: 201-CEnter 9-6464, Yr: 1955, Emp: 14

Red Devil Mfg. Co., 1412 N. Ogden Ave., Chicago 10, Ill., 97, Tel: 312-MIchigan 2-5161, Yr: 1945, Emp: 12

Red Point Corp., 105 W. Spazier Ave., Burbank, Calif., 40, 61, 98, 99, Tel: THornwall 2-4895, Yr: 1944, Emp: 12, $200,000

Redford Corp., 262 Saratoga Rd., Scotia 2, N.Y., 4, 9, 11, 40, 96, 99, 109, Tel: 518-EXpress 9-1124, Yr: 1955, Emp: 15, ▲1

Redifon, Ltd., Broomhill Rd., London S.W.18, England, 1, 2, 4, 8, 9, 18, 20, 24, 26, 29, 33, 42, 98, Yr: 1932, Emp: 2000, ▲1, $2,000,000

Redman Electronics Corp., 92 Prospect St., Thompsonville, Conn., 51, 57, 84, 96, Tel: 203-RIverview 5-8024, Yr: 1950, Emp: 12, ▲1

Redmond-Fairchild, Inc., 610 S. Arroyo Pkwy., Pasadena, Calif., 10, 67, Tel: MUrray 1-6721, Yr: 1951, Emp: 45, $500,000

Reed Instrument Bearing Co., Div. of SKF Industries, 4241 Redwood Ave., Los Angeles 66, Calif., 97, Tel: 213-UPton 0-5814, Yr: 1957, Emp: 175

Reed & Prince Mfg. Co., 1 Duncan Ave., Worcester 1, Mass., 97, Tel: 617-PLeasant 3-2934, Yr: 1886, Emp: 700

Reed & Reese, Inc., 717 N. Lake Ave., Pasadena, Calif., 5, 43, 44, 50, 51, 53, 57, 59, 62, 66, 67, 69, 74, 77, 83, 84, 96, 109, Tel: 213-SYcamore 4-1188, Yr: 1952, Emp: 200, ▲3, $2,000,000

Reeve Electronics, Inc., 609 W. Lake St., Chicago 6, Ill., 98, 99, Tel: 312-RAndolph 6-9755, Yr: 1945, Emp: 35, ▲3

Reeves-Hoffman, Div. of Dynamics Corp. of America, 145 Cherry St., Carlisle, Pa., 31, 35, 38, 56, 59, 67, Tel: 717-CHapel 3-5929, Yr: 1947, Emp: 350, ▲5

See ad in class 56

Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, East Gate Blvd., Garden City, L.I., N.Y., 2, 4, 8, 9, 10, 25, 35, 40, 43, 66, 67, 77, 97, 109, Tel: 516-PIoneer 6-8100, Yr: 1946, Emp: 1200, ▲50, $10,000,000

Reeves Instrument Corp., Farmingdale Div., Lakewood Rd., Farmingdale, N.J., 3, 5, 20, 24, 29, 33, 42, 51, 59, 69, 84, 88, Tel: 201-WEbster 8-6671, ▲1

Reeves Soundcraft Corp., Great Pasture Rd., Danbury, Conn., 70, Tel: 203-PIoneer 3-7601, Yr: 1946, Emp: 300, ▲5

Reflectone Electronics, Inc., Subsid. of Universal Match Corp., W. Main St., Stamford, Conn., 2, 13, 37, 67, 69, 77, 96, 109, Tel: 203-DAvis 5-2251, Yr: 1940, Emp: 400, $5,000,000

Rego Insulated Wire Corp., 830 Monroe, Hoboken, N.J., 44, 52, 84, Tel: 201-OL 6-2020

Reichhold Chemicals, Inc., 525 N. Broadway, White Plains, N.Y., 94, 101, 107, Tel: 914-WHite Plains 8-6200, Yr: 1925, ▲1

Reid Brothers Co., Inc., 140 Elliott St., Beverly, Mass., 99, Tel: 617-WAlker 2-0811, Yr: 1900, Emp: 145

Reiter Co. (F.), 3340 Bonnie Hill Dr., Hollywood 28, Calif., 70, Tel: 213-HOllywood 2-2913, Yr: 1946, Emp: 3

Rek-O-Kut Co., Inc., 38-19 108th St., Corona 68, N.Y., 13, 27, 30, 32, 43, 68, 79, 89, Tel: 212-DEfender 5-3500, Yr: 1937, Emp: 125, ▲2

Relays, Inc., 162 W. 83rd St., New York 24, N.Y., 73, Tel: 212-TRafalgar 3-4500, Yr: 1952, Emp: 26, ▲1, $160,000

Relcoil Products Corp., Bradley Field, Windsor Locks, Conn.

Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio, 53, 69, Tel: REdwood 2-7000, Yr: 1903, Emp: 2500, ▲3

Remanco, Inc., 1805 Colorado Ave., Santa Monica, Calif., 1, 2, 21, 25, 31, 34, 37, 40, 43, Tel: GLadstone 1-1341, Yr: 1957, Emp: 50, ▲4

Remington Rand Univac, Div. of Sperry Rand Corp., 2750 W. 7th St., Saint Paul 16, Minn., 4, 7, 8, 9, 10, 11, 18, 50, 88, Tel: MIdway 8-2451, Yr: 1946, Emp: 5000, ▲152, $50,000,000

Remington Rand Univac, Div. of Sperry Rand Corp., 315 Park Ave. S., New York 10, N.Y., 8, 9, 10, 43, Tel: 212-SPring 7-8000, Yr: 1927, Emp: 5000, ▲300

Remler Co., 2101 Bryant St., San Francisco 10, Calif., 13, 18, 30, 43, 44, 52, 65, 78, 79, 89, 90, 93, 96, 97, 105, 106, Tel: 415-VAlencia 4-3435, Yr: 1918, Emp: 50, ▲3, $500,000

Renbrandt, Inc., 6 Parmelee St., Boston 18, Mass., 77, 97, Tel: 617-HIghlands 5-8910, Yr: 1951, Emp: 25

Renco Electronics, Inc., 240-1 Old Country Rd., Hicksville, L.I., N.Y., 44, 51, 64, 74, 84, Tel: 516-WElls 8-0022, Yr: 1955, Emp: 21, ▲1, $80,000

Reon Resistor Corp., 155 Saw Mill River Rd., Yonkers, N.Y., 74, Tel: 914-YOnkers 5-9850, Yr: 1952, Emp: 50, ▲1, $750,000

Republic Aviation Corp., Farmingdale, L.I., N.Y., 2, 41, 44, 66, 96, 99, 107, 109, Tel: 516-CHapel 9-1100, Yr: 1931, Emp: 14,536, ▲103

Republic Electronic Industries Corp., 111 Gazza Blvd., Farmingdale, L.I., N.Y., 1, 18, 23, 25, 30, 35, 38, 40, Tel: 516-CHapel 9-1414, Yr: 1951, Emp: 100, ▲6, $800,000

Republic Foil, Inc., 55 Triangle St., Danbury, Conn., 104, Tel: 203-PIoneer 3-2731, Yr: 1945, Emp: 300

Republic Lens Co., Inc., 31 E. 169th St., New York 52, N.Y., 17, 56, 66, 102, Tel: 212-CYpress 3-2790, Yr: 1931, Emp: 12

See ad in class 17

Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio, 90, 91, 96, 97, 112, Tel: PRospect 1-1400, Yr: 1930, Emp: 50,000, ▲3

Rescon Electronics Corp., 151 Bear Hill Rd., Waltham 54, Mass., 4, 8, 9, 10, 11, 17, 22, 25, 40, 41, 50, 82, 94, 95, 109, Tel: 617-TWinbrook 9-8600, Yr: 1956, Emp: 33, ▲8, $300,000

Resdel Corp., P.O. Box 217, Rio Grande, N.J., 106, 107, 112, Tel: 609-WIldwood 2-5643, Yr: 1947, Emp: 13

Resdel Engineering Corp., 330 S. Fair Oaks Ave., Pasadena, Calif., 1, 25, 26, 34, 43, 53, 66, Tel: 213-MUrray 1-7689, Yr: 1951, Emp: 80, ▲10, $1,200,000

Rese Engineering, Inc., A & Courtland Sts., Philadelphia 20, Pa., 4, 10, 40, 41, 43, 50, 69, 96, Tel: 215-GLadstone 5-9000, Yr: 1953, Emp: 93, ▲10, $1,000,000

Research Development Manufacture, Inc., 429 E. Collom St., Philadelphia 44, Pa., 97, Tel: 215-GLadstone 5-9700, Yr: 1951, Emp: 65

Research, Inc., P.O. Box 6164, Minneapolis 24, Minn., 4, 9, 28, 36, 90, 98, 109, Tel: WEst 5-2156, Yr: 1951, Emp: 140, ▲2, $1,500,000

Research Industrial Laboratory of Electronics, Roslyn, Pa., 4, 39, 40, 41, 43, 69, 73, 99, Tel: TUrner 4-8098, Yr: 1950, Emp: 9, ▲1

Resinite Corp., 6980 N. Central Park Ave., Chicago 45, Ill., 105, 107, 112, Yr: 1947, Emp: 45, ▲1

Resistance Products Co., 914 S. 13th St., Harrisburg, Pa., 74, Tel: 717-CEdar 6-5081, Yr: 1947, Emp: 312, ▲2, $1,838,481

Resistoflex Corp., Roseland, N.J., 107, 112, Tel: 201-CApital 6-7700, Yr: 1936, Emp: 612

Resistors, Inc., 5226 W. 26th St., Chicago 50, Ill., 74, Tel: 312-OLympic 2-7555, Yr: 1945, Emp: 50, $265,000

Resistron, Inc., 2082 N. Lincoln Ave., Altadena, Calif., 74, Tel: SYcamore 8-9612, Yr: 1958, Emp: 25, ▲1

Resitron Laboratories, Inc., 2908 Nebraska Ave., Santa Monica, Calif., 48, 49, 75, 80, 86, 87, Tel: EXbrook 3-5217, Yr: 1953, Emp: 30, ▲2, $300,000

Reuter-Stokes Electronic Components, Inc., 2149 Hamilton Ave., Cleveland 14, Ohio, 11, 17, 22, 52, 66, 91, 95, 96, 109, Tel: 216-TOwer 1-7620, Yr: 1956, Emp: 20

Revcor, Inc., 251 Edwards St., Carpentersville, Ill., 47, Tel: 312-HAzel 6-4818, Yr: 1945, Emp: 110

Revere Copper & Brass, Inc., 230 Park Ave., New York 17, N.Y., 91, 104, 112, Tel: 212-YUkon 6-3100, Yr: 1801, Emp: 8100

Revere Corp. of America, N. Colony Rd., Wallingford, Conn., 2, 4, 40, 82, 83, 91, Tel: 203-COlony 9-7701, Yr: 1941, Emp: 400, ▲5, $2,000,000

Rex Rheostat Co., 149 Babylon Tnpke., Roosevelt, L.I., N.Y., 74, 99, Tel: 516-FReeport 9-1030, Yr: 1939, Emp: 4, $61,000

Reynolds Industries, Inc., 2105 Colorado Ave., Santa Monica, Calif., 52, 106, Tel: EXbrook 3-6783, Yr: 1948, Emp: 120, $1,500,000

Reynolds Wire Div., National-Standard Co., 809 E. Second St., Dixon, Ill., 91, 103, Tel: ATlantic 3-1411, Yr: 1908, Emp: 2500, $200,000

Rheem Mfg. Co., Rheem Califone Corp. (Subsid.), 1020 N. La Brea Ave., Hollywood 38, Calif., 13, 26, 27, 30, 68, Tel: 213-HOllywood 2-2353, Yr: 1947, Emp: 150, ▲5

Rheem Mfg. Co., Rheem Electronics Div., 5200 W. 104th St., Los Angeles 45, Calif., 4, 8, 9, 10, 11, 13, 27, 34, 41, 61, 63, 69, 77, 83, 95, Tel: 213-SPring 6-1800, Yr: 1926, Emp: 8000, $6,000,000

Rheem Mfg. Co., Rheem Semiconductor Corp. (Subsid.), 350 Ellis St., Mountain View, Calif., 50, 76, Tel: 415-YOrkshire 8-9211, Yr: 1959, Emp: 725, ▲35

Rho Engineering Co., 2242 Sepulveda Blvd., Los Angeles 64, Calif., 50, 53, 69, 74, Tel: 213-BRadshaw 2-1163, Yr: 1951, Emp: 35, ▲1

Rhodes, Inc. (M. H.), 30 Bartholomew Ave., Hartford 6, Conn., 4, 73, 80, Tel: 203-JAckson 2-4265, Yr: 1930, Emp: 200, ▲2

Rich Electronics, Inc., 212 N.W. 8th Ave., Miami 36, Fla., 16, 18, 34, 44, 77, 95, 96, 109, Tel: FRanklin 7-3639, Yr: 1948, Emp: 15, ▲1, $204,000

Richards Co., Inc. (Arklay S.), Newton Highlands 61, Mass., 61, 82, 83, 91, 101, 112, Tel: 617-LAsell 7-4385, Yr: 1938

Richardson-Allen Corp., Subsid. of Standard Kollsman Industries, Inc., 116-15 15th Ave., College Point 56, N.Y., 41, 53, 69, 84, Tel: 212-FLUshing 3-2828, Yr: 1940, Emp: 100

Richardson Co., 2749 Lake St., Melrose Park, Ill., 96, 97, 101, 107, 112, Tel: 312-MAnsfield 6-8900, Yr: 1858, Emp: 2000

Richco Plastic Co., Dept. I.R., 3722 W. North Ave., Chicago 47, Ill., 97, 107, 112, Tel: 312-BElmont 5-2646, Yr: 1955, Emp: 12

See ad in class 97

Richfield Coined Products Co., 720 Broad St., Clifton, N.J., 75, 105, Tel: 201-GRegory 3-4381, Yr: 1945, Emp: 54, $750,000

Richmont, Inc., 922 S. Myrtle Ave., Monrovia, Calif., 41, 111, Tel: ELliot 9-2555

Rider Publisher, Inc. (John F.), Dept. IRE-D, 116 W. 14th St., New York 11, N.Y., 108, Tel: 212-OREgon 5-5020, Yr: 1928, Emp: 75, ▲2

See ad in class 108

Riemer Co., Inc. (David), 601 W. 26th St., New York 1, N.Y., 44, 48, 49, 52, 60, 61, 62, 65, 68, 70, 80, 84, Tel: 212-ALgonquin 5-5890, Yr: 1914

Riester & Thesmacher Co., 1526 W. 25th St., Cleveland 13, Ohio, 90, 93, 96, Tel: 216-CHerry 1-0154, Yr: 1900, Emp: 150, $750,000

Rimak Electronics, Inc., 10929 Vanowen St., North Hollywood, Calif., 7, 36, 50, 51, 52, 55, 69, 75, 78, 81, 90, 93, 96, 97, 99, 103, 105, 109, Tel: 213-TRiangle 7-5526, Yr: 1950, Emp: 100, ▲2, $1,200,000

Ripley Co., Inc., 1 Factory St., P.O. Box 31, Middletown, Conn., 4, 47, Tel: 203-DIamond 6-6678, Yr: 1936, Emp: 70, ▲1, $1,700,000

Rittenhouse Co., Inc., 68 East St., Honeoye Falls, N.Y., 30, ▲1

Riverbank Laboratories, Dept. of Engineering, P.O. Box 65, Geneva, Ill., 16, 31, 35, 53, 59, 69, 96, 109, Tel: 312-CEnter 2-2207, Yr: 1927, Emp: 13, ▲1

Rixon Electronics, Inc., 2121 Industrial Pkwy., Silver Spring, Md., 2, 4, 6, 9, 11, 12, 17, 18, 21, 24, 25, 26, 29, 31, 33, 34, 35, 36, 38, 40, 41, 42, 43, 44, 45, 48, 49, 50, 51, 53, 57, 59, 69, 73, 80, 84, 90, 93, 96, 109, Tel: MAyfair 2-2121, Yr: 1951, Emp: 164, ▲15, $1,800,000

Roanwell Corp., 189 Varick St., New York 14, N.Y., 30, 65, 79, Tel: 212-YUkon 9-1090, Yr: 1949, Emp: 375

Roband Electronics, Ltd., Beulah Works, Beulah Rd., Thornton Heath, Surrey, England, 53, 69, Yr: 1956, Emp: 50

Robbins Aviation, Inc., 2350 E. 38th St., Los Angeles 58, Calif., 99, Tel: 213-LUdlow 9-5221

Roberts Co., Inc. (R. O.), 8338 S. Allport Ave., Santa Fe Springs, Calif., 37, 44, 45, 54, 59, 66, 90, 109, Tel: 213-RAymond 3-4595, Yr: 1957, Emp: 90, ▲2, $1,000,000

Roberts Electronics, Inc., 5920 Bowcroft St., Los Angeles 16, Calif., 27, Yr: 1957, Emp: 50

Roberts Mfg. Co., 426 E. Shaffer St., Cleburne, Texas, 1, 26, 30, 43, Tel: MIlton 5-6681, Yr: 1948, Emp: 100, ▲1, $550,000

Robertshaw-Fulton Controls Co., Acro Div., 2027 E. Main St., Columbus 16, Ohio, 67, 73, 80, Tel: CLearbrook 3-8531, Yr: 1940, Emp: 500

Robertshaw-Fulton Controls Co., Fulton Sylphon Div., P.O. Box 400, Knoxville 1, Tenn., 4, Tel: 615-524-1641, Yr: 1904, Emp: 1200

Robertson Electric Co., Inc., 124 S. Elmwood Ave., Buffalo 2, N.Y., 91, Tel: 716-TL 6-3433, Yr: 1895, Emp: 150, ▲1

Robins Industries Corp., 36-27 Prince St., Flushing 54, N.Y., 14, 35, 40, 52, 61, 62, 70, 91, 93, 97, 99, 101, Tel: 212-HIckory 5-7200, Yr: 1954, Emp: 35, ▲1

Robinson Machine Co., Inc., 286 Preakness Ave., Paterson 2, N.J., 99, Tel: 201-ARmory 4-8405, Yr: 1948, Emp: 14

Robinson Machine Works, Inc., 802 E. Eighth St., New Albany, Ind., 52, 78, 97, Tel: WHitehall 5-0211, Yr: 1942, Emp: 21, $35,000

Robinson Recording Laboratories, 35 S. Ninth St., Philadelphia 7, Pa., 32, Tel: 215-WA 2-6800, Yr: 1930, Emp: 8, ▲1

Robinson Vibrashock Div., Robinson Technical Products, Inc., Teterboro Air Terminal, Teterboro, N.J., 89, Tel: 201-ATlas 8-2500, Yr: 1942, Emp: 200, ▲5

Robotomics Enterprises, Inc., 2422 E. Indian School Rd., Phoenix 16, Ariz., 4, 9, 10, 11, 63, Tel: 602-AM 6-8682, Yr: 1960, Emp: 20, ▲1, $20,000

Rochar Electronique, 51 rue Racine, Montrouge, Seine, France, 4, 8, 9, 10, 11, 31, 43, 73, Tel: Alesia 0003, Yr: 1946, Emp: 130, ▲10

Rochester Instrument Systems, Inc., 275 N. Union St., Rochester, N.Y., 22, 43, 63, 69, Tel: 716-HAmilton 6-7040, Yr: 1961, Emp: 15, ▲2

Rockbestos Wire & Cable Co., Div. of Cerro Corp., Nicoll & Canner Sts., New Haven 4, Conn., 91, Tel: 203-STate 7-1141, Yr: 1920, Emp: 275

Rocker Solenoid Co., 140 N. Marine Ave., Wilmington, Calif., 44, 51, 80, 96, Tel: 213-TErminal 5-8281, Yr: 1956, Emp: 35, $853,042

Rockland Insulated Wire & Cable Co., Inc., 36 Main St., Haverstraw, N.Y., 91, Tel: 914-HAverstraw 9-3103, Yr: 1956

Rockwell Products Corp., 146 Central Ave., Newark 3, N.J., 97, Tel: 201-MArket 3-7650, Yr: 1955

Rodale Electronics, Inc., 562 Grand Blvd., Westbury, L.I., N.Y., 2, 4, 6, 9, 21, 31, 37, 38, 41, 43, 50, 61, 69, 77, 91, 96, 108, 109, Yr: 1959, Emp: 60, ▲3, $500,000

Rodale Mfg. Co., Inc., Sixth & Minor Sts., Emmaus, Pa., 41, 52, 60, 78, 80, 92, 97, Tel: WOodring 5-9071, Yr: 1930, Emp: 400

Rodé, Inc., 5 Green St., Woburn, Mass., 66, 96, Tel: 617-WElls 3-3580, Yr: 1946, Emp: 54

See ad in class 66

Rodney Associates, Inc., 855 Sixth Ave., New York 1, N.Y., 108, Tel: 212-WIsconsin 7-5716, Yr: 1955, Emp: 130, ▲10

Rodney Metals, Inc., 1357 Rodney French Blvd., New Bedford, Mass., 104, Yr: 1937, Emp: 300, $500,000

Roflan Co., Route 1 & Camp Meeting Rd., Topsfield, Mass., 65, 79, 80, Yr: 1949, Emp: 75, ▲1

Rogan Brothers, Inc., 8009 N. Monticello, Skokie, Ill., 97, 106, Tel: 312-ORchard 5-1233, Yr: 1937, Emp: 25, $300,000

See ad in class 106

Rogers Corp., Rogers, Conn., 50, 94, 96, 97, 101, 103, 107, Tel: PRescott 4-9605, Yr: 1832, Emp: 400, $500,000

Rogers Electronic Corp., 43-49 Bleecker St., New York 12, N.Y., 43, 51, 53, 59, 69, 84, 96, Tel: 212-GRamercy 7-8820, Yr: 1939, Emp: 25, ▲1, $250,000

Rogers Mfg. Co. (Dayton), 2824-13th Ave. S., Minneapolis 7, Minn., 4, 9, 50, 90, 93, 96, 99, 106, Tel: TAylor 5-2471

Rohde & Schwarz, P.O. Box 275, 111 Lexington Ave., Passaic, N.J., Importers, 6, 12, 31, 35, 37, 38, 39, 41, 43, 44, 45, 66, Tel: 201-PRescott 3-8010, Yr: 1959, Emp: 8, ▲2

See ad in class 38

Rohn Mfg. Co., P.O. Box 2000, Peoria, Ill., 44, 112, Tel: 309-637-8416, Yr: 1953, Emp: 75

See ad in class 44

Rohr Aircraft Corp., Antenna Systems Div., Foot of H St., Chula Vista, Calif., 25, 44, 59, 66, Tel: GA 2-7111, Yr: 1940, Emp: 11,800

Rola Co., Div. of Muter Co., 2530 Superior Ave., Cleveland 14, Ohio, 51, 79, 84, Tel: PRospect 1-4242, Yr: 1929, Emp: 525, ▲5, $8,000,000

Rollan Electric Co., 8233 S. Princeton Ave., Chicago 20, Ill., 43, 44, 51, 84, 111, Tel: RAdcliff 3-4000, Yr: 1946, Emp: 180, ▲1, $2,000,000

Roller Mike, Inc., 110 Wall St., New York 5, N.Y., 4, 41, 95, Tel: 212-WHitehall 3-5792, Yr: 1935, Emp: 4, $60,000

Romac Products Co., 48-01 25th Ave., Long Island City 3, N.Y., 75, 96, 105, Tel: RAvenswood 8-2631, Yr: 1948

Romar Plastics, Inc., 1311 E. Main St., Saint Charles, Ill., 106, Tel: 312-JUno 4-6571, Yr: 1953, Emp: 100

Rome Cable Div., Aluminum Co. of America, 421 Ridge St., Rome, N.Y., 91, 112, Tel: FF 7-3000, Yr: 1936, Emp: 1600, ▲2

Rondo of America, Inc., 100 Sanford St., Hamden 14, Conn., 97, Tel: 203-CHestnut 8-2127, Yr: 1948

Ronson Metals Corp., Cerium Metals & Alloys Div., 45-65 Manufacturers Pl., Newark 5, N.J., 104, 105, Tel: 201-MArket 4-1380, Yr: 1915

Rosan, Inc., 2901 West Coast Hwy., Newport Beach, Calif., 97, Tel: 714-LIberty 8-5533, Yr: 1942, Emp: 450

Rosemount Engineering Co., 4900 W. 78th St., Minneapolis 24, Minn., 2, 6, 40, 43, 50, 53, 69, 71, 82, 83, 89, 109, Tel: WAlnut 7-7711, Yr: 1956, Emp: 170, ▲2

Rosenberg Bros. & Co., 102 Landing Ave., Smithtown, N.Y., 96, 107, 111, Tel: 516-ANdrew 5-2200, Yr: 1922, Emp: 75, $25,000

Rosenberg, Paul, 100 Stevens Ave., Mount Vernon, N.Y., 95, 96, 109, Tel: 914-MOunt Vernon 7-8040, Yr: 1945, ▲2

See ad in class 95

Rosenthal, Myron M., 19 Brookline Dr., North Massapequa, L.I., N.Y., 44, 95, Tel: 516-PErshing 5-2501, Yr: 1955, Emp: 5, ▲4, $15,000

See ad in class 95

Rosern Publications & Procedures, Inc., 7070 N. Clark St., Chicago 26, Ill., 108, Tel: ROgers Park 4-4463, Yr: 1955, Emp: 15, ▲1

Ross Co. (Milton), 36 Jacksonville Rd., Hatboro, Pa., 50, 52, 62, 75, 78, 81, 90, 94, 96, 97, 105, 106, 107, 109, 112, Tel: 215-OSborne 2-0550, Yr: 1952, Emp: 85, $1,233,000

Rostan Corp., 5660 59th St., Maspeth 78, L.I., N.Y., 44, Tel: TWining 4-7558, Yr: 1946, Emp: 10

Rotary Devices Corp., 40 Jay St., Englewood, N.J., 4, 34, 43, 50, 52, 79, 80, 95, 96, Tel: 201-LOwell 9-0433

Rotating Components, Inc., 1560 Fifth Ave., Bay Shore, L.I., N.Y., 47, 67, 77, Tel: 516-MOhawk 6-8500, Yr: 1946, Emp: 150, $800,000

See ad in class 47

Rotax, Inc., 2209 Federal Ave., Los Angeles 64, Calif., 67, Tel: 213-BRadshaw 2-2888, Yr: 1960, Emp: 20, ▲1

Rotek Instrument Corp., 733 Concord Ave., Cambridge 38, Mass., 31, Yr: 1960, Emp: 26, ▲4

Rotiform Co., 1509 Colorado Ave., Santa Monica, Calif., 2, 4, 40, 41, 61, 83, Tel: EXbrook 5-8209, Yr: 1957, Emp: 22

Rototest Laboratories, Inc., 2803 Los Flores Blvd., Lynwood, Calif., 35, 36, 40, 95, 109, Tel: 213-NEvada 6-9238, Yr: 1953, Emp: 71, ▲5

Rotron Mfg. Co., Inc., 79 Schoonmaker Pl., Woodstock, N.Y., 47, 67, Tel: 914-ORiole 9-2401, Yr: 1947, Emp: 465, ▲3, $6,500,000

See ad in class 47

Round Hill Associates, Inc., 665 Fifth Ave., New York 22, N.Y., 13, 30, Tel: 212-PLaza 2-9648, Yr: 1955, Emp: 280, ▲3, $1,000,000

Rountree Engineering (J. G.), P.O. Box 9044, Austin 17, Texas, 95, Tel: 512-GLendale 2-3073, ▲1

Rovan Electronics Laboratories Co., 435 Cortlandt St., Belleville 9, N.J., 69, Tel: 201-PLymouth 9-3377, Yr: 1955, Emp: 7, ▲1

Rowan Controller Co., 2313-15 Homewood Ave., Baltimore 18, Md., 11, 40, 41, 61, 73, 80, 81, Tel: 301-BElmont 5-7113, Yr: 1927, Emp: 375, ▲3, $1,000,000

Rowan Controller Co., Solid State Instrument Laboratories (Div.), 624 W. First Ave., Roselle, N.J., 40, 41, 69, Tel: 201-CHestnut 1-0010, Yr: 1961, Emp: 10, ▲1

Rowe Engravers, Inc., 68 Union Ave., Clifton, N.J., 50, 109, Tel: 201-PRescott 3-7776, Yr: 1905, Emp: 15, $300,000

Rowe Industries, 1702 Wayne St., Toledo 9, Ohio, 18, 43, 44, 65, 68, Tel: EVergreen 2-5666, Yr: 1931, Emp: 50, ▲3

Rowe Industries, Inc., Sag Harbor, L.I., N.Y., 67, Tel: 516-SAg Harbor 5-0800, Yr: 1950, Emp: 150, $1,000,000

Roy Co. (Milton), 1300 E. Mermaid Lane, Philadelphia 18, Pa., 4, 40, 61, 99, Tel: 215-CHestnut Hill 7-8000, Yr: 1936, Emp: 267

Royal Communication Systems, Inc., 4501 Prospect Ave., Cleveland 3, Ohio, 30, Tel: HEnderson 1-5444, Yr: 1948, Emp: 20, ▲1, $150,000

Royal Industries, Inc., Vard Div., 2981 E. Colorado Blvd., Pasadena, Calif., 61, 95, Yr: 1929, Emp: 460

Royal McBee Corp., Westchester Ave., Port Chester, N.Y., 8, 9, Tel: 914-WEstmore 7-3000, Emp: 12,000, ▲25, $112,000,000

Royal Zenith Corp., 180 Varick St., New York 14, N.Y., 99

Royco Instruments, Inc., 440 Olive St., Palo Alto, Calif., 2, 4, 40, 41, 61, 82, Tel: 415-DAvenport 6-1831, Yr: 1958, Emp: 20, ▲1, $250,000

Royson Engineering Co., 100 N. Penn St., Hatboro, Pa., 4, 9, 11, 22, Tel: 215-OSborne 5-2800, Yr: 1949, Emp: 27, $50,000

Rubatex, Div. of Great American Industries, Inc., Bedford, Va., 101, Tel: JUstice 6-2611, Yr: 1935, Emp: 675

Rubber & Asbestos Corp., 225 Belleville Ave., Bloomfield, N.J., 94, Tel: 201-PIlgrim 8-1300, Yr: 1913, Emp: 200

Ruby Chemical Co., 68-70 McDowell St., Columbus 16, Ohio, 110, Tel: CApital 1-3055, Yr: 1909, Emp: 5, $40,000

Ruckelshaus Laboratories, Inc. (John G.), 110 Pomeroy Rd., Madison, N.J., 74, 95, Tel: 201-FR 7-1879, Yr: 1925, ▲2

Rucker Co., 4700 San Pablo Ave., Oakland 8, Calif., 4, 40, 99, Tel: 415-OLympic 3-5221, Yr: 1941, Emp: 140

Russell Gasket Co., 7424 Bessemer Ave., Cleveland 27, Ohio, 97, 101, Tel: 216-883-5000

Russell & Stoll Co., Inc., 125 Barclay St., New York 7, N.Y., 52, 62, 63, 78, 80, 90

Rustrak Instrument Co., Inc., 130 Silver St., Manchester, N.H., 28, 43, Tel: NA 3-3596, Yr: 1949, Emp: 43, ▲2

Rutherford Electronics Co., 8944 Lindblade St., Culver City, Calif., 18, 37, Tel: UPton 0-7393, Yr: 1950, Emp: 75, ▲3, $950,000

Ryan Electronics, Div. of Ryan Aeronautical Co., P.O. Box 2308, San Diego 12, Calif., 1, 2, 4, 8, 9, 10, 11, 19, 25, 34, 37, 43, 44, 50, 66, 69, 95, 109, Tel: BRowning 7-6450, Yr: 1957, Emp: 2000, ▲75

Ryan Transdata, Inc., Subsid. of Ryan Aeronautical Co., P.O. Box 1369, Lindbergh Field, San Diego 12, Calif., Tel: 714-CYpress 6-6681

Rye Sound Corp., 145 Elm St., Mamaroneck, N.Y., Importers, 13, 27, 43, 44, 52, 62, 65, 70, 78, 79, 80, 81, 83, 84, 85, 91, 111, Tel: 914-OWens 8-0080, Yr: 1956, Emp: 12, ▲1, $400,000

Rypinski Co. (C. A.), 2005 N. Fair Oaks Ave., Pasadena, Calif., 51, 59, 73, Tel: MUrray 1-4423, Yr: 1957, Emp: 41, ▲3, $200,000

Rytron Co., Inc., 7303 Lankershim Blvd., North Hollywood, Calif., 43, 51, 57, 59, 84, Tel: 213-TRiangle 7-0863, Yr: 1954, Emp: 100, ▲3, $800,000

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S & A Electronics, Inc., 1025 Nevada, Toledo 5, Ohio, 44, Yr: 1950, Emp: 23, $600,000

S-B Polarimeters, Spencer Hill Rd., RD #2, Corning, N.Y., 14, Tel: XF 6-3561, Yr: 1951, Emp: 1, $3,000

S. E. D. Memories, Inc., 231 Route 17, Rutherford, N.J., 9, 10, 27, 70, Tel: 201-WEbster 3-5958, Yr: 1961, Emp: 6, ▲1

S-F-D Laboratories, Inc., 800 Rahway Ave., Union, N.J., 43, 45, 86, Tel: MUrdock 7-0250, Yr: 1959, Emp: 75, ▲5, $750,000

S-I Electronics, Inc., 103 Park Ave., Nutley 10, N.J., 9, 10, 27, 50, 70, Tel: 201-NOrth 7-0055, Yr: 1959, Emp: 50, ▲3, $600,000

See ad in class 10

SNC Mfg. Co., Inc., P.O. Box 277, Oshkosh, Wis., 51, 84, Tel: 414-BEverly 1-7370, Yr: 1946, Emp: 100, ▲1

Sabre International Corp., 903 N. 5th St., Minneapolis 1, Minn., 94, 99, Tel: FE 5-3228, Yr: 1960, Emp: 5, $10,000

Sadelco, Inc., 601 W. 26th St., New York 1, N.Y., 38, 84, Tel: 212-WAtkins 9-2528, Yr: 1960, Emp: 6, ▲1

Safe Flight Instrument Corp., 4 Water St., White Plains, N.Y., 2, 61, Tel: 914-WHite Plains 6-9500, Yr: 1948, Emp: 100, ▲4, $1,000,000

Safety Electrical Equipment Corp., 1187 Dixwell Ave., New Haven 14, Conn., 67, 72, Tel: 203-UNiversity 5-3171, Yr: 1887, Emp: 300, ▲2

Safeway Heat Elements, Inc., Middlefield St., Middletown, Conn., 98, Tel: 203-DIamond 6-6601, Yr: 1942, Emp: 128, ▲2

Sag Harbor Industries, Inc., Box M, Sag Harbor, L.I., N.Y., 51, 91, Tel: 516-SAg Harbor 5-0440, Yr: 1946, Emp: 80, $450,000

Sage Electronics Corp., Country Club Rd., East Rochester, N.Y., 74, Tel: 716-LUdlow 6-8010, Yr: 1948, Emp: 75, ▲2

See ad in class 74

Sage Instruments, Inc., 9 Bank St., White Plains, N.Y., 5, 14, 40, 83, Tel: 914-WHite Plains 9-4121, Yr: 1959, Emp: 11, ▲1

Sage Laboratories, Inc., 3 Huron Dr., East Natick Industrial Park, Natick, Mass., 37, 43, 45, 56, 59, 66, Tel: 617-OLympic 3-0844, Yr: 1955, Emp: 56, ▲4, $650,000

See ad in class 66

Saint John X-Ray Laboratory, Califon, N.J., 22, 109, Tel: Califon 49, Yr: 1925

Saint Marys Carbon Co., W. State St., Saint Marys, Pa., 80, 97, Tel: TErminal 4-2844, Yr: 1939, Emp: 170

Saint Regis Paper Co., Panelyte Div., Enterprise Ave., Trenton, N.J., 90, 96, 101, 103, 106, 107, 112, Tel: 609-EXport 2-2181, Yr: 1930, Emp: 450, ▲2

Salford Electrical Instruments, Ltd., Peel Works, Silk St., Salford 3, Lancs., England, 4, 35, 40, 48, 54, 55, 56, 59, 61, 71, 73, 74, 80, 82, 83, 84, Yr: 1911, Emp: 1651

Sampson Chemical & Pigment Corp., 2830-36 W. Lake St., Chicago 12, Ill., 4, 5, 22, 34, 35, 37, 43, 44, 50, 63, 69, 83, 92, 94, 95, 96, 98, 100, 105, 107, 109, Tel: 312-SAcramento 2-6346, Yr: 1950, Emp: 32, ▲1, $80,000

Sams & Co., Inc. (Howard W.), 2201 E. 46th St., Indianapolis, Ind., 108, Yr: 1946, Emp: 417, ▲3

Samuel & Co., Inc. (J. A.), 165 Broadway, New York 6, N.Y., 91, 102, 104, 105, 110, 112, Tel: 212-COrtlandt 7-4567, Yr: 1921

San Fernando Electric Mfg. Co., 1509 First St., San Fernando, Calif., 48, 59, 74, Tel: EMpire 1-8681, Yr: 1951, Emp: 175

Sanborn Co., Subsid. of Hewlett-Packard Co., 175 Wyman St., Waltham 54, Mass., 5, 9, 15, 21, 23, 28, 34, 40, 43, 83, Tel: 617-TWinbrook 4-6300, Yr: 1917, Emp: 1000, ▲23, $16,500,000

See ad on pages 70-71

Sanders Associates, Inc., 95 Canal St., Nashua, N.H., 1, 2, 4, 9, 25, 44, 45, 47, 50, 56, 59, 66, 80, 91, Tel: 603-TUxedo 3-3321, Yr: 1951, Emp: 1900, ▲80, $17,900,000

Sangamo Electric Co., Springfield, Ill., 4, 9, 12, 18, 27, 28, 29, 33, 34, 43, 45, 48, 50, 51, 53, 57, 59, 61, 67, 69, 77, 80, 81, 84, 91, Tel: 217-KIngswood 4-6411, Yr: 1899, Emp: 5000, ▲10, $25,000,000

See ad on page 142

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Sanial Engineering (Arthur J.), 16 Overland Pl., Huntington, L.I., N.Y., 95, Tel: 516-HAmilton 3-6170

Santa Anita Engineering Co., 3270 E. Foothill Blvd., Pasadena, Calif., 93, Tel: MUrray 1-7441, Yr: 1949, Emp: 30, $50,000

Santa Barbara Research Center, Hughes Aircraft Co., Santa Barbara Airport, Goleta, Calif., 4, 5, 17, 22, 37, 43, 50, 54, 83, 94, 98, 105, 109, Tel: 805-WOodland 7-2331, Yr: 1952, Emp: 160, ▲30, $1,300,000

Santelmann Associates, 1 Park Ave. Ext., Arlington 74, Mass., 95, Tel: 617-MIssion 3-2529, Yr: 1957, Emp: 7, ▲3, $24,000

Sanyo Electric Co., Ltd., 2-Chome, Keihan Hondori, Moriguchi, Osaka, Japan, 26, 27, 46, 68, 79, 88, Tel: Osaka Joto 1181, ▲1

Sargent Electric Corp., 23-16 40th Ave., Long Island City, N.Y., 80, Tel: 212-EXeter 2-3742

Sargent-Rayment Co., 462 Hester St., San Leandro, Calif., 43, 69, 88, Tel: LOckhaven 2-1973, Emp: 30

Sarkes Tarzian, Inc., 415 N. College Ave., Bloomington, Ind., 71, Tel: EDison 2-1435, Yr: 1946, Emp: 500, ▲10

Sartron, Inc., 114 N. Main St., Newberg, Ore., 43, 51, 59, 84, Tel: JEfferson 8-3191, Yr: 1958, Emp: 23, $160,000

Saturn Electronics Corp., 10665 Hines Blvd., P.O. Box 13305, Dallas 20, Texas, 17, 33, 50, 51, 53, 59, 69, 84, Tel: FLeetwood 1-3103, Yr: 1956, Emp: 19, ▲1, $35,000

Sauereisen Cements Co., 1045 N. Canal St., Pittsburgh 15, Pa., 94, Tel: 412-STerling 1-2323, Yr: 1899, Emp: 16

Saville Ra Tele Nics Laboratories, 1125 Russell St., P.O. Box 504, Covington, Ky., 95, Yr: 1925

Savoy Electronics, Inc., 1314 N.E. 17th Ct., Box 7127 Fort Lauderdale, Fla., 18, 22, 24, 31, 33, 44, 51, 56, 59, Tel: 305-LOgan 6-8416, Yr: 1937, Emp: 35, ▲1, $140,000

Savoy Electronics, Inc., P.O. Box 584, Griffin, Ga., 22, 56, Tel: 8-2711, Yr: 1951, Emp: 70, ▲4

Saxonburg Ceramics, Inc., P.O. Box 157, 400 Third Ave., Saxonburg, Pa., 92, 101, Tel: 412-FL 2-1566, Yr: 1924, Emp: 195
See ad in class 92

Saxton Products, Inc., 4320 Park Ave., New York 57, N.Y., 44, 79, 91, 97, 103, 106, Tel: 212-WEllington 3-6400, Yr: 1952, Emp: 63, $1,000,000
See ad in class 91

Scaico Controls, Inc., 230 Taylor St., Riverside, N.J., 4, 43, 44, 45, 59, 66, 69, 82, 83, 84, 88, Tel: 201-HObart 1-4717, Yr: 1945, Emp: 40, ▲1

Scala Radio Co., 2814 19th St., San Francisco 10, Calif., 44, Tel: VAlencia 6-2898, Yr: 1948

Scam Instrument Corp., 3101 N. Lowell Ave., Chicago 41, Ill., 4, 73, Tel: 312-AVenue 2-6930, Yr: 1953, Emp: 40, $10,000

Scanwell Laboratories, Inc., 6601 Scanwell Lane, Springfield, Va., 2, 18, 44, 57, 59, 66, 80, 84, 95, 109, Tel: 703-FLeetwood 4-5800, Yr: 1958, Emp: 17, ▲4
See ad in class 44

Scatter Communications, Inc., 1000 Connecticut Ave., Washington 6, D.C., 24, 44, 95, 96, Tel: DIstrict 7-5385, Yr: 1957, Emp: 25, ▲3, $250,000

Schaevitz Engineering, U. S. 130 & Schaevitz Blvd., Pennsauken, N.J., 1, 2, 4, 5, 8, 9, 10, 11, 14, 16, 17, 18, 19, 21, 23, 24, 25, 26, 28, 29, 31, 33, 34, 35, 36, 37, 38, 40, 41, 43, 44, 47, 51, 53, 59, 61, 65, 66, 67, 69, 73, 77, 80, 83, 84, Tel: 609-NOrmandy 2-8000, Yr: 1946, Emp: 210, ▲1, $992,000

Schaffer Air Industries, Inc., 290 N. Henry St., Brooklyn 22, N.Y., 2, 41, 90, 96, Tel: 212-EVergreen 3-5300, Yr: 1949, Emp: 10, ▲1

Schauer Mfg. Corp., 4500-4 Alpine Ave., Cincinnati 42, Ohio, 53, 69, 71, 76, 99, Tel: SYcamore 1-3030, Yr: 1907, ▲1

Schenectady Chemicals, Inc., Congress & Ninth Sts., Schenectady 1, N.Y., 94, Tel: 518-DIckens 6-8711, Yr: 1906, Emp: 290, ▲1

Scherma Mfg. Co., Inc. (F. A.), 424 Broome St., New York 13, N.Y., 73, Tel: 212-WAlker 5-2077, Yr: 1950, Emp: 15, $120,000

Scherr Tumico, Inc., Saint James, Minn., 40, 41, Tel: 375-3211, Yr: 1941, Emp: 400, $10,000

Schirmer-National Alarm Co. Corp., 20 Westside Ave., Bergenfield, N.J., 4, 69, Tel: 201-DUmont 5-1200, Yr: 1953, Emp: 14, ▲1, $40,000

Schmeling Electronics, 20 First St., Keyport, N.J., 41, Yr: 1958, Emp: 10, ▲2

Schoene Electronics Laboratory, 915 Washington Ave., Evansville 13, Ind., 4, 40, 41, 69, 96, Tel: HArrison 3-4342, Yr: 1937, Emp: 8, ▲2

Schulmerich Electronics, Inc., Carillon Hill, Sellersville, Pa., 43, Tel: ALpine 7-2771, Yr: 1925, Emp: 150, ▲1, $1,000,000

Schutter Microwave Corp., 80 E. Montauk Hwy., Lindenhurst, L.I., N.Y., 19, 37, 44, 45, 52, 56, 59, 66, 80, 88, 91, 95, 96, 97, 99, 103, 109, 112, Tel: 516-TUrner 8-5200, ▲3

Schuyler Mfg. Corp., 84 Porete Ave., North Arlington, N.J., 66, 90, 91, 97, 103, 105, Tel: 201-WYman 1-2094, Yr: 1954, Emp: 28, ▲2

Schwartz Chemical Co., Inc., 50-01 Second St., Long Island City 1, N.Y., 94, 101, Tel: STillwell 4-7592, Yr: 1941, Emp: 13, ▲1

Schwarzer Co., 46 Salmi Rd., Framingham, Mass., Importers, 5, 13, 23, 28, 34, 40, 83, Tel: 617-TRinity 2-1830, Yr: 1958, Emp: 7, ▲2, $100,000
See ads in classes 5, 23, 28

Schweitzer Div. (Peter J.), Kimberly-Clark Corp., Lee, Mass., 94, 101, Tel: Lee 7, Emp: 20,000, ▲2

Sciaky Bros., Inc., 4915 W. 67th St., Chicago 38, Ill., 77, 84, 95, 99, Tel: 312-POrtsmouth 7-5600, Yr: 1942, Emp: 450, ▲3, $25,000

Scientific-Atlanta, Inc., 2162 Piedmont Rd. N.E., Atlanta 9, Ga., 4, 8, 19, 28, 35, 38, 40, 41, 44, 61, 66, 109, Tel: 404-TRinity 5-7291, Yr: 1952, Emp: 165, ▲13, $2,000,000

Scientific Development Corp., 372 Main St., Watertown 72, Mass., 8, 9, 10, 13, Tel: 617-WAtertown 4-5431, Yr: 1959, Emp: 8, ▲1

Scientific Electric, Inc., 105-119 Monroe St., Garfield, N.J., 69, 98, 99, Tel: 201-PRescott 7-0507, Yr: 1921, Emp: 35

Scientific Electronic Laboratories, Inc., 866 Bergen St., Newark 8, N.J., 52, 63, 73, 75, 78, 86, 87, 98, 99, 105, 112, Tel: BIgelow 3-8675, Yr: 1930, Emp: 18, ▲2, $150,000

Scientific Engineering Laboratories, 1510 Sixth St., Berkeley 10, Calif., 36, 98, 99, Tel: LAndscape 6-2772, Yr: 1958, Emp: 22, ▲2, $500,000

Scientific Radio Products, Inc., 2303 W. Eighth St., Loveland, Colo., 56, Tel: 303-667-2261, Yr: 1940, Emp: 115, ▲2, $500,000

Scientific Radio Service, 4301 Sheridan St., University Park, Hyattsville, Md., 56, Tel: WArfield 7-0535, Yr: 1925, Emp: 1

Scope, Inc., 121 Fallfax Dr., Falls Church, Va., 1, 2, 4, 8, 9, 10, 17, 25, 34, 43, 44, 50, 59, 77, 96, Tel: 703-JEfferson 2-9060, Yr: 1958, Emp: 90, $913,886

Scopes Co., Inc., P.O. Box 56, Monsey, N.Y., Importers, 23, 35, 38, 40, 41, 99, Tel: 914-ELmwood 6-6339, Yr: 1957, Emp: 15, ▲5, $280,000

Scott, Inc. (H. H.), 111 Powdermill Rd., Maynard, Mass., 3, 4, 26, 35, 36, 43, 68, 79, Tel: 617-TWinoaks 7-8801, Yr: 1947, Emp: 210, ▲6

Scott Instrument Laboratories, Inc., 17 E. 48th St., New York 17, N.Y., 41, 70, Tel: 212-PLaza 5-1127, Yr: 1959, Emp: 5, $20,000

Seager Standard Carbon Co., 291 Church St., New York, N.Y., 97, Yr: 1929, Emp: 16

Seal-A-Metic Co., Div. of Filtors, Inc., 1 John St., Haledon, N.J., 75, Tel: 201-ARmory 8-5400, Yr: 1958, Emp: 110, ▲1, $1,000,000

Sealectro Corp., 139 Hoyt St., Mamaroneck, N.Y., 9, 50, 52, 62, 78, 80, 81, Tel: 914-OWens 8-5600, Yr: 1955, Emp: 40, ▲1
See ad in class 81

Sealol, Inc., Providence 5, R.I., 97, Tel: 401-STuart 1-4700, Yr: 1942, Emp: 285, $5,000

Sealomatic Electronics Corp., 75 Scott Ave., Brooklyn 37, N.Y., 43, 47, 69, 84, 98, Tel: 212-GLenmore 6-8080, Yr: 1952, Emp: 40, $500,000

Sealtron Corp., Reading Rd. at Amity, P.O. Box 15073, Cincinnati 15, Ohio, 52, 75, 109, Tel: VAlley 1-7444, Yr: 1953, Emp: 60, $1,000,000

Seco Electronics, Inc., 5015 Penn Ave. S., Minneapolis 19, Minn., 38, 40, 41, 44, 45, 53, 61, 69, Tel: 612-WAlnut 6-4545, Yr: 1953, Emp: 13

Secoa Electronics Corp., 85 Sylvester St., Westbury, L.I., N.Y., 76, Tel: 516-EDgewood 3-8181, Yr: 1960, Emp: 40, ▲3

Secode Corp., 555 Minnesota St., San Francisco 7, Calif., 4, 10, 20, 21, 41, 59, Tel: 415-MArket 1-2643, Yr: 1927, Emp: 106, ▲6

Secon Metals Corp., 7 Intervale St., White Plains, N.Y., 91, Tel: 914-WHite Plains 9-4757, Yr: 1948, Emp: 50, ▲1
See ad in class 91

Security Controls, Inc., 503 Franklin St., Buffalo 2, N.Y., 4, Tel: 716-TT 5-8535, Yr: 1957, Emp: 16

Security Devices Laboratory, 24 Seneca Ave., Rochester 21, N.Y., 2, 4, 10, 20, 21, 31, 34, 35, 43, 46, 59, 73, 109, Tel: 716-HOpkins 7-3200, Yr: 1857, Emp: 275, ▲3
See ads in classes 46, 73

Seeley Electronics, 1060 S. La Brea Ave., Los Angeles 19, Calif., 20, Tel: 213-WEbster 3-1183, Yr: 1954, Emp: 2, $10,000

Seg Electronics Co., Inc., 12 Hinsdale St., Brooklyn 7, N.Y., 1, 3, 26, 30, 43, 51, 59, 84, Tel: 212-DI 5-6262, Yr: 1954, Emp: 16, $176,000
See ad in class 59

Segal Machinery (Edward), 132 Lafayette St., New York 13, N.Y., 99, Tel: 212-WOrth 6-3935, Yr: 1943, Emp: 41

Seiscor, Div. of Seismograph Service Corp., P.O. Box 1590, Tulsa 1, Okla., 8, 9, 16, 20, 30, 90, 93, 96, 109, Tel: 918-NAtional 7-3330, Yr: 1931, Emp: 1000, ▲25, $2,000,000

Sel-Rex Corp., 75 River Rd., Nutley 10, N.J., 36, 40, 41, 53, 69, 71, 94, 95, 96, 98, 99, 104, 109, Tel: 201-NOrth 7-5200, Yr: 1944, Emp: 175

Selas Corp. of America, Dresher, Pa., 98, 99, 109, 111, Tel: MItchell 6-6600, Yr: 1910, Emp: 550

Selectrons, Ltd., 520 Fifth Ave., New York 36, N.Y., 94, 99, 109, Tel: 212-YUkon 6-8388, Yr: 1960, Emp: 6, $40,000

Semcor Solid State Div., Nuclear Corp. of America: See U.S. Semiconductor Products, Inc.

Semi-Alloys, Inc., 20 N. MacQuesten Pkwy., Mount Vernon, N.Y., 80, 82, 91, 94, 96, 97, 102, 104, 105, 109, 110, 112, Tel: 914-MOunt Vernon 4-2800, Yr: 1959, Emp: 29

Semi-Elements, Inc., Saxonburg Blvd., Saxonburg, Pa., 17, 22, 56, 66, 71, 76, 94, 96, 100, 102, 103, 104, 105, 109, Tel: FLanders 2-1548, Yr: 1958, Emp: 12, ▲2, $50,000

Semicon, Inc., 511 Sweetwater Ave., P.O. Box 328, Bedford, Mass., 71, 76, Tel: 617-CRestview 4-8542, Yr: 1958, Emp: 50, ▲3
See ad in class 71

Semicon of California, Inc., 70 Mariposa Ave., Watsonville, Calif., 17, 58, 75, 86, 92, 94, 101, 104, 105, 109, Tel: PArkway 2-3488, Yr: 1953, Emp: 24, ▲1, $500,000

Semiconductor Specialties Corp., 252 Garibaldi Ave., Lodi, N.J., 92, 102, 109, Tel: 201-PRescott 3-6933, Yr: 1960, Emp: 20, ▲1
See ad in class 102

Semimetals, Inc., 172 Spruce St., Westbury, L.I., N.Y., 102, Tel: 516-EDgewood 3-8400, Yr: 1956, Emp: 16, $1,000,000

Semitronics, Inc., 163 Swanson St., P.O. Box 46, Winchester, Mass., 102, Tel: 617-PArkview 9-4558
See ad in class 102

Semrow Products Co., Inc., 4317 N. Ravenswood Ave., Chicago 13, Ill., 97, Tel: BIttersweet 8-4400, Yr: 1946, Emp: 40, $750,000

Sencore, Inc., 426 S. Westgate Dr., Addison, Ill., 35, 40, 41, 69, Tel: 312-KIngswood 3-7740

Seneca Falls Machine Co., 314-340 Fall St., Seneca Falls, N.Y., 4, 43, 67, 109, Tel: 315-LOgan 8-5804, Yr: 1864, Emp: 200, ▲2, $350,000

Sensitive Research Instrument Corp., 310-316 Main St., New Rochelle, N.Y., 6, 31, 35, 40, 43, 53, 61, 62, 74, 80, 82, Tel: 914-BEverly 5-2300, Yr: 1927, Emp: 180, ▲3
See ad in class 31

Sensory, Inc., 10 New St., Morristown, N.J., 4, 11, 43, 96, Tel: JEfferson 8-7661, Yr: 1954, Emp: 8, $100,000

Sentry Co., 62 Main St., Foxboro, Mass., 98, Tel: 617-KIngswood 3-5330, Yr: 1921, Emp: 25

Sequoia Wire & Cable Co., Subsid. of Anaconda Wire & Cable Co., 2201 Bay Rd., Redwood City, Calif., 91, Tel: EMerson 9-0331, Yr: 1950

Serdex, Inc., 12 Bowdoin Sq., Boston 14, Mass., 41, 61, Tel: 617-CApitol 7-7160, Yr: 1945

Servo Corp. of America, 111 New South Rd., Hicksville, L.I., N.Y., 1, 2, 4, 8, 9, 10, 11, 17, 18, 24, 26, 34, 35, 40, 42, 43, 44, 50, 69, 77, 88, Tel: 516-WElls 8-9700, Yr: 1946, Emp: 375, ▲45, $6,900,000

Servo Development Corp., 2 Willis Ct., Hicksville, L.I., N.Y., 2, 4, 8, 9, 10, 11, 43, 61, 77, Tel: 516-OVerbrook 1-4343, Yr: 1952, Emp: 17, ▲2
See ad in class 77

Servo Dynamics Corp., Box 310, Dover, N.H., 77

Servo Systems Co., 14 Carmer Ave., Belleville 9, N.J., 43, 77, Tel: PLymouth 9-2875, Yr: 1957, Emp: 5, $250,000

Servo-Tek Products Co., Inc., 1086 Goffle Rd., Hawthorne, N.J., 4, 40, 43, 51, 53, 61, 67, 77, 84, 99, Tel: 201-HAwthorne 7-3100, Yr: 1945, Emp: 72

Servodyne Corp., 74 Lawley St., Boston 22, Mass., 68, 84, 86, Tel: 617-AVenue 2-0600, Yr: 1960, Emp: 6, ▲2

Servomechanisms/Inc., 200 N. Aviation Blvd., El Segundo, Calif., 1, 2, 4, 8, 9, 10, 11, 22, 43, 51, 53, 58, 61, 67, 69, 77, 83, 84, 109, Tel: OSborne 5-7111, Yr: 1946, Emp: 780, ▲15, $13,600,000

Servomechanisms/Inc., Mechatrol Div., 1200 Prospect Ave., Westbury, L.I., N.Y., 43, 67, 74, 77, Tel: 516-EDgewood 3-6000, Yr: 1946, Emp: 170, ▲11

Servometer Corp., 222 Main Ave., Passaic, N.J., 77, Tel: 201-PRescott 3-0474, Yr: 1957, Emp: 17, $10,000

Servomex Controls, Ltd., Crowborough, Sussex, England, 4, 6, 12, 13, 35, 40, 43, 48, 53, 69, 77, Tel: 1247

Servonic Instruments, Inc., 1644 Whittier Ave., Costa Mesa, Calif., 1, 2, 4, 24, 40, 52, 61, 74, 80, 83, Tel: 714-MIdway 6-2427, Yr: 1952, Emp: 115

Servonics, Inc., 900 Slaters Lane, Alexandria, Va., 25, 37, 40, 43, 50, 69, 77, 93, 96, 111, Tel: 703-TEmple 6-6800, Yr: 1956, Emp: 425, ▲4, $3,600,000

Servotronics, Inc., 190 Gruner Rd., Buffalo 25, N.Y., 4, 43, 52, 77, 80, 83, 97, Tel: 716-TX 6-6105, Yr: 1960, Emp: 25, ▲2

Servwell Products Co., 6541 Euclid Ave., Cleveland 3, Ohio, 81, 97, Tel: 216-EXpress 1-0497

Sessions & Son (J. H.), Riverside Ave., Bristol, Conn., 96, 97, Tel: 203-LUdlow 2-3127, Yr: 1854, Emp: 65

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Setchell-Carlson, Inc., New Brighton, Saint Paul 12, Minn., 21, 26, 43, 68, Tel: MElrose 3-3131, Yr: 1936, Emp: 280, ▲1

Sethco Mfg. Corp., 2284 Babylon Tnpke., Merrick, L.I., N.Y., Importers, 99, Tel: 516-MAyfair 3-4220, Yr: 1947

Seven Associates, Inc., 638 Knickerbocker Dr., Sunnyvale, Calif., 35, 69, 91, 98, 99, Tel: RE 6-9488, Yr: 1959, Emp: 11, $6311

Seven Santini Brothers, 1405 Jerome Ave., New York 52, N.Y., 109, Tel: 212-CYpress 3-7000, Yr: 1905, Emp: 400

Sexton Can Co., Inc., 31 Cross St., Everett 49, Mass., 96, 97, Tel: 617-DUnkirk 7-2500, Yr: 1902, Emp: 300, $1,000,000

Shallcross Mfg. Co., Preston St., Selma, N.C., 4, 6, 8, 9, 10, 12, 31, 35, 40, 41, 43, 44, 45, 57, 61, 69, 74, 80, Tel: WOodlawn 5-2341, Yr: 1926, Emp: 250, ▲8, $1,900,000

Shallite, Inc., 128 W. First Ave., Roselle, N.J., 74, Tel: 201-CHestnut 5-9800, Yr: 1953, Emp: 14, ▲2, $60,000

Shamban & Co. (W. S.), 11617 W. Jefferson Blvd., Culver City, Calif., 107, Tel: UPton 0-6877

Shampaine Scientific Co., Div. of Shampaine Industries, Inc., 615 E. First Ave., Roselle, N.J., 36, 98, Tel: CH 5-3140, Yr: 1920, Emp: 1000

Shand & Jurs Co., 2600 8th St., Berkeley 10, Calif., 4, 10, 34, Tel: THornwall 8-2345, Yr: 1922, Emp: 144, ▲5, $373,143

Shannon Luminous Materials Co., 7356 Santa Monica Blvd., Hollywood 46, Calif., 5, 9, 13, 14, 17, 40, 94, 110, Tel: 213-HOllywood 7-1443, Yr: 1888

Shapiro & Edwards Electronic Instruments, Dept. I, 1130 Mission St., South Pasadena, Calif., 40, 43, 69, 77, 109, Tel: 213-SYcamore 9-1886, Yr: 1951, Emp: 8, ▲2, $96,545

Shasta Electronic Co., P.O. Box 316, Palo Alto, Calif., 41, Tel: CHerry 8-5920, Yr: 1959, Emp: 2, ▲1, $10,000

Shaw Instrument Corp., 1011 Lloyd Ave., Latrobe, Pa., 4, 17, 40, 52, 61, 75, 81, 86, 92, 95, 96, 101, 105, 109, Tel: 412-KEystone 9-1626, Yr: 1957, Emp: 65, ▲2

Shaw Insulator Co. & Shasta Mfg. Co., 276 Snyder Ave., Berkeley Heights, N.J., 96, 106, Tel: 201-464-1000, Yr: 1892, Emp: 150, $800,000

Shell Electronics Mfg. Corp., 112 State St., Westbury, L.I., N.Y., 20, 41, 43, 88, 96, Tel: EDgewood 3-6300, Yr: 1956, Emp: 52, ▲1, $1,700,000

Sheltered Workshops, Inc., 2521 5th St., Santa Monica, Calif., 3, 4, 13, 15, 17, 18, 20, 21, 24, 25, 26, 29, 30, 33, 34, 38, 40, 41, 42, 43, 44, 50, 51, 52, 53, 59, 69, 74, 75, 80, 83, 88, 90, 93, 96, 99, 109, Tel: EXbrook 9-7741, Yr: 1951, Emp: 200

Shepard Laboratories, Inc., 480 Morris Ave., Summit, N.J., 9, 10, 11, Tel: 201-CRestview 3-5255, Yr: 1944, Emp: 40, ▲3, $480,000

Shepherd Industries, Inc.: See S-I Electronics, Inc.

Sheridan-Gray, Inc., 24701 Crenshaw Blvd., Torrance, Calif., 90, 97, 105, 109, Tel: DAvenport 6-6702, Yr: 1952, Emp: 163, ▲3

Sherman Mfg. Co. (H. B.), 22 Barney St., Battle Creek, Mich., 52, Tel: WOodward 4-7104, Yr: 1895, Emp: 500

Sherold Crystals, Inc., Truman Rd. & McGee Trafficway, Kansas City 8, Mo., 56, Tel: 816-VIctor 2-9792

See ad in class 56

Sherwood Electronic Laboratories, Inc., 4300 N. California Ave., Chicago 18, Ill., 26, 43, 79, 88, Tel: 312-IRving 8-7300, Yr: 1955, Emp: 150, ▲3, $2,000,000

Shieldair Co., Box 5816, Philadelphia 28, Pa., 90, 103, Tel: 215-IVyridge 2-2325, Yr: 1959, Emp: 8, $62,000

Shieldalloy Corp., West Blvd., Newfield, N.J., 104, Tel: OXford 2-4200, Yr: 1951, Emp: 130

Shielding, Inc., P.O. Box 33, Riverton, N.J., 36, 90, 103, Tel: 609-829-5200, Yr: 1952, Emp: 64

Shipley Co., Inc., Walnut St., Wellesley 81, Mass., 94, Tel: 617-CEdar 7-0550, Yr: 1957, Emp: 20

Shockley Transistor, Unit of Clevite Transistor, Stanford Industrial Park, Palo Alto, Calif., 76, Tel: 415-DAvenport 1-2121, Yr: 1955, Emp: 160, ▲30

Shores Laboratories, P.O. Box 227, East Patchogue, L.I., N.Y., 95, 96, Tel: 516-GRover 5-2522, Yr: 1938, Emp: 5, ▲2

Shrader Sound, Inc., 2803 M St., N.W., Washington 7, D.C., 13, 30, 32, 43, Tel: 202-ADams 4-4730, Yr: 1938, Emp: 33, ▲1, $1,000,000

Shur-Lok Corp., 879 S. East St., Anaheim, Calif., 97, Tel: PRospect 4-2773, Yr: 1952, Emp: 61

Shure Brothers, Inc., 222 Hartrey Ave., Evanston, Ill., 43, 65, 68, 70, Tel: DAvis 8-9000, Yr: 1925, Emp: 500, ▲9

Shurite Meters, Div. of J-B-T Instruments, Inc., 130 Wallace St., New Haven 8, Conn., 61, Tel: 203-STate 7-5826, Yr: 1945, Emp: 150

Sibley Co., Bridge St., Haddam, Conn., 50, Tel: 203-DIamond 5-4523, Yr: 1913, Emp: 75, ▲1

Siemens New York, Inc., 350 Fifth Ave., New York 1, N.Y., Importers, 4, 5, 6, 7, 8, 9, 12, 14, 15, 17, 19, 20, 21, 22, 23, 24, 26, 28, 29, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 49, 51, 52, 55, 59, 61, 63, 65, 66, 67, 69, 71, 73, 76, 84, 86, 91, 99, Tel: 212-LOngacre 4-7674, Yr: 1847, Emp: 220,000, ▲12

Sier-Bath Gear & Pump Co., Inc., 9252 Hudson Blvd., North Bergen, N.J., 77, 97, Tel: 201-UNion 9-3000, Yr: 1905, Emp: 250, ▲1, $300,000

Sierra Electric Corp., 15100 S. Figueroa St., Gardena, Calif., 63, 80, 90, 96, 97, 107, Tel: FAculty 1-1000

Sierra Research Corp., Buffalo Airport, P.O. Box 22, Buffalo 25, N.Y., 1, 2, 4, 5, 8, 9, 10, 11, 19, 25, 34, Tel: 716-NF 2-8823, Yr: 1957, Emp: 60, ▲10, $750,000

Sifco Metachemical, Inc., 935 E. 63rd St., Cleveland 3, Ohio, 99, 109, Tel: 216-881-8600, Yr: 1958, Emp: 40, $100,000

Sightmaster Corp., 50 Aleppo St., Providence 9, R.I., 60, 80, Tel: 401-TEmple 1-6200, Yr: 1948, Emp: 125, ▲2, $600,000

Sigma Electronics Research Corp., 15735 Ambaum Blvd. S.W., Seattle 66, Wash., 1, 2, 37, 43, 44, 45, 56, 59, 66, 69, 73, 80, 83, 84, Tel: CHerry 3-2337, Yr: 1958, Emp: 20, ▲1, $74,000

Sigma Engineering Service, Inc., P.O. Box 111, Custer City, Pa., 4, 95, 96, 99, Tel: FOrest 2-2241, Yr: 1958, Emp: 7, $150,000

Sigma Instruments, Inc., 170 Pearl St., South Braintree 85, Mass., 67, 73, Tel: 617-VIctor 3-5000

Signal Indicator Corp., 42 Stewart Ave., Brooklyn 37, N.Y., 52, 62, 63, 78, 80, Tel: 212-HYacinth 7-5020, ▲6

Signal Transformer Co., Inc., 1661 McDonald Ave., Brooklyn 30, N.Y., 51, 84, Tel: ESplanade 6-0615, Yr: 1954, Emp: 20, ▲1, $210,000

Signalite, Inc., 41 Neptune Hwy., Neptune, N.J., 63, 86, Tel: PRospect 5-2490, Yr: 1951, Emp: 130, ▲1

Silicon Transistor Corp., 150 Glen Cove Rd., Carle Place, L.I., N.Y., 71, 76, Tel: 516-PIoneer 2-4100, Yr: 1958, Emp: 166, ▲3, $1,142,313

See ad in class 76

Silicone Insulation, Inc., 1383 Seabury Ave., New York 61, N.Y., 44, 66, 81, 90, 96, 97, 101, 106, 107, Tel: 212-SYcamore 2-4400, Yr: 1952, Emp: 50

Silicone Seals, Inc., 3694 Milwaukee Ave., Chicago 41, Ill., 75, Tel: 312-AVenue 2-3787, Yr: 1955, Emp: 36, ▲1

Sillcocks Miller Co., 10 W. Parker Ave., Maplewood, N.J., 97, 106, 107, Tel: 201-SOuth Orange 2-6171, Yr: 1910, Emp: 50

Simmonds Precision Products, Inc., 105 White Plains Rd., Tarrytown, N.Y., 1, 2, 4, 6, 12, 26, 31, 40, 41, 44, 61, 97, 108, Tel: 914-MEdford 1-7500, Yr: 1937, Emp: 520, ▲15, $1,800,000

Simmons Fastener Corp., N. Broadway, Albany 1, N.Y., 97, Tel: 518-HObart 2-5431, Yr: 1944, Emp: 120

Simonds Saw & Steel Co., Ohio St., Lockport, N.Y., 64, 104, Tel: 716-HF 3-5921, ▲1

Simplatrol Products Corp., 24 Salisbury St., Worcester 5, Mass., 77, Tel: 617-PLeasant 6-8478, Yr: 1956, Emp: 100, $200,000

Simplex Wire & Cable Co., 79 Sidney St., Cambridge 39, Mass., (See Hitemp Wires Co.), Tel: 617-KIrkland 7-9000

Simplicity Tool Co., Inc., 2850 N. Mississippi Ave., P.O. Box 3723, Portland 8, Ore., 44, Tel: 503-ATlantic 2-6605, Yr: 1946, Emp: 7, ▲1, $26,746

Simpson Electric Co., 5218 W. Kinzie St., Chicago 44, Ill., 23, 31, 38, 39, 40, 41, 61, 62, 73, 84, Tel: 312-EStebrook 9-1121, ▲5

See ad in class 61

Simpson Mfg. Co., Inc. (Mark), 439 Frelinghuysen Ave., Newark 12, N.J., 26, 30, 43, Tel: 201-YEllowstone 2-3400, Yr: 1918, Emp: 80, ▲2, $1,000,000

Sims Castings Corp., 2174 E. Erie Blvd., Syracuse 3, N.Y., 96

Sinclair Mfg. Co., 12 S. Worcester St., Chartley, Mass., 75, 97, Tel: 617-CAstle 2-2627, Yr: 1944, Emp: 25, $200,000

Sinclair Radio Laboratories, Inc., 412 Chamber of Commerce Bldg., Buffalo, N.Y., 17, 44, 59, Tel: 716-TL 4-4700, Yr: 1951, Emp: 23, ▲4, $253,000

Singer-Bridgeport, Div. of Singer Mfg. Co., 915 Pembroke St., Bridgeport 8, Conn., 2, 4, 9, 10, 17, 80, 83, 97, 108, 109, Tel: 203-FOrest 6-3201, Yr: 1873, Emp: 1666, ▲25, $1,000,000

Sippican Corp., Box 537, Marion, Mass., 10, 50, 95, 96, 99, 109, Tel: 110, Yr: 1958, Emp: 75, $750,000

Sittler Corp., 18 N. Ada St., Chicago 7, Ill., 41, 62, 91, 96, Tel: 312-SEeley 3-4616, Yr: 1943, Emp: 20

Sivers Laboratory, Box 42018, Stockholm 42, Sweden, 37, 45, 66, 69, Tel: 18-03-50, Yr: 1951, ▲1

Sjoberg & Son (C.), 415 Station St., Cranston 10, R.I., 52, 81, 93, 96, 97, Tel: HOpkins 1-8220, Yr: 1946, Emp: 5, ▲1

Skiatron Electronics & Television Corp., 180 Varick St., New York 14, N.Y., 2, 9, 10, 23, 32, 42, 43, 63, 86, 93, 96, 109, Tel: 212-WAtkins 4-7060, Yr: 1948, Emp: 15, ▲6, $97,471

Skinner Electric Valve Div., Skinner Precision Industries, Inc., 95 Edgewood Ave., New Britain, Conn., 99, Tel: 203-BAldwin 5-6421, Yr: 1887, Emp: 390

Skydyne, Inc., River Rd., Port Jervis, N.Y., 90, 107, Tel: 3-2241, Yr: 1938, Emp: 165, ▲2

See ad on page 128

Skyline Electronics, Inc., 1828 S. Bannock St., Denver 23, Colo., 17, 36, 90, 93, 95, 96, 109, Tel: 303-RAce 2-3234

Skyline Products, Inc., 819 Grand Blvd., Deer Park, L.I., N.Y., 32, 90, 93, 96, Tel: 516-MOhawk 7-8644, Yr: 1947, Emp: 75

See ad in class 90

Slater Electric, Inc., 45 Sea Cliff Ave., Glen Cove, L.I., N.Y., 50, 53, 69, 71, 76, 78, 80, Tel: 516-ORiole 6-1100, Yr: 1930, Emp: 300

Slaughter Co., Young & College Sts., Piqua, Ohio, 4, 40, 41, Tel: 513-PRospect 3-5936, Yr: 1956

Slidecraft, Inc., 17 Stanwood Rd., New Hyde Park, L.I., N.Y., 32, 36, 90, 93, 95, 96, 109, Tel: 516-PIoneer 6-2296, Yr: 1960, Emp: 10, ▲1

Sliding Mechanisms, Inc., 2401 W. Ohio St., Chicago 12, Ill., 93, Tel: 312-CHesapeake 3-0400, Yr: 1958, Emp: 17, $220,000

Slip Ring Co. of America, 3612 W. Jefferson Blvd., Los Angeles 16, Calif., 4, 10, 34, 52, 61, 73, 80, 81, Tel: 213-REpublic 5-0253, Yr: 1951, Emp: 105, ▲3, $1,500,000

Sloan Co., Color-Lite Div., 7704 San Fernando Rd., Sun Valley, Calif., 63, 78, 80, Tel: 213-TRiangle 7-1123, Yr: 1958, Emp: 16

Sloan, Gardner H., 1 Story St., Cambridge 38, Mass., 95, Tel: 617-ELiot 4-0766, Yr: 1959, Emp: 1, ▲1, $15,000

See ad in class 95

Small Motors, Inc., 2076 Elston Ave., Chicago 39, Ill., 47, 67, Tel: 312-ARmitage 6-6900, Yr: 1941, Emp: 75

Smallwood, Ltd. (S. G.), 391-397 King St. E., Kitchener, Ontario, Canada, 44, 51, 84, Tel: SHerwood 5-9583, Yr: 1945, Emp: 90, ▲2, $400,000

Smith Corp. (A. O.), 531 N. 4th St., Tipp City, Ohio, 67, Tel: NOrth 7-2431, Yr: 1874, Emp: 13,000, ▲7

Smith Corp. (A. O.), Crowley Div., 1 Central Ave., West Orange, N.J., 44, 45, 55, 64, 66, 92, 100, 103, Tel: 201-ORange 3-7660, Yr: 1928, Emp: 250, ▲7, $1,000,000

Smith Electronics, Inc., 8200 Snowville Rd., Cleveland 41, Ohio, 38, 95, 109, Tel: 216-JAckson 6-4386, Yr: 1950, Emp: 27, ▲10, $650,000

Smith-Florence, Inc., 4228 23rd Ave. W., Seattle 99, Wash., 11, 12, 17, 31, 35, 40, 41, 43, 69, Tel: 206-ATwater 4-0170, Yr: 1959, Emp: 41, ▲3, $500,000

Smith, Inc. (Herman H.), Dept. 12, 2326 Nostrand Ave., Brooklyn 10, N.Y., 52, 56, 60, 62, 63, 78, 80, 81, 91, 92, 97, 106, 111, Tel: 212-CLoverdale 3-7900, Yr: 1946, Emp: 100, $250,000

See ad in class 62

Smith Mfg. Co., Inc. (E. C.), Forrest & Hector Sts., Conshohocken, Pa., 82, 83, 91, 98, Tel: 215-TAylor 8-4790, Yr: 1956, Emp: 20, $400,000

Smith-Meeker Engineering Co., 157 Chambers St., New York 7, N.Y., 30, 32, 71, 95, 96, Tel: 212-WOrth 4-5510, Yr: 1908, Emp: 62

Smooth-On Mfg. Co., 572 Communipaw Ave., Jersey City 4, N.J., 94, Tel: 201-HEnderson 3-0076, Yr: 1895, Emp: 21

Snap-On Tools Corp., 8120 28th Ave., Kenosha, Wis., 40, 41, 111, Yr: 1920

Snelgrove Co., Ltd. (C. R.), 141 Bond Ave., Don Mills, Ontario, Canada, 31, 35, 56, 59, Tel: HIckory 4-1107, Yr: 1951, Emp: 50

Snyder Mfg. Co., 22nd & Ontario Sts., Philadelphia 40, Pa., 32, 44, Tel: 215-BAldwin 5-6565, Yr: 1931, Emp: 350

Sola Electric Co., Div. of Basic Products Corp., 1717 Busse Rd., Elk Grove Village, Ill., 53, 69, 72, 84, Tel: 312-HEmpstead 9-2800, Yr: 1930, Emp: 589, ▲7, $6,000,000

Solar Mfg. Corp., 4553 Seville Ave., Los Angeles 58, Calif., 48, 49, 55, 57, 92, Tel: 213-LUdlow 3-1411, Yr: 1950, Emp: 300, $2,000,000

Solar Research Corp., 3200 N.E. 12th Ave., Oakland Park, Fla., 2, 4, 20, 24, 26, 27, 65, Tel: 305-LOgan 6-8321, Yr: 1960, Emp: 30, ▲2

Solar Systems, Inc., 8241 N. Kimball Ave., Skokie, Ill., 17, 46, 58, 76, 83, Tel: 312-ORchard 6-2040, Yr: 1960, Emp: 20, ▲2, $100,000

Solartron Electronic Group, Ltd., Farnborough, Hampshire, England, 4 5, 8, 9, 11, 13, 23, 27, 34, 35, 37, 38, 40, 43, 47, 69, 83, 90, 93, 95, 109, Tel: 3000, Yr: 1948, Emp: 1800, ▲11, $8,200,000

Solartron, Inc., 1743 S. Zeyn St., Anaheim, Calif., 4, 6, 9, 10, 35, 40, 69, 77, 83, Tel: 714-PRospect 2-2652, Yr: 1956, Emp: 60, ▲2, $613,000

Solatron, Inc., 128 Jackson St., Cambridge 40, Mass., 2, 4, 43, 50, 53, 59, 69, 73, 77, 91, 95, 96, 109, Yr: 1957, Emp: 35, ▲6, $300,000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Solid State Electronics Co., Dept. I, 15321 Rayen St., Sepulveda, Calif., 1, 25, 34, 35, 43, 50, 53, 73, 80, 83, Tel: 213-EMpire 4-2271, Yr: 1958, Emp: 17, ▲1, $120,000
See ad on page 44

Solid State Materials Corp., 5 Erie Dr., East Natick, Mass., 17, 56, 100, 102, Tel: 617-OLympic 3-5727, Yr: 1960

Solid State Products, Inc., 1 Pingree St., Salem, Mass., 76, Tel: 617-PIoneer 5-2900, Yr: 1958, Emp: 75, ▲6

Solitron Devices, Inc., 500 Livingston St., Norwood, N.J., 56, 59, 71, 76, 102, Tel: 201-POplar 8-3770, Yr: 1959, Emp: 52, ▲2

Soltys Associates, 5481 Santa Monica Blvd., Los Angeles 29, Calif., 108, Tel: 213-HOllywood 5-5605, Yr: 1958, Emp: 3, ▲1

Somers Brass Co., Inc., 94 Baldwin Ave., Waterbury 20, Conn., 104, Tel: 203-PLaza 6-8321, Yr: 1909, Emp: 175, ▲1

Somerset Radiation Laboratory, Inc., 192 Central Ave., Stirling, N.J., 6, 37, 45, 66, 76, Tel: MIllington 7-1080, Yr: 1959, Emp: 25, ▲5

Sonar Radio Corp., 3050 W. 21st St., Brooklyn 24, N.Y., 18, 20, 29, 44, 83, Tel: 212-ESplanade 2-6000

Sonex, Inc., 20 E. Herman St., Philadelphia 44, Pa., 5, 34, 41, 43, 50, 69, 96, 109, Tel: 215-VIctor 3-6400, Yr: 1953, Emp: 33, ▲3, $220,000
See ad in class 34

Sonobond Corp., Subsid. of Aeroprojects, Inc., 310 E. Rosedale Ave., West Chester, Pa., 99, 111, Tel: OWen 6-4710, Yr: 1949, Emp: 140, ▲3, $250,000

Sonograf Electric Co., 37 E. 28th St., New York 16, N.Y., Importers, 27, 30, 68, 79, Tel: 212-MUrray Hill 3-2357, Yr: 1957, Emp: 24, ▲8

Sonotone Corp., Box 200, Elmsford, N.Y., 5, 13, 43, 46, 53, 65, 68, 69, 70, 79, 85, 86, 87, Tel: 914-LYric 2-9600, Yr: 1929, Emp: 2500, ▲15

Sony Corp., 514 Broadway, New York 12, N.Y., Importers, 9, 10, 13, 18, 26, 27, 30, 32, 34, 40, 65, 70, 74, 76, Tel: 212-WOrth 8-0800, Yr: 1946, Emp: 4200, ▲5, $40,000,000

Sorensen & Co., Inc., Subsid. of Raytheon Co., Richards Ave., South Norwalk, Conn., 41, 43, 69, 84, Tel: 203-TEmple 8-6571, Yr: 1943, Emp: 465, ▲10

Sorensen Industrial Electronic Co., Route 10, Dover, N.J., 2, 3, 4, 15, 18, 20, 30, 36, 41, 69, 73, 96, Tel: FOxcroft 6-3905, Yr: 1930, Emp: 25

Soroban Engineering, Inc., Box 1717, Melbourne, Fla., 4, 8, 9, 10, 27, 34, Tel: 305-PArkway 3-7221, Yr: 1954, Emp: 225, ▲4

Soundpac Electronics Corp., 3456 E. Jefferson Ave., Detroit 7, Mich., 13, 27, 30, 32, 43, 68, Tel: 313-LOrain 7-8952, Yr: 1953

SoundScriber Corp., 6 Middletown Ave., New Haven, Conn., 27, 68, 70, Tel: 203-STate 7-2125, Yr: 1940, Emp: 500, ▲2

South Haven Coil, Inc., 264 Broadway, South Haven, Mich., 51, Tel: 1381, Yr: 1957, Emp: 26, $148,000

South River Metal Products Co., Inc., 377-379 Turnpike, South River, N.J., 44, 64, 91, 93, 96, 109, Tel: 201-CLifford 4-5256, Yr: 1948, Emp: 62, $800,000

Southco Div., South Chester Corp., Lester, Pa., 97, Tel: 215-LEhigh 4-1800, Yr: 1945

Southco Div., South Chester Corp., Lion Fastener Co., Inc. (Subsid.), Honeoye Falls, N.Y., 97

Southern Electronics Corp., 150 W. Cypress Ave., Burbank, Calif., 48, 49, Tel: 213-VIctoria 9-3193, Yr: 1951, Emp: 60, ▲1, $500,000

Southern Instruments, Ltd., Frimley Rd., Camberley, Surrey, England, 11, 23, 40, 41, 43, 83, Tel: 3401

Southern Plastics Co., 408 Pendleton St., Columbia, S.C., 101, 103, 107, 112, Tel: ALpine 6-0651, Yr: 1940, Emp: 112, ▲1, $150,000

Southwest Research Institute, 8500 Culebra Rd., San Antonio 6, Texas, 109, Tel: GE 2-5221, Yr: 1947, Emp: 492, ▲22

Southwire Co., Fertilla St., Carrollton, Ga., 91, Tel: 404-TErrace 2-6311, Yr: 1950, Emp: 392

Space Components, Inc., 1048 Potomac St., N.W., Washington, D.C., 73, 80, Tel: FEderal 3-7000, Yr: 1959, Emp: 5, $20,000

Space Electronics Corp., 777 Flower, Glendale 1, Calif., 1, 2, 4, 7, 8, 9, 10, 16, 17, 18, 19, 21, 22, 24, 25, 26, 29, 34, 35, 36, 38, 43, 44, 50, 95, 96, 109, Tel: 714-CHapman 5-7651, Yr: 1958, Emp: 300, ▲27

Space Instrumentation Corp., 907 Pico Blvd., Santa Monica, Calif., 4, 9, 11, 21, 40, 52, 53, 61, 66, Tel: EXbrook 3-9638, Yr: 1959, Emp: 10, ▲1, $300,000

Space Products, 2235 E. Artesia St., Long Beach 5, Calif., 52, 78, 96, 106, Tel: NEvada 6-6161, Yr: 1957, Emp: 31, ▲1

Spacetronics, Inc., P.O. Box 12325, 6000 Camp Bowie Blvd., Fort Worth 16, Texas, 53, 73, Tel: 817-PErshing 8-1271, Yr: 1952, Emp: 162, ▲1
See ad in class 53

Sparta Mfg. Co., Div. of U.S. Ceramic Tile Co., Box 107, Dover, Ohio, 96, 107, 112, Tel: 4-2380, Yr: 1951, Emp: 50

Sparton Electronics, Div. of Sparton Corp., 2400 E. Ganson St., Jackson, Mich., 1, 2, 4, 9, 10, 18, 23, 24, 26, 29, 34, 43, 44, 51, 53, 57, 69, 73, 77, 80, 84, Tel: 517-STate 4-9131, Yr: 1900, Emp: 2000, ▲25, $5,000,000

Spaulding Fibre Co., Inc., 310 Wheeler St., Tonawanda, N.Y., 90, 96, 97, 100, 107, 112, Tel: 716-NX 2-2000, Yr: 1873, Emp: 2000
See ad in class 107

Spaulding Products Co., Inc., 550 W. Barner, Frankfort, Ind., 44, Tel: 4494, Yr: 1953, Emp: 35, $300,000

Special Instruments Laboratory, Inc., 312 W. Vine Ave., Knoxville 2, Tenn., 4, 22, 30, 32, 77, Tel: 615-525-9538, Yr: 1948, Emp: 40, $400,000

Specialty Automatic Machine Corp., 80 Cambridge St., Burlington, Mass., 66, 109, Tel: 617-BRowning 2-0800, Yr: 1918, Emp: 45, $275,000
See ad in class 66

Specialty Electronics Development Corp., 115 Eileen Way, Syosset, L.I., N.Y., 1, 2, 7, 19, 20, 21, 22, 23, 25, 29, 33, 35, 37, 38, 40, 41, 43, 44, 45, 52, 61, 66, 90, 96, 109, Tel: 516-WAlnut 1-5200, Yr: 1944, Emp: 350, ▲4, $4,500,000

Specific Electronics, Inc., 1995 N. Fair Oaks Ave., Pasadena, Calif., 1, 10, 18, 21, 31, 43, 44, 50, 51, 53, 59, 69, 84, 96, Tel: 213-MU 1-6308, Yr: 1957, Emp: 30, ▲2, $170,000

Specific Products, P.O. Box 425, 21051 Costanso St., Woodland Hills, Calif., 26, 31, 40, 44, 69, 93, Tel: 213-DIamond 0-3131, Yr: 1952, Emp: 20, ▲3
See ad in class 26

Speck Electronics, Inc., 13901 Saticoy St., Van Nuys, Calif., 43, 50, 53, 69, 80, 98, Tel: TRiangle 3-1803, Yr: 1959, Emp: 150, $750,000

Spectra Electronics Corp., Div. of Douglas Microwave Co., Inc., 250 E. 3rd St., Mount Vernon, N.Y., 4, 5, 16, 17, 43, Tel: 914-MOunt Vernon 8-1378, Yr: 1958, Emp: 17, ▲2

Spectra-Strip Wire & Cable Corp., P.O. Box 415, Garden Grove, Calif., 91, 94, 112, Tel: 714-JEfferson 7-4530, Yr: 1955, Emp: 18, $150,000

Spectrol Electronics Corp., Subsid. of Carrier Corp., 1704 S. Del Mar Ave., San Gabriel, Calif., 2, 4, 9, 21, 31, 40, 53, 61, 69, 74, 77, 80, 83, 97, Tel: 213-ATlantic 7-9761, Yr: 1954, Emp: 500, ▲2

Spectronic Plating Co., Inc., 652 Hudson St., New York 14, N.Y., 109, Tel: ALgonquin 5-8677, Yr: 1946, Emp: 75, ▲1

Spectronics Corp., 20 Corchaug Ave., Manorhaven, L.I., N.Y., 5, 13, 16, 40, 63, 94, Tel: 516-POrt Washington 7-7610, Yr: 1960, Emp: 19

Spectrum Instruments, Inc., Box 61, Steinway Sta., Long Island City 3, N.Y., 35, 38, 59, Tel: 212-AStoria 8-8033, Yr: 1953, ▲1

Speed Electronics, 177 Mill Lane, Mountainside, N.J., 43, 50, 52, 60, 62, 65, 66, 78, 81, 90, 91, 96, 97, 109, Tel: 201-ADams 2-5200, Yr: 1944, Emp: 25, $200,000

Speer Carbon Co., Jeffers Electronics Div., Hoover Ave., DuBois, Pa., 48, 50, 51, Tel: 371-2100, Yr: 1899, Emp: 1999, ▲2, $7,097,717

Speer Carbon Co., Onondaga Electronics Div., 1810 W. Fayette St., Syracuse 1, N.Y., 48, 50, 74, Tel: 315-HOward 8-6261, Yr: 1951, Emp: 250, ▲3, $1,165,000

Speer Carbon Co., Speer Resistor Div., Foster Brook Rd., Bradford, Pa., 74, Tel: FOrest 2-5536, Yr: 1899, Emp: 1800, ▲7, $7,097,717

Speidel Corp., Industrial Div., 89 Ship St., Providence, R.I., 1, 2, 4, 27, 34, 37, 80, Tel: 401-GAspee 1-8600, Yr: 1950, Emp: 130, ▲3

Spellman High Voltage Co., 1930 Adee Ave., New York 69, N.Y., 17, 41, 53, 69, 84, Tel: 212-KIngsbridge 7-0306, Yr: 1949, Emp: 8
See ad in class 69

Spencer-Kennedy Laboratories, Inc., 1320 Soldiers Field Rd., Boston 35, Mass., 7, 37, 43, 45, 53, 59, Tel: 617-ALgonquin 4-5400, Yr: 1949, Emp: 100, ▲6, $1,000,000

Sperry Products Co., Div. of Howe Sound Co., Shelter Rock Rd., Danbury, Conn., 40, 109, Tel: 203-PIoneer 8-3591, Yr: 1926, Emp: 410, ▲2

Sperry Rand Corp., Sperry Electronic Tube Div., P.O. Box 652, Gainesville, Fla., 43, 86, Tel: 305-FRanklin 2-0411, Yr: 1955, Emp: 600, ▲50

Sperry Rand Corp., Sperry Gyroscope Co. (Div.), Great Neck, L.I., N.Y., 1, 2, 4, 8, 9, 10, 25, 36, 67, 84, 86, Tel: 516-LR 4-0111, Yr: 1910, Emp: 17,000, ▲900 (▲1700 Sperry Rand overall)

Sperry Rand Corp., Sperry Gyroscope Co. of Canada, Ltd. (Subsid.), P.O. Box 710, Montreal, Quebec, Canada, 2, 4, 8, 9, 18, 22, 25, 41, 43, 51, 69, 83, Tel: RIverside 7-5561, Yr: 1951, Emp: 550, ▲15, $3,900,000

Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), P.O. Box 1828, Clearwater, Fla., 1, 2, 4, 21, 24, 31, 34, 37, 38, 41, 43, 44, 45, 55, 59, 66, 69, 84, 88, Tel: 305-REdwood 6-4161, Yr: 1911, Emp: 850, ▲80, $12,000,000

Sperry Rand Corp., Sperry Phoenix Co. (Div.), 21111 N. 19th Ave., Phoenix 27, Ariz., 1, 2, 4, 25, 34, 43, 44, 83, Tel: 602-WIndsor 3-2311, Yr: 1957, Emp: 1300, ▲50, $30,000,000

Sperry Rand Corp., Sperry Phoenix Co., Sunnyvale Development Center, 294 Commercial St., Sunnyvale, Calif., 1, 2, 25, 34, Tel: 415-REgent 9-2344, Yr: 1956, Emp: 155, ▲35, $2,500,000

Sperry Rand Corp., Sperry Piedmont Co. (Div.), Route 29 N., Charlottesville, Va., 2, 4, 5, 8, 10, 16, 18, 19, 20, 24, 25, 28, 29, 43, 44, 50, 53, 61, 77, 91, 96, 109, Tel: CHarlottesville 3-6111, Yr: 1956, Emp: 950, ▲50, $10,000,000

Sperry Rand Corp., Sperry Semiconductor Div., Norwalk, Conn., 76, Tel: 203-VIctor 7-3851, ▲16

Sperry Rand Corp., Sperry Utah Co. (Div.), 322 N. 21st West, Salt Lake City 16, Utah, 4, 8, 9, 34, Tel: 801-DAvis 8-8066, Yr: 1956, Emp: 3200, ▲70

Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., 1867 Locust St., Saint Louis 3, Mo., 2, 4, 8, 17, 18, 22, 31, 43, 51, 53, 67, 69, 71, 72, 76, 77, 80, 84, 99, Tel: CEntral 1-5830, Yr: 1948, Emp: 500, ▲15

Sperry Rand Corp., Vickers, Inc. (Div.), Marine & Ordnance Dept., 172 E. Aurora St., Waterbury 20, Conn., 4, 25, 44, Tel: 203-PLaza 6-3684, Yr: 1903, Emp: 700, $1,500,000

Sperry Rand Corp., Wheeler Electronic Corp. (Subsid.), 150 E. Aurora St., Waterbury 20, Conn., 1, 24, 26, 30, 43, 51, 57, 69, 84, Tel: 203-PLaza 4-5191, Yr: 1935, Emp: 600, ▲2

Sphere Co., Inc., 25 Amity St., Little Falls, N.J., 75, 81, Tel: 201-CLifford 6-2550, Yr: 1952, Emp: 17

Spilsbury & Tindall, Ltd., 120 E. Cordova St., Vancouver 4, B.C., Canada, 1, 18, 20, 24, 25, 26, 42, Tel: MUtual 4-4131, ▲1

Spiron, Inc., 2412 Linden Ave., Silver Spring, Md., 48, 97, 109, Tel: 202-JUniper 9-8260, Yr: 1959, Emp: 25

Spivey, Inc. (James S.), 4908 Hampden Lane, Washington 14, D.C., 23, Tel: 301-OLiver 6-8608, Yr: 1946, Emp: 40, ▲2

Sprague Electric Co., 235 Marshall St., North Adams, Mass., 6, 12, 31, 41, 46, 50, 51, 57, 59, 74, 76, 83, 84, 109, Tel: MOhawk 3-5311, Yr: 1926, Emp: 7000, ▲75, $64,500,000

Sprague Electric Co., Dynacor, Inc. (Subsid.), 1016 Westmore Ave., Rockville, Md., 55, Tel: 301-GArden 4-6900 (D.C.)

Sprague Electric Co., Sprague of Wisconsin, Inc., Sixth & Beech Sts., Grafton, Wis., 48, Tel: DRake 7-3500, Yr: 1946, Emp: 100, ▲1, $700,000

Sprague Electric Co., VecTrol Engineering, Inc. (Subsid.), 85 Magee Ave., Stamford, Conn., 4, 43, 48, 50, 53, 69, 72, 77, 95, Tel: 201-DAvis 4-4156, Yr: 1952, Emp: 15, ▲4

Sprague Engineering Corp., 19300 S. Vermont Ave., Gardena, Calif., 2, 53, 69, Tel: 213-DAvis 4-6677, Yr: 1947, Emp: 200

Sprayway, Inc., 7644 Vincennes Ave., Chicago 20, Ill., 94, Tel: 312-ST 3-5441

Springer Aircraft Radio Corp., 2200 N. Post Rd., Indianapolis 19, Ind., 1, 38, Tel: FLeetwood 6-2690, Yr: 1932, Emp: 4, $75,000

Springfield Electrical Specialties, Inc., 120 Wooster St., New York 12, N.Y., Tel: 212-CA 6-3376, Yr: 1935, Emp: 50

Spruce Pine Mica Co., Inc., P.O. Box 280, Spruce Pine, N.C., 96, 101, 107, Tel: POplar 5-4241

Sta-Warm Electric Co., 260 N. Chestnut St., Ravenna, Ohio, 98, 99, Tel: 216-AXminster 6-6462, Yr: 1922, Emp: 35

Stackpole Carbon Co., Stackpole St., Saint Marys, Pa., 48, 55, 64, 74, 80, 92, 97, Tel: TErminal 4-1521, Yr: 1906, Emp: 2500, ▲10

Stacor Equipment Co., 285 Emmet St., Newark 5, N.J., 90

Stafford Mfg. Co., Inc., 145 58th St., Brooklyn 20, N.Y., 28, 43, 50, 90, 93, 97, 109, Tel: 212-HYacinth 2-6000, Yr: 1847, Emp: 90

Stahlin Brothers, Inc., Belding, Mich., 97, Tel: Belding 1500, Yr: 1935, Emp: 50

Stainless, Inc., North Wales, Pa., 2, 36, 44, 95, 96, Tel: OXbow 9-4871, Yr: 1946, Emp: 100, ▲1, $2,500,000

Stake Fastener Co., 1710 Potrero St., South El Monte, Calif., 97, Tel: 213-CUmberland 3-7681, Yr: 1959, Emp: 10, $50,000

Stamford Processing Co., Inc., Albany Post Rd., Buchanan, N.Y., 91, Tel: 914-PEekskill 7-4167, Yr: 1952, Emp: 18, $250,000

Stancil-Hoffman Corp., 845 N. Highland Ave., Hollywood 38, Calif., 1, 13, 27, 32, 69, 70, Tel: 213-HOllywood 4-7461, Yr: 1948, Emp: 45, ▲3, $425,000

Stancor Electronics, Inc., 3501 W. Addison St., Chicago 18, Ill., 51, 53, 59, 69, 72, 84, Tel: 312-INdependence 3-7400, Yr: 1925, Emp: 2000, ▲20
See ad in class 84

Stancor Electronics, Inc., Freemansburg Rd. & Hobson, Easton, Pa., 51, 59, 69, 72, 84, Tel: BLackburn 3-2751

Standard Cabinet Co., Inc., 53 Washington Ave., Carlstadt, N.J., 36, Tel: 201-GEneva 8-1500, Yr: 1942, Emp: 30, ▲3
See ad in class 36

Standard Coil Products (Canada), Ltd., 37 Drummond St., Mimico 14, Ontario, Canada, 88, Tel: CLifford 9-7651, Yr: 1955, Emp: 125

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Standard Condenser Corp., 3749 N. Clark St., Chicago 13, Ill., 48, Tel: 312-EAstgate 7-5440, Yr: 1950, Emp: 28, ▲1, $365,000

Standard Controls, Inc., 1130 Poplar Pl. S., Seattle 44, Wash., 4, 83, Tel: 206-EAst 4-8888, Yr: 1951, Emp: 35

Standard Electric Mfg. Co., Inc., Haddon Ave., West Berlin, N.J., 47, Tel: 609-ROckwell 7-0207, Yr: 1930, Emp: 30

Standard Electric Time Co., 89 Logan St., Springfield 2, Mass., 10, 11, 40, 61, 62, 90, Tel: REpublic 2-1142, Yr: 1884, Emp: 500, ▲4, $1,000,000

Standard Electrical Products Co., 2240 E. Third St., Dayton 3, Ohio, 43, 53, 69, 72, 80, 84, Tel: 513-CLearwater 3-1191, Yr: 1937, Emp: 200, ▲1, $4,000,000

Standard Electronics, Div. of Dynamics Corp. of America, Lakewood Rd., Farmingdale, N.J., 26, 29, 42, 51, 55, 84, Tel: WEbster 8-6671, Yr: 1949, Emp: 85, ▲5, $600,000

Standard Electronics Co., 1611 W. 63rd St., Chicago 36, Ill., 59, 69, Yr: 1952, Emp: 35, ▲1, $400,000

Standard Electronics Research Corp., 110 W. Palisades Blvd., Palisades Park, N.J., 4, 5, 22, 31, 40, 41, 83, 95, 96, 109, Tel: 201-WIndsor 7-4344, Yr: 1943, Emp: 20, ▲4, $100,000

Standard Insert Co., 12270 Montague St., Pacoima, Calif., 81, 97, Tel: 213-TRiangle 7-1410, Yr: 1952, Emp: 25, $150,000

Standard Instrument Corp., 657 Broadway, New York, N.Y., 4, 9, 10, 11, 27, 28, 31, 40, 41, 61, 73, 83, Tel: 212-OR 3-3200, Yr: 1942, Emp: 100, ▲4

Standard Kollsman Industries, Inc., 2085 N. Hawthorne Ave., Melrose Park, Ill., 88, Tel: 312-FIllmore 4-5680, Yr: 1935, Emp: 1500, ▲45

Standard Metals Corp., 262 Broad St., North Attleboro, Mass., 66, 91, 104, 110, 112, Tel: 617-MYrtle 5-9395, Yr: 1945, Emp: 60, $350,000

See ad in class 104

Standard Plastics Co., Inc., 62 Water St., Attleboro, Mass., 81, Tel: 617-CAstle 2-4040, Yr: 1936, Emp: 85, $300,000

Standard Pressed Steel Co., Jenkintown, Pa., 48, 90, 97, Tel: 215-TUrner 4-7300, Yr: 1903, Emp: 5000, ▲1

Standard Record Mfg. Co., 70 N. San Gabriel Blvd., Pasadena, Calif., 70, Tel: MUrray 1-0537, Yr: 1947, Emp: 18, $225,000

Standard Rectifier Corp., 620 E. Dyer Rd., Santa Ana, Calif., 71, 76, Tel: KImberly 5-8241, Yr: 1960, Emp: 50, ▲3, $600,000

Standard Screw Co., 2701 Washington Blvd., Bellwood, Ill., 97, Tel: 312-LInden 4-3500, Yr: 1872, Emp: 2500

Standard Systems Corp., 52-10 37th St., Long Island City 1, N.Y., 4, 13, 21, 27, 30, 43, 65, 69, 79, 88, Tel: 212-EXeter 2-6161, Yr: 1961, Emp: 25, ▲2

Standard Telephones & Cables, Ltd., Therese House, 29/30, Glasshouse, London E.C. 1, England, 1, 2, 4, 6, 8, 9, 10, 11, 16, 17, 18, 19, 21, 23, 24, 26, 29, 30, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 43, 44, 45, 48, 56, 59, 62, 65, 66, 69, 71, 73, 74, 75, 76, 79, 81, 84, 86, 87, 91, 98, 100, 109, 111, Tel: HOLborn 8765, ▲30

Standard Television Products, Ltd., 108 Sydney St. S., Kitchener, Ont., Canada, 51, 69, 72, 84, Tel: SH 3-4324, Yr: 1938, Emp: 100

Standard Television Tube Corp., 3233 Conti St., New Orleans 19, La., 85, Yr: 1953, Emp: 33. ▲1, $200,000

Standard Wire & Cable Co., 3440 Overland Ave., Los Angeles 34, Calif., 91, Tel: 213-UPton 0-4647, Yr: 1945, Emp: 35, ▲1

Stanford Research Institute, 333 Ravenswood Ave., Menlo Park, Calif., Tel: DAvenport 6-6200, Yr: 1946, Emp: 1800, ▲140, $26,000,000

Stanley-Humason, Inc., 33 Stafford Ave., Forestville, Conn., 97, 105, Tel: 203-LUdlow 2-9541

Stanley Tools, New Britain, Conn., 111, ▲1

Stanpat Co., 150-42 12th Rd., Whitestone 57, L.I., N.Y., 97, 107, Tel: FLushing 9-1693, Yr: 1942, Emp: 15, ▲1

Stanwyck Coil Co. (E.), 74 Carson Ave., Newburgh, N.Y., 44, 51, 81, 96, 97, Tel: 914-JOhn 1-3030, Yr: 1945, Emp: 110

See ad in class 51

Staples-Hoppmann, Inc., 500 E. Monroe Ave., Alexandria, Va., 13, 32, 90, 93, 95, 96, 109, Tel: 703-KIng 8-1776, Yr: 1955, Emp: 30

Star Porcelain Co., 49 Muirhead Ave., Trenton 9, N.J., 55, 86, 92, 101, Tel: 609-EXport 2-3154, Yr: 1899, Emp: 200

Star Stainless Screw Co., 655 Union Blvd., Paterson 2, N.J., 97, Tel: 201-CLifford 6-2300, Emp: 50

Stark Electronic Instruments, Ltd., Stark Bldg., Ajax, Ontario, Canada, 22, 23, 35, 36, 38, 39, 40, 41, 52, 61, 73, 86, Tel: 416-WHitehall 2-2120, Yr: 1933, Emp: 130, ▲3, $1,000,000

Starling Corp., 2047 Sawtelle Blvd., Los Angeles 25, Calif., 4, 5, 11, 34, 40, 83, Tel: 213-BRadshaw 2-7131, Yr: 1959, Emp: 40, ▲5

State Testing Laboratory, Inc., 226 Knowlton St., Bridgeport 8, Conn., 94, 95, 96, 109, Tel: 203-EDison 4-4079, Yr: 1950, Emp: 10

States Co., 19 New Park Ave., Hartford 6, Conn., 35, 38, 41, 44, 81, Tel 203-ADams 3-6232, Yr: 1911, Emp: 51, ▲3

Statham Instruments, Inc., 12401 W. Olympic Blvd., Los Angeles 64, Calif., 2, 36, 40, 43, 54, 69, 83, 98, 99, Tel: 213-BRadshaw 2-0371, Yr: 1943, Emp: 600, ▲5

Stator Electric Corp., 22-14 40th Ave., Long Island City, N.Y., 2, 4, 40, 51, 67, Tel: 212-EMpire 1-2880, Yr: 1954, Emp: 75

Staver Co., Inc., 41 N. Saxon Ave., Bay Shore, L.I., N.Y., 56, 60, 75, 78, 80, 90, 96, 97, 105, 110, Tel: 516-MOhawk 5-3620, Yr: 1946, Emp: 70, ▲4, $660,000

Stearns Electric Corp., 120 N. Broadway, Milwaukee 2, Wis., 16, 51, 71, 109, Tel: BRoadway 2-1100, Yr: 1916, Emp: 200, ▲1

Steel Co. (Herman D.), Lafayette Bldg., 5th & Chestnut Sts., Philadelphia 6, Pa., Importers, 10, 97, Tel: 215-WAlnut 5-2867, Yr: 1920, Emp: 5

Steel Heddle Mfg. Co., 2100 W. Allegheny Ave., Philadelphia 32, Pa., 91, 97, 104, Tel: 215-Baldwin 8-2460, Yr: 1898, Emp: 1500

Steinberg & Son, Inc. (Irving C.), 33 Saint Francis St., Newark 5, N.J., 90, 93, 96, Tel: 201-MItchell 2-6405, Yr: 1893, Emp: 20, $300,000

Steiner-Ives Co., 1850 Tempcor Blvd., Riverton, Pa., 98, 99, Tel: 609-829-3880

Stelma, Inc., 200 Henry St., Stamford, Conn., 4, 8, 9, 10, 11, 33, 34, 40, 43, 57, 73, Tel: 203-DAvis 5-4161, Yr: 1950, Emp: 420, ▲10

Stelon, Inc., 29 Passaic St., New Providence, N.J., 36, 43, 48, 50, 52, 60, 66, 80, 81, 96, 97, 99, 104, 105, 109, Tel: CRestview 6-6686, Yr: 1946, Emp: 10, $40,000

Stencilgraph Designs, 61 Beekman St., New York 38, N.Y., 109, Tel: 212-WOrth 4-2046, Yr: 1950, Emp: 3

Stephens Trusonic, Inc., 8538 Warner Dr., Culver City, Calif., 16, 36, 65, 79, Tel: UPton 0-6671, Yr: 1938, Emp: 30, ▲1, $300,000

Stereosonics, Inc., Box 4205, Long Island City 4, N.Y., 35, Tel: 212-STillwell 4-6482, Yr: 1961, Emp: 5, ▲1

Sterling Instrument Div., Designatronics, Inc., 5 Sintsink Dr. E., Port Washington, L.I., N.Y., 2, 4, 5, 11, 12, 23, 26, 35, 38, 40, 44, 51, 77, 84, 95, 97, Tel: 516-POrt Washington 7-8200

Sterling Mfg. Co., 2880 Detroit Ave., Cleveland 9, Ohio, 61, Tel: 216-SUperior 1-7171, Yr: 1916, Emp: 75

Sterling Transformer Corp., 510 Driggs Ave., Brooklyn 11, N.Y., 51, 84, Tel: 212-STagg 2-4200, Yr: 1952, Emp: 80, ▲3

Stevens-Arnold, Inc., 7 Elkins St., South Boston 27, Mass., 31, 53, 73, Tel: 617-ANdrew 8-1170, Yr: 1943, Emp: 140, ▲4

See ad in class 53

Stevens-Evans, Inc., 3801 Hicock St., San Diego 10, Calif., 23, 43, 53, 72, Tel: 213-CYpress 7-4077, Yr: 1958, Emp: 35, ▲3

Stevens Mfg. Co., Inc., P.O. Box 1007, Mansfield, Ohio, 80, 82, Tel: 614-TUxedo 4-1311, Yr: 1945, Emp: 300, ▲2

See ad on page 144

Stevens Mfg. Co., Inc. (George), Pulaski Rd. at Peterson, Chicago 46, Ill., 11, 99, Tel: 312-JUniper 8-1300, Yr: 1942, Emp: 50

See ad in class 99

Stevens Products, Inc., 86-88 Main St., East Orange, N.J., 79, 96, 97, 101, 106, 107, 112, Tel: ORange 2-2140, Yr: 1932, Emp: 45

Stevens Walden, Inc., Shrewsbury St., Worcester 4, Mass., 90, 97, 111, Tel: 617-SWift 9-4111, Yr: 1895, Emp: 175

Stevenson Bros. & Co., 110 Race St., Philadelphia 6, Pa., 94, Tel: 215-MArket 7-0760, Yr: 1863, Emp: 8, $25,000

Steward Mfg. Co. (D. M.), P.O. Box 510, E. 36th & Jerome Ave., Chattanooga, Tenn., 55, 64, 86, 92, 101, 103, Tel: 615-TAylor 1-1561, Yr: 1876, Emp: 150, ▲1

Stewart Corp. (F. W.), 4311-13 N. Ravenswood Ave., Chicago 13, Ill., 91, 97, Tel: 312-GRaceland 2-6600

See ad in class 97

Stewart Engineering Co., Santa Cruz 12, Calif., 43, 86, 98, 99, 111, Tel: 408-GArden 6-4100, Yr: 1951, Emp: 60, ▲2, $1,000,000

See ad in class 86

Stewart Stamping Co., 630 Central Park Ave., Yonkers, N.Y., 81, 96, 97, Tel: 914-YOnkers 5-0816, Yr: 1936, Emp: 180

Stewart & Stevenson Services, Inc., 4516 Harrisburg, Box 1637, Houston 1, Texas, 99, Tel: 713-CApitol 5-5341, Yr: 1938, Emp: 387, $2,000,000

Stewart-Warner Corp., John W. Hobbs Corp. (Div.), Yale Blvd. & Ash St., Springfield, Ill., 31, 61, ▲25

Stewart-Warner Corp., Stewart-Warner Electronics Div., 1300 N. Kostner, Chicago 51, Ill., 1, 2, 4, 15, 18, 19, 25, 43, 44, 57, 66, Tel: 312-ALbany 2-1000, Yr: 1925, Emp: 1100, ▲25

Sticht Co., Inc. (Herman H.), 27 Park Pl., New York 7, N.Y., 6, 40, 41, 61, Tel: 212-REctor 2-8163, Yr: 1918, $250,000

See ad in class 61

Stieh Chemicals, Inc., 20 Vesey St., New York 7, N.Y., 94, 104, Tel: 212-WOrth 4-4265, Yr: 1947, Emp: 4

Stimpson Co., Inc. (Edwin B.), 77 Franklin Ave., Brooklyn 5, N.Y., 97, Tel: 212-ULster 5-3131, Yr: 1852, Emp: 600

See ad in class 97

Stocker & Yale, Inc., 40 Green St., Marblehead, Mass., 5, 13, 14, 63, Tel: 617-NEptune 1-0038, Yr: 1946, Emp: 55, ▲1

Stoddart Aircraft Radio Co., Inc., 6644 Santa Monica Blvd., Hollywood 38, Calif., 26, 37, 38, 44, 45, Tel: 213-HOllywood 4-9292, Yr: 1941, Emp: 190, ▲16, $2,100,000

See ads in classes 38, 45

Stoelting Co. (C. H.), 424 N. Homan Ave., Chicago 24, Ill., 5, 11, 28, Tel: 312-SAcramento 2-3833, Yr: 1886, Emp: 37

Stokes Corp. (F. J.), 5500 Tabor Rd., Philadelphia 20, Pa., 36, 56, 96, 98, 99, Tel: 215-CUmberland 9-0100, Yr: 1896, Emp: 1000, ▲5

Stone City Products Co., 1206 Seventh St., Bedford, Ind., 95, 97, Tel: BRowning 5-3373, Yr: 1946, Emp: 20

Stone Laboratories, Inc., 1312 Tremont St., Boston 20, Mass., 9, 13, 41, 96, Tel: 617-GArrison 7-3600, Yr: 1956, Emp: 15, ▲2, $175,000

Stonite Coil Corp., State Hwy. #130, Yardville, N.J., 51, Tel: 201-JUniper 7-7323, Yr: 1947, Emp: 25

Strand Engineering Co., 7300 Huron River Dr., Dexter, Mich., 2, 4, 5, 8, 9, 11, 14, 25, 41, 44, 66, Tel: HAmilton 6-5111, Yr: 1955, Emp: 50, ▲12, $1,000,000

Strand Laboratories, Inc., 294 Centre St., Newton 58, Mass., 31, 37, 40, 43, 69, Tel: 617-WOodward 9-8890, Yr: 1956

See ads in classes 37, 40

Strandberg Engineering Laboratories, Inc., 225 Summit Ave., Greensboro, N.C., 41, 61, Tel: BRoadway 4-0121, Yr: 1954, Emp: 30, ▲1, $450,000

Strat-O-Seal Mfg. Co., 3039 W. Fullerton Ave., Chicago 47, Ill., 14, 75, Tel: 312-HUmboldt 9-1282, Yr: 1952, Emp: 13, ▲1, $67,000

Stratocon Corp., Box 10, Morristown Airport, Morristown, N.J., 2, 13, 21, 48, 50, 51, 54, 56, 82, 91, 96, 106, 109, Tel: 201-JE 8-9100, Yr: 1952, Emp: 35, ▲2

Stratos Div., Fairchild Stratos Corp., Bay Shore, L.I., N.Y., 54, 99, Tel: 516-MOhawk 5-0100, Yr: 1941, Emp: 1100

Straza Electronics, Div. of Straza Industries, 790 Greenfield Dr., El Cajon, Calif., 2, 4, 5, 9, 10, 18, 43, 45, 50, 53, 57, 63, 69, 77, 83, 96, 109, Tel: 714-HIckory 2-3451, Yr: 1960, Emp: 40, ▲5

Streeter-Amet Co., Grayslake, Ill., 4, 11, 27, 34, 61, Tel: BAldwin 3-4801, Yr: 1888, Emp: 175

Struthers-Dunn, Inc., Lambs Rd., Pitman, N.J., 73, Tel: 201-LUther 9-7500, Yr: 1923, Emp: 480, ▲1, $4,500,000

Studebaker-Packard Corp., Gering Plastics Div., N. 7th St. & Monroe Ave., Kenilworth, N.J., 94, 107, 112, Tel: 201-BRidge 6-2900

Studebaker-Packard Corp., Onan Div., 2515 University Ave. S.E., Minneapolis 14, Minn., 53, 58, Tel: 612-FEderal 2-1155, Yr: 1926, Emp: 675, $3,000,000

Sturrup, Inc., 50 Silver St., Middletown, Conn., 18, 30, 43, 51, 57, 96, Tel: 203-DIamond 6-9681, Yr: 1951, Emp: 40, ▲1

Sturtevant Co. (P. A.), Addison, Ill., 41, 111, Tel: 312-TErrace 4-2000, Yr: 1936, Emp: 65

Subminiature Instruments Corp., 3236 Kansas Ave., Riverside, Calif., 49, 74, 80, Tel: OVerland 4-7133, Yr: 1959, Emp: 35, ▲1

Summers & Mills, Inc., 911 W. Commerce, Dallas 8, Texas, 5, 8, 9, 11, 16, 18, 22, 41, Tel: RI 1-4246, Yr: 1957, Emp: 20, ▲3, $250,000

Summit Coil Co., 4 Claremont Rd., Bernardsville, N.J., 51, 84, Tel: BErnardsville 8-0744, Yr: 1950, Emp: 25, $150,000

Sun Capacitors, 2554 W. Lawrence Ave., Chicago 25, Ill., 48, Tel: 312-LOngbeach 1-4975, Yr: 1951, Emp: 28, $400,000

Sun Dial Corp., P.O. Box 326, Caldwell, N.J., 2, 9, 28, 43, 63, 90, 96, 97, 109, Tel: 201-CApital 6-4334, Yr: 1943, Emp: 60, ▲1, $500,000

Sun Electric Corp., Instrumentronics Div., Harlem & Avondale Aves., Chicago 31, Ill., 11, 21, 23, 35, 36, 40, 61, 96, 109, Tel: 312-NEwcastle 1-6000, Yr: 1935, Emp: 1200, ▲1

SunAir Electronics, Inc., 3101 S.W. 3rd Ave., Fort Lauderdale, Fla., 1, 50, 53, 69, 84, Tel: 305-JAckson 5-1505, Yr: 1956, Emp: 80, $947,000

Sunbank Electronics, Inc., 2516 N. Ontario St., Burbank, Calif., 52, 66, Tel: VIctoria 9-1191, Yr: 1958, Emp: 52, $750,000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Sunshine Scientific Instrument, 1810 Grant Ave., Philadelphia 15, Pa., 2, 4, 6, 10, 11, 12, 15, 16, 23, 28, 31, 40, 41, 43, 52, 54, 61, 64, 73, 80, 83, 95, 99, 109, Tel: 215-ORchard 3-5600, Yr: 1947, Emp: 35, ▲2, $500,000

Supa Insulations, Inc., 123 E. Bassett St., Rocky Mount, N.C., 52, 91, 107, 112, Tel: ROcky Mount 6-8155, Emp: 12

Superex Electronics Corp., 4-6 Radford Pl., Yonkers, N.Y., 13, 26, 44, 51, 55, 62, 79, 84, 94, Tel: 914-YOnkers 5-6906, Yr: 1950, Emp: 60, ▲1

Superior Cable Corp., P.O. Box 480-A, Hickory, N.C., 91, 107, 109, 112, Tel: DIamond 5-4161, Yr: 1953, Emp: 280, ▲3, $7,000,000

Superior Electric Co., 100 Ames Ave., Bristol, Conn., 4, 32, 43, 52, 53, 62, 67, 69, 72, 78, 84, 86, Tel: 203-LUdlow 2-9561, ▲8, $11,000,000

See ad on pages 2-11

Superior Electronics Corp., 208-212 Piaget Ave., Clifton, N.J., 105, Tel: 201-GRegory 2-2500, ▲2

See ad in class 105

Superior Flux & Mfg. Co., 1536 Saint Clair Ave., Cleveland 14, Ohio, 110, Tel: 216-SUperior 1-9373, Yr: 1932, Emp: 6

Superior Instruments Co., 2435-41 White Plains Rd., New York 67, N.Y., 6, 12, 38, 39, 40, 41, 61, Tel: 212-TUlip 2-6880, Yr: 1935, Emp: 100, ▲1

Superior Mfg. & Instrument Corp., 36-07 20th Ave., Long Island City 5, N.Y., 40, 62, 77, Tel: 212-YEllowstone 2-1800, Yr: 1950, Emp: 115, ▲2, $1,800,000

Superior Porcelain Co., 931½ Market St., Parkersburg, W.Va., 86, 92, 101, Tel: 304-GArfield 8-9871, Yr: 1929, Emp: 50

Superior Resistor & Electronics Corp., 333 W. Superior Pl., Frankfort, Ind., 74, Tel: 317-659-2144, Yr: 1959, Emp: 25, $150,000

Superior Steatite & Ceramic Corp., 89 W. Forest Ave., Englewood, N.J., 55, 92, 101, 105, 106, Tel: 201-LOwell 8-4555, Yr: 1940, Emp: 100

See ad in class 92

Superior Switch Co., 1001 W. Broad St., Richmond 20, Va., 80, Tel: 703-355-1447, Yr: 1946, Emp: 33, $1,100,000

Superior Switchboard & Devices Co., 410 Schroyer Ave. S.W., Canton 1, Ohio, 52, Tel: 216-GLendale 5-5358, Yr: 1923, Emp: 200, $17,000

Superior Tube Co., 2500 Germantown Ave., Norristown, Pa., 105, 112, Tel: BRoadway 5-2070, Yr: 1934, Emp: 1200, ▲2

Superior Welding Co., 3410 E. Olympic Blvd., Los Angeles 23, Calif., 4, Tel: 213-ANgelus 3-4841, Yr: 1940, Emp: 12

Superite Gear & Instrument Corp., 140 Oak Dr., Syosset, L.I., N.Y., 10, 77, 97, Tel: 516-WAlnut 1-6840, Yr: 1955, Emp: 85, $950,000

Supreme Process Corp., 44 Bond St., Westbury, L.I., N.Y., 63, 96, 97, 109, Tel: 516-EDgewood 3-1555, Yr: 1942, Emp: 16, $250,000

Surface Conduction, Inc., 1501 Broadway, New York 36, N.Y., 26, 42, 44, 66, 91, 95, 109, Tel: 212-LOngacre 5-5535, Yr: 1951, Emp: 3, ▲1, $10,000

Surprenant Mfg. Co., Div. of International Telephone & Telegraph Corp., 172 Sterling St., Clinton, Mass., 91, 107, 112, Tel: 617-EMpire 5-6331, Yr: 1934, Emp: 1100, ▲11

See ad in class 91

Swedgal Electronics (M.), 258 Broadway, New York 7, N.Y., 68, Tel: 212-WOrth 2-5485

Swift Textile Metalizing & Laminating Corp., 10 Love Lane, Hartford 1, Conn., 4, 36, 44, 45, 66, 94, 103, Tel: 203-JAckson 2-1181, Yr: 1956

See ad in class 103

Swing-O-Lite, Inc., 13 Moonachie Rd., Hackensack, N.J., 14, 63, Tel: DIamond 2-5887, Yr: 1953, Emp: 35, ▲1, $350,000

Swiss Jewel Co., Lafayette Bldg., 5th & Chestnut Sts., Philadelphia 6, Pa., Importers, 56, 97, Tel: 215-WAlnut 5-2867, Yr: 1920

Switchcraft, Inc., 5561 N. Elston Ave., Chicago 30, Ill., 52, 62, 80, Tel: 312-SPring 4-1515, Yr: 1946, Emp: 300, ▲1

See ad in class 62

Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., 730 Third Ave., New York 17, N.Y., 2, 4, 8, 9, 11, 14, 26, 51, 63, 71, 76, 78, 85, 86, 87, 90, 91, 94, 101, 102, 104, 105, 106, 107, 109, Tel: 212-JUdson 6-2424, Yr: 1901, Emp: 28,000, ▲1,000

Sylvania Electric Products Inc., Amherst Laboratories, 1140 Wehrle Dr., Williamsville, N.Y.

Sylvania Electric Products Inc., Chemical & Metallurgical Div., Towanda, Pa., 17, 56, 91, 94, 102, 104, 105, Tel: 717-ANdrew 5-2121, ▲1

Sylvania Electric Products Inc., Electroluminescent Display Devices, Seneca Falls, N.Y., 63, ▲24

Sylvania Electric Products Inc., Electronic Tubes Div., 1740 Broadway, New York 19, N.Y., 63, 66, 85, 86, 87, 105, Tel: 212-JUdson 6-2424, ▲100

Sylvania Electric Products Inc., Lighting Products Div., 60 Boston St., Salem, Mass., 5, 9, 63, 66, 78, 80, 98, 99, Tel: 617-PIoneer 5-4500, ▲2

Sylvania Electric Products Inc., Lighting Products Div., Special Products Operations, 60 Boston St., Salem, Mass., 51, 69, 73, 75, 84, Tel: PIoneer 5-4500, ▲2

Sylvania Electric Products Inc., Microwave Device Operations, P.O. Box 997, Mountain View, Calif., & 1891 E. Third St., Williamsport, Pa., 66, ▲18

Sylvania Electric Products Inc., Semiconductor Div., 100 Sylvan Rd., Woburn, Mass., 43, 71, 76, Tel: 617-WOburn 2-3500, ▲45

Sylvania Electric Products Inc., Special Tube Operations, 500 Evelyn Ave., Mountain View, Calif., 86, Tel: YOrkshire 8-6211, ▲184

Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), 63 Second Ave., Waltham 54, Mass., 1, 2, 4, 8, 9, 10, 18, 19, 20, 24, 25, 29, 34, 44, 50, 51, 59, 63, 66, 109, Tel: 617-TWinbrook 4-9770, ▲200

Syncor Products Co., Inc., 30 Eastern Ave., P.O. Box 51, Malden 48, Mass., 56, Tel: 617-DAvenport 2-1364

See ad in class 56

Syncro Corp., Hicksville, Ohio, 48, 84, Yr: 1946, Emp: 500, ▲2, $1,000,000

Synthane Corp., 12 River Rd., Oaks, Pa., 96, 97, 101, 107, 112, Tel: GLendale 2-2211, Yr: 1929, Emp: 650, $1,000,000

Synthetic Mica Co., Subsid. of Mycalex Corp. of America, 20 Passaic Ave., Caldwell Township, N.J., 109, Tel: 201-CApital 6-4020

Syntron Co., Semiconductor Div., Homer City, Pa., 71, 76, Tel: GRidley 9-8011, Yr: 1925, Emp: 800, ▲13

Syntronic Instruments, Inc., 100 Industrial Rd., Addison, Ill., 51, Tel: 312-KIngswood 3-6444, Yr: 1949, Emp: 40, ▲1

See ad in class 51

Systems Development, Inc., 307 Water St., Binghamton, N.Y., 4, 12, 36, 41, 69, 95, 96, 109, Tel: 607-RAymond 3-5097, Yr: 1950, Emp: 5, ▲1, $150,000

Systems, Inc., 2400 Diversified Way, P.O. Box 7726, Orlando, Fla., 2, 29, 35, 38, 41, 59, Tel: 305-CHerry 1-1541, Yr: 1956, Emp: 85, ▲8, $800,000

Systems Research Corp., 7635 Tobias Ave., Van Nuys, Calif., 1, 4, 9, 10, 19, 31, 34, 35, 40, 50, 51, 53, 59, 69, 84, 95, 96, Tel: 213-STate 2-3707, Yr: 1958, Emp: 25, ▲1, $250,000

Systron-Donner Corp., 950 Galindo St., Concord, Calif., 2, 4, 9, 11, 22, 35, 38, 40, 53, Tel: MUlberry 2-3650, Yr: 1957, Emp: 132, ▲6

Systron-Donner Corp.: See also Mandrel Industries, Inc., Greenleaf Mfg. Div.

T

TA Mfg. Corp., 4607 Alger St., Los Angeles 39, Calif., 90, 97, Tel: 213-CHapman 5-5767, Yr: 1946, Emp: 120

TKM Electric Corp., 820 Linden Ave., Rochester 25, N.Y., 53, 69, Tel: LUdlow 6-8000, Yr: 1951, Emp: 112

TMC (Canada), Ltd., R.R. #5, Ottawa, Ontario, Canada, 1, 3, 18, 19, 24, 29, 33, 42, 43, 44, 59, 62, 84, 90, 93, Tel: 613-TAlbot 2-0244, Yr: 1950, Emp: 100, ▲7, $1,000,000

TRG, Inc. (Technical Research Group), 9 Union Sq., Somerville 43, Mass., 25, 37, 38, 44, 45, 56, 59, 66, Tel: 617- MOnument 6-8680, Yr: 1952, Emp: 140, ▲2

See ads in classes 44, 66

TRG, Inc. (Technical Research Group), 2 Aerial Way, Syosset, L.I., N.Y., 1, 2, 4, 5, 8, 9, 10, 11, 14, 16, 17, 18, 19, 22, 31, 34, 35, 39, 41, 43, 44, 45, 50, 54, 55, 56, 63, 69, 94, 95, 102, 103, Tel: 516-OVerbrook 1-6900, Yr: 1953, Emp: 200, ▲25, $4,000,000

T T Electronics, Inc., P.O. Box 180, Culver City, Calif., 51, 59, 69, Tel: 213-UPton 0-3213, Yr: 1957, Emp: 15

TV Development Corp., 469 Jericho Tnpke., Mineola, L.I., N.Y., 97, 106, Tel: 516-PIoneer 7-3900, Yr: 1950, Emp: 25, ▲1

TV Tower Mfg. Co., 927-29 W. Ninth St., Hazleton, Pa., 44, Tel: 717-GLadstone 4-8221, Yr: 1949, Emp: 4

Taag Designs, Inc., 55 Willoughby St., Brooklyn 1, N.Y., 95, 108, 109, Tel: 212-MAin 4-6772, Yr: 1947, Emp: 375, ▲15

Taber Instrument Corp., 111 Goundry St., North Tonawanda, N.Y., 4, 5, 43, 61, 69, 77, 83, Tel: 716-NX 3-2626, Yr: 1941, Emp: 110, ▲4

Taffet Electronics, Inc., 27-05 Brooklyn-Queens Expwy., Woodside 77, L.I., N.Y., 2, 4, 6, 12, 17, 18, 22, 23, 26, 30, 34, 35, 38, 40, 41, 43, 44, 45, 49, 50, 52, 69, 90, 93, 96, 111, Tel: 212-RAvenswood 1-3500, Yr: 1946, Emp: 110, ▲4, $1,200,000

Talk-A-Phone Co., 5013 N. Kedzie Ave., Chicago 25, Ill., 30, Tel: 312-KEystone 9-1100, ▲1

Talkmaster, Inc., 534 Laurel St., San Carlos, Calif., 30, Tel: LYtell 1-8251, Yr: 1956, Emp: 5, $12,000

Tally Register Corp., 1310 Mercer St., Seattle 9, Wash., 9, Tel: 206-MAin 4-0760, Yr: 1950, Emp: 60, ▲1, $968,000

Tamar Electronics, Inc., 2045 W. Rosecrans Ave., Gardena, Calif., 1, 2, 4, 18, 19, 24, 29, 30, 43, 44, 52, 59, 66, 69, Tel: FAculty 1-5050, Yr: 1952, Emp: 270, ▲10, $3,000,000

Tandberg of America, Inc., 8 Third Ave., Pelham, N.Y., Importers, 27, 79, Tel: PElham 8-0772, Yr: 1946, Emp: 23

Tang Industries, Inc., 8 Mercer Rd., Natick, Mass., 2, 4, 8, 9, 17, 40, 41, 56, 83, 95, 96, 102, 109, Tel: 617-OLympic 5-1520, Yr: 1959, Emp: 125, ▲5

Tanko Screw Products Corp., 9244 S. Stony Island Ave., Chicago 17, Ill., 97, 99, Tel: 312-REgent 1-1310, Yr: 1956, Emp: 45, $450,000

Tannoy (America), Ltd., P.O. Box 177, East Norwich, L.I., N.Y., 65, 68, 79, 90, Tel: 516-WAlnut 2-0780

Tansitor Electronics, Inc., West Rd., Bennington, Vt., 48, Tel: 5473, Yr: 1955, Emp: 300, $2,000,000

Tap-A-Line Mfg. Co., P.O. Box 563, 31 S.W. Fifth Ct., Pompano Beach, Fla., 50, Tel: 305-WHitehall 2-2948, Yr: 1953, Emp: 5, $100,000

Tape-Athon Corp., 523 S. Hindry, Inglewood, Calif., 27, Tel: 213-ORegon 8-5359

Tape Cable Corp., 790 Linden Ave., Rochester 25, N.Y., 91, 109, Tel: 716-LUdlow 6-0330, Yr: 1956, Emp: 19, ▲1, $100,000

Tapeswitch Corp. of America, 229-24 Linden Blvd., Cambria Heights 11, N.Y., 4, 80, 106, Tel: 212-FIeldstone 1-4069, Yr: 1957, ▲1

Tapetone, Inc., 10 Ardlock Pl., Webster, Mass., 3, 43, 53, 69, Tel: 617-943-1727, Yr: 1953, Emp: 14, ▲1, $90,000

Tau Engineering Co., P.O. Box 304, Culver City, Calif., 94, Tel: UPton 0-6001, Yr: 1961, Emp: 10, ▲1

Taurus Corp., Washington St., Academy Hill, Lambertville, N.J., Tel: EXport 7-2390, Yr: 1956, Emp: 50

Taylor Electric, Inc., Fisher Rd., Howell, Mich., 106, 107, 112, Tel: 2985, Yr: 1953, Emp: 15, $250,000

Taylor Fibre Co., Box 471, Norristown 3, Pa., 50, 96, 101, 107, 112, Tel: GLendale 2-2811, Yr: 1891, Emp: 500

Taylor Instrument Companies, 95 Ames St., Rochester 1, N.Y., 2, 4, 28, 40, 61, 74, 82, 90, 97, 99, Tel: 716-BEverly 5-5000, Yr: 1851, Emp: 3200, ▲8

Taylor Instrument Co. (Ohio), Inc., 557 E. Tallmadge Ave., Akron 9, Ohio, 4, Tel: 216-535-1545, Yr: 1945, Emp: 35, ▲1, $50,000

Taylor-Winfield Corp., 1052 Mahoning Ave., Warren, Ohio, 111, Tel: EXpress 2-2521, Yr: 1917, Emp: 550, $700,000

Te Co., 1221 Chapala St., Santa Barbara, Calif., 4, 14, 17, 109, Tel: WOodland 6-7136, Yr: 1959, Emp: 16, $168,000

Teale Machine Co., Inc., 1425 University Ave., Rochester 7, N.Y., 97, Tel: 716-HIllside 5-3810, Yr: 1943, Emp: 100, $100,000

Teca Corp., 80 Main St., White Plains, N.Y., 5, Tel: 914-WHite Plains 6-4593, Yr: 1952, Emp: 16, ▲2

Tech Art Plastics Co., Box 739, Ridgedale Ave., Morristown, N.J., 106, 112, Tel: 201-JEfferson 8-5100, Yr: 1891, Emp: 100, ▲1, $300,000

Tech Industries, Inc., 36 Station Ave., P.O. Box 155, Brockton 69, Mass., 44, 111, Tel: 617-JUniper 7-6630, Yr: 1960, Emp: 50

Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 6, 9, 12, 31, 34, 40, 41, 45, 50, 66, 73, 74, 80, Tel: 201-WIndsor 4-2221, Yr: 1935, Emp: 105, $800,000

See ad in class 80

Tech-Master Corp., 75 Front St., Brooklyn 1, N.Y., 21, 26, 43, 88, Tel: 212-ULster 5-3535

Tech-Ohm Electronics, Inc., Dept. 10, 36-11 33rd St., Long Island City 6, N.Y., 74, Tel: 212-STillwell 6-2274, Yr: 1952, Emp: 40, ▲3, $300,000

See ad in class 74

Tech Tac, Inc., 727 W. Seventh St., Los Angeles 17, Calif., Drafting symbols, Yr: 1953, Emp: 7, $50,000

Technibilt Corp., 905 Air Way, Glendale 1, Calif., 90, Tel: CH 5-7521, Yr: 1946, Emp: 200, $150,000

Technic, Inc., P.O. Box 965, Providence 1, R.I., 94, 104, 109, Tel: 401-ST 1-6100, Yr: 1939, Emp: 25, ▲1

See ad in class 104

Technical Apparatus Builders, 6 Church St., New York 6BG, N.Y., 69, 71, 99, Tel: 212-REctor 2-6245

See ad in class 69

Technical Appliance Corp., N. Main St., Sherburne, N.Y., 44, 66, Tel: 607-ORchard 4-2211, Yr: 1934, Emp: 225, ▲9, $3,000,000

See ad in class 44

Technical Associates, 140 W. Providencia Ave., Burbank, Calif., 22, Tel: 213-VIctoria 9-5839, Yr: 1939, Emp: 45, ▲3, $600,000

Technical Ceramics & Lava Corp., 85 Fifth Ave., Paterson 4, N.J., 48, 55, 75, 86, 92, 101, Tel: 201-ARmory 1-0163, Yr: 1957, Emp: 15

Technical Communications, Inc., 10340 Santa Monica Blvd., Los Angeles 25, Calif., 108, Tel: 213-CRestview 3-1440, Yr: 1955, Emp: 12, ▲1

Technical Devices Co., 11242 Playa Ct., Culver City, Calif., 99, 111, Tel: 213-UPton 0-3751, Yr: 1954, Emp: 40, $500,000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

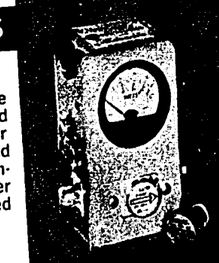
THRULINE

DIRECTIONAL RF WATTMETERS

Model 43 and Rigid Line Series

Direct reading . . . "thru" type measure forward or reflected power in complete systems under operating conditions . . . inserted between transmitter and antenna or load . . . full scale power and frequency range determined by plug-in elements.

50-Ohm nominal



Model	Connectors	ELEMENTS	
		Frequency (mc)	Power Ranges
43	QC Type★	2-30	50, 100, 250, 500, 1000 watts
		25-60; 50-125; 100-250; 200-250; 400-1000	5, 10, 25, 50 100, 250, 500 1000 watts
4712 4715*	1⅝" EIA Flanged	2-30; 25-60; 50-125; 100-250; 200-500; 400-1000	.25, .5, 1, 2.5, 5KW
460 4610*	3⅛" EIA Flanged	2-30; 25-60; 50-125; 100-250; 200-500; 400-1000	1, 2.5, 5, 10, 25KW
4902	6⅛" EIA Flanged	2-30; 25-60; 50-125; 100-250; 200-500; 400-1000	2.5, 5, 10, 25, 50KW
4910	9" Flanged	Per Customer Specifications	

to measure rf power... **THRULINE**

TERMALINE *...to absorb rf power*

Model	Freq. Range	Max. Power	Power Range Scales	Input Connector
6254	30-500 mc	1 w	25, 50, 100, 250, 500 and 1000 milliwatts	Female "BNC"
61	30-500 mc	80 w	Choice of two compatible scales. Lowest .5 watt	Female "N"
611	30-500 mc	60 w	Dual Range 0-15/60 w	Female "N"
612	30-500 mc	80 w	Dual Range 0-20/80 w	Female "N"
67	30-500 mc	500 w	0-25/100/500 watt	Female "N"
694	2- 30 mc	1000 w	0/1000 watt	QC Type★
6835	30-500 mc	1200 w	0-120/600/ 1200 watt	QC Type★
67C*	30-500 mc	2500 w	0-100/500/ 2500 watt	Female "N"

Model	74	71B	72R	72-2
Positions	Six	Eight	Reversing Switch	Two
Coaxial Circuits	One	One	Two	Two
Connector	Type N female connectors are standard on all models to receive UG-21/U series plug. Use adapters with other cables and connectors.			

Model	Max. Power	Frequency Range	*Max. VSWR	Input Connector
80 Series	5 w	0-4 KMC	1.25	Male or Female, N; C; BNC
80 A	20 w	0-2 KMC	1.2	Female "N"
8130	50 w	0-4 KMC	1.2	QC Type★
81B	80 w	0-4 KMC	1.2	Female "N"
8135	150 w	0-4 KMC	1.2	QC Type★
82A	500 w	0-3.3 KMC	1.2	Female "N"
8201	500 w	0-2.5 KMC	1.25	QC Type★
8833	1000 w	0-2.5 KMC	1.25	QC Type★
8813	1000 w	0-2.0 KMC	1.25	1⅝ EIA Flanged
888	1200 w	0-2.0 KMC	1.25	3⅛ EIA Flanged
8890	2500 w	0-2.5 KMC	1.25	QC Type★
82C**	2500 w	0-3.3 KMC	1.2	Female "N"
8950***	5000 w	0-2.5 KMC	1.25	QC Type★

★QC TYPE: Bird Quick-Change Connector, designed for rapid change. Available in following types: Female or Male N, C, HN, BNC, LC, LT, UHF, and ⅞" EIA flanged.

TERMALINE

RF ABSORPTION WATTMETERS

Portable — Non Radiating

Portable . . . direct reading . . . non-radiating "load" type wattmeter . . . used in field or laboratory to measure and absorb power . . . accuracy ±5% of full scale . . VSWR 1.1 to 1 maximum over operating range.

COAXWITCH

COAXIAL SELECTOR SWITCHES

Dependable, manually-operated switches for selecting antennas, receivers, transmitters or other apparatus with coaxial connections. Ideal as a system component in electronic equipment where reliable, repeated channel switching is required; pull knob, rotate, and push in to make contact.

TERMALINE

RF LOAD RESISTOR

Quick-Change Connectors

Reflection-free terminations for 50-ohm coaxial lines . . . low VSWR . . . non-radiating . . . water cooled rating 2500 W to 50 KW . . . air cooled rating to 2.5 KW . . . forced air to 5 KW. Quick-Change Connectors (★QC Type) available on many models.

COAXIAL RF FILTERS

Our extensive engineering and manufacturing facilities are at your command for the custom design and manufacture of filters to your specifications. Intelligent design, skillfull manufacture assure you of highest performance and reliability. New miniature filters, as light as five ozs., are available and can be produced in quantity.

For details, circle #117 on Reader Service Card

Technical Exchange, 3850 Wilshire Blvd., Los Angeles 5, Calif., 95, Tel: 213-DUnkirk 8-1237

Technical Information Corp., 41 Union Sq., New York 3, N.Y., 108, Tel: 212-WAtkins 4-2111, Yr: 1956, Emp: 10, ▲1

Technical Materiel Corp., 700 Fenimore Rd., Mamaroneck, N.Y., 3, 18, 20, 24, 29, 33, 38, 43, 44, 69, 88, Tel: 914-OWens 8-4800, Yr: 1932, Emp: 325, ▲7

See ads in class 38

Technical Measurement Corp., 441 Washington Ave., North Haven, Conn., 8, 9, 10, 11, 22, Tel: 203-CEdar 9-2501, Yr: 1955, Emp: 85, ▲3, $1,200,000

Technical Products Co., 6670 Lexington Ave., Los Angeles 38, Calif., 2, 8, 9, 10, 16, 27, 28, 32, 35, 36, Tel: 213-HOllywood 4-8121, Yr: 1932, Emp: 250, ▲5, $2,000,000

Technical Publishing House, 4 Tyler Rd., Lexington 73, Mass., 108, Tel: 617-VOlunteer 2-8998, Yr: 1953, Emp: 2, ▲1

Technical Recording Chart Div., Graphic Controls Corp., Dept. IR, 139 Van Rensselaer St., Buffalo 10, N.Y., 28, Tel: 716-TL 3-7500, Yr: 1957, Emp: 350, ▲1

See ad in class 28

Technical Service Corp., 917-19 S. Third St., Louisville 3, Ky., 90, Tel: JUniper 7-8476, Yr: 1948, Emp: 10, $150,000

Technical Tape Corp., 240 North Ave., New Rochelle, N.Y., 101, Tel: 914-BEverly 5-1000, Yr: 1948, Emp: 550

Technical Wire Products, Inc., 129 Dermody St., Cranford, N.J., 80, 90, 91, 97, 103, Tel: 201-BRidge 2-3500, Yr: 1958, Emp: 30, ▲2, $600,000

Technicraft Co., 1156 Commonwealth Ave., Boston 34, Mass., 94, 96, 97, 99, 101, Yr: 1946, Emp: 3

Technicraft Div., Electronic Specialty Co., 116 Waterbury Rd., Thomaston, Conn., 37, 44, 45, 59, 66, Tel: 203-ATlas 3-4317, Yr: 1947, Emp: 180, ▲10, $3,000,000

Technique Associates, Div. of Duncan Electric Co., Inc., 1413 N. Cornell Ave., Indianapolis 2, Ind., 4, 40, 61, Tel: 317-MElrose 1-4904, Yr: 1954, Emp: 9, ▲1

Techniques, Inc., 40 Jay St., Englewood, N.J., 50, Tel: 201-LOwell 9-5333, Yr: 1954, Emp: 30, $250,000

Technisonic Studios, Inc., 1201 Brentwood Blvd., Saint Louis 17, Mo., 5, Tel: PArkview 7-1055, Yr: 1929, Emp: 13, ▲1

Technitrol, Inc., 1952 E. Allegheny Ave., Philadelphia 34, Pa., 8, 9, 10, 15, 57, 84, 109, Tel: 215-GArfield 6-9105, Yr: 1947, Emp: 200, ▲15, $2,600,000

Technitron Div., Continental Copper & Steel Industries, Inc., 555 Lehigh Ave., Union, N.J., 41, 80, Tel: 201-MUrdock 7-1290, ▲1

Techno Instrument Co., 6666 Lexington Ave., Los Angeles 38, Calif., 16, 27, Tel: 213-HOllywood 2-7492

Technograph Printed Electronics, Inc., 920 Northwest Blvd., Winston-Salem, N.C., 50, Tel: 919-723-0767, Yr: 1951, Emp: 5, ▲1

Technology Instrument Corp., 531 Main St., Acton, Mass., 31, 34, 35, 38, 40, 43, 57, 74, 77, 80, 83, 97, 106, Tel: 617-COlonial 3-7711, Yr: 1946, Emp: 700, ▲10

Technology Instrument Corp. of Acton, 533 Main St., Acton, Mass., 38, 43, 80, Tel: 617-COlonial 3-7756, Yr: 1946, Emp: 700

Technology Instrument Corp. of California, 850 Lawrence Dr., Newbury Park, Calif., 57, 74, 77, 83, Tel: 805-HUdson 5-2165, Yr: 1954, Emp: 235, ▲15

Techron Corp., 20 Simmons St., Boston 20, Mass., 50, Tel: 617-HIghlands 5-2150, Yr: 1951, Emp: 28

See ad in class 50

Techtro-Matic Corp., Box 490, Bellows Falls, Vt., 10, 27, 30, 43, 50, 69, 74, 91, 96, 106, Tel: HIllcrest 5-5543, $142,000

Teimer Co., Inc. (Roland), 134 Tremont St., Everett 49, Mass., 96, Tel: 617-DUnkirk 7-7800

Teknis Co., Plainville, Mass., 14, Tel: MYrtle 9-4707, Yr: 1959, Emp: 6, $500,000

Tektronix, Inc., P.O. Box 500, Beaverton, Ore., 5, 21, 23, 37, 38, 39, 41, 43, Tel: MI 4-0161, Yr: 1946, Emp: 4000, ▲100

Tel Instrument Electronics Corp., 728 Garden St., Carlstadt, N.J., 21, 36, 38, 39, 43, 53, 69, 72, Tel: 201-WEbster 3-1600, Yr: 1947, Emp: 60, ▲4, $900,000

Tel-Laboratories, Inc., 1050 Second St., Manchester, N.H., 74, Tel: NAtional 3-5711, Yr: 1950, Emp: 50, ▲1

TELautograph Corp., 8700 Bellanca Ave., Los Angeles 45, Calif., 1, 9, 15, 21, 26, 28, 33, Tel: 213-ORegon 8-4756, Yr: 1916, Emp: 289, ▲5, $3,943,556

Tele Coil Co., 2733 Saunders St., Camden 5, N.J., 45, 51, 59, 84, Tel: 609-EMerson 5-7528, Yr: 1946, Emp: 27

Tele-Communications, Inc., 50 Drumm St., San Francisco 11, Calif., 24, 30, 33, 42, Tel: YUkon 2-4314, Yr: 1960, Emp: 12, ▲1, $125,000

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Telechrome Mfg. Corp., 185 Dixon Ave., Amityville, L.I., N.Y., 1, 3, 4, 8, 9, 10, 11, 17, 18, 19, 20, 21, 22, 26, 29, 32, 33, 34, 37, 42, 43, 49, 50, 52, 53, 59, 69, 96, 109, Tel: 516-LIncoln 1-3600, Yr: 1950, Emp: 510, ▲15, $4,038,000

Telecomputing Corp., 915 N. Citrus Ave., Los Angeles 38, Calif., 1, 2, 4, 8, 9, 10, 11, 18, 25, 27, 34, 35, 37, 43, 44, 46, 48, 50, 51, 53, 54, 59, 67, 69, 73, 75, 83, 84, 90, 92, 94, 96, 99, 101, 107, 108, 109, Tel: 213-HOllywood 4-0181, Yr: 1947, Emp: 3000, ▲15, $14,000,000

Telecomputing Corp., Advanced Structures Div., 801 Royal Oaks Dr., Monrovia, Calif., 44, 54, 66, 90, 96, 99, 103, 107, Tel: ELliott 8-3211, Yr: 1950, Emp: 750

Telecomputing Corp., Electronic Components Div., 12838 Saticoy St., North Hollywood, Calif., 48, 51, 59, 73, 84, Tel: TRiangle 7-8181, Yr: 1947, Emp: 3225, ▲14, $49,000,000

Telecomputing Corp., Narmco Materials Div. of Narmco Industries, Inc. (Subsid.), 600 Victoria St., Costa Mesa, Calif., 94, 101, 107, Tel: LIberty 8-4092, Yr: 1944, Emp: 150

Telecomputing Corp., Power Sources Div., 3850 Olive St., Denver 7, Colo., 46, Tel: 303-DUdley 8-4836, Yr: 1955, Emp: 90

Telecomputing Corp., Value Engineered Products, Inc. (Subsid.), 890 Monterey Pass Rd., Monterey Park, Calif., 1, 18, 19, 25, 77, Tel: ANgelus 8-8501, Yr: 1960, Emp: 150, ▲1

Telecomputing Corp., Whittaker Gyro Div., 16217 Lindbergh St., Van Nuys, Calif., 2, 80, 83, Tel: 213-TRiangle 3-1950, Yr: 1953, Emp: 300, ▲5

Telecomtrol Corp., 20 Diller Ave., Newton, N.J., 1, 4, 19, 20, 24, 29, 34, 40, 41, 42, 43, 44, 59, 66, 69, 88, 109, Tel: 201-DUpont 3-2650, Yr: 1958, Emp: 15, ▲2

Telectro Industries Corp., 35-16 37th St., Long Island City 1, N.Y., 1, 6, 9, 12, 13, 18, 20, 21, 22, 23, 24, 27, 30, 31, 34, 43, 50, 53, 68, 83, 84, 103, Tel: 212-YEllowstone 2-8600, Yr: 1948, Emp: 475, ▲15, $500,000

Telectron Div., Elliott & Evans, Inc., 4050 S.W. 14th Ave., Fort Lauderdale, Fla., 19, 24, 51, 84, Tel: 305-JAckson 4-8361, Yr: 1933, Emp: 125, $1,857,856

Telegraph Condenser Co., Ltd., North Acton, London W.3, England, 12, 48, 49, 50, 55, 57, 81, 92, 101, Tel: ACOrn 0061, Yr: 1906

Telegraph Condenser Co., Ltd., United Insulator Div., Oakcroft Rd., Chessington, Surrey, England, 60, 75, Tel: ELMbridge 5241, Yr: 1938, Emp: 400

Telemetrics, Inc., 12927 S. Budlong Ave., Gardena, Calif., 2, 9, 10, 11, 34, Tel: FAculty 1-6321, Yr: 1960, Emp: 58, ▲4, $600,000

Telephone Dynamics Corp., 32 Sunrise Hwy., Baldwin, L.I., N.Y., 5, 13, 16, 18, 65, 70, 79, Tel: 516-BAldwin 3-1248, Yr: 1955, Emp: 6, ▲1, $150,000

Telephonics Corp., Park Ave., Huntington, L.I., N.Y., 1, 2, 29, 43, 65, 69, 79, Tel: 516-HAmilton 3-6200, Yr: 1934, Emp: 490, ▲10, $500,000

Telepix Corp., 1515 N. Western Ave., Hollywood 27, Calif., 109, Tel: 213-HOllywood 4-7391

Teleregister Corp., 445 Fairfield Ave., Stamford, Conn., 8, 9, 24, 63, Tel: 203-FIreside 8-4291, Yr: 1928, Emp: 1050, ▲50, $12,000,000

Telesis Co., 14 Commerce St., Newark 2, N.J., 95, Tel: 201-MArket 3-1155, ▲1

Teletype Corp., 5555 Touhy Ave., Skokie, Ill., 8, 9, 33, Tel: 312-ORchard 6-1000, Yr: 1907, Emp: 5000, ▲14

Television Associates, Inc., Div. of Melpar, Inc., E. Barker Ave., Michigan City, Ind., 13, 32, 50, 81, 96, Tel: TRiangle 4-7207, Yr: 1943, Emp: 150, ▲2

Television Laboratories, Inc., 333 Mill St., Wauconda, Ill., 51, Tel: JAckson 6-2511, Yr: 1947, Emp: 110, ▲1, $1,100,000

Television Utilities Corp., Div. of Nord, 135 Fulton Ave., Garden City Park, L.I., N.Y., 21, 26, 27, 42, 43, 69, Tel: 516-PIoneer 6-4300, Yr: 1948, Emp: 21, ▲1, $100,000

Television Zoomar Co., 500 Fifth Ave., New York 36, N.Y., 32, Tel: 212-BRyant 9-5835, Yr: 1947, Emp: 45, ▲1

Televiso Corp., Wheeling & Exchange Rds., Wheeling, Ill., 1, 2, 18, 29, 35, 36, 38, 59, Tel: LE 7-5100, Yr: 1937, Emp: 100, $1,200,000

Telewave Laboratories, Inc., 43-20 34th St., Long Island City 1, N.Y., 74, Tel: 212-EXeter 2-4500

Telex/Aemco, Div. of Telex, Inc., 10 State St., Mankato, Minn., 4, 10, 73, Tel: 8-6288, Yr: 1918, Emp: 360, $2,200,000
See ad in class 73

Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 2, 4, 10, 13, 17, 32, 43, 50, 51, 53, 59, 61, 62, 63, 69, 72, 73, 77, 79, 80, 83, 84, 91, 96, 99, Tel: 612-MIdway 6-7211, Yr: 1936, Emp: 1100, ▲20, $17,400,000
See ads in classes 79, 80

Telex, Inc., Ballastran Div., 1701 N. Calhoun St., Fort Wayne 7, Ind., 59, 84, Tel: EAstbrook 9602, Yr: 1946, Emp: 135, ▲7, $1,200,000

Telkor, Inc., Box 186, Elyria, Ohio, 13, 33, 43, 44, 53, 67, 69, 90, 93, 96, 97, 109, Tel: FA 2-8623, Yr: 1929, Emp: 12, $44,000

Telonic Engineering Corp., P.O. Box 277, Laguna Beach, Calif., 35, 37, 38, 39, 45, 59, 66, 80, Tel: 714-HYatt 4-7581, Yr: 1956, Emp: 30, ▲2
See ad in class 39

Telonic Industries, Inc., 60 N. First Ave., Beech Grove, Ind., 2, 4, 38, 39, 45, 59, 80, Tel: 317-STate 7-7241, Yr: 1954, Emp: 46, ▲3
See ad in class 39

Telrex Laboratories, Asbury Park, N.J., 44, Tel: PRospect 5-7252, Yr: 1947, Emp: 20, ▲2

Teltronics, Inc., 23-27 Main St., Nashua, N.H., 35, 38, 41, 43, 50, 69, 95, 96, 109, Tel: 603-TUxedo 2-6264, Yr: 1959, Emp: 6, ▲2, $20,000
See ad in class 38

Tempel Steel Co., 1939 Bryn Mawr Ave., Chicago 26, Ill., 104, Tel: 312-ARdmore 1-8100, Yr: 1945, Emp: 325, ▲2, $5,000,000

Temperature Engineering Corp., 1800 Tempcor Blvd., Riverton, N.J., 36, 40, 90, 95, 98, 99, Tel: 609-829-3880, Yr: 1956, Emp: 108

Tempil Corp., 132 W. 22nd St., New York 11, N.Y., 61, 94, Tel: 212-ORegon 5-6610, Yr: 1940, Emp: 25

Templeman Co. (D. R.), 8 Park St., Plainville, Conn., 97, Tel: 203-SHerwood 7-2709, Yr: 1938, Emp: 25

Templet Industries, Inc., 701 Atkins Ave., Brooklyn 9, N.Y., 90, 96, Tel: 212-BR 2-7300, Yr: 1940, Emp: 90

Tempo Instrument, Inc., 6 Commercial St., P.O. Box 338, Hicksville, L.I., N.Y., 4, 9, 10, 11, 34, 50, 73, 80, Tel: 516-OVerbrook 1-2280, Yr: 1957, Emp: 130, $2,000,000

Ten Bosch, Inc. (M.), 80 Wheeler Ave., Pleasantville, N.Y., 2, 4, 8, 31, 41, 43, 61, 77, 83, 84, 96, Tel: 914-ROgers 9-3000, Yr: 1950, Emp: 100, ▲1

Tenco Electronics, Inc., 108 Cummington St., Boston 15, Mass., 41, 51, 53, 59, 69, 84, 96, Tel: 617-KEnmore 6-4780, Yr: 1959, Emp: 30, ▲1, $180,000

Tenna Mfg. Co., Inc., 7580 Garfield Blvd., Cleveland 25, Ohio, 44, 52, Tel: 216-VUlcan 3-8080, Yr: 1944, Emp: 350, ▲2, $5,500,000

Tennalab, 417 S. Tenth St., Quincy, Ill., 44, Tel: BAldwin 2-0237, Yr: 1950, Emp: 3, ▲1

Tenney Engineering, Inc., 1090 Springfield Rd., Union, N.J., 2, 4, 36, 67, 69, 95, Tel: 201-MUrdock 6-7870, Yr: 1932, Emp: 325, ▲1, $2,000,000

Tensitron, Inc., P.O. Box 185, Harvard, Mass., 41, 111, Tel: 617-GLadstone 6-3511, Yr: 1935, Emp: 15, ▲2, $50,000

Tensolite Insulated Wire Co., Inc., Subsid. of Carlisle Corp., W. Main St., Tarrytown, N.Y., 91, 107, Tel: 914-MEdford 1-2300, Yr: 1944, Emp: 255, ▲1
See ad in class 91

Tensor Electric Development Co., Inc., 1873 Eastern Pkwy., Brooklyn 8, N.Y., 5, 13, 30, 40, 43, 51, 59, 84, Tel: 212-HYacinth 5-9200, Yr: 1949, Emp: 75, ▲4, $700,000

Terado Co., 1068 Raymond Ave., Saint Paul 8, Minn., 17, 53, 69, 73, 99, Tel: MIdway 6-2868, Yr: 1941, Emp: 30

Teradyne, Inc., 87 Summer St., Boston 10, Mass., 4, 41, 43, 78, Tel: 617-HAncock 6-6731, Yr: 1960, Emp: 10, ▲2

Terry Co. (George A.), 356 S. Elmwood Ave., Buffalo 1, N.Y., 111, Tel: 716-TL 4-0633, Yr: 1911

Tesla Research Foundation, Box 63, Sugar House, Salt Lake City 6, Utah, 8, 10, 12, 40, 41, 43, 69, Tel: IN 6-7590, Yr: 1957, Emp: 12, $15,000

Tevco Insulated Wire, 108 Prospect, Burbank, Calif., 91, Tel: 213-VIctoria 9-5574, Yr: 1950, Emp: 50, ▲1, $1,000,000

Texas Capacitor Co., 4310 Langley Rd., Houston 16, Texas, 48, Tel: HI 2-2581, Yr: 1953, Emp: 35, ▲2, $150,000

Texas Crystals, 1000 Crystal Dr., Fort Myers, Fla., 56, Tel: WEstmore 6-2100, Yr: 1955, Emp: 40, ▲1, $400,000

Texas Instruments Incorporated, Apparatus Div., Government Products Group, P.O. Box 6015, Dallas 22, Texas, 1, 43, Tel: 214-FLeetwood 7-5411, ▲217

Texas Instruments Incorporated, Apparatus Div., Industrial Products Group, P.O. Box 6027, Houston 6, Texas, 28, 41, Tel: 713-JAckson 6-1411, ▲40

Texas Instruments Incorporated, Metals & Controls, Inc. (Div.), 34 Forest St., Attleboro, Mass., 80, Tel: AT 1-2800, ▲1

Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expwy., P.O. Box 5012, Dallas 22, Texas, 2, 4, 8, 9, 10, 14, 16, 17, 18, 19, 23, 25, 28, 34, 37, 41, 43, 45, 48, 50, 58, 61, 66, 71, 73, 74, 76, 80, 82, 91, 100, 102, 104, 109, 110, 112, Tel: 214-ADams 5-3111, Yr: 1930, Emp: 17,000, ▲440, $232,713,000
See ad on Cover 3

Texas Research Associates Corp., 1701 Guadalupe St., Austin 1, Texas, 95, 109, Tel: GReenwood 6-3514, Yr: 1957, Emp: 94, ▲8, $600,000

Textran Corp., P.O. Box 9207, Austin 17, Texas, 4, 10, 13, 31, 95, 109, Tel: GLendale 3-6658, Yr: 1956, Emp: 29, ▲5, $160,000

Textron Electronics, Inc., Globe Electronics Div., 22-30 S. 34th St., Council Bluffs, Iowa, 20, 24, 29, 38, Tel: 328-1836, Yr: 1955, Emp: 200, ▲6

Textron Electronics, Inc., Schafer Custom Engineering Div., 235 S. Third St., Burbank, Calif., 9, 19, 21, 27, 34, 42, Tel: 213-THornwall 5-3561, Yr: 1953, Emp: 40, ▲2, $1,100,000

Textron, Inc., Homelite Div., 6807 Riverdale Ave., Port Chester, N.Y., 69, Tel: 914-WEstmore 9-3400, Yr: 1921, Emp: 1700, ▲1

Textron, Inc., Sheffco Mfg. Corp. (Div. of Townsend Co.), 323 Bergen Blvd., Fairview, N.J., 96, 97, 105, Tel: WHitney 5-1300, Yr: 1944, Emp: 90, ▲2, $400,000

Therm, Inc., 200 Hudson St. Extension, Ithaca, N.Y., 4, 5, 17, 34, 37, 40, 44, 45, 49, 52, 58, 59, 61, 66, 73, 80, 82, 83, 92, 95, 96, 109, Tel: 607-AR 2-8500, Yr: 1935, Emp: 245, ▲6, $550,000

Therm-O-Disc, Inc., Mansfield, Ohio, 4, 73, 82, Tel: LAyafette 2-4311, Yr: 1947, Emp: 480, ▲18, $1,200,000

Thermal American Fused Quartz Co., Inc., 18-20 Salem St., Dover, N.J., 112 Tel: 201-FOxcroft 6-2807, Emp: 50

Thermal Circuits, Inc., 59 Park St., Beverly, Mass., 98, Tel: 617-WAlker 2-6045

Thermal Controls, Inc., 41-43 River Rd., North Arlington, N.J., 60, 73, Tel: 201-WYman 8-8080, Emp: 35, ▲2, $500,000

Thermal Dynamic Products, Inc., Div. of Waltham Precision Instrument Co., 38 W. 53rd St., New York 19, N.Y., 4, 17, 36, 98, Tel: 212-CIrcle 5-7917

Thermal Wire of America, Keeler's Bay, South Hero, Vt., 91, Tel: South Hero 241, Yr: 1958, Emp: 75

Thermalic Electronics Corp., 14743 Lull St., Van Nuys, Calif., 4, 36, 56, 61, 74, 80, 82, 83, 98, Tel: 213-ST 1-2210, Yr: 1956, Emp: 25, $50,000

Thermax Wire Corp., 304 E. 45th St., New York 17, N.Y., 91, 107, 112, Tel: 212-MUrray Hill 9-7120, Yr: 1956, Emp: 30

Thermech Engineering Corp., 1773 Lincoln Ave., Anaheim, Calif., 106, 109, Yr: 1949, Emp: 25

Thermel, Inc., 669 Elmwood Ave., Providence, R.I., 4, 36, 54, 56, 80, 82, 109, Tel: 401-STuart 1-6500, Yr: 1960, Emp: 12

Thermo Electric Co., Inc., 109 Fifth St., Saddle Brook, N.J., 2, 4, 17, 40, 43, 52, 61, 77, 80, 82, 91, 98, Tel: 201-HUbbard 9-5800, Yr: 1941, Emp: 400

Thermo Electron Engineering Corp., 85 First Ave., Waltham 54, Mass., 58, Tel: 617-TWinbrook 4-8700, Yr: 1956, Emp: 75, ▲3, $800,000
See ad in class 58

Thermo Products Co., Inc., 213 W. Pioneer Rd., Cedarburg, Wis., 61, 82, 90, 91, Tel: 414-HOpkins 4-1450, Yr: 1955, Emp: 10, $265,000

ThermoCal, Inc., 1631 Colorado Ave., Santa Monica, Calif., 80, Tel: 213-STate 1-1641

Thermolloy Co., P.O. Box 4341, 381 N. Pearl, Dallas 8, Texas, 54, 56, 97, 105, Tel: RIverside 2-6570, Yr: 1958, Emp: 35, $50,000

Thermosen, Inc., 375 Fairfield Ave., Stamford, Conn., 86, 87, Tel: 203-DAvis 5-1324, Yr: 1952, Emp: 11, $100,000

Thermovolt Instruments, Ltd., 70 Advance Rd., Toronto 18, Canada, 4, 17, 28, 36, 37, 40, 41, 61, 62, 77, 82, 96, 98, 109, Tel: BE 1-7134, Yr: 1953, Emp: 35, ▲1

Theta Instrument Corp., 520 Victor St., Saddle Brook, N.J., 2, 4, 11, 35, 38, 40, 43, 61, 77, 83, 97, Tel: 201-HUbbard 7-3508, Yr: 1956, Emp: 35
See ad in class 97

Thiokol Chemical Corp., 780 N. Clinton Ave., Trenton 7, N.J., 94, Tel: 609-EXport 6-4001, Yr: 1929, Emp: 400, ▲10

Thomas & Betts Co., Inc., 36 Butler St., Elizabeth 1, N.J., 52, 81, 97, Tel: 201-ELizabeth 4-4321, Yr: 1898, Emp: 1000, ▲2

Thomas Electronics, Inc., 118 Ninth St., Passaic, N.J., 86, Tel: 609-GRegory 3-4040, Yr: 1949, Emp: 1000, ▲4

Thomas Instrument Co., Silver Rock, Phoenix, N.Y., 5, 111, Tel: 315-OWen 5-5134, Yr: 1937, Emp: 10

Thomas Mold & Die Co., 249 W. Henry St., Wooster, Ohio, 44, Tel: ANgeles 2-5911, Yr: 1925, Emp: 30, $300,000

Thomas & Skinner, Inc., 1120 E. 23rd St., Indianapolis 7, Ind., 55, 64, 99, 111, Tel: 317-WAlnut 3-2501, Yr: 1925, Emp: 250

Thomas & Sons, Inc. (William), 1063 Slocum Ave., Ridgefield, N.J., 96, 105, Tel: 201-WHitney 3-5500, Yr: 1943, Emp: 80, $75,000

Thompson Fibre Glass Co. (H. I.), 1733 Cordova St., Los Angeles 7, Calif., 44, 96, 101, 103, 107, Tel: 213-REpublic 3-9161, Yr: 1944, Emp: 775, ▲2

Thompson, Ltd. (J. Langham), 176 High Rd., Bushey Heath, Herts., England, 2, 4, 5, 11, 14, 23, 28, 34, 36, 40, 43, 53, 61, 69, 71, 74, 83, 90, 93, 109, Tel: Bushey Heath 2411, Yr: 1948, Emp: 850, $6,000,000

Thompson Ramo Wooldridge Inc., 8433 Fallbrook Ave., Canoga Park, Calif. & 23555 Euclid Ave., Cleveland, Ohio, Tel: 213-DIamond 6-6000 (Los Angeles), Yr: 1901, Emp: 27,000, ▲700, $73,000,000

Thompson Ramo Wooldridge Inc., Bell Sound Div., 6325 Huntley Rd., Columbus 24, Ohio, 9, 26, 27, 30, 43, 79, 88, Tel: 614-HIckory 3-7675, Yr: 1933, Emp: 300, ▲5

Thompson Ramo Wooldridge Inc., Dage Div., 455 Sheridan Ave., Michigan City, Ind., 4, 21, 26, 27, 32, 39, 42, 43, 50, Tel: TRiangle 4-3251, Yr: 1952, Emp: 300, ▲20

Thompson Ramo Wooldridge Inc., Educational Electronics Div., 532 Sylvan Ave., Englewood Cliffs, N.J., 13, 19, 21, 26, 27, 32, 42, 43, 69, Tel: 201-LOwell 7-5200

Thompson Ramo Wooldridge Inc., Good-All Electric Mfg. Co. (Electronic Components Group), 112 W. First St., Ogallala, Nebr., 48, 52, Tel: 284-3611, Yr: 1926, Emp: 700, ▲5, $6,000,000

Thompson Ramo Wooldridge Inc., Radio Condenser Co. (Subsid.), Davis & Copewood Sts., Camden 3, N.J., 4, 37, 49, 59, 77, 88, Tel: 609-EMerson 5-5500, Yr: 1924, Emp: 1500, ▲12, $13,413,283

Thompson Ramo Wooldridge Inc., Radio Condenser Co., Research & Development Div., Claremont Ave., Thornwood, N.Y., 109, Tel: 914-ROgers 9-2766, Yr: 1924, Emp: 16, ▲2

Thompson Ramo Wooldridge Inc., Radio Industries, Inc. (Subsid.), 666 Garland Pl., Des Plaines, Ill., 48, 50, 51, 71, 84, Tel: 312-VAnderbilt 7-4402, Yr: 1945, Emp: 500, ▲1

Thompson Ramo Wooldridge Inc., Ramsey Corp. (Subsid.), P.O. Box 513, Saint Louis 66, Mo., 97, Tel: CApital 7-5371, Yr: 1920, Emp: 500

Thompson Ramo Wooldridge Inc., STL Products Div. of Space Technology Laboratories, 8929 S. Sepulveda, Los Angeles, Calif., 2, 4, 5, 10, 14, 17, 28, 31, 32, 34, 37, 40, 43, 54, 57, 69, 95, 109, Tel: 213-ORchard 1-7621, Yr: 1954, Emp: 5000, ▲400, $60,000,000

Thompson Ramo Wooldridge Inc., Tapco Div., 23555 Euclid Ave., Cleveland 17, Ohio, 1, 2, 4, 5, 8, 9, 10, 34, 43, 53, 58, Tel: IVanhoe 1-7500, ▲40, $3,360,000

Thomson Electric Welder Co., 161 Pleasant St., Lynn, Mass., 99, 109, 111, Tel: 617-LYnn 2-7710, Yr: 1886, Emp: 65, $1,300,000

Thomson-Houston (Compagnie Francaise), Group Electronique, 173 Blvd. Haussmann, Paris 8, France, 1, 2, 4, 8, 9, 10, 11, 13, 18 19, 20, 21, 22, 24, 25, 26, 29, 32, 33, 40, 42, 43, 44, 50, 51, 53, 54, 55, 56, 58, 59, 66, 69, 71, 76, 77, 80, 84, 86, 87, 91, 93, 99, 105, Yr: 1893, Emp: 15,000, ▲15

Thor Ceramics, Inc., 225 Belleville Ave., Bloomfield, N.J., 52, 55, 75, 81, 86, 92, 97, 101, 105, 106, 107, 112, Tel: 201-PIlgrim 3-7797, Yr: 1948, Emp: 70, ▲1, $500,000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

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Thordarson-Meissner, 7th & Bellmont, Mount Carmel, Ill., 51, 39, 72, 84, Tel: Mount Carmel 1200, Yr: 1895, Emp: 500

Three Point One Four Corp.: See Chlorivolt Corp.

Thwing-Albert Instrument Corp., Penn St. & Pulaski Ave., Philadelphia 44, Pa., 40, Tel: 215-VIctor 8-7200, Yr: 1900, Emp: 100

Tibbetts Industries, Inc., Colcord Ave., Camden, Me., 65, Tel: CEdar 6-3366, Yr: 1945, Emp: 115, ▲2

Tickle Engineering Works, Inc. (Arthur), 21 Delevan St., Brooklyn 31, N.Y., 54, 94, 99, 109, Tel: 212-MAin 5-4200, Yr: 1904, Emp: 300

Timber-Top, Inc., 38 Brooklyn Ave., Freeport, L.I., N.Y., 97, Tel: 516-FReeport 9-0850, Yr: 1957, Emp: 4, $40,000

Time & Frequency, 127 S. Batavia Ave., Batavia, Ill., 31, 35, 53, 57, 59, 83, Tel: 312-TRemont 9-7800, Yr: 1959, Emp: 35, ▲4, $150,000

Time-O-Matic, Div. of E-S Industries, Inc., New Bahls St., Danville, Ill., 4, 34, 61, 63, Tel: HIckory 2-0611, Yr: 1932, Emp: 70, $350,000

Tinnerman Products, Inc., Dept. 16, P.O. Box 6688, Cleveland 1, Ohio, 97, Tel: 216-SHadyside 1-9300, Yr: 1870, Emp: 800

Tinsley Laboratories, Inc., 2448 Sixth St., Berkeley 10, Calif., 14, 16, 17, 56, Tel: 415-THornwall 3-6836, Yr: 1946, Emp: 35

Tipptronic, Inc., 510 E. Washington St., Chagrin Falls, Ohio, 4, 11, 21, 28, 36, 40, 41, 61, 69, 73, 74, 95, 96, Tel: 216-CHestnut 7-7773, Yr: 1952, Emp: 15, $50,000

Titan Metal Mfg. Co., Div. of Cerro Corp., Bellefonte, Pa., 97, 104, Tel: EL 5-4712, Yr: 1915, Emp: 1100

Titan Transformer Co., Inc., 229 Binney St., Cambridge 42, Mass., 84, Tel: 617-ELiot 4-1464, Yr: 1960, Emp: 20

Titchener & Co. (E. H.), 67 Clinton St., Binghamton, N.Y., 32, 78, 89, 90, 93, 96, 97, 109, Tel: 607-RAymond 4-4354, Yr: 1886, Emp: 170

Todd Electric Co., Inc., 6 Brook St., Yonkers, N.Y., 84, Tel: 914-YOnkers 3-8850, Yr: 1952, Emp: 100, ▲3, $1,000,000

See ad in class 84

Tocco Metal Products, Inc., 70 Marblehead Rd., Tuckahoe 7, N.Y., 90, 93, Tel: 914-WOodbine 1-8056, Yr: 1936, Emp: 26

Toko Radio Coil Laboratories, Ltd., 59, Yukigaya-cho, Ohta-ku, Tokyo, Japan, 43, 49, 50, 51, 57, 59, 74, 84, Tel: 782-3151, Yr: 1955, Emp: 1500, ▲1

Tokyo Shibaura Electric Co., Ltd., 1 Komukai, Kawasaki-shi, Japan, 1, 2, 4, 5, 8, 9, 10, 11, 15, 18, 19, 20, 21, 23, 24, 25, 26, 27, 29, 30, 32, 37, 39, 42, 44, 55, 59, 64, 65, 66, 68, 69, 76, 79, 85, 86, 87, 88, Yr: 1880, Emp: 50,000, ▲10, $100,000,000

Topatron, Inc., 11601 Anabel Ave., Garden Grove, Calif., 36, 90, 103, Tel: 714-JEfferson 4-0450, Yr: 1952, Emp: 30

Topflight Corp., 160 E. 9th Ave., York, Pa., 97, Tel: YOrk 8-1541, Yr: 1942, Emp: 90

Topic Electronics, Inc., Natick Industrial Center, Natick, Mass., 48, Tel: 617-OLympic 3-6113, Yr: 1958, Emp: 68, ▲4, $495,000

Topper Mfg. Co., Inc., 115-02 Myrtle Ave., Richmond Hill 18, N.Y., 5, 50, 51, 74, 76, 77, 92, 94, 96, 98, 109, Tel: 212-HIckory 1-6760, Yr: 1946, Emp: 75, ▲1, $30,000

Topping Electronics, Ltd., 94 Laird Dr., Toronto 17, Ontario, Canada, 1, 4, 18, 20, 24, 33, 35, 38, 40, 43, 44, 53, 59, 69, 84, 96, 109, Tel: 421-2270, Yr: 1955, Emp: 35, ▲2, $300,000

Tork Time Controls, Inc., 32 Grove St., Mount Vernon, N.Y., 4, 61, Tel: 914-MOunt Vernon 4-3542, Yr: 1923, Emp: 90

Torngren Co., Inc. (C. W.), 236 Pearl St., Somerville 45, Mass., 44, 96, Tel: 617-MOnument 6-3250, Yr: 1925, Emp: 60, $200,000

Torocoil Co., 1211 N. Chestnut Ave., Arlington Heights, Ill., 12, 43, 51, 84, Yr: 1948, Emp: 4, $20,000

Toroidal Components Co., 1374 E. Walnut St., Pasadena, Calif., 51, 84, Tel: SYcamore 5-7123, Yr: 1956, Emp: 10, $150,000

Toroids Unlimited, Inc., 3830 Terrace St., Philadelphia 28, Pa., 51, 84, Tel: 215-IVyridge 2-7178, Yr: 1960, Emp: 10, ▲1

Torotel, Inc., 5512 E. 110th St., Kansas City 34, Mo., 43, 51, 59, 84, Tel: 816-SOuth 1-6314, Yr: 1956, Emp: 60, ▲2, $350,000

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Torotor A/S, c/o Sales Engineering Associates, 605 N. MacQuesten Pkwy., Mount Vernon, N.Y., 43, 49, 51, 78, 80, 84, 88, Tel: 914-MOunt Vernon 8-6650, Yr: 1925, Emp: 1100, $4,000,000

Torotron Corp., Dept. D, 256 E. Third St., Mount Vernon, N.Y., 4, 12, 31, 43, 51, 53, 59, 84, Tel: 914-MOunt Vernon 8-6900, Yr: 1952, Emp: 62, ▲6, $800,000

See ad in class 51

Torres Engineering Co., Inc., (C.), 5 Caroline St., South Hackensack, N.J., 80, 96, 109, Tel: 201-HUbbard 7-4760, Yr: 1954, Emp: 20, ▲2, $295,000

Torrington Co., 59 Field St., Torrington, Conn., 96, 97, 105, Tel: 203-HUnter 2-4441, Yr: 1866, Emp: 6000, $500,000

Torrington Mfg. Co., Inc., Specialty Blower Div., 100 Franklin Dr., Torrington, Conn., 47, Tel: 203-HUnter 2-4422, Yr: 1885, Emp: 990, ▲2, $750,000

Torsion Balance Co., 35 Monhegan St., Clifton, N.J., 80, Tel: 201-GRegory 3-6900, Yr: 1882, Emp: 150

Torwico Electronics, Inc., Rt. 70 & New Hampshire Ave., Lakewood, N.J., 43, 51, 53, 59, 69, 72, 73, 75, 84, 109, Tel: 201-FOxcroft 3-6363, Yr: 1951, Emp: 165, ▲1, $1,200,000

Touch-Plate Mfg. Corp., P.O. Box 1970, Long Beach 1, Calif., 73, 80, 84, Tel: 213-NEvada 6-8171, Yr: 1947, Emp: 25, $100,000

Towaco Electronics, Pinebrook Rd., Towaco, N.J., 21, 35, Tel: 201-DEerfield 4-4443, Yr: 1954, Emp: 4, ▲1, $100,000

Tower Construction Co., 2700 Hawkeye Dr., Sioux City 2, Iowa, 44, 90, 96, 111, Tel: 2-3631, Yr: 1945, Emp: 162, ▲3, $2,600,000

See ad in class 44

Tower Mfg. Corp., 138 Pine St., Providence 3, R.I., 52, 80, Tel: 401-DExter 1-2380, Yr: 1946, Emp: 12

Tracerlab Keleket, 1601 Trapelo Rd., Waltham 54, Mass., 4, 5, 8, 9, 10, 11, 22, 40, 63, 69, 80, 84, 86, 94, 95, 96, Tel: 617-TWinbrook 4-6600, Yr: 1945, Emp: 600, ▲10, $12,565,682

Tradewinds Mfg. Co., 5718 N. 25th Ave., Omaha 11, Nebr., 61, Tel: 455-2569, Yr: 1958, Emp: 4

Traid Corp., 17136 Ventura Blvd., P.O. Box 648, Encino, Calif., 14, 23, 32, Tel: 213-TRiangle 3-3373, Yr: 1946, Emp: 30

Trak Microwave Corp., 5006 N. Coolidge Ave., Tampa 3, Fla., 19, 34, 37, 43, 66, Tel: REdwood 6-6422, Yr: 1960, Emp: 12, ▲1, $150,000

Trancoa Chemical Corp., 312-326 Ash St., Reading, Mass., 96, 102, 104, 106, Tel: 617-944-4700, Yr: 1957

Trans Electronics, Inc., 7349 Canoga Ave., Canoga Park, Calif., 41, 53, 69, Tel: DIamond 0-3333, Yr: 1944, Emp: 50

Trans-Lux Corp., 625 Madison Ave., New York 22, N.Y., 13, 32, Tel: 212-PLaza 1-3111, Yr: 1923, Emp: 125

Trans-Sil Corp., 55 Honeck St., Englewood, N.J., 71, 76, Tel: 201-LOwell 7-1720, Yr: 1957, Emp: 70, ▲2, $900,000

Trans-Sonics, Inc., Wheeler Rd., Burlington, Mass., 4, 40, 83, Tel: 617-BRowning 2-1000, Yr: 1948, Emp: 175, ▲8, $1,900,000

Trans-Tech, Inc., P.O. Box 457, 12 Meem Ave., Gaithersburg, Md., 55, 56, 92, 100, 103, 109, Tel: 301-WIndsor 8-3800, Yr: 1956, Emp: 25, ▲1, $300,000

Transco Products, Inc., 12210 Nebraska Ave., Los Angeles 25, Calif., 44, 45, 57, 59, 66, 67, 73, 80, Tel: 213-GRanite 8-4241, Yr: 1942, Emp: 150, ▲8, $2,000,000

Transdata, Inc.: See Ryan Aeronautical Co.

Transdyne Corp., 43 Albertson Ave., Albertson, L.I., N.Y., 2, 13, 37, Tel: 516-PIoneer 1-4990, Yr: 1954, Emp: 75, ▲5, $600,000

Transelectric Mfg. Co., P.O. Box 97, Oxford, Pa., 27, 30, Tel: 215-932-9265, Yr: 1940, Emp: 25, ▲1, $250,000

Transformer Design, Inc. of Milwaukee, 7377 N. 76th St., Milwaukee 23, Wis., 51, 59, 69, 84, Tel: 414-FLagstone 3-8017, Yr: 1954, Emp: 13, ▲1, $180,000

Transformer-Electronics Co., Boulder Industrial Park, Boulder, Colo., 11, 16, 41, 51, 53, 84, Tel: HIllcrest 2-3837, Yr: 1958, Emp: 23, $100,000

Transformer Engineers, 285 N. Halstead Ave., Pasadena, Calif., 43, 51, 59, 69, 70, 84, Tel: 213-MUrray 1-6906, Yr: 1945, Emp: 110, ▲3, $1,178,988

Transformer Manufacturers, Inc., 5435 Northwest Hwy., Chicago 30, Ill., 51, 53, 69, 84, Tel: 312-SPring 4-4600, Yr: 1949, Emp: 150, $1,500,000

Transformer Specialty Co., 1400 Mill Creek Rd., Gladwyne, Pa., 84, Tel: 215-MIdway 9-4360

Transformer Technicians, Inc., 2608 N. Cicero Ave., Chicago 39, Ill., 43, 59, 69, 84, Tel: 312-NAtional 2-8140

Transformers, Inc., 200 Stage Rd., Vestal, N.Y., 6, 12, 43, 51, 53, 59, 69, 84, Tel: 607-PIoneer 8-3311, Yr: 1951, Emp: 101, ▲1

Transis-Tronics, Inc., 1601 Olympic Blvd., Santa Monica, Calif., 13, 26, 30, 41, 43, 88, Tel: GLadstone 1-1401, Yr: 1958, Emp: 100, ▲3, $500,000

Transistor Applications, Inc., 103 Broad St., Boston 10, Mass., 1, 4, 5, 10, 16, 36, 41, 43, 50, 51, 57, 77, 96, Tel: 617-HAncock 6-1794, Yr: 1957, Emp: 80, ▲6, $760,000

Transistor Devices, Inc., 40 Factory St., Cedar Grove, N.J., 17, 31, 53, 69, 71, Tel: 201-CEnter 9-1000, Yr: 1951, Emp: 25, ▲3, $250,000

Transistor Electronics Corp., 3357 Republic Ave., Minneapolis 26, Minn., 9, 41, 63, 80, Tel: 612-WEst 9-6754, Yr: 1958, Emp: 100, ▲1, $750,000

Transistor Specialties, Inc., Terminal Dr., Plainview, L.I., N.Y., 4, 5, 9, 11, 31, 40, 109, Tel: 516-WElls 5-8700, Yr: 1959, Emp: 50, ▲2

Transitron Electronic Corp., Albion St., Wakefield, Mass., 41, 48, 49, 50, 54, 56, 58, 71, 74, 76, 80, 83, Tel: 617-245-4500, Yr: 1952, Emp: 5200, ▲40, $48,000,000

Translite Electronics Corp., 5720 W. Armitage Ave., Chicago 39, Ill., 26, 30, 51, 84, Tel: 312-BErkshire 7-4756, Yr: 1947, Emp: 50, ▲1, $200,000

Transmagnetics, Inc., 40-66 Lawrence St., Flushing 54, N.Y., 4, 10, 34, 43, 53, 69, 77, Tel: 212-LEnox 9-2750

Transonic, Inc., 808 16th St., Bakersfield, Calif., 43, 51, 53, 55, 59, 65, 69, 77, 83, 84, 86, 92, Tel: FAirview 7-5701, Yr: 1951, Emp: 180, ▲2

Transport Products Corp., 3008 Magazine St., Louisville 11, Ky., 7, 41, 51, Tel: SPring 4-5711, Yr: 1945, Emp: 55, $800,000

Transval Electronics Corp., 2030 Maple Ave., El Segundo, Calif., 50, 69, 84, 90, Tel: 213-ORegon 8-0341, Yr: 1952, Emp: 150, ▲4, $1,000,000

Trav-Ler Radio Corp., 571 W. Jackson Blvd., Chicago 6, Ill., 26, 27, Tel: 312-HArrison 7-9151, Yr: 1921, Emp: 1000, ▲1

Travis Fabrics, Inc., 1071 6th Ave., New York 18, N.Y., 101, Tel: 212-LOngacre 4-1940, Yr: 1946, Emp: 100

Trenton Transformer Corp., Box 568, Trenton 8, N.J., 41, 69, 84, Tel: 609-OWen 5-3451, Yr: 1950, Emp: 25

Trepac Corp. of America, 30 W. Hamilton Ave., Englewood, N.J., 4, 7, 9, 19, 33, 43, 50, 73, 80, 96, Tel: 201-LOwell 7-3810, Yr: 1957, Emp: 17, $200,000

Tresco, Inc., 3824 Terrace St., Philadelphia 28, Pa., 43, 51, 59, 84, Tel: 215-IVyridge 3-1383, Yr: 1951, Emp: 185, ▲4, $1,500,000

Tri-Dex Co., P.O. Box 1207, Lindsay, Calif., 51, 81, 91, 96, Tel: LIndsay 2-4051, Yr: 1951, Emp: 8, $50,000

Tri-Ex Tower Corp., 127 E. Inyo St., Tulare, Calif., 44, Tel: MUrdock 6-3411, Yr: 1955, Emp: 20, ▲1, $300,000

Tri Metal Works, Inc., 1600 Bannard St., Riverton, N.J., 4, 36, 90, 93, 96, 98, 99, 109, Tel: 609-829-2000, Yr: 1946, Emp: 100, $20,000

Tri-Point Industries, Inc., 175 I. U. Willets Rd., Albertson, L.I., N.Y., 106, 107, 112, Tel: 516-MAyfair 1-5800, Yr: 1950, Emp: 135

Tri-Tronics Co., 2607 Saint Charles Rd., Bellwood 4, Ill., 4, Tel: 312-LInden 4-7010, Yr: 1952, Emp: 4.

Triangle Associates, R.D. #1, Triangle Rd., Somerville, N.J., 95, Tel: 201-359-3465

Triangle Electronic Mfg. Co., Inc., 340 Mill St., Poughkeepsie, N.Y., 41, 91, 96, Tel: 914-GRover 1-5020, Yr: 1955, Emp: 85, $1,000,000

Tricon Mfg. Co., 8008 Wallace St., Chicago 20, Ill., 80, 104, 109, Tel: 312-ABerdeen 4-0600, Yr: 1945, Emp: 40

Tricraft Products Corp., 1122 W. Newport Ave., Chicago 13, Ill., 44, 91, Tel: 312-WEllington 5-5383, Yr: 1955, ▲1

Trimm, Inc., 400 W. Lake St., Libertyville, Ill., 52, 62, 79, Tel: EMpire 2-3700, Yr: 1922, Emp: 100, ▲1

Trimount Plastic Co., Inc., Industrial Park, New Bedford, Mass., 97, 107, Tel: 617-WYman 5-1731, Yr: 1946, Emp: 80, $250,000

Trinity Equipment Corp., West Rd., Cortland, N.Y., 82, 90, 91, 99, Tel: 607-SKyline 6-7535, Yr: 1941, Emp: 120

Trio Laboratories, Inc., DuPont Dr., Plainview, L.I., N.Y., 2, 4, 31, 40, 43, 61, 69, 109, Tel: 516-OVerbrook 1-0400, Yr: 1954, Emp: 65, ▲4, $1,500,000
See ad in class 40

Trionics Corp., Div. of Nautec Corp., P.O. Box 548, Madison 1, Wis., 13, 40, 41, 44, 48, 50, 55, 56, 69, 72, 74, 75, 80, 92, 94, 95, 96, 99, 100, 101, 103, 105, 109, Tel: 608-CEdar 8-2616, Yr: 1957, Emp: 20, ▲3, $215,000

Triplett Electrical Instrument Co., 286 Harmon Rd., Bluffton, Ohio, 61, 82, Tel: Bluffton 3231, Yr: 1904, Emp: 740, ▲3
See ad in class 61

Tronex, Inc., Tenth St., Millville, N.J., 75, 92, Tel: 609-TAylor 5-1750, Yr: 1888, Emp: 350, $1,000,000
See ad in class 75

Tronic Coil Winding Co., Inc., 58 Wesley St., Waterbury, Conn., 51, 53, 69, 84, 109, Tel: 203-PL 6-4668, Yr: 1953, Emp: 15, $100,000

Trott Electronics, Inc., 412 Smith St., Rochester 8, N.Y., 2, 4, 5, 11, 22, 36, 40, 41, 43, 50, 53, 69, 90, 93, 95, 96, Tel: 716-HAmilton 6-0150, Yr: 1950, Emp: 20, ▲1, $260,000

Trought Associates, Inc., 116 Greylock Ave., Belleville 9, N.J., 105, 109, Tel: 201-PLymouth 1-0330, Yr: 1945, Emp: 30, $300,000

Tru-Connector Corp., 416 Union St., Lynn, Mass., 52, Tel: 617-LYnn 8-9379, Yr: 1951, Emp: 34, ▲1, $517,000
See ad in class 52

Tru-Ohm Products, Div. of Model Engineering & Mfg., Inc., 3426 W. Diversey Blvd., Chicago 47, Ill., 74, Tel: 312-EVerglade 4-2646, Emp: 400, ▲2
See ad in class 74

Trutone Electronics, Inc., 6912 Santa Monica Blvd., Hollywood 38, Calif., 26, 30, 43, 88, Tel: 213-HO 4-8118, Yr: 1944, Emp: 30

Trygon Electronics, Inc., 111 Pleasant Ave., Roosevelt, L.I., N.Y., 69, Tel: 516-FReeport 8-2800, Yr: 1959, Emp: 40, ▲6

Tubular Rivet & Stud Co., Weston Ave., Quincy 70, Mass., 80, 81, 97, Tel: 617-PResident 3-1776, Yr: 1873, Emp: 600

Tuck Mfg. Co., 19 Ellis Ave., West Bridgewater, Mass., 111, Tel: 617-JUniper 3-1188, Yr: 1852, Emp: 4

Tucor, Inc., 59 Danbury Rd., Wilton, Conn., 45, 66, 86, Tel: 203-POrter 2-3361, Yr: 1959, Emp: 30, ▲3, $175,000

Tullamore Electronics Corp., Subsid. of Victoreen Instrument Co., 6726 S. Ashland Ave., Chicago 36, Ill., 40, Tel: 312-PRospect 8-4700

Tung-Sol Electric, Inc., 1 Summer Ave., Newark 4, N.J., 53, 69, 71, 75, 76, 80, 85, 86, 87, Tel: 201-HUmboldt 4-8500, Yr: 1904, Emp: 5777, ▲60
See ad on pages 62-63

Tung-Sol Electric, Inc., East Orange Plant, 545 N. Arlington Ave., East Orange, N.J., 50, 73, 102, Tel: 201-PIlgrim 8-8700, ▲15

Tur-Bo Jet Products Co., Inc., 424 S. San Gabriel Blvd., San Gabriel, Calif., 51, Tel: 213-CUmberland 3-5191, Yr: 1946, Emp: 90

Turbo Machine Co., Lansdale, Pa., 2, 19, 37, 44, 45, 57, 66, 84, 88, Tel: ULysses 5-5131, Yr: 1920, Emp: 350, ▲6, $1,000,000

Turner Associates (G. K.), 2524 Pulgas Ave., Palo Alto, Calif., 22, 40, Tel: 415-DAvenport 4-0077, Yr: 1958, Emp: 9, ▲1, $220,000

Turner Co., 909 17th St. N.E., Cedar Rapids, Iowa, 65, Tel: EMpire 3-8144, Yr: 1931, Emp: 150

Twin Coach Co., Aircraft & Missiles Div., 30 S. Cayuga Rd., Buffalo 25, N.Y., 66, 90, 93, Tel: 716-NF 2-5150, Yr: 1927, Emp: 2100, $1,250,000

Twin Lock, Inc., 1024 W. Hillcrest Blvd., Inglewood 1, Calif., 81, Tel: 213-ORegon 8-4773, Yr: 1957, Emp: 20, ▲2

Ty-Car Mfg. Co., Inc., 9 Green St., Holliston, Mass., 96, 97, Tel: 617-GArden 9-4355, Yr: 1946, Emp. 55, $400,000

Tyco Semiconductor Corp., Bear Hill Rd., Waltham 54, Mass., 50, 54, 58, 71, 74, 76, 109, Tel: 617-TWinbrook 9-2400, Yr: 1960, Emp: 65, ▲11

Tyler Co. (W. S.), 3615 E. Superior Ave., Cleveland 14, Ohio, 91, Tel: 216-HEnderson 1-5400, Yr: 1872, Emp: 1400

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UMC Electronics Co.: See Maxson Electronics Corp., United Mfg. Co. (Div.)

U-Test-M Mfg. Co., Inc., Div. of Astrex, Inc., 825 W. Cleveland Ave., Milwaukee 15, Wis., 41, Tel: 414-EVergreen 4-3630, Yr: 1950, Emp: 52, $1,000,000

Ulanet Co. (George), 416 Market St., Newark 5, N.J., 73, 80, 82, Tel: 201-MArket 2-4876, Yr: 1931, Emp: 40
See ad in class 82

Ulmer Co. (H. W.), 2941 San Luis Rey Rd., Oceanside, Calif., 4, 9, 22, 40, 54, 69, 80, 82, 86, 87, 98, 99, 109, 111, Tel: 714-SAratoga 2-1511, Yr: 1960, Emp: 5, ▲1, $50,000

Ultek Corp., 920 Commercial St., Palo Alto, Calif., 69, 99, Tel: 415-DAvenport 1-4117, Yr: 1959, Emp: 40, ▲2

Ultra Electroforming & Mfg. Co., 110 Cedar Ave., Pitman, N.J., 96, 109, Tel: 609-LUther 9-7666, Yr: 1936

Ultra-Violet Products, Inc., 5114 Walnut Grove Ave., San Gabriel, Calif., 5, 40, 87, 94, 112, Tel: CUmberland 3-3193, Yr: 1932, Emp: 32

Ultramotive Co., 7460 Girard Ave., La Jolla, Calif., 90, 94, 96, 97, 99, 109, 111, Tel: GLencourt 4-4271, Yr: 1961, Emp: 15, ▲1

Ultrasonic Industries, Inc., Ames Ct., Engineers' Hill, Plainview, L.I., N.Y., 4, 36, 40, 41, 43, 94, 99, 109, 111, Tel: 516-OVerbrook 1-2000, Yr: 1959, Emp: 65, ▲5, $600,000

Ultraudio Products, Div. of Oberline, Inc., P.O. Box 921, Beverly Hills, Calif., 30, 32, 35, 41, 43, Tel: 213-CRestview 6-2726, Yr: 1954, Emp: 12, ▲1

Ultronix, Inc., 111 E. 20th Ave., San Mateo, Calif., 6, 12, 31, 41, 45, 50, 74, 77, Tel: 415-FIreside 5-7921, Yr: 1956, Emp: 200, ▲2, $1,000,000

Underwood Electric & Mfg. Co., Inc., 4926 W. Grand Ave., Chicago 51, Ill., 48, 49, Yr: 1938, Emp: 120

Ungar Co., Inc. (Sid), 1729 W. Washington Blvd., Venice, Calif., 111, Tel: UPton 0-8955, Yr: 1958, Emp: 10, ▲9

Ungar Electric Tools, Div. of Eldon Industries, Inc., 1475 E. El Segundo Blvd., Hawthorne, Calif., 111, Tel: PLymouth 7-2151, Yr: 1932, Emp: 506

Unholtz-Dickie Corp., 2994 Whitney Ave., Hamden 18, Conn., 36, 40, 41, 43, 83, Tel: 203-ATwater 8-3358, Yr: 1958, Emp: 21, ▲5, $500,000
See ad in class 36

Uni-Seal, Inc., 477 North Ave., Garwood, N.J., 52, 56, 75, 81, Tel: SUnset 9-0800, Yr: 1959, Emp: 100

Uni-Tel, Inc., 509 Balsam St., Liverpool, N.Y., 43, 50, 78, 107, 109, 111, 112, Tel: 315-OLdfield 2-7043

Uniform Tubes, Inc., Collegeville, Pa., 91, 112, Tel: 215-HUxley 9-7276, Yr: 1940, Emp: 104, ▲1, $1,000,000

Unilectron, Inc., 129 Binney St., Cambridge 42, Mass., 5, 14, 40, 41, Tel: 617-TRowbridge 6-6400, Yr: 1959, Emp: 10, ▲2
See ad in class 40

Union Carbide Corp., Linde Co. (Div.), 270 Park Ave., New York 17, N.Y., 4, 17, 22, 40, 54, 56, 94, 99, 100, 104, 105, 111, Tel: 212-LL 1-2345, ▲10

Union Carbide Corp., Silicones Div., 270 Park Ave., New York 17, N.Y., 94, 101, Tel: 212-LL 1-5825, Yr: 1955

Union Carbide Corp., Union Carbide Consumer Products Co. (Div.), 270 Park Ave., New York 17, N.Y., 46, 63, Tel: 212-LL 1-2345, Yr: 1886, Emp: 4000, ▲40

Union Carbide Corp., Union Carbide Metals Co. (Div.), 270 Park Ave., New York 17, N.Y., 104, Tel: 212-LL 1-2345, Yr: 1906

Union Carbide Corp., Union Carbide Plastics Co. (Div.), 270 Park Ave., New York 17, N.Y., 107, Tel: 212-LL 1-2345

Union Diesel Engine Co., 2121 Diesel St., Oakland 6, Calif., 4, 54, Yr: 1885, Emp: 75

Union Electric & Mfg. Co., 1057 Summit Ave., Jersey City, N.J., 84, Tel: 201-OLdfield 6-1100, Yr: 1938, Emp: 160, ▲3

Union Metal Mfg. Co., 1432 Maple Ave. N.E., Canton 5, Ohio

Union Steel Chest Corp., 54 Church St., LeRoy, N. Y., 90, Tel: 584, Yr: 1893, Emp: 125

Union Switch & Signal, Div. of Westinghouse Air Brake Co., Braddock Ave., Pittsburgh 18, Pa., 4, 11, 21, 61, 73, Tel: 412-CHurchill 2-5000, Yr: 1881, Emp: 1250, ▲10
See ad in class 73

Union Ultra-Sonics Corp., 111 Penn St., Quincy 69, Mass., 83, 99, Tel: 617-GRanite 9-6844, Yr: 1956, Emp: 9

Unique Wire Weaving Co., Inc., 763 Ramsey Ave., Hillside, N.J., 91, Tel: 201-MUrdock 8-4600

Unison Products, Inc., 1634 Marion St., Grand Haven, Mich., 37, 43, 52, 66, 80, 96, 109, Tel: 616-842-1452, Yr: 1956, Emp: 42, $250,000

Unistrut Products Co., 933 W. Washington Blvd., Chicago 7, Ill., 90, 93, Tel: 312-MOnroe 6-2665

Unit Process Assemblies, Inc., 53-15 37th Ave., Woodside 77, N.Y., 41, 94, 99, Tel: 212-TWining 9-9090

Unitech Corp., 50 Colfax Ave., Clifton, N.J., Importers, Drafting equipment, Tel: 201-PRescott 3-7100

United Aircraft Corp., Research Laboratories, 400 Main St., East Hartford 8, Conn., Tel: 203-JAckson 8-4811, ▲21

United Aircraft Products, Inc., 1116 Bolander Ave., Dayton, Ohio, 4, 54, 82, 96, 97, 109, Tel: BAldwin 4-3841, Yr: 1929, Emp: 460, ▲115, $600,000

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

United Carbon Products Co., 1310 N. Madison, Bay City, Mich., 98, 102, 111, 112, Tel: TWinbrook 3-4575, Yr: 1945, Emp: 100

United-Carr Fastener Corp., Carr Fastener Co. (Div.), 31 Ames St., Cambridge 42, Mass., 75, 96, 97, 105, 106, Tel: 617-KIrkland 7-4900, Yr: 1914, Emp: 4000, ▲10

United-Carr Fastener Corp., Palnut Co. (Div.), 10-A Glen Rd., Mountainside, N.J., 97, Tel: 201-ADams 3-3300

United-Carr Fastener Corp., Ucinite Co. (Div.), 459 Watertown St., Newtonville, Mass., 52, 62, 80, Tel: 617-LAsell 7-8400, Yr: 1937, Emp: 600, ▲1

United Components, Inc., 105 Lincoln Ave., Orange, N.J., 75, 76, Tel: 201-ORange 7-3030, Yr: 1959, Emp: 102, ▲1, $600,000
See ads in classes 75, 76

United Condenser Corp., 3400 Park Ave., New York 56, N.Y., 48, Tel: 212-CYpress 2-5180, Yr: 1946, Emp: 60, ▲1, $700,000

United Control Corp., P.O. Box 3104, Seattle 14, Wash., 1, 2, 4, 9, 34, 43, 54, 59, 61, 63, 69, 73, 77, 80, 82, 83, 84, Tel: TUcker 5-3711, Yr: 1948, Emp: 1000, ▲10, $11,727,976

United Electric Controls Co., 85 School St., Watertown 72, Mass., 4, 28, 61, 80, Tel: 617-WAltham 6-1000, Yr: 1931, Emp: 175

United ElectroDynamics, Inc., 200 Allendale Rd., Pasadena, Calif., 1, 2, 4, 8, 16, 34, 43, 69, 80, Tel: 213-SY 9-7161, Yr: 1951, Emp: 630, ▲5

United Electronic Mfg. Corp., 542 39th St., Union City, N.J., 48, Tel: 201-UNion 5-4452, Yr: 1950, Emp: 25, ▲1

United Fabricators & Electronics, Inc., S. Greeley St., Stillwater, Minn., 99, 106, Yr: 1952, Emp: 88, ▲1, $820,000

United International Dynamics Corp., 243 Lexington St., Waltham 54, Mass., 78, 80, 96, Tel: 617-TWinbrook 4-7271, Yr: 1957, Emp: 35, ▲1, $75,000

United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., Importers, 6, 12, 40, 41, 43, 45, 48, 49, 51, 55, 61, 66, 74, 78, 81, 86, 92, 97, 101, 102, 104, 105, 106, 109, Tel: 212-BEekman 3-8870, Yr: 1945, Emp: 150, ▲2
See ads in classes 74, 104

United Products Co., 165 Franklin Ave., Nutley 10, N.J., 45, 49, 55, 66, 75, 81, 92, 96, 97, 101, 103, 106, 107, 109, Tel: 201-NOrth 7-3930, Yr: 1950, Emp: 15, $125,000

United Sensor & Control Corp., Glastonbury, Conn., 82, Tel: 203-ME 3-2867, Yr: 1950, Emp: 10

United Shoe Machinery Co., 140 Federal St., Boston 7, Mass., 2, 19, 25, 34, 36, 37, 43, 44, 45, 59, 66, 84, 88, 97, 99, 109, Tel: 617-LIberty 2-9100, Yr: 1899, Emp: 8000, ▲10

U.S. Components, Inc., 1320 Zerega Ave., New York 62, N.Y., 52, Tel: 212-TAlmadge 4-1600, Yr: 1949, Emp: 180, ▲5

U.S. Controls, Inc., 410 Fourth Ave., Brooklyn 15, N.Y., 4, 95, 96, Tel: 212-MAin 4-7507, Yr: 1954, Emp: 13

U.S. Dielectric Products, Inc., 98 Adams St., Leominster, Mass., 44, 45, 52, 66, 96, 105, 106, 107, 109, Tel: 617-KEystone 7-0781, Yr: 1957, Emp: 21, ▲1

United States Dynamics, 10 Dedham St., Newton Highlands 61, Mass., 99, Tel: 617-WOodward 9-9655, Yr: 1955, ▲1, $100,000

U.S. Electronics Corp., 280 Warren St., Lyndhurst, N.J., 51, 59, 80, 84, 106, Tel: 201-GEneva 8-2400, Yr: 1948, Emp: 50, ▲1, $350,000

U.S. Expansion Bolt Co., 500 State St., York, Pa., 97, 111, Tel: 7361, Yr: 1908, Emp: 140

United States Gauge Div., American Machine & Metals, Inc., Sellersville, Pa., 2, 4, 35, 40, 61, 67, 83, Tel: 215-ALpine 7-6531, Yr: 1904, Emp: 1300, ▲19

U.S. Gear Corp., 81 Bay State Rd., Wakefield, Mass., 77, Tel: 617-245-4900, Yr: 1953, Emp: 40

United States Instrument Corp., Box 1288-ID, Charlottesville, Va., 11, 30, 50, 73, 79, 80, 81, 90, 99, Tel: 3-5153, Yr: 1937, Emp: 500

U.S. Magnet & Alloy Corp., Dept 62, 266 Glenwood Ave., Bloomfield, N.J., 64, 96, 104, Tel: 201-PIlgrim 3-1222, Yr: 1959, Emp: 45
See ad in class 64

U.S. Mineral Wool Co., Stanhope, N.J., 97, 101, 103, Tel: NEtcong 2-1200, Yr: 1875, Emp: 150

U.S. Nuclear Corp., P.O. Box 208, 801 N. Lake St., Burbank, Calif., 22, 95, Yr: 1959, Emp: 40, ▲2

U.S. Precision Lens & Plastics, Inc., 626 Broadway, Cincinnati 2, Ohio, 96, 106, Tel: 513-381-0667, Yr: 1930, Emp: 10, $10,000

United States Radium Corp., Hanover Ave., Morristown, N.J., 63, 90, 94, 97, 105, 109, Tel: 201-JEfferson 9-4000, Yr: 1917, Emp: 450, ▲2, $2,500,000

U.S. Recording Co., 1347 S. Capitol St., Washington 3, D.C., 5, 13, 21, 27, 28, 30, 32, 43, 45, 68, 70, Tel: 202-LIncoln 3-2705, Yr: 1935, Emp: 55, ▲1, $1,200,000

United States Rubber Co., 1230 Ave. of the Americas, New York 20, N.Y., 94, 97, 101, 106, 107, 112, Tel: 212-CIrcle 7-5000, ▲3

United States Rubber Co., Naugatuck Chemical Div., Elm St., Naugatuck, Conn., 94, 107, Tel: 203-PA 9-5241, Yr: 1892, Emp: 60,000, ▲3

U.S. Science Corp., Subsid. of United Industrial Corp., 5221 W. 102nd St., Los Angeles 45, Calif., 1, 2, 4, 8, 9, 10, 21, 26, 40, 41, 44, 61, 69, 77, 80, 83, 84, 99, Tel: 213-SPring 6-0450, Yr: 1953, Emp: 283, ▲10, $4,600,000

U.S. Semiconductor Products, Inc., Div. of Nuclear Corp. of America, 3540 W. Osborn Rd., Phoenix 19, Ariz., 48, 71, 76, Tel: 602-BRowning 2-1341, Yr: 1957, Emp: 250, ▲4, $2,250,000

U.S. Sonics Corp., 63 Rogers St., Cambridge 42, Mass., 4, 18, 36, 40, 41, 43, 57, 58, 59, 61, 65, 68, 83, 84, 92, 95, 99, 100, Tel: 617-KI 7-2502, Yr: 1958, Emp: 100, ▲10, $500,000

United States Steel Corp., 525 William Penn Pl., Pittsburgh 30, Pa., 44, 91, 97, 104, 112, Tel: 412-EXpress 1-2345, Yr: 1901, Emp: 225,000, ▲5

U.S. Stoneware Co., Alite Div., P.O. Box 119, Orrville, Ohio, 75, 81, 92, 97, 105, 109, Tel: MOnica 9-2271, Yr: 1859

United States Testing Co., Inc., 1415 Park Ave., Hoboken, N.J., 109, Tel: 201-SWarthmore 2-2400, Yr: 1880, Emp: 450, ▲4, $750,000

United States Time Corp., Waterbury 20, Conn., 2, 80, 83, Tel: 212-PLaza 9-5665, Yr: 1859, Emp: 7000, ▲5

U.S. Tool Co., 255 N. 18th St., East Orange, N.J., 99, Tel: 201-ORange 5-4000, Yr: 1914, Emp: 175

U.S. Transistor Corp., 149 Eileen Way, Syosset, L.I., N.Y., 43, 69, 76, Tel: 516-WAlnut 1-5800, ▲1

United States Underseas Cable Corp., 2001 Wisconsin Ave., N.W., Washington 7, D.C., 69, 91, Tel: 202-FEderal 7-3210

U.S. Wire & Cable Corp., Progress & Monroe Sts., Union, N.J., 91, Tel: 201-MUrdock 8-1100, Yr: 1945

United Transformer Corp., 150 Varick St., New York 13, N.Y., 12, 43, 51, 57, 59, 84, Tel: 212-ALgonquin 5-3500, Yr: 1933, ▲3
See ad on Cover 2

Unitek Corp., Weldmatic Div., 950 Royal Oaks Dr., Monrovia, Calif., 99, Tel: 714-Elliott 9-8361, Yr: 1948, Emp: 185, ▲3, $1,000,000

Unitrode Transistor Products, Inc., 214 Calvary St., Waltham 54, Mass., 71, 76, Tel: 617-TWinbrook 9-8988, Yr: 1960, Emp: 50, ▲4

Universal Circuit Controls, 3610 Oakton St., Skokie, Ill., 9, 80, Tel: 312-ORchard 5-2620, Yr: 1954, Emp: 18, ▲2, $100,000

Universal Data Systems, Inc., 1091 Rockaway Ave., Valley Stream, L.I., N.Y., 13, Tel: 516-LOcust 1-2510, Yr: 1960, Emp: 5, ▲1

Universal Electric Co., 300 E. Main St., Owosso, Mich., 67, Tel: 517-SAratoga 5-7174

Universal Electronics Co., 1720 22nd St., Santa Monica, Calif., 69, Tel: 213-EXbrook 3-9219, Yr: 1952, Emp: 20, $250,000
See ad in class 69

Universal Instruments Corp., 139 E. Frederick St., Binghamton, N.Y., 4, 96, 99, Tel: 607-RAymond 2-1244, Yr: 1919, Emp: 200, ▲3, $1,000,000

Universal Mfg. Co., Inc., 1168 Grove St., Irvington 11, N.J., 11, 12, 41, 96, 99, 105, Tel: 201-ESsex 4-9800, Yr: 1941, Emp: 80, ▲1, $600,000

Universal Match Corp., Armament Div., 472 Paul Ave., Saint Louis 35, Mo., 2, 4, 43, 73, 75, 77, 80, 91, 94, 108, 109, Tel: JAckson 2-1620, Yr: 1925, Emp: 5400, ▲15, $3,000,000

Universal Motor Corp., 677 Universal Dr., Oshkosh, Wis., 99, Tel: 414-BEverly 1-7440, Yr: 1898, Emp: 85

Universal Products Engineering Co., 4326 Taylor, Racine, Wis., 44, Tel: 414-MElrose 7-2527, Yr: 1949, Emp: 6, $150,000

Universal Toroid Coil Winding, Inc., 171 Coit St., Irvington 11, N.J., 43, 51, 53, 84, 96, 109, Tel: 201-ESsex 4-9806, Yr: 1958, Emp: 20, ▲1, $200,000

Universal Transformer Co., P.O. Box 437, Wylie, Texas, 51, 69, 84, Tel: EXbrook 4-2231, Yr: 1957, Emp: 24, ▲1, $190,000

Universal Transistor Products Corp., 36 Sylvester St., Westbury, L.I., N.Y., 17, 22, 53, 69, Tel: 516-EDgewood 3-3304, Yr: 1955, Emp: 30, ▲2, $400,000

Univox Corp., 102 Warren St., New York 7, N.Y., 1, 2, 30, 43, 91, 96, Tel: 212-WOrth 2-5630, Yr: 1945, Emp: 40, ▲3, $1,000,000

Uppco, Inc., 900 S. Desplaines St., Chicago 7, Ill., 67, Tel: 312-HArrison 7-4805, Yr: 1928, Emp: 175, ▲1, $3,000,000

Utah Radio Products Corp., 1124 E. Franklin St., Huntington, Ind., 43, 79, 84, 96, Tel: Huntington 3100, Yr: 1921, Emp: 245, ▲1, $3,500,000

Utilities Service Co., 1 Pine St., Allentown, Pa., 44, 96, Tel: HEmlock 4-9541, Yr: 1931, Emp: 39

V

V-M Corp., 305 Territorial, Benton Harbor, Mich., 27, 43, 68, Tel: WAlnut 5-8841, ▲4

Vacap Corp., 1905 Summit Ave., Union City, N.J., 49, Tel: 201-UNion 7-6699, Yr: 1955, Emp: 10, ▲1, $100,000

Vaco Products Co., 317 E. Ontario St., Chicago 11, Ill., 111, Tel: 312-WH 4-2340, Yr: 1937, Emp: 250

Vactric (Control Equipment), Ltd., Vactric House-207, Sloane St., London S.W. 1, England, 43, 67, 73, 77, 80, 97, Tel: BELgravia 7000

Vactronic Lab. Equipment, Inc., 21 Monmouth Ct., East Northport, L.I., N.Y., 36, 40, 99, Tel: 516-ANdrew 1-2660, Yr: 1959, Emp: 12
See ad in class 99

Vacuum Ceramics, Inc., 15 W. Main St., Cary, Ill., 52, 75, 81, 92, Tel: MErcury 9-7554, Yr: 1954, Emp: 150

Vacuum-Electronics Corp., Terminal Dr., Plainview, L.I., N.Y., 4, 14, 40, 98, 99, Tel: 516-OVerbrook 1-8300, Yr: 1945, Emp: 250, ▲10, $4,500,000

Vacuum Instrument Corp., 4 Stepar Pl., Huntington Station, L.I., N.Y., 40, 99, Tel: 516-HAmilton 3-5520, Yr: 1957, Emp: 15, $200,000

Vacuum Specialties Co., Inc., 34 Linden St., Somerville 43, Mass., 4, 36, 98, 99, Tel: 617-MOnument 6-5450, Yr: 1954, Emp: 55, ▲1

Vacuum Technology, Inc., 7933 Gloria Ave., Van Nuys, Calif., 94, 99, 104, 105, Tel: 213-STate 6-0440, Yr: 1959, Emp: 6, $40,000

Valco Mfg. Co., 4700 W. Walton, Chicago 51, Ill., 43, 79, Tel: 312-MAnsfield 6-7574, Yr: 1927, Emp: 35

Valcor Engineering Corp., 365 Carnegie Ave., Kenilworth, N.J., 51, 77, 99, Tel: 201-CHestnut 5-1665, Yr: 1950, Emp: 75

Valor Instruments, Inc., 13214 Crenshaw Blvd., Gardena, Calif., 43, 51, 53, 57, 59, 69, 84, Tel: DAvis 3-6160, Yr: 1954, Emp: 70, ▲1

Valpey Crystal Corp., 1100 Highland St., Holliston, Mass., 10, 17, 31, 34, 35, 38, 43, 56, 92, 93, 98, 112, Tel: 617-GArden 9-4851, Yr: 1931, Emp: 70, ▲1, $750,000
See ads on this page and in class 56

Valverde Laboratories, 252 Lafayette St., New York 12, N.Y., 82, 95, Tel: 212-WAlker 5-6742, Yr: 1930, Emp: 5

Van Nostrand Co., Inc. (D.), 120 Alexander St., Princeton, N.J., 108, Tel: 609-WAlnut 1-6000, Yr: 1848, Emp: 240, ▲1
See ad in class 108

Vanguard Electronics Co., 3384 Motor Ave., Los Angeles 34, Calif., 50, 51, 57, 59, 84, Tel: 213-UPton 0-6721, Yr: 1952, Emp: 50, ▲2

Vanity Fair Electronics Corp., 50 S. Fourth St., Brooklyn 18, N.Y., 68, 90, Tel: 212-EVergreen 7-2018, Yr: 1951, Emp: 100, ▲2

Vap-Air Div., Vapor Corp., 6444 W. Howard St., Chicago 48, Ill., 2, 4, 9, 16, 18, 19, 22, 31, 32, 34, 36, 37, 40, 42, 43, 44, 50, 53, 54, 56, 61, 66, 69, 73, 77, 80, 82, 83, 84, 98, 99, Tel: 312-NEwcastle 1-9200, Yr: 1904, Emp: 1100, ▲6, $2,000,000

Vapor Recovery Systems Co., 2820 N. Alameda St., Compton, Calif., 4, 61, Tel: NEvada 6-1211, Yr: 1928, Emp: 200, ▲3, $700,000

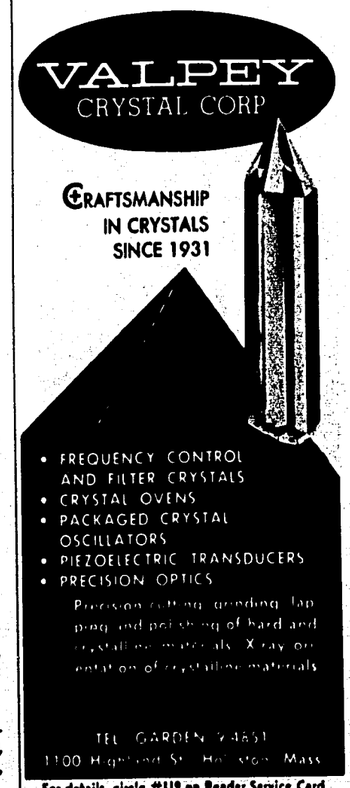
Var-Lac-Oid Chemical Co., 116 Broad St., New York 4, N.Y., 56, 91, 92, 94, 102, 104, Tel: 212-Whitehall 4-0348, Yr: 1923, Emp: 17, $195,000

Vare Industries, Inc., 128 W. First Ave., Roselle, N.J., 32, 34, 41, Tel: 201-CHestnut 5-9800, ▲1

Varflex Corp., 512 W. Court St., Rome, N.Y., 101, 107, 112, Tel: 315-FF 6-4400, Yr: 1924, Emp: 90, $500,000

Vari Corp., 2825 Cedar, Minneapolis 7, Minn., 43, 65, 79, Tel: 612-PArkway 2-1715, Yr: 1947, Emp: 18

Vari-L Co., Inc., 207 Greenwich Ave., Stamford, Conn., 43, 51, Tel: 203-DAvis 3-2176, Yr: 1953, Emp: 16, ▲1, $134,000
See ad in class 51



For details, circle #119 on Reader Service Card

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Varian Associates, Instrument Div., 611 Hansen Way, Palo Alto, Calif., 4, 5, 16, 22, 28, 31, 36, 40, 64, 99, Tel: 415-DAvenport 6-4000, Yr: 1948, Emp: 3500, ▲150

Varian Associates, Tube Div., 611 Hansen Way, Palo Alto, Calif., 6, 28, 38, 40, 43, 64, 66, 69, 86, 87, 99, 109, Tel: 415-DAvenport 6-4000, Yr: 1948, Emp: 2600

Varo, Inc., 2201 Walnut St., Garland, Texas, 2, 4, 14, 17, 21, 31, 43, 50, 51, 53, 58, 59, 67, 69, 72, 76, 77, 84, Tel: BRoadway 6-6141, Yr: 1946, Emp: 495, ▲20, $3,600,000

Vector Associates, Inc., 139-30 34th Rd., Flushing 54, N.Y., 2, 4, 26, 32, 33, 43, 50, 62, 69, 96, Tel: 212-LEnox 9-3800, Yr: 1957, Emp: 35, $300,000

Vector Electronic Co., Inc., 1100 Flower St., Glendale 1, Calif., 50, 52, 62, 78, 81, 90, 97, 105, 106, Tel: 213-CHapman 5-1076, Yr: 1947, Emp: 65, ▲1, $1,000,000

See ad in class 50

Vector Mfg. Co., Inc., Southampton, Pa., 5, 9, 34, Tel: 215-ELmwood 7-7600, Yr: 1956, Emp: 234, $2,800,000

Veeder-Root, Inc., 70 Sargeant St., Hartford 2, Conn., 5, 11, Tel: 203-JAckson 7-7201, Yr: 1928, Emp: 1500

For details, circle #120 on Reader Service Card

Veeder-Root, Inc., Electronic Controls Div., 5 Maple St., Danvers, Mass., 4, 9, 21, 40, Tel: 617-SPring 4-6110, ▲1

Vemaline Products Co., P.O. Box 1, Franklin Lakes, N.J., 4, 11, 45, 54, 61, 63, 78, 80, 97, 105, 109, Tel: 201-FEderal 7-6200

Venner Electronics, Ltd., Kingston By-Pass, New Malden, Surrey, England, 4, 11, 18, 22, 40, 43, 50, Tel: MALden 2442, Yr: 1951

Vernitron Corp., 131 Old Country Rd., Carle Place, L.I., N.Y., 67, 77, Tel: 516-PIoneer 1-4130, Yr: 1959, Emp: 160, ▲4, $1,250,000

See ad in class 67

Versa-Tronics, Box 223, Wheeling, Ill., 5, 44, 95, 96, 109, Tel: 815-537-0405, Yr: 1948, Emp: 1, ▲1, $1500

Vesto Co., Inc., 1916 Clay, North Kansas City 16, Mo., 44, Tel: BAltimore 1-3322

Vibration Research Laboratories, Inc., 58 Marbledale Rd., Tuckahoe 7, N.Y., 69, 72, 84, Tel: 914-WOodbine 1-2440, Yr: 1950, Emp: 12, $100,000

Vibroscope Co., P.O. Box 97, Glenford, N.Y., 36, 40, Tel: 914-OLiver 7-2173, Yr: 1925, Emp: 5

Victor Adding Machine Co., Affil. of Comptometer Corp., 3900 N. Rockwell St., Chicago 18, Ill., 4, 8, 9, 17, Tel: 312-KEystone 9-8210, Yr: 1919, Emp: 2200, ▲5, $500,000

Victor-Bernard Industries, Inc., 4566 Baker St., Philadelphia 27, Pa., 66, 67, 86, 87, Tel: 215-IVyridge 3-2608

Victor Electric Wire & Cable Corp., 618 Main St., West Warwick, R.I., 91, Tel: VAlley 1-1700

Victor Gloves, Inc., 49 E. 21st St., New York 10, N.Y., Lint-Free Gloves & Clothing, Tel: 212-ALgonquin 4-7842, Yr: 1940, Emp: 100, ▲1, $200,000

See ad on this page

Victoreen Instrument Co., 5806 Hough Ave., Cleveland 3, Ohio, 11, 22, 26, 42, 43, 61, 74, 76, 86, Tel: 216-ENdicott 1-6200, Yr: 1931, Emp: 500, ▲6, $14,000,000

See ads in classes 74, 86

Victorlite Industries, Inc., 4117 W. Jefferson Blvd., Los Angeles 16, Calif., 13, Tel: 213-REpublic 2-4033, Yr: 1946, Emp: 8

Victory Electronics, Inc., 50 Bond St., Westbury, L.I., N.Y., 53, 69, Tel: 516-EDgewood 4-8892, Yr: 1959, Emp: 40, ▲1, $150,000

See ad in class 69

Victory Engineering Corp., 118 Springfield Ave., Springfield, N.J., 4, 40, 53, 61, 72, 74, 83, 99, Tel: 201-MUrdock 8-7150, Yr: 1943, Emp: 118, ▲2

See ad in class 74

Victory Mica Mfg. Co., Inc., 1313 39th St., Brooklyn 18, N.Y., 101, Tel: 212-GEdney 5-3427, Yr: 1945, Emp: 85

Vidaire Electronics Mfg. Corp., 365 Babylon Tnpke., Roosevelt, L.I., N.Y., 43, 44, 59, 76, Tel: 516-MAyfair 3-6696, Yr: 1949, Emp: 15, ▲1

Vidar Corp., 2296 Mora Dr., Mountain View, Calif., 2, 4, 9, 34, 40, 41, 53, 61, Tel: 415-YOrkshire 8-6561, Yr: 1958, Emp: 16, ▲5, $87,646

Video Industries Co., 242 Madison Ave., Port Chester, N.Y., 44, Tel: 914-WEstmore 9-4919, Yr: 1948, Emp: 8, $125,000

Video Instruments Co., Inc., 3002 Pennsylvania Ave., Santa Monica, Calif., 43, 69, Tel: 213-EXbrook 3-1244, Yr: 1957, Emp: 50, $800,000

Videonics, Inc., 90 Massachusetts Ave., Cambridge 39, Mass., 13, 14, 17, 21, 26, 32, 39, 86, Tel: 617-TRowbridge 6-0164, Yr: 1958, Emp: 7, $450,000

Viewlex, Inc., Broadway Ave., Holbrook, L.I., N.Y., 2, 13, 14, 15, 27, 30, 32, Tel: 516-LT 9-6600, Yr: 1946, Emp: 200, ▲3

Viking Industries, Inc., 21343 Roscoe Blvd., Canoga Park, Calif., 31, 52, 69, Tel: DIamond 7-8500, Yr: 1954, Emp: 220, ▲5, $2,500,000

Viking of Minneapolis, Inc., 9600 Aldrich Ave. S., Minneapolis 20, Minn., 27, 43, Tel: 414-TU 1-2636

Viking Wire Co., Inc., 101 Shelter Rock Rd., Danbury, Conn., 91, Tel: 203-PIoneer 3-9292, Yr: 1952, Emp: 75, $1,000,000

Vinco Electronics Corp., 65 Wallace St., New Haven 11, Conn., 13, 26, 30, 43, 69, 88, Tel: 203-UNiversity 5-2073, Yr: 1936, Emp: 12, ▲1

Vinson Mfg. Co., Inc., 8044 Woodley Ave., Van Nuys, Calif., 61, 83, Tel: 213-TRiangle 3-3510, Yr: 1948, Emp: 110, ▲1

Virginia Electronics Co., Inc., 5215 River Rd., Washington 16, D.C., 1, 2, 4, 9, 16, 18, 20, 30, 33, 35, 38, 43, 50, 51, 62, 69, 84, 90, 96, 97, 99, 109, Tel: 202-OLiver 4-6680, Yr: 1951, Emp: 60, ▲3, $500,000

Vitramon, Inc., P.O. Box 544, Bridgeport 1, Conn., 48, Tel: 203-AMherst 8-6261, Yr: 1948, Emp: 300, ▲2, $3,000,000

See ad in class 48

Vitro Chemical Co., 342 Madison Ave., New York 17, N.Y., 104, Tel: 212-YUkon 6-2180, Yr: 1909, Emp: 3000, $28,000,000

Vitro Electronics, Div. of Vitro Corp. of America, 919 Jesup Blair Dr., Silver Spring, Md., 2, 14, 19, 21, 22, 26, 29, 34, 35, 37, 38, 40, 43, 51, 59, 62, 80, 84, 105, Tel: 301-JUniper 5-1000, Yr: 1909, Emp: 500, ▲85, $4,000,000

Vitroseal Corp., Vine & Race Sts., Ridgway, Pa., 75, Tel: PRospect 2-4655, Yr: 1945, Emp: 15

Vlchek Tool Co., 3001 E. 87th St., Cleveland 4, Ohio, 96, 111, Tel: 216-GArfield 1-2480, Yr: 1895, Emp: 250

Voak Engineering Co., Inc., 129 A St., Upland, Calif., 74, Tel: 714-Yukon 2-5538, Yr: 1957, Emp: 6, $141,804

Vocaline Co. of America, Old Saybrook, Conn., 4, 11, 20, 61, 67, Tel: 203-EVergreen 8-3414, Yr: 1950, Emp: 165, ▲3, $2,000,000

Vogue Instrument Corp., 2350 Linden Blvd., Brooklyn 8, N.Y., 74, 77, Tel: 212-NIghtingale 9-5300, Yr: 1948, Emp: 75, ▲4, $200,000

Vokar Products, Inc., 149 E. Hoover, Ann Arbor, Mich., 53, 97, Tel: NOrmandy 8-6908, Yr: 1957, $300,000

Volkert Stampings, Inc., 222-34 96th Ave., Queens Village 29, N.Y., 90, 105, Tel: 212-HOllis 4-8400, Yr: 1935, Emp: 170, ▲3, $3,000,000

Voltarc Tubes, Inc., 44 Cross St., Norwalk, Conn., 63, 94, 99, 105, Tel: 203-VIctor 7-5847, Yr: 1932, Emp: 75, $100,000

Voltron Products, Inc., 1020 S. Arroyo Pkwy., Pasadena, Calif., 31, 35, 40, 61, 73, Tel: MUrray 2-3377, Yr: 1958, Emp: 60

Voltube Corp., Lincoln Hwy., Menlo Park, N.J., 112, Tel: 201-LIberty 9-0316, Yr: 1951, Emp: 20, $500,000

Vue-Tronics, Inc., Div. of Prescott Television Co., 7706 Melrose Ave., Los Angeles 46, Calif., 27, 95, 96, Tel: 213-WEbster 3-1616, Yr: 1949, Emp: 18, ▲3, $160,000

Vulcan Electric Co., 88 Holten St., Danvers, Mass., 98, 111, Tel: 617-SPring 4-1730, Yr: 1921, Emp: 500

W

Waage Electric, Inc., 720 Colfax Ave., Kenilworth, N.J., 98, Tel: 201-CHestnut 5-9363, Yr: 1908, Emp: 16

Wabash Magnetics, Inc., Miniature Products Div. (Deluxe Coils, Inc.), 812 Manchester Ave., Wabash, Ind., 41, 51, 69, 109, Tel: 219-563-2191, Yr: 1946, Emp: 592, ▲1

See ad in class 51

Waber Electronics, Inc., Hancock & Somerset Sts., Philadelphia 33, Pa., 40, 44, 59, 61, 79, 91, 96, 109, Tel: 215-NEbraska 4-3200, Yr: 1958, ▲1

WacLine, Inc., 35 S. Saint Clair St., Dayton 2, Ohio, 4, 40, 44, 61, 66, 67, 84, Tel: BAldwin 8-5161, Yr: 1951, Emp: 100, ▲2, $800,000

Wade Electric Products Co., P.O. Box 271, Sturgis, Mich., 52, 78, 80, 81, 91, 97, 98, 106, Tel: 616-OLiver 1-3255, Yr: 1938, Emp: 125

Wakefield Engineering, Inc., Wakefield, Mass., 54, 105, Tel: 617-245-5900, Yr: 1957, Emp: 35, ▲1

Walden Electronics Co., 1 Park Ave. Ext., Arlington 74, Mass., 62, 69, Tel: 617-MIssion 3-2529, Yr: 1960, Emp: 7, ▲3, $7,000

Waldes Kohinoor, Inc., 47-16 Austel Pl., Long Island City 1, N.Y., 97, 111, Tel: 212-EXeter 2-3100, Yr: 1902, Emp: 600

Waldom Electronics, Inc., 4625 W. 53rd St., Chicago 32, Ill., 52, 56, 78, 79, 81, 90, 97, 106, 111, Tel: 312-LUdlow 5-1212, Yr: 1946, Emp: 75

Wales-Strippit, Inc., A Unit of Houdaille Industries, Inc., 246 Buell Rd., Akron, N.Y., 99, Tel: 716-LH 2-5441, Yr: 1925, Emp: 375

See ad in class 99

Walker Co. (George), 118 Amsterdam Ave., Passaic, N.J., 97, Tel: 201-PRescott 7-3337

See ad in class 97

Walkirt Co., 141 W. Hazel St., Inglewood, Calif., 4, 8, 9, 10, 11, 31, 43, 50, 109, Tel: 213-ORegon 8-4814, Yr: 1948, Emp: 35, ▲3, $1,000,000

Wall Mfg. Co., Erie St., Grove City, Pa., 98, 111, Tel: 910, Yr: 1864, Emp: 65, $600,000

See ad in class 111

Wallace & Tiernan, Inc., 25 Main St., Belleville 9, N.J., 1, 4, 40, 61, 80, 99, Tel: 201-PLymouth 9-8000, Yr: 1913, Emp: 1250, ▲1

Wallin Optical Systems, Inc., 18523 Ventura Blvd., Tarzana, Calif., 17, 109, Tel: 213-DIckens 5-6678, Yr: 1954, Emp: 7

Wallingford Steel Co., Valley St., Wallingford, Conn., 104, 112, Tel: 203-COlony 9-3361, Yr: 1922, Emp: 500

Wallson Associates, Inc., 912-914 Westfield Ave., Elizabeth, N.J., 36, 41, 69, 109, Tel: 201-FLanders 1-0700, Yr: 1954, Emp: 40, ▲3, $600,000

See ad in class 41

Walsco Electronics Mfg. Co., Div. of G-C Textron Electronics, Inc., 400 S. Wyman St., Rockford, Ill., 44, 48, 74, 80, 81, 94, 97, 111, 112, Tel: 815-WOodland 8-9661, Yr: 1925, Emp: 500, ▲3

Walsh Engineering Co., Box 304, Millington, N.J., 95, Tel: 201-PLainfield 7-8545, Yr: 1940, Emp: 3, ▲2

Waltham Electronics Corp., 751 Main St., Waltham 54, Mass., 21, 31, 34, 35, 38, 40, 45, 56, Tel: 617-TWinbrook 4-7811, Yr: 1956, Emp: 12, ▲4, $250,000

Waltham Precision Instrument Co., 221 Crescent, Waltham 54, Mass., 2, 4, 10, 31, 40, 41, 61, 67, 74, 97, 99, 109, Tel: 617-TWinbrook 3-4000, Yr: 1850, Emp: 341 ▲20, $2,500,000

Walton Tool & Die Co., Inc., 2707 Empire Ave., Burbank, Calif., 90, 93, 96, 97, Tel: THornwall 6-5252, Yr: 1944, Emp: 39

Wang Laboratories, Inc., 12 Huron Dr., Natick, Mass., 2, 4, 8, 9, 10, 11, 13, 34, 35, 40, 50, 109, Tel: 617-OLympic 3-3910, Yr: 1951, Emp: 15, ▲2, $200,000

Warco Industries, Inc., 569 Melville, Saint Louis 30, Mo., 73, Tel: 314-PArkview 6-2511, Yr: 1955, Emp: 450, ▲1, $50,000

Ward Leonard Electric Co., 83 South St., Mount Vernon, N.Y., 73, 74, 80, Tel: 914-MOunt Vernon 4-1000, Yr: 1892, Emp: 1,000

See ad in class 74

Ward Products Corp., Edson St., Amsterdam, N.Y., 44, 91, Tel: VIctor 2-7220, Yr: 1959, Emp: 150

Warner Electric Brake & Clutch Co., Beloit, Wis., 77, Tel: 608-DUnkirk 9-2211, Yr: 1927, Emp: 500, ▲1

Warner & Swasey Co., Control Instrument Div., 32-16 Downing St., Flushing 54, N.Y., 4, 17, Tel: 212-INdependence 1-4200, Yr: 1880, Emp: 3500, ▲2

Warren Components Div., El-Tronics, Inc., S. Irvine St., Warren, Pa., 41, 56, 61, 66, 75, 78, 99, 106, 109, Tel: RAndolph 3-6200, Yr: 1942, Emp: 250, $2,000,000

Warren Mfg. Co., Inc., Newtown Rd., Littleton, Mass., 4, 7, 13, 18, 21, 24, 28, 33, 34, 35, 43, 50, 51, 53, 69, 72, 77, 84, 99, Tel: 617-HUnter 6-3511, Yr: 1927, Emp: 165, ▲1 $1,870,000

Warren Wire Co., Pownal, Vt., 91, Tel: VAlley 3-7321, Yr: 1947, Emp: 285

Warrick Co. (Charles F.), 1964 W. Eleven-Mile Rd., Berkeley, Mich., 41, Tel: JOrdan 4-6667, Yr: 1938, Emp: 45

Warsaw Coil Co., Box 389, Warsaw, Ind., 51, Tel: 219-AMherst 7-6041, Yr: 1954, Emp: 30, $200,000

Warwick Mfg. Corp., 7300 N. Lehigh, Chicago 48, Ill., 13, 26, 27, 30, 43, Tel: 312-SPring 4-6400, Yr: 1922, Emp: 2332, ▲29, $51,669,514

Warwick Products Co., 7909 Rockside Rd., Cleveland 31, Ohio, 90, Tel: LAfayette 4-4404, Yr: 1941, Emp: 15

Washington Aluminum Co., Inc., Knecht Ave. & Pa. R.R., Baltimore 29, Md., 37, 44, 45, 59, 66, 90, 93, 96, 109, Tel: 301-CIrcle 2-1000, Yr: 1947, Emp: 250, ▲2, $750,000

Washington Mfg. Co., Inc., Box 370, Washington, Iowa, 97, Tel: OLympia 3-2168, Yr: 1950, Emp: 30

Waterbury Companies, Inc., 835 S. Main, Waterbury 85, Conn., 106, 107, Tel: 203-PLaza 6-5551

Waterbury Rolling Mills, Inc., Box 550, Waterbury 20, Conn., 104, Tel: 203-PLaza 4-0151, Yr: 1906, Emp: 200

Waterman Products Co., Inc., 2445 Emerald St., Philadelphia 25, Pa., 5, 21, 23, 86, Tel: 215-GArfield 6-8600, Yr: 1939, Emp: 200, ▲12

See ad in class 23

Waters Conley Co., Inc., 501 First Ave. N.W., Rochester, Minn., 68, Tel: ATlas 9-1681, Yr: 1899, Emp: 3700, ▲2

Waters Mfg., Inc., Boston Post Rd., Wayland, Mass., 23, 41, 74, Tel: 617-ELmwood 8-2777, Yr: 1952, Emp: 165, ▲4

Watkins-Johnson Co., 3333 Hillview Ave., Palo Alto, Calif., 1, 2, 19, 25, 34, 37, 43, 59, 69, 86, Tel: 415-DAvenport 6-8830, Yr: 1957, Emp: 150, ▲16, $1,500,000

Watlow Electric Mfg. Co., 1376 Ferguson Ave., Saint Louis, Mo., 98, Tel: PArkview 1-7881

Watson Mfg. Co., Inc., 4710 Taylor St., Jamestown, N.Y., 90, 93, Tel: JAmestown 7-1191, Yr: 1887, Emp: 550

Waugh Engineering Co., 7842 Burnet Ave., Van Nuys, Calif., 4, 21, 40, 43, 51, 53, 61, 73, 83, Tel: 213-STate 2-1710, Yr: 1952, Emp: 70, ▲8, $550,000

Waveforms, Inc., 333 6th Ave., New York 14, N.Y., 35, 40, Tel: 212-WAtkins 9-2795, Yr: 1951, Emp: 15, ▲1, $155,000

Waveguide, Inc., 851 W. 18th St., Costa Mesa, Calif., 44, 45, 59, 66, Tel: MAdison 8-7786, Yr: 1954, Emp: 28, ▲1, $400,000

Waveline, Inc., Box 718, West Caldwell, N.J., 37, 44, 45, 56, 59, 66, 88, 109, Tel: 201-CApital 6-9100, Yr: 1946, Emp: 65, ▲4, $1,000,000

Wavetronics, Inc., 324 W. Westfield Ave., Roselle Park, N.J., 45, 59, 66, 69, 88, Tel: 201-CHestnut 1-1850, Yr: 1960, Emp: 35

Wayne-George Corp., 588 Commonwealth Ave., Boston 15, Mass., 4, 9, 10, 83, Tel: 617-Copley 7-8425, Yr: 1957, Emp: 85, ▲10, $1,000,000

Wayne Kerr Corp., 1633 Race St., Philadelphia 3, Pa., 6, 31, 35, 36, 37, 38, 40, 41, 45, 48, Tel: 215-LOcust 8-6820, Yr: 1946, Emp: 300, $750,000

Weathers Industries, 66 E. Gloucester Pike, Barrington, N.J., 68, 79, Tel: LIncoln 7-0212, Yr: 1951, Emp: 200, ▲2.

Webber Mfg. Co., Inc., P.O. Box 217, Indianapolis 6, Ind., 36, 54, 98, Tel: MElrose 2-1378, Yr: 1933, Emp: 19

Webcor, Inc., Electronics Div., 816 N. Kedzie Ave., Chicago 51, Ill., 1, 2, 4, 11, 18, 19, 25, 27, 61, 73, 80, Tel: 312-NEvada 2-3425, Yr: 1914, Emp: 400, ▲12, $3,284,965

Webster Electric Co., 1900 Clark St., Racine, Wis., 4, 27, 30, 43, 53, 77, Tel: ME 3-3511, Yr: 1902, Emp: 750, ▲3

Webster Electronics Co., Inc., 237 Lafayette St., New York 12, N.Y., 51, 52, 62, 63, 78, 80, 91, 96, 97, Tel: 212-CAnal 6-7601, Yr: 1948, Emp: 120, $500,000

Webster Mfg., Div. of Raytheon Co., 317 Roebling Rd., South San Francisco, Calif., 20, 44, Tel: JUno 9-0120, Yr: 1941, Emp: 11, ▲1, $350,000

Weckesser Co., Inc., 5713-17 Northwest Hwy., Chicago 46, Ill., 96, 97, 106, Tel: 312-ROdney 3-6688, Yr: 1935, Emp: 25

See ad in class 97

Weighing & Controls, Inc., Subsid. of CompuDyne Corp., Industrial Park, Hatboro, Pa., 4, 40, Tel: OSborne 5-0901, Yr: 1948, Emp: 30

Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., 2, 6, 31, 34, 37, 38, 40, 41, 44, 45, 59, 66, 88, 95, 109, Tel: 301-LOckwood 4-0121, Yr: 1952, Emp: 160, ▲18, $1,867,568

See ad in class 45

Weitermann Electronics, 4549 N. 38th St., Milwaukee 9, Wis., 3, 29, 95, 109, Tel: HIlltop 4-5097, Yr: 1951, Emp: 33, ▲2

Weksler Instruments Corp., 195 E. Merrick Rd., Freeport, L.I., N.Y., 40, 41, Tel: 516-MAyfair 3-0100, Yr: 1925, Emp: 240

Welch Scientific Co., 1515 Sedgwick St., Chicago 10, Ill., 14, 40, 61, 99, Tel: 312-MIchigan 2-2000, Yr: 1882, Emp: 500, ▲4

Welcraft Products Co., 303 Michigan, New Carlisle, Ind., 91, 96, 98, 112, Tel: 219-OLdfield 4-3111, Yr: 1952, Emp: 200, ▲2, $200,000

Weldotron Corp., 841 Frelinghuysen Ave., Newark 12, N.J., 4, 98, Tel: 201-TAlbot 4-1096, Yr: 1954, Emp: 25

Wellcor, Inc., 1214-18 N. Wells St., Chicago 10, Ill., 79, 90, Tel: 312-DElaware 7-1814, Yr: 1957, Emp: 60, $500,000

Weller Electric Corp., 601 Stone's Crossing Rd., Easton, Pa., 111, Tel: BLackburn 3-3521, Yr: 1950, Emp: 125, $437,200

Wellington Electronics, Inc., 65 Honeck St., Englewood, N.J., 99, 104, Tel: 201-LOwell 7-2620, Yr: 1944, Emp: 50, ▲2, $250,000

Wells Co., Inc. (Gary), 16 W. Jamaica Ave., Valley Stream, L.I., N.Y., 48, 49, 74, Tel: 516-LOcust 1-2914, Yr: 1956

Wells Electronics Co., 1701 S. Main St., South Bend 23, Ind., 43, 48, 50, 51, 59, 81, 84, 90, 96, 103, 106, 109, 112, Tel: 219-ATlantic 8-4651, Yr: 1958, Emp: 55, ▲2

Wells-Gardner Electronics Corp., 2701 N. Kildare Ave., Chicago 39, Ill., 1, 4, 26, 69, 88, Tel: 312-ALbany 2-8220, Yr: 1925, Emp: 1200, ▲14, $27,643,000

Wells Industries Corp., 6880 Troost Ave., North Hollywood, Calif., 4, 41, 61, 74, 90, 99, Tel: 213-TRiangle 7-3353, Yr: 1924, Emp: 120, ▲2, $100,000

Welwyn Canada, Ltd., 1255 Brydges St., London, Ontario, Canada, 74, Tel: GLadstone 1-9490, Yr: 1953, Emp: 150, ▲6

Welwyn Electric, Ltd., Bedlington, Northumberland, England, 74, 75, Tel: BEDlington 2181, Yr: 1937, Emp: 1800

Wen Products, Inc., 5810 Northwest Hwy., Chicago 31, Ill., 111, Tel: 312-ROdney 3-6060, Yr: 1952, Emp: 150, $460,000

Wenco Mfg. Co., 1134 W. Hubbard St., Chicago 22, Ill., 97, 111, Tel: 312-CHesapeake 3-3535, Yr: 1920, Emp: 15

Werner Co., Inc. (R. D.), Box 580, Greenville, Pa., 44, 96, 104, 112, Tel: 412-JUniper 8-8600, Yr: 1932, Emp: 265

Wesbar Stamping Corp., West Bend, Wis., 96, Tel: 414-FEderal 4-2381, Yr: 1922, Emp: 25, $8000

West Coast Electrical Mfg. Co., 233 W. 116th Pl., Los Angeles 61, Calif., 51, 80, Tel: 213-PLymouth 5-1138, Emp: 35

West Instrument Corp., 4363 W. Montrose Ave., Chicago 41, Ill., 4, 28, 34, 40, Tel: 312-AVenue 6-1007, Yr: 1946, Emp: 110

Westamp, Inc., 11277 Massachusetts Ave., Los Angeles 25, Calif., 43, 53, Tel: 213-GRanite 8-8894, Yr: 1957, Emp: 15

Westberg Mfg. Co., 144 S. Coombs St., Box 239, Napa, Calif., 40, 61, Tel: BAldwin 6-5218, Yr: 1944, Emp: 16, $200,000

Western Apparatus Co., Div. of Comptometer Corp., 5600 Jarvis Ave., Chicago 48, Ill., 11, 69, Tel: 312-NIles 7-5800

Western Coil & Electrical Co., 215 State St., Racine, Wis., 5, 44, 92, 99, 106, 109, Tel: MElrose 2-4741, Yr: 1915, Emp: 20, $1000

Western Design & Electronics, Div. of U.S. Industries, Inc., Santa Barbara Airport, Goleta, Calif., 13, 47, 53, 67, 69, 73, 84, Tel: WOodland 7-4571, Yr: 1946, Emp: 270, ▲10

Western Devices, Inc., 600 W. Florence Ave., Inglewood 1, Calif., 32, 47, 50, 54, 90, 93, 97, Tel: 213-ORegon 8-7827, Yr: 1952, Emp: 244, ▲2

Western Electric Co., Inc., Laureldale Plant, Laureldale, Pa., 76, Tel: 215-WAlker 9-9411, ▲590

Western Electro-Acoustic Laboratory, Inc., 2222 S. Barrington Ave., Los Angeles 64, Calif., 27, 35, 36, 43, 59, 61, 65, 79, 95, 109, Tel: 213-GRanite 8-0433, ▲1

Western Electronic Products Co., 2420 N. Lake Ave., Altadena, Calif., 111, Tel: SYcamore 4-6379, Yr: 1956

Western Gear Corp., Electro Products Div., 132 W. Colorado St., Pasadena 1, Calif., 47, 67, 77, Tel: MUrray 1-6604, Yr: 1953, Emp: 150, ▲3

Western Gold & Platinum Co., 525 Harbor Blvd., Belmont, Calif., 92, 101, 104, 105, 110, Tel: LYtel 3-3121, Yr: 1928, Emp: 115, ▲2, $1,500,000

Western Insulated Wire Co., 2425 E. 30th St., Los Angeles 58, Calif., 91, Tel: 213-LUdlow 7-7103, Yr: 1937, Emp: 250, ▲2

Western Radiation Laboratory, 1107 W. 24th St., Los Angeles 7, Calif., 22, 86, 109, Tel: 213-RIchmond 7-8355, Yr: 1947, Emp: 3

Western Semiconductors, Inc., 605 G Alton St., Santa Ana, Calif., 66, 71, 76, Tel: KImberly 9-0326, Yr: 1959, Emp: 25, $360,000

Western Sky Industries, 21301 Cloud Way, Hayward, Calif., 97, Tel: JEfferson 7-1334, Yr: 1952, Emp: 9

Western Transistor Corp., 13021 S. Budlong Ave., Gardena, Calif., 76, Tel: FAculty 1-5741, Yr: 1960, Emp: 38, ▲3

Westfield Metal Products Co., Inc., 1070 Lower Union St., Westfield, Mass., 96, 97, Tel: 413-LOgan 2-3614, Yr: 1935, Emp: 50, $150,000

Westgate Laboratory, Inc., 306 S. High St., Yellow Springs, Ohio, 1, 2, 4, 8, 9, 14, 28, 40, 43, 61, 69, 77, 96, 109, Tel: 513-767-7375, Yr: 1956, Emp: 33, ▲10, $290,000

Westinghouse Electric Corp., 3 Gateway Center, Box 2278, Pittsburgh 30, Pa., 28, 31, 34, 35, 40, 43, 61, Tel: EXpress 1-2800, Yr: 1886, Emp: 115,000 ▲1100

Westinghouse Electric Corp., Air Arm Div., P.O. Box 746, Baltimore 3, Md., 1, 8, 17, 50, Tel: SOuthfield 1-1000, Yr: 1952, Emp: 4000, ▲120

Westinghouse Electric Corp., Buffalo Div., Industrial Control Dept., P.O. Box 2025, Buffalo 5, N.Y., 4, 8, 71, 72, 73, 80, ▲16

Westinghouse Electric Corp., Electronic Tube Div., P.O. Box 284, Elmira, N.Y., 17, 85, 86, 87, 105, Tel: 607-REgent 9-3611, Emp: 2300, ▲150

Westinghouse Electric Corp., Electronics Div., P.O. Box 1897, Baltimore 3, Md., 8, 17, 18, 19, 20, 24, 25, 26, 29, 42, 44, 63, 95, Tel: 301-SOuthfield 1-1000, Yr: 1928, Emp: 2000, ▲281

Westinghouse Electric Corp., Lamp Div., Bloomfield, N.J., 104, 105, 112, Tel: 201-HUmboldt 4-3000, ▲9

Westinghouse Electric Corp., Materials Mfg. Dept., Blairsville, Pa., 64, 96, 103, 104, 109, 112

Westinghouse Electric Corp., Semiconductor Dept., Youngwood, Pa., 50, 54, 58, 71, 74, 76, 80, Tel: 412-WAlker 5-7272, Yr: 1956, ▲26

Westinghouse Electric Corp., Small Motor Div. of Aircraft Equipment Dept., Box 989, Lima, Ohio, 2, 4, 41, 53, 67, 69, 71, 84, Tel: CApital 4-0121, Yr: 1936, Emp: 3000, ▲6

Westinghouse Electric Corp., Specialty Transformer Dept., Box 231, Greenville, Pa., 55, 84, Tel: MI 6-1000, ▲1

Westinghouse Electric Corp., Standard Control Dept., Beaver, Pa., 73, 80

Westinghouse Electric Corp., Television-Radio Div., Rt. 27 & Vineyard Rd., Metuchen, N.J., 21, 26, 27, 68, Tel: 201-LIberty 8-5000, ▲32

Westlab, Inc., 590 Tuckahoe Rd., Yonkers, N.Y., 30, 43, 69, 79, 90, 96, Tel: 914-SPencer 9-6400, Yr: 1949, Emp: 6, ▲1

Westlake Plastics Co., Lenni Rd., Lenni Mills, Pa., 107, 112, Tel: 215-GLobe 9-1001, Yr: 1952, Emp: 50

Westline Products, Div. of Western Lithograph Co., 600 E. 2nd St., Los Angeles 54, Calif., 97, 112, Tel: 714-MAdison 7-2641, Yr: 1905, Emp: 350

Westmore, Inc., 137 South Ave., Fanwood, N.J., 3, 4, 6, 8, 30, 41, 69, Tel: FAnwood 2-2100

Westport Electric, 149 Lomita St., El Segundo, Calif., 4, 11, Tel: 714-SPring 2-2872, Yr: 1955, Emp: 35, ▲2

Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 1, 2, 7, 9, 10, 15, 18, 20, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 43, 53, 59, 67, 68, 70, 88, 105, Tel: 212-JUdson 2-3030, Yr: 1929, Emp: 1500, ▲30

See ad on page 224

Westronics, Inc., 3605 McCart St., Fort Worth 10, Texas, 4, 28, 40, 61, Tel: 817-WA 3-8211, Yr: 1945, Emp: 41, ▲3

See ads on this page and in class 28

Westwood Cable Corp., 3440 Overland Ave., Los Angeles 34, Calif., 62, 91, Tel: 213-UPton 0-6831, Yr: 1954, Emp: 15, ▲1, $5,000,000

Wharton Unitools, Valley Stream, L.I., N.Y., Importers, 23, 36, 37, 40, 90, 97, Tel: 516-VAlley Stream 5-1248, Yr: 1956, Emp: 32

Wheaton Engineering Div., Hurletron, Inc., 920 Manchester Rd., Wheaton, Ill., 4, 5, 9, 10, 19, 21, 37, 41, 61, 73, 77, 80, Tel: 312-MOntrose 8-2330, Yr: 1946, Emp: 280, ▲2, $2,500,000

Wheelabrator Corp., 1483 S. Byrkit St., Mishawaka, Ind., 94, Tel: BLackburn 5-2141, Yr: 1908, Emp: 1000

Wheeler Laboratories, Inc., Subsid. of Hazeltine Corp., 122 Cutler Mill Rd., Great Neck, L.I., N.Y., 44, 59, 66, 95, 96, 109, Tel: 516-HUnter 2-7876, Yr: 1947, Emp: 80, ▲40, $900,000

See ad in class 95

Wheelock Signals, Inc., 273 Branchport Ave., Long Branch, N.J., 73, Tel: 201-CApitol 2-6880, Yr: 1927, Emp: 200, ▲1, $1,000,000

White Avionics Corp., Terminal Dr., Plainview, L.I., N.Y., 4, 43, 53, 69, 77, 80, 83, Tel: 516-WElls 5-5511, Yr: 1959, Emp: 35, ▲2, $150,000

White Dental Mfg. Co. (S. S.), Industrial Div., 10 E. 40th St., New York 16, N.Y., 99, Tel: 212-MUrray Hill 3-3015, Yr: 1844, Emp: 2200, ▲2

White Instrument Laboratories, Inc., P.O. Box 9006, 5500 Balcones Trail, Austin 17, Texas, 48, 59, Tel: 512-GLendale 3-8447, Yr: 1953, Emp: 20, ▲3

See ad in class 59

White Mountain Electronics, Inc., Main St., Union, N.H., 85, 86, Tel: GRanite 3-2300, Yr: 1958, Emp: 17, $215,000

Whitehall Electronics Corp., 1645 Hennepin Ave., Minneapolis 3, Minn., 4, 5, 8, 9, 10, 21, 23, 28, 34, 43, 50, 61, 63, 69, 83, Tel: 612-FEderal 5-4173, Yr: 1960, Emp: 15, ▲3

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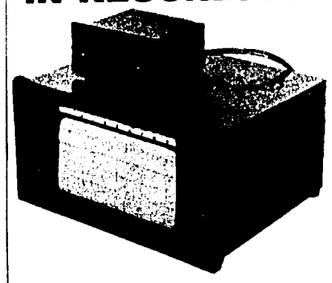

Westronics, Inc. proudly announces the introduction of the totally new UNIVERSAL RECORDER to its present recorder line. This new Universal Recorder can operate as a standard fixed-span recorder, or it can function with one or more EXTERNAL PLUG-IN Modules.

This "Family" of External Plug-In Modules, 24 in all, contain the circuitry necessary to allow this recorder to function as a Strain Gage, Adjustable Span & Zero, Resistance Bulb, Flow, Temperature, Pressure or Potentiometer Following recorder. These Modules, which feature convenient, calibrated controls, may be panel mounted or used as a table-top laboratory instrument. No re-wiring of the recorder is necessary to change from one module to another. Modules are available for almost any recording application you may have.

The Universal Recorder is available in both 5" and 11" strip chart sizes in single pen, dual pen and multipoint models. Consult the Westronics representative nearest you for more information.

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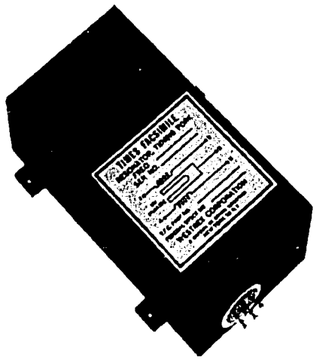
Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.



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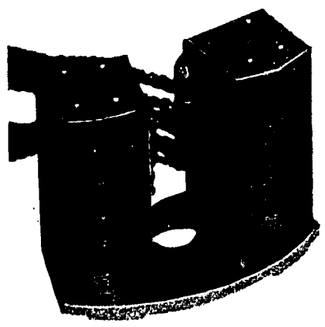

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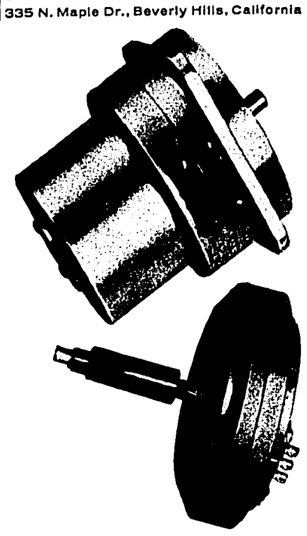

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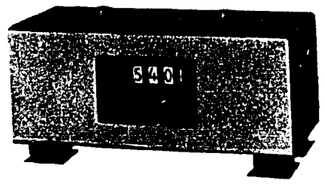

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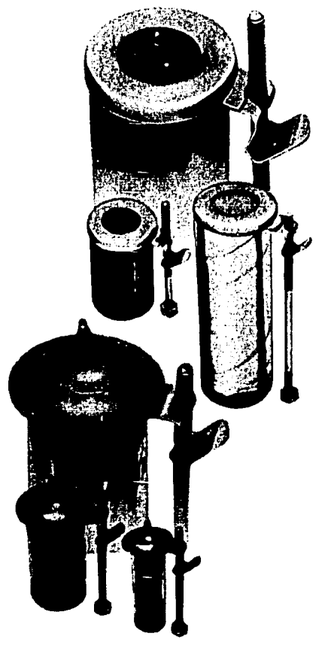

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Whitehead Stamping Co., 1661 W. Lafayette Blvd., Detroit 16, Mich., 97, 105, Tel: WOodward 2-1055, Yr: 1903, Emp: 50

Whitewater Electronics, Inc., 136 W. Main St., Whitewater, Wis., 51, 57, 59, Tel: 986, Yr: 1955, Emp: 100, ▲2, $650,000

Whitney Blake Co., 93 Pershing Ave., New Haven 14, Conn., 41, 91, Tel: 203-CHestnut 8-5515, Yr: 1899, Emp: 600, ▲2

Whitney Metal Tool Co., 110 Forbes St., Rockford, Ill., 99, 111, Tel: 815-WOodland 2-5571, Yr: 1910, Emp: 130

Wickes Engineering & Construction Co., 12th St. & Ferry Ave., Camden, N.J., 2, 4, 41, 43, 53, 69, 72, 84, 90, Tel: 201-WOodlawn 4-4192, Yr: 1920, Emp: 100, ▲5, $3,000,000

Wiedemann Machine Co., Gulph Rd., King of Prussia, Pa., 99, Tel: BRoadway 9-1120

Wiegand Co. (Edwin L.), 7500 Thomas Blvd., Pittsburgh 8, Pa., 98, Tel: 412-CHurchill 2-6400, Yr: 1917, Emp: 1200

Wiegand Mfg. Co., 882 Balfour St., Valley Stream, L.I., N.Y., 51, 55, 84, Tel: 516-VAlley Stream 5-4141

Wiggins Oil Tool Co., Inc. (E. B.), 3424 E. Olympic Blvd., Los Angeles 23, Calif., 52, 66, Yr: 1931, Emp: 400

Wihtol Laboratories, Inc., 2029 Sunnyview Lane, Mountain View, Calif., 75, 95, Tel: YOrkshire 7-4758, Yr: 1948

Wilco Corp., 4030 W. Tenth St., Indianapolis 22, Ind., 51, Tel: CHapel 1-2516, Yr: 1953, Emp: 100, $400,000

Wilcolator Co., 1001 Newark Ave., Elizabeth, N.J., 82, Tel: 201-ELizabeth 4-1000, Yr: 1925, Emp: 500

Wilcox Electric Co., Inc., 1400 Chestnut, Kansas City 27, Mo., 1, 2, 6, 10, 24, 25, 26, 29, 33, 43, 44, 51, 53, 57, 59, 64, 65, 69, 84, 90, 93, 95, 108, 109, Tel: 816-BEnton 1-0700, Yr: 1931, Emp: 483, ▲21, $8,500,000

Wilcox Electronics Co., P.O. Box 627, 5560 Cahuenga Blvd., North Hollywood, Calif., 14, 40, 71, Tel: 213-TRiangle 7-8711, Yr: 1949, Emp: 8

Wildberg Bros. Smelting & Refining Co., 349 Butler Ave., South San Francisco, Calif., 91, 94, 104, 110, Tel: POplar 1-1770, Yr: 1907, Emp: 60, $2,000,000

Wilder Engineering Products, 2013 N. Halsted St., Chicago 14, Ill., 79, Tel: 312-DElaware 7-2247, Yr: 1939, Emp: 30, $200,000

Wilder Mfg. Co., Inc., Mechanic St. & Erie R.R., Port Jervis, N.Y., 111, Tel: POrt Jervis 3-2291, Yr: 1920, Emp: 30

Wiley Electronic Products Co., Div. of Giannini Scientific Corp., 2045 W. Cheryl Dr., Phoenix, Ariz., 2, 4, 9, 25, 34, 40, 41, 43, 44, 50, 51, 66, Tel: 602-WIndsor 4-6931, Yr: 1956, Emp: 30, ▲8, $400,000

Wiley & Sons, Inc. (John), 440 Park Ave. S., New York 16, N.Y., 108, Tel: 212-MUrray Hill 9-7630, Yr: 1807, Emp: 300, ▲1

See ad in class 108

Wilkens, Inc. (Alwin Fr.), 55-02 37th Ave., Woodside 77, N.Y., 97, 99, 109, Tel: 212-HIllinois 7-4400, Yr: 1950, Emp: 10, $50,000

Wilkinson Co., 1660 Ninth St., Santa Monica, Calif., 94, 104, 109, 110, 112, Tel: 213-UPton 0-9659, Yr: 1919, Emp: 20, $800,000

Williams & Co. (C. K.), 640 N. 13th St., Easton, Pa., 104, Tel: 215-BLackburn 3-6261, Yr: 1878, Emp: 1000, ▲2

Williams Gold Refining Co., Inc., 2978 Main St., Buffalo 14, N.Y., 91, 104, 110, Tel: 716-TF 4-7204, Yr: 1912, Emp: 70

Wilmad Glass Co., Inc., Rt. #40 & Oak Rd., Buena, N.J., 97, 105, 112, Tel: 609-OXford 2-6000, Yr: 1951, Emp: 50

Wilmington Fibre Specialty Co., New Castle, Del., 96, 97, 101, 106, 107, Tel: EA 8-7525, Yr: 1904

Wilrite Products, Inc., 3835 W. 150th St., Cleveland 11, Ohio, 74, Tel: 252-1810, Yr: 1953, Emp: 125

Wilson & Co. (G. C.), 1035 26th St., Huntington, W.Va., 4, 73, 80, Tel: JAckson 3-5149, Yr: 1945, Emp: 7

Wiltron Co., 717 Loma Verde Ave., Palo Alto, Calif., 2, 23, 35, 37, 38, 40, 41, 109, Tel: 415-DAvenport 1-7428, Yr: 1959, Emp: 10, ▲4

Winatic Corp., P.O. Box 240, Endicott, N.Y., 51, 73, Tel: 607-PIoneer 8-1518, Yr: 1950, Emp: 75, $600,000

Winchester Electronics, Inc., 19 Willard Rd., Norwalk, Conn., 52, Tel: 203-VIctor 7-7231, Yr: 1941

Wind Turbine Co., E. Market St., West Chester, Pa., 44, 109, Tel: 215-OWen 6-3110, Yr: 1932, Emp: 70, ▲1, $500,000

See ad adjacent to Index to Advertisers, back of book

Winegard Co., 3000 Kirkwood St., Burlington, Iowa, 43, 44, 45, 52, 59, ▲1

Winslow Co., Inc., 1005 First Ave., Asbury Park, N.J., 1, 2, 6, 12, 31, 40, 41, 45, 61, 65, 66, 74, 80, 82, 91, 96, 97, 106, Tel: PRospect 5-6100, Yr: 1928, Emp: 65, ▲1, $675,000

Winterburn Mfg. Co., 11 Whittemore St., Putnam, Conn., 4, 80, Tel: WAlnut 8-6551, Yr: 1950, Emp: 15

Wintronics, 213 S. Hawthorne Blvd., Hawthorne, Calif., 4, 17, 30, 35, 38, 40, 41, 43, 50, 61, 69, 77, 79, 80, 95, 96, Tel: OSborne 5-1464, Yr: 1952, ▲1, $100,000

Wirco Electronics, Inc., 11680 McBean Dr., El Monte, Calif., 51, 84, Tel: 213-GIlbert 3-1433, Yr: 1957, Emp: 8, $80,000

Wire Cloth Enterprises, Inc., 3408 Penn Ave., Pittsburgh 1, Pa., 91, 101, Tel: 412-MAyflower 1-3222, Yr: 1959, Emp: 4, $50,000

See ad in class 91

Wire Co. of America, Subsid. of Warren Wire Co., 400 David Love Pl., Goleta, Calif., 91, Tel: WOodland 7-3451, Yr: 1947, Emp: 40, $700,000

Wirecraft Products, Inc., Rt. 9, West Brookfield, Mass., 91, Tel: 617-VOlunteer 7-3155, Yr: 1955, Emp: 10, $200,000

Wirekraft, Inc., Rolling Prairie, Ind., 91, 98, 101, 107, 112, Tel: 778-5315, Yr: 1958, Emp: 25, ▲2, $250,000

Wisconsin Porcelain Co., Sun Prairie, Wis., 55, 86, 92, Yr: 1919, Emp: 300

Wollam Aircraft & Marine Products Co., 222 S. Mill St., Celina, Ohio, 97, Tel: 2286

Wollensak Optical Co., Div. of Minnesota Mining & Mfg. Co., 850 Hudson Ave., Rochester 21, N.Y., 14, 17, 23, 32, Tel: COngress 6-1000, Yr: 1899, Emp: 650, ▲1

Wood Counter Laboratory (N.), 1525 E. 53rd St., Chicago 15, Ill., 11, 22, 86, Tel: 312-FAirfax 4-1114, Yr: 1949, Emp: 10

Wood Electric Corp., 244 Broad St., Lynn, Mass., 52, 66, 80, Tel: 617-LYnn 8-5313, Yr: 1939, Emp: 105, $1,300,000

Wood Steel Co. (Alan), Penco Div., Oaks, Pa., 90, 96, Tel: GLendale 2-2271, Yr: 1826, Emp: 4000

Woodland Electronics Co., Inc., 503 McCarter Hwy., Newark 2, N.J., 15, 28, 29, 43, 69, Tel: 201-MItchell 2-7252, Yr: 1952, Emp: 14, ▲2

Woodward-Schumacher Electric Corp., 1725 W. North Ave., Chicago 22, Ill., 51, 84, Tel: 312-EVerglade 4-6060, Yr: 1947, Emp: 300, ▲1, $3,500,000

Woodwelding, Inc., 355 N. Newport Blvd., Newport Beach, Calif., 40, 41, 61, 98, 99, Tel: LI 8-6123, Yr: 1945, Emp: 20, ▲2, $180,000

Worcester Pressed Steel Co., 100 Barber Ave., Worcester 6, Mass., 96, Tel: 617-PLeasant 5-4361, Yr: 1883, Emp: 200

Work-Factor Co., 21 Euclid Ave. E., Haddonfield, N.J., 108, Tel: 609-HAzel 9-5900

Numbers after address show the product and service classes in which firm appears. These classified listings follow the Alphabetical Directory. For complete instructions on use of this Directory, see pink sheets preceding catalog section. Yr = Year of founding. Emp = Total employees. ▲ = Number of IRE members. $ = Net radio-electronic sales during last fiscal year.

Workman TV Products, Inc., P.O. Box 5397, Sarasota, Fla., 51, 74, Tel: 305-RIngling 6-4241, Yr: 1946, Emp: 65, ▲1

World Wide Wire, Inc., 120 Florida St., Farmingdale, L.I., N.Y., 91, Tel: 516-CHapel 9-3420, Yr: 1958, Emp: 21, ▲2

Worner Electronic Devices, 121 N. Main St., Rankin 1, Ill., 4, 30, Tel: EXport 7-4555, Yr: 1939, Emp: 11, $175,000

Wornow Process Paint Co., Dept. M, 1218 Long Beach Ave., Los Angeles 21, Calif., 94, Tel: 213-MAdison 7-3773
See ad in class 94

Worthington Products Co., 2383 Linden Ave., Columbus 11, Ohio, 52, Tel: AM 8-2843, Yr: 1938, Emp: 16, ▲1, $55,000

Wright Div., Sperry Rand Corp., Calvin & Holloway St., Durham, N.C., 67, 77, Tel: 919-682-8161, Yr: 1893, Emp: 843, ▲5
See ad in class 67

Wright Electronics, Div. of Pacific Industries, Inc., 2537 Grand, Kansas City 8, Mo., 56, 59, Tel: BAltimore 1-8686, Yr: 1951, Emp: 150, ▲2, $1,000,000

Wright Equipment Corp., Lukach Ct., Milltown, N.J., 2, 36, 41, 69, 90, 96, 98, 99, Tel: MIlltown 8-1400, Yr: 1953, Emp: 24, $800,000

Wright Metalcoaters, Inc., 255 West St., South Hackensack, N.J., 94, 109, Tel: 201-HUbbard 7-5136, Yr: 1950, Emp: 30, $300,000
See ad in class 109

Wright Steel & Wire Co. (G. F.), 243 Stafford St., Worcester 3, Mass., 91, Tel: 617-PLeasant 4-6824, Yr: 1921, Emp: 200, ▲2

Wright-Zimmerman, Inc., New Brighton, Saint Paul 12, Minn., 51, 65, 79, Tel: MElrose 3-3131, Yr: 1946, Emp: 25, $272,746

Wrought Washer Mfg. Co., 2281 S. Bay St., Milwaukee 7, Wis., 97, Tel: SHeridan 4-0771, Yr: 1887, Emp: 300

Wuerth Products Corp., 1949 Moffett St., Hollywood, Fla., 72, Tel: 305-WAbash 3-1105, Yr: 1956, Emp: 10, $300,000
See ad in class 72

Wunderlich Radio Co., 366 Stewart Ave., Garden City, L.I., N.Y., 7, 20, 25, 29, 44, 45, 57, 67, 69, Tel: PIoneer 7-8777, Yr: 1948, Emp: 25, ▲12

Wybar Electronics, Inc., P.O. Box 388, Auburn, N.Y., 111, Tel: 2-2704, Yr: 1956

Wyco Metal Products, Stantron Div., 6918 Beck Ave., North Hollywood, Calif., 90, 93, Tel: 213-TRiangle 7-1316, Yr: 1952, Emp: 50

Wye Industries, 6 General Devine Way, Boston 27, Mass., 94, Tel: 617-ANdrew 8-6701, Yr: 1948, Emp: 10

Wyle Laboratories, 128 Maryland St., El Segundo, Calif., 36, 41, 109, Tel: 213-EAstgate 2-1763, Yr: 1949, Emp: 500, ▲25, $1,000,000

Wyrco Projects, Inc., Forsythe Ave., Owego, N.Y., 99, Tel: 607-MUtual 7-3950, Yr: 1959, Emp: 10, ▲1
See ad in class 99

Wyzenbeek & Staff, Inc., 223 N. California Ave., Chicago 12, Ill., 111, Tel: 312-NEvada 2-3771, Yr: 1930, Emp: 50

X

Xcelite, Inc., Orchard Park, N.Y., 111, Tel: 716-NN 2-4461, Emp: 75, $1,000,000

Xerox Corp., 6 Haloid St., Rochester 3, N.Y., 9, 14, 15, 28, 50, Tel: 716-GLadstone 8-8800, Yr: 1906, Emp: 2791, ▲7

Y

Yardney Electric Corp., 40-52 Leonard St., New York 13, N.Y., 46, Tel: 212-WOrth 6-3100, Yr: 1944, Emp: 725, ▲2

Yellow Springs Instrument Co., Inc., Box 106, Yellow Springs, Ohio, 4, 5, 28, 61, 83, Tel: 513-ROckwell 7-7242, Yr: 1948, Emp: 52, ▲1, $600,000

Yokogawa Electric Works, Inc., 40 Worth St., New York 13, N.Y., 40, 61, Tel: 212-BEekman 3-6720, Yr: 1957, Emp: 23, ▲1
See ad in class 40

York Body & Equipment Co., Subsid. of Twin Coach Co., P.O. Box 446, York, Pa., 90, Yr: 1894, Emp: 300, $500,000

York Co., Inc. (Otto H.), 6 Central Ave., West Orange, N.J., 97, 103, Tel: 201-ORange 7-3000, Yr: 1947, Emp: 75, ▲1

York Metal Products, Inc., 350 Greenwich St., New York 13, N.Y., 90, 93, 96, Tel: 212-WAlker 5-7227, Yr: 1940, Emp: 25

York Research Corp., Kip Electronics Div., 1 Research Dr., Stamford, Conn., 36, 38, 41, 69, 86, 87, 105, 108, 109, Tel: 203-DAvis 5-1371, Yr: 1950, Emp: 67, ▲4, $2,000,000

Young Brothers Co., 1831 Columbus Rd., Cleveland 13, Ohio, 98, Tel: MAin 1-2473, Yr: 1896, Emp: 100, ▲2, $100,000

Yuba Dalmotor Div., Yuba Consolidated Industries, Inc., 1385 El Camino Real, Santa Clara, Calif., 67, Tel: CHerry 3-9414, Yr: 1946, Emp: 90, ▲2, $210,000

Z

Z & W Mfg. Corp., 30240 Lakeland Blvd., Wickliffe, Ohio, 44, 51, Tel: 216-WI 3-5700, Yr: 1933, Emp: 375, ▲2, $800,000

Zacharias Electronics Co., P.O. Box 246, Whippany, N.J., 43, Tel: 201-TUcker 7-1616, Yr: 1956, Emp: 6, ▲1

Zagar, Inc., 24000 Lakeland Blvd., Cleveland 23, Ohio, 99, Tel: 216-REdwood 1-0500, Yr: 1937, Emp: 130, $250,000

Zell Products Corp., 280 Main St., Norwalk, Conn., 75, Tel: 203-VIctor 7-3811, Yr: 1919, Emp: 600, $7,500,000

Zenith Electric Co., 152 W. Walton St., Chicago 10, Ill., 4, 60, 73, 80, Tel: 312-MIchigan 2-3322, Yr: 1923, Emp: 105, $1,000,000

Zenith Optical Laboratory, 1940 Great Neck Rd., Copiague, L.I., N.Y., 10, 17, 50, 66, 94, 97, Tel: 516-AMityville 4-4616, Yr: 1942, Emp: 75

Zenith Radio Corp., Wincharger Corp. (Subsid.), P.O. Box 1168, Sioux City 2, Iowa, 53, 67, 69, Tel: 2-1844, Yr: 1934, Emp: 800, ▲90 (Zenith overall), $250,000

Zero Mfg. Co., 1127 Chestnut St., Burbank, Calif., 90, 93, 96, 97, 109, Tel: VIctoria 9-5521, Yr: 1952, Emp: 478, ▲2, $5,000,000

Zero-Max Co., 2845 Harriet Ave. S., Minneapolis 8, Minn., 6, 67, 77, Tel: TAylor 7-5521, Yr: 1950, Emp: 50

Zeus Engineering Co., 625 S. Kingsley Dr., Los Angeles 5, Calif., 108, Tel: 213-DUnkirk 7-7175, Yr: 1957, ▲1

Zierick Mfg. Corp., Beechwood & Rockdale Ave., New Rochelle, N.Y., 97, Tel: NEw Rochelle 6-8520, Yr: 1920, Emp: 85, $1,000,000

Zimmey Corp., 160 Taylor St., Monrovia, Calif., 2, 5, 9, 22, 24, 34, 40, 50, 61, 95, 96, 109, Tel: ELliott 7-2291

Zippertubing Co., 13000 S. Broadway, Los Angeles 61, Calif., 91, 94, 99, 103, 107, 109, 112, Tel: 213-FAculty 1-3901, Yr: 1955, Emp: 30

Zirconium Corp. of America, 31501 Solon Rd., Solon 39, Ohio, 55, 86, 92, 104, 112, Tel: 216-CHurchill 8-6191, Yr: 1952, Emp: 40, $20,000

Zoomar, Inc., 55 Sea Cliff Ave., Glen Cove, L.I., N.Y., 14, 40, Tel: 516-ORiole 6-1900, Yr: 1945, Emp: 48, ▲2

Zophar Mills, Inc., 112 26th St., Brooklyn 32, N.Y., 94, Tel: 212-SOuth 8-0907, Yr: 1846, Emp: 35

1962 IRE DIRECTORY
Directory I
Complete Equipment

Communications—
Computation—
Control—
Instrumentation—
Test

42 major groups
341 products

The products and services of the radio-electronics industry have been organized into three basic directories:

I. Complete Equipment
II. Components
III. Materials & Services

Within these three basic directories, 112 major product and service groups are numbered consecutively throughout. Under each of these 112 classes a further breakdown is given, showing in detail by a system of code numbers after each firm listed what specific products within the class are manufactured by that firm.

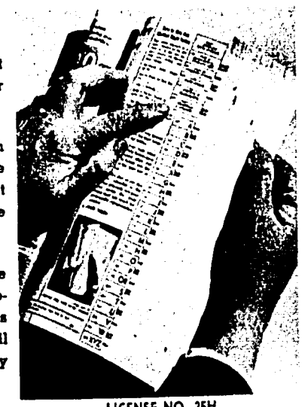
For a terminology cross-index listing all products in alphabetical order, consult the pink section preceding page 1.

The first few times you use this EDGE INDEX

follow the "How to use" instructions slowly—one step at a time. After that you will be able to open easily and almost instantly to the section that you seek.

HOW TO USE

1. Bend the Directory almost double with the back cover page on the inside.
2. Hold in your right hand with your four fingers near to the bound edge and your right thumb near the middle of the open side of this page.
3. From the heavy or light line symbol adjacent to the subject you seek, run your eyes across the page edges until you reach the horizontally corresponding symbol.
4. OPEN THERE!



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For complete list of products and services, arranged alphabetically for fast reference, see the pink section preceding page 1.

COMPLETE DATA SPREADS
ALPHABETICAL DIRECTORY
DIRECTORY I COMPLETE EQUIPMENT
DIRECTORY II COMPONENTS
DIRECTORY III MATERIALS & SERVICES
DISTRIBUTION

INDEX TO COMPLETE EQUIPMENT

1. Aircraft & Airport Communications Equipment
2. Aircraft-Missile Navigation & Test Equipment
3. Amateur Equipment
4. Automatic Control Equipment
5. Bio-Medical Equipment
6. Bridges
7. Carrier Current Equipment
8. Computers
9. Computer Accessories
10. Computer Subsystems
11. Counters
12. Decades
13. Educational Equipment
14. Electro-Optical & Photographic Equipment
15. Facsimile Equipment
16. Geophysical Apparatus
17. Infrared Equipment
18. Marine Equipment
19. Microwave Communications
20. Mobile & Emergency Equipment
21. Monitor Equipment
22. Nuclear Equipment
23. Oscilloscopes
24. Point to Point Equipment
25. Radar Equipment
26. Receivers, Broadcast
27. Recorders
28. Recorders, Graphic
29. Single Sideband Communications Equipment
30. Sound Systems
31. Standards
32. Studio Equipment
33. Telegraph & Teleprinter Equipment
34. Telemetering Equipment
35. Test Equipment, Audio Frequency
36. Test Equipment, Environmental
37. Test Equipment, Microwave
38. Test Equipment, Radio Frequency
39. Test Equipment, Television
40. Test & Measuring Equipment
41. Testers
42. Transmitters, Broadcast

Absorption wattmeters:
See class 37

Adapters, SSB:
See class 29

Air-conditioning equipment:
See class 99

Air navigation computers:
See class 8

Air-speed indicators:
See class 61

Airborne cameras:
See class 14

Airborne radar equipment:
See class 25

1. Aircraft & Airport Communications Equipment.

5. Airborne receivers
10. Airborne recorders
15. Airborne transmitters
20. Airport receivers
25. Airport transmitters
30. Beacons
35. Command receivers
40. Transceivers

A C Electronics, Inc., Calif., 5c, 15c
ACF Electronics Div., ACF Industries, Inc., Md., 5c, 15c, 30c, 35c, 40c
A.R.F. Products, Inc., Ill., 40c
Adams-Russell Co., Inc., 200 Sixth St., Cambridge 42, Mass., 15c, Tel: 617-UNiversity 8-8040
See ads in classes 59, 66
Admiral Corp., Ill., 5c, 15c, 30c, 35c, 40c
Advanced Development Laboratories, Inc., N.H., 5c, 15c, 30c, 35c
Advanced Electronics Corp., N.Y., 15sc
Aero Geo Astro Corp., Va., 30c, 35c
Aeronautical Communications Equipment, Inc., Fla., 5s, 10s, 15s, 20s, 25s, 30s, 40s
Aeronautical Electronics, Inc., N.C., 5s, 15s, 20s, 25s, 35s, 40s
Aeronautical Radio Mfg. Co., Fla., 5s, 15s, 40s
Aeronca Mfg. Corp., Aerospace Div., Md., 5c, 10c, 20c, 35c
Aerospace Research, Inc., 94 Massachusetts Ave., Cambridge 39, Mass., 5sc, Tel: 617-ELiot 4-7780
See ad in class 26
Airborne Instruments Laboratory, Div. of Cutler-Hammer, Inc., N.Y., 5c, 15c, 20c, 25c, 30c
Aircraft Electronics, Ariz., 5c, 40c
Aircraft Radio Corp., N.J., 5s, 15s, 40s
Airtronics, Inc., D.C., 30sc
Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 10c, Tel: 617-FOrest 6-4467
See ad on page 82
Allied International Corp., N.Y., 5s, 15c, 20c, 25c, 40s
Amerac, Inc., Mass., 30c
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 5c, 10sc, 15c, 35c, 40c
American Bosch Arma Corp., Tele-Dynamics Div., Pa., 5sc, 15sc, 35sc
American Concertone, Inc., Calif., 10sc

1. Aircraft & Airport Communications Equipment.

American Electronics Co., N.Y., 15s
American Electronics, Inc., Instrument Div., Calif., 40sc
Ampex Computer Products Co., Calif., 10sc
Ampex Instrumentation Products Co., Calif., 10sc
Andrea Radio Corp., N.Y., 5c, 30c, 35c, 40c
Applied Electro Mechanics, Inc., Va., 40c
Applied Electronics Corp. of New Jersey, P.O. Box 43, Metuchen, N.J., 5c, 10c, 15sc, Tel: 201-LIberty 9-9200
See ad in class 34
Applied Magnetics Corp., Calif., 10sc
Applied Technology, Inc., Calif., 5sc, 30c
Autometric Corp., N.Y., 35c
Autonetics, Div. of North American Aviation, Inc., Calif., 10c
Avien, Inc., N.Y., 40c
Bell Aerosystems Co., Avionics Div., N.Y., 5c, 15c, 30c, 35c
Belock Instrument Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Bendix Corp., Bendix-Pacific Div., Calif., 30sc
Bendix Corp., Bendix Radio Div., Avionic Products Dept., Md., 5s, 15s, 20s, 25s
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 5sc, 15sc, 20c, 25c, 30c, 35c, 40sc
Bendix Corp., York Div., Pa., 30c
Benrus Watch Co., Inc., Conn., 20c
Borg-Warner Corp., Borg-Warner Controls Div., Calif., 10sc
Browning Laboratories, Inc., N.H., 20s, 40s
Budd Electronics, Inc., N.Y., 5c, 15c, 20c, 25c
Bulova Research & Development Laboratories, N.Y., 10c
Bulova Watch Co., Inc., Electronics Div., Dept. A-1376, 61-10 Woodside Ave., Woodside 77, N.Y., 5c, 15c, Tel: 212-NEwtown 9-5700
See ad in class 56
Bulow Electric Co., Mich., 30c
Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., 10c
Cameraflex Corp., N.Y., 30c
Canadian Applied Research, Ltd., Canada, 10c
Canadian Aviation Electronics, Ltd., Canada, 30sc, 40c
Canadian General Electric Co., Ltd., Electronic Equipment & Tube Dept., Canada, 5c, 15c, 20c, 25c, 30c, 35c, 40c
Canadian Marconi Co., Canada, 5sc, 15sc, 40c
Canadian Westinghouse Co., Ltd., Canada, 40c
Canoga Electronics Corp., Calif., 5c, 15c, 30sc, 35c, 40c
Capehart Corp., N.Y., 30sc, 40sc
Carma Mfg. Co., Calif., 5c
Central Dynamics, Ltd., Canada, 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., Texas, 15c, 20c, 30s, 40c
Chrysler Corp., Defense Group, Mich., 30c
Collins Radio Co., Iowa, 5s, 15s, 20s, 25s, 40s
Communication Electronics, Inc., Md., 5c, 20c, 35c
Communications Co., Inc., Fla., 5c, 15c, 20s, 25s
CompuDyne Corp., Pa., 40c
Consolidated Electrodynamics Corp., Calif., 10s
Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 15c, 25c, Tel: 214-EVergreen 1-1135
See ad on page 120
Cook Electric Co., Data-Stor Div., Ill., 10c
Cubic Corp., Calif., 25sc, 30c
DBM Research Corp., Fla., 30c
Dalmo Victor Co., Div. of Textron, Inc., Calif., 10c
Daystrom, Inc., Military Electronics Div., Pa., 5c, 15c
Dayton Aviation Radio & Equipment Corp., Ohio, 5s, 10c, 15s, 20s, 25s, 30c, 35c, 40s
Dayton Electronic Products Co., Ohio, 5c
Defense Electronics, Inc., Md., 5c, 15sc, 35c
Del Mar Engineering Laboratories, Calif., 35sc
Delcon Corp., Calif., 40c
Designers for Industry, Inc., Ohio, 5c, 15c, 20c
Dewey Corp. (G. C.), N.Y., 30c
Dictaphone Corp., N.Y., 10c
Douglas Aircraft Co., Inc., Calif., 30sc
Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 30c, Tel: 914-MOunt Vernon 8-6900
See ad in class 66
Dynatronics, Inc., Fla., 5c, 15sc, 35c, 40c
Edgerton, Germeshausen & Grier, Inc., Mass., 30c
Edwards Engineering Co., N.Y., 10s
Electro Networks, Inc., & Caledonia Electronics & Transformer Corp., N.Y., 5c, 15c
Electromagnetic Technology Corp., Calif., 5c
Electromation Co., Calif., 5c
Electronic Assistance Corp., N.J., 35c
Electronic Communications, Inc., Fla., 5c, 15c, 20c, 35c, 40c
Electronic Lights, Inc., Ill., 30s
Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., 40c, Tel: 301-HAmilton 6-1268
See ad in class 73
Electronic Specialty Co., Calif., 5c, 15c, 35c, 40c
Electronics Development Corp., Calif., 5s, 15s
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 10c
Elliott-Automation, Ltd., England, 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Elm Instrument Corp., N.Y., 35s
Emertron, Inc., Div. of Emerson Radio & Phonograph Corp., N.J., 5c, 10c, 15c, 30c
Erco Radio Laboratories, Inc., N.Y., 20sc, 25sc, 40sc

Directory I. Complete Equipment

1. Aircraft & Airport Communications Equipment.

Ewen Knight Corp., Mass., 5 Radiometric c
FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 5c, Tel: 212-RAvenswood 1-9000
See ad in class 37
Fairchild Camera & Instrument Corp., Defense Products Div., N.Y., 5c, 15c, 30c, 40c
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 5c, 15c, 30c, 35c
Fanon Transistor Corp., 439 Frelinghuysen Ave., Newark 12, N.J., 40s, Tel: 201-BIgelow 3-1020
See ad in class 76
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5c, 10c, 15c, 30c, 40c
Fisher Research Laboratory, Inc., Calif., 5c, 15c
Flight Research, Inc., Va., 10sc
Ford Instrument Co., N.Y., 30c
Forway Industries, Inc., N.J., 40c
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 30sc, Tel: 216-SHadyside 9-0700
See ad in class 50
Gables Engineering, Inc., Fla., 10c
General Antronics Corp., Calif., 15s, 30s
General Communication Co., 677 Beacon St., Boston 15, Mass., 5c, 30s, Tel: 617-COpley 7-6030
See ads in class 37
General Dynamics/Electronics, N.Y., 5c, 15sc, 20c, 25c, 30sc, 35sc, 40sc
General Electric Co., Defense Systems Dept., N.Y., 30c, 35c
General Electric Co., Light Military Electronics Dept., N.Y., 5c, 15c, 30c, 35c
General Electric Co., Missile & Space Vehicle Dept., Pa., 30c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 5c, 15c, 20c, 25c, 30c, 35c, 40c
General Microwave Corp., N.Y., 30c
General Motors Corp., AC Spark Plug Div., Wis., 5c, 15c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5c, 10c, 15c, 20s, 40sc
General Precision, Inc., Kearfott Div., Calif., 30c
Gilfillan Brothers, Inc., Calif., 5c, 15c, 20c, 25c, 30c
Goodyear Aircraft Corp., Arizona Div., Ariz., 10c
Gorham Electronics, Div. of Gorham Corp., R.I., 5c, 15c, 25c, 40c
Granger Associates, Calif., 5s, 30s
Hallamore Electronics Div., Siegler Corp., Calif., 5c, 30sc, 35c, 40c
Harmon Co., Inc. (George), Calif., 30sc
Hazeltine Corp., N.Y., 5c, 15c, 30c, 35c, 40c
Hoffman Electronics Corp., Calif., 5c, 15c, 40c
Houston Fearless Corp., Westwood Div., Calif., 5c, 15c, 20c, 25c, 30c, 35c, 40c
Hycon Mfg. Co., Calif., 30c
ITA Electronics Corp., Pa., 25sc
ITI Electronics, Inc., N.J., 20c
Inland Electronics Corp., Ill., 40c
Instrument Corp. of Florida, Fla., 35c
Instruments For Industry, Inc., 101 New South Rd., Hicksville, L.I., N.Y., 5c, 15c, 20c, 25c, 30c, Tel: 516-OVerbrook 1-7100
See ads in classes 43, 74
International Telephone & Telegraph Corp., ITT Federal Laboratories, Ind., 5c, 40s
International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 5c, 15c, 30c, 40c
International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 25c
Johnson Co. (E. F.), Minn., 40s
Johnson Electronics, Inc., Fla., 5c, 35c
Kaar Engineering Corp., Calif., 20sc, 25sc, 40sc
Kahn Research Laboratories, Inc., N.Y., 25c
Kaman Aircraft Corp., Conn., 35c, 40c
Kemlite Laboratories, Inc., Ill., 30c
King Radio Corp., Kans., 5s, 15s, 20s, 25s, 40s
Kinn Electronics Corp., Md., 15c, 25c, 30c
LEL, Inc., 77 Akron St., Copiague, L.I., N.Y., 5c, 15c, 30c, 35sc, 40c, Tel: 516-AMityville 4-2200
See ad in class 43
Laboratory For Electronics, Inc., Mass., 10c
Land-Air, Inc., Ill., 20c
LaPointe Industries, Inc., Conn., 5c, 15c
Lavoie Laboratories, Inc., Matawan-Freehold Rd., Morganville, N.J., 30sc, Tel: 201-LOwell 6-2600
See ad in class 37
Leach Corp., 18435 Susana Rd., Compton, Calif., 35sc, Tel: 213-NEvada 6-1061
See ad in class 73
Lear, Inc., Calif., 5c, 15c, 30c, 40c
Ling Temco Vought, Inc., Texas, 15c, 20c, 25c
Ling Temco Vought, Inc., Temco Electronics Div., Texas, 5c
Lionel Corp., N.J., 5c, 15c, 20c, 25c, 30c, 35c, 40c
Lionel Corp., Telerad Div, N.J., 30c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 5c, 15c, 20c, 25c, 30c, 35c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., Md., 5c, 15c, 20s, 25s, 30c, 35c, 40c
Lockheed Electronics Co., N.J., 30c, 40c
MacKay Research Laboratories, Ariz., 5c
Madigan Electronic Corp., N.Y., 5sc, 10c, 15sc, 20sc, 25c, 30c, 35c, 40sc
Magnavox Co., Magnavox Research Laboratories, Calif., 5c, 15c, 30c, 35c, 40sc
Manson Laboratories, Inc., Conn., 5c, 15c, 35c
Marconi's Wireless Telegraph Co., Ltd., N.Y., 5s, 15s, 20s, 25s, 30s, 40s
Marine View Electronics, Inc., N.Y., 20c
Marquardt Corp., Pomona Div., Calif., 30c
Martin Co. (Martin-Marietta Corp.), Md., 35c
Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 5c, 15c, 35c
Maury & Associates, Calif., 15c
Maxson Electronics Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Maxwell Electronics Corp., Texas, 40sc
Mayberry Electronics Co., Calif., 5c, 10c, 15c
McDonnell Aircraft Corp., Mo., 30c
Melabs, Calif., 5c, 15c, 30c
Melpar, Inc., Va., 5c, 10c, 15c, 30c
Menlo Park Engineering, 711 Hamilton Ave., Menlo Park, Calif., 5c, Tel: 415-DAvenport 6-9080
See ad in class 43
Microwave Corp. of America, Conn., 30c
Microwave Dynamics Corp., N.Y., 5c
Miller Industries, Inc. (R.A.), Mich., 30c
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 10s
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 10c
Mitchell Industries, Inc., Texas, 5s, 15s
Model Engineering & Mfg. Corp., Ind., 5c, 10c, 15c, 40c
Mohawk Business Machines Corp., N.Y., 10c
Montek, Inc., Utah, 20c
Motorola Aviation Electronics, Inc., Calif., 5sc, 15sc, 40sc
Motorola, Inc., Military Electronics Div., Ariz., 5c, 15c, 30c, 35c, 40c
National Aeronautical Corp., Pa., 5s, 15s, 20s, 25s, 30s, 40s
National Co., Inc., Mass., 5c, 35c, 40c
National Radio Co., Inc., Mass., 20s
New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy., Somerville 43, Mass., 5c, Tel: 617-625-6100
See ad in class 84
Olympic Radio & Television, Div. of Siegler Corp., N.Y., 5sc, 10sc, 15c, 20sc
Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 5c, 15c, 20c, 25c, 35c, 40c, Tel: 914-DEerfield 7-6132
See ad in class 43
Osborne Electronics Corp., Ore., 40s
Otis Elevator Co., Defense & Industrial Div., N.Y., 30c
Pacific Communications, N.J., 5sc, 15sc, 40sc
Pacific Electro Magnetics Co., Inc., Calif., 10sc

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

1. Aircraft & Airport Communications Equipment.

Packard-Bell Electronics Corp., Calif., 5c, 15c, 20c, 25c, 35c, 40c
Peer, Inc., Texas, 15c, 25c
Philco Corp., Pa., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Philco Corp., Government & Industrial Group, Pa., 15c, 40c
Philips Electronics Industries, Ltd., Canada, 20c, 25c, 30c, 35c, 40c
Planetronics, Inc., Pa., 5c, 30c, 40c
Polarad Electronics Corp., 43-20 34th St., Long Island City 1, N.Y., 5c, 10c, 15c, 20c, 25c, 30c, Tel: 212-EXeter 2-4500
See ads in class 37
Polytronic Research, Inc., Md., 5c, 15c, 20c, 25c, 35c, 40c
Pye Corp. of America, N.J., 20s, 25s, 40s
Pye Telecommunications, Ltd., England, 30sc
R F Communications Associates, Inc., N.Y., 5c, 15c, 20c, 25c, 40c
RLC Electronics, Inc., 805 Mamaroneck Ave., Mamaroneck, N.Y., 5s, Tel: 914-OWens 8-7440
See ads in classes 45, 59
RS Electronics Corp., 435 Portage Ave., P.O. Box 11368, Sta. A, Palo Alto, Calif., 5sc, 35sc, Tel: 415-DAvenport 1-1130
See ad in class 43
Racal Engineering, Ltd., England, 20sc, 25sc, 40sc
Radiation, Inc., Fla., 15s
Radiatronics, Inc., Calif., 5c, 15c, 30c
Radio Corp. of America, Defense Electronic Products, N.J., 10c, 40c
Radio Industries, Inc., Kans., 5c, 15c
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 20c, 25c
Ramage & Miller, Inc., Calif., 30c
Rantec Corp., Calif., 30c
Rauland-Borg Corp., Ill., 40c
Redifon, Ltd., England, 30sc, 35sc, 40sc
Remanco, Inc., Calif., 30c
Republic Electronic Industries Corp., N.Y., 15c, 40c
Resdel Engineering Corp., Calif., 35s
Roberts Mfg. Co., Texas, 5c, 15c, 20c
Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 5sc, 15sc, 30sc, 40sc
Sanders Associates, Inc., N.H., 30c
Schaevitz Engineering, N.J., 5c, 10sc, 15c, 20c, 25c, 30c, 35c, 40c
Scope, Inc., Va., 30sc
Seg Electronics Co., Inc., 12 Hinsdale St., Brooklyn 7, N.Y., 40s, Tel: 212-DI-5-6262
See ad in class 59
Servo Corp. of America, N.Y., 5c, 15c, 20c
Servomechanisms/Inc., Calif., 5c, 15c
Servonic Instruments, Inc., Calif., 5c, 15c
Sierra Research Corp., N.Y., 30c, 35c
Sigma Electronics Research Corp., Wash., 30c
Simmonds Precision Products, N.Y., 30sc
Solid State Electronics Co., Dept. I, 15321 Rayen St., Sepulveda, Calif., 5s, 15s, 30s, 40s, Tel: 213-EMpire 4-2271
See ad on page 44
Space Electronics Corp., Calif., 5c, 10c, 15c, 35c
Sparton Electronics, Div. of Sparton Corp., Mich., 5c, 15c, 30c, 35c, 40c
Specialty Electronics Development Corp., N.Y., 5c, 15c
Specific Electronics, Inc., Calif., 5c, 15c, 20c, 25c, 40c
Speidel Corp., Industrial Div., R.I., 10c
Sperry Rand Corp., Sperry Gyroscope Co. (Div.), N.Y., 30 Airborne c
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 30c
Sperry Rand Corp., Sperry Phoenix Co. (Div.), Ariz., 5c, 15c, 30c, 35c
Sperry Rand Corp., Sperry Phoenix Co., Sunnyvale Development Center, Calif., 5c, 15c, 30c, 35c, 40c
Sperry Rand Corp., Wheeler Electronic Corp. (Subsid.), Conn., 25sc, 40c
Spilsbury & Tindall, Ltd., Canada, 30c
Springer Aircraft Radio Corp., Ind., 5s, 40s
Stancil-Hoffman Corp., Calif., 10sc
Standard Telephones & Cables, Ltd., England, 5sc, 15sc, 20sc, 25sc, 30c, 35c, 40sc
Stewart-Warner Corp., Stewart-Warner Electronics Div., Ill., 5c, 15c, 30c, 40c
SunAir Electronics, Inc., Fla., 40s
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 5c, 15c, 30c, 35sc, 40c
Systems Research Corp., Calif., 5c
TMC (Canada), Ltd., Canada, 20s, 25s
TRG, Inc. (Technical Research Group), N.Y., 5c, 30c
Tamar Electronics, Inc., Calif., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
TELautograph Corp., Calif., 20c, 25c, 40c
Telechrome Mfg. Corp., N.Y., 5c, 15c, 20c, 25c, 30c, 35c, 40c
Telecomputing Corp., Calif., 5c, 10c, 20c, 25c, 30c
Telecomputing Corp., Value Engineered Products, Inc. (Subsid.), Calif., 5c, 15c
Telecomtrol Corp., N.J., 5c, 15c
Telectro Industries Corp., N.Y., 5c, 10c, 15c, 20c, 25c
Telephonics Corp., N.Y., 5c, 15c, 40s
Televiso Corp., Ill., 25c
Texas Instruments Incorporated, Apparatus Div., Government Products Group, Texas, 35c
Thompson Ramo Wooldridge Inc., Tapco Div., Ohio, 15c
Thomson-Houston (Compagnie Francaise), France, 5s, 15s, 20s, 25s, 30s, 35s, 40s
Tokyo Shibaura Electric Co., Ltd., Japan, 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40sc
Topping Electronics, Ltd., Canada, 20c, 25c, 30c
Transistor Applications, Inc., Mass., 5c
United Control Corp., Wash., 10c
United ElectroDynamics, Inc., Calif., 15s
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 25c
Univox Corp., N.Y., 10c
Virginia Electronics Co., Inc., D.C., 5c, 15c, 20c, 25c
Wallace & Tiernan, Inc., N.J., 30s
Watkins-Johnson Co., Calif., 5c, 15c
Webcor, Inc., Electronics Div., Ill., 5c, 10c, 15c
Wells-Gardner Electronics Corp., Ill., 5c, 35c
Westgate Laboratory, Inc., Ohio, 10c
Westinghouse Electric Corp., Air Arm Div., Md., 5c, 15c
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 35c, 40sc, Tel: 212-JUdson 2-3030
See ad on page 224
Wilcox Electric Co., Inc., Mo., 5s, 15s, 20s, 25s, 30s, 35s, 40s
Winslow Co., Inc., N.J., 30s

Aircraft microphones:
See class 65

2. Aircraft-Missile Navigation & Test Equipment.

5. Altimeters
10. Autopilots
15. Checkout & ground support equipment
20. Direction finders
25. Displays, artificial & video
30. GCA equipment
35. Gyroscopes
40. Gyro testers
45. ILS equipment
50. Inertial guidance
55. Platforms
60. Simulation, flight
65. Transponders
70. VOR equipment

A C Electronics, Inc., Calif., 15c
ACF Electronics Div., ACF Industries, Inc., Md., 15c, 25c, 60c, 65c
A.R.F. Products, Inc., Ill., 15c, 20c, 65c
Acoustica Associates, Inc., Calif., 15sc
Adage, Inc., Mass., 15sc
Adcole Corp., Mass., 40sc
Adler Electronics, Inc., N.Y., 15c
Admiral Corp., Ill., 5c, 15c, 25c, 65c
Advanced Development Laboratories, Inc., N.H., 5c, 20c, 65c
Advanced Measurement Instruments, Inc., Mass., 15sc
Advanced Technology Laboratories, Div. of American-Standard, Calif., 15s, 25s
Aero Geo Astro Corp., Va., 45c, 65s
Aero Mechanism, Inc., Calif., 5c
Aeroflex Laboratories, Inc., N.Y., 25c, 35sc, 40c, 55sc
Aeronca Mfg. Corp., Aerospace Div., Md., 15c, 25c, 60c
Aircom, Inc., 48 Cummington St., Boston 15, Mass., 15 Microwave Impedance Plotters c, Tel: 617-COpley 7-9115
See ads in classes 44, 66
Aircraft Armaments, Inc., Md., 15c, 65c
Aircraft Electronics, Ariz., 20c
Aircraft Radio Corp., N.J., 20s, 45s, 70s
Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 15sc, Tel: 301-ACademy 8-4600
See ad in class 53
Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 15sc, Tel: 305-LUdlow 3-6160
See ad in class 53
Airtronics, Inc., D.C., 15c, 20c
Alford Mfg. Co., 299 Atlantic Ave., Boston 10, Mass., 70s, Tel: 617-HAncock 6-2150
See ad in class 66
Allied International Corp., N.Y., 5s, 20s, 45s, 70s
Alto Scientific Co., Inc., Calif., 15c
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 5c, 15c, 65c
American Bosch Arma Corp., N.Y., 15c, 25c, 50c, 55c

Directory I. Complete Equipment

2. Aircraft-Missile Navigation & Test Equipment.

American Bosch Arma Corp., Tele-Dynamics Div., Pa., 15sc
American Electronics, Inc., Calif., 15sc
American Electronics, Inc., Fullerton Divs., Calif., 15c
American Machine & Foundry Co., Government Products Group, N.Y., 15c
American Machine & Foundry Co., Greenwich Engineering Div., Conn., 15 Tracking-Mounts c, 30c, 55c, 60c
American Missile Products Co., Inc., Calif., 60c
American Optical Co., J. W. Fecker Div., Pa., 15sc, 40sc, 60sc
Amplivox Exports, Ltd., England, 15s
Anadex Instruments, Inc., Calif., 15s
Anchor Specialty Mfg. Co., Inc., N.J., 15c, 20c, 40c, 50c
Andersen Laboratories, Inc., Conn., 20c
Andrea Radio Corp., N.Y., 20c, 70c
Angler Industries, Inc., N.J., 15c, 70c
Applied Technology, Inc., Calif., 15c
Astra Technical Instrument Corp., Calif., 15sc
Astral Electronics, Inc., Calif., 60c
Astro-Space Laboratories, Inc., Ala., 15c, 35c, 40c, 45c, 50c, 55c
Astromics, Div. of Mitchell Camera Corp., Calif., 5c
Astronautics Corp. of America, Wis., 15c, 25sc, 40c, 50c, 55c, 60c
Astrosystems, Inc., N.J., 15sc
Atlas Precision Products Co., Pa., 60c
Auerbach Electronics Corp., Pa., 15c, 60c
Austin Electronics, Div. of Austin Co., N.Y., 15c, 60c
Automation Dynamics Corp., N.J., 15s, 65c
Automation Industries, Inc., Datran Div., Calif., 15c
Automation Laboratories, Inc., N.Y., 15sc, 25c
Autometric Corp., N.Y., 25c, 30c, 60c
Autonetics, Div. of North American Aviation, Inc., Calif., 10c, 15c, 20c, 35c, 50c, 55c
Avien, Inc., N.Y., 15sc, 60c
Avtron Mfg., Inc., Ohio, 15sc
Babcock Electronics Corp., Calif., 10c
Ballantine Laboratories, Inc., Boonton, N.J., 15s, Tel: 201-DEerfield 4-1432
See ad in class 40
Barnes Engineering Co., Conn., 15 Infrared c, Meteorological equipment c
Barth Engineering & Mfg. Co., Inc., Conn., 20c, Radiosondes c, Meteorological equipment c
Bayside Watch Tool Co., Inc., N.Y., 60sc
Beckman Instruments, Inc., Systems Div., Calif., 15c
Behlman Engineering Co., Calif., 40c
Bell Aerosystems Co., Avionics Div., N.Y., 5c, 15c, 25c, 30c, 35s, 40c, 45c, 50c, 55c, 60s, 65s
Bell Helicopter Co., Electronics Dept., Texas, 10c, 25c, 45c, 60c, 65c
Belock Instrument Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c
Bendix Corp., Bendix Mishawaka Div., Ind., 15c
Bendix Corp., Bendix-Pacific Div., Calif., 5sc, 15c, 65c
Bendix Corp., Bendix Radio Div., Avionic Products Dept., Md., 15s, 20s, 45s, 70s
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 20sc, 25c, 30c, 65c, 70sc
Bendix Corp., Bendix Systems Div., Mich., 50c
Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J., 10c, 15c, 20c, 25c, 35c, 40c, 45c, 50c, 55c, 70c, Tel: 201-ATlas 8-2000
See ad on pages 46-47
Bendix Corp., Pioneer-Central Div., Iowa, 5sc, 15sc, 35sc, 40c, 65c
Bendix Corp., York Div., Pa., 15c, 20c
Benson-Lehner Corp., Calif., 25sc
Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 35c
Bogue Electric Mfg. Co., N.J., 15c
Borg Equipment Div., Amphenol-Borg Electronics Corp., 120 S. Main St., Janesville, Wis., 20c, Tel: 608-PLeasant 4-6616
See ad in class 74
Bowmar Instrument Corp., 8000 Bluffton Rd., Fort Wayne, Ind., 5c, 20c, Tel: SHerwood 3121
See ad in class 77
Bruno-New York Industries Corp., N.Y., 45s
Building Blocks Electronic Co., N.Y., 15c
Bulova Research & Development Laboratories, N.Y., 5c, 15c, 25c, 50c, 60c, 70c
Bulow Electric Co., Mich., 60c
Burr-Brown Research Corp., Ariz., 15s
Burroughs Corp., Mich., 15c, 25c
Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., 10c, 25c, 30c
CBS Electronics, Div. of Columbia Broadcasting System, Inc., Mass., 15c, 25c
C.E.S. Electronic Products, Inc., Calif., 15c
Calbest Electronics, Calif., 15c
California Technical Industries, Div. of Textron, Inc., Calif., 15sc, 60sc
Cameraflex Corp., N.Y., 15c, 25c, 60c
Canadian Applied Research, Ltd., Canada, 15c
Canadian Aviation Electronics, Ltd., Canada, 15c, 25c, 35sc, 60c, 65c
Canadian General Electric Co., Ltd., Electronic Equipment & Tube Dept., Canada, 20c, 30c, 65c, 70c
Canadian Marconi Co., Canada, 20sc, 45c, 70c
Canadian Westinghouse Co., Ltd., Canada, 5c, 15sc, 25c, 70c
Canoga Electronics Corp., Calif., 15c, 20c, 50c, 65c
Capehart Corp., N.Y., 15c, 70c
Carma Mfg. Co., Calif., 20sc
Carol Electronics Corp., W.Va., 15c
Central Dynamics, Ltd., Canada, 25c, 60c, 70c
Central Engineering Co., Minn., 15c
Centroid Engineering & Mfg. Corp., 126 Jackson St., Cambridge 40, Mass., 50c, 60c, Tel: 617-TRowbridge 6-7250
See ads on page 111 and in class 91
Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., Texas, 10c, 15c, 25c, 50c, 60c, 65c
Chicago Aerial Industries, Inc., Ill., 15c, 25c, 60c
Chrysler Corp., Defense Group, Mich., 5c, 15c, 20c, 25c, 35c, 65c, 70c, Meteorological equipment c, Radiosondes c
Cinaudagraph, Inc., Ill., 65c
Cincinnati Sub Zero Products, Inc., Ohio, 60 Chambers c
Clary Corp., Calif., 15c, 35c
Clevite Corp., Brush Instruments Div., Ohio, 15c
Clevite Corp., Clevite Ordnance Div., Ohio, 65c
Co Engineering Co., N.J., 20c
Cole Instrument Co., Calif., 15c
Collins Radio Co., Iowa, 10sc, 15sc, 45s, 65s, 70s
Communication Measurements Laboratory, Inc., N.J., 15sc, 40sc
CompuDyne Corp., Mass., 60c
CompuDyne Corp., Pa., 15c
Computer Sciences, Inc., N.Y., 60c
Computer Systems, Inc., N.J., 60 Analog c
Computer Techniques, Inc., N.Y., 25c
Connecticut Technical Corp., Conn., 25c
Consolidated Airborne Systems, Inc., N.Y., 15sc
Consolidated Avionics Corp., N.Y., 15c
Consolidated Diesel Electric Corp., Conn., 15c
Consolidated Electrodynamics Corp., Calif., 15s
Continental Technical Service, Inc., Ohio, 15c, 40c, 60c
Control Data Corp., Cedar Engineering Div., Minn., 35c, 40c
Control Electronics Co., Inc., 10 Stepar Place, Huntington Station, L.I., N.Y., 15sc, 20sc, 70c, Tel: 516-HAmilton 7-7961
See ad in class 59
Control Equipment Corp., Mass., 15c
Control Technology Co., Inc., N.Y., 15c
Controls Co. of America, Ill., 15sc, 25sc
Cook Electric Co., Ill., 15c, 25c
Cook Electric Co., Cook Technological Center, Ill., 20c, 25c, 60c
Cosmic, Inc., D.C., 5c
Craig Systems, Inc., Mass., 15c
Cubic Corp., Calif., 20c, 65c
Curtiss-Wright Corp., Electronics Div., N.J., 15c, 60c
Curtiss-Wright Corp., Electronics Div., N.M., 15 Digital c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

2. Aircraft-Missile Navigation & Test Equipment.

Curtiss-Wright Corp., Princeton Div., N.J., 15sc
DBM Research Corp., Fla., 65c
Dalmo Victor Co., Div. of Textron, Inc., Calif., 15c, 55c
Darco Industries, Inc., Calif., 10c, 35c, 40c
Data Display, Inc., 1820 Como Ave., Saint Paul 8, Minn., 25c, Tel: 612-MIdway 6-8673
See ad in class 9
Datalog Corp., Metrolog Div., 2415 Amsler St., Torrance, Calif., 15sc, Tel: 213-SPruce 5-6621
See ad in class 40
Datex Corp., Calif., 15c, 60c
Daystrom, Inc., Military Electronics Div., Pa., 15c, 25c
Daystrom, Inc., Pacific Div., Calif., 35c
Daystrom, Inc., Weston Instruments Div., N.J., 45c
Daystrom-Wiancko Engineering Co., Calif., 15sc, 50sc
Dayton Aviation Radio & Equipment Corp., Ohio, 20s, 45s, 65c, 70s
Decker Corp., Pa., 40c
Dero Research & Development Corp., N.Y., 15c, 25c
Designers for Industry, Inc., Ohio, 15c, 65c
Detronic Industries Corp., Mich., 15c, 55c
Developmental Electronics Corp., Calif., 15c
Dewey Corp. (G. C.), N.Y., 15c, 20c, 25c, 60c
Di/An Controls, Inc., Mass., 15c, 50c
Di-Tran Corp., Calif., 15c
Diamond Electronics, Div. of Diamond Power Specialty Corp., Ohio, 25sc
Dirigo Compass & Instrument Co., Wash., 15c
Dit-Mco, Inc., Electronics Div., Mo., 15s
Donner Scientific Co., Calif., 60c
Dorne & Margolin, Inc., N.Y., 15c, 20c, 45c, 70c
Dorsett Electronics, Inc., Okla., 65sc
Douglas Aircraft Co., Inc., Calif., 10c, 15sc, 25c, 40c, 65c
Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 65c, Tel: 914-MOunt Vernon 8-6900
See ad in class 66
Dresser Electronics/SIE Div., Dresser Industries, Inc., Texas, 15c
Duncan Electric Co., Inc., Davenport Mfg. Div., Ill., 15c
Dunn Engineering Corp., Mass., 15c, 40c, 50c, 55c, 60c, Antenna-Radome Test c
Dynamics Corp. of America, N.Y., 20c, 35sc, 40c, 50c, 55c
Dynamics Research Corp., Mass., 15c, 35c, 40sc, 50c, 55c
Dynatronics, Inc., Fla., 25c, 65c
E D P Corp., Fla., 15c
E.P. Electric Products Co., Ltd., Canada, 15c
Eagle Signal Co., Div. of Gamewell Co., Ill., 15sc
Edo Corp., N.Y., Loran (air) c
Ehrenpreis Engineers (David), N.Y., 55 c
Electrada Corp., Calif., 15c, 45c
Electric Storage Battery Co., Ray-O-Vac Div., Wis., 20s
Electro-Craft Corp., Minn., 15c, 40c
Electro Logic Corp., Calif., 15c
Electro Networks, Inc., & Caledonia Electronics & Transformer Corp., N.Y., 50c
Electro Radiation, Inc., Calif., 25c
Electronic Assistance Corp., N.J., 5sc
Electronic Controls, Inc., Conn., 10c, 15c
Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., 15sc, Tel: 301-HAmilton 6-1268
See ad in class 73
Electronic Specialty Co., Calif., 5c, 15c, 45c, 70c
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 15c
Elliott-Automation, Ltd., England, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c
Elm Laboratories, N.Y., 15c, 25c
Elsco Systems, Inc., Wash., 15c
Emerson Electric Mfg. Co., Mo., 15c, 50c, 55c, 65c
Emertron, Inc., Div. of Emerson Radio & Phonograph Corp., N.J., 5c
Engelhard Industries, Inc., Makepeace Div., Mass., 15c, 30c
Epsco, Inc., Mass., 15sc
Epsco, Inc., Monitor Systems, Inc. (Subsid.), Pa., 15c
Erdco Engineering Corp., Ill., 15c
Erie Resistor Corp., Erie Pacific Div., Calif., 15sc
Ewen Knight Corp., Mass., Radiometric Sensors c
Exact Electronics, Inc., Ore., 15c
Exact Engineering & Mfg., Inc., Calif., 15c, 25c, 60c
Fairchild Camera & Instrument Corp., Defense Products Div., N.Y., 15c, 25c
Fairchild Controls Corp., N.Y., 35s
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 5c, 10c, 15c, 25c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 15sc, 20c, 25sc, 40c, 50c, 60c, 70c
Ferranti Electric, Inc., N.Y., 35c
Fidelitone Microwave, Inc., Ill., 65sc
Fisher Research Laboratory, Inc., Calif., 20c
Flite-Tronics, Inc., Calif., 45s
Fluke Mfg. Co., Inc. (John), Wash., 40s
Ford Instrument Co., N.Y., 15c, 25c, 30c, 35c, 50c, 55c
Forway Industries, Inc., N.J., 20c
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 15sc, 65sc, Tel: 216-SHadyside 9-0700
See ad in class 50
Galbraith-Pilot Marine Corp., Div. of Marine Electric Corp., N.Y., 70c
Garrett Corp., AiResearch Mfg. Co., Calif., 5c
General Aniline & Film Corp., Ansco Div., N.Y., 10c, 20c
General Automatics, Inc., Calif., 15c, 25c
General Bronze Corp., G B Electronic Div., N.Y., 55sc
General Coil Products Corp., N.Y., 20c
General Communication Co., 677 Beacon St., Boston 15, Mass., 15c, 65c, 70c, Tel: 617-COpley 7-6030
See ads in class 37
General Devices, Inc., P.O. Box 253, Princeton, N.J., 15c, Tel: 609-WAlnut 4-2500
See ad adjacent to Index to Advertisers, back of book
General Dynamics Corp., Convair Div., Convair/Pomona, Calif., 15c
General Dynamics/Electronics, N.Y., 5c, 15sc, 25sc, 30c, 60c, 65sc, 70c
General Dynamics/Electronics, Information Technology Div., Calif., 15c, 25c
General Electric Co., Pa., 15c
General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 25sc, 60c
General Electric Co., Defense Systems Dept., N.Y., 30c, 45c, 50c, 70c
General Electric Co., Instrument Dept., 40 Federal St., Lynn, Mass., 35c, 50c, 55c, Tel: 617-LYnn 3-3400
See ad in class 61
General Electric Co., Light Military Electronics Dept., N.Y., 10c, 15c, 25c, 50c, 55c, 65c
General Electric Co., Ordnance Dept., Mass., 15c, 50c, 55c
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 5c, 15c, 60c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 20c, 25c, 45c, 50c, 60c, 65c, 70c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 15c, 20c, 50c, 60c, 65c, 70c
General Meters, Inc., Colo., 15sc
General Microwave Corp., N.Y., 60c, 65c, 70c
General Mills, Inc., Minn., 15sc, 50c
General Motors Corp., AC Spark Plug Div., Wis., 35c, 40c, 50c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 35sc, 40c, 50c, 55sc, 60sc
General Precision, Inc., GPL Div., N.Y., 50c
General Precision, Inc., Kearfott Div., Calif., 65c
General Precision, Inc., Kearfott Div., N.J., 10c, 15sc, 25c, 35sc, 40sc, 50sc, 55sc
General Precision, Inc., Librascope Div., Calif., 15c, 50c
General Railway Signal Co., N.Y., 25
Meteorological c, Traffic-Control c
Genisco, Inc., Calif., 40sc
Giannini Controls Corp., Calif., 15c, 35c, 50c, 55c
Gibbs Mfg. & Research Corp., Wis., 15c, 40c
Gilfillan Brothers, Inc., Calif., 15c, 25
Artificial c, 30sc, 60c
Gilliland Instrument Co., Inc., Calif., 15c
Globe Industries, Inc., Ohio, 35c
Goodyear Aircraft Corp., Ohio, 15c, 60c
Goodyear Aircraft Corp., Arizona Div., Ariz., 15c, 25c
Granger Associates, Calif., Null-Field Dischargers s
Great Lakes Mfg. Corp., Ohio, 15c
Green Instruments, Inc. (Henry J.), N.Y., 15 Servo-Barometers sc
Green Rectifier Co., N.J., 15sc

Directory I. Complete Equipment

2. Aircraft-Missile Navigation & Test Equipment.

Grumman Aircraft Engineering Corp., N.Y., 15c, 55c, 60c
Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 60c, Tel: 312-CHesapeake 3-1100
See ad in class 73
Gyrex Corp., Calif., 15sc, 35c
Hallamore Electronics Div., Siegler Corp., Calif., 10c, 15sc, 20c, 25c, 65c
Hampshire Engineering Co., Mass., 15c
Harmon Co., Inc. (George), Calif., 65sc
Hass Instrument Corp., D.C., 15sc
Hastings-Raydist, Inc., Va., 5s, 15s
Haydon Co. (A. W.), Conn., 15c
Hazeltine Corp., N.Y., 15c, 25c, 70c
Hewlett-Packard Co., Dymec Div., Calif., 15c
Hickok Electrical Instrument Co., Ohio, 5c, 15c, 60c
Hoffman Electronics Corp., Calif., 25c, 35c, 55c
Hollywood Mfg. & Supply Corp., Calif., 15c
Hoover Co., Electronics Div., Md., 15c
Houston Fearless Corp., Westwood Div., Calif., 25c, 65c
Howard Instrument Co., N.J., 15c, 25c
Howell Instruments, Inc., Texas, 5sc, 15s
Humphrey, Inc., Calif., 35c, 40c
Hunter Mfg. Co., Ohio, 15c
Huyck Systems Co., N.Y., 15c, 25c, 60c
Hycon Mfg. Co., Calif., 15c
Hydro-Aire Co., Div. of Crane Co., Calif., 15c
I.D.E.A., Inc., Ind., 15c
I-T-E Circuit Breaker Co., Special Products Div., Pa., 30c
Iconix, Inc., Calif., 15c
Ideal-Aerosmith, Div. of Royal Industries, Inc., Wyo., 40sc
Image Instruments, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 25c, Tel: 617-WOodward 9-8440
See ads in classes 9, 10, 21, 86
Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif., 25s, Tel: 213-TRiangle 7-1144
See ads on pages 162 and in class 63
Industrial Instruments, Inc., N.J., 15c
Instrument Systems Corp., N.Y., 15c, 25c
Instruments For Industry, Inc., 101 New South Rd., Hicksville, L.I., N.Y., 15c, 30c, Tel: 516-OVerbrook 1-7100
See ads in classes 43, 74
Intercontinental Dynamics Corp., N.J., 15 Portable-Testers c
Intercontinental Electronics Corp., N.Y., 5s, 25s
International Business Machines Corp., N.Y., 15c, 25c, 50c, 60c
International Business Machines Corp., Federal Systems Div., Md., 15c, 25c
International Fermont Machinery Co., Inc., N.Y., 15sc
International Telephone & Telegraph Corp., ITT Federal Laboratories, Ind., 15c
International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 15c, 20c, 25c, 30c, 45c, 50c, 55c, 60c, 65c
International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 10c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 25sc
Interstate Electronics Corp., Calif., 25c, 65c
Iron Fireman Mfg. Co., Electronics Div., Ore., 35sc
Jackson Electronic & Mfg. Div., International Basic Economy Corp., Ohio, 15c
Jacobs Instrument Co., Md., 50c, 60c
Johnson Electronics, Inc., Fla., 15c
Julie Research Laboratories, Inc., N.Y., 15sc
Kahn & Co., Inc., Conn., 15c
Kaiser Aircraft & Electronics, Div. of Kaiser Industries Corp., Calif., 25c, 60c
Kaman Aircraft Corp., Conn., 5c, 10c, 15c, 50c, 55c, 60c
Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 5c, 20c
Kato Engineering Co., 1420 First Ave., Mankato, Minn., 15c, Tel: 8-2941
See ad in class 67
Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 15s, Tel: 201-CApital 6-4000
See ad on pages 72-73
Kelsey-Hayes Co., Mich., 15c
Kern Instruments, Inc., N.Y., 15sc
King Radio Corp., Kans., 45s
Kinn Electronics Corp., Md., 45c, 70c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60c, 65c, 70sc
Korry Mfg. Co., Wash., 15sc, 25sc
Laboratory For Electronics, Inc., Mass., 15c, 30c
Land-Air, Inc., Ill., 45c
LaPointe Industries, Inc., Conn., 5c
Lear, Inc., Calif., 10sc, 15sc, 25sc, 35sc, 40sc, 50c, 55sc, 65c
Lear, Inc., Instrument Div., Mich., 10sc, 15sc, 20sc, 25sc, 35sc, 40sc, 50sc, 55sc
Leesona Corp., Leesona Moos Laboratories Div., N.Y., 5c
Lignes Telegraphiques et Telephoniques, France, 5c
Ling Temco Vought, Inc., Texas, 25s, 30c
Ling Temco Vought, Inc., F F & M Electronics, Inc. (Subsid.), Calif., 25sc, 30c, 60c
Ling Temco Vought, Inc., Temco Electronics Div., Texas, 30c
Lionel Corp., N.J., 15c, 20c, 25c, 30c, 40c, 45c, 65c, 70c
Lionel Corp., Telerad Div., N.Y., 65c
Litton Industries, Inc., Components Group, Airtron Div., N.J., 65c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 15c, 20c, 25c, 30c, 35c, 40sc, 45sc, 50sc, 55sc, 60c, 70c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., Md., 15c, 20c, 30c, 45c, 65c, 70s
Lockheed Electronics Co., N.J., 15c, 25c, 65c, 70c
Lockheed Electronics Co., Avionics & Industrial Products Div., Calif., 15c
Loral Electronics Corp., N.Y., 15c, 25c
Lumatron Electronics, Inc., 116 County Courthouse Rd., New Hyde Park, L.I., N.Y., 15c, Tel: 516-PIoneer 7-3200
See ad in class 23
MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 5c, 15c, 25c, Tel: 305-LOgan 4-8518
See ad in class 4
Madigan Electronic Corp., N.Y., 15c, 25c, 60c, 65c
Magnavox Co., Magnavox Research Laboratories, Calif., 15c
Magnetic Amplifiers Div., Siegler Corp., 632 Tinton Ave., New York 55, N.Y., 10c, 15c, Tel: 212-CYpress 2-6610
See ad in class 69
Magnetic Controls Co., Minn., 15c
Mallory & Co., Inc. (P. R.), Ind., 15c
Mandrel Industries, Inc., Calif., 35sc, 60sc
Mandrel Industries, Inc., Greenleaf Mfg. Div., Mo., 35c
Marconi's Wireless Telegraph Co., Ltd., N.Y., 20s, 25c, 30c, 45s, 70s
Marquardt Corp., Pomona Div., Calif., 15c, 25c, 60c
Martin Co. (Martin-Marietta Corp.), Md., 10c, 15c, 25c
Martin Co. (Martin-Marietta Corp.), Electronics Div., Md., 15c, 25c
Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 15c, 25c, 50c, 60c
Matrix Research & Development Corp., N.H., 65c
Matsushita Communication Industrial Co., Ltd., Japan, 20c
Maurer, Inc. (J. A.), N.Y., 5c, 15c, 25c, 50c
Maxson Electronics Corp., N.Y., 15c, 20c, 25c, 50c
McDonnell Aircraft Corp., Mo., 10c, 15s, 25c, 60c
McKiernan-Terry Corp., N.J., 15sc
Melpar, Inc., Va., 15c, 20c, 25c, 60c
Menlo Park Engineering, 711 Hamilton Ave., Menlo Park, Calif., 65c, Tel: 415-DAvenport 6-9080
See ad in class 43
Mergenthaler Linotype Co., N.Y., 15c, 25c
Meteorology Research, Inc., Calif., Potential Gradient Recorders c
Micro Gee Products, Inc., Calif., 40sc, 55c, 60sc
Midwestern Instruments, Inc., Okla., 15s
Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 15c, Tel: 305-OXford 1-1220
See ad in class 28

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

2. Aircraft-Missile Navigation & Test Equipment.

Miller Associates, Conn., 60c
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 10c, 15c, 35c, 40c, 50c, 55c, 60c
Minneapolis-Honeywell Regulator Co., Precision Meter Div., N.H., 25c, 45c, 60c, 70c
Missouri Research Laboratories, Inc., Mo., 15c
Mitchell Industries, Inc., Texas, 10c, 20c
Model Engineering & Mfg. Corp., Ind., 5c, 10c, 15c, 20c, 35c, 50c, 65c
Molectronics, Div. of Motec Industries, Calif., 15c, 60c
Montek, Inc., Utah, 15c, 20c
Motorola Aviation Electronics, Inc., Calif., 10sc, 20sc, 35s, 45sc, 70sc
Motorola, Inc., Military Electronics Div., Ariz., 15c, 20c, 25c, 65c
NJE Corp., 20 Boright Ave., Kenilworth, N.J., 15c, Tel: 201-BRidge 2-6000
See ad in class 69
NRC Equipment Corp., Mass., 60c
Naniloa Corp., Ohio, 15c, 25c
National Aeronautical Corp., Pa., 20s, 45s, 65s, 70s
National Cash Register Co., Electronics Div., Calif., 25 Color sc
National Co., Inc., Mass., 15c
National Union Electric Corp., Electronics Div., Ill., 25c
Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 15c, Tel: 215-GLendale 2-6531
See ad in class 10
Neptune Electronics Co., N.Y., 15c
Newark Controls Co., N.J., 5sc
Newton Co., Conn., 60c
Norden Div., United Aircraft Corp., Conn., 35sc, 55sc
Norden Div., United Aircraft Corp., Ketay Dept., N.Y., 35sc
North Atlantic Industries, Inc., Terminal Dr., Plainview, L.I., N.Y., 15sc, 40sc, Tel: 516-OVerbrook 1-8600
See ad in class 35
Northeastern Engineering, Inc., N.H., 40sc
Northern Electronics, Inc., Minn., 15c
Northrop Corp., Calif., 10c, 15c, 25c, 35c, 40c, 50c, 55c, 60c, 65c
Northrop Corp., Nortronics Div., Precision Products Dept., Mass., 35c, 50c, 55c
Olympic Radio & Television, Div. of Siegler Corp., N.Y., 15c
Opad Electric Co., 43-8 Walker St., New York 13, N.Y., 15c, Tel: 212-WOrth 6-0380
See ad in class 69
Optimized Devices, Inc., N.Y., 15c
Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 5c, 25c, 30c, 60c, 65c, Tel: 914-DEerfield 7-6132
See ad in class 43
Oster Mfg. Co. (John), Avionic Div., Wis., 70c
Otis Elevator Co., Defense & Industrial Div., N.Y., 15c, 50c
Pacific Electro Magnetics Co., Inc., Calif., 15sc
Pacific Magnetic Corp., Calif., 15c, 30c
Pacific Scientific Co., Calif., 15c
Packard-Bell Electronics Corp., Calif., 15c, 30c, 65c
Palomar Scientific Corp., Calif., 5s, 35c, 50c, 55c
Panoramic Electronics, Inc., 528 S. Fulton Ave., Mount Vernon, N.Y., 15s, Tel: 914-OWens 9-4600
See ad on page 80
Parsons Co. (Ralph M.), Electronics Div., Calif., 15c, 65c
Pastoriza Electronics, Inc., Mass., 60c
Pearce-Simpson, Inc., Fla., 15sc
Penn Keystone Corp., Conn., 25c
Performance Measurements Co., Mich., 15c
Perkin-Elmer Corp., Conn., 15c
Peschel Electronics, Inc., Towners, R.F.D. 1, Patterson, N.Y., 15c, Tel: 914-TRinity 8-3251
See ad in class 41
Philco Corp., Pa., 15c, 25c
Philco Corp., Government & Industrial Group, Pa., 25c, 50c
Philips Electronics Industries, Ltd., Canada, 15c, 30c, 45c
Photographic Analysis, Inc., Calif., 15c, 25c
Photronics Corp., N.Y., 15c, 25c, 60c
Pioneer Magnetics, Inc., Calif., 15c
Polarad Electronics Corp., 43-20 34th St., Long Island City 1, N.Y., 15c, Tel: 212-EXeter 2-4500
See ads in class 37
Polydoroff & Associates (W. J.), D.C., 20c
Potter Instrument Co., Inc., N.Y., 15c
Power-Tronic Systems, Inc., N.Y., 20sc, 25c, 35sc, 40c, 50sc, 55sc, 60sc
Precision Mechanisms Corp., N.Y., 15c
Pye Corp. of America, N.J., 45sc
Pye Telecommunications, Ltd., England, 45sc
RCA Victor Co., Ltd., Canada, 5s, 45s, 65s
R-K Laboratories Co., N.Y., 15c, 25c
RMS Associates, Inc., N.Y., 15 Doppler sc, 25sc, 60c
Rabinow Engineering Co., Inc., D.C., 25c
Radiation, Inc., Fla., 15c
Radiatronics, Inc., Calif., 65c
Radio Corp. of America, Defense Electronic Products, N.J., 5c, 15c, 50c, 65s
Radio Development & Research Corp., N.J., 15sc
Radio Frequency Laboratories, Inc., N.J., 15s
Radio Industries, Inc., Kans., 30c, 45c, 70c
Rainier Co., Inc., N.Y., 5c, 15c, 45sc, 60c, 70c
Ray, Daisley Co., Inc., N.Y., 55c, 60c
Raytheon Co., Government Marketing, Mass., 5c, 50c
Redifon, Ltd., England, 60sc
Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, N.Y., 15c, 35s, 40sc, 50c, 55c
Reflectone Electronics, Inc., Subsid. of Universal Match Corp., Conn., 25c, 60c
Remanco, Inc., Calif., 15sc, 50c, 55c, 60sc, 65c
Republic Aviation Corp., N.Y., 15c, 60c
Revere Corp. of America, Conn., 15 Weight & Thrust c
Rixon Electronics, Inc., Md., 15c
Rodale Electronics, Inc., N.Y., 15c
Rosemount Engineering Co., Minn., 15c
Rotiform Co., Calif., 15c
Royco Instruments, Inc., Calif., 15sc
Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 5sc, 15c, 50c, 65c
Safe Flight Instrument Corp., N.Y., 10c, 20c, 25c
Sanders Associates, Inc., N.H., 5c, 10c, 15c, 35sc, 65c
Scanwell Laboratories, Inc., 6601 Scanwell Lane, Springfield, Va., 20c, Tel: 703-FLeetwood 4-5800
See ad in class 44
Schaevitz Engineering, N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 65c
Schaffer Air Industries, Inc., N.Y., 15c, 55c
Scope, Inc., Va., 15c, 25c
Security Devices Laboratory, 24 Seneca Ave., Rochester 21, N.Y., 65s, Tel: 716-HOpkins 7-3200
See ads in classes 46, 73
Servo Corp. of America, N.Y., 15c, 20sc, 25c, 55c, 70sc
Servo Development Corp., 2 Willis Ct., Hicksville, L.I., N.Y., 25sc, Tel: 516-OVerbrook 1-4343
See ad in class 77
Servomechanisms/Inc., Calif., 5c, 10c, 15sc
Servonic Instruments, Inc., Calif., 15c
Sierra Research Corp., N.Y., 30c, 65c
Sigma Electronics Research Corp., Wash., 45c
Simmonds Precision Products, N.Y., 15c
Singer-Bridgeport, Div. of Singer Mfg. Co., Conn., 15c, 50c, 65c
Skiatron Electronics & Television Corp., N.Y., 25c
Solar Research Corp., Fla., 20c
Solatron, Inc., Mass., 50c, 60c
Sorensen Industrial Electronic Co., N.J., 35c, 40c
Space Electronics Corp., Calif., 10sc, 15c, 25c, 35c
Sparton Electronics, Div. of Sparton Corp., Mich., 20c, 45sc
Specialty Electronics Development Corp., N.Y., 15 Meteorological s, 20c
Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 15c, 60c
Speidel Corp., Industrial Div., R.I., 35c
Sperry Rand Corp., Sperry Gyroscope Co. (Div.), N.Y., 15c, 35s, 50c
Sperry Rand Corp., Sperry Gyroscope Co. of Canada, Ltd. (Subsid.), Canada, 5c, 20c, 35c, 40c, 50c, 55c
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 15sc
Sperry Rand Corp., Sperry Phoenix Co. (Div.), Ariz., 10sc, 35sc, 40c, 50c, 55c, 65c
Sperry Rand Corp., Sperry Phoenix Co., Sunnyvale Development Center, Calif., 5c, 65c
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 15c, 35c, 40c, 50c
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 10c, 50c
Sprague Engineering Corp., Calif., 15sc
Stainless, Inc., Pa., 55c
Standard Telephones & Cables, Ltd., England, 5sc, 45sc, 70c

Directory I. Complete Equipment

2. Aircraft-Missile Navigation & Test Equipment.

Statham Instruments, Inc., Calif., 15sc
Stator Electric Corp., N.Y., 35c
Sterling Instrument Div., Designatronics, Inc., N.Y., 15c, 70c
Stewart-Warner Corp., Stewart-Warner Electronics Div., Ill., 5c, 20c, 65c
Strand Engineering Co., Mich., 25c
Stratocon Corp., N.J., 10c, 60c
Straza Electronics, Div. of Straza Industries, Calif., 15c, 25c
Sun Dial Corp., N.J., 25c
Sunshine Scientific Instrument, Pa., 40c
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 60c
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 60sc, 65c
Systems, Inc., Fla., 45sc, 70sc
Systron-Donner Corp., Calif., 15c
TRG, Inc. (Technical Research Group), N.Y., 15c, 20c, 25c, 60c
Taffet Electronics, Inc., N.Y., 15c
Tamar Electronics, Inc., Calif., 15c, 20c, 45c, 65c, 70c
Tang Industries, Inc., Mass., 15c
Taylor Instrument Companies, N.Y., 5c
Technical Products Co., Calif., 60c
Telecomputing Corp., Calif., 10c, 15c, 35sc, 50c, 55c
Telecomputing Corp., Whittaker Gyro Div., Calif., 10c, 35sc, 50c, 55c
Telemetrics, Inc., Calif., 15sc, 60sc
Telephonics Corp., N.Y., 20s
Televiso Corp., Ill., 25sc, 45sc
Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 15c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80
Telonic Industries, Inc., 60 N. First Ave., Beech Grove, Ind., 15sc, Tel: 317-STate 7-7241
See ad in class 39
Ten Bosch, Inc. (M.), N.Y., 5c, 35c, 50c, 55c
Tenney Engineering, Inc., N.J., 15c, 60 Chambers c
Texas Instruments Incorporated, Semiconductor Components Div., 13500 North Central Expressway, P.O. Box 5012, Dallas 22, Texas, 15c, 25c, 50c, 65c, Tel: 214-ADams 5-3111
See ad on Cover 3
Thermo Electric Co., Inc., N.J., 15c
Theta Instrument Corp., 520 Victor St., Saddle Brook, N.J., 15s, 40s, 50s, 55s, 60s, Tel: 201-HUbbard 7-3508
See ad in class 97
Thompson, Ltd. (J. Langham), England, 15c, 65c
Thompson Ramo Wooldridge Inc., STL Products Div. of Space Technology Laboratories, Calif., 15c
Thompson Ramo Wooldridge Inc., Tapco Div., Ohio, 10c, 15c, 60c
Thomson-Houston (Compagnie Francaise), France, 5s, 15sc, 20c, 25s, 30s, 65sc
Tokyo Shibaura Electric Co., Ltd., Japan, 20c, 25c, 30c, 70c
Transdyne Corp., N.Y., 30c, 45c, 60c, 65c
Trio Laboratories, Inc., DuPont Dr., Plainview, L.I., N.Y., 15sc, Tel: 516-OVerbrook 1-0400
See ad in class 40
Trott Electronics, Inc., N.Y., 15c
Turbo Machine Co., Pa., 15sc
United Control Corp., Wash., 15sc, 25sc
United ElectroDynamics, Inc., Calif., 15c, 25c
United Shoe Machinery Co., Mass., 15c
United States Gauge Div., American Machine & Metals, Inc., Pa., 5sc
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 15c, 45c, 70c
United States Time Corp., Conn., 35 Rate sc
Universal Match Corp., Armament Div., Mo., 10c, 15c, 50c, 55c, 65c
Univox Corp., N.Y., 15c
Vap-Air Div., Vapor Corp., Ill., 15c
Varo, Inc., Texas, 15c
Vector Associates, Inc., N.Y., 10c, 25c
Vidar Corp., Calif., 15sc
Viewlex, Inc., N.Y., 60c
Virginia Electronics Co., Inc., D.C., 30c
Vitro Electronics, Div. of Vitro Corp. of America, Md., 20c, 45c
Waltham Precision Instrument Co., Mass., 35c
Wang Laboratories, Inc., Mass., 15c, 25c
Watkins-Johnson Co., Calif., 20, 65c
Webcor, Inc., Electronics Div., Ill., 20c
Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., 15sc, Tel: 301-LOckwood 4-0121
See ad in class 45
Westgate Laboratory, Inc., Ohio, 15c, 25c, 60c
Westinghouse Electric Corp., Small Motor Div. of Aircraft Equipment Dept., Ohio, 15c
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 30c, 45c, Tel: 212-JUdson 2-3030
See ad on page 224
Wickes Engineering & Construction Co., N.J., 15c
Wilcox Electric Co., Inc., Mo., 15sc, 20s, 25s, 45s, 65s, 70s
Wiley Electronic Products Co., Div. of Giannini Scientific Corp., Ariz., 5c, 15sc
Wiltron Co., Calif., 15c
Winslow Co., Inc., N.J., 40s
Wright Equipment Corp., N.J., 40c
Zimmey Corp., Calif., 15c

Airport equipment:
See classes 1 & 2

Alarm & protective equipment:
See class 4

Altimeters:
See class 2

Amateur antennas:
See class 44

3. Amateur Equipment.

5. Receiving 10. Transmitters

Aircraft Electronics, Ariz., 5c, 10c
American Electronics Co., N.Y., 5sc, 10sc
American Geloso Electronics, Inc., N.Y., 5s, 10s
Anderton Electronic Laboratory, Utah, 10c
Applied Control Corp., N.J., 5c, 10c
Automation Electronics, Inc., Subsid. of Arnoux Corp., Calif., 5s
Barker & Williamson, Inc., Pa., 10s
Cameraflex Corp., N.Y., 5s, 10s
Carter Co. (J. C.), Calif., 5s
Central Electronics, Inc., Ill., 5s, 10sc
Clegg Laboratories, Div. of Clegg, Inc., N.J., 5 VHF s, 10 VHF s
Collins Radio Co., Iowa, 5s, 10s
Delcon Corp., Calif., 5c, 10c
Denson Electronics Corp., Conn., 5c
DeWald Radio, Div. of United Scientific Laboratories, Inc., N.Y., 5sc, 10sc
Dynamics Corp. of America, N.Y., 5s, 10s
E-Z Way Towers, Inc., Fla., Towers s
Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 10s, Tel: 212-STillwell 6-8700
See ad in class 41
Electro-Mech Engineering Co., Minn., 5c, 10c
Electro-Voice, Inc., Mich., 5s, 10s
Electronic Assistance Corp., N.J., 5c, 10c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5s, 10s
Grand Coil Winders, Mich., 5c, 10c
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 10s
Houston Fearless Corp., Westwood Div., Calif., 5c
Instrument Corp. of Florida, Fla., 5c, 10c
Johnson Co. (E. F.), Minn., 10s
Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 5s, 10s
Lakeshore Industries Div., Aitken-Reed, Inc., Wis., 10s
Lettine Radio Mfg. Co., N.Y., 10s
Ling Temco Vought, Inc., Texas, 5c, 10c
Ling Temco Vought, Inc., Electron Corp. (Subsid.), Texas, 5c, 10c
Ling Temco Vought, Inc., Temco Electronics Div., Texas, 5c, 10c
Lionel Corp., N.J., 5c, 10c
Marconi Instruments, Ltd., 111 Cedar Lane, Englewood, N.J., 5s, Tel: 201-LOwell 7-0607
See ad on pages 66-67

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

3. Amateur Equipment.

Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 10s, Tel: 617-DAvenport 4-4108
See ad in class 51
Multi Products Co., Inc., Mich., 5s, 10s
National Co., Inc., Mass., 5c
National Radio Co., Inc., Mass., 5s
Neil Co., N.Y., 10c
Osborne Electronics Corp., Ore., 5s, 10s
Panoramic Electronics, Inc., 528 S. Fulton Ave., Mount Vernon, N.Y., 5s, Tel: 914-OWens 9-4600
See ad on page 80
Peer, Inc., Texas, 10c
Perfection Electronics, Inc., N.Y., 10c
Philmore Mfg. Co., Inc., N.Y., 5s, 10s
Polytronic Research, Inc., Md., 5c, 10c
Racal Engineering, Ltd., England, 5c, 10c
Radiaphone Co., Inc., Calif., Panoramic Adapters sc
Radio Engineering Laboratories, Inc., N.Y., 5s, 10s
Radio Industries, Inc., Kans., 5c, 10c
Radio Mfg. Engineers, Inc., Ill., 5s
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 5c, 10c
Reeves Instrument Corp., Farmingdale Div., N.J., 5sc, 10sc
Scott, Inc. (H. H.), Mass., 5s
Seg Electronics Co., Inc., 12 Hinsdale St., Brooklyn 7, N.Y., 5s, 10s, Tel: 212-DI 5-6262
See ad in class 59
Sheltered Workhops, Inc., Calif., 5c, 10c
Sorensen Industrial Electronic Co., N.J., 5c, 10c
TMC (Canada), Ltd., Canada, 5s, 10s
Tapetone, Inc., Mass., 5s, 10s
Technical Materiel Corp., 700 Fenimore Rd., Mamaroneck, N.Y., 5s, 10s, Tel: 914-OWens 8-4800
See ads in class 38
Telechrome Mfg. Corp., N.Y., 5s, 10s
Weitermann Electronics, Wis., 5c, 10c
Westmore, Inc., N.J., 5c, 10c

Ammeters:
See class 61

Analog computers:
See class 8

Analog control equipment:
See class 4

Analyzers, distortion:
See class 35

Analyzers, gas:
See class 40

Analzers, noise:
See class 35

Analyzers, nuclear:
See class 22

Analyzers, servo:
See class 40

Analyzers, spectrum:
See classes 35, 37, & 38

Annunciators:
See class 63

Antennas:
See class 44

Audio frequency test equipment:
See class 35

Audio-visual aids:
See class 13

Audiometers:
See class 5

Automatic central data systems:
See class 8

4. Automatic Control Equipment.

2. Alarm & protective
4. Analog
6. Analog-Digital
8. Comparators, Go/no-go
10. Combustion & smoke-nuisance
12. Counting & sorting
14. Digital
16. Fluid flow
18. Infrared
20. Liquid level
22. Photoelectric
24. Positioning
26. Pressure
28. Production
30. Remote, electronic
32. Servo type
34. Temperature, electronic
36. Timing
38. Ultrasonic
40. Vacuum
42. Variable speed

ACF Electronics Div., ACF Industries, Inc., Md., 18c
A.R.F. Products, Inc., Ill., 8c, 30sc
ATR Electronics, Inc., 300 E. Fourth St., Saint Paul 1, Minn., 2s, Tel: 612-CApital 2-3791
See ad in class 53
Abacus, Inc., Calif., 6sc, 14sc
Abrams Instrument Corp., Mich., 36sc
Acme Wire Co., Conn., 22s
Acoustica Associates, Inc., Calif., 2c, 6c, 16sc, 20sc, 38sc
Adage, Inc., Mass., 4sc, 6sc, 14sc
Adcole Corp., Mass., 6c, 12c, 14c, 36c
Advance Gear & Machine Corp., Calif., 28c, 32c
Advanced Development Laboratories, Inc., N.H., 2c, 4c, 6c, 14c, 32c
Advanced Electronics, Inc., Conn., 2s, 28s
Advanced Research Associates, Md., 2c, 4c, 8c, 12s, 14c, 16c, 20c, 22c, 24c, 30c, 32s, 34c, 36c
Advancement Devices, Inc., N.Y., 2sc, 4c, 6c, 18c, 24c, 30c, 32c
Aero Mechanism, Inc., Calif., 26sc, 36c, 40sc
Aero Service Corp., Pa., 6c, 24c, 32c
Aeronca Mfg. Corp., Aerospace Div., Md., 8sc, 14c, 24c, 30c, 32c
Aeronutronic, Div. of Ford Motor Co., Calif., 6sc, 14c
Aeroquip Corp., Mich., 26c
Aerospace Controls, Calif., 4c, 6c, 22sc, 24sc, 28sc, 32c
Aerotronic Associates, Inc., N.H., 8s, 30c
Aetna Electronics Corp., N.J., 32c
Affiliated Manufacturers, Inc., N.J., 12sc, 22c, 24sc, 28c, 40s
Aidin Automation, Inc., N.Y., 12sc, 24sc, 28sc
Airflyte Electronics Co., 537 Ave. A, Bayonne, N.J., 6sc, Tel: 201-HEmlock 6-2230
See ad in class 80

4. Automatic Control Equipment.

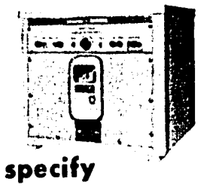
Airmec, Ltd., England, 12s, 20s, 22s, 24s, 34s, 36s
Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 24c, 32sc, 42sc, Tel: 301-ACademy 8-4600
See ad in class 53
Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 24c, 32sc, 42sc, Tel: 305-LUdlow 3-6160
See ad in class 53
Airtronics, Inc., D.C., 4c, 6c, 8c, 12c, 34c, 36sc
Alcar Instruments, Inc., N.J., 38c
Alden Systems Co., Mass., 36s
All American Engineering Co., Commercial Products Div., Del., 2s, 28s
Allied Research Associates, Inc., Mass., 4c, 6c, 12c, 14c, 18c, 22c
Alwac Computer Div., El-Tronics, Inc., Calif., 14c
Ameresco, Inc., N.J., 34s, 36s
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 34c, 36c
American Bosch Arma Corp., N.Y., 2
Airborne & Marine c
American Brake Shoe Co., Raymond Atchley Div., Calif., 4sc, 24c, 32c, 42c
American Communications Corp., N.Y., 2sc, 10sc, 30sc, 32c, 34c, 36c
American District Telegraph Co., N.Y., 2sc
American Electronics, Inc., Calif., 6sc, 32c, 36c
American Electronics, Inc., Instrument Div., Calif., 32sc
American Geloso Electronics, Inc., N.Y., 30s
American Hydromath Corp., N.Y., 28c
American Instrument Co., Inc., Md., 34s
American Machine & Foundry Co., Government Products Group, N.Y., 4s, 6s, 12s, 14s, 22s, 24sc, 28s, 30sc, 42c
American Machine & Foundry Co., Greenwich Engineering Div., Conn., 24c, 28c
American Measurement & Control, Inc., Mass., 4s, 6s, 24s, 26s, 32s
American Missile Products Co., Inc., Calif., 6c, 14c, 28c, 36c
American Optical Co., J. W. Fecker Div., Pa., 4sc, 6sc, 8c, 14sc, 18c, 22c, 24c, 30c, 32c, 36c
American Rectifier Corp., N.Y., 2c, 28sc, 42sc
American Systems, Inc., Calif., 2s, 4s, 16s
American Time Products, Div. of Bulova Watch Co., Inc., 61-20 Woodside Ave., Woodside 77, N.Y., 36sc, Tel: 212-OLympia 1-7800
See ad in class 31
Amglo Corp., 4337 N. Ravenswood Ave., Chicago 13, Ill., 36c, Tel: 312-BUckingham 1-2727
See ads in classes 67, 86
Ampex Instrumentation Products Co., Calif., 6sc, 14sc
Anadex Instruments, Inc., Calif., 8s, 14c
Anchor Specialty Mfg. Co., Inc., N.J., 8c, 36c, 38c
Andersen Laboratories, Inc., Conn., 32c, 34sc, 42c

Directory I. Complete Equipment

4. Automatic Control Equipment.

Angler Industries, Inc., N.J., 32c
Antlab, Inc., Ohio, 24sc, 32sc
Appalachian Electronic Instruments, Inc., Va., 28c, 34c
Applied Control Corp., N.J., 2s, 8s, 12s, 18s, 24s, 32s
Applied Dynamics, Inc., Mich., 4sc
Applied Electro Mechanics, Inc., Va., 34s
Applied Electronics Corp. of New Jersey, P.O. Box 43, Metuchen, N.J., 4sc, 6sc, 8sc, 14sc, Tel: 201-LIberty 9-9200
See ad in class 34
Ardwin Microlab, Inc., Mass., 12sc
Arkay Products Mfg. Co., Calif., 30sc
Armstrong Whitworth/Brush, Falcon Works, England, 8c, 14sc, 22c, 30c
Armstrong Whitworth Equipment, Sir W. G. Armstrong Whitworth Aircraft, Ltd., England, 16s, 30c
Artronic Instrument Co., Md., 14c
Ascop, Div. of Electro-Mechanical Research, Inc., N.J., 2sc, 4c
Assembly Products, Inc., 75 Wilson Mills Rd., Chesterland 33, Ohio, 2s, 34s, Tel 216-HAmilton 3-3131
See ad in class 73
Associated Electrical Industries (Rugby), Ltd., England, 2s, 10s, 12sc, 22sc, 24c, 26s, 30sc, 32sc, 34s, 36s, 42sc
Astra Technical Instrument Corp., Calif., 2sc, 8sc, 18sc, 26sc, 34sc
Astral Electronics, Inc., Calif., 12s
Astro-Space Laboratories, Inc., Ala., 20c
Astromics, Div. of Mitchell Camera Corp., Calif., 26sc, 32c
Astronautics Corp. of America, Wis., 4c, 6c, 8c, 26c, 32sc, 34sc
Ateliers de Montages Electriques (AME), France, 2c
Atkins Technical, Inc., Ohio, 34s
Atlantis Electronics Corp., Texas, 8c, 12sc
Atlas Controls, Inc., Mass., 34c
Atlas Precision Products Co., Pa., 32c
Atronic Products, Inc., Pa., 8sc, 12sc, 22sc, 24sc, 30sc, 32c
Atwood Engineering (Wilfrid L.), Ohio, 4c, 16c, 20c, 26c, 30c, 34c, 36c, 40c
Auerbach Electronics Corp., Pa., 6c, 8c, 12c, 14c, 24c, 28c, 30c, 32c
Austin Electronics, Div. of Austin Co., N.Y., 4c, 6c, 14c, 32c
Autocall Co., Ohio, 2sc, 30sc
Automatic Control Co., Minn., 2sc, 20sc, 26sc, 42sc
Automatic Telephone & Electric Co., Ltd., Strowger Works, England, 14s, 30s
Automatic Timing & Controls, Pa., 20s, 24s, 26s, 30s, 32s, 36s
Automation Devices, Inc., Pa., 22s, 28s
Automation Dynamics Corp., N.J., 2s, 4s, 6s, 14s, 16c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34sc, 36c
Automation Electronics, Inc., Subsid. of Arnoux Corp., Calif., 2c
Automation, Inc., Mass., 6c, 8c, 14c, 22c, 36c
Automation Industries, Inc., 6sc, 14sc
Automation Laboratories, Inc., N.Y., 18sc
Automation Management, Inc., Mass., 4sc, 12sc, 28sc
Automation Products, Inc., Texas, 20s, 38s
Automation Research & Design Associates, N.J., 4c, 6c, 8c, 12c, 14c, 18c, 20c, 22c, 24c, 26c
Autonetics, Div. of North American Aviation, Inc., Calif., 24c
Autotron, Inc., Ill., 2s, 12s, 18s, 22s, 36s
Avien, Inc., N.Y., 6c, 8sc, 16c, 20sc, 26sc, 30c, 32sc, 34sc, 40c
Avionics Research Products Corp., Calif., 16sc
Avtron Mfg., Inc., Ohio, 8sc, 14c, 36sc
Babcock Electronics Corp., Calif., 30sc
Bach-Simpson, Ltd., Canada, 2c, 4c
Bailey Meter Co., Ohio, 10s, 16s, 20s, 24s, 26s, 30s, 34s, 40s
Baird-Atomic, Inc., 33 University Rd., Cambridge 38. Mass., 12s, 18s, 30s, 36s, Tel: 617-UNiversity 4-7420
See ad in class 86
Baldwin Piano Co., Ohio, 6sc
Ball Brothers Research Corp., Colo., 18c, 22c, 32c
Barber-Colman Co., Motors & Components Div., Dept. V, P.O. Drawer 99, 19119 Rock St., Rockford, Ill., 24c, Tel: 815-WOodland 8-6833
See ad in class 67
Barnes Development Co., 213 W. Baltimore Pike, Lansdowne, Pa., 8c, 12sc, 32c, Tel: 215-MAdison 2-1525
See ad in class 41
Barnes Engineering Co., Conn., 18sc
Barrett Electronics Corp., Ill., 22sc, 24sc, 30sc
Barth Engineering & Mfg. Co., Inc., Conn., 22c, 32c
Basic & Experimental Physics, Mass., 4c, 6c, 14c, 18c, 24c, 32c, 38c
Bayside Watch Tool Co., Inc., N.Y., 32sc, 36sc, 42sc
Beattie-Coleman, Inc., Calif., 36sc
Beckman Instruments, Inc., Berkeley Div., Calif., 14s
Beckman Instruments, Inc., Systems Div., Calif., 4c, 6c, 12c, 14c
Bell Aerosystems Co., Avionics Div., N.Y., 4c, 6c, 14c, 32s
Bell Helicopter Co., Electronics Dept., Texas, 4c, 18c, 24c, 30c, 42c
Bendix Corp., Bendix-Pacific Div., Calif., 2sc, 6sc, 14sc, 16sc, 20c, 24c, 30sc, 32c, 36sc
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 14c
Bendix Corp., Bendix Systems Div., Mich., 30c
Bendix Corp., Cincinnati Div., Ohio, 38s
Bendix Corp., Cleveland Instrument Co., Ohio, 28c
Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J., 6c, 24c, 30c, 32c, Tel: 201-ATlas 8-2000
See ad on pages 46-47
Bendix Corp., Friez Instrument Div., Md., 26sc
Bendix Corp., Industrial Controls Section, Mich., 6s, 14s, 24sc, 32sc
Bendix Corp., Montrose Div., Pa., 24sc, 26sc, 30sc, 32sc, 34c
Bendix Corp., Pioneer-Central Div., Iowa, 16sc, 20sc, 26c, 32c
Bendix Corp., Sheffield Corp. (Subsid.), Ohio, 12c, 24c
Bendix Corp., Utica Div., N.Y., 36sc
Bendix Corp., York Div., Pa., 2c, 8c
Benrus Watch Co., Inc., Conn., 4c, 30c
Benson-Lehner Corp., Calif., 4sc, 6sc, 24sc
Bently Scientific Co., Calif., 2s, 8s, 12s, 24s, 26s, 28s, 30s, 32s, 40s
Berg Mfg. Corp., Pa., 28c
Bergen Laboratories, Inc., N.J., 34s, 36s
Berkeley/Dynamics, Calif., 2s, 12s, 22sc, 30s
Blackburn Electronic Corp., Pa., 22c
Block Associates, Inc., Mass., 22c
Blue M Electric Co., Ill., 20s, 34s
Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 36sc
Bogen-Presto, Div. of Siegler Corp., N.J., 2c
Bogue Electric Mfg. Co., N.J., 20c

To improve performance of AUTOMATIC CONTROL EQUIPMENT



specify

Inductrol* Induction Voltage Regulators

Voltage fluctuations can cause electronic tube failure, make equipment operate erratically, increase replacement parts costs. Inductrol regulators operate on the induction principle. This means precise voltage control and high reliability because **no brushes or tubes** are used. G-E Inductrol regulators are virtually maintenance free.

More information appears opposite General Electric "Voltage Regulator" listing in Directory II, Class 72.

*Registered trade-mark of General Electric Co.

VOLTAGE REGULATOR PRODUCTS SECTION

GENERAL ELECTRIC

PITTSFIELD MASS

For details, circle #123 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

4. Automatic Control Equipment.

Bon-De Electronic Laboratories, Inc., Mass., 40s
Boonshaft & Fuchs, Inc., Pa., 2c, 4s, 6c, 24c, 26c, 28sc, 30c, 32sc, 34c, 42c
Borg-Warner Corp., Pesco Products Div., Ohio, 16c, 34c
Bowmar Instrument Corp., 8000 Bluffton Rd., Fort Wayne, Ind., 24c, 32c, 42c, Tel: SHerwood 3121
See ad in class 77
Brach Mfg. Corp., Div. of General Bronze Corp., N.J., 32sc, 42sc
Briggs Associates, Inc., Pa., 22c, 28c
Bristol Co., Conn., 2c, 4c, 6c, 10c, 14c, 16c, 20c, 22c, 24c, 26c, 30c, 32c, 34c, 36c, 40c, 42c
Brooke Engineering Co., Inc., Pa., 2c, 10c, 22c
Brooks Instrument Co., Inc., Pa., 16sc, 20sc
Bruel & Kjaer (A/S), Denmark, 32s
Buck Instrument Co., Colo., 26c
Budd Electronics, Inc., N.Y., 14c
Bulova Research & Development Laboratories, N.Y., 4c, 6c, 12c, 14c, 18c, 30c, 32c, 36c
Burr-Brown Research Corp., Ariz., 4s
Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., 4c, 6c, 32c
Burroughs Corp., Electro Data Div., Calif., 14s
Bytrex Corp., Mass., 14c, 26c, 30c
C.E.S. Electronic Products, Inc., Calif., 34s
CTS of Canada, Ltd., Industrial Electronics Div., Canada, 22s
Cable Electric Products, Inc., R.I., 2c, 30c
Cable Specialists of Conn., Conn., 36c
Calbest Electronics, Calif., 26c, 36c
California Computer Products, Inc., Calif., 6c, 12c, 14c
California Technical Industries, Div. of Textron, Inc., Calif., 8sc, 22sc
Canadian Applied Research, Ltd., Canada, 18c, 20c, 34c
Canadian Aviation Electronics, Ltd., Canada, 4c, 6c, 14c, 30c, 32c, 36c
Canadian Westinghouse Co., Ltd., Canada, 8c, 22c, 24c, 30c, 32c
Canoga Electronics Corp., Calif., 6c, 14c, 18c
Carma Mfg. Co., Calif., 2s
Central Dynamics, Ltd., Canada, 2sc, 4sc, 6sc, 8sc, 16sc, 22sc, 30sc, 32sc, 34sc
Central Engineering Co., Minn., 12c, 42c
Centroid Engineering & Mfg. Corp., 126 Jackson St., Cambridge 40, Mass., 2c, Tel: 617-TRowbridge 6-7250
See ads on page 111 and in class 91
Century Electronics & Instruments, Inc., Okla., 26sc
Cerberus AG, Werk fur Elektronentechnik, Switzerland, 10sc
Champion Papers, Inc., Ohio, 28c
Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., Texas, 2c, 4c, 6c, 14c, 24c, 30c, 32c
Chapin Electronics Corp., Mass., 2 Radar s
Chatham Controls Corp., N.J., 34s
Chicago Aerial Industries, Inc., Ill., 16c
Chrono-Log Corp., Pa., 2s, 12s, 14s, 36s
Chrysler Corp., Defense Group, Mich., 2c, 18c, 30c
Cinaudagraph, Inc., Ill., 30c, 32c, 38c
Clark Controller Co., Ohio, 2s, 10s, 12s, 22s, 24s, 28sc, 32c, 42c
Clary Corp., Calif., 14s, 16c, 20c, 24c, 26c, 32c
Clegg Laboratories, Div. of Clegg, Inc., N.J., 8s
Clevite Corp., Clevite Electronic Components Div., Ohio, 38sc
Clevite Corp., Clevite Ordnance Div., Ohio, 24c, 26c, 30c, 36c
Co Engineering Co., N.J., 16sc
Coen Controls Co., Calif., 10s, 16s, 24s, 30s
Coils-Electronics Co., Pa., 12sc, 22sc, 36sc
Cole Instrument Co., Calif., 2c, 22c, 36c
Coleman Electronics, Inc., Calif., 6sc, 18c, 20c, 24c, 26c, 32c, 34c, 36c
Colvin Laboratories, Inc., N.J., 26c
Communication Measurements Laboratory, Inc., N.J., 38c
Communications & Control Corp., Calif., 6sc, 14c
Comptometer Corp., Radiation Electronics Co. (Div.), Ill., 18s, 34s
Comptron Corp., Mass., 6c, 12sc, 14c, 22c, 24c, 32c, 34c, 42c
CompuDyne Corp., Mass., 4c, 6c, 16c, 20s, 24s, 28c, 30s, 32c
CompuDyne Corp., Pa., 2c, 4sc, 6sc, 8sc, 10c, 12sc, 14sc, 16sc, 18c, 20sc, 22c, 24c, 26c, 28c, 30sc, 32sc, 34c, 36c, 38c, 40c, 42c
Computer Control Co., Inc., Eastern Div., 983 Concord St., Framingham, Mass., 8c, 12c, 14c, 24c, 28c, 36c, Tel: 617-TRinity 5-6185
See ad in class 8
Computer Control Co., Inc., Western Div., 2251 Barry Ave., Los Angeles 64, Calif., 8c, 12c, 14c, 24c, 28c, 36c, Tel: GRanite 8-0481
See ad in class 8
Computer Equipment Corp., Calif., 6sc, 14c
Computer-Measurements Co., Div. of Pacific Industries, Inc., Calif., 8s, 12s, 14s, 36s
Computer Sciences, Inc., N.Y., 4c, 6c, 14c, 24c, 32c, 42c
Computer Systems, Inc., N.J., 4c
Computer Techniques, Inc., N.Y., 6c, 14c
Computronics, Inc., Colo., 4c, 32 Potentiometric c
Concord Control, Inc., Mass., 6c, 14c, 24c, 30c, 32c
Connecticut Technical Corp., Conn., 6c, 8c, 12c, 14c, 22c, 30c, 36c
Conoflow Corp., Pa., 16s, 20s, 24s, 26s, 40s, 42s
Consolidated Airborne Systems, Inc., N.Y., 6c, 8sc, 20sc, 24c, 26c, 28c, 32sc, 34sc, 42sc
Consolidated Avionics Corp., N.Y., 6c, 8c, 12c, 14c
Consolidated Controls Corp., Conn., 2c, 14c, 16c, 20c, 24c, 26c, 32c, 34c, 40c
Consolidated Controls Corp., N.M., 14c, 26c, 30c, 32c, 34c
Consolidated Electrodynamics Corp., Calif., 4s, 6s, 14s, 26s
Consolidated Vacuum Corp., N.Y., 40s
Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 30sc, Tel: 214-EVergreen 1-1135
See ad on page 120
Continental Instruments Corp., N.Y., 36c
Continental Technical Service, Inc., Ohio, 12c, 14sc, 16c, 20c, 24c, 26c, 28c, 34c, 42c
Control Circuits, Inc., Conn., 22c
Control Data Corp., Minn., 6sc, 14sc, 16sc, 20sc, 30sc
Control Data Corp., Cedar Engineering Div., Minn., 14sc, 32c
Control Data Corp., Control Corporation (Subsid.), Minn., 2c, 4c, 6c, 30c
Control Equipment Corp., Mass., 2c, 6c, 8c, 12c, 14c, 24c, 28c, 30c, 36c
Control Indicating Corp., Conn., 20sc, 34sc
Control Technology Co., Inc., N.Y., 4sc, 32sc, 42sc
Controlomag Laboratories, Pa., 20c, 30c, 36sc, 40sc
Controls Co. of America, Ill., 2sc, 14sc, 16sc, 20sc, 24sc, 26sc, 28sc, 30sc, 34sc, 36sc, 42sc
Contronics, Inc., Mass., 4c, 6c, 8sc, 22c, 32c
Cook Electric Co., Ill., 2sc, 6c, 14c, 26sc, 30c, 32c, 36sc
Cook Electric Co., Cook Technological Center, Ill., 4c, 22c, 24c, 30c, 32c, 36c, 42c
Corona Engineering Service, N.Y., 20sc, 22c, 30c
Cosmodyne Corp., Calif., 16c, 20sc, 42sc
Counting Instruments, Ltd., England, 22s
Cox & Co., Inc., N.Y., 34c
Cox Instruments Div., George L. Nankervis Co., Mich., 6sc, 8sc, 16c
Crescent Engineering & Research Co., Calif., 24c, 26c, 34c
Curtis Instruments, Inc., N.Y., 36c
Curtiss-Wright Corp., Electronics Div., N.J., 6c, 8c, 14c, 36c
Curtiss-Wright Corp., Electronics Div., N.M., 6c, 14c, 36c
Curtiss-Wright Corp., Princeton Div., N.J., 2sc, 20c, 24c, 38sc
Cutler-Hammer, Inc., Wis., 20s, 22s, 36s, 42s
DBM Research Corp., Fla., 14sc, 22c, 30sc, 36s
Dales Co. (Franklin), Ohio, 2c
Dalmo Victor Co., Div. of Textron, Inc., Calif., 32c
Data-Master Corp., N.Y., 4sc, 6sc, 14c, 24sc, 32sc, 42sc
Data Products Co., Inc., Md., 14s
Datalog Corp., Metrolog Div., 2415 Amsler St., Torrance, Calif., 32sc, Tel: 213-SPruce 5-6621
See ad in class 40
Datascan, Inc., N.J., 6c, 8c, 12c, 14c
Datex Corp., Calif., 4sc, 6sc, 12sc, 14sc, 16sc, 24sc, 26sc, 28sc, 30sc, 32sc, 34sc, 36sc, 42sc
Daven Co., Subsid. of General Mills, Inc., N.J., 4c, 6c, 14c

Directory I. Complete Equipment

4. Automatic Control Equipment.

Daystrom, Inc., Control Systems Div., Calif., 6c, 8s, 14c, 30c, 34c
Daystrom, Inc., Military Electronics Div., Pa., 6c, 14c, 32c
Daystrom-Wiancko Engineering Co., Calif., 6c, 14sc, 26sc
Daytronic Corp., Ohio, 2sc, 8s, 12sc, 24s
Decker Corp., Pa., 6c, 8s, 16c, 26s, 36c, 40s
Defender Instrument & Regulator Co., Ill., 10s, 16s, 20s, 26s, 30s, 40s
Deitz Co., Inc., N.J., 12sc, 22sc, 24sc
Del Electronics Corp., 521 Homestead Ave., Mount Vernon, N.Y., 18c, 24c, Tel: 914-OWens 9-2000
See ad in class 69
Del Mar Engineering Laboratories, Calif., 16sc
Delcon Corp., Calif., 38c
Delta Design, Inc., Calif., 34s, 36s, 40s
Dero Research & Development Corp., N.Y., 8c, 12c, 18sc, 30c
Design Tool Co., Div. of Federal Mfg. & Engineering Corp., N.Y., 28c
Designers for Industry, Inc., Ohio, 8c, 12c, 22c, 28c
Destron Co., Calif., 36c
Devco Engineering, Inc., N.J., 2c
Develop-Amatic Engineering, Calif., 12c, 24c, 28c
Developmental Electronics Corp., Calif., 2c, 4c, 6sc, 8sc, 14sc, 24c, 28c, 32c, 36c
Devol Research Corp., Conn., 6s, 24s
Dewey Corp. (G. C.), N.Y., 4c, 6c, 12c, 14c, 24c, 30c
Di/An Controls, Inc., Mass., 12c, 14c
Di-Tran Corp., Calif., 8c
Diamond Electronics, Div. of Diamond Power Specialty Corp., Ohio, 2c
Dicon Corp., N.Y., 2c, 22c, 24c, 30c
Dictograph Products, Inc., Conn., 2sc
Dietz Co., Inc. (Henry G.), N.Y., 16s, 20s, 26s, 36sc, 40s
Digitool Corp., Texas, 14sc, 20c, 24c, 28c, 36c
Digitronics Corp., N.Y., 22c
Dillon & Co., Inc. (W. C.), Calif., 2s
Dittmore-Freimuth Corp., Wis., 30c
Donner Scientific Co., Calif., 4sc
Door-Man Mfg. Co., Mich., 2c, 22sc, 28sc, 36c
Dorsett Electronics, Inc., Okla., 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 38c, 40c, 42c
Douglas Aircraft Co., Inc., Calif., 4c, 6c, 14c, 18c, 26c, 28c, 30c, 32c, 34c, 36c
Dresser Electronics/SIE Div., Dresser Industries, Inc., Texas, 4c, 6c
Drexel Dynamics Corp., Pa., 4c, 6c, 12c, 14c
Duncan Electric Co., Inc., Davenport Mfg. Div., Ill., 22c
Dychro Corp., Mass., 24s
Dyna Magnetic Devices, Inc., N.Y., 20c
Dynamics Corp. of America, N.Y., 4sc, 32c
Dynamics Research Corp., Mass., 14sc, 22c, 24sc
Dynatronics, Inc., Fla., 6sc, 14c, 36c
E D P Corp., Fla., 6c, 14c
E.M.I.-Cossor Electronics, Ltd., Canada, 24c
Eagle Signal Co., Div. of Gamewell Co., Ill., 36sc
Eastern Industries, Div. of Laboratory For Electronics, Inc., Conn., 32c
Edison Industries (Thomas A.), Instrument Div. (McGraw-Edison Co.), N.J., 2sc, 10sc, 26s, 32sc, 34sc, 36s
Ednalite Optical Co., Inc., N.Y., 18c
Edwards High Vacuum (Canada), Ltd., Canada, 40s
Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 40s, Tel: 415-LYtell 1-1451
See ad on pages 29-32
Eldorado Electronics, Calif., 14sc
Electrac, Inc., Calif., 2c, 4c, 6c
Electrada Corp., Calif., 14c
Electric Machinery Mfg. Co., Minn., 42sc
Electrical Service Co., Calif., 2sc, 22sc
Electro-Craft Corp., Minn., 24c, 32c, 34c, 42c
Electro Devices, Inc., Mo., 2sc
Electro-Devices, Inc., N.J., 42sc
Electro-Flex Corp., Calif., 34c
Electro-Flex Heat, Inc., Conn., 34sc
Electro Logic Corp., Calif., 6sc, 8sc, 14sc, 16c, 20c, 24c, 26sc, 28c, 30c, 34sc
Electro-Mech Engineering Co., Minn., 2s, 22c, 28c, 30c, 32c, 34c, 36c, 42c
Electro-Mechanical Research, Inc., Fla., 2c, 30c
Electro-Mechanical Specialties Co., Inc., Calif., 30sc
Electro-Neutronics, Inc., Calif., 2s, 8s, 16c, 18c, 20c, 22s, 24c, 26c, 30c, 32c, 34c
Electro-Physics Co., N.Y., 22c
Electro Products Laboratories, Inc., Ill., 12sc, 24sc
Electro Radiation, Inc., Calif., 18c, 22c, 34c
Electro-Seal Corp., Ill., 2c, 36sc
Electro-Security Corp., Mass., 2c
Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., Minn., 32c
Electromation Co., Calif., 16c, 20c, 24c, 32s
Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 36c, 38c, Tel: 617-LYnn 8-2100
See ad in class 69
Electron-Radar Products, Ill., 10sc, 18sc, 20sc, 22sc, 34sc
Electronetics Corp., Fla., 4c, 6c, 8c, 14c
Electronic Assistance Corp., N.J., 38c
Electronic Associates, Inc., N.J., 4c
Electronic Communications, Inc., Fla., 4c, 6c, 14c, 18c
Electronic Control Corp., Mich., 10s, 12sc, 18s, 20s, 22s, 34s, 38c
Electronic Controls, Inc., Conn., 4c, 6sc, 8c, 12sc, 14c, 22c, 24s, 28sc, 30s, 32s, 36sc, 42s
Electronic Counters, Inc., N.Y., 12s, 14s, 22s, 36s
Electronic Engineering Co. of California, Calif., 14c, 28c, 36s
Electronic Instruments, Ltd., England, 2s
Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., 2c, 12c, 14sc, 36sc, Tel: 301-HAmilton 6-1268
See ad in class 73
Electronic Secretary Industries, Inc., Wis., 2 Telephone c, 30c
Electronic Specialty Co., Calif., 2c, 8c, 32c, 36c, 42c
Electronica Industrial S.A., Brazil, 42c
Electronics Corp. of America, Mass., 2sc, 10sc, 12sc, 18sc, 20sc, 22sc, 24sc, 36sc
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 6c, 14c, 30c, 32c, 34c, 36sc
Elion Instruments, Inc., Pa., 38sc, 40sc
Elliott-Automation, Ltd., England, 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 40c, 42c
Ellis & Watts Products, Inc., Ohio, 34sc
Ellison Draft Gage Co., Inc., Ill., 2s, 16s, 26s, 40s
Elm Instrument Corp., N.Y., 14sc, 32sc
Elm Laboratories, N.Y., 36c
Elsco Systems, Inc., Wash., 2c, 8c, 14c
Embree Electronics Corp., 993 Farmington Ave., West Hartford 7, Conn., 4c, Tel: 203-ADams 2-5144
See ad in class 43
Emerson Electric Mfg. Co., Mo., 2c, 4c, 6c, 10sc, 12sc, 14c, 20sc, 22sc, 24c, 28c, 30c, 32c, 36sc, 42sc
Engelhard Industries, Inc., Makepeace Div., Mass., 34c, 36c
Engineering Specialties, Ohio, 2 Water-Sanitation e
Engler Instrument Co., N.J., 36s
Epsco, Inc., Mass., 4sc, 6sc, 8sc, 12sc, 14sc, 36sc, 42sc
Epsco, Inc., Monitor Systems, Inc. (Subsid.), Pa., 2c, 4c, 6c, 8c, 14c, 16c, 20c, 26c, 28c, 30c, 34c, 36c
Erdco Engineering Corp., Ill., 2s
Ericsson Corporation, Subsid. of L. M. Ericsson Telephone Co. (Stockholm), 100 Park Ave., New York 17, N.Y., 28c, Tel: 212-MUrray Hill 5-4030
See ad in class 86
Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 12sc, 14sc, Tel: 814-GLendale 6-8592
See ad on pages 78-79
Erie Resistor Corp., Erie Pacific Div., Calif., 6sc, 8c, 12s, 14s, 16s, 22s, 26s, 28s, 32s, 36s, 42s
Etelco, Ltd., England, 14c
Ewald Instruments, Route 7H, Kent, Conn., 36s, Tel: 203-WAlker 7-3278
See ad in class 99
Exact Electronics, Inc., Ore., 4c
Exact Engineering & Mfg., Inc., Calif., 6c, 14sc, 32c
Exactel Instrument Co., Calif., 4s, 16s, 26s, 32s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

4. Automatic Control Equipment.

FMC Corp., Calif., 14c, 22c, 38c
Fairbanks, Morse & Co., Electronics Div., N.Y., 2c, 30c, 32c
Fairchild Camera & Instrument Corp., Defense Products Div., N.Y., 30c
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 2c, 4c, 6c, 8c, 14c, 22c, 24c, 30c, 32c
Fairfield Controls, Inc., Conn., 4c, 14c, 24c, 30c, 32c, 34c, 42c
Farinon Electric, Calif., 2s, 30s
Farrall Instrument Co., Nebr., 2c
Farrand Controls, Inc., N.Y., 4c, 6c, 24c, 32c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 8sc, 14c, 22c, 28c, 30c, 36c
Federal Tool Engineering Co., 1400 Pompton Ave., Cedar Grove, N.J., 36sc, Tel: 201-CLifford 6-5300
See ad in class 99
Fenwal, Inc., Mass., 34c
Ferranti-Packard Electric, Ltd., Electronics Div., Canada, 14c, 30c
Fidelity Amplifier Co., Ill., 2c, 10c
Fire Control Co., Inc., Del., 2sc
First Electronics Corp., Ind., 22c, 24c, 36c
First Electronics Corp., Mass., 12c
Fischer & Porter Co., Pa., 6sc, 16s, 20s, 26s, 34s, 36s, 40s
Fisher Co., Inc. (Oscar), N.Y., 34c
Fisher Research Laboratory, Inc., Calif., 20s
Fisher Scientific Co., Pa., 34s
Flight Research, Inc., Va., Electro-Optical sc
Flo-Tronics, Inc., Electronic Controls Div., Minn., 12sc, 20s, 22c, 24sc, 30sc, 36sc
Flotron Industries, Inc., Calif., 16c
Flow Measurements Corp., Md., 16sc, 20sc
Ford Instrument Co., N.Y., 4c, 6c, 14c, 20c, 32c
Forma Scientific, Inc., Ohio, 20sc, 34sc
Forway Industries, Inc., N.J., 22c, 30c
Foxboro Co., Mass., 4c, 6c, 16c, 20c, 24c, 26c, 30c, 34c, 40c
Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 12s, 22s, Tel: 212-EVergreen 6-1300
See ad in class 84
Fried Engineering (Walter), N.Y., 22c, 24c, 34c, Viscosity sc
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 36sc, Tel: 216-SHadyside 9-0700
See ad in class 50
Furnas Electric Co., Ill., 20s, 26s
Galbraith-Pilot Marine Corp., Div. of Marine Electric Corp., N.Y., 2sc, 20sc, 34sc, 36sc
Garrett Corp., AiResearch Mfg. Co., Calif., 4c, 24c, 26c, 34c
Gaylord-Rives Co., Calif., 32c, 36c, 42c
Gemco Electric Co., Mich., 2s, 6s, 12s, 16s, 20s, 22s, 24s, 28sc, 32sc, 34sc, 42sc
General Aniline & Film Corp., Ansco Div., N.Y., 22c, 32c
General Automatics, Inc., Calif., 2 Marine c, 4c, 6c, 8s, 12c, 14c, 16c, 20c, 22c, 24c, 26c, 30c, 32c
General Bronze Corp., G B Electronic Div., N.Y., 18c, 28s, 32sc
General Ceramics, Div. of Indiana General Corp., Crows Mill Rd., Keasbey, N.J., 14sc, Tel: 201-VAlley 6-5100
See ad in class 64
General Computers, Inc., Calif., 4sc
General Controls Co., Calif., 16s, 20s, 26s, 28s, 36s, 40s
General Controls Co., Automation Controls Div., Ill., 14s, 20s, 22s
General Devices, Inc., P.O. Box 253, Princeton, N.J., 6c, 14s, Tel: 609-WAlnut 4-2500
See ad adjacent to Index to Advertisers, back of book
General Dynamics/Electronics, N.Y., 2sc, 4sc, 6sc, 8sc, 14c, 18c, 22c, 24c, 34c, 36c, 38c
General Electric Co., Apparatus Sales Dept., N.Y., 10s, 12c, 16s, 22s, 24s, 26s, 28c, 30sc, 32s, 34sc, 36sc, 40s, 42sc
General Electric Co., Communication Products Dept., Va., 2s
General Electric Co., Instrument Dept., 40 Federal St., Lynn, Mass., 34c, 36c, Tel: 617-LYnn 3-3400
See ad in class 61
General Electric Co., Light Military Electronics Dept., N.Y., 8c
General Electric Co., Specialty Control Dept., Va., 2sc, 4sc, 6sc, 10s, 12sc, 14sc, 20sc, 22sc, 24sc, 30sc, 32sc, 36sc, 42sc
General Electric Co. Ltd. of England, Telecommunications Group, England, 14c, 20c, 30c, 34c
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 28c, 38c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 2c, 4c, 6c, 38c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 4c, 6c
General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 30c, 32c, 34c, 42c, Tel: 612-WEst 9-8571
See ad in class 43
General Mills, Inc., Minn., 4sc, 6sc, 14c, 18c, 24c, 30c, 36c, 42c
General Mills, Inc., Magnaflux Subsid., Ill., 8s
General Motors Corp., Delco Radio Div., Ind., 14c, 36c
General Precision Equipment Corp., GPE Controls, Inc. (Subsid.), Ill., 8s, 16s, 20s, 22s, 24s, 26s, 30s, 32s, 42s
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 2c, 4c, 6s, 10s, 12s, 14s, 16sc, 18sc, 20sc, 22sc, 24sc, 26sc, 30sc, 32sc, 34sc, 36sc, 38sc, 40sc, 42sc
General Precision, Inc., Kearfott Div., N.J., 6c, 14c, 32sc
General Precision, Inc., Librascope Div., Calif., 4sc, 6sc, 14sc, 18c, 22c, 24c, 28s, 30c, 32sc, 36c, 40s, 42c
General Precision, Inc., Link Div., N.Y., 12c, 24c, 30c, 32s
General Railway Signal Co., N.Y., 30 Traffic c, 38 Remote c
General Thermoelectric Corp., P.O. Box 253, Princeton, N.J., 34c, Tel: 609-DAvis 9-4545
See ad in class 54
General Time Corp., N.Y., 36s
General Time Corp., Incremag. Div., Conn., 14c, 36sc
General Vacuum Corp., Mass., 40c
Genisco, Inc., Calif., 6s, 12s, 14s, 22s, 30s, 32c, 34s, 42sc
Giannini Controls Corp., Calif., 8c, 26c, 32c
Giannini Controls Corp. (Cramer Controls Corp.), Conn., 18sc, 36sc
Gibbs Mfg. & Research Corp., Wis., 22c, 34c, 36c
Gilfillan Brothers, Inc., Calif., 2sc, 4c, 6c, 14c, 24c, 32c
Gilmore Industries, Inc., Ohio, 4c, 6c, 8c, 14c, 16c, 20c, 24c, 26c, 32c, 34c, 36c
Gjadny Corp. (Richard), N.Y., 38sc
Globe Industries, Inc., Ohio, 36c
Godfrey Mfg. Co., Ill., 36c
Goodyear Aircraft Corp., Arizona Div., Ariz., 4c, 6c, 8c, 14c
Gow-Mac Instrument Co., N.J., 34c
Green Rectifier Co., N.J., 40c, 42sc
Greenray Industries, Pa., 36c, 38c
Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 12c, 20c, Tel: 312-CHesapeake 3-1100
See ad in class 73
Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 6sc, 24sc, 32sc, Tel: 516-WElls 8-9500
See ad in class 77
Gulton Industries, Inc., N.J., 6sc, 16c, 20c, 26s, 30s, 32sc, 34 Bio-Medical s, 38c
Gurley Co. (W. & L. E.), N.Y., 22sc, 24sc
Gyrex Corp., Calif., 32c, 36s, 42c
H-B Instrument Co., Pa., 34sc
HRB-Singer, Inc., Pa., 38c
Hagan Chemicals & Controls, Inc., Pa., 2c, 4c, 10c, 16c, 20c, 24c, 26c, 30c, 32c, 34c, 36c, 40c, 42c
Haledy Electronics Co., N.Y., 20sc, 22sc, 36s, 40sc
Hallikainen Instruments, Calif., 34s
Hamilton Watch Co., Industrial Products Div., Pa., 36sc
Hannifin Co., Div. of Parker-Hannifin Corp., Ill., 16s, 26s, 40s
Harman-Kardon, Inc., N.Y., 6c, 8c, 12s, 14s
Harmon Electronics Co., Mo., 2c
Harrel, Inc., N.Y., 32c, 34sc
Harris Mfg. Co., Inc., Mass., 34c
Harristahl Laboratories, N.Y., 6c, 14c
Hartman Electrical Mfg. Co., Ohio, 36c
Harvey-Wells Electronics, Inc., Mass., 14c
Hass Instrument Corp., D.C., 26sc, 40sc
Hastings-Raydist, Inc., Va., 2s, 20s, 24s, 26s, 30s, 40s
Haydon Co. (A. W.), Calif., 8c, 30c, 36c
Haydon Co. (A. W.), Conn., 12c, 24c, 36c, 42c
Haydon Instrument Co., Conn., 12sc, 14sc, 36c
Hayes, Inc. (C. I.), R.I., 34c
Hays Corp., Ind., 10sc, 16sc, 20sc, 24sc, 26sc, 30sc, 34sc
Hehn Engineering (Lester C.), N.Y., 22c
Heinemann Electric Co., N.J., 36sc
Hermes Electronics Co., Mass., 36sc
Hewlett-Packard Co., Dymec Div., Calif., 8sc, 14c, 36c
Hilliard Corp., N.Y., 42c

Directory I. Complete Equipment

4. Automatic Control Equipment.

Hirschmann Co., Inc. (Carl), 30 Park Ave., Manhasset, L.I., N.Y., 12 Wafer c, Tel: 516-MAnhasset 7-5300
See ad in class 99
Hitachi New York, Ltd., N.Y., 16c, 20c, 30c, 34c, 42c
Hoffman Electronics Corp., Calif., 22c
Hollywood Mfg. & Supply Corp., Calif., 4c, 6c, 14c
Hoover Co., Electronics Div., Md., 6c
Hoover Electric Co., Calif., 24c, 32c, 34c, 42c
Houdaille Industries, Inc., Buffalo Hydraulics Div., N.Y., 24sc
Houston Fearless Corp., Westwood Div., Calif., 4c, 6c, 20c, 22c, 32c, 34c, 36c, 42c
Howard Instrument Co., N.J., 14c
Howell Instruments, Inc., Texas, 6sc, 26s, 34sc, 40s
Hughes Aircraft Co., Nuclear Electronics Laboratory, Calif., 30c
Hughes Aircraft Co., Vacuum Tube Products Div., Calif., 40sc
Hughey & Phillips, Inc., 3200 N. San Fernando Blvd., Burbank, Calif., 22s, Tel: 213-VIctoria 9-1104
See ad in class 44
Humphrey, Inc., Calif., 42c
Huppert Co. (K. H.), Ill., 34s
Hurletron, Inc., Electric Eye Equipment Div., Ill., 22c
Huyck Systems Co., N.Y., 4c, 16c, 24c, 26c, 30c, 32c
Hycon Mfg. Co., Calif., 8c, 18c, 22c
Hydro-Aire Co., Div. of Crane Co., Calif., 2c, 4c, 6sc, 8c, 14c, 16c, 24c, 30c, 32c, 36c
I.D. Precision Components Corp., N.Y., 36c
ITA Electronics Corp., Pa., 30sc, 32c
I-T-E Circuit Breaker Co., Special Products Div., Pa., 24c, 32c, 42c
Iconix, Inc., Calif., 12sc, 14c
Idaho Maryland Industries, Magnetics Div., Calif., 6sc
Ideal-Aerosmith, Div. of Royal Industries, Inc., Wyo., 14sc, 22sc, 24sc, 26sc, 30sc
Ilikon Corp., Mass., 40sc
Illinois Tool Works, Licon Div., 6615 W. Irving Park Rd., Chicago 34, Ill., 30sc, Tel: 312-AVenue 2-4040
See ad in class 80
Indikon Co., Inc., Mass., 24c, 26sc, 34sc
Industrial Components, Inc., Ore., 2sc, 12c, 16c, 22sc, 26c, 28c, 30c, 32c, 34c, 36c, 42c
Industrial Control Co., N.Y., 6sc, 8sc, 14sc, 24sc, 30sc, 32sc, 42sc
Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif., 6c, 14s, Tel: 213-TRiangle 7-1144
See ad on page 162 and in class 63
Industrial Instruments, Inc., N.J., 8s, 10s
Industrial Nucleonics Corp., Ohio, 2s, 8s, 20s, 28c
Industrial Timer Corp., N.J., 36sc
Information Systems, Inc., Calif., 2c, 6c, 12c, 14c, 30c, 32c, 34c, 36c, 42c
Infrared Industries, Inc., Mass., 2sc, 18sc, 20sc, 22sc
Infrared Industries, Inc., West Coast Div., Calif., 2c, 10c, 12c, 18c, 20c, 22c, 34sc, 42sc
Ingraham Co., Conn., 36c
Insco Co., Div. of Barry Wright Corp., Mass., 32c, 42c
Instron Engineering Corp., Mass., 42s
Instrument Corp. of Florida, Fla., 6c, 8s, 14c, 22c, 30c, 32c, 36s
Instrument Systems Corp., N.Y., 4c, 6c, 12c, 14c, 24c, 30c, 32c, 34c, 42c
Instruments, Inc., Calif., 2c, 8c, 34c
Instruments of New England, Mass., 36sc
Intectron, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 4sc, 6sc, 14c, 24c, 28c, 32c, 36c, Tel: 617-WOodward 9-9311
See ad on page 163
Intercontinental Dynamics Corp., N.J., 22sc, 24sc
International Business Machines Corp., N.Y., 6c, 14c, 30c
International Instruments, Inc., 88 Marsh Hill Rd., Orange, Conn., 34c, Tel: 203-SYcamore 5-4711
See ad in class 61
International Pump & Machine Works, 81 Dorsa Ave., Livingston, N.J., 40s, Tel: 201-WYman 2-5900
See ad in class 99
International Telephone & Telegraph Corp., ITT Federal Laboratories, Ind., 6c, 8c, 14c
International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 4c, 6c, 8c, 14c, 18c, 32c
International Telephone & Telegraph Corp., ITT Kellogg, Ill., 14c, 24c, 28c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 18c, 30 Video c, 34c
International Ultrasonics, Inc., N.J., 2c, 20s, 30c, 38c
Interstate Electronics Corp., Calif., 2c, 4c, 6c, 14c, 30c, 36c
Isotope Developments, Ltd., England, 2s, 12s, 20s
Jack & Heintz, Div. of Siegler Corp., Ohio, 32c, 42c
Jackson Electronic & Mfg., Div. of International Basic Economy Corp., Ohio, 12c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c
Jacobs Instrument Co., Md., 12c, 14c
Janette Div., National Pneumatic Co., Inc., Mass., 36c, 42c
Johnson Electronics, Inc., Fla., 36c
Johnson Service Co., Wis., 4s, 6c, 14c, 20s, 24s, 26s, 30s, 34s
Jordan Controls, Inc., Wis., 4s, 6s, 16sc, 20c, 24s, 26sc, 30s, 32s, 36c, 42sc
Jordan Electronics, Div. of Victoreen Instrument Co., Calif., 2s, 36sc
Kahn & Co., Inc., Conn., 2c, 34c
Kaiser Aircraft & Electronics, Div. of Kaiser Industries Corp., Calif., 4c, 6c
Kaman Aircraft Corp., Conn., 30 Trajectory c
Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 16c, 24c
Kelsey-Hayes Co., Mich., 16c, 32c
Kidde Ultrasonic & Detection Alarms Div., Walter Kidde & Co., Inc., N.J., 2sc
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 8sc, 30sc
Kinetic Instrument Corp., N.Y., 32c
Kingston Electronics, Div. of Kingston Industries, Inc., Mass., 42c
Kinn Electronics Corp., Md., 34c
Kirkland Co. (H. R.), N.J., 2sc
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 4sc, 6sc, 8sc, 14sc, 16sc, 18sc, 20sc, 22sc, 24sc, 26sc, 32sc, 34sc, 36sc, 42sc
Kuhnke (H.), Elektrotechnische Fabrik GmbH, Germany, 36c
Kulicke & Soffa Mfg. Co., Pa., 24c
Lakeshore Industries Div., Aitken-Reed, Inc., Wis., 36c
Larson Instrument Co., Greenbush Rd., Orangeburg, N.Y., 34c, Tel: 914-ELmwood 9-2310
See ad in class 61
Leach Corp., 18435 Susana Rd., Compton, Calif., 8c, 36sc, Tel: 213-NEvada 6-1061
See ad in class 73
Lear, Inc., Calif., 4c, 6c, 14c, 16c, 24sc, 28sc, 30sc, 32sc
Lear, Inc., Instrument Div., Mich., 4c, 8c, 14c, 30sc, 32sc
Lear, Inc., Lear-Romec Div., Ohio, 16sc, 26sc, 32sc, 40sc
Lee Electric, Inc., N.J., 2s
Leeds & Northrup Co., Pa., 2s, 4s, 6c, 10s, 14c, 18s, 24s, 28s, 32s, 34s, 42s
Leesona Corp., Leesona Moos Laboratories Div., N.Y., 10c, 18c, 26c, 36sc
Lektra Laboratories, Inc., N.Y., 36s
Lennard Co., Inc. (P. M.), Fla., 40sc
Lessells & Associates, Inc., Mass., 32c
Lewis Instruments, Inc., N.Y., 28 Chemical c
Lignes Telegraphiques et Telephoniques, France, 26s
Lindly & Co., Inc., N.Y., 8s, 22sc
Ling Temco Vought, Inc., Texas, 2s, 6c, 8c, 12c, 14c, 30sc, 32c, 36c, 38c
Ling Temco Vought, Inc., Electron Corp. (Subsid.), Texas, 2s
Ling Temco Vought, Inc., F F & M Electronics, Inc. (Subsid.), Calif., 6c, 8c, 12c, 14c, 30c, 32c
Ling Temco Vought, Inc., Temco Electronics Div., Texas, 14c, 32c, 36c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 38c
Liquidometer Corp., N.Y., 20c, 30c, 32c, 38c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 6c, 14c, 32c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., Md., 2c, 4c, 6c, 14c, 32c, 40c

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4. Automatic Control Equipment.

Litton Industries, Inc., Monroe Calculating Machine Co. (Subsid.), N.J., 14s
Lockheed Electronics Co., N.J., 4c, 6c, 8c, 14c, 36c
Lome Electronics, Inc., Texas, 6s
Loyola Laboratories, Calif., 34c
Lundell & Co., Ill., 2sc, 6sc, 22c, 34c
Lynch Communication Systems, Inc., Calif., 2c, 8sc, 30c
Macarr, Inc., N.Y., 36c
Machine-O-Matic, Inc., Ill., 22sc, 28sc
Machinery Electrification, Inc., Mass., 10c, 12s, 20s, 22sc, 36sc, 42sc
Mack Electric Devices, Inc., Pa., 2 Thermal sc
MacLaren & Co., Inc. (F. B.), N.Y., 4c, 6c, 22c, 24c, 30c, 32c, 42c
MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 4c, 6sc, 8c, 14c, 18c, 20c, 22sc, 24c, 26c, 28sc, 30sc, 32c, 34c, 36c, 38c, Tel: 305-LOgan 4-8518
See ad in this class
Madigan Electronic Corp., N.Y., 4c, 6c, 8sc, 14c, 30c, 32c
Magnavox Co., Magnavox Research Laboratories, Calif., 6 Magnetic-Card c
Magnetic Amplifiers Div., Siegler Corp., 632 Tinton Ave., New York 55, N.Y., 32sc, 42s, Tel: 212-CYpress 2-6610
See ad in class 69
Magnetic Circuit Elements, Inc., Calif., 8sc
Magnetic Controls Co., Minn., 4c, 6c, 34sc

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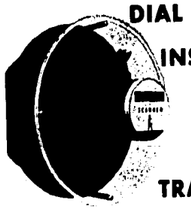

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Magnetic Corp., Calif., 24sc, 30sc
Magnetic Industries, Inc., Texas, 2s, 16c, 20c, 24s, 28s, 30s
Magnetic Instruments Co., Inc., 637 Commerce St., Thornwood, N.Y., 20sc, 26c, 34sc, Tel: 914-ROgers 9-5312
See ad in class 43
Magnetico, Inc., N.Y., 32sc
Magnetics, Inc., Pa., 2sc, 12c, 24c, 28c, 30c, 32c, 34c, 36c, 42c
Magtrol, Inc., N.Y., 24c, 32c
Maico Electronics, Inc., 21 N. Third St., Minneapolis 1, Minn., 24c, 28 Magnetic c, Tel: 612-FEderal 9-7041
See ad in class 70
Malaker Laboratories, N.J., 20c, 34sc
Mallory & Co., Inc. (P. R.), Ind., 36c
Mandrel Industries, Inc., Calif., 12 Color sc, 22sc
Mandrel Industries, Inc., Greenleaf Mfg. Div., Mo., 32c
Mandrel Industries, Inc., Houston Div., Texas, 12c, 22c
Manning, Maxwell & Moore, Inc., Conn., 16s, 20s, 26s, 28s, 40s
Manostat Corp., N.Y., 26s, 40s
Marquardt Corp., Pomona Div., Calif., 4c, 6c, 14c, 28c, 32c
Marstan Electronics Corp., N.Y., 4c, 22c, 36c
Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 6c, 14c, 24c, 36c
Mason Instrument Co., Inc., N.Y., 12s, 18sc, 22sc, 24sc, 34s
Mason, Shaver & Rhoades, Inc., Pa., 24c
Matthew Laboratories, N.Y., 4c, 6c
Maurer, Inc. (J. A.), N.Y., 12c, 14c, 18c, 22c, 32c
Maxson Electronics Corp., N.Y., 20c, 38c
May Engineering Co., Calif., 12c
Mayberry Electronics Co., Calif., 4c, 24c, 26c, 32s, 36c
McDonnell Aircraft Corp., Mo., 4c, 6c, 8c, 14c
McDonnell & Miller, Inc., Ill., 16c, 20c
McDowell Electronics, Inc., N.J., 28c, 42sc
McElroy Electronics Corp., Mass., 36c
McKiernan-Terry Corp., N.J., 24c
McPherson Instrument Corp., Mass., 22c
Measurements Research Co., Pa., 8sc
Melody Master Mfg. Co., Ill., 2c, 20c, 24c, 26c, 38c
Melpar, Inc., Va., 8c
Melpar, Inc., Special Products Div., Va., 12sc, 22sc
Mercoid Corp., Ill., 2s, 26s, 40s
Mesur-Matic Electronics Corp., N.H., 2s, 8s, 16c, 20c, 28c, 30c, 34c
Metaplast Co., Inc., N.Y., 26c, 34c
Metronix, Inc., Subsid. of Assembly Products, Inc., 75 Wilson Mills Road, Chesterland, Ohio, 34s, Tel: 216-Hamilton 3-4440
See ad in class 40
Micro Balancing, Inc., N.Y., 22s
Midwest Automatic, Inc., Iowa, 12c
Midwestern Instruments, Inc., Okla., 32s
Mikros, Inc., Ore., 40s
Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 4sc, 6sc, 8c, 12c, 14c, 24sc, 30c, 36sc, Tel: 305-OXford 1-1220
See ad in class 28
Miller-Harris Instrument Co., Wis., 36c
Milro Controls Co., Inc., N.J., 2c, 24c, 30c, 32c, 34c, 40c, 42c
Miltronics Co., Wis., 12c, 22c, 28c
Minneapolis-Honeywell Regulator Co., Fall River Div., Mass., 2c, 4c, 16c, 20c, 26c, 32c, 34c, 40c
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 2s, 16s, 18s, 20s, 22s, 24sc, 26sc, 32sc, 34s, 36s, 40s, 42sc
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 4c, 6c, 14c, 18c, 20c, 22c, 26c, 32c, 36c, 42c
Minneapolis-Honeywell Regulator Co., Special Systems Div., Pa., 4c, 6c, 14c
Missouri Research Laboratories, Inc., Mo., 32c
Mittelmann Engineering (Eugene), Ill., 4c, 8c, 16c, 24c, 28c, 42c
Mnemotron Corp., 49 S. Main St., Pearl River, N.Y., 4s, 6s, 14s, Tel: 914-PEarl River 5-4015
See ad in class 9
Mobil Electronics, Inc., Ind., 30c
Model Engineering & Mfg. Corp., Ind., 4c, 6c, 8c, 14c, 16c, 24c, 32c, 36c, 38c, 42c
Modern Design, Div. of H. C. Schloer, Inc., N.Y., 30c
Molectronics, Div. of Motec Industries, Calif., 6c, 8c, 26c, 40c
Monroe Electronic Laboratories, Inc., N.Y., 4c, 8c, 22c, 26c
Montek, Inc., Utah, 2c, 4c, 6c, 12c, 14sc, 24c, 30c, 32c, 36c, 42c
Montgomery Mfg. Co., Inc., Ind., 36sc
Moog Servocontrols, Inc., Industrial Div., N.Y., 24c, 32c
Moore Associates, Inc., Calif., 2s, 4s, 6s, 8s, 14s, 30s
Moran Instrument Corp., Calif., 4c, 36c
Moseley Co. (F. L.), Div. of Hewlett-Packard Co., Calif., 4s, 32s
Mosler Research Products, Inc., Conn., 2 Line-tapping sc
Motorola Communications & Electronics, Inc., Ill., 2sc
Motorola, Inc., Military Electronics Div., Ariz., 2c, 4c, 6c, 14c, 20c, 30c, 32c
Muirhead Instruments, Inc., N.Y., 28s, 34s
Multi Products Co., Inc., Mich., 16c, 30s
Multitone Electronics, Ltd., Canada, 2s
NRC Equipment Corp., Mass., 40sc
Naniloa Corp., Ohio, 4c, 6c, 8c, 12sc, 14sc, 24c, 28c, 32c, 36c, 42c
Nash & Thompson, Ltd. (Messrs.), England, 2s, 16s, 26s
Natel Engineering Co., Calif., 16s, 36s
National Co., Inc., Mass., 2c, 6c, 8c, 14c
National Electronics, Wyo., 20c, 22c, 26c, 30c, 34c
National Instrument Laboratories, Inc., D.C., 16sc, 40c
National Scientific Laboratories, Inc., D.C., 28c, 30c, 32c, 34c
Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 6s, 8c, 12sc, 14sc, 22c, 24c, 28c, 30c, 36sc, Tel: 215-GLendale 2-6531
See ad in class 10
Needco Cooling Semiconductors, Ltd., Canada, 34sc, 40sc

Directory I. Complete Equipment

4. Automatic Control Equipment.

New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy., Somerville 43, Mass., 4c, 6c, 14c, 32c, Tel: 617-625-6100
See ad in class 84
New York Air Brake Co., Feedback Controls Subsid., Mass., 6c, 14c
Newark Controls Co., N.J., 16sc, 20sc, 26sc, 40sc
Newport Scientific Co., Calif., 32c
Newton Co., Conn., 14c, 30c
Niagara Electron Laboratories, N.Y., 16s, 20s, 24s, 26s, 34s, 40s
Nichols, Ltd. (R. H.), Canada, 30c
Non-Linear Systems, Inc., P.O. Box 728, Del Mar, Calif., 6sc, 8sc, Tel: 213-SKyline 5-1134
See ad on pages 76-77
Norbatrol Electronics Corp., Pa., 2sc, 4sc, 12c, 16c, 22sc, 24sc, 26c, 30c, 32c, 34s, 36c, 42c
Norden Div., United Aircraft Corp., Conn., 6sc, 12c, 24c
Norden Div., United Aircraft Corp., Data Systems Dept., Calif., 2c, 4c, 6c, 8c, 12c, 14sc, 24sc, 28c, 30c, 32c, 42c
Norden Div., United Aircraft Corp., Ketay Dept., N.Y., 6sc, 32c
North American Aviation, Inc., Atomics International (Div.), Calif., 20c, 34c, 38c
Northern Electronics, Inc., Minn. 14c
Northern Radio Co., Inc., 147 W. 22nd St., New York 11, N.Y., 30s, Tel: 212-WAtkins 9-9117
See ad on pages 58-61
Northrop Corp., Calif., 4c, 6c, 8c, 12c, 14c, 18c, 20c, 22c, 24c, 30c, 32c
Nuclear Corp. of America, Instrument & Control Div., N.J., 20sc, 40sc
Nuclear Science & Engineering Corp., Pa., 20c
Nugent Electronics Co., Inc., Ind., 2sc
Oilgear Co., Wis., 16c, 24c, 26c, 28c, 30c, 32c, 42c
Oilgear Co., Servocontrol Div., Mass., 16sc, 24sc, 26c, 32sc, 42sc
Olympic Radio & Television, Div. of Siegler Corp., N.Y., 4c, 6c, 16sc
Omega Dynamics Corp., Calif., 26sc
Omtronics Mfg., Inc., Nebr., 34sc
Optics Technology, Inc., Calif., 18c, 20c
Optimized Devices, Inc., N.Y., 8s, 12c
Ortronix, Inc., Fla., 6c, 8c, 14c
Otis Elevator Co., Defense & Industrial Div., N.Y., 4c, 6c, 18c
Ovitron Corp., Hodge Controls Div., Conn., 32sc
Ovitron Corp., Power Controls Div., Conn., 24c, 28c, 32sc, 34sc, 36c, 42c
Oxford Engineering Corp., Mass., 12c, 14c, 22c, 36c
Pace Controls Corp., Mass., 14sc, 24c, 42c
Pace Engineering Co., Calif., 26s, 34s
Pacific Electro Magnetics Co., Inc., Calif., 4s
Pacific Scientific Instrument Laboratory, Calif., 34s
Packard-Bell Computer Corp., Calif., 6sc, 14sc
Packard-Bell Electronics Corp., Calif., 6c, 8c, 18c
Palomar Scientific Corp., Calif., 4c, 20c, 26s, 32c
Parabam, Inc., Calif., 36sc
Parametrics, Calif., 12sc, 28sc
Pastoriza Electronics, Inc., Mass., 2c, 4c, 6c, 14c
Peer, Inc., Texas, 30c
Pegasus Laboratories, Inc., Mich., 16sc, 24sc, 32sc, 42sc
Penn Keystone Corp., Conn., 2c, 24c, 30c, 36c
Pennon Electronics, Inc., Calif., 30c, 32c
Pennwood Numechron Co., 7249 Frankstown Ave., Pittsburgh 8, Pa., 14sc, Tel: 412-FRemont 1-4200
See ad in class 11
Perfection Electronics, Inc., N.Y., 12c, 30c, 42s
Performance Measurements Co., Mich., 6c, 14c
Perkin-Elmer Corp., Conn., 18s
Perma-Power Co., Ill., 30sc
Philbrick Researches, Inc. (George A.), Mass., 4s
Philco Corp., Pa., 6c, 14s
Philco Corp., Government & Industrial Group, Pa., 14c, 18c
Philco Corp., Lansdale Div., Pa., 28s, 34s
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 16sc, 30sc
Philips Electronics Industries, Ltd., Canada, 2s, 4s, 6s, 18s, 20s, 22s, 26s, 34s
Phoenix Precision Instrument Co., Inc., Pa., 22c
Photo-Research Corp., Calif., 22sc
Photobell Co., Inc., N.Y., 2s, 10s, 12s, 18s, 22s, 30s
Photocon Research Products, Calif., 24sc, 26sc
Photographic Analysis, Inc., Calif., 6c, 12c, 14c, 20c, 24c, 28c, 30c, 36c
Photomation, Inc., N.J., 22s
Photronics Corp., N.Y., 22c, 32c, 36c
Physical Sciences Corp., Affil. of Packard-Bell Electronics, Calif., 14c, 26c, 30c, 34c
Pickard & Burns, Inc., Subsid. of Gorham Corp., 103 Fourth Ave., Waltham R & D Park, Waltham 54, Mass., 20c, 34sc, Tel: 617-HIllcrest 4-3345
See ads on page 190 and in classes 31, 44
Piezo Products Co., Mass., 18c, 34sc
Pioneer Electric & Research Corp., Ill., 22c, 30c
Pioneer Magnetics, Inc., Calif., 2c, 6c, 16c
Plug-In Instruments, Inc., Tenn., 2c, 4s, 8c, 14c, 30s, 32s, 34c, 36c
Polytronics Co., Canada, 34sc
Poole Instruments, Inc., Texas, 16c
Potter Aeronautical Corp., N.J., 6s, 14s, 16 Portable s
Potter Instrument Co., Inc., N.Y., 14c, 22c
Power Instruments Corp., Inc., Calif., 24c, 32c, 34c
Power-Tronic Systems, Inc., N.Y., 6c, 32c
Powertron Ultrasonics Corp., N.Y., 16sc, 20sc, 38sc
Precision Mechanisms Corp., N.Y., 24c, 32c, 36c
Precision Thermometer & Instrument Co., Pa., 20s
Pressure Elements, Inc., N.J., 26c
Printed Motors, Inc., N.Y., 42c
Protection Controls, Inc., Ill., 10sc, 28sc, 34c, 36c
Protection Equipment Co., Inc., Minn., 2sc
RDF Corp., N.H., 34sc
R-K Laboratories Co., N.Y., 4c, 30c, 32c, 36c
RMS Associates, Inc., N.Y., 6c, 38sc
Rabinow Engineering Co., Inc., D.C., 8c, 12c, 14c, 22c, 30c
Radar Relay, Inc., Calif., 2c
Radio Corp. of America, Astro-Electronics Div., N.J., 8c
Radio Corp. of America, Defense Electronic Products, N.J., 4c, 6c, 14c, 18c, 30c
Radio Development & Research Corp., N.J., 20sc, 38sc
Radio Industries, Inc., Kans., 12c, 14c, 16c
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 2c
Ram Meter, Inc., Mich., 4c, 12c, 36c
Ramapo Instrument Co., Inc., N.J., 16s, 24c, 32c
Ransom Research, Inc., Calif., 6c, 12c, 14c, 36c
Rawco Instruments, Inc., Texas, 6sc
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 38sc
Recora Co., Inc., Ill., 2s, 12s
Redford Corp., N.Y., 12s, 14s, 22c, 24c, 28c, 30c, 36s, 38c
Redifon, Ltd., England, 38s
Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, N.Y., 4c, 6c, 24c, 32c
Remington Rand Univac, Div. of Sperry Rand Corp., Minn., 14sc
Rescon Electronics Corp., Mass., 6c, 12c, 14c
Rese Engineering, Inc., Pa., 12 Core c
Research, Inc., Minn., 4sc, 18sc, 34sc
Research Industrial Laboratory of Electronics, Pa., 2c, 8s, 12c, 20c, 36s
Revere Corp. of America, Conn., 16c, 20c
Rheem Mfg. Co., Rheem Electronics Div., Calif., 6c, 12sc, 14s, 22sc, 24sc, 30c, 32sc
Rhodes, Inc. (M. H.), Conn., 36sc
Ripley Co., Inc., Conn., 22 Municipal c
Rixon Electronics, Inc., Md., 4c, 6c, 8c, 14c, 30c
Robertshaw-Fulton Controls Co., Fulton Sylphon Div., Tenn., 20c, 26c, 40c
Robotomics Enterprises, Inc., Ariz., 12c, 14s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

4. Automatic Control Equipment.

Rochar Electronique, France, 16s, 24c
Rodale Electronics, Inc., N.Y., 2c, 8c, 28c
Rogers Mfg. Co. (Dayton), Minn., 22c, 24c, 28c, 30c, 32c, 42c
Roller Mike, Inc., N.Y., 12sc, 28sc
Rotary Devices Corp., N.J., 2c, 6c
Rotiform Co., Calif., 22sc, 24s
Roy Co. (Milton), Pa., 16sc, 20sc
Royco Instruments, Inc., Calif., 34sc
Royson Engineering Co., Pa., 36c
Rucker Co., Calif., 32c
Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 4c, 6c, 14c
Salford Electrical Instruments, Ltd., England, 20s, 26s
Sampson Chemical & Pigment Corp., Ill., 22c, 24c
Sanders Associates, Inc., N.H., 16sc, 24c, 32sc

Sangamo Electric Co., Springfield, Ill., 26s, 36s, Tel: 217-KIngswood 4-6411
See ad on page 142

Santa Barbara Research Center, Subsid. of Hughes Aircraft Co., Calif., 2c, 18c, 22c, 34c
Scaico Controls, Inc., N.J., 26c, 30c, 34sc, 36c, 40c
Scam Instrument Corp., Ill., 2sc
Schaevitz Engineering, N.J., 2sc, 4sc, 6c, 8sc, 12sc, 14c, 20sc, 24sc, 26sc, 28sc, 30sc, 32sc, 34sc, 36sc, 38sc, 42sc
Schirmer-National Alarm Co. Corp., N.J., 2sc, 10sc, 18sc, 20c, 22sc, 30c, 34c, 38s
Schoene Electronics Laboratory, Ind., 2c, 36c
Scientific-Atlanta, Inc., Ga., 32c, 42sc
Scope, Inc., Va., 4c, 6c, 8c, 14c, 18c, 22c, 38c
Scott, Inc. (H. H.), Mass., 2c
Secode Corp., Calif., 2s, 14s, 30s
Security Controls, Inc., N.Y., 2s, 16c, 18c, 20s, 24s, 28 Safety s

Security Devices Laboratory, 24 Seneca Ave., Rochester 21, N.Y., 30sc, Tel: 716-HOpkins 7-3200
See ads in classes 46, 73

Seneca Falls Machine Co., N.Y., 4s, 24s, 30s, 32s, 42s
Sensory, Inc., N.J., 16c, 20c, 22c, 28c, 30c, 36c
Servo Corp. of America, N.Y., 6sc, 14sc, 18sc, 32sc, 34sc, 36sc

Servo Development Corp., 2 Willis Ct., Hicksville, L.I., N.Y., 16c, 24c, 30c, 32sc, 36c, Tel: 516-OVerbrook 1-4343
See ad in class 77

Servo-Tek Products Co., Inc., N.J., 32s, 36s, 42s
Servomechanisms/Inc., Calif., 4c, 6c, 8c, 14c, 20sc, 24c, 26c, 32c, 34c
Servomex Controls, Ltd., England, 4s, 18s, 32s, 42s
Servonic Instruments, Inc., Calif., 24c, 26sc
Servotronics, Inc., N.Y., 4sc, 14c, 16c, 24c, 26c, 32c
Shallcross Mfg. Co., N.C., 6c
Sheltered Workshops, Inc., Calif., 12c
Shand & Jurs Co., Calif., 6sc, 14sc, 20sc, 34sc
Shaw Instrument Corp., Pa., 2c, 18c, 22c, 34s
Siemens New York, Inc., N.Y., 4s, 6s, 14s, 16s, 18s, 20s, 24s, 26s, 30s, 32s, 34s, 36s
Sierra Research Corp., N.Y., 24c, 30c, 32c
Sigma Engineering Service, Inc., Pa., 30c
Simmonds Precision Products, N.Y., 16c, 20sc, 24c, 26c, 30c, 34c
Singer-Bridgeport, Div. of Singer Mfg. Co., Conn., 2sc
Slaughter Co., Ohio, 8c, 12c
Slip Ring Co. of America, Calif., 36sc
Solar Research Corp., Fla., 2c, 30c
Solartron Electronic Group, Ltd., England, 4sc, 6sc, 14sc
Solartron, Inc., Calif., 2s, 4s, 6s
Solatron, Inc., Mass., 2c
Sorensen Industrial Electronic Co., N.J., 36c
Soroban Engineering, Inc., Fla., 14sc, 30c
Space Electronics Corp., Calif., 4c, 6c, 14c, 18c
Space Instrumentation Corp., Calif., 16sc, 36c
Sparton Electronics, Div. of Sparton Corp., Mich., 2c, 4c, 16c, 24c, 26c
Special Instruments Laboratory, Inc., Tenn., 2c, 10c, 22c, 30c, 32c
Spectra Electronics Corp., N.Y., 2c, 18c, 22c, 34c
Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 4c, 24c, 26c, 30c, 32c, 36c, 42c
Speidel Corp., Industrial Div., R.I., 26c, 40c
Sperry Rand Corp., Sperry Gyroscope Co. (Div.), N.Y., 18c
Sperry Rand Corp., Sperry Gyroscope Co. of Canada, Ltd. (Subsid.), Canada, 24c, 32c
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 30c, 35c
Sperry Rand Corp., Sperry Phoenix Co. (Div.), Ariz., 32sc
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 2c, 4c, 6c, 14c, 18c, 22c, 24c, 26c, 30c
Sperry Rand Corp., Sperry Utah Co. (Div.), Utah, 14c
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 28s, 32s, 42sc
Sperry Rand Corp., Vickers, Inc. (Div.), Marine & Ordnance Dept., Conn., 16sc
Sprague Electric Co., VecTrol Engineering, Inc. (Subsid.), Conn., 10c, 22c, 34c, 42c
Standard Controls, Inc., Wash., 16c, 26c
Standard Electronics Research Corp., N.J., 12c, 22s, 34s
Standard Instrument Corp., N.Y., 2s, 12s, 14s, 20s, 22s, 28s, 34s, 36s
Standard Systems Corp., N.Y., 2sc, 30c, 38sc
Standard Telephones & Cables, Ltd., England, 2sc, 16sc, 20sc, 26sc, 30sc, 34sc
Starling Corp., Calif., 2c, 14c, 20s, 22s, 34c
Stator Electric Corp., N.Y., 32c
Stelma, Inc., Conn., 4s, 6s
Sterling Instrument Div., Designatronics, Inc., N.Y., 14s, 32sc, 36c
Stewart-Warner Corp., Stewart-Warner Electronics Div., Ill., 12c, 22c, 24c, 32c
Strand Engineering Co., Mich., 4c, 6c, 12c, 22c, 30c
Straza Electronics, Calif., 32c
Streeter-Amet Co., Ill., 6c, 14c, 30c, 32c
Sunshine Scientific Instrument, Pa., 8sc

Superior Electric Co., 100 Ames Ave., Bristol, Conn., 14s, 30s, Tel: 203-LUdlow 2-9561
See ad on pages 2-11

Superior Welding Co., Calif., 24s

Swift Textile Metalizing & Laminating Corp., 10 Love Lane, Hartford 1, Conn., 2c, Tel: 203-JAckson 2-1181
See ad in class 103

Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 6c
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 14sc
Systems Development, Inc., N.Y., 32c
Systems Research Corp., Calif., 32c
Systron-Donner Corp., Calif., 6s, 8s, 12c, 14c, 16c, 26c, 34c, 36s
TRG, Inc. (Technical Research Group), N.Y., 4c
Taber Instrument Corp., N.Y., 26s
Taffet Electronics, Inc., N.Y., 30c
Tamar Electronics, Inc., Calif., 2c, 4c, 30s
Tang Industries, Inc., Mass., 4c, 16c, 26c, 28c, 32c
Tapeswitch Corp. of America, N.Y., 2sc
Taylor Instrument Companies, N.Y., 2c, 16c, 20c, 26c, 30c, 34c
Taylor Instrument Co. (Ohio), Inc., Ohio, 36sc
Te Co., Calif., 18c, 22c
Technique Associates, Div. of Duncan Electric Co., Inc., Ind., 34s
Telechrome Mfg. Corp., N.Y., 2sc, 6sc, 8c, 14s, 24sc, 26sc, 28c, 30sc, 32c, 42c
Telecomputing Corp., Calif., 4c, 6c, 14c, 20c
Telecomtrol Corp., N.J., 30c

Telex/Aemco, Div. of Telex, Inc., 10 State St., Mankato, Minn., 36sc, Tel: 8-6288
See ad in class 73

Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 2c, 42c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80

Telonic Industries, Inc., 60 N. First Ave., Beech Grove, Ind., 8sc, Tel: 317-STate 7-7241
See ad in class 39

Tempo Instrument, Inc., N.Y., 8c, 36sc
Ten Bosch, Inc. (M.), N.Y., 32s
Tenney Engineering, Inc., N.J., 42c
Teradyne, Inc., Mass., 8s

Texas Instruments Incorporated, Semiconductor-Components Div., 13500 North Central Expressway, P.O. Box 5012, Dallas 22, Texas, 18c, 20s, 30c, 36c, Tel: 214-ADams 5-3111
See ad on Cover 3

Textran Corp., Texas, 34c, 36s
Therm, Inc., N.Y., 34sc
Therm-O-Disc, Inc., Ohio, 2c
Thermal Dynamic Products, Inc., Div. of Waltham Precision Instrument Co., N.Y., 22c, 24s, 32s

Directory I. Complete Equipment

4. Automatic Control Equipment.

Thermalic Electronics Corp., Calif., 34sc
Thermel, Inc., R.I., 2c, 24sc, 26sc, 28sc, 30sc, 34sc
Thermo Electric Co., Inc., N.J., 26s, 34s
Thermovolt Instruments, Ltd., Canada, 16c, 20c, 26c, 30c, 32c, 34c

Theta Instrument Corp., 520 Victor St., Saddle Brook, N.J., 4s, 8s, 24s, 32s, Tel: 201-HUbbard 7-3508
See ad in class 97

Thompson, Ltd. (J. Langham), England, 2sc, 4sc
Thompson Ramo Wooldridge Inc., Dage Div., Ind., 12c, 24s
Thompson Ramo Wooldridge Inc., Radio Condenser Co. (Subsid.), N.J., 2c
Thompson Ramo Wooldridge Inc., STL Products Div. of Space Technology Laboratories, Calif., 18c, 36c
Thompson Ramo Wooldridge Inc., Tapco Div., Ohio, 4c, 6c, 24c, 32c, 42c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 6s, 14s, 30c, 32sc, 36c
Time-O-Matic, Div. of E-S Industries, Inc., Ill., 2s, 14s, 34s, 36s
Tipptronic, Inc., Ohio, 2sc, 22c, 24c, 30c, 34sc
Tokyo Shibaura Electric Co., Ltd., Japan, 4c, 6s, 14sc, 24c, 30c, 32c
Topping Electronics, Ltd., Canada, 36c
Tork Time Controls, Inc., N.Y., 36sc

Torotron Corp., Dept. D, 256 E. Third St., Mount Vernon, N.Y., 42c, Tel: 914-MOunt Vernon 8-6900
See ad in class 51

Tracerlab Keleket, Mass., 20sc, 24sc
Trans-Sonics, Inc., Mass., 20sc, 26sc, 34sc, 40sc
Transistor Applications, Inc., Mass., 4c, 6c, 14c, 32c
Transistor Specialties, Inc., N.Y., 12c, 14sc
Transmagnetics, Inc., N.Y., 4s
Trepac Corp. of America, N.J., 30sc
Tri Metal Works, Inc., N.J., 40c
Tri-Tronics Co., Ill., 12c, 22s

Trio Laboratories, Inc., DuPont Dr., Plainview, L.I., N.Y., 8sc, Tel: 516-OVerbrook 1-0400
See ad in class 40

Trott Electronics, Inc., N.Y., 12c, 22c, 28c, 34c, 36c
Ulmer Co. (H. W.), Calif., 36s, 40sc
Ultrasonic Industries, Inc., N.Y., 20c, 38c
Union Carbide Corp., Linde Co. (Div.), N.Y., 18c
Union Diesel Engine Co., Calif., 2c

Union Switch & Signal, Div. of Westinghouse Air Brake Co., Braddock Ave., Pittsburgh 18, Pa., 2c, 6s, 14s, 30c, Tel: 412-CHurchill 2-5000
See ad in class 73

United Aircraft Products, Inc., Ohio, 16sc
United Control Corp., Wash., 2c, 4c, 20c, 24c, 26c, 32c, 34c, 36sc
United Electric Controls Co., Mass., 2sc, 20sc, 26sc, 40sc
United ElectroDynamics, Inc., Calif., 4sc, 6c, 8c, 14c, 34c
U.S. Controls, Inc., N.Y., 2c, 12c, 14c, 16c, 24c, 26c, 34c, 36c
United States Gauge Div., American Machine & Metals, Inc., Pa., 26sc
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 4c, 8c, 24c, 34c, 36c
U.S. Sonics Corp., Mass., 20sc, 26sc, 38sc
Universal Instruments Corp., N.Y., 12c, 22c, 24c, 28c
Universal Match Corp., Armament Div., Mo., 32c, 34c
Vacuum-Electronics Corp., N.Y., 40s
Vacuum Specialties Co., Inc., Mass., 40c
Vap-Air Div., Vapor Corp., Ill., 2sc, 16c, 26sc, 34sc, 36c
Vapor Recovery Systems Co., Calif., 20sc, 26sc, 34sc
Varian Associates, Instrument Div., Calif., 40s
Varo, Inc., Texas, 32c
Vector Associates, Inc., N.Y., 42c
Veeder-Root, Inc., Electronic Controls Div., Mass., 12sc, 14sc, 16sc, 18c, 22sc, 24sc, 26c, 28sc, 30sc, 34sc, 38c, 42sc
Vemaline Products Co., N.J., 36c
Venner Electronics, Ltd., England, 12sc, 14sc, 36sc
Victor Adding Machine Co., Affil. of Comptometer Corp., Ill., 14sc

Victory Engineering Corp., 118 Springfield Ave., Springfield, N.J., 10s, 16c, 20c, 34c, Tel: 201-MUrdock 8-7150
See ad in class 74

Vidar Corp., Calif., 6sc, 8s
Virginia Electronics Co., Inc., D.C., 2c, 30c
Vocaline Co. of America, Conn., 36sc
WacLine, Inc., Ohio, 42c
Walkirt Co., Calif., 12c, 14c, 36c
Wallace & Tiernan, Inc., N.J., 26s, 40s
Waltham Precision Instrument Co., Mass., 24c
Wang Laboratories, Inc., Mass., 6c, 14c, 24c
Warner & Swasey Co., Control Instrument Div., N.Y., 24sc
Warren Mfg. Co., Inc., Mass., 2c, 16c, 30c
Waugh Engineering Co., Calif., 2sc, 16sc, 36sc
Wayne-George Corp., Mass., 14sc, 26sc
Webcor, Inc., Electronics Div., Ill., 36c
Webster Electric Co., Wis., 36s
Weighing & Controls, Inc., Subsid. of CompuDyne Corp., Pa., 20sc
Weldotron Corp., N.J., 14s, 22s
Wells-Gardner Electronics Corp., Ill., 24c, 30c
Wells Industries Corp., Calif., 12sc, 16sc, 20sc, 22sc, 36sc
West Instrument Corp., Ill., 2s, 26s, 30s, 34s
Westgate Laboratory, Inc., Ohio, 24c, 32c, 34c
Westinghouse Electric Corp., Buffalo Div., Industrial Control Dept., N.Y., 2c, 4c, 6c, 14c, 24c, 28c, 32c, 42c
Westinghouse Electric Corp., Small Motor Div. of Aircraft Equipment Dept., Ohio, 34c
Westmore, Inc., N.J., 8c, 30c
Westport Electric, Calif., 12sc, 14sc

Westronics, Inc., 3605 McCart St., Fort Worth 10, Texas, 34s, Tel: 817-WA 3-8211
See ad on page 223 and in class 28

Wheaton Engineering Div., Hurletron, Inc., Ill., 30c, 34c, 36c
White Avionics Corp., N.Y., 26c, 32c
Whitehall Electronics Corp., Minn., 2c, 6c, 12c, 16c, 22c, 26c, 30c, 34c, 36c, 38c
Wickes Engineering & Construction Co., N.J., 36c
Wiley Electronic Products Co., Div. of Giannini Scientific Corp., Ariz., 8s
Wilson & Co. (G. C.), W.Va., 36s
Winterburn Mfg. Co., Conn., 16s, 32s
Wintronics, Calif., 2sc, 34c
Worner Electric Devices, Ill., 2s, 10s, 12s, 16s, 20s, 22s, 24s
Yellow Springs Instrument Co., Inc., Ohio, 34sc
Zenith Electric Co., Ill., 36sc
Zero-Max Co., Minn., 42c

Autopilots:
See class 2

Battery-chargers:
See class 99

Beacons:
See class 1

5. Bio-Medical Equipment.

5. Audiometers
10. Biological telemetry
15. Cardiac
20. Diathermy
25. Electrocardiographs
30. Electroencephalographs
35. Electromyographs
40. Oscilloscopes
45. Stimulators
50. Ultraviolet
55. X-Ray

Advanced Development Laboratories, Inc., N.H., 10c
Advanced Research Associates, Md., 45c
All American Engineering Co., Commercial Products Div., Del., 10c, 45s
Allis-Chalmers Mfg. Co., Wis., 55c
Allison Laboratories, Inc., Calif., 5sc

American Electronic Laboratories, Inc., MR #1, Richardson Rd., Lansdale, Pa., 10sc, 15s, 45s, Tel: 215-VAn Dyke 2-0131
See ad adjacent to Index to Advertisers, back of book

American Geloso Electronics, Inc., N.Y., 25s
Amplivox Exports, Ltd., England, 5s
Analab Instrument Corp., N.J., 40s
Applegate & Co. (C. J.), Colo., 45sc

Applied Electronics Corp. of New Jersey, P.O. Box 43, Metuchen, N.J., 10sc, Tel: 201-LIberty 9-9200
See ad in class 34

Astro-Space Laboratories, Inc., Ala., 10c, 15sc

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

5. Bio-Medical Equipment.

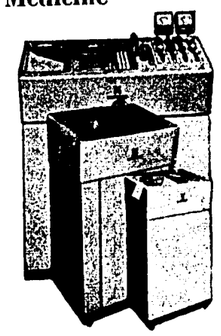
Atronic Products, Inc., Pa., 15s
Automation Dynamics Corp., N.J., 10c
Autometric Corp., N.Y., 40 Color c
Avionics Research Products Corp., Calif., 10 Blood-Flowmeters sc
Bach-Simpson, Ltd., Canada, 40c
Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 55s, Tel: 617-UNiversity 4-7420
See ad in class 86
Bar-Ray Products, Inc., N.Y., 55sc
Basic & Experimental Physics, Mass., 5c, 10c, 15c, 25c, 30c
Beckman Instruments, Inc., Spinco Div., Calif., 10c, 15sc, 45c
Belelere Co., Ltd., England, 5s
Bell Aerosystems Co., Avionics Div., N.Y., 5c, 15c, 25c
Beltone Hearing Aid Co., Ill., 5s
Bendix Corp., Bendix-Pacific Div., Calif., 10sc
Biocom, Inc., Calif., 10c
Black Light Corp. of America, Calif., 50sc
Black Light Eastern Corp., N.Y., 50sc
Black Light Products, Ill., 50c
Block Associates, Inc., Mass., 50c
Bracke-Seib X-Ray Co., Inc., N.Y., 55sc
Brooks Research, Inc., N.Y., 30c
Cambridge Instrument Co., N.Y., 15c, 25c, 30c
Campbell X-Ray Corp., Mass., 55c
Capehart Corp., N.Y., 40c
Cetron Electronic Corp., Ill., 10 Oxygen Utilization c
Circuitdyne Corp., Calif., 5c, 35c, 45c
Coldstream Engineering Co., Okla., 25c, 45c
Continental Merchandise Co., Transistor Products Div., N.Y., 5sc, 15sc, 25sc, 30sc, 35sc, 45sc
Contronics, Inc., Mass., 10c
Crescent Engineering & Research Co., Calif., 10c, 25s, 30s, 35s, 40s, 45s
DBM Research Corp., Fla., 10c
Datalog Corp., Metrolog Div., 2415 Amsler St., Torrance, Calif., 25c, 45c, Tel: 213-SPruce 5-6621
See ad in class 40
Decker Corp., Pa., 10c, 15sc
Del Mar Engineering Laboratories, Calif., 10sc
Dewey Corp. (G.C.), N.Y., 10c
Dicon Corp., N.Y., 45c
Dorsett Electronics, Inc., Okla., 10sc
Douglas Aircraft Co., Inc., Calif., 40c
Dresser Electronics/SIE Div., Dresser Industries, Inc., Texas, 40c
Dynamic Air Engineering, Inc., Calif., 45s
Dynamics Corp. of America, N.Y., 50sc
Edgerton, Germeshausen & Grier, Inc., Mass., 40c
Edmund Scientific Co., N.J., 50s
Egan Laboratory, N.Y., 30c
Electro-Mech Engineering Co., Minn., 40c
Electro-Medical Laboratory, Inc., Vt., 15c, 30sc, 35sc, 40c, 45sc
Electrodyne Co., Inc., Mass., 15s, 25s, 30s, 40s, 45s
Electronetics Corp., Fla., 10sc, 25c
Electronic Tube Corp., Pa., 40sc
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 15sc
Ensco, Inc., Utah, 10c, 15sc, 25c, 30c, 40s, 45s
Epsco, Inc., Mass., 15sc, 25sc, 40sc
Epsco Medical, Mass., 10sc, 15sc, 25c, 30c, 35c, 40c
Espey Mfg. & Electronics Corp., N.Y., 5c, 45c
Essential Electronics Corp., Ohio, 25c, 30c, 40c
Exact Electronics, Inc., Ore., 10c, 45s
Fairbanks, Morse & Co., Electronics Div., N.Y., 20c, 45c
Farrall Instrument Co., Nebr., 10c, 15c, 25c, 45s
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 15c
Field Emission Corp., Ore., 55c
Fisher Co., Inc. (Oscar), N.Y., 55s
Fisher Research Laboratory, Inc., Calif., 25c
Gardiner Electronics, Ariz., Sleep-Inducer c
Gates & Co., Inc. (George W.), N.Y., 50sc
General Devices, Inc., P.O. Box 253, Princeton, N.J., 10c, Tel: 609-WAlnut 4-2500
See ad adjacent to Index to Advertisers, back of book
General Electric Co., X-Ray Dept., Wis., 25s, 55s
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 10c
General Precision, Inc., GPL Div., N.Y., Pupillographs s
Gilford Instrument Laboratories, Inc., Ohio, 10 Spirometers c, 15 Pressure-Recorders & Tachometers s
Good Electronic Corp., Fla., 25sc
Grason-Stadler Co., Inc., Mass., 5s, 10s
Gulton Industries, Inc., N.J., 10sc
Hallikainen Instruments, Calif., 15s
Harshaw Chemical Co., Crystal Div., Ohio, 55c
Heath Co., Subsid. of Daystrom, Inc., Mich., 40s
Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 40s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28
Hickok Electrical Instrument Co., Ohio, 40sc
High Voltage Engineering Corp., Mass., 55c
Hitachi New York, Ltd., N.Y., 55c
Horwitron Electro-Medical Co., Pa., 45s
Hughes Aircraft Co., Nuclear Electronics Laboratory, Calif., 45sc, 55sc
Hughes Research Div. (J. Willis), Miss., 50c
Inconix, Inc., Calif., Tachistoscopes c
Industrial Control Co., N.Y., 45sc
Industrial Development Laboratories, Inc., N.J., 15s
Interelectronics Corp., 2432 Grand Concourse, New York 58, N.Y., 5sc, Tel: 212-LUdlow 4-6200
See ads in classes 34, 69
International Rectifier Corp., Dallons Laboratories, Inc. (Subsid.), Calif., 10s, 15sc, 20sc, 25sc, 35sc, 40sc, 45sc, 50sc
Invengineering, Inc., N.J., 10 Recording Equip. sc, 15c, 25c, 30c, 35c, 45c, 55c
Iwasaki Communication Apparatus Co., Ltd., Japan, 5c
Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 10c, 45c, 50c
Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 5c, Tel: 516-RAvenswood 9-7580
See ad in class 89
Kurtston Electronics, N.Y., 20c
Lab-Tronics, Inc., 3656 N. Lincoln Ave., Chicago 13, Ill., 45s, Tel: 312-GRaceland 7-7900
See ad in class 62
Labko Scientific, Inc., Okla., 15c, 25c, 30c
Land-Air, Inc., Ill., 55sc
Lear, Inc., Calif., 10c
Lehigh Valley Electronics Engineering & Mfg., Inc., Pa., 45s
Lincoln Research Laboratory, Nebr., 10c
Ling Temco Vought, Inc., Texas, 5c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c
Lionel Corp., N.J., 40c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 10sc, 15c, 25sc, 30sc, 35sc, 55c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., Md., 55s
Lockheed Electronics Co., N.J., 10c
Lome Electronics, Inc., Texas, 10sc
Machlett Laboratories, Inc., Subsid. of Raytheon Co., 1063 Hope Street, Springdale, Conn., 55s, Tel: 203-FIreside 8-7511
See ad in class 86
MacKay Research Laboratories, Ariz., 50c
Maico Electronics, Inc., 21 N. Third St., Minneapolis 1, Minn., 5sc, Electronic Stethoscopes sc, Tel: 612-FEderal 9-7041
See ad in class 70
Mayberry Electronics Co., Calif., 10c
McElroy Electronics Corp., Mass., 55c
Medistor Instrument Co., Wash., 15sc, 25s, 30s, 35s, 40s
Medtronic, Inc., Minn., 10c, 15s, 40s, 45s, Cauterizing c
Melpar, Inc., Va., 15c, 25c
Menlo Research Laboratory, Calif., 50sc
Mesur-Matic Electronics Corp., N.H., 10c
Metaplast Co., Inc., N.Y., 15c, 25c
Mikros, Inc., Ore., 15s
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 10c, 15s, 25s, 30s, 35c
Mitchell Radiation Products Corp., Pa., 55s
Mittelmann Engineering (Eugene), Ill., 20c, 25c, 45c
Mnemotron Corp., 49 S. Main St., Pearl River, N.Y., 10s, 15s, 25s, 30s, 35s, Tel: 914-PEarl River 5-4015
See ad in class 9
Model Engineering & Mfg. Corp., Ind., 25c, 40c
Mooradian High Frequency Laboratories, N.J., 15s, 20s, 45s
Multitone Electronics, Ltd., Canada, 15s, 45s

Directory I. Complete Equipment

5. Bio-Medical Equipment.

Munzig International, Inc., Calif., 25s, 30s
Nash & Thompson, Ltd., (Messrs.), England, 40s
Natel Engineering Co., Calif., 10c
National Aeronautical Corp., Pa., 10s, 15s, 25s, 30s, 35s, 40s, 45s
Needco Cooling Semiconductors, Ltd., Canada, 45sc
New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy., Somerville 43, Mass., 5c, 15c, 45c, Tel: 617-625-6100
See ad in class 84
Nichols & Clark, Inc., Mass., 5s
Offner Electronics, Inc., Ill., 30s
Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 45c, Tel: 914-DEerfield 7-6132
See ad in class 43
Otarion Listener Corp., N.Y., 5sc
Par Products Corp., Calif., 15sc, 25sc
Pastoriza Electronics, Inc., Mass., 25c
Perkin-Elmer Corp., Conn., 50s
Philbrick Researches, Inc. (George A.), Mass., 40s
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 40s, 55sc
Philips Electronics Industries, Ltd., Canada, 15s, 20s, 25s, 40s, 50s, 55s, Audio-Analgesia s
Pick Enterprises, Calif., 55c
Plectron Corp., Nebr., 45s
Polytronic Research, Inc., Md., 40c
Process & Instruments Corp., N.Y., 35c, 45c
Q-Line Mfg. Corp., N.Y., 55sc
Qualitone Co., Inc., Minn., 5s
R-K Laboratories Co., N.Y., 5c, 40c
Radar Engineers, Wash., 45sc
Radio Corp. of America, Defense Electronic Products, N.J., 40s
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 5c, 15c
Railway Communications, Inc., Mo., 40s
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 40s
Reed & Reese, Inc., Calif., 15c
Reeves Instrument Corp., Farmingdale Div., N.J., 15sc, 30sc, 45sc, 50sc
Sage Instruments, Inc., N.Y., 10sc, 15 Pumps sc, 45c
Sampson Chemical & Pigment Corp., Ill., 50sc, 55c
Sanborn Co., 175 Wyman St., Waltham 54, Mass., 10s, 25s, 40s, Tel: 617-TWinbrook 4-6300
See ad on pages 70-71
Santa Barbara Research Center, Subsid. of Hughes Aircraft Co., Calif., 10c
Schaevitz Engineering, N.J., 10sc, 40c, 45sc
Schwarzer Co., 46 Salmi Rd., Framingham, Mass., 15sc, 25sc, 30sc, 35sc, 40sc, Tel: 617-TRinity 2-1830
See ads in classes 5, 23, 28
Shannon Luminous Materials Co., Calif., 50s
Siemens New York, Inc., N.Y., 55s
Sierra Research Corp., N.Y., 10c
Solartron Electronic Group, Ltd., England, 10sc, 15c, 40s
Sonex, Inc., 20 E. Herman St., Philadelphia 44, Pa., 10c, Tel: 215-VIctor 3-6400
See ad in class 34
Sonotone Corp., N.Y., 5sc
Spectra Electronics Corp., N.Y., 50c
Spectronics Corp., N.Y., 50sc
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 5c
Standard Electronics Research Corp., N.J., 45c
Starling Corp., Calif., 5c, 10s, 15s, 25s, 30s, 40s, 50s
Sterling Instrument Div., Designatronics, Inc., N.Y., 40sc
Stocker & Yale, Inc., Mass., 50s
Stoelting Co. (C. H.), Ill., 25c, 30c, 35c
Strand Engineering Co., Mich., 35c
Straza Electronics, Div. of Straza Industries, Calif., 10c
Summers & Mills, Inc., Texas, 45c
Sylvania Electric Products Inc., Lighting Products Div., Mass., 50s
TRG, Inc. (Technical Research Group), N.Y., 20sc, 45c, 50c, 55c
Taber Instrument Corp., N.Y., 25s
Teca Corp., N.Y., 35s, 40s, 45s
Technisonic Studios, Inc., Mo., 5 Test Recordings sc
Tektronix, Inc., Ore., 40s
Telephone Dynamics Corp., N.Y., 15s
Tensor Electric Development Co., Inc., N.Y., 5c
Therm, Inc., N.Y., 10c
Thomas Instrument Co., N.Y., 55s
Thompson, Ltd., (J. Langham), England, Pneumotachographs sc
Thompson Ramo Wooldridge Inc., STL Products Div. of Space Technology Laboratories, Calif., 55c
Thompson Ramo Wooldridge Inc., Tapco Div., Ohio, 10c
Tokyo Shibaura Electric Co., Ltd., Japan, 5s, 10s, 25s, 30s, 40s, 45s, 55s
Topper Mfg. Co., Inc., N.Y., 10c, 30c
Tracerlab Keleket, Mass., 15s, 55 Image Amplifiers s
Transistor Applications, Inc., Mass., 5c, 15c, 45c
Transistor Specialties, Inc., N.Y., 5c
Trott Electronics, Inc., N.Y., 45c
Ultra-Violet Products, Inc., Calif., 50s
Unilectron, Inc., 129 Binney St., Cambridge 42, Mass., 10c, Tel: 617-TRowbridge 6-6400
See ad in class 40
U.S. Recording Co., D.C., 5sc
Varian Associates, Instrument Div., Calif., 55s
Vector Mfg. Co., Inc., Pa., 10sc, 15sc
Veeder-Root, Inc., Conn., 55c
Versa-Tronics, Ill., 45sc
Waterman Products Co., Inc., 2445 Emerald St., Philadelphia 25, Pa., 40sc, Tel: 215-GArfield 6-8600
See ad in class 23
Western Coil & Electrical Co., Wis., 20sc, 50c
Wheaton Engineering Div., Hurletron, Inc., Ill., 20s, 45s
Whitehall Electronics Corp., Minn., 10c, 15c, 40c
Yellow Springs Instrument Co., Inc., Ohio, 15sc
Zimney Corp., Calif., 10c

SCHWARZER
Recorders for Medicine



Tailored for high frequency & physiological measurements

- Physiopolygraphs, 2 to 16 channels
- EEG, 4 to 16 channels, more channels on request
- Unique Direct-Writer specially designed for phono cardiography, low & high frequencies
- Combined Recorders in various sizes

The SCHWARZER Recorder: High frequency, rectilinear-dry, and economical!

SCHWARZER Company
46 Salmi Road, Framingham, Mass.
Write direct for location of nearest Branch Office or Representative.

For details, circle #125 on Reader Service Card

Bolometers:
See class 37

6. Bridges.

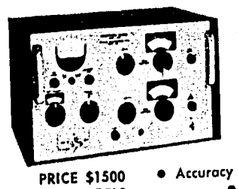
5. Capacitance
10. Impedance
15. Inductance
20. Resistance

Alford Mfg. Co., 299 Atlantic Ave., Boston 10, Mass., 10s, Tel: 617-HAncock 6-2150
See ad in class 66
All American Engineering Co., Commercial Products Div., Del., 10s
Allegany Instrument Co., Div. of Textron Electronics, Inc., Md., 20s
Applied Control Corp., N.J., 5c, 10c, 15c, 20c
Applied Technology, Inc., Calif., 10s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

INSTRUMENTS FOR LABORATORY and PRODUCTION

WIDE RANGE PRECISION
INDUCTANCE BRIDGES



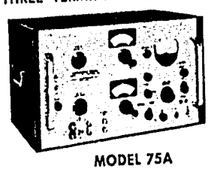
63A
- 1Kc to 100Kc internal osc-det.
- .002 μh to 1.1 h
- .002 to 110K ohm series res.

63B
- 0.4Kc to 20Kc internal osc-det.
- 0.02 μh to 11 h
- 0.002 to 110K ohm series res.

63C
- 5Kc to 500Kc internal osc-det.
- 0.0002 μh to 110 mh
- 0.0002 to 11K ohm series res.

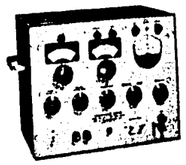
PRICE $1500 ALL MODELS
- Accuracy to 0.25%
- Resolution to 0.01%
- No false or sliding null

THREE TERMINAL **CAPACITANCE BRIDGE** FOR 1 MC USE



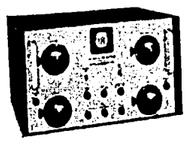
MODEL 75A
PRICE $990
- .0002 to 1000 μμf capacitance
- Accuracy to 0.25%
- Resolution to 0.01%
- .01 to 1000 μmhos conductance
- 1000 ohms to 100 megohms resistance
- Self contained 1 MC osc-det.
- Built-in DC bias for semiconductor testing available

THREE TERMINAL
CAPACITANCE BRIDGE
FOR 100 KC USE



MODEL 74C
PRICE $935
- .0002 to 11,000 μμf capacitance
- Accuracy to 0.25%
- Resolution to 0.01%
- .001 to 1000 μmhos conductance
- 1000 ohms to 100 megohms resistance
- Self-contained 100KC osc-det
- Built-in DC bias for semiconductor testing available

TUNED AC NULL DETECTOR



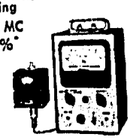
MODEL 51A
PRICE $1900
- Useful as a detector for low frequency impedance bridges Balance can be observed on either built in CRT or external meter
- 20 cycles to 200 KC tuning range
- 10 μv sensitivity
- 1 megohm shunted by 100 μμf input
- Discrimination to 40 db against 2nd harmonic
- Phase sensitive

RF DISTORTION METER & VOLTMETER

MODEL 85B & C
PRICE $740
- 1-100 MC:85B
- 0.1-6 MC:85C
- Sensitivity: 60 db below 1 v
- Accuracy: ±2 db
- RF Voltmeter: Same as 91C

UHF GRID DIP METER
- Highest sensitivity to L & C coupling
- 300 to 1000 MC
- Accuracy: 2%

MODEL 101B
PRICE $275



NEW **SENSITIVE R F VOLTMETER**
MODEL 91D

- 1.2KC — 1200MC Frequency Range
- 300μv — 3v Range
- Linear DC Output
- High Impedance Probe Supplied

STILL IN PRODUCTION
MODEL 91C PRICE $395
- 10KC — 600MC Frequency Range
- 1 Mv — 3v Range

MODEL 91CA Price $495
- 300μv — 3v Range

SENSITIVE DC NULL DETECTOR
FOR MAXIMUM READOUT ON WHEATSTONE BRIDGES

- 1 μv to 100 v sensitivity
- Input: 10 megohms constant
- Floating input
- Amplifier Gain: 100 db

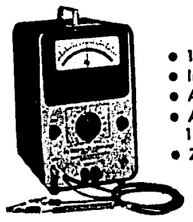
MODEL 56A
PRICE $395

SENSITIVE DC METER
ULTRA SENSITIVITY IN VOLTAGE & CURRENT MEASUREMENTS

- 1 μv to 1000 v in 17 ranges
- 0.1 μμa to 1 a in 25 ranges
- Input: 10 megohms constant
- Floating input
- Amplifier Gain: 100 db

MODEL 95A
PRICE $495

DC VOLTMETER



- 10 μv to 1000 v in 14 ranges
- Input: varies 10-100 megohms
- Amplifier Gain: 70 db
- Amplifier Output: ±0.5 ma into 1500 ohms
- Zero center meter eliminates polarity switch

MODEL 97A
PRICE $325

DIFFERENTIAL DC VOLTMETER

- 10 μv to 1000 v in 14 ranges
- Input: varies 10-50 megohms
- DC common mode rejection = 80 db
- Critically balanced attenuators provide true differential measurements

MODEL 98A
PRICE $395

HERE ARE OUR REPRESENTATIVES

NEW ENGLAND: George Gregory Assoc., West Newton, Mass. • **CONNECTICUT:** George Gregory Assocs., Chesshire, Conn. • **W. NEW YORK STATE:** S. B. M. Assoc., Rochester, N. Y. • **E. NEW YORK STATE:** SBM Assocs., Albany, N. Y. • **N. J., N. Y. C., L.I., WESTCHESTER:** N. L. R. Assoc., W. Orange, N.J. • **E. PENNA.:** NLR Associates, Phila, Penn. • **DEL., MD., WASH., D.C.:** C. F. Paddock, Silver Spring, Md. • **SOUTH EAST:** J. L. Highsmith & Co., Charlotte, N. C. • **MICHIGAN:** Dayton Associates, Detroit, Mich. • **W. PENNA., OHIO, W. VA.:** Dayton Assoc., Dayton, O. • **ILL., INDIANA:** Kenneth W. Meyers Co., Chicago 31, Ill. • **IOWA, WIS., MINN.:** Arthur Engineering Sales Co., Milwaukee, Wisc. • **TEXAS, OKLA., ARK., LA.:** Alrep Engineering Co., Dallas, Tex. • **COL., UTAH, N. M.:** Parrish Electronics, Denver, Col. • **WASH., OREGON E. IDAHO:** Hawthorne Electronics, Seattle, Washington • **N. CALIF.:** J. F. O'Halloran & Assocs., Palo Alto, Calif. • **SO. CALIF., ARIZ., NEV.:** J. F. O'Halloran & Assoc., N. Hollywood, Calif. • **CANADA:** Mel Sales Ltd., Toronto, Canada • **EXPORT:** A. V. Marano & Co., N. Y. C.

Boonton ELECTRONICS Corp.
Morris Plains, N. J.
Phone: JEfferson 9-4210

For details, circle #126 on Reader Service Card

Directory I. Complete Equipment

6. Bridges.

Associated Research, Inc., 3792 W. Belmont Ave., Chicago 18, Ill., 5c, 10c, 20c, Tel: 312-COrnelia 7-4040
See ad in class 41

Avien, Inc., N.Y., 5c, 20c
Avo, Ltd., England, 5s, 10s, 15s, 20s
B & F Instruments, Inc., Pa., 10c, 20c

Barnes Development Co., 213 W. Baltimore Pike, Lansdowne, Pa., 5sc, 10sc, 15c, Tel: 215-MAdison 2-1525
See ad in class 41

Bell, Inc. (F. W.), Ohio, 20s
Bendix Corp., Pioneer-Central Div., Iowa, 5c
Blackburn Electronic Corp., Pa., 20c

Boonton Electronics Corp., 738 Speedwell Ave., Morris Plains, N.J., 5s, 15s, Tel: 201-JEfferson 8-4210
See ad in this class

Boonton Radio Corp., Subsid. of Hewlett-Packard Co., 50 Intervale Rd., Boonton, N.J., 10s, Tel: 201-DEerfield 4-3200
See ad in class 38

Bristol Co., Conn., 20c
Bruel & Kjaer (A/S), Denmark, 5s, 10s 15s, 20s
C.E.S. Electronic Products, Inc., Calif., 5s
Calibration Standards Corp. Subsid. of Royal Industries, Inc., Calif., 20s
Cambridge Instrument Co., N.Y., 5c, 10c, 15c, 20c
Clegg Laboratories, Div. of Clegg, Inc., N.J., 10s
Coils-Electronics Co., Pa., 5s, 15s, 20s
Cole Instrument Co., Calif., 10c, 20c
CompuDyne Corp., Pa., 5c, 10c, 15c, 20c
Conrad-Carson Electronics, Inc., Calif., 20c
Consolidated Resistance Co. of America, Inc., N.Y., 20c
Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 5s
Datascan, Inc., N.J., 5c
Dawe Instruments, Ltd., England, 10s
Decker Corp., Pa., 5s
Dittmore-Freimuth Corp., Wis., 5c, 10c, 15c, 20c
Dmeter Mfg. Co., Inc., N.Y., 20c
Electronic Development Laboratory, Inc., Ill., 5c, 10c, 15c, 20c
Elliott-Automation, Ltd., England, 5c, 10c, 15c, 20c
Epic, Inc., N.Y., 5s, 20s

Eppley Laboratory, Inc., 15 Sheffield Ave., Newport, R.I., 20c, Tel: 401-VIking 7-1020
See ad in class 17

FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 10s, Tel: 212-RAvenswood 1-9000
See ad in class 37

Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 10c, 15c, 20c
Fluke Mfg. Co., Inc. (John), Wash., 10s

Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 10s, 15s, Tel: 212-EVergreen 6-1300
See ad in class 84

General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 5c, 10c, 15c, 20c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c
General Instrument Corp., Harris ASW Div., Conn., 10s
General Microwave Corp., N.Y., 10c

General Radio Co., 22 Baker Ave., West Concord, Mass., 5s, 10s, 15s, 20s, Tel: 617-EMerson 9-4400
See ad on Cover 4

Gertsch Products, Inc., Calif., 10s
Gray Instrument Co., Pa., 20sc

Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 20c, Tel: 516-WElls 8-9500
See ad in class 77

Guildline Instruments, Ltd., Canada, 20
Thermometer c
Harrison Electrosonics, Inc. (B. M.), Mass., 20c
Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 5s, 15s, 20s
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 10s, 20s

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 10s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28

Indikon Co., Inc., Mass., 5sc
Industrial Control Co., N.Y., 5sc
Industrial Development Laboratories, Inc., N.J., 5s, 20s
Industrial Instruments, Inc., N.J., 5s, 10s, 15s, 20s

Industrial Test Equipment Co., 55 E. 11th St., New York 3, N.Y., 5s, 10s, 15s, 20s, Tel: 212-GRamercy 3-4684
See ad in class 69

Industrial Transformer Corp., N.J., 15c
Inland Electronics Corp., Ill., 10s
Instrument Systems Corp., N.Y., 10s, 20s
Jackson Electrical Instrument Co., Ohio, 5s
Julie Research Laboratories, Inc., N.Y., 20s
Kahn & Co., Inc., Conn., 20c
Keithley Instruments, Inc., Ohio, 20s
Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 5s, 20s
Knopp, Inc., Calif., 15c
Kurtston Electronics, N.Y., 20sc
Leeds & Northrup Co., Pa., 5s, 10s, 15s, 20s
Ling Temco Vought, Inc., Texas, 5c, 10c, 15c, 20c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c, 10c, 15c, 20c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., Md., 5c, 10c, 15c, 20c
MacLeod & Hanopol, Inc., Mass., 5sc
Magnetico, Inc., N.Y., 15s
Malaker Laboratories, N.J., 15sc

Marconi Instruments, Ltd., 111 Cedar Lane, Englewood, N.J., 5s, 10s, 15s, 20s, Tel: 201-LOwell 7-0607
See ad on pages 66-67

Marstan Electronics Corp., N.Y., 20s
Matsushita Communication Industrial Co., Ltd., Japan, 20c
Measurements, McGraw-Edison Div., N.J., 5c, 10c, 15c, 20c
Metrologie, Compagnie Generale de, France, 10s

Metronix, Inc., Subsid. of Assembly Products, Inc., 75 Wilson Mills Rd., Chesterland, Ohio, 5s, 15s, 20s, Tel: 216-HAmilton 3-4440
See ad in class 40

Mid-Eastern Electronics, Inc., N.J., 20sc

Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 10s, Tel: 617-DAvenport 4-4108
See ad in class 51

Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 20s
Model Engineering & Mfg. Corp., Ind., 5c, 10c, 20c
Morgan Electronics, Mass., 5s, 15s
Muirhead & Co., Ltd., England, 5s, 10s, 15s, 20s
Muirhead Instruments, Inc., N.Y., 5s, 10s, 15s, 20s
Nash & Thompson, Ltd. (Messrs.), England, 5s, 20s
Neptune Electronics Co., N.Y., 20c
Osborne Electronics Corp., Ore., 5s
Philips Electronics Industries, Ltd., Canada, 5s, 20s

Physics Research Laboratories, Inc., Dept. SA-1, P.O. Box 555, Hempstead, L.I., N.Y., 5c, 10s, 20sc, Tel: 516-IVanhoe 3-8299
See ad in class 40

Polytronics Co., Canada, 20c
RDF Corp., N.H., 20sc
Radiometer, Denmark, 5s, 10s, 15s, 20s
Rixon Electronics, Inc., Md., 5c, 10c, 15c, 20c
Rodale Electronics, Inc., N.Y., 5c, 10c, 20c

Rohde & Schwarz, P.O. Box 275, 111 Lexington Ave., Passaic, N.J., 5s, 10s, 15s, 20s, Tel: 201-PRescott 3-8010
See ad in class 38

Rosemount Engineering Co., Minn., 20c

Sensitive Research Instrument Corp., 310-316 Main St., New Rochelle, N.Y., 20s, Tel: 914-BEverly 5-2300
See ad in class 31

Servomex Controls, Ltd., England, 20s
Shallcross Mfg. Co., N.C., 20sc
Siemens New York, Inc., N.Y., 5s, 10s, 15s, 20s
Simmonds Precision Products, N.Y., 5sc
Solartron, Inc., Calif., 5s, 15s, 20s
Somerset Radiation Laboratory, Inc., N.J., 20s
Sprague Electric Co., Mass., 5s
Standard Telephones & Cables, Ltd., England, 5sc, 10sc, 15sc, 20sc

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226

6. Bridges.

Sticht Co., Inc. (Herman H.), 27 Park Place, New York 7, N.Y., 20s, Tel: 212-REctor 2-8163
See ad in class 61

Sunshine Scientific Instrument, Pa., 5sc, 10sc, 15sc, 20sc

Superior Instruments Co., N.Y., 5s, 20s

Taffet Electronics, Inc., N.Y., 5c, 10c, 15c, 20c

Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 5c, 10c, 20c, Tel: 201-WIndsor 4-2221
See ad in class 80

Telectro Industries Corp., N.Y., 5c

Transformers, Inc., N.Y., 10c, 15c

Ultronix, Inc., Calif., 20c

United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 5s, 10s, 15s, 20s, Tel: 212-BEekman 3-8870
See ads in classes 74, 104

Varian Associates, Tube Div., Calif., 10s

Wayne Kerr Corp., Pa., 5s, 10s, 15s, 20s

Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., 10c, Tel: 301-LOckwood 4-0121
See ad in class 45

Westmore, Inc., N.J., 5sc

Wilcox Electric Co., Inc., Mo., 15sc

Winslow Co., Inc., N.J., 10s, 20sc

Broadcast receivers:
See class 26

Broadcast transmitters:
See class 42

Calculators:
See class 8

Calibrators, instrument:
See class 40

Calibrators, telemetering:
See class 34

Calibrators, television:
See class 39

Calibrators, time & voltage:
See class 23

Calorimeters:
See class 37

Camera recording equipment:
See class 14

Cameras:
See class 14

Cameras, oscilloscope:
See class 23

Cameras, television:
See class 32

7. Carrier Current Equipment.

5. Complete terminal equipment **10. Repeat & relay equipment**

Adler Electronics, Inc., N.Y., 5c, 10c

Aircraft & Electronic Specialties, Ind., 5c

Allegri-Tech, Inc., N.J., 5c

American Elite, Inc. (Telefunken), N.Y., 5s, 10s

Browning Laboratories, Inc., N.H., 10s

Budelman Electronics Corp., 375 Fairfield Ave., Stamford, Conn., 5s, 10s, Tel: 203-FIreside 8-9231
See ad on page 96

Burndy Corp., Omaton Div., Richards Ave., Norwalk, Conn., 5sc, Tel: 203-TEmple 8-1169
See ad in class 52

Canadian Westinghouse Co., Ltd., Canada, 5c, 10c

Connecticut Telephone & Electric Corp. of Meriden, Conn., 5c, 10c

Continental Electronics Corp., N.Y., 5c, 10c

Control Data Corp., Minn., 5sc

Control Data Corp., Control Corporation (Subsid.), Minn., 5c, 10c

Dicon Corp., N.Y., 5c, 10c

Electric Wave Filters, Inc., Puerto Rico, 5c, 10c

Elliott-Automation, Ltd., England, 10c

Ericsson Corporation, Subsid. of L. M. Ericsson Telephone Co. (Stockholm), 100 Park Ave., New York 17, N.Y., 5c, Tel: 212-MUrray Hill 5-4030
See ad in class 86

Etelco, Ltd., England, 5sc, 10sc

Fisher Berkeley Corp., Calif., 5s

Fuji Communication Apparatus Mfg. Co., Ltd., N.Y., 5c, 10c

General Dynamics/Electronics, N.Y., 5sc, 10sc

General Electric Co., Apparatus Sales Dept., N.Y., 5c, 10c

General Electric Co., Communication Products Dept., Va., 5sc, 10sc

General Electric Co. Ltd. of England, Telecommunications Group, England, 5c, 10c

General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c

General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 5sc, 10sc

Goodyear Aircraft Corp., Arizona Div., Ariz., 10c

Hallamore Electronics Div., Siegler Corp., Calif., 10s

Harmon Electronics Co., Mo., 5sc, 10sc

Hitachi New York, Ltd., N.Y., 5c, 10c

International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 10 Video c

Jones Electronics (Hiram), Calif., 5s

Lenkurt Electric Co., Inc., Calif., 5sc, 10sc

Ling Temco Vought, Inc., Texas, 5c

Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid.), Calif., 5c

Lionel Corp., N.J., 5c, 10c

Lynch Communication Systems, Inc., Calif., 5c, 10c

Madigan Electronic Corp., N.Y., 5c, 10c

Marine View Electronics, Inc., N.Y., 5c

McElroy Electronics Corp., Mass., 5c, 10c

Metropolitan Telecommunications Corp., N.Y., 5c, 10c

Moore Associates, Inc., Calif., 10s

National Tel-Tronics Corp., 52 Saint Casimir Ave., Yonkers, N.Y., 5c, Tel: 914-YOnkers 8-6400
See ad in class 62

Neptune Electronics Co., N.Y., 10c

Nippon Electric Co., Ltd., Japan, 5c, 10c

Northern Radio Co., Inc., 147 W. 22nd St., New York 11, N.Y., 5s, Tel: 212-WAtkins 9-9117
See ad on pages 58-61

Otis Elevator Co., Defense & Industrial Div., N.Y., 5c, 10c

Philco Corp., Pa., 5s, 10s

Philco Corp., Government & Industrial Group, Pa., 5s, 10s

Philips Electronics Industries, Ltd., Canada, 5c, 10c

Pyro-Electric, Inc., Ind., 40c

Radio Engineering Products, Ltd., Canada, 5sc, 10sc

Remington Rand Univac, Div. of Sperry Rand Corp., Minn., 5c

Rimak Electronics, Inc., Calif., 5sc

Siemens New York, Inc., N.Y., 5s, 10s

Space Electronics Corp., Calif., 5c

Specialty Electronics Development Corp., N.Y., 5c, 10c

Spencer-Kennedy Laboratories, Inc., Mass., 10c

Transport Products Corp., Ky., 10c

Trepac Corp. of America, N.J., 10c

Warren Mfg. Co., Inc., Mass., 5c, 10c

Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 5sc, 10sc, Tel: 212-JUdson 2-3030
See ad on page 224

Wunderlich Radio Co., N.Y., 10c

Centrifuges:
See class 99

Chambers, environmental test:
See class 36

Chambers, ionization:
See class 22

Checkout equipment:
See class 2

Chemical analysis equipment:
See class 40

Circuits, computer:
See class 50

Cleaning equipment:
See class 99

Closed-circuit television equipment:
See classes 26, 32, & 42

Commutators, telemetering:
See class 34

Directory I. Complete Equipment

Comparators, Go/no-go:
See class 4

Computer circuits:
See class 50

Computer equipment:
See classes 8, 9, 10, & 50

8. Computers.

5. Air navigation **25. Digital, general purpose**
10. Analog
15. Automatic central data systems **30. Digital, special purpose**
20. Calculators, electronic

ACF Electronics Div., ACF Industries, Inc., Md., 5c, 10c

Abacus, Inc., Calif., 25sc, 30c

Acoustica Associates, Inc., Calif., 30c

Adcole Corp., Mass., 30c

Admiral Corp., Ill., 30c

Advance Components, Ltd., England, 20s

Advanced Research Associates, Md., 15c, 30c

Advancement Devices, Inc., N.Y., 10sc, 25c

Aeroflex Laboratories, Inc., N.Y., 10 Integrators c

Aeronca Mfg. Corp., Aerospace Div., Md., 5c, 15c, 25c, 30c

Aeronutronic, Div. of Ford Motor Co., Calif., 5c, 15c, 30c

Aircraft Armaments, Inc., Md., 10c, 30c

Allegany Instrument Co., Div. of Textron Electronics, Inc., Md., 10s, 25s

Alwac Computer Div., El-Tronics, Inc., Calif., 25s, 30c

American Bosch Arma Corp., N.Y., 5 Marine c, 10c, 30c

American Brake Shoe Co., Raymond Atchley Div., Calif., 10sc

American Communications Corp., N.Y., 10c, 15c, 20c, 25c, 30c

American Electronics, Inc., Calif., 10c

American Hydromath Corp., N.Y., 10c

American Machine & Foundry Co., Government Products Group, N.Y., 10s, 15s, 30s

American Machine & Foundry Co., Greenwich Engineering Div., Conn., 30c

Andrea Radio Corp., N.Y., 5c

Angler Industries, Inc., N.J., 25c, 30c

Applied Control Corp., N.J., 30c

Applied Dynamics, Inc., Mich., 10sc

Applied Electronics Corp. of New Jersey, P.O. Box 43, Metuchen, N.J., 25sc, 30sc, Tel: 201-LIberty 9-9200
See ad in class 34

Armstrong Whitworth/Brush, Falcon Works, England, 20c

Associated Electrical Industries (Rugby), Ltd., England, 5c, 10c, 15c, 30c

Astro-Space Laboratories, Inc., Ala., 30c

Astronautics Corp. of America, Wis., 5c, 10c, 15c

Atlas Precision Products Co., Pa., 5c, 10c

8. Computers.

Auerbach Electronics Corp., Pa., 5c, 10c, 15c, 20c, 25c, 30c

Austin Electronics, Div. of Austin Co., N.Y., 10c, 30c

Automation Dynamics Corp., N.J., 15s

Automation, Inc., Mass., 30c

Automation Management, Inc., Mass., 10sc

Automation Research & Design Associates, N.J., 10c, 30c

Automation Service Co., Calif., 10sc

Autometric Corp., N.Y., 10c, 15c, 30c

Autonetics, Div. of North American Aviation, Inc., Calif., 5c, 25c, 30c

Avionics Research Products Corp., Calif., 10sc

Bailey Meter Co., Ohio, 10c, 15c

Beckman Instruments, Inc., Berkeley Div., Calif., 10s

Bell Aerosystems Co., Avionics Div., N.Y., 5c, 10c, 30c

Bell Helicopter Co., Electronics Dept., Texas, 5c, 15c

Belock Instrument Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c

Bendix Corp., Bendix Computer Div., Calif., 25s

Bendix Corp., Bendix Radio Div., Avionic Products Dept., Md., 5s

Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 5sc

Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J., 5c, 10c, 15c, 25c, 30c, Tel: 201-ATlas 8-2000
See ad on pages 46-47

Boonshaft & Fuchs, Inc., Pa., 10s, 20c

Briggs Associates, Inc., Pa., 20s

Bruno-New York Industries Corp., N.Y., 10c

Budd Electronics, Inc., N.Y., 5c, 15c, 30c

Burroughs Corp., Mich., 5c, 20s, 25s, 30c

Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., 5c, 10c, 15c, 20c, 25c, 30c

Burroughs Corp., Electro Data Div., Calif., 15s, 20s, 25s, 30s

Calbest Electronics, Calif., 25c, 30c

California Computer Products, Inc., Calif., 25c, 30c

Canadian Applied Research, Ltd., Canada, 5sc

Canadian Aviation Electronics, Ltd., Canada, 30c

Canadian Westinghouse Co., Ltd., Canada, 10c

Central Dynamics, Ltd., Canada, 10sc, 15sc, 20sc

Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., Texas, 5c, 10c, 30c

Chicago Aerial Industries, Inc., Ill., 5c, 10c

Clary Corp., Calif., 25s, 30s

Clifton Precision Products Co., Inc., Pa., 5c, 10c

Collins Radio Co., Iowa, 15c

Colorado Research Corp., Colo., 15c

CompuDyne Corp., Mass., 10c

CompuDyne Corp., Pa., 10c

Computer Control Co., Inc., Eastern Div., 983 Concord St., Framingham, Mass., 25c, 30c, Tel: 617-TRinity 5-6185
See ad in this class

Computer Control Co., Inc., Western Div., 2251 Barry Ave., Los Angeles 64, Calif., 25c, 30c, Tel: 213-GRanite 8-0481
See ad in this class

Computer Engineering Associates, Div. of Susquehanna Sciences, Inc., Calif., 10c

Computer Sciences, Inc., N.Y., 5c, 10c, 30c

Computer Systems, Inc., N.J., 10sc, 15c, 25c

Computer Techniques, Inc., N.Y., 5c, 15c, 20c, 30c

Computronics, Inc., Colo., 10c

Connecticut Technical Corp., Conn., 30c

Consolidated Avionics Corp., N.Y., 15c, 30c

Consolidated Controls Corp., N.M., 30c

Continental Merchandise Co., Transistor Products Div., N.Y., 25c, 30c

Continental Technical Service, Inc., Ohio, 15c

Control Data Corp., Minn., 15c, 25sc

SYSTRON—DONNER CORPORATION
Digital/Analog Systems & Instruments

Model 3500 Tiniest Complete Computer—weighs 28 lbs! with 10 stabilized or unstabilized amplifiers, 5 potentiometers, one or two problem boards.

Donner General Purpose Analog Computers are widely known for excellent performance and moderate cost. Donner offers a remarkably full line of amplifiers, computer accessories, and related instrumentation test equipment, of the most modern design.

FOR PROMPT, INFORMED SERVICE IN THE NORTHEAST ..... CALL
BURLINGAME ASSOCIATES
MOUNT VERNON, N.Y. • MOunt Vernon 4-7530
WALTHAM .....TWinbrook 4-1955
SYRACUSE .....GRanite 4-7409
PHILADELPHIA .....SHerwood 7-9080
WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400
For details, circle #127 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

For details, circle #128 on Reader Service Card

8. Computers.

Control Data Corp., Cedar Engineering Div., Minn., 30sc
Control Data Corp., Control Corporation (Subsid.), Minn., 15c, 25c
Control Equipment Corp., Mass., 20c, 30c
Control Technology Co., Inc., N.Y., 10c
Cook Electric Co., Cook Technological Center, Ill., 5c
Cubic Corp., Calif., 10c, 30c
Curtiss-Wright Corp., Electronics Div., N.J., 10c, 30c
Curtiss-Wright Corp., Electronics Div., N.M., 30c
Datascan, Inc., N.J., 30c
Daystrom, Inc., Control Systems Div., Calif., 15c, 25c, 30c
Daystrom, Inc., Military Electronics Div., Pa., 10c, 15c, 30c
Dayton Aviation Radio & Equipment Corp., Ohio, 5s
Developmental Electronics Corp., Calif., 10sc, 30sc
Dewey Corp. (G. C.), N.Y., 25c, 30c
Di/An Controls, Inc., Mass., 30c
Dicon Corp., N.Y., 5c, 10c, 20c, 25c
Digital Equipment Corp., Mass., 25c, 30c
Djeco, Div. of Djordjevic Engineering Co., Ill., 10c, 30c
Donner Scientific Co., Calif., 5c, 10sc
Douglas Aircraft Co., Inc., Calif., 5c, 10c, 30c
Drexel Dynamics Corp., Pa., 10c, 15c, 25c, 30c
Dynamics Corp. of America, N.Y., 10sc
Dynatronics, Inc., Fla., 15c, 30c
Dynavia Corp., Va., 5s
Dynex, Inc., N.Y., 30c
E D P Corp., Fla., 30c
E.M.I.-Cossor Electronics, Ltd., Canada, 10c, 30c
Ehrenpreis Engineers (David), N.Y., 30c
Electrac, Inc., Calif., 10c
Electro Logic Corp., Calif., 15c, 20c, 30c
Electro-Mech Engineering Co., Minn., 25c, 30c
Electro Scientific Industries, Inc., Ore., 10s
Electronic Associates, Inc., N.J., 10sc
Electronic Communications, Inc., Fla., 10c, 30c
Electronic Controls, Inc., Conn., 5c, 10c, 15sc, 20c, 30c
Electronic Engineering Co. of California, Calif., 30c
Electrosolids Corp., Calif., 20s
Elliott-Automation, Ltd., England, 5c, 10c, 15c, 20c, 25c, 30c
Elm Instrument Corp., N.Y., 15sc, 25c, 30c
Embree Electronics Corp., 993 Farmington Ave., West Hartford 7, Conn., 10sc, Tel: 203-ADams 2-5144
See ad in class 43
Emeloid Co., Inc., Subsid. of Addressograph-Multigraph Corp., N.J., 5c
Emerson Electric Mfg. Co., Mo., 10c, 20c, 30c
Ensco, Inc., Utah, 10c
Epsco, Inc., Mass., 15sc, 25sc, 30sc
Etelco, Ltd., England, 30c
Exactel Instrument Co., Calif., 10c, 30c
FMC Corp., Calif., 30c
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 5c, 10c, 15c, 30c
Farrand Controls, Inc., N.Y., 10sc
Ferranti Electric, Inc., N.Y., 25c
Ferranti-Packard Electric, Ltd., Electronics Div., Canada, 15c, 25c, 30c
Flight Research, Inc., Va., 5sc
Ford Instrument Co., N.Y., 5c, 10c, 30c
Foxboro Co., Mass., 10c, 30c
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 25c, 30sc, Tel: 216-SHadyside 9-0700
See ad in class 50
GPS Instrument Co., Inc., Mass., 10sc
Garrett Corp., AiResearch Mfg. Co., Calif., 5c, 10c, 15c, 25c
General Applied Science Laboratories, Inc., Merrick & Stewart Avenues, Westbury, L.I., N.Y., 30c, Tel: 516-EDgewood 3-6960
See ad in class 35
General Automatics, Inc., Calif., 10c, 30c
General Computers, Inc., Calif., 10sc
General Dynamics/Electronics, N.Y., 5c, 10c, 25sc, 30c
General Dynamics/Electronics, Information Technology Div., Calif., 30c
General Electric Co., Apparatus Sales Dept., N.Y., 10c, 25c, 30c
General Electric Co., Computer Dept., Ariz., 25s
General Electric Co., Light Military Electronics Dept., N.Y., 10c, 15c, 25c, 30c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c, 25c, 30c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 5c, 10c, 25c
General Mills, Inc., Minn., 5c, 10c, 15c, 20c, 25c, 30c
General Motors Corp., AC Spark Plug Div., Wis., 5c
General Motors Corp., Delco Radio Div., Ind., 30c
General Precision Equipment Corp., GPE Controls, Inc. (Subsid.), Ill., 20s
General Precision Equipment Corp., Kearfott Semiconductor Corp. (Subsid.), Mass., 25c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc
General Precision, Inc., GPL Div., N.Y., 5s, 15c
General Precision, Inc., Kearfott Div., N.J., 5c, 10c
General Precision, Inc., Librascope Div., Calif., 5c, 10c, 15c, 25sc, 30sc
Giannini Controls Corp., Calif., 10c, 15c, 25c, 30c
Gilfillan Brothers, Inc., Calif., 5c, 10c, 30c
Gilmore Industries, Inc., Ohio, 10c
Goodyear Aircraft Corp., Ohio, 15c
Goodyear Aircraft Corp., Arizona Div., Ariz., 10c, 15c, 30c
Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 5c, Tel: 516-WElls 8-9500
See ad in class 77
Gulton Industries, Inc., N.J., 10c
Hampshire Engineering Co., Mass., 15c, 30c
Harman-Kardon, Inc., 20c, 30s
Harristahl Laboratories, N.Y., 30c

Directory I. Complete Equipment

8. Computers.

Harvey-Wells Electronics, Inc., Mass., 25c, 30c
Haydon Instrument Co., Conn., 30c
Hazeltine Corp., N.Y., 10c, 30c
Heath Co., Subsid. of Daystrom, Inc., Mich., 10s
Hermes Electronics Co., Mass., 30c
Hitachi New York, Ltd., N.Y., 10c, 25c, 30c
Hoffman Electronics Corp., Calif., 5c, 10c
Houston Fearless Corp., Westwood Div., Calif., 15c
Howard Instrument Co., N.J., 15c, 30c
Huyck Systems Co., N.Y., 5c, 10c, 15c
Idaho Maryland Industries, Magnetics Div., Calif., 10sc, 25sc, 30sc
Industrial Control Co., N.Y., 10sc
Information Systems, Inc., Calif., 15c, 25sc, 30c
Instrument Corp. of Florida, Fla., 25c, 30c
Instrument Systems Corp., N.Y., 5c, 10c
Intectron, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 10c, Tel: 617-WOodward 9-9311
See ad on page 163
International Business Machines Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c
International Business Machines Corp., Federal Systems Div., Md., 5c, 10c, 15c, 25c, 30c
International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 5c, 10c, 15c, 30c
Interstate Electronics Corp., Calif., 15c, 30c
Jacobs Instrument Co., Md., 15c, 20c, 25c, 30c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc
Laboratory For Electronics, Inc., Mass., 5c, 10c, 30c
Lear, Inc., Calif., 5sc, 10sc, 30c
Lear, Inc., Instrument Div., Mich., 5sc
Leeds & Northrup Co., Pa., 10c, 15c, 30c
Ling Temco Vought, Inc., Texas, 25c, 30c
Ling Temco Vought, Inc., F F & M Electronics, Inc. (Subsid.), Calif., 25c, 30c
Ling Temco Vought, Inc., Temco Electronics Div., Texas, 25c, 30c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 5c, 10c, 15c, 25c, 30c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., Md., 5c, 10c, 25c, 30c
Litton Industries, Inc., Monroe Calculating Machine Co. (Subsid.), N.J., 20s, 25s
Litton Industries, Inc., Monroe Calculating Machine Co., Electronics Components Div., Calif., 30c
Lockheed Electronics Co., N.J., 5c, 10c, 15c, 30c
Loral Electronics Corp., N.Y., 5c, 10c, 15c, 30c
MacLaren & Co., Inc. (F. B.), N.Y., 10c
MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 30c, Tel: 305-LOgan 4-8518
See ad in class 4
Madigan Electronic Corp., N.Y., 5c, 10c, 15c, 30c
Magnavox Co., Magnavox Research Laboratories, Calif., 30 Magnetic-Card c
Magnetic Amplifiers Div., Siegler Corp., 632 Tinton Ave., New York 55, N.Y., 10c, Tel: 212-CYpress 2-6610
See ad in class 69
Magnetics Research Co., Inc., N.Y., 30c
Marconi's Wireless Telegraph Co., Ltd., N.Y., 5s
Martin Co. (Martin-Marietta Corp.), Md., 15c, 30c
Martin Co., (Martin-Marietta Corp.), Orlando Div., Fla., 5c, 15c, 30c
Matsushita Communication Industrial Co., Ltd., Japan, 10c, 25c
Maurer, Inc. (J. A.), N.Y., 15c, 30c
Mayberry Electronics Co., Calif., 10c
McDonnell Aircraft Corp., Mo., 5c, 10c, 30c
Melpar, Inc., Va., 10c, 30c
Mergenthaler Linotype Co., N.Y., 5c
Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 10sc, 15c, 25c, 30sc, Tel: 305-OXford 1-1220
See ad in class 28
Minneapolis-Honeywell Regulator Co., Electronic Data Processing Div., Mass., 25c
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 5c, 10c, 15c, 25c, 30c
Minneapolis-Honeywell Regulator Co., Special Systems Div., Pa., 10c, 15c, 25c, 30c
Missouri Research Laboratories, Inc., Mo., 5c, 10c
Mnemotron Corp., 49 S. Main St., Pearl River, N.Y., 10s, 30s, Bio-Medical s, Tel: 914-PEarl River 5-4015
See ad in class 9
Model Engineering & Mfg. Corp., Ind., 10c, 30c
Modern Design, Div. of H. C. Schloer, Inc., N.Y., 25c, 30c
Molectronics, Div. of Motec Industries, Calif., 15c, 25c, 30c
Monroe Electronic Laboratories, Inc., N.Y., 10c
Moore Associates, Inc., Calif., 15s
Motorola, Inc., Military Electronics Div., Ariz., 5c, 30c
Nash & Thompson, Ltd. (Messrs.), England, 25s
National Cash Register Co., Ohio, 15s, 20s, 25s, 30s
National Cash Register Co., Electronics Div., Calif., 25s, 30c
National Co., Inc., Mass., 5c, 30c
National Scientific Laboratories, Inc., D.C., 10c, 30c
Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 15c, 20c, 30c, Tel: 215-GLendale 2-6531
See ad in class 10
New York Air Brake Co., Feedback Controls Subsid., Mass., 25c, 30c
Newton Co., Conn., 25c, 30c
Norden Div., United Aircraft Corp., Data Systems Dept., Calif., 15c, 30c
Northern Electronic & Vacuum Industries, Canada, 10s
Northrop Corp., Calif., 5c, 25c, 30c
Olympic Radio & Television, Div. of Siegler Corp., N.Y., 30sc
Oregon Electronic Mfg. Co., Ore., 10c
Ortronix, Inc., Fla., 15c
Oster Mfg. Co. (John), Avionic Div., Wis., 5c
Otis Elevator Co., Defense & Industrial Div., N.Y., 10c, 30c
Packard-Bell Computer Corp., Calif., 25s
Packard-Bell Electronics Corp., Calif., 25c, 30c
Palomar Scientific Corp., Calif., 5c
Pastoriza Electronics, Inc., Mass., 10c, 30c
Pennwood Numechron Co., 7249 Frankstown Ave., Pittsburgh 8, Pa., 25s, 30c, Tel: 412-FRemont 1-4200
See ad in class 11
Performance Measurements Co., Mich., 15c
Philbrick Researches, Inc. (George A.), Mass., 10s
Philco Corp., Pa., 5s, 15s, 25s, 30s
Philco Corp., Government & Industrial Group, Pa., 15s, 25s
Philco Corp., Philco Computer Div., Pa., 25c, 30c
Philips Electronics Industries, Ltd., Canada, 10s
Photronics Corp., N.Y., 5c, 10c, 30c
Power-Tronic Systems, Inc., N.Y., 5c
Precision Mechanisms Corp., N.Y., 10c
RMS Associates, Inc., N.Y., 10c, 30c
Rabinow Engineering Co., Inc., D.C., 30c
Radio Corp. of America, Defense Electronic Products, N.J., 10c, 15c, 25c, 30c
Rainier Co., Inc., N.Y., 10c
Ransom Research, Inc., Calif., 15c, 30c
Redifon, Ltd., England, 10sc, 30sc
Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, N.Y., 5s, 10s
Remington Rand Univac, Div. of Sperry Rand Corp., Minn., 5c, 15sc, 25sc, 30sc
Remington Rand Univac, Div. of Sperry Rand Corp., N.Y., 20s, 25s
Rescon Electronics Corp., Mass., 25c, 30c
Rheem Mfg. Co., Rheem Electronics Div., Calif., 15c, 30c
Rochar Electronique, France, 10s, 15c, 30c
Royal McBee Corp., N.Y., 25s
Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 5sc, 10c, 25c, 30c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

8. Computers.

Schaevitz Engineering, N.J., 5c, 10c, 15c, 20c
Scientific-Atlanta, Inc., Ga., 10 Fourier c
Scientific Development Corp., Mass., 25s, 30s
Scope, Inc., Va., 25c, 30c
Seiscor, Div. of Seismograph Service Corp., Okla., 10c
Servo Corp. of America, N.Y., 5sc, 15c
Servo Development Corp., 2 Willis Ct., Hicksville, L.I., N.Y., 5c, Tel: 516-OVerbrook 1-4343
See ad in class 77
Servomechanisms/Inc., Calif., 5c, 10c, 15c, 30c
Shallcross Mfg. Co., N.C., 10c, 25c, 30c
Siemens New York, Inc., N.Y., 10s, 20s, 25s
Sierra Research Corp., N.Y., 5c, 10c, 30c
Solartron Electronic Group, Ltd., England, 10sc, 25c, 30c
Soroban Engineering, Inc., Fla., 15c, 25c
Space Electronics Corp., Calif., 10c, 15c, 30c
Sperry Rand Corp., Sperry Gyroscope Co. (Div.), N.Y., 5c, 10c, 25c, 30c
Sperry Rand Corp., Sperry Gyroscope Co. of Canada, Ltd. (Subsid.), Canada, 5c, 10c, 30c
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 10c
Sperry Rand Corp., Sperry Utah Co. (Div.), Utah, 10c, 25c, 30c
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 5c
Standard Telephones & Cables, Ltd., England, 25sc, 30sc
Stelma, Inc., Conn., 10c, 15c, 25c, 30c
Strand Engineering Co., Mich., 5c, 30c
Summers & Mills, Inc., Texas, 10c
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 25sc, 30c
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 5c, 15c, 25sc, 30c
TRG, Inc. (Technical Research Group), N.Y., 5sc, 10c, 15c, 30c
Tang Industries, Inc., Mass., 10c
Technical Measurement Corp., Conn., 30s
Technical Products Co., Calif., 10s
Technitrol, Inc., Pa., 25c, 30c
Telechrome Mfg. Corp., N.Y., 25c, 30c
Telecomputing Corp., Calif., 5c, 30c
Teleregister Corp., Conn., 20c, 25c, 30s
Teletype Corp., Ill., 15s
Ten Bosch, Inc. (M.), N.Y., 5c, 15c
Tesla Research Foundation, Utah, 10sc, 30sc
Texas Instruments Incorporated, Semiconductor-Components Div., P.O. Box 5012, 13500 North Central Expressway, Dallas 22, Texas, 30c, Tel: 214-ADams 5-3111
See ad on Cover 3
Thompson Ramo Wooldridge Inc., Tapco Div., Ohio, 5c, 10c, 15c, 20c, 30c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5c, 10c, 15c, 20c, 25c
Tokyo Shibaura Electric Co., Ltd., Japan, 10sc, 15sc, 25s, 30c
Tracerlab Keleket, Mass., 30s
United ElectroDynamics, Inc., Calif., 10c
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 5c, 10c, 15c
Victor Adding Machine Co., Affil. of Comptometer Corp., Ill., 25sc, 30sc
Walkirt Co., Calif., 25c, 30c
Wang Laboratories, Inc., Mass., 30c
Westgate Laboratory, Inc., Ohio, 5c
Westinghouse Electric Corp., Air Arm Div., Md., 5c, 10c, 25c, 30c
Westinghouse Electric Corp., Buffalo Div., Industrial Control Dept., N.Y., 15c, 30c
Westinghouse Electric Corp., Electronics Div., Md., 10c, 15c, 25c, 30c
Westmore, Inc., N.J., 15c
Whitehall Electronics Corp., Minn., 15c, 30c

9. Computer Accessories.

5. Converters, analog to digital
10. Converters, card to tape
15. Converters, digital to analog
20. Converters, tape to card
25. Data reduction equipment
30. Display & readout devices
35. Perforators
40. Printers
45. Programming devices
50. Tape readers
55. Tape recording & playback equipment

ACF Electronics Div., ACF Industries, Inc., Md., 5c, 15c, 30c
AMP, Inc., Pa., 45sc
A R & T Electronics, Inc., Subsid. of Baldwin Piano Co., 1101 McAlmont St., P.O. Box 627, Little Rock, Ark., 5s, Tel: 501-FRanklin 5-6441
See ads in classes 9, 10, 11, 83

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NEW PHOTOELECTRIC ANALOG TO DIGITAL

CONVERTERS

Model 1020 with solid or Model 1021 with hollow shaft, offers 18 bit accuracy equal to 5 seconds of arc. Diam: 9⅞", Length: 4 9/16", Weight 36 lbs.

Write for our FACT SHEET

AR&T ELECTRONICS, INC.
BOX 627 LITTLE ROCK, ARKANSAS

A wholly-owned subsidiary of the Baldwin Piano Company

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9. Computer Accessories.

Abacus, Inc., Calif., 5sc, 10sc, 15sc, 20sc, 25sc, 45c
Acoustica Associates, Inc., Calif., 5c, 15c
Adage, Inc., Mass., 5sc, 15sc, 25sc
Adcole Corp., Mass., 5c, 15c, 25c, 30c, 45c
Admiral Corp., Ill., 30c
Advance Components, Ltd., England, 5s
Advanced Instrument Corp., Calif., 15sc, 35sc, 45sc, 50sc
Advanced Research Associates, Md., 5c, 10c, 15c, 20c, 25c, 45c
Advancement Devices, Inc., N.Y., 45c, 50c
Aeroflex Laboratories, Inc., N.Y., 30c
Aeronca Mfg. Corp., Aerospace Div., Md., 10c, 25sc, 30c
Aeronutronic, Div. of Ford Motor Co., Calif., 30sc, 40sc, 45sc
Aerospace Controls, Calif., 5c
Aircraft Armaments, Inc., Md., 25c, 45c
Airflyte Electronics Co., 537 Ave. A, Bayonne, N.J., 5sc, 45c, Tel: 201-HEmlock 6-2230
See ad in class 80
Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 30sc, Tel: 301-ACademy 8-4600
See ad in class 53
Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 30sc, Tel: 305-LUdlow 3-6160
See ad in class 53
Airtronics, Inc., D.C., 5c, 10c, 15c, 20c
Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 30c, 40c, Tel: 617-FOrest 6-4467
See ad on page 82
Alwac Computer Div., El-Tronics, Inc., Calif., 25c
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 55s
American Bosch Arma Corp., N.Y., 5c, 15c, 25sc, 30sc, 40sc, 50sc
American Bosch Arma Corp., Tele-Dynamics Div., Pa., 5c, 15c, 25c, 30c, 50c
American Communications Corp., N.Y., 30sc
American Concertone, Inc., Calif., 55sc
American Electronics, Inc., Instrument Div., Calif., 5sc
American Electronics, Inc., Taller Cooper Div., N.Y., 25c, 40c
American Machine & Foundry Co., Government Products Group, N.Y., 5s, 30s
American Measurement & Control, Inc., Mass., 45s
American Missile Products Co., Inc., Calif., 25c, 30c, 45c, 50c
American Systems, Inc., Calif., 40c, 45c
Amperex Electronic Corp., N.Y., 30s
Ampex Computer Products Co., Calif., 25s, 30s, 50s, 55sc
Ampex Instrumentation Products Co., Calif., 50sc, 55sc
Ampex Military Products Co., Calif., 50c, 55c
Anelex Corp., Mass., 40sc, 50c
Apparatus Development Co., Conn., 30c
Applied Electro Mechanics, Inc., Va., 45c
Applied Electronics Co., Calif., 35c, 45c

Directory I. Complete Equipment

9. Computer Accessories.

Applied Electronics Corp. of New Jersey, P.O. Box 43, Metuchen, N.J., 5sc, 10sc, 15sc, 25sc, Tel: 201-LIberty 9-9200
See ad in class 34
Applied Magnetics Corp., Calif., 55sc
Armstrong Whitworth/Brush, Falcon Works, England, 5sc, 15c, 30c
Ascop, Div. of Electro-Mechanical Research, Inc., N.J., 5sc, 25sc
Astronautics Corp. of America, Wis., 5c, 15c, 20c, 25c, 30c, 45c
Auerbach Electronics Corp., Pa., 5c, 10c, 15c, 20c, 25c, 30c, 40c, 45c, 50c
Austin Electronics, Div. of Austin Co., N.Y., 5c, 25c, 30c, 45c
Automation Industries, Inc., 5c, 10c, 15c, 20c, 25c, 30c, 35sc, 40sc, 45sc, 50sc
Automation Management, Inc., Mass., 25sc
Autometric Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 45c
Autonetics, Div. of North American Aviation, Inc., Calif., 40s, 45s, 50s, 55c
Avien, Inc., N.Y., 30c
Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 30s, Tel: 617-UNiversity 4-7420
See ad in class 86
Baldwin Piano Co., Ohio, 5sc
Basic & Experimental Physics, Mass., 5c, 15c
Beckman Instruments, Inc., Berkeley Div., Calif., 30s
Beckman Instruments, Inc., Systems Div., Calif., 5sc, 10c, 15sc, 20c, 25c, 30c
Bell Aerosystems Co., Avionics Div., N.Y., 5c, 15c
Bendix Corp., Bendix-Pacific Div., Calif., 5sc, 10c, 15sc, 20c, 25c, 45c
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 5c, 15c, 25c
Bendix Corp., Bendix Systems Div., Mich., 25c, 45c
Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J., 5c, 15c, 45c, 50c, 55c, Tel: 201-ATlas 8-2000
See ad on pages 46-47
Bendix Corp., York Div., Pa., 30c
Benson-Lehner Corp., Calif., 5s, 10sc, 15sc, 20sc, 25sc, 30s, 45c, 50s
Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 5c
Boonshaft & Fuchs, Inc., Pa., 15c, 45c
Borg-Warner Corp., Omnitronics, Inc. (Subsid.), 511 N. Broad St., Philadelphia 23, Pa., 30c, 40c, 50s, Tel: 215-WAlnut 5-4343
See ad in this class
Briggs Associates, Inc., Pa., 5c, 10c, 15c, 25c, 40sc, 45sc
Bulova Research & Development Laboratories, N.Y., 25c, 30c
Bulow Electric Co., Mich., 45c, 50sc
Burroughs Corp., Mich., 10s, 20s, 35s, 40s, 45s, 50s, 55s
Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., 5c, 15c, 25c, 30c, 40c, 45c
Burroughs Corp., Electro Data Div., Calif., 25s, 30s, 35s, 40s, 45s, 50s, 55s
Burroughs Corp., Electronic Components Div., N.J., 30s
CBS Laboratories, Div. of Columbia Broadcasting System, Inc., Conn., 30c
California Computer Products, Inc., Calif., 5c, 15c, 25c, 30sc, 45c
California Technical Industries, Div. of Textron, Inc., Calif., 40sc, 50sc
Canadian Westinghouse Co., Ltd., Canada, 30c
Central Dynamics, Ltd., Canada, 5sc, 15sc, 30c, 45c
Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., Texas, 5c, 15c
Chesapeake Instrument Corp., Md., 5s
Chicago Aerial Industries, Inc., Ill., 30c
Clary Corp., Calif., 25s, 35s, 40s
Clevite Corp., Brush Instruments Div., Ohio, 30s
Clifton Precision Products Co., Inc., Pa., 5c
Co Engineering Co., N.J., 50c, 55sc
Cole Instrument Co., Calif., 45c
Coleman Electronics, Inc., Calif., 5sc, 25c, 30c, 45c
Collaro, Ltd., England, 50s, 55s
Collectron Corp., 304 E. 45th St., New York 17, N.Y., 5c, Tel: 212-MUrray Hill 9-7120
See ad in class 80
Communications & Control Corp., Calif., 5sc, 25c, 30c, 45c
CompuDyne Corp., Mass., 25c, 45s
CompuDyne Corp., Pa., 30sc
Computer Control Co., Inc., Eastern Div., 983 Concord St., Framingham, Mass., 5c, 10c, 15c, 20c, 25c, Tel: 617-TRinity 5-6185
See ad in class 8
Computer Control Co., Inc., Western Div., 2251 Barry Ave., Los Angeles 64, Calif., 5c, 10c, 15c, 20c, 25c, Tel: 213-GRanite 8-0481
See ad in class 8
Computer Equipment Corp., Calif., 5c, 15sc, 25c, 30c, 45sc
Computer-Measurements Co., Div. of Pacific Industries, Inc., Calif., 30s, 40s
Computer Systems, Inc., N.J., 5sc, 10c, 15sc, 30sc
Computer Techniques, Inc., N.Y., 5c, 15c, 25c, 30sc
Computronics, Inc., Colo., 45c
Connecticut Technical Corp., Conn., 10c, 20c, 25c, 30s, 35c, 40s, 45c, 50c
Consolidated Avionics Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 45c
Consolidated Electrodynamics Corp., Calif., 5s, 25s, 30s, 50s, 55s
Continental Technical Service, Inc., Ohio, 30 Audio c
Control Data Corp., Minn., 5sc, 15sc, 25sc, 45c, 50sc
Control Data Corp., Cedar Engineering Div., Minn., 25s, 50sc
Control Data Corp., Control Corporation (Subsid.), Minn., 5c, 15c, 25c, 30c, 45c, 50s
Control Equipment Corp., Mass., 5s, 10c, 15s, 20c, 25c, 30c, 45c
Controls Co. of America, Ill., 30sc, 45sc
Contronics, Inc., Mass., 5c, 15c, 25c, 45c
Cook Electric Co., Ill., 5c, 15c, 30c, 45c, 50c
Cook Electric Co., Cook Technological Center, Ill., 25c, 50c, 55c
Cook Electric Co., Data-Stor Div., Ill., 50c
Counting Instruments, Ltd., England, 30s, 40c
Cox Instruments Div., George L. Nankervis Co., Mich., 5sc, 30s
Crane Electronics Co., Calif., 55c
Cubic Corp., Calif., 25c, 30c
Curtiss-Wright Corp., Electronics Div., N.J., 5c, 10c, 15c, 20c, 45c
Curtiss-Wright Corp., Electronics Div., N.M., 5c, 10c, 15c, 20c, 45c
DBM Research Corp., Fla., 5sc, 15sc, 25c, 30s, 55c

High Performance & Reliable PAPER TAPE EQUIPMENT

READERS

Multi-speed photoelectric tape readers for strip, loop or reel tape applications. Reading rates up to 1000 characters/second. Chopped reflected light principle affords greater reliability and versatility. Punched, printed, colored, or transparent tapes read interchangeably without electrical adjustment.

RECORDERS

Coded tape recorders electrostatically print identical code format of punched tape at speeds up to 1000 characters/sec. Rectangular black spots are formed for reading by reflected photoelectric techniques, and, by edge recording of alpha-numeric characters, visual interpretation is possible. Non-impact, non-contact process offers high reliability and performance levels with quiet operation.

REELERS

High speed modular tape handlers provide optimum operational features. Bidirectional tape speeds up to 100 ips. Complete controls under all operational modes. Dependable tape supply and transport up to 10½" diameter standard NAB reels.

DIGITAL SYSTEMS

Inquiries invited on multistylus printer-plotter, alpha-numeric strip printer, wide page printer and related data handling equipment.

OMNITRONICS, INC.

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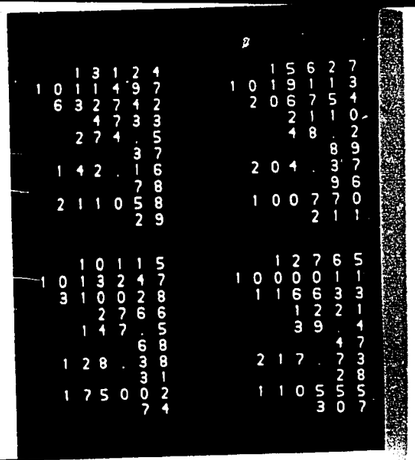
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Digital Radar Indicator



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0177 F2	SAINT PAUL	2770173
0178 F2	LOS ANGELES	2780103
0180 F2	CHICAGO	2800722
0181 E3	NEW ORLEANS	2810547
0183 E3	WASHINGTON	2830158
0184 F2	DENVER	2840331
0185 F3	TOLEDO	2850613
0186 E3	OTTUMWA	2860319
0187 E2	SAN DIEGO	2870763
0188 E2	SAN FRANCISCO	2880369
0189 F3	UNASSIGNED	2890000
0190 E2	OPERATIONAL	2900HGG
0191 F2	OPERATIONAL	291EKKY
0192 F3	OPERATIONAL	292GHUK
0193 E2	TIJUANA	2936969
0194 E3	BALTIMORE	2940755
0195 E2	MINNEAPOLIS	2950381
0196 E3	MONTREAL	2962111
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DATA DISPLAY INCORPORATED
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MIDWAY 6-8673

For details, circle #131 on Reader Service Card

Directory I. Complete Equipment

9. Computer Accessories.

Data Display, Inc., 1820 Como Ave., Saint Paul 8, Minn., 30sc, Tel: 612-MIdway 6-8673
See ad in this class

Data-Master Corp., N.Y., 5s, 25sc, 45sc
Data Products Co., Inc., Md., 5c, 10c, 15c, 20c, 25c, 45c

Datalog Corp., Metrolog Div., 2415 Amsler St., Torrance, Calif., 25c, Tel: 213-SPruce 5-6621
See ad in class 40

Datascan, Inc., N.J., 25c, 45c
Datex Corp., Calif., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 40sc, 45sc
Daven Co., Subsid. of General Mills, Inc., N.J., 5c
Daystrom, Inc., Control Systems Div., Calif., 5s, 15s, Tape to Tape Converters s
Daystrom, Inc., Military Electronics Div., Pa., 25c, 30c, 45c
Del Mar Engineering Laboratories, Calif., 45sc
Deltime, Inc., N.Y., 45sc
Dero Research & Development Corp., N.Y., 50c, 55c
Designers for Industry, Inc., Ohio, 55c
Developmental Electronics Corp., Calif., 5sc, 10c, 15sc, 20c, 25c, 30sc, 45c
Devol Research Corp., Conn., 5sc, 15c, 45s
Dewey Corp. (G. C.), N.Y., 5c, 15c, 25c, 30c, 55c
Di/An Controls, Inc., Mass., 5c, 10c, 15c, 20c, 25c, 30sc, 40c, 45c, 50c
Diamond Electronics, Div. of Diamond Power Specialty Corp., Ohio, 30c
Dick Co. (A. B.), Ill., 30sc, 40c, Character Generators c
Dicon Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 40c, 45c, 50c, 55c
Dictaphone Corp., N.Y., 55sc
Digital Equipment Corp., Mass., 5s, 10c, 15s, 20c, 25c, 35c, 40c, 45c, 50c
Digitool Corp., Texas, 5sc, 15sc, 50c
Digitronics Corp., N.Y., 25c, 40c, 50c, Tape to Tape Converters s
Dimensions, Inc., N.Y., 30c, 40c
Djeco, Div. of Djordjevic Engineering Co., Ill., 5c, 15c
Donner Scientific Co., Calif., 25c
Douglas Aircraft Co., Inc., Calif., 5c, 10c, 15c, 20c, 25c, 30c, 45c, 50c, 55c
Drexel Dynamics Corp., Pa., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c
Dychro Corp., Mass., 5s
Dynatronics, Inc., Fla., 5sc, 15sc, 25c, 30c, 45c
E D P Corp., Fla., 5c, 15c
E.M.I.-Cossor Electronics, Ltd., Canada, 55sc
Electrac, Inc., Calif., 25c
Electrada Corp., Calif., 15c, 25c, 30c
Electro Logic Corp., Calif., 5sc, 10c, 15c, 20c, 25c, 55c

Electro-Mec Div. of Waltham Precision Instrument Co., Inc., 47-51 33rd St., Long Island City 1, N.Y., 5sc, Tel: 212-STillwell 6-3402
See ad in class 80

Electro-Mech Engineering Co., Minn., 10c, 50c, 55sc
Electro Radiation, Inc., Calif., 5c, 30c
Electronic Associates, Inc., N.J., 5sc, 15sc
Electronic Communications, Inc., Fla., 5c
Electronic Controls, Inc., Conn., 5c, 10c, 15c, 20c, 25c, 45sc
Electronic Counters, Inc., N.Y., 30s
Electronic Engineering Co. of California, Calif., 10s, 20s, 50s
Electronic Plastics Co., Calif., 45sc

Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., 30c, 45sc, Tel: 301-HAmilton 6-1268
See ad in class 73

Electronic Specialty Co., Calif., 30c, 45c
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 5c, 15c, 30c, 45sc, 55c
Elliott-Automation, Ltd., England, 5c, 10c, 15c, 25c, 30c, 35c, 40c, 45c, 50c, 55c

Embree Electronics Corp., 993 Farmington Ave., West Hartford 7, Conn., 45s, Tel: 203-ADams 2-5144
See ad in class 43

Emerson Electric Mfg. Co., Mo., 10c, 20c, 30c, 45c
Epsco, Inc., Mass., 5sc, 15sc, 20sc, 25sc, 30c, 45sc
Epsco, Inc., Monitor Systems, Inc. (Subsid.), Pa., 5c, 10c, 15c, 20c, 25c, 30c, 40c, 45c
Erie Resistor Corp., Erie Pacific Div., Calif., 5s, 15s
Etelco, Ltd., England, 40c
Exact Electronics, Inc., Ore., 45s
Exact Engineering & Mfg., Inc., Calif., 35c, 45c
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 5c, 15c, 25c, 30c
Farrand Controls, Inc., N.Y., 5c, 15c, 30c, 45c, 50c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 30sc, 50c, 55c
Ferranti-Packard Electric, Ltd., Electronics Div., Canada, 25c, 30c, 50c
Fischer & Porter Co., Pa., 5s, 10s, 25s
Fisher & Crome, Pa., 45c
Ford Instrument Co., N.Y., 5c, 15c

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 25c, 30c, 45c, Tel: 216-SHadyside 9-0700
See ad in class 50

General Applied Science Laboratories, Inc., Merrick & Stewart Avenues, Westbury, L.I., N.Y., 5s, 10s, 15s, 25c, Tel: 516-EDgewood 3-6960
See ad in class 35

General Automatics, Inc., Calif., 30c
General Computers, Inc., Calif., 25s

General Devices, Inc., P.O. Box 253, Princeton, N.J., 5c, 15c, Tape to Tape Converters c, Tel: 609-WAlnut 4-2500
See ad adjacent to Index to Advertisers, back of book

General Dynamics/Electronics, N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc
General Dynamics Electronics, Information Technology Div., Calif., 5sc, 15sc, 30sc, 40sc, 45c, 50 Microfilm-Readout c
General Electric Co., Apparatus Sales Dept., N.Y., 5c, 10c
General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 30sc

General Electric Co., Instrument Dept., 40 Federal St., Lynn, Mass., 30s, Tel: 617-LYnn 3-3400
See ad in class 61

General Instrument Corp., Magne Head Div., Calif., 55c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 30c
General Instrument Corp., Systematics Div., Calif., 10sc, 20sc
General Kinetics, Inc., Va., 55sc
General Mills, Inc., Minn., 5sc, 15c, 25c, 30c, 45c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5sc, 15sc, 25c, 30c, 45c, 50c, 55c
General Precision, Inc., Kearfott Div., N.J., 5sc, 30sc
General Precision, Inc., Librascope Div., Calif., 5sc, 10sc, 15sc, 20c, 25c, 30s
General Precision, Inc., Link Div., N.Y., 5sc, 15sc, 25sc

General Radio Co., 22 Baker Ave., West Concord, Mass., 15s, 40s, Tel: 617-EMerson 9-4400
See ad on Cover 4

General Railway Signal Co., N.Y., 30s
Genisco, Inc., Calif., 5sc, 15s, 20s, 25s, 30s, 45s
Geotechnical Corp., Texas, 25sc, 55s
Gerber Scientific Instrument Co., Conn., 25sc, 50c
Gertsch Products, Inc., Calif., 15sc
Gilfillan Brothers, Inc., Calif., 30 Automatic-Voice c
Gilliland Instrument Co., Inc., Calif., 25c, Photo-to-Digital Image Translators c
Gilmore Industries, Inc., Ohio, 45c
Goodyear Aircraft Corp., Arizona Div., Ariz., 5c, 15c, 30c, 40c
Grason-Stadler Co., Inc., Mass., 45s
Gresham Transformers, Ltd., England, 55sc

Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 45c, Tel: 312-CHesapeake 3-1100
See ad in class 73

Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 5s, Tel: 516-WElls 8-9500
See ad in class 77

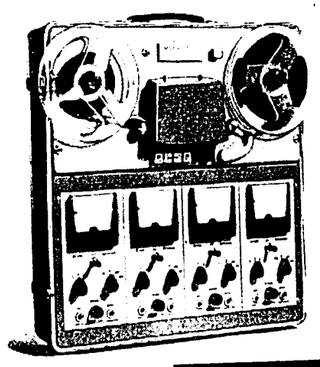
Gulton Industries, Inc., N.J., 5s, 15s, 25sc, 45c, 55c
Gurley Co. (W. & L.E.), N.Y., 5sc
Gytex Corp., Calif., 25c
HRB-Singer, Inc., Pa., 25c
Hampshire Engineering Co., Mass., 15c, 25c, 30c, 55c
Harman-Kardon, Inc., N.Y., 5c, 10c, 15c, 20c, 25c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

DATA RECORDERS EXPENSIVE ?

not any more

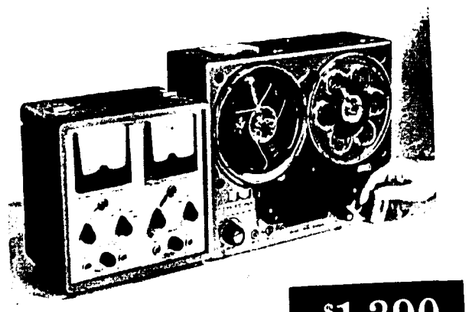
now . . . 0.2% precision in complete, easy-to-use, portable ANALOG TAPE RECORD/REPRODUCE SYSTEMS *at prices you can afford*



$2,950

MNEMOTRON model 204*
4-CHANNEL SYSTEM complete with tape transport

Any 2 of these speeds: 1⅞, 3¾, 7½, 15 ips
Frequency Response: •0-800 cps @ 15 ips •0-200 cps @ 3¾ ips •0-400 cps @ 7½ ips •0-100 cps @ 1⅞ ips
Extended frequency response available on request



$1,390

MNEMOTRON model 102A*
2-CHANNEL SYSTEM complete with tape transport

3 Standard speeds: 1⅞, 3¾, 7½ ips
Frequency Response: •0-400 cps @ 7½ ips •0-100 cps @ 1⅞ ips •0-200 cps @ 3¾ ips
Extended frequency response available on request

COMMON SPECIFICATIONS FOR MNEMOTRON SYSTEMS

Input Sensitivity: full scale ±3 volts or ±10 volts
Input Impedance: 100 K Ω, high sensitivity, 330 K Ω, low sensitivity.
Speeds: 15, 7½, 3¾, and 1⅞ ips. For 2-channel systems, 15 ips and 15/16 ips available on request. 30, 15/16 and 15/32 ips available for 4 through 7 channel systems on request
Noise: Less than 50 db below full scale
Linearity: 0.2% of full scale
Temperature Stability: 0.1% per degree centigrade
Crosstalk between data channels: below 70 db
Output Impedance: 120 K ohms. 1 K ohms (for direct driving of low frequency paper recorders). Specify.
Output Level: full scale 1 volt
Output Unbalance: —1 volt for 0-volt in; may be readily balanced out on available pen recorders; balancing network available on request
Converter Power Consumption: 2-channel systems: 10 ma. at 6.7 volts per channel. 4 thru 7 channel systems: 14 ma. at 6.7 volts per channel. Choice of (a) Mallory Mercury battery with a lifetime of approx. 3 years in average usage, or (b) 0.05% regulated power supply, for 4 thru 14 channel systems
Weight of Converter: 6 lbs. per channel
Weight of Tape Transport: All systems through 7 channels—25 lbs.

SYSTEMS AVAILABLE WITH THE FOLLOWING FEATURES • ULTRA-HIGH PRECISION WITH OVERALL NOISE LESS THAN 60 DB BELOW FULL SCALE, WITH UNIQUE ELECTRONIC NOISE COMPENSATOR • 0.1% LINEARITY AVAILABLE WITH ULTRA-LOW NOISE SYSTEMS • TRANSPORTATION DELAY, CONTINUOUSLY ADJUSTABLE FOR ANALOG COMPUTERS • AVERAGE RESPONSE ON LINE COMPUTER CAT MARK II.

a price-plus-precision breakthrough,

pioneered by Mnemotron's unique pulsed FM principle and fully transistorized, self-contained, interchangeable modules.

• RECORDS ALL ANALOG DATA DOWN TO—AND INCLUDING—DC IN ALL THESE INDUSTRIAL AND RESEARCH APPLICATIONS:
• Data acquisition, storage, analysis & reduction • Time scale contraction and expansion • Dynamic Simulation • Programming • Computer Read In and Read Out

EXPANDS USEFULNESS OF PAPER RECORDERS
• Extends frequency response and channel capacity • Saves you from being "snowed" with data • Lets you look at same data at different time scales • A permanent record even if paper is damaged

Write for complete application, price and delivery information on Mnemotron Analog Data Tape Systems and Computers for your specific needs.

***Also available: 6-channel system—$3,980 . . . and 7-channel systems (using ¼" tape); Up to 14 channels (using ½" tape)**

NOW AVAILABLE: The CAT MARK II BIOLOGICAL DIGITAL "ON LINE" COMPUTER FOR AVERAGE EVOKED RESPONSES OF BRAIN POTENTIALS AND OTHER BIOLOGIC VARIABLES.

MNEMOTRON CORPORATION
49 South Main Street, Pearl River, New York
PEarl River 5-4015 (914) • Cables: Mnemotron
Precision Analog Data Tape Recorders and Biological Computers

For details, circle #132 on Reader Service Card

Directory I. Complete Equipment

9. Computer Accessories.

Harristahl Laboratories, N.Y., 5c
Harvey-Wells Electronics, Inc., Mass., 15c
Haydon Co. (A.W.), Conn., 5c, 15c, 45c
Haydon Instrument Co., Conn., 40c
Hazeltine Corp., N.Y., 30c
Heath Co., Subsid. of Daystrom, Inc., Mich., 30s
Hermes Electronics Co., Mass., 30sc, 55 Search-Units sc
Hewlett-Packard Co., Dymec Div., Calif., 5sc, 30sc
Hoffman Electronics Corp., Calif., 25c, 30c, 35c
Hogan Faximile Corp., N.Y., 25c, 30c, 40c
Hoover Co., Electronics Div., Md., 5c, 15c
Houston Fearless Corp., Westwood Div., Calif., 5c, 15c, 30c
Howard Instrument Co., N.J., 5s, 10s, 15s, 20s, 25c, 30s, 45c
Howell Instruments, Inc., Texas, 5s, 30s, 40s
Hughes Aircraft Co., Vacuum Tube Products Div., Calif., 30sc
Huyck Systems Co., N.Y., 25c, 30:
Hycon Mfg. Co., Calif., 45c, 50c
Hydro-Aire Co., Div. of Crane Co., Calif., 5sc
I.D.E.A., Inc., Ind., 30s
Idaho Maryland Industries, Magnetics Div., Calif., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 50sc
Illinois Tool Works, Licon Div., 6615 W. Irving Park Rd., Chicago 34, Ill., 30sc, Tel: 312-AVenue 2-4040
See ad in class 80
Image Instruments, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 25c, 30c, Tel: 617-WOodward 9-8440
See ads in classes 9, 10, 21, 86
Imtra Corp., Mass., 50c
Industrial Control Co., N.Y., 5sc, 15sc
Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif., 30s, Tel: 213-TRiangle 7-1144
See ads on page 162 & in class 63
Industrial Timer Corp., N.J., 45sc, 50sc
Information Systems, Inc., Calif., 5c, 15c, 25c, 30sc, 50sc
Instrument Corp. of Florida, Fla., 25c, 30c, 45c
Instrument Development Laboratories, Inc., Mass., 5c
Instrument Systems Corp., N.Y., 5c, 15c, 30c, 45c, 50c
Intectron, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 5c, 15sc, Tel: 617-WOodward 9-9311
See ad on page 163
International Business Machines Corp., N.Y., 5c, 10c, 15c, 20c, 25sc, 30c, 40c, 50c
International Business Machines Corp., Federal Systems Div., Md., 30c, 40c, 45c
International Research & Development Corp., Ohio, 25s
International Telephone & Telegraph Corp., ITT Federal Laboratories, Ind., 5c, 15c, 25c, 30c, 45c
International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 5c, 15c, 45c
International Telephone & Telegraph Corp., ITT Kellogg, Ill., 40s
Interstate Electronics Corp., Calif., 5s, 15s, 25c, 30c
Itek Laboratories, Div. of Itek Corp., Mass., 30sc
Jacobs Instrument Co., Md., 5c, 45c
Johnson Service Co., Wis., 5c
Jones & Wettlaufer Engineering Corp., Calif., 5sc
Kanke & Co., Inc., Calif., 30c
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 5c, 30c, 45c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc
Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 30c, Tel: 516-RAvenswood 9-7580
See ad in class 89
Korry Mfg. Co., Wash., 30sc, 45c
Laboratory For Electronics, Inc., Mass., 25c, 30c
Lake City, Inc., Ill., 45c
LaPointe Industries, Inc., Conn., 45c
Lear, Inc., Calif., 5c, 15c, 30sc
Lignes Telegraphiques et Telephoniques, France, 5c
Ling Temco Vought, Inc., Texas, 5c, 10c, 15c, 20c, 30sc, 45c
Ling Temco Vought, Inc., E F & M Electronics, Inc. (Subsid.), Calif., 5c, 15c, 30sc
Ling Temco Vought Inc., Temco Electronics Div., Texas, 5c, 10c, 15c, 20c, 30c, 45c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 5sc, 10c, 15c, 20c, 25c, 30sc, 45c, 50c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., Md., 5c, 15c, 30c, 55c
Litton Industries, Inc., Monroe Calculating Machine Co. (Subsid.), N.J., 25s, 35s, 45s, 50s
Litton Industries, Inc., Monroe Calculating Machine Co., Electronics Components Div., Calif., 30c, 35c, 40c
Lockheed Electronics Co., N.J., 5c, 10c, 15c, 25c, 30c, 45c, 50c, 55c
Lome Electronics, Inc., Texas, 5s
Loral Electronics Corp., N.Y., 30c
Lundell & Co., Ill., 25c, 30c, 40c, 45c
MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 5c, 30c, 50c, Tel: 305-LOgan 4-8518
See ad in class 4
Madigan Electronic Corp., N.Y., 5sc, 15sc, 30c, 45c, 50c
Magnavox Co., Magnavox Research Laboratories, Calif., 5c, 25c, 30c, 40c
Mandrel Industries, Inc., Calif., 55sc
Manson Laboratories, Inc., Conn., 30s
Marquardt Corp., Pomona Div., Calif., 5c, 30c
Martin Co. (Martin-Marietta Corp.), Md., 5c, 15c, 30c
Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 5c, 15c, 30c
Mast Development Co., Iowa, 30sc
Matsushita Communication Industrial Co., Ltd., Japan, 5c, 10c
Maurer, Inc. (J.A.), N.Y., 5c, 15c, 30sc, 55sc
Mayberry Electronics Co., Calif., 55c
McDonnell Aircraft Corp., Mo., 5c, 10c, 20c, 45sc
Mechanical Engraving Co., Inc., N.Y., 30c
Melpar, Inc., Va., 5c, 10c, 15c, 20c, 25c, 30c, 45c
Mergenthaler Linotype Co., N.Y., 30sc, 40sc
Midwestern Instruments, Inc., Okla., 55sc
Miles Reproducer Co., Inc., N.Y., 55s
Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 5sc, 10sc, 15sc, 25sc, 30sc, 45sc, Tel: 305-OXford 1-1220
See ad in class 28
Milman Engineering Co., Inc., Calif., 30sc
Minneapolis-Honeywell Regulator Co., Fall River Div., Mass., 30c

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for VIDEO STORING SCAN CONVERSION ANALOG PROCESSING

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- Stores several pictures in a single storage tube.

Ask for specifications or other data related to your particular image-storage problem.

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-276.

9. Computer Accessories.

Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 55sc
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 5c
Minneapolis-Honeywell Regulator Co., Special Systems Div., Pa., 5c, 15c, 25c, 30c, 35c, 40c, 45c, 50c
Minnesota Mining & Mfg. Co., Magnetic Products Div., Minn., 55s
Mite Corp., Engineering Laboratories, N.J., 5sc, 10sc, 15sc, 20c, 25c, 30sc, 35sc, 40sc, 45sc, 50sc
Mittelmann Engineering (Eugene), Ill., 5c
Mnemotron Corp., 49 S. Main St., Pearl River, N.Y., 25s, 30s, 45s, 55s, Tel: 914-PEarl River 5-4015
See ad in this class
Model Engineering & Mfg. Corp., Ind., 5c, 15c, 45c
Modern Design, Div. of H.C. Schloer, Inc., N.Y., 5c, 15c
Mohawk Business Machines Corp., N.Y., 55c
Molectronics, Div. of Motec Industries, Calif., 5c, 15c, 25c, Data Synchronizers sc
Montek, Inc., Utah, 25c, 45c
Moore Associates, Inc., Calif., 5s, 10s, 15s, 45sc
Moran Instrument Corp., Calif., 40c
Mosaic Fabrications, Inc., Mass., 30c
Moseley Co. (F. L.), Div. of Hewlett-Packard Co., Calif., 15s, 25s, 30s, 40s, 45s
Motorola, Inc., Military Electronics Div., Ariz., 5c, 15c, 30c, 40c
Muirhead Instruments, Inc., N.Y., 55s
Munzig International, Inc., Calif., 5s, 10s, 15s, 35s, 40s, 50s, 55s
Naniloa Corp., Ohio, 15c
Nash & Thompson, Ltd. (Messrs.), England, 30s
National Cash Register Co., Ohio, 10s, 20s, 40s, 50s
National Cash Register Co., Electronics Div., Calif., 10s, 20s, 25s, 30sc, 35s, 40s, 50s, 55s
Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 5sc, 10c, 15sc, 20c, 25c, 30s, Tel: 215-GLendale 2-6531
See ad in class 10
New York Air Brake Co., Feedback Controls Subsid., Mass., 5sc, 15sc
Newton Co., Conn., 5c, 45c
Non-Linear Systems, Inc., P.O. Box 728, Del Mar, Calif., 5sc, 25sc, 30s, Tel: 213-SKyline 5-1134
See ad on pages 76-77
Norden Div., United Aircraft Corp., Conn., 5sc, 30sc
Norden Div., United Aircraft Corp., Data Systems Dept., Calif., 5c, 10c, 15c, 20c, 25c, 30sc, 40c
Norden Div., United Aircraft Corp., Ketay Dept., N.Y., 5sc
North Atlantic Industries, Inc., Terminal Drive, Plainview, L.I., N.Y., 5sc, 30sc, Tel: 516-OVerbrook 1-8600
See ad in class 35
North Electric Co., Ohio, 5s
Northrop Corp., Calif., 10c, 25c, 35c, 50c
Offner Electronics, Inc., Ill., 30s
Ohio Semiconductors, Div. of Tecumseh Products Co., 1205 Chesapeake Ave., Columbus 12, Ohio, 50c, Tel: 614-HUdson 6-9561
See ad on page 45
Olympic Radio & Television, Div. of Siegler Corp., N.Y., 5c, 25sc, 55sc
Omnitronics, Inc.: See Borg-Warner Corp.
Ortronix, Inc., Fla., 5c, 10c, 15c, 25c, 30c, 45c
Otis Elevator Co., Defense & Industrial Div., N.Y., 5c, 30c
Pacific Electro Magnetics Co., Inc., Calif., 55sc
Packard-Bell Computer Corp., Calif., 5s, 10c, 15s, 20c, 25c, 45c, 50s
Packard-Bell Electronics Corp., Calif., 5c, 15c
Parabam, Inc., Calif., 25sc, 45sc
Pastoriza Electronics, Inc., Mass., 5sc, 10c, 15c, 30c
Pennwood Numechron Co., 7249 Franks-town Ave., Pittsburgh 8, Pa., 30s, Tel: 412-FRemont 1-4200
See ad in class 11
Performance Measurements Co., Mich., 30c
Philbrick Researches, Inc. (George A.), Mass., 30s
Philco Corp., Pa., 5s, 10s, 15s, 20s, 25s, 30s, 40s, 45s, 50s, 55s
Philco Corp., Government & Industrial Group, Pa., 25s, 30s, 40s, 45s, 50s, 55s
Philco Corp., Philco Computer Div., Pa., 25c, 40c, 45c, 50c, Card Readers c
Philips Electronics Industries, Ltd., Canada, 55s
Photocircuits Corp., 31 Sea Cliff Ave., Glen Cove, L.I., N.Y., 50sc, Tel: 516-ORiole 6-8000
See ad in class 50
Photographic Analysis, Inc., Calif., 25c, 30c, 45c
Photomechanisms, Inc., 15 Stepar Place, Huntington Station, L.I., N.Y., 25c, 40c, Tel: 516-HAmilton 3-4411
See ads in classes 14, 34
Photronics Corp., N.Y., 5c, 30c
Pioneer Magnetics, Inc., Calif., 5c
Potter Instrument Co., Inc., N.Y., 25c, 40c, 50c, 55c
Precision Instrument Co., Calif., 55sc
Precision Specialties, Inc., N.J., 50c
Presin Co., Inc., Calif., 40c
Printed Motors, Inc., N.Y., 50sc
R-K Laboratories Co., N.Y., 5c, 15c, 30c
RMS Associates, Inc., N.Y., 15c, 30sc
Rabinow Engineering Co., Inc., D.C., 5c, 30c, 55sc
Racal Engineering, Ltd., England, 5c, 30c
Radar Relay, Inc., Calif., 30c
Radiation, Inc., Fla., 5s, 15s, 20s, 25s, 30s, 40s
Radio Corp. of America, Defense Electronic Products, N.J., 45c, 50c
Ransom Research, Inc., Calif., 5sc, 10c, 15sc, 20c, 25c, 30c, 45c
Raytheon Co., Communications & Data Processing Operation, Mass., 5sc
Raytheon Co., Government Marketing, Mass., 5sc
Redford Corp., N.Y., 30c
Redifon, Ltd., England, 15sc
Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, N.Y., 5c
Remington Rand Univac, Div. of Sperry Rand Corp., Minn., 10sc, 20sc, 25c, 40sc, 45sc
Remington Rand Univac, Div. of Sperry Rand Corp., N.Y., 10s, 20s, 40s, 55s
Rescon Electronics Corp., Mass., 5c, 15c, 25c, 30c
Research, Inc., Minn., 45s
Rheem Mfg. Co., Rheem Electronics Div., Calif., 5s, 25sc, 30sc, 45sc, 50sc
Rixon Electronics, Inc., Md., 5c, 15c, 25c, 30c, 45c, 50c
Robotomics Enterprises, Inc., Ariz., 30s
Rochar Electronique, France, 5sc, 15c
Rodale Electronics, Inc., N.Y., 30c
Rogers Mfg. Co. (Dayton), Minn., 45c
Royal McBee Corp., N.Y., 30s, 35s, 40s, 50s
Royson Engineering Co., Pa., 40c
Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 5c, 15c
S.E.D. Memories, Inc., N.J., 55c
S-I Electronics, Inc., 103 Park Ave., Nutley 10, N.J., 55sc, Tel: 201-NOrth 7-0055
See ad in class 10
Sanborn Co., 175 Wyman St., Waltham 54, Mass., 55s, Tel: 617-TWinbrook 4-6300
See ad on pages 70-71
Sanders Associates, Inc., N.H., 30s
Sangamo Electric Co., Springfield, Ill., 55s, Tel: 217-KIngswood 4-6411
See ad on page 142
Schaevitz Engineering, N.J., 5c, 10c, 15c, 20c, 25c, 30sc, 35c, 40c, 45c, 50c, 55c
Scientific Development Corp., Mass., 5s, 15s, 45s
Scope, Inc., Va., 5c, 10c, 15c, 20c, 25c, 30c, 45c
Sealectro Corp., 139 Hoyt St., Mamaroneck, N.Y., 45sc, Tel: 914-OWens 8-5600
See ad in class 81
Seiscor, Div. of Seismograph Service Corp., Okla., 25c, 30c
Servo Corp. of America, N.Y., 5c, 10c, 15c, 30c, 45sc
Servo Development Corp., 2 Willis Court, Hicksville, L.I., N.Y., 30c, 45c, Tel: 516-OVerbrook 1-4343
See ad in class 77
Servomechanisms/Inc., Calif., 5c, 15c, 25c, 30c
Shallcross Mfg. Co., N.C., 15c
Shannon Luminous Materials Co., Calif., 30c
Shepard Laboratories, Inc., N.J., 30c, 40c, 50c, Typers c
Siemens New York, Inc., N.Y., 40s, 50s
Sierra Research Corp., N.Y., 5c, 15c, 25c, 30c
Singer-Bridgeport, Div. of Singer Mfg. Co., Conn., 45c
Skiatron Electronics & Television Corp., N.Y., 5c, 15c, 25c, 30c, 45c
Solartron Electronic Group, Ltd., England, 5s, 10s, 20s, 25s, 30s, 40s, 45s, 55s
Solartron, Inc., Calif., 5s, 40s
Sony Corp., N.Y., 50sc, 55sc
Soroban Engineering, Inc., Fla., 5c, 25c, 30sc, 35sc, 40sc, 50sc

Directory I. Complete Equipment

9. Computer Accessories.

Space Electronics Corp., Calif., 5c, 15c, 25c, 30c
Space Instrumentation Corp., Calif., 5c, 15sc, 25sc
Sparton Electronics, Div. of Sparton Corp., Mich., 25c, 30c
Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 5c, 45c
Sperry Rand Corp., Sperry Gyroscope Co. (Div.), N.Y., 15c, 25c, 30c
Sperry Rand Corp., Sperry Gyroscope Co. of Canada, Ltd. (Subsid.), Canada, 5c, 50c
Sperry Rand Corp., Sperry Utah Co. (Div.), Utah, 30c
Standard Instrument Corp., N.Y., 30c
Standard Telephones & Cables, Ltd., England, 30sc
Stelma, Inc., Conn., 5c, 15c, 30c
Stone Laboratories, Inc., Mass., 25sc, 30c
Strand Engineering Co., Mich., 30c
Straza Electronics, Div. of Straza Industries, Calif., 5c, 15c, 30c
Summers & Mills, Inc., Texas, 5c, 15c
Sun Dial Corp., N.J., 30c
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 30sc, 45c
Sylvania Electric Products Inc., Lighting Products Div., Mass., 30s
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 30c
Systems Research Corp., Calif., 45sc
Systron-Donner Corp., Calif., 5c, 25c, 30c, 40s, 45c
TRG, Inc. (Technical Research Group), N.Y., 5c, 25c, 30c
Tally Register Corp., Wash., 10s, 20s, 35s, 50s
Tang Industries, Inc., Mass., 15c
Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 45c, Tel: 201-WIndsor 4-2221
See ad in class 80
Technical Measurement Corp., Conn., 5s, 30s
Technical Products Co., Calif., 25s
Technitrol, Inc., Pa., 10c, 20c
TELautograph Corp., Calif., 30c
Telechrome Mfg. Corp., N.Y., 5sc, 10c, 30c, 45c
Telecomputing Corp., Calif., 5sc, 10sc, 20sc, 25sc, 30sc, 35sc, 45sc, 50sc, 55c
Telectro Industries Corp., N.Y., 25c, 50c, 55c
Telemetrics, Inc., Calif., 5sc, 15sc, 30sc, 45sc
Teleregister Corp., Conn., 30c
Teletype Corp., Ill., 25s, 35s, 40s, 50s
Tempo Instrument, Inc., N.Y., 45c
Texas Instruments Incorporated, Semiconductor-Components Div., P.O. Box 5012, 13500 North Central Expressway, Dallas 22, Texas, 5s, 25c, 45c, Tel: 214-ADams 5-3111
See ad on Cover 3
Textron Electronics, Inc., Schafer Custom Engineering Div., Calif., 45sc
Thompson Ramo Wooldridge Inc., Bell Sound Div., Ohio, 55c
Thompson Ramo Wooldridge Inc., Tapco Div., Ohio, 5c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5c, 10c, 15c, 20c, 30c, 35c, 40c, 45c, 50c, 55c
Tokyo Shibaura Electric Co., Ltd., Japan, 5s, 30s, 35s, 40s, 50s, 55s
Tracerlab Keleket, Mass., 5s, 15s, 30s, 40s
Transistor Electronics Corp., Minn., 30sc
Transistor Specialties, Inc., N.Y., 5c, 15c, 30 Remote s
Trepac Corp. of America, N.J., 40 Drivers s
Ulmer Co. (H. W.), Calif., 30c
United Control Corp., Wash., 30c, 45s
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 5c, 30c, 45c
Universal Circuit Controls, Ill., 30c
Vap-Air Div., Vapor Corp., Ill., 25c
Vector Mfg. Co., Pa., 5sc
Veeder-Root, Inc., Electronic Controls Div., Mass., 30sc
Victor Adding Machine Co., Affil. of Comptometer Corp., Ill., 30sc, 40sc
Vidar Corp., Calif., 5s
Virginia Electronics Co., Inc., D.C., 45sc
Walkirt Co., Calif., 25s
Wang Laboratories, Inc., Mass., 5c, 25c, 30s, 35c, 50c
Wayne-George Corp., Mass., 5sc, 30sc, 45c
Westgate Laboratory, Inc., Ohio, 30c
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 45sc, 50sc, 55sc, Tel: 212-JUdson 2-3030
See ad on page 224
Wheaton Engineering Div., Hurletron, Inc., Ill., 45c
Whitehall Electronics Corp., Minn., 25c, 30c
Wiley Electronic Products Co., Div. of Giannini Scientific Corp., Ariz., 25s, 55s
Xerox Corp., N.Y., 30c, 40c
Zimney Corp., Calif., 25c

Computer circuits:
See class 50

10. Computer Subsystems.

5. Clocks & timing devices
10. Encoders & decoders
15. Magnetic recording storage devices (disk, drum, tape)
20. Multipliers
25. Memories, ferromagnetic
30. Memories, superconductive
35. Memories, tunnel diode

ACF Electronics Div., ACF Industries, Inc., Md., 5c, 10c
A R & T Electronics, Inc., Subsid. of Baldwin Piano Co., 1101 McAlmont St., P.O. Box 627, Little Rock, Ark., 10s, Tel: 501-FRanklin 5-6441
See ads in classes 9, 10, 11, 83
Abacus, Inc., Calif., 5sc

10. Computer Subsystems.

Advanced Instrument Corp., Calif., 5sc, 10sc
Advanced Research Associates, Md., 5c, 25c
Advancement Devices, Inc., N.Y., 20c
Aeronca Mfg. Corp., Aerospace Div., Md., 10sc
Aeronutronic, Div. of Ford Motor Co., Calif., 10c, 15sc
Airflyte Electronics Co., 537 Ave. A, Bayonne, N.J., 10c, Tel: 201-HEmlock 6-2230
See ad in class 80
Alwac Computer Div., El-Tronics, Inc., Calif., 15sc
Amerasco, Inc., N.J., 5s
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 5c, 15sc
American Communications Corp., N.Y., 5c, 10c
American Concertone, Inc., Calif., 15sc
American Missile Products Co., Inc., Calif., 5c, 10c
American-Monarch Corp., Minn., 10c
American Systems, Inc., Calif., 15c, 25c
American Time Products, Div. of Bulova Watch Co., Inc., 61-20 Woodside Ave., Woodside 77, N.Y., 5sc, 20sc, Tel: 212-OLympia 1-7800
See ad in class 31

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MODEL 212 PHOTOELECTRIC SHAFT POSITION
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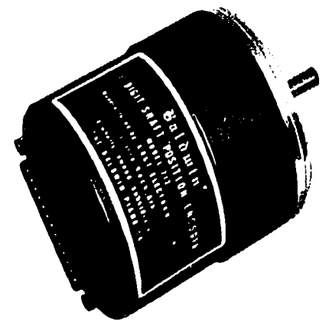

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

10. Computer Subsystems.

Ampex Computer Products Co., Calif., 25sc
Ampex Computer Products Co., Calif., 15sc, 25sc
Ampex Instrumentation Products Co., Calif., 15sc
Ampex Magnetic Tape Products, Div. of Ampex Corp., Ala., 15sc
Ampex Military Products Co., Calif., 15c
Applied Dynamics, Inc., Mich., 20sc
Applied Electronics Corp. of New Jersey, P.O. Box 43, Metuchen, N.J., 10sc, Tel: 201-LIberty 9-9200
See ad in class 34
Applied Magnetics Corp., Calif., 15c
Armstrong Whitworth/Brush, Falcon Works, England, 5c
Artronic Instrument Co., Md., 5c, 10c, 25c
Ascop, Div. of Electro-Mechanical Research, Inc., N.J., 10sc
Audio Devices, Inc., N.Y., 15s
Automation Industries, Inc., 5c, 10c
Autometric Corp., N.Y., 10c
Autonetics, Div. of North American Aviation, Inc., Calif., 15s
Avionics Research Products Corp., Calif., 15sc
Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 5s, Tel: 617-UNiversity 4-7420
See ad in class 86
Baldwin Piano Co., Ohio, 10sc

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Basic & Experimental Physics, Mass., 25c, 30c
Beckman Instruments, Inc., Berkeley Div., Calif., 20s
Beckman Instruments, Inc., Systems Div., Calif., 25c, 35c
Beck's, Inc., Minn., 10c, 25c
Bendix Corp., Bendix-Pacific Div., Calif., 5sc, 10sc
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 5c, 10c
Bendix Corp., Cincinnati Div., Ohio, 20s
Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J., 10c, 15c, 20c, 25c, Tel: 201-ATlas 8-2000
See ad on pages 46-47
Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 5sc, 10c
Briggs Associates, Inc., Pa., 15c
Buck Instrument Co., Colo., 5c
Bulova Research & Development Laboratories, N.Y., 5c, 10c, 15c
Bulova Watch Co., Inc., Electronics Div., Dept. A-1376, 61-10 Woodside Ave., Woodside 77, N.Y., 5c, Tel: 212-NEwtown 9-5700
See ad in class 56
Burroughs Corp., Mich., 15s, 25sc
Burroughs Corp., Electro Data Div., Calif., 10 Microminiature s, 15s, 25s
Burroughs Corp., Electronic Components Div., N.J., 10c, 25 Thin-Film c
Burroughs Corp., Electronic Instruments Div., Pa., 25c
CBS Electronics, Div. of Columbia Broadcasting System, Inc., Mass., 25c
CBS Laboratories, Div. of Columbia Broadcasting System, Inc., Conn., 25s, 35s
C & K Components, Inc., Mass., Shift Registers sc
California Computer Products, Inc., Calif., 5c
Canadian Aviation Electronics, Ltd., Canada, 5c, 15c, 20c, 25c
Canadian Westinghouse Co., Ltd., Canada, 10c, 15c
Central Dynamics, Ltd., Canada, 5c
Chrono-Log Corp., Pa., 5s
Clary Corp., Calif., 15s
Cleveland Metal Specialties Co., Electronics Div., Ohio, 5c
Co Engineering Co., N.J., 15sc
Coleman Electronics, Inc., Calif., 10sc
Collectron Corp., 304 E. 45th St., New York 17, N.Y., 5c, Tel: 212-MUrray Hill 9-7120
See ad in class 80
Colorado Research Corp., Colo., 10c
Communications & Control Corp., Calif., 5c
Comptron Corp., Mass., 5c, 10c
CompuDyne Corp., Pa., 10sc
Computer Control Co., Inc., Eastern Div., 983 Concord St., Framingham, Mass., 5c, 20c, 25sc, Tel: 617-TRinity 5-6185
See ad in class 8
Computer Control Co., Inc., Western Div., 2251 Barry Ave., Los Angeles 64, Calif., 5c, 20c, 25sc, Tel: 213-GRanite 8-0481
See ad in class 8
Computer Equipment Corp., Calif., 5sc, 10sc
Computer-Measurements Co., Div. of Pacific Industries, Inc., Calif., 5sc
Computer Sciences, Inc., N.Y., 5c, 25c
Computer Systems, Inc., N.J., 20sc
Computer Techniques, Inc., N.Y., 5c, 10sc, 20c, 25c
Computronics, Inc., Colo., 20c
Connecticut Technical Corp., Conn., 5c
Consolidated Avionics Corp., N.Y., 5c, 10c, 15c, 20c, 25c
Consolidated Controls Corp., Conn., 15 Drum c
Consolidated Electrodynamics Corp., Calif., 15s
Continental Merchandise Co., Transistor Products Div., N.Y., 15sc, 25sc, 30sc, 35sc
Control Data Corp., Minn., 15c
Control Data Corp., Cedar Engineering Div., Minn., 15c
Control Data Corp., Control Corporation (Subsid.), Minn., 5c, 10c
Control Equipment Corp., Mass., 5c, 10c, 20c
Controls Co. of America, Ill., 5sc
Contronics, Inc., Mass., 20c
Cook Electric Co., Cook Technological Center, Ill., 10c, 15c
Curtiss-Wright Corp., Electronics Div., N.J., 10c
DBM Research Corp., Fla., 5c, 15c
Data-Master Corp., N.Y., 5s
Data Products Co., Inc., Md., 5c, 10c
Datascan, Inc., N.J., 5c, 10c
Datex Corp., Calif., 5sc, 10sc
Daystrom, Inc., Control Systems Div., Calif., 25c
Daystrom, Inc., Military Electronics Div., Pa., 25c
Developmental Electronics Corp., Calif., 5sc, 10sc, 20c
Device Development Corp., Mass., 20s
Devol Research Corp., Conn., 10s, 15s
Dewey Corp. (G. C.), N.Y., 5c, 10c, 20c
Di/An Controls, Inc., Mass., 5c, 15c, 25c, 35c, Shift Registers c
Dick Co. (A. B.), Ill., 10c
Dicon Corp., N.Y., 10c, 15c
Digital Equipment Corp., Mass., 5s, 10s, 20c, 25c
Digitool Corp., Texas, 5c, 10c
Digitronics Corp., N.Y., 20c
Dittmore-Freimuth Corp., Wis., 10c
Donner Scientific Co., Calif., 20sc
Douglas Aircraft Co., Inc., Calif., 5c, 10c
Dynatronics, Inc., Fla., 5c, 10c
Dynex, Inc., N.Y., 25c
E D P Corp., Fla., 5c, 10c
E.M.I.-Cossor Electronics, Ltd., Canada, 15c
Eagle Signal Co., Div. of Gamewell Co., Ill., 5sc
Electrada Corp., Calif., 10c, 15c
Electric Indicator Co., Inc., Conn., 10c
Electro Engineering Products Co., Inc., Ill., 5s
Electro Radiation, Inc., Calif., 10c
Electro-Sonic Laboratories, Inc., N.Y., 15c
Electronic Controls, Inc., Conn., 5c, 10c, 20c

Directory I. Complete Equipment

10. Computer Subsystems.

Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., 5sc, Tel: 301-HAmilton 6-1268
See ad in class 73
Electronic Specialty Co., Calif., 5c, 10c
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 5sc, 10c, 15c, 25c
Elliott-Automation, Ltd., England, 10c, 15c, 20c
Elm Laboratories, N.Y., 5sc
Engelhard Industries, Inc., Makepeace Div., Mass., 10c
Engler Instrument Co., N.J., 5s
Epsco, Inc., Mass., 5sc, 10sc, 20c, 25c, 30c, 35c
Erie Resistor Corp., Erie Pacific Div., Calif., 5s, 10s
Exact Engineering & Mfg., Inc., Calif., 5c
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 10c
Farrand Controls, Inc., N.Y., 10c
Ferranti Electric, Inc., N.Y., 15c
Ferranti-Packard Electric, Ltd., Electronics Div., Canada, 15c
Ferroxcube Corp. of America, E. Bridge St., Saugerties, N.Y., 25sc, Tel: 914-CHerry 6-2811
See ads in classes 10, 34, 55, 74, 92, 100
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 5sc, 10sc, 20sc, Tel: 216-SHadyside 9-0700
See ad in class 50
GPS Instrument Co., Inc., Mass., 20sc
General Applied Science Laboratories, Inc., Merrick & Stewart Avenues, Westbury, L.I., N.Y., 5s, 10s, Tel: 516-EDgewood 3-6960
See ad in class 35
General Ceramics, Div. of Indiana General Corp., Crows Mill Rd., Keasbey, N.J., 25sc, Tel: 201-VAlley 6-5100
See ad in class 64
General Dynamics/Electronics, N.Y., 5c, 10c
General Dynamics/Electronics, Information Technology Div., Calif., 10sc
General Electric Co. Ltd. of England, Telecommunications Group, England, 10c
General Instrument Corp., Magne-Head Div., Calif., 15sc
General Kinetics, Inc., Va., 15c
General Magnetics, Inc., 135 Bloomfield Ave., Bloomfield, N.J., 20s, Tel: 201-PIlgrim 8-2400
See ad on pages 42-43
General Mills, Inc., Minn., 5c, 10c
General Motors Corp., Delco Radio Div., Ind., 25c
General Precision Equipment Corp., Kearfott Semiconductor Corp. (Subsid.), Mass., 15c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc
General Precision, Inc., Kearfott Div., N.J., 10sc
General Precision, Inc., Librascope Div., Calif., 5c, 10sc, 15sc
General Time Corp., N.Y., 5s
General Time Corp., Incremag Div., Conn., 5sc
Genisco, Inc., Calif., 5 Analog-to-Pulse Conversion sc
Geotechnical Corp., Texas, 5s
Globe Industries, Inc., Ohio, 5s
Goodyear Aircraft Corp., Arizona Div., Ariz., 10c
Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 10sc, Tel: 516-WElls 8-9500
See ad in class 77
Hamilton Watch Co., Industrial Products Div., Pa., 5c
Hanner Electronics Co., Inc., N.J., 5s, 10s
Hampshire Engineering Co., Mass., 15c
Hansen Mfg. Co., Inc., Ind., 5sc
Harman-Kardon, Inc., N.Y., 5c, 10c
Harristahl Laboratories, N.Y., 5c, 10c
Haydon Co. (A. W.), Conn., 5c, 10c
Haydon Instrument Co., Conn., 5sc
Hewlett-Packard Co., Dymec Div., Calif., 5sc
Houston Fearless Corp., Westwood Div., Calif., 5c, 15c
Howard Instrument Co., N.J., 5c, 10s
Huyck Systems Co., N.Y., 10c
I.D. Precision Components Corp., N.Y., 5sc
Idaho Maryland Industries, Magnetics Div., Calif., 5sc, 15sc
Image Instruments, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., Electrostatic Storage Devices sc, Tel: 617-WOodward 9-8440
See ads in classes 9, 10, 21, 86
Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif., 5s, Tel: 213-TRiangle 7-1144
See ads on page 162 & in class 63
Industrial Timer Corp., N.J., 5sc
Information Systems, Inc., Calif., 15 Disk s
Ingraham Co., Conn., 5sc
Instrument Corp. of Florida, Fla., 5s, 10c
Instrument Development Laboratories, Inc., Mass., 10c
Instrument Systems Corp., N.Y., 10c, 15c, 20c, 25c
Intectron, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 20sc, Tel: 617-WOodward 9-9311
See ad on page 163
Intellux, Inc., Scientific Components Div., Calif., 25c
International Business Machines Corp., N.Y., 10c, 15c, 25c, 35c
International Business Machines Corp., Federal Systems Div., Md., 15c, 25c

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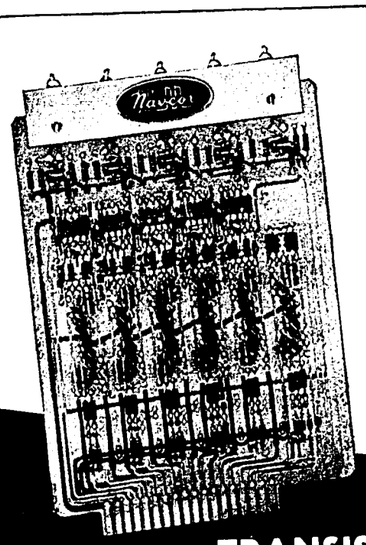

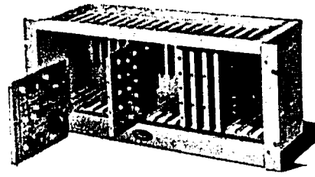

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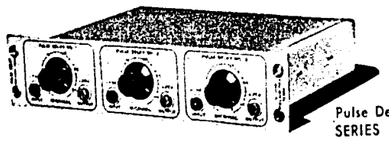
Series 300 5" x 6" modules

5 Stage
Reversible
Binary Counter
SERIES 300



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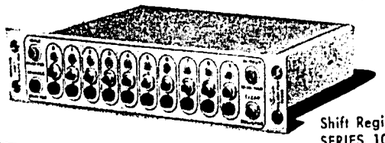
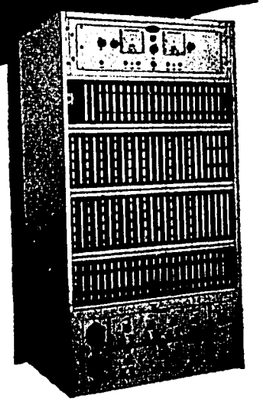
SERIES 100



Shift Register Decade Unit
SERIES 100

TRANSISTORIZED DIGITAL SYSTEMS BLOCKS



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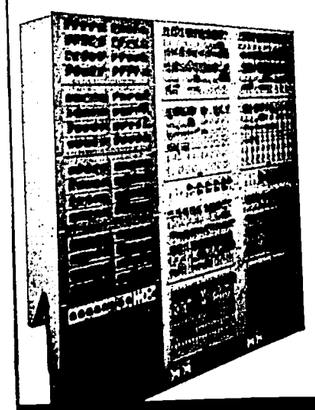
Send for complete data and specifications on either the 100 Series or 300 Series systems blocks.

Creative engineering by NAVCOR has successfully developed the 100 Series transistorized modules - for digital test equipment and prototype development, and the newer 300 Series card modules - for constructing complete data handling systems. Delivered complete and attractively packaged, these economical systems modules are ready to operate with a minimum of inter-unit wiring.

NAVCOR can engineer and manufacture complete systems to your requirements. Years of experience, devoted exclusively to semiconductor digital systems design, have produced hundreds of thousands of operating logic stages.



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Time proven 100 Series modules have been used extensively for bench top test equipment and for rapidly building system prototypes. Complete 10 stage BINARY COUNTERS, SHIFT REGISTERS, etc., are attractively packaged in 2¼" x 10½" slide-in units, which assemble into portable cabinets or relay rack housing.

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PULSE DELAYS
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SHIFT REGISTERS
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BINARY DECIMAL COUNTERS
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AMPLIFIED NOR LOGIC
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Directory I. Complete Equipment

10. Computer Subsystems.

International Telephone & Telegraph Corp., ITT Kellogg, Ill., 25s
Interstate Electronics Corp., Calif., 5s, 25s
Irvan Engineering Co., Inc., Calif., 15sc, 25sc
Itek Laboratories, Div. of Itek Corp., Mass., 5sc
Jacobs Instrument Co., Md., 25c
Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 25c
Kennedy Co., Calif., 15s
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 10sc, 15sc, 20sc, 25sc, 30sc
Laboratory For Electronics, Inc., Mass., 15c, 25c
Lace City, Inc., Ill., 5c
Lear, Inc., Calif., 5c, 10c, 20c
Leesona Corp., Leesona Moos Laboratories Div., N.Y., 5sc
Lignes Telegraphiques et Telephoniques, France, 25s
Lind Instruments, Inc., Calif., 5c
Ling Temco Vought, Inc., Temco Electronics Div., Texas, 5c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 5c, 10sc, 15sc, 20c, 25c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., Md., 10c
Lockheed Electronics Co., N.J., 5c, 10c, 15c, 25sc
Lockheed Electronics Co., Avionics & Industrial Products Div., Calif., 25c, Shift Registers c
Loral Electronics Corp., N.Y., 10c
Lundell & Co., Ill., 5sc, 10c
M F Electronics Corp., 118 E. 25th St., New York 10, N.Y., 5c, Transistorized Frequency Dividers, Tel: 212-ORegon 4-5360
See ads in classes 10, 35, 50
MacLaren & Co., Inc. (F. B.), N.Y., 20c
MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 10sc, Tel: 305-LOgan 4-8518
See ad in class 4
Madigan Electronic Corp., N.Y., 10c, 15c, 25c
Magnasync Corp., Calif., 5c, 15c
Magnavox Co., Magnavox Research Laboratories, Calif., 5c, 10c, 15sc, 25c
Magnetic Instruments Co., Inc., 637 Commerce St., Thornwood, N.Y., 20c, Tel: 914-ROgers 9-5312
See ad in class 43
Magnetics Research Co., Inc., N.Y., 25sc
Mallory & Co., Inc. (P. R.), Ind., 5c
Manson Laboratories, Inc., Conn., 5sc, 20sc
Marquardt Corp., Pomona Div., Calif., 15c
Maurer, Inc. (J. A.), N.Y., 15c, 30c, 35c
Mayberry Electronics Co., Calif., 15c
McElroy Electronics Corp., Mass., 5c
Melpar, Inc., Va., 5c, 10c
Midwestern Instruments, Inc., Okla., 10s, 15s
Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 5sc, Tel: 305-OXford 1-1220
See ad in class 28
Minnesota Mining & Mfg. Co., Magnetic Products Div., Minn., 15sc
Mnemotron Corp., 49 S. Main St., Pearl River, N.Y., 15s, Tel: 914-PEarl River 5-4015
See ad in class 9
Model Engineering & Mfg. Corp., Ind., 10c
Modern Design, Div. of H. C. Schibert, Inc., N.Y., 10c, 25c, 35c
Mohawk Business Machines Corp., N.Y., 15c
Monitor Products Co., Inc., Calif., 5c
Moore Associates, Inc., Calif., 5sc
Motorola, Inc., Military Electronics Div., Ariz., 10c, 25c
Muirhead Instruments, Inc., N.Y., 5s
Munzig International, Inc., Calif., 10s, 15s, 25s
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Natel Engineering Co., Calif., 5s
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Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 5sc, 10sc, Tel: 215-GLendale 2-6531
See ad in this class
Neumade Products Corp., N.Y., 15s
New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy., Somerville 43, Mass., 5c, Tel: 617-625-6100
See ad in class 84
Newton Co., Conn., 10c
Norden Div., United Aircraft Corp., Conn., 10sc
Norden Div., United Aircraft Corp., Ketay Dept., N.Y., 10sc, 15sc
Norrman Laboratories (Ernst), Williams Bay, Wis., 5sc, Tel: 414-CIrcle 5-5516
See ad in class 31
Northeastern Engineering, Inc., N.H., 5sc
Northrop Corp., Calif., 15c, 25c
Norton Associates, Inc., N.Y., 15 Tape c
Nucleonic Corp. of America, N.Y., 35s
Ohio Semiconductors, Div. of Tecumseh Products Co., 1205 Chesapeake Ave., Columbus 12, Ohio, 20c, Tel: 614-HUdson 6-9561
See ad on page 45
Ottronix, Inc., Fla., 5c, 10c
Otis Elevator Co., Defense & Industrial Div., N.Y., 10c
Packard-Bell Electronics Corp., Calif., 10c, 20c
Paraboam, Inc., Calif., 5sc
Parsons Co. (Ralph M.), Electronics Div., Calif., 5c, 10c
Pastoriza Electronics, Inc., Mass., 5c, 10c
Pennwood Numechron Co., 7249 Frankstown Ave., Pittsburgh 8, Pa., 5sc, Tel: 412-FRemont 1-4200
See ad in class 11
Philbrick Researches, Inc. (George A.), Mass., 20s
Philco Corp., Government & Industrial Group, Pa., 10s, 15s, 25s
Philco Corp., Philco Computer Div., Pa., 5c, 15c, 25c
Philips Electronics Industries, Ltd., Canada, 15s
Photographic Analysis, Inc., Calif., 5c, 10c
Pic Design Corp., Subsid. of Benrus Watch Co., Inc., N.Y., 5s
Pine In Instruments, Inc., Tenn., 15c, 25c
Potter Instrument Co., Inc., N.Y., 15c
Power-Tronic Systems, Inc., N.Y., 20c
Pyrocircuits Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 10c, 25sc, Tel: 516-PArt Washington 7-3949
See ad in class 50
R-K Laboratories Co., N.Y., 5c
RMS Associates, Inc., N.Y., 5c, 10c
Rabinow Engineering Co., Inc., D.C., 15sc
Radio Corp. of America, Defense Electronic Products, N.J., 10c, 25s, 30s, 35s

TRANSISTORIZED FREQUENCY DIVIDERS

These packaged components are designed to fit into original equipment. Available for many supply voltages, and in speed gradations.

Write for detailed specifications on these and other units.

	Binary				Octal	Decade
	Type 11B	Type 11C	Type 25A	Type 26	M-12S	M-11S
Size/Cubic In.	½	½	¼	¼	½	½
Temperature	-25 to +55	-25 to +55	-10 to +60	-10 to +60	-25 to +100	-25 to +100
Voltage	6-12	6-12	12	-12	-28	-28
Speed	30 KC	300 KC	1.2 MC	17 KC	100 KC	100 KC
Milit. Spec.	No	No	Yes	Yes	Yes	Yes

MF ELECTRONICS CORP. 118 E. 25th St., N.Y., N.Y. ORegon 4-5360

For details, circle #139 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

10. Computer Subsystems.

Radio Corp. of America, RCA Electron Tube Div., N.J., 25sc

Radio Corp. of America, Semiconductor & Materials Div., Section J-22-NN, Route 202, Somerville, N.J., 25sc, Tel: 609-RAndolph 2-3200
See ad on pages 54-55

Rainier Co., Inc., N.Y., 5c

Ransom Research, Inc., Calif., 5c, 10c, 20sc

Rawco Instruments, Inc., Texas, 10sc

Redmond-Fairchild, Inc., Calif., 15sc

Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, N.Y., 20sc

Remington Rand Univac, Div. of Sperry Rand Corp., Minn., 15sc, 25sc

Remington Rand Univac, Div. of Sperry Rand Corp., N.Y., 15s

Rescon Electronics Corp., Mass., 5c, 10c, 15c, 35c

Rese Engineering, Inc., Pa., 25c

Rheem Mfg. Co., Rheem Electronics Div., Calif., 10sc

Robotomics Enterprises, Inc., Ariz., 5c

Rochar Electronique, France, 10c, 20s

Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 10c

S.E.D. Memories, Inc., N.J., 15c

S-I Electronics, Inc., 103 Park Ave., Nutley 10, N.J., 15sc, Tel: 201-NOrth 7-0055
See ad in this class

Schaevitz Engineering, N.J., 5sc, 10c, 15c, 20c

Scientific Development Corp., Mass., 5s, 10s

Scope, Inc., Va., 5c, 10c

Secode Corp., Calif., 10s

Security Devices Laboratory, 24 Seneca Ave., Rochester 21, N.Y., 10sc, Tel: 716-HOpkins 7-3200
See ads in classes 46, 73

Servo Corp. of America, N.Y., 5sc, 10c

Servo Development Corp., 2 Willis Ct., Hicksville, L.I., N.Y., 5c, Tel: 516-OVerbrook 1-4343
See ad in class 77

Servomechanisms/Inc., Calif., 10c, 20c

Shalleross Mfg. Co., N.C., 10c

Shand & Jurs Co., Calif., 10sc

Shepard Laboratories, Inc., N.J., 10c, 15c

Sierra Research Corp., N.Y., 5c, 10c, 20c

Singer-Bridgeport, Div. of Singer Mfg. Co., Conn., 10c

Sippican Corp., Mass., Shift Registers c

Skiatron Electronics & Television Corp., N.Y., Character Generators c

Slip Ring Co. of America, Calif., 5c

Solartron, Inc., Calif., 5s, 10s, 20s

Sony Corp., N.Y., 15sc, 25s, 35s

Soroban Engineering, Inc., Fla., 10sc

Space Electronics Corp., Calif., 5c, 15c

Sparton Electronics, Div. of Sparton Corp., Mich., 5c

Specific Electronics, Inc., Calif., 5c

Sperry Rand Corp., Sperry Gyroscope Co. (Div.), N.Y., 15c

Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 15c

Standard Electric Time Co., Mass., 5sc

Standard Instrument Corp., N.Y., 5s

Standard Telephones & Cables, Ltd., England, 25sc

Steel Co. (Herman D.), Pa., 5c

Stelma, Inc., Conn., 5c, 10c

Straza Electronics, Div. of Straza Industries, Calif., 10c

Sunshine Scientific Instrument, Pa., 5c

Superite Gear & Instrument Corp., N.Y., 5c, 20c

Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 25c

Systems Research Corp., Calif., 5c

TRG, Inc. (Technical Research Group), N.Y., 5c, 10c

Technical Measurement Corp., Conn., 25s

Technical Products Co., Calif., 15s

Technitrol, Inc., Pa., 10c

Techtro-Matic Corp., Vt., 15c

Telechrome Mfg. Corp., N.Y., 5c, 10s

Telecomputing Corp., Calif., 10sc

Telemetrics, Inc., Calif., 5sc, 10sc

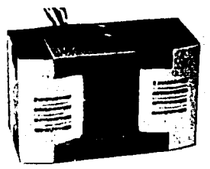
Telex/Aemco, Div. of Telex, Inc., 10 State St., Mankato, Minn., 5c, Tel: 8-6288
See ad in class 73

MAGNETIC MEMORY-COMPUTER EQUIPMENT

Rely on a designer/manufacturer to fulfill all your component and equipment requirements, both immediate and long-range . . . standard or custom-designed . . . for military and commercial applications.

MAGNETIC HEADS

Our multi-track precision heads are designed to accommodate your most critical computer and instrumentation needs. Numerous standard types are available, as are design and manufacturing facilities to satisfy any special requirements.



MEMORY DRUMS

In addition to standard models available for both commercial and military purposes, a variety of applications can be satisfied by combinations of standard drum designs.

TAPE RECORDERS

Wide product line includes airborne recorders for analog and digital recording and reproducing. The digital series is now available to process on magnetic tape any computer format.

MAGNETIC TAPE SYSTEMS

Typifying speed and reliability, this bin type tape transport is one of many models available for digital and instrumentation applications.

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103 Park Avenue, Nutley 10, New Jersey • NOrth 7-0055

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Directory I. Complete Equipment

10. Computer Subsystems.

Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 15sc, Tel: 612-MIdway 6-7211
See ads in classes 79, 80

Tempo Instrument, Inc., N.Y., 5sc

Tesla Research Foundation, Utah, 20s

Texas Instruments Incorporated, Semiconductor-Materials Div., P.O. Box 5012, 13500 North Central Expressway, Dallas 22, Texas, 15c, Tel: 214-ADams 5-3111
See ad on Cover 3

Textran Corp., Texas, 5s

Thompson Ramo Wooldridge Inc., STL Products Div. of Space Technology Laboratories, Calif., 5c

Thompson Ramo Wooldridge Inc., Tapco Div., Ohio, 15c

Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 10s, 15s, 20c, 25s, 30s, 35s

Tokyo Shibaura Electric Co., Ltd., Japan, 15s, 25s

Tracerlab Keleket, Mass., 5s

Transistor Applications, Inc., Mass., 5c

Transmagnetics, Inc., N.Y., 20s

U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 5c

Valpey Crystal Corp., 1100 Highland St., Holliston, Mass., 5c, Tel: 617-GArden 9-4851
See ads on page 219 & in class 56

Walkirt Co., Calif., 5s, 10s

Waltham Precision Instrument Co., Mass., 5c, 10c

Wang Laboratories, Inc., Mass., 5c, 10c

Wayne-George Corp., Mass., 10sc

Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 5sc, 15sc, Tel: 212-JUdson 2-3030
See ad on page 224

Wheaton Engineering Div., Hurletron, Inc., Ill., 5c

Whitehall Electronics Corp., Minn., 10c

Wilcox Electric Co., Inc., Mo., 10sc

Zenith Optical Laboratory, N.Y., 10c

Control equipment:
See class 4

Control equipment, geophysical:
See class 16

Controls, servo:
See class 77

Converters:
See class 53

Converters, computer:
See class 9

Converters, frequency shift:
See class 33

Converters, thermionic:
See class 58

Cooling devices:
See class 54

11. Counters.

5. Digital
10. Frequency
15. Mechanical
20. Preset
25. Radiation

ACF Electronics Div., ACF Industries, Inc., Md., 5c

A R & T Electronics, Inc., Subsid. of Baldwin Piano Co., 1101 McAlmont St., P.O. Box 627, Little Rock, Ark., 5s, Tel: 501-FRanklin 5-6441
See ads in classes 9, 10, 11, 83

Abacus, Inc., Calif., 5sc

Abrams Instrument Corp., Mich., 5sc, 15c, 20c

Ad-Yu Electronics Laboratory, Inc., 249 Terhune Ave., Passaic, N.J., 5sc, 10sc, Tel: 201-GRegory 2-5622
See ad in class 57

Adcole Corp., Mass., 5c

Advance Components, Ltd., England, 5s, 10s

Advanced Instrument Corp., Calif., 5s, 15s

Advanced Research Associates, Md., 5c, 10c

Aidin Automation, Inc., N.Y., 15sc

Airmec, Ltd., England, 5s, 10s, 25s

Airtronics, Inc., D.C., 5c

Amerac, Inc., Mass., 10sc, 15sc

American Communications Corp., N.Y., 5c

American Electronics, Inc., Taller Cooper Div., N.Y., 5c

American Hydromath Corp., N.Y., 15c

American Machine & Foundry Co., N.Y., 5c

American Time Products, Div. of Bulova Watch Co., Inc., 61-20 Woodside Ave., Woodside 77, N.Y., 10sc, Tel: 212-OLympia 1-7800
See ad in class 31

Anadex Instruments, Inc., Calif., 5c, 10c, 20c

Angler Industries, Inc., N.J., 5c, 15c

Applied Electronics Corp. of New Jersey, P.O. Box 43, Metuchen, N.J., 5sc, Tel: 201-LIberty 9-9200
See ad in class 34

Ardwin Microlab, Inc., Mass., 5sc, 10sc, 20sc

Armstrong Whitworth-Brush, Falcon Works, England, 5sc

Associated Electrical Industries (Rugby), Ltd., England, 5c, 10s

Astro-Space Laboratories, Inc., Ala., 5c, 10c

Ateliers de Montages Electriques (AME), France, 10c, 25s

Atomic Accessories, Inc., Subsid. of Baird-Atomic, Inc., 817 W. Merrick Rd., Valley Stream, L.I., N.Y., 25s, Tel: 516-CUrtiss 5-9300
See ad in class 22

Atomic Laboratories, Inc., Calif., 25s

Auerbach Electronics Corp., Pa., 5c

Austin Electronics, Div. of Austin Co., N.Y., 5c

Automatic Timing & Controls, Pa., Impulse s, Revolution s

Automation, Inc., Mass., 5c

Automation Industries, Inc., 5c, 15c

Automation Management, Inc., Mass., 10sc

Avtron Mfg., Inc., Ohio, 5sc, 10sc

Bach-Simpson, Ltd., Canada, 5s

Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 20s, 25s, Tel: 617-UNiversity 4-7420
See ad in class 86

Baldwin Piano Co., Ohio, 5sc

Barker & Williamson, Inc., Pa., 15s

Beckman Instruments, Inc., Berkeley Div., Calif., 5s, 10s, 20s

Beckman Instruments, Inc., Systems Div., Calif., 5c

Bendix Corp., Bendix-Pacific Div., Calif., 5sc

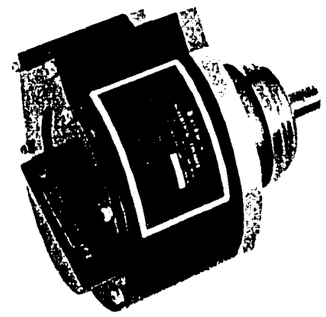
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 5c, 10c

Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J., 5c, 15c, Tel: 201-ATlas 8-2000
See ad on pages 46-47

Baldwin®

MODEL 410 DIGITAL

COUNTERS



High resolution incremental Encoder and Tachometer with 5,000 count per rev. and directional sensing suitable for up and down counter. Diam: 4". Length: 4 15/64". Wt: 6¼ lbs.

Write for our FACT SHEET

AR&T ELECTRONICS, INC.

BOX 627 LITTLE ROCK, ARKANSAS

A wholly-owned subsidiary of the Baldwin Piano Company

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "S" indicates stock items; "C" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

11. Counters.

Bendix Corp., Industrial Controls Section, Mich., 5s
Benson-Lehner Corp., Calif., 5sc
Biddle Co. (James G.), Pa., 10s

Borg Equipment Div., Amphenol-Borg Electronics Corp., 120 S. Main St., Janesville, Wis., 5sc, 15sc, Tel: 608-PLeasant 4-6616
See ad in class 74

Bowmar Instrument Corp., 8000 Bluffton Rd., Fort Wayne, Ind., 5c, 15c, 20c, Tel: SHerwood 3121
See ad in class 77

Buck Instrument Co., Colo., 5c
Bulow Electric Co., Mich., 20c
Burroughs Corp., Electro Data Div., Calif., 5s, 20s
Burroughs Corp., Electronic Components Div., N.J., 5s
C & K Components, Inc., Mass., 20c
California Computer Products, Inc., Calif., 5c
Canadian Aviation Electronics, Ltd., Canada, 25c
Canoga Electronics Corp., Calif., 5c
Central Dynamics, Ltd., Canada, 15sc
Chicago Dynamic Industries, Inc., Ill., 15sc
Chrono-Log Corp., Pa., 5s
Cleveland Metal Specialties Co., Electronics Div., Ohio, 5c
Comptometer Corp., Ill., 10c
Comptron Corp., Mass., 5sc, 20c
CompuDyne Corp., Pa., 25c
Computer Equipment Corp., Calif., 5c
Computer-Measurements Co., Div. of Pacific Industries, Inc., Calif., 5sc, 10s, 20sc, 25sc
Computer Techniques, Inc., N.Y., 5sc
Consolidated Avionics Corp., N.Y., 5c, 10c, 20c
Continental Technical Service, Inc., Ohio, 5c, 10c, 15c, 20c, 25c
Control Equipment Corp., Mass., 5c, 10c, 20c
Controls for Radiation, Inc., Mass., 25c
Contronics, Inc., Mass., 5c
Counting Instruments, Ltd., England, 5s, 15s, 20s
Cox Instruments Div., George L. Nankervis Co., Mich., 5s, 15s, 20s
Cyclotron Specialties Co., Calif., 15s
DBM Research Corp., Fla., 5sc, 20c, 25c
Daco Instrument Co., N.Y., 15c
Data Products Co., Inc., Md., 5c, 10c
Datascan, Inc., N.J., 5c
Datex Corp., Calif., 5sc
Dawe Instruments, Ltd., England, 10s
Denominator Co., Inc., N.Y., 10c, 15c
Denson Electronics Corp., Conn., 15c
Developmental Electronics Corp., Calif., 5c, 10c
Di/An Controls, Inc., Mass., 5sc, 10c, 20c
Dicon Corp., N.Y., 10c, 15c, 20c
Digitac, Inc., Calif., 5sc, 15sc
Digital Equipment Corp., Mass., 5s
Digitool Corp., Texas, 5c
Digitran Co., Calif., 5s, 15s
Dittmore-Freimuth Corp., Wis., 10s, 15s, 20s
Douglas Aircraft Co., Inc., Calif., 5c, 10c, 15c
Drexel Dynamics Corp., Pa., 5c
Duncan Electric Co., Inc., Davenport Mfg. Div., Ill., 5c, 10c
Durant Mfg. Co., Wis., 5sc, 15sc, 20sc
Dynamic Controls Co., Mass., 5sc
Dynapar Corp., Subsid. of Louis Allis Co., Wis., 5s, 20s
Dynex, Inc., N.Y., 5c
Eagle Signal Co., Div. of Gamewell Co., Ill., 20sc
Eberline Instrument Corp., N.M., 5s, 25s
Ekco Electronics, Ltd., Ekco Works, England, 25s
Eldorado Electronics, Calif., 5sc, 10sc, 20sc, 25sc
Electrac, Inc., Calif., 10c
Electric Tachometer Corp., Pa., 15sc
Electro Logic Corp., Calif., 5sc, 10c, 20c
Electro-Mech Engineering Co., Minn., 5c
Electro-Neutronics, Inc., Calif., 25c
Electro Radiation, Inc., Calif., 5c
Electronic Controls, Inc., Conn., 5sc, 20sc
Electronic Counters, Inc., N.Y., 5s, 10s, 20s
Electronic Products Co., Div. of Victoreen Instrument Co., N.Y., 25s

Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., 5sc, Tel: 301-HAmilton 6-1268
See ad in class 73

Elgin Micronics, Div. of Elgin National Watch Co., Ill., 5sc, 10sc, 15sc
Elliott-Automation, Ltd., England, 10c, 15c, 20c, 25c
Emerson Electric Mfg. Co., Mo., 5sc, 10c
Endevco Corp., Calif., 5sc
Engelhard Industries, Inc., Makepeace Div., Mass., 15c
Epsco, Inc., Mass., 5sc, 20c

Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 5sc, 10sc, 20s, 25s, Tel: 814-GLendale 6-8592
See ad on pages 78-79

Erie Resistor Corp., Erie Pacific Div., Calif., 5s, 10s, 20s
Etelco, Ltd., England, 5sc, 20sc, 25sc
Exact Engineering & Mfg., Inc., Calif., 5c, 15c
Fairbanks, Morse & Co., Electronics Div., N.Y., 25c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 10c, 25c
Ferranti Electric, Inc., N.Y., 5c
First Electronics Corp., Mass., 20c

Franklin Systems, Inc., 2734 Hillsboro Rd., P.O. Box 3250, West Palm Beach, Fla., 5sc, 10c, 20c, 25sc, Tel: 305-TEmple 3-4602
See ad in class 22

Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 20s, Tel: 212-EVergreen 6-1300
See ad in class 84

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 5sc, 10sc, 20sc, Tel: 216-SHadyside 9-0700
See ad in class 50

Gelman Instrument Co., 106 N. Main St., Chelsea, Mich., 25s, Tel: 313-GReenwood 9-4821
See ads in classes 22, 40

General Applied Science Laboratories, Inc., Merrick & Stewart Aves., Westbury, L.I., N.Y., 5c, 10c, Tel: 516-EDgewood 3-6960
See ad in class 35

General Controls Co., Calif., 5s, 15s, 20s
General Controls Co., Automation Controls Div., Ill., 5s, 15s, 20s

General Devices, Inc., P.O. Box 253, Princeton, N.J., 5c, Tel: 609-WAlnut 4-2500
See ad adjacent to Index to Advertisers, back of book

General Nuclear Corp., N.Y., 25sc
General Precision Equipment Corp., Kearfott Semiconductor Corp. (Subsid.), Mass., 10c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5c
General Precision, Inc., Kearfott Div., N.J., 5sc, 15sc
General Precision, Inc., Librascope Div., Calif., 5c, 15c

General Radio Co., 22 Baker Ave., West Concord, Mass., 5s, 10s, Tel: 617-EMerson 9-4400
See ad on Cover 4

General Time Corp., N.Y., 5c, 10c
General Time Corp., Incremag Div., Conn., 5c, 20c
Gibbs Mfg. & Research Corp., Wis., 5c, 10c, 15c
Gilmore Industries, Inc., Ohio, 5c

Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 10c, Tel: 312-CHesapeake 3-1100
See ad in class 73

Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 5c, Tel: 516-WElls 8-9500
See ad in class 77

Haledy Electronics Co., N.Y., 10c
Harman-Kardon, Inc., N.Y., 5s, 10c
Harristahl Laboratories, N.Y., 5c
Harshaw Chemical Co., Crystal Div., Ohio, 25sc
Harvey-Wells Electronics, Inc., Mass., 5c
Haydon Co. (A. W.), Conn., 5c, 20c
Haydon Instrument Co., Conn., 5sc, 10sc, 15sc, 20sc

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 5s, 10s, 20s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28

Hewlett-Packard Co., Dymec Div., Calif., 5sc, 10sc, 20sc
Hoffman Electronics Corp., Calif., 5c, 10c, 15c
Howell Instruments, Inc., Texas, 10s
Hughes Aircraft Co., Nuclear Electronics Laboratory, Calif., 25sc
Hydro-Aire Co., Div. of Crane Co., Calif., 5c
Iconix, Inc., Calif., 5sc, 20sc
Ideal-Aerosmith, Div. of Royal Industries, Inc., Wyo., 5sc
Instrument Corp. of Florida, Fla., 5c
Instrument Systems Corp., N.Y., 15c, 20c
International Telephone & Telegraph Corp., ITT Kellogg, Ill., 15s
Interstate Electronics Corp., Calif., 5c, 20c
Isotope Developments, Ltd., England, 25s

Directory I. Complete Equipment

11. Counters.

Iwasaki Communication Apparatus Co., Ltd., Japan, 5s, 10s
Jack Scientific Instrument Co. (Bill), Calif., 15s, 20c
Jacobs Instrument Co., Md., 5c, 10c, 20c
Jetronic Industries, Inc., Pa., 10c
Johnson & Associates, Inc. (Wm. B.), N.J., 25sc
Jones & Wettlaufer Engineering Corp., Calif., 5sc, 15sc
Jordan Electronics, Div. of Victoreen Instrument Co., Calif., 25s
Kahl Scientific Instrument Corp., Calif., 25sc
Kinetic Instrument Corp., N.Y., 15c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc
Land-Air, Inc., Stepper Motors Div., Calif., 15c
Landis & Gyr, Inc., N.Y., 5s, 15s, 20s, 25s, Impulse s

Lavoie Laboratories, Inc., Matawan-Freehold Rd., Morganville, N.J., 10s, Tel: 201-LOwell 6-2600
See ad in class 37

Lehigh Valley Electronics Engineering & Mfg., Inc., Pa., 15s
Lincoln Research Laboratory, Nebr., 25c
Ling Temco Vought, Inc., Texas, 5c
Ling Temco Vought, Inc., Temco Electronics Div., Texas, 5c
Lionel Corp., N.J., 5c, 10c, 25c

Lionel Corp., Lionel Electronic Laboratories (formerly Anton Electronic Laboratories), Dept. X-2, 1226 Flushing Ave., Brooklyn 37, N.Y., 25sc, Tel: 212-EVergreen 6-5715
See ad in class 52

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 5sc
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., Md., 5c, 10c, 25c
Litton Industries, Inc., Monroe Calculating Machine Co., Electronics Components Div., Calif., 5c, 15c
Lockheed Electronics Co., N.J., 5sc, 15sc, 20sc
Loral Electronics Corp., N.Y., 5c

M F Electronics Corp., 118 E. 25th St., New York 10, N.Y., 5c, 10sc, Tel: 212-OREgon 4-5360
See ads in classes 10, 35, 50

Machinery Electrification, Inc., Mass., 20sc
Magnetics Research Co., Inc., N.Y., 5sc
Mallory & Co., Inc. (P. R.), Ind., 5c
Manson Laboratories, Inc., Conn., 10sc
Marshall of Cambridge Electronics, Ltd., England, 25s
Marstan Electronics Corp., N.Y., 5c, 15c, 20c
Mast Development Co., Iowa, 5sc, 15sc, 20sc
Matsushita Communication Industrial Co., Ltd., Japan, 5c
Maxwell Electronics Corp., Texas, 10sc
Melpar, Inc., Va., 5c, 10c

Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 5sc, 10sc, 20sc, Tel: 305-OXford 1-1220
See ad in class 28

Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden, 48, Mass., 15s, Tel: 617-DAvenport 4-4108
See ad in class 51

Model Engineering & Mfg. Corp., Ind., 5c
Modern Design, Div. of H. C. Schloer, Inc., N.Y., 20c
Monroe Electronic Laboratories, Inc., N.Y., 5c, 20c
Montek, Inc., Utah, 5c
Naniloa Corp., Ohio, 5sc, 10sc, 20sc, 25sc
Nash & Thompson, Ltd. (Messrs.), England, 5s, 10s
Natel Engineering Co., Calif., 10c

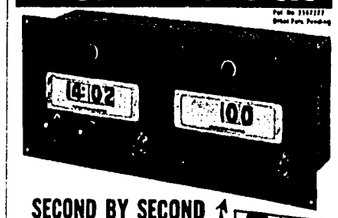
Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 5sc, 10sc, 20sc, Tel: 215-GLendale 2-6531
See ad in class 10

Newton Co., Conn., 5c
Northeastern Engineering, Inc., N.H., 5sc, 10sc, 20c, 25c
Nuclear-Chicago Corp., Ill., 20s, 25s
Nuclear Corp. of America, Instrument & Control Div., N.J., 25sc
Nuclear Development Laboratory, Inc., Mo., 25sc
Nuclear Measurements Corp., Ind., 25s
Nuclear Research Corp., Pa., 25sc
Nucleonic Corp. of America, N.Y., 25s
Omco, Ariz., 25s
Optics Technology, Inc., Calif., 25c
Oxford Engineering Corp., Mass., 5c, 20c, 25c
Packard-Bell Computer Corp., Calif., 5c, 10c
Pastoriza Electronics, Inc., Mass., 5s, 10s, 25c

Pennwood Numechron Co., 7249 Frankstown Ave., Pittsburgh 8, Pa., 5s, Tel: 412-FRemont 1-4200
See ad in this class

Performance Measurements Co., Mich., 5c
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 25sc
Philips Electronics Industries, Ltd., Canada, 20s, 25s
Photocon Research Products, Calif., 15sc, 20sc
Photographic Analysis, Inc., Calif., 5c, 15c
Picker X-Ray Corp., N.Y., 25s
Planet Instrument, Inc., Ind., 15c
Plug-In Instruments, Inc., Tenn., 5s, 20c
Potter Aeronautical Corp., N.J., 5s, 10s, 20s
Power-Tronic Systems, Inc., N.Y., 10c
Precise Electronics & Development Corp., Subsid. of Designatronics, Inc., N.Y., 5s, 10s
Precision Specialities, Inc., N.J., 5c, 15c, 20c
Presin Co., Inc., Calif., 5sc, 15sc, 20sc
R-K Laboratories Co., N.Y., 5c, 10c, 20c
RMS Associates, Inc., N.Y., 5sc
Racal Engineering, Ltd., England, 5sc, 10sc
Radiation Counter Laboratories, Inc., Ill., 25s
Radiation Instrument Development Laboratories, Inc., Ill., 25s
Radio Corp. of America, Defense Electronic Products, N.J., 5c, 15c
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 20c
Ram Meter, Inc., Mich., 20c
Ransom Research, Inc., Calif., 5sc, 10c, 20c
Redford Corp., N.Y., 5s, 10c, 20s
Remington Rand Univac, Div. of Sperry Rand Corp., Minn., 5c
Rescon Electronics Corp., Mass., 5c
Reuter-Stokes Electronic Components, Inc., Ohio, 25s
Rheem Mfg. Co., Rheem Electronics Div., Calif., 5sc
Rixon Electronics, Inc., Md., 5c
Robotomics Enterprises, Inc., Ariz., 5s
Rochar Electronique, France, 10s
Rowan Controller Co., Md., 15c, 20c
Royson Engineering Co., Pa., 5sc, 15sc
Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 5c, 10c, 15c
Schaevitz Engineering, N.J., 5c, 10c, 15c, 20c

NEW . . TYMETER GRADINETIC®
SECOND BY SECOND
5 DIGIT 12 OR 24 HOUR READOUT
DIGITAL CLOCK



SECOND BY SECOND GRADIENT READOUT 00

#110 FEATURES:

• Split Second Timing • Second by Second 00-59 Kinetic Gradient Readout • Time is registered on 5 Polygonal Drums . . One Hour Drum, One 10 Minute Drum, One Minute Drum, Two Seconds Drums • Large ⅛" easy to read digits, 12 hour clock • 3/16" easy to read digits, 24 hour clock • Full vision in line readout digital display • Independent front panel time reset controls reset digits individually • Illumination controlled by independent control switch • Jewel light panel indicator • Movement shock resistant to withstand shock of 2000 lbs. • Completely enclosed in anodized metal dustproof case • Height 4½", Width 12", Depth 3½", Weight 6 lbs. • Front panel mount . . desk or bench use • TYMETERS are powered by a rugged, completely enclosed synchronous motor with a rotor speed of 450 RPM • UL approved motor and cord • Guaranteed one year

Write for Catalog on Complete Line Showing Specifications

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7249 FRANKSTOWN AVE. PITTSBURGH 8, PA.

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

11. Counters.

Sensory, Inc., N.J., 10c, 20c
Servo Corp. of America, N.Y., 5sc, 10sc, 20sc
Servo Development Corp., 2 Willis Ct., Hicksville, L.I., N.Y., 5sc, 15sc, Tel: 516-OVerbrook 1-4343
See ad in class 77
Servomechanisms/Inc., Calif., 5c, 15c
Smith-Florence, Inc., Wash., 25s
Shepard Laboratories, Inc., N.J., 5c
Sierra Research Corp., N.Y., 5c
Solartron Electronic Group, Ltd., England, 5s
Southern Instruments, Ltd., England, 5s
Space Instrumentation Corp., Calif., 10sc, 20sc
Standard Electric Time Co., Mass., 10s
Standard Instrument Corp., N.Y., 5s, 20s
Standard Telephones & Cables, Ltd., England, 5s
Starling Corp., Calif., 20s
Stelma, Inc., Conn., 5c, 10c
Sterling Instrument Div., Designatronics, Inc., N.Y., 5s
Stevens Mfg. Co., Inc. (George), Pulaski Rd. at Peterson, Chicago 46, Ill., 15s, Tel: 312-JUniper 8-1300
See ad in class 99
Stoelting Co. (C. H.), Ill., 10c, 15c
Strand Engineering Co., Mich., 5c
Streeter-Amet Co., Ill., 5sc, 10c, 15c, 20c, 25c
Summers & Mills, Inc., Texas, 5c, 25c
Sun Electric Corp., Instrumentronics Div., Ill., 10s
Sunshine Scientific Instrument, Pa., 5c, 10c, 15c
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 5c
Systron-Donner Corp., Calif., 5s, 10sc, 20s
TRG, Inc. (Technical Research Group), N.Y., 5c
Technical Measurement Corp., Conn., 5s
Telechrome Mfg. Corp., N.Y., 25s
Telecomputing Corp., Calif., 5sc, 15s, 20sc
Telemetrics, Inc., Calif., 5sc
Tempo Instrument, Inc., N.Y., 5sc
Theta Instrument Corp., 520 Victor St., Saddle Brook, N.J., 15s, Tel: 201-HUbbard 7-3508
See ad in class 97
Thompson, Ltd. (J. Langham), England, 5sc, 10sc
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 20c
Tipptronic, Inc., Ohio, 20c
Tokyo Shibaura Electric Co., Ltd., Japan, 5s, 10s
Tracerlab Keleket, Mass., 5s, 25s
Transformer-Electronics Co., Colo., 5c
Transistor Specialties, Inc., N.Y., 5sc, 10sc, 20sc
Trott Electronics, Inc., N.Y., 5c, 20c
Union Switch & Signal, Div. of Westinghouse Air Brake Co., Braddock Ave., Pittsburgh 18, Pa., 5s, Tel: 412-CHurchill 2-5000
See ad in class 73
United States Instrument Corp., Va., 5s, 15s
Universal Mfg. Co., Inc., N.J., 5s
Veeder-Root, Inc., Conn., 5sc, 10c, 15sc, 20sc, 25c
Vemaline Products Co., N.J., 5sc, 20sc
Venner Electronics, Ltd., England, 5sc, 10sc, 20c
Victoreen Instrument Co., 5806 Hough Ave., Cleveland 3, Ohio, 25s, Tel: ENdicott 1-6200
See ads in classes 74, 86
Vocaline Co. of America, Conn., 15c
Walkirt Co., Calif., 5s, 10s, 20s
Wang Laboratories, Inc., Mass., 5c
Webcor, Inc., Electronics Div., Ill., 15c
Western Apparatus Co., Div. of Comptometer Corp., Ill., 10s
Westport Electric, Calif., 5sc, 10sc, 20sc
Wood Counter Laboratory (N.), Ill., 25sc

Data reduction equipment:
See class 9

Data storage mechanisms:
See class 34

12. Decades.

5. Capacitance **15. Inductance**
10. Impedance **20. Resistance**

A C Electronics, Inc., Calif., 15c
Aerovox Corp., Mass., 5s, 15s, 20s

SYSTRON—DONNER
Digital/Analog Systems & Instruments

Model 1039-D Transistorized 25 MC Timer Counter

DIGITAL Voltmeters, Counters, Ratiometers, Frequency Meters, Tachometers, Clocks, Scalers, Oscillators, ANALOG converters (AC-DC, Ω-DC, DC-Time, Freq.-DC) and complete A/D or D/A systems involving these techniques.

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BURLINGAME ASSOCIATES
MOUNT VERNON, N.Y. • MOunt Vernon 4-7530
WALTHAM .....TWinbrook 4-1955
SYRACUSE .....GRanite 4-7409
PHILADELPHIA .....SHerwood 7-9080
WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400
For details, circle #143 on Reader Service Card.

12. Decades.

Arco Electronics, Inc., Community Dr., Great Neck, L.I., N.Y., 5c, Tel: 516-HUnter 7-0500
See ads in classes 31, 48
Barnes Development Co., 213 W. Baltimore Pike, Lansdowne, Pa., 5c, 20c, Tel: 215-MAdison 2-1525
See ad in class 41
Barnett Instrument Co., Tenn., 20s
Blackburn Electronic Corp., Pa., 20c
Bundy Electronics Corp., N.J., 15c
Burnell & Co., Inc., Dept. IR-2, 10 Pelham Pkwy., Pelham Manor, N.Y., 15s, Tel: 914-PElham 8-5000
See ad on page 106
Cambridge Instrument Co., N.Y., 5c, 10c, 15c, 20c
Clarostat Mfg. Co., Inc., N.H., 20sc
Coast Coil Co., Calif., 15sc
Coils-Electronics Co., Pa., 5s, 10s, 15c, 20s
Cole Instrument Co., Calif., 20c
Consolidated Resistance Co. of America, Inc., N.Y., 20c
Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 5s, 20s
Dale Electronics, Inc., Subsid. of Hathaway Instruments, Inc., 1318 28th Ave., P.O. Box 488, Columbus, Nebr., 20c, Tel: 402-LOcust 4-3131
See ad in class 74
Daven Co., Subsid. of General Mills, Inc., N.J., 20s
Dawe Instruments, Ltd., England, 5s, 20s
Dicon Corp., N.Y., 5c, 10c, 15c, 20c
Digitran Co., Calif., 5s, 20s
Direct T/V Windings, Ltd., England, 5s
Dmeter Mfg. Co., Inc., N.Y., 20c
Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 5s, 20s, Tel: 212-STillwell 6-8700
See ad in class 41
Electro Scientific Industries, Inc., Ore., 5s, 10s, 20s
Electronic Development Laboratory, Inc., Ill., 5c, 20c
Elpac, Inc., Calif., 5c
Endevco Corp., Calif., 5s
Epic, Inc., N.Y., 20s
Espey Mfg. & Electronics Corp., N.Y., 20c
Fidelity Amplifier Co., Ill., 20s
Fluke Mfg. Co., Inc. (John), Wash., 20s
Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 5s, 15s, Tel: 212-EVergreen 6-1300
See ad in class 84
Furzehill Laboratories, Ltd., England, 20s
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c
General Radio Co., 22 Baker Ave., West Concord, Mass., 5s, 15s, 20s, Tel: 617-EMerson 9-4400
See ad on Cover 4
General Resistance, Inc., 430 Southern Blvd., New York 55, N.Y., 20sc, Tel: 212-CYpress 2-1500
See ad in class 74
Gray Instrument Co., Pa., 20sc
Guildline Instruments, Ltd., Canada, 15s
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 20s

Directory I. Complete Equipment

12. Decades.

Industrial Instruments, Inc., N.J., 5s, 20s
Julie Research Laboratories, Inc., N.Y., 20sc
Key Resistor Corp., Calif., 20c
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 20c
Knopp, Inc., Calif., 15c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5sc, 10sc, 15sc, 20sc
Kurtston Electronics, N.Y., 20sc
Langevin, Div. of Sonotec, Inc., Calif., 20s
Leeds & Northrup Co., Pa., 5s, 20s
Ling Temco Vought, Inc., Texas, 5c, 10c, 15c, 20c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c, 10c, 15c, 20c
MacLeod & Hanopol, Inc., Mass., 5c
Marstan Electronics Corp., N.Y., 20s
Measurements, McGraw-Edison Div., N.J., 20s
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 20s
Minneapolis-Honeywell Regulator Co., Rubicon Div., Pa., 20sc
Model Engineering & Mfg. Corp., Ind., 5c, 10c, 20c
Modern Design, Div. of H. C. Schloer, Inc., N.Y., 20c
Muirhead & Co., Ltd., England, 5s, 15s, 20s
Muirhead Instruments, Inc., N.Y., 5s, 10s, 15s, 20s
Neptune Electronics Co., N.Y., 5c, 20sc
Ohmite Mfg. Co., Ill., 20s
Pacific Instrument Co., Calif., 15c
Physics Research Laboratories, Inc., Dept. SA-1, P.O. Box 555, Hempstead, L.I., N.Y., 5s, 15s, 20sc, Tel: 516-IVanhoe 3-8299
See ad in class 40
Polytronics Co., Canada, 20sc
Precise Electronics & Development Corp., Subsid. of Designatronics, Inc., N.Y., 5s, 20s
Precision Apparatus Co., Inc., Div. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 5s, 10c, 15c, 20s, Tel: 212-TWining 4-4290
See ad in class 39
R-K Laboratories Co., N.Y., 20c
Rainier Co., Inc., N.Y., 5c, 10c, 15c, 20c
Rixon Electronics, Inc., Md., 5c, 10c, 15c, 20c
Rohde & Schwarz, P.O. Box 275, 111 Lexington Ave., Passaic, N.J., 5s, 20s, Tel: 201-PRescott 3-8010
See ad in class 38
Sangamo Electric Co., Springfield, Ill., 5c, Tel: 217-KIngswood 4-6411
See ad on page 142
Servomex Controls, Ltd., England, 5s
Shallcross Mfg. Co., N.C., 20sc
Siemens New York, Inc., N.Y., 5s, 20s
Simmonds Precision Products, N.Y., 5sc
Smith-Florence, Inc., Wash., 20c
Sprague Electric Co., Mass., 5sc, 15sc
Sterling Instrument Div., Designatronics, Inc., N.Y., 5sc, 20sc
Sunshine Scientific Instrument, Pa., 5c, 10c, 15c, 20c
Superior Instruments Co., N.Y., 5s, 20s
Systems Development, Inc., N.Y., 5c
Taffet Electronics, Inc., N.Y., 5c, 20c
Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 20sc, Tel: 201-WIndsor 4-2221
See ad in class 80
Telectro Industries Corp., N.Y., 5c
Telegraph Condenser Co., Ltd., England, 5s
Tesla Research Foundation, Utah, 20c
Torocoil Co., Ill., 15s
Torotron Corp., Dept. D, 256 E. Third St., Mount Vernon, N.Y., 15s, Tel: 914-MOunt Vernon 8-6900
See ad in class 51
Transformers, Inc., N.Y., 15c
Ultronix, Inc., Calif., 20c
United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 5s, Tel: 212-BEekman 3-8870
See ads in classes 74, 104
United Transformer Corp., 150 Varick St., New York 13, N.Y., 15s, Tel: 212-ALgonquin 5-3500
See ad on Cover 2
Universal Mfg. Co., Inc., N.J., 15s
Winslow Co., Inc., N.J., 5s, 20sc

Decoders, computer:
See class 10

Detectors, flaw & leak:
See class 40

Detectors, infrared:
See class 17

Detectors, metal:
See class 40

Detectors, microwave:
See class 66

Detectors, nuclear:
See class 22

Dictation equipment:
See class 27

Digital computers:
See class 8

Digital control equipment:
See class 4

Digital counters:
See class 11

Digital delay lines:
See class 57

Digital timing generators:
See class 40

Digital voltmeters:
See class 40

Direction finders, aircraft-missile:
See class 2

Direction finders, marine:
See class 18

Display & readout devices:
See class 9

Displays, artificial & video:
See class 2

Displays, indicator:
See class 63

Displays, numerical:
See class 63

Dispatching equipment:
See class 20

Dividers, power:
See class 66

Dividers, voltage:
See class 40

Dosimeters:
See class 22

Drum storage devices:
See class 10

Drying equipment:
See class 99

Dynamometers:
See class 40

13. Educational Equipment.

5. Audio-Visual aids **10. Teaching machines**

A.L.A. Industries, Inc., N.Y., 10c
Advanced Research Associates, Md., Servo & Transistor Training-Aids sc
Advancement Devices, Inc., N.Y., 5c
Aircraft Armaments, Inc., Md., 10c, Training Equipment c
Aircraft & Missile Consultants, Calif., 5c
All American Engineering Co., Commercial Products Div., Del., 10s
American Communications Corp., N.Y., 5c, 10c
American Concertone, Inc., Calif., 5sc
American Electronics Co., N.Y., 5sc
American Elite, Inc. (Telefunken), N.Y., 5s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

13. Educational Equipment.

American Systems, Inc., Calif., 5s, 10c
Ampex Audio Co., Calif., 5s
Amplivox Exports, Ltd., England, Speech Training-Aids s
Applied Control Corp., N.J., 10c
Applied Dynamics, Inc., Mich., 10sc
Arkay International, Inc., N.Y., 5c
Arlo Electronic Corp., N.Y., 5c, 10c
Astro Dynamics, Inc., Mass., 5c
Astrosystems, Inc., N.J., 10s
Atkins & Merrill, Inc., Mass., 10c
Atomic Laboratories, Inc., Calif., 5s
Audax, Inc., N.Y., 5c
Audio-Master Co., N.Y., 5sc
Audiotronics Corp., Calif., 5s, 10c
Auerbach Electronics Corp., Pa., 10c
Autometric Corp., N.Y., 10c
Bach Auricon, Inc., Calif., 5s
Basic & Experimental Physics, Mass., 5c
Bausch & Lomb, Inc., Instrument Div., N.Y., 5sc
Becker Electronics Mfg. Corp., N.Y., 10c
Black Light Corp. of America, Calif., 5s
Bogen-Preston, Div. of Siegler Corp., N.J., 5s
Bolsey Corp. of America, N.Y., 5sc, 10sc
Bulow Electric Co., Mich., 10c
Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., 10c
Cambridge Instrument Co., N.Y., 5c
Carmody Corp., N.Y., 5c, Industrial Trainers c
Central Dynamics, Ltd., Canada, 10c
Central Scientific Co., Div., of Cenco Instruments Corp., Ill., 5s, 10s
Clevite Corp., Clevite Electronic Components Div., Ohio, 5s
Community Engineering Corp., Pa., 5sc
Conn, Ltd. (C. G.), Ind., 5s, 10s
Controls Co. of America, Ill., 5sc, 10sc
Cook Co. (Ken), Wis., 5c, 10sc
Cook Electric Co., Ill., 5c, 10c
Cousino Electronics Corp., Ohio, 5 Language-Labs c
Crown Engineering, N. M., 5c
Delcon Corp., Calif., 10c
Dero Research & Development Corp., N.Y., 5sc, 10sc
Diamond Electronics, Div. of Diamond Power Specialty Corp., Ohio, 10c
Dictaphone Corp., D.C., 10sc
Dictaphone Corp., N.Y., 5sc
Digital Equipment Corp., Mass., Digital Training Blocks s
Direct T/V Windings, Ltd., England, 5s
Dorsett Electronics, Inc., Okla., 5sc, 10sc
Dorsey & Associates (J. G.), Calif., 5c
Dyna Magnetic Devices, Inc., N.Y., 5sc
Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 5s, Tel: 212-STillwell 6-8700
See ad in class 41
Electro-Mech Engineering Co., Minn., 5c
Electro-Neutronics, Inc., Calif., 10c
Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., Minn., 5s, 10c
Electronic Development Laboratory, Inc., Ill., 5c
Electronic Engineers, Inc., Ill., 5c, 10c
Electronic Production & Development, Inc., Calif., 5c, 10c
Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., Missile Panel Trainers sc, Tel: 301-HAmilton 6-1268
See ad in class 73
Electronic Specialty Co., Calif., 10c
Elliott-Automation, Ltd., England, 10c
Elm Laboratories, N.Y., 5sc, 10c
Epsco, Inc., Mass., 10s
Fairbanks, Morse & Co., Electronics Div., N.Y., 5c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5sc, 10c
First Electronics Corp., Ind., 5c
GP Engineering Services, Pa., 5c, 10c
General Atronics Corp., Pa., 10sc
General Dynamics/Electronics, N.Y., 5sc
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5sc, 10sc
General Precision, Inc., GPL Div., N.Y., 5s
General Precision, Inc., Librascope Div., Calif., 10c
General Thermoelectric Corp., P.O. Box 253, Princeton, N.J., 5sc, Tel: 609-DAvis 9-4545
See ad in class 54
Gray Mfg. Co., Conn., 5c
Gregory Research Engineering Group, N.Y., 5sc
Grumman Aircraft Engineering Corp., N.Y., 5c
Gulow Transformer Co., Inc., N.J., 5c
HRB-Singer, Inc., Pa., 5c, 10s
Hallamore Electronics Div., Siegler Corp., Calif., 5s
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s
Houston Fearless Corp., Westwood Div., Calif., 10c
Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif., 5c, Tel: 213-TRiangle 7-1144
See ads on page 162 & in class 63
International Radio & Electronics Corp., Ind., 5sc
Itek Laboratories, Div. of Itek Corp., Mass., 10c
Kalart Co., Inc., Conn., 5c, 10c
Kaman Aircraft Corp., Conn., 5c, 10c
Kingston Electronics, Div. of Kingston Industries, Inc., Mass., 10s
Kirsch Music Corp., N.Y., 5s
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5sc
Lear, Inc., Calif., 5sc, 10sc
Ling Temco Vought, Inc., Texas, 5sc, 10c
Ling Temco Vought, Inc., Electron Corp. (Subsid.), Texas, 5s
Ling Temco Vought, Inc., F F & M Electronics, Inc. (Subsid.), Calif., 5c, 10c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c, 10c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 5sc, 10sc
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., Md., 5c, 10c
Lockheed Electronics Co., N.J., 5c
Lyncoach & Truck Co., Inc., N.Y., 10c
MP Engineering Co., Conn., 5sc
MacKay Research Laboratories, Ariz., 10c
MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 5c, Tel: 305-LOgan 4-8518
See ad in class 4
Marine View Electronics, Inc., N.Y., 5c
Mast Development Co., Iowa, 5s, 10c
McElroy Electronics Corp., Mass., 5c
Melody Master Mfg. Co., Ill., 5sc
Midwestern Instruments, Inc., Okla., 5s
Miles Reproducer Co., Inc., N.Y., 5s, 10s
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 5s
Mohawk Business Machines Corp., N.Y., 5s, 10c
Motorola Communications & Electronics, Inc., Ill., 5sc
Moulic Specialties Co., Ill., 10c
Multitone Electronics, Ltd., Canada, Auditory Trainers s
Nash & Thompson, Ltd. (Messrs.), England, 10s
National Cine Equipment, Inc., N.Y., 5c
Neumade Products Corp., N.Y., 5s
Newcomb Audio Products Co., Calif., 5s
Otis Elevator Co., Defense & Industrial Div., N.Y., 5 Trainers c
Ozalid Div., General Aniline & Film Corp., N.Y., 5s
Pace Circuits Corp., N.Y., 10c
Packard-Bell Electronics Corp., Calif., 5c
Pastoriza Electronics, Inc., Mass., 10c
Permoflux Products Co., Div. of Linlar, Inc., Calif., 5sc, 10sc
Philco Corp., Pa., 5c, 10c
Philco Corp., Government & Industrial Group, Pa., 5s
Philips Electronics Industries, Ltd., Canada, 5s
Photomechanisms, Inc., 15 Stepar Pl., Huntington Station, L.I., N.Y., 5c, Tel: 516-HAmilton 3-4411
See ads in classes 14, 34
Plastic Mold & Engineering Co., R.I., 5s
Polacoat, Inc., Ohio, 5sc
Polytronic Research, Inc., Md., 5c, 10c
Precision Apparatus Co., Inc., Div. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 5s, Tel: 212-TWining 4-4290
See ad in class 39
RCA Victor Co., Ltd., Canada, 5s, 10s
RMS Associates, Inc., N.Y., 10c
Radio Corp. of America, Defense Electronic Products, N.J., 5s
Reflectone Electronics, Inc., Subsid. of Universal Match Corp., Conn., 5 Training Equip. c
Rek-O-Kut Co., Inc., N.Y., 5c
Remler Co., Calif., 5c
Rheem Mfg. Co., Rheem Califone Corp. (Subsid.), Calif., 5s, 10s
Rheem Mfg. Co., Rheem Electronics Div., Calif., 5c, 10c
Round Hill Associates, Inc., N.Y., 5c, 10c
Rye Sound Corp., N.Y., 5s, 10s
Schwarzer Co., 46 Salmi Rd., Framingham, Mass., 5c, 10c, Tel: 617-TRinity 2-1830
See ads in classes 5, 23, 28
Scientific Development Corp., Mass., 5s, 10s

Directory I. Complete Equipment

13. Educational Equipment.

Servomex Controls, Ltd., England, 10s
Shannon Luminous Materials Co., Calif., 5s
Sheltered Workshops, Inc., Calif., 5c
Shrader Sound, Inc., D.C., 5c, 10sc
Solartron Electronic Group, Ltd., England, 10sc
Sonotone Corp., N.Y., 5s
Sony Corp., N.Y., 5s, 10s
Soundpac Electronics Corp., Mich., 5s, 10s
Spectronics Corp., N.Y., 5sc
Stancil-Hoffman Corp., Calif., 5c, 10sc
Standard Systems Corp., N.Y., 5sc
Staples-Hoppmann, Inc., Va., 5sc, 10sc
Stocker & Yale, Inc., Mass., 5c
Stone Laboratories, Inc., Mass., 10c
Stratocon Corp., N.J., 5c, 10c
Superex Electronics Corp., N.Y., 5sc
Telectro Industries Corp., N.Y., 10c
Telephone Dynamics Corp., N.Y., 5sc
Television Associates, Inc., Div. of Melpar, Inc., Ind., 5sc, 10s
Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 5c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80
Telkor, Inc., Ohio, 5c
Tensor Electric Development Co., Inc., N.Y., 5c
Textran Corp., Texas, 10c
Thompson Ramo Wooldridge Inc., Educational Electronics Div., N.J., 5c, 10c
Thomson-Houston (Compagnie Francaise), Group Electronique, France, 5c
Trans-Lux Corp., N.Y., 5sc
Transdyne Corp., N.Y., 10sc
Transis-Tronics, Inc., Calif., 10s
Trionics Corp., Div. of Nautec Corp., Wis., 10c
U.S. Recording Co., D.C., 5s, 10s
Universal Data Systems, Inc., N.Y., 10s
Victorlite Industries, Inc., Calif., 5s
Videonics, Inc., Mass., 5s
Viewlex, Inc., N.Y., 5s, 10s
Vinco Electronics Corp., Conn., 10c
Wang Laboratories, Inc., Mass., 5s
Warren Mfg. Co., Inc., Mass., 5c, 10c
Warwick Mfg. Corp., Ill., 5c
Western Design & Electronics, Div. of U.S. Industries, Inc., Calif., 10sc

Electro-Optical masers:
See class 43

Electro-Optical relays:
See class 73

14. Electro-Optical & Photographic Equipment.

5. Camera recording equipment
10. Cameras, airborne
15. Cameras, instrumentation
20. Electron microscopes
25. Optical inspection

Abrams Instrument Corp., Mich., 5c, 15c
Aeroflex Laboratories, Inc., N.Y., 10c, 15c
Aeronutronic, Div. of Ford Motor Co., Calif., 10c
Aerospace Controls, Calif., 25sc, Scanners sc
Affiliated Manufacturers, Inc., N.J., 25c
All American Engineering Co., Commercial Products Div., Del., 25c
American Instrument Co., Inc., Md., 25 Spectrophosphorimeters & Spectrophotofluorometers sc
American Machine & Foundry Co., Greenwich Engineering Div., Conn., 5s, Tracking Theodolites s
American Optical Co., J. W. Fecker Div., Pa., 5c, 10c, 15c, 25sc
Analab Instrument Corp., N.J., 5s, 15s
Applied Research Laboratories, Inc., Calif., 20c
Art Specialty Co., Ill., 25c
Atronic Products, Inc., Pa., 25sc
Autometric Corp., N.Y., 10c
Bach Auricon, Inc., Calif., 5s, 10s, 15sc
Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 5s, 15s, Tel: 617-UNiversity 4-7420
See ad in class 86
Ball Brothers Research Corp., Colo., 25c
Barnes Engineering Co., Conn., Sensing Devices sc
Basic & Experimental Physics, Mass., 25c
Bausch & Lomb, Inc., Instrument Div., N.Y., 5sc, 15sc, 25sc
Bayside Watch Tool Co., Inc., N.Y., 15sc
Beattie-Coleman, Inc., Calif., 5s, 10s, 15s
Beckman & Whitley, Inc., Calif., 5sc, 15sc
Bendix Corp., Cincinnati Div., Ohio, 20s
Benson-Lehner Corp., Calif., 5s, 10sc, 15sc
Berkeley/Dynamics, Calif., 25sc
Black Light Corp. of America, Calif., 25 UV sc
Bolsey Corp. of America, N.Y., 5sc, 10c, 15c, 25sc
Buck Instrument Co., Colo., 5c, 15c
Buhl Optical Co., Pa., 25sc
Bulova Research & Development Laboratories, N.Y., 5c, 10c, 15c
Burke & James, Inc., Ill., 5c, 15c
Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., 10c
Cameraflex Corp., N.Y., 5sc, 10sc, 15sc, 25sc
Canadian Applied Research, Ltd., Canada, 10s, 15c
Cetron Electronic Corp., Ill., 25c, Interferometers c
Chadwick-Helmuth Co., Calif., 15s
Chicago Aerial Industries, Inc., Ill., 5c, 10c, 15c, 25c
Chicago Aerial Industries, Inc., Pacific Optical Corp. (Div.), Calif., 25c
Chrysler Corp., Defense Group, Mich., 5c
Cinaudagraph, Inc., Ill., 10c
Cinematic Developments, Ark., 5c, 25c
Cole Instrument Co., Calif., 15c
Cook Electric Co., Ill., 25c
Covel Mfg. Co., Mich., 25s
D B M Research Corp., Fla., 5sc, 15sc, 25c
Daco Instrument Co., N.Y., 10c
Davidson Optronics, Inc., Calif., 25s
Dazor Mfg. Corp., Mo., 25sc
Dynex, Inc., N.Y., 5c, 10c, 15c
E.M.I.-Cossor Electronics, Ltd., Canada, 5s
Eder Instrument Co., Inc., Ill., 25c
Edgerton, Germeshausen & Grier, Inc., Mass., 5c, 10c, 15c
Edmund Scientific Co., N.J., 10s, 25s
Ednalite Optical Co., Inc., N.Y., 5c, 10c, 15c, 25c
Edroy Products Co., N.Y., 25 Binocular s
Eichner Instruments (L.C.), N.J., 5c, 25sc
Electro-Neutronics, Inc., Calif., 25s
Electro-Optical Instruments, Inc., Calif., 15sc
Electro Powerpacs, Inc., Mass., Light Pumps c
Electro Radiation, Inc., Calif., 5c
Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 25sc, Tel: 617-LYnn 8-2100
See ad in class 69
Elion Instruments, Inc., Pa., 20c, Spectrographs c
Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 25c, Tel: 201-BIgelow 2-2700
See ad on page 140
FMC Corp., Calif., 25sc
Fairbanks, Morse & Co., Electronics Div., N.Y., 20c
Fairchild Camera & Instrument Corp., Defense Products Div., N.Y., 10c, 15c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5sc, 15sc, 25sc
Ferranti Electric, Inc., N.Y., 5c
Field Emission Corp., Ore., X-Ray Radiography c
Flight Research, Inc., Va., 5 Radar & Environmental sc, 10sc, 15sc
Ford Instrument Co., N.Y., 15c
Gates & Co., Inc. (George W.), N.Y., 25 UV c
General Aniline & Film Corp., Ansco Div., N.Y., 5c, 10c, 15c, 25 Microdensitometers c
General Electric Co., X-Ray Dept., Wis., 10c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5c, 10c, 15c, 25sc
General Precision, Inc., Librascope Div., Calif., 5c, 10c, 15c
Geotechnical Corp., Texas, 5s, 15s
Goodyear Aircraft Corp., Arizona Div., Ariz., 5c
Gregory Research Engineering Group, N.Y., 5sc
Gurley Co. (W. & L.E.), N.Y., 25sc
Hall-Barkan Instruments, Inc., N.Y., 25c
Hargbol Precision Optics Laboratory (W.H.), Mass., 10c, 25c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

why Servo uses NIKON OPTICAL COMPARATORS

For details, circle #144 on Reader Service Card

SERVOTHERM® infrared detectors are thermister bolometers manufactured by Servo Corporation of America for military and industrial use.

The sensitive nerve cell of a thermister bolometer consists of two semi-conductor elements with high negative temperature coefficients. These elements are appropriately called 'flakes', for each is hardly more than 1/250th of a square inch in area, and only .0004 inch thick.

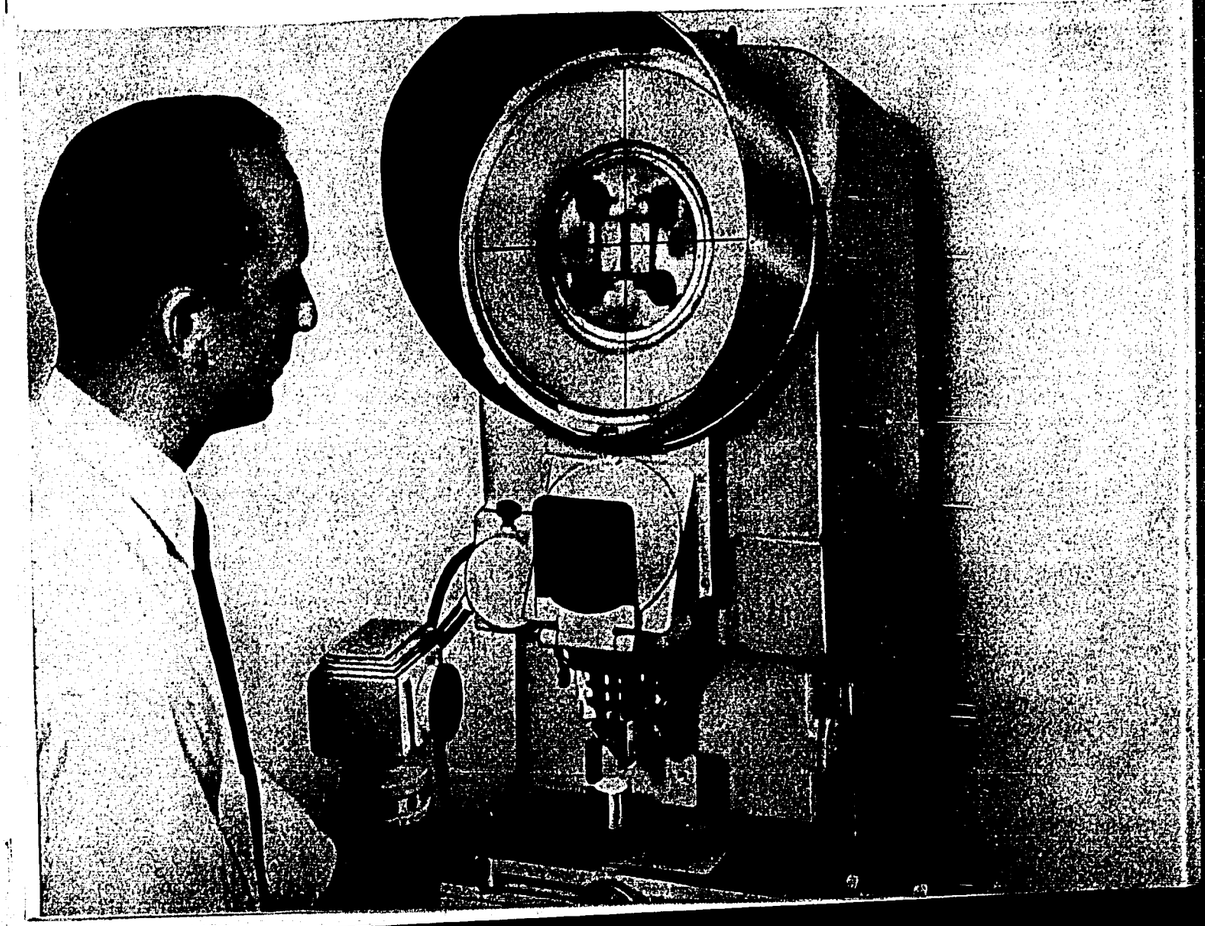
These 'flakes' must be flawless, and must pass rigid inspection for critical dimensions, positioning in the cell, solder junctions, and for possible defects. They are so fragile that no ordinary mechanical inspection means can be used.

Servo Corporation has solved this inspection problem by using a Nikon Model 3 Optical Comparator. A sharp, bright, highly magnified image of the 'flake' appears on the comparator screen where it is conveniently, quickly and accurately inspected, and precise measurements made to within .0001 inch. No tool touches the 'flake'.

Use of the Nikon Comparator has enabled Servo to achieve quality standards which would have been quite impossible, by any other means. SERVOTHERM® bolometers are rated among the most accurate and reliable in the field today.

Why not investigate what a Nikon comparator can do for you? For complete details, write Dept. IR-62

NIKON INCORPORATED INSTRUMENT DIVISION · 111 FIFTH AVENUE, NEW YORK 3, N. Y.



Directory I. Complete Equipment

14. Electro-Optical & Photographic Equipment.

Harristahl Laboratories, N.Y., 5c
Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 15s
Heitz, Inc. (Karl), N.Y., 5s, 10s, 15s, 25s
Hett Associates, Inc., N.J., 15c
High Voltage Engineering Corp., Mass., Electron-Beam Equip. c
Hitachi New York, Ltd., N.Y., 20 c
Hycon Mfg. Co., Calif., 5c, 10c, 15c

Image Instruments, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 25c, Tel: 617-WOodward 9-8440
See ads in classes 9, 10, 21, 86

Infrared Industries, Inc., West Coast Div., Calif., 25c
Instrument Corp. of Florida, Fla., 5s, 10s, 15s
Intercontinental Electronics Corp., N.Y., 20c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 5 Astronomical & Aerospace c, 15c, Spectrum Analyzers c
Ippolito & Co., Inc. (James), N.Y., 5c, 10sc, 15sc
Itek Laboratories, Div. of Itek Corp., Mass., 10c, 25c
Jack Scientific Instrument Co. (Bill), Calif., 10c
Jacobs Instrument Co., Md., 5c, 10c, 15c
Jones & Lamson Machine Co., Vt., 25sc
Kern Instruments, Inc., N.Y., 25sc
Kirsch Music Corp., N.Y., 25sc
Kollmorgen Corp., Mass., 5c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 10sc, 15sc, 20sc, 25sc
Lindly & Co., Inc., N.Y., 25sc
Ling Temco Vought, Inc., Texas, 5s
Ling Temco Vought, Inc., F F & M Electronics, Inc. (Subsid.), Calif., 5s
Lockheed Electronics Co., N.J., 15sc
LogEtronics, Inc., Va., Data Reproduction sc
Magnavox Co., Magnavox Research Laboratories, Calif., 5c
Mason Instrument Co., Inc., N.Y., 25s
Mast Development Co., Iowa, 5c, 10c, 15c
Maurer, Inc. (J.A.), N.Y., 5sc, 10sc, 15sc, 25sc
McDonnell Aircraft Corp., Mo., 5c
McKiernan-Terry Corp., N.J., 25c
Midwestern Instruments, Inc., Okla., 5s, 15s
Mikros, Inc., Ore., 20s
Miller-Trojan Co., Inc., Ohio, Light Sources sc, Process Cameras sc
Minneapolis-Honeywell Regulator Co., Semiconductor Products Div., Minn., UV Sensors sc
Mosaic Fabrications, Inc., Mass., 5c, Fiber-Optics c
Munzig International, Inc., Calif., 20s
Nash & Thompson, Ltd. (Messrs.), England, 20s
National Cine Equipment, Inc., N.Y., 5c, 15c, 25c
National Instrument Laboratories, Inc., D.C., 20c

Nikon, Inc., Dept. IR-62, 111 Fifth Ave., New York 3, N.Y., 25s, Tel: 212-ORegon 4-7970
See ad in this class

Northrop Corp., Calif., 15c
O & S Research, Inc., N.J., 25c
Optical Gaging Products, Inc., Subsid. of Ex-Cell-O Corp., N.Y., 25sc
Optics Technology, Inc., Calif., 5s, 10c, 15c, 25s
OPTOmechanisms, Inc., N.Y., 5sc, 15sc, 25c
Optron Corp., Calif., Displacement Followers s
Par Products Corp., Calif., 5sc, 15c
Perkin-Elmer Corp., Conn., 5sc, 10sc, 15sc
Philco Corp., Lansdale Div., Pa., 25sc
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 5s, 15 X-Ray sc, 20sc
Philips Electronics Industries, Ltd., Canada, 15s, 20s
Photo-Sonics, Inc., Calif., 5s, 10s, 15s
Photobell Co., Inc., N.Y., 25c
Photographic Analysis, Inc., Calif., 15c
Photographic Instrumentation Development Co., Calif., 5sc, 10sc, 15sc

Photomechanisms, Inc., 15 Stepar Place, Huntington Station, L.I., N.Y., 5c, 10c, 15c, 25c, Rapid processing equipment & scanning devices c, Tel: 516-HAmilton 3-4411
See ads in classes 14, 34

Photronics Corp., N.Y., 5c, 15c
Process & Instruments Corp., N.Y., Electron Diffraction c
RCA Victor Co., Ltd., Canada, 20s
Rabinow Engineering Co., Inc., D.C., Data Processing Scanners c
Radio Corp. of America, Defense Electronic Products, N.J., 20s
Robins Industries Corp., N.Y., 25s
S-B Polarimeters, N.Y., 25 Polarimeters sc
Sage Instruments, Inc., N.Y., 15 Bio-Medical c
Schaevitz Engineering, N.J., 25c
Shannon Luminous Materials Co., Calif., 25s
Siemens New York, Inc., N.Y., 20s
Stocker & Yale, Inc., Mass., 25sc
Strand Engineering Co., Mich., 5c, 25c
Strat-O-Seal Mfg. Co., Ill., 25sc
Swing-O-Lite, Inc., N.J., 25sc
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 5c, 20c
TRG, Inc. (Technical Research Group), N.Y., 25c
Te Co., Calif., 25c
Teknis Co., Mass., 25sc

Texas Instruments Incorporated, Semiconductor-Components Div., P.O. Box 5012, 13500 North Central Expressway, Dallas 22, Texas, 5c, 25c, Tel: 214-ADams 5-3111
See ad on Cover 3

Thompson, Ltd. (J. Langham), England, 5s, 15s
Thompson Ramo Woolridge Inc., STL Products Div. of Space Technology Laboratories, Calif., 10sc, 15sc
Tinsley Laboratories, Inc., Calif., 5c, 10c, 15c, 20c, 25c
Traid Corp., Calif., 5sc, 10sc, 15sc

Unilectron, Inc., 129 Binney St., Cambridge 42, Mass., 5sc, 15sc, Light Sources sc, Tel: 617-TRowbridge 6-6400
See ad in class 40

Vacuum-Electronics Corp., N.Y., 25s
Varo, Inc., Texas, 25c
Videonics, Inc., Mass., 20s
Viewlex, Inc., N.Y., 5c, 10sc, 15c
Vitro Electronics, Div. of Vitro Corp. of America, Md., Light Sources c
Welch Scientific Co., Ill., 25s
Westgate Laboratory, Inc., Ohio, 5c, 10c, 15c, 25c
Wilcox Electronics Co., Calif., Flash-Light Sources sc
Wollensak Optical Co., N.Y., 10sc, 15sc, 25sc
Xerox Corp., N.Y., 5c, 10c
Zoomar, Inc., N.Y., 10s, 15s, 25s

THE BETTER DATA TRAP

For the past 10 years, PHOTOMECHANISMS' engineers and physicists have designed, developed, and built electro-optical and photographic instruments, including recording cameras using film and paper in all sizes, simulators for government and industry, and special x-ray movie cameras.

RAPIDATA* may be added to most of our instruments to make records instantly accessible for viewing, projecting, or scanning.

In our modern plant, we have facilities for the development, engineering, manufacture, and testing of simple components or entire systems.

Let us send you our brochure which further indicates our competence in this field. A letter outlining a specific requirement will receive a prompt and thoughtful reply.

* *Trademark for our rapid access photoprocessing technique.*

PHOTOMECHANISMS, Inc., 15 Stepar Place, Huntington Station, L. I., N. Y.
(Area Code 516) HA 3-4411.

For details, circle #145 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-228.

Electroluminescent panels:
See class 63

Electrometers:
See class 40

Electron beam devices:
See classes 14, 99 & 105

Electron microscopes:
See class 14

Emergency communications equipment:
See class 20

Encoders, computer:
See class 10

Energy conversion devices:
See class 58

Environmental test equipment:
See class 36

15. Facsimile Equipment.

5. Paper, sensitized 10. Receiving 15. Transmitting

Aeroflex Laboratories, Inc., N.Y., 10c, 15c

Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 5s, 10s, 15s, Mobile s, Tel: 617-FOrest 6-4467
See ad on page 82

Alfax Paper & Engineering Co., Inc., Dept. A-1, Alden Research Center, Washington St., P.O. Box 125, Westboro, Mass., 5s, Tel: 617-FOrest 6-4467
See ad on page 84

Ateliers de Montages Electriques (AME), France, 10c, 15c
Autron Engineering, Inc., Calif., 15c
Brick Electronic Equipment Co., N.J., 5sc, 10c, 15c
Briggs Associates, Inc., Pa., 10sc
Cameraflex Corp., N.Y., 5sc, 10c, 15c
Dictaphone Corp., D.C., 5s, 10s, 15s
Drexel Dynamics Corp., Pa., 10c, 15c

Eastman Kodak Co., 343 State St., Rochester 4, N.Y., 5sc, Tel: 716-LOcust 2-6000
See ad in class 17

Electronic Communications, Inc., Fla., 10c, 15c
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 10c, 15c
General Dynamics/Electronics, N.Y., 10c, 15c
General Dynamics/Electronics, Information Technology Div., Calif., 10sc, 15sc
Gibbs Mfg. & Research Corp., Wis., Static Converters c
Gjadny Corp. (Richard), N.Y., 10c
Goodyear Aircraft Corp., Arizona Div., Ariz., 5c
Heath Co., Subsid. of Daystrom, Inc., Mich., 10s, 15s
Hogan Faximile Corp., N.Y., 5sc, 10sc, 15sc

15. Facsimile Equipment.

Houston Fearless Corp., Westwood Div., Calif., 10c, 15c
ITA Electronics Corp., Pa., 15c
Instrument Corp. of Florida, Fla., 10c, 15c
Itek Laboratories, Div. of Itek Corp., Mass., 5c
Magnavox Co., Magnavox Research Laboratories, Calif., 10c
Melpar, Inc., Va., 10c, 15c
Midwestern Instruments, Inc., Okla., 10s
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 10c, 15c
Muirhead & Co., Ltd., England, 5s, 10s, 15 Portable s
Muirhead Instruments, Inc., N.Y., 5s, 10s, 15s
Nashua Corp., Gubelman Charts Div., N.J., 5c

Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 10c, 15c, Tel: 914-DEerfield 7-6132
See ad in class 43

Ozalid Div., General Aniline & Film Corp., N.Y., 5s
Peer, Inc., Texas, 15c
Peerless Photo Products, Inc., N.Y., 5sc

Photomechanisms, Inc., 15 Stepar Place, Huntington Station, L.I., N.Y., 10c, Tel: 516-HAmilton 3-4411
See ads in classes 14, 34

Sanborn Co., Subsid. of Hewlett-Packard Co., 175 Wyman St., Waltham 54, Mass., 5s, Tel: 617-TWinbrook 4-6300
See ad on pages 70-71

Sheltered Workshops, Inc., Calif., 10c, 15c
Siemens New York, Inc., N.Y., 10s, 15s
Sorensen Industrial Electronic Co., N.J., 10c, 15c
Stewart-Warner Corp., Stewart-Warner Electronics Div., Ill., 10s, 15s
Sunshine Scientific Instrument, Pa., 5s
Technitrol, Inc., Pa., 10s, 15s
TELautograph Corp., Calif., 5s, 10s, 15s
Tokyo Shibaura Electric Co., Ltd., Japan, 10s, 15s
Viewlex, Inc., N.Y., 5s

Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 5sc, 10sc, 15sc, Tel: 212-JUdson 2-3030
See ad on page 224

Woodland Electronics Co., Inc., N.J., 10sc, 15sc
Xerox Corp., N.Y., 5c

Field strength meters:
See class 38

Flight simulation equipment:
See class 2

Fluid flow equipment:
See class 4

Frequency converters:
See class 53

Frequency indicators:
See class 61

Frequency meters:
See class 37

Frequency monitor equipment:
See class 21

Frequency shift equipment:
See class 33

Frequency standards:
See class 31

Function generators:
See class 40

Gages, beta & ionization:
See class 22

Gages, pressure:
See class 40

Gages, strain:
See class 40

Gages, vacuum:
See classes 40 & 99

Galvanometers:
See class 40

Galvanometers, indicating:
See class 61

Galvanometers, recording:
See class 16

Gaussmeters:
See class 40

Generators, digital timing:
See class 40

Generators, function:
See class 40

Generators, harmonic frequency:
See class 35

Generators, magnetohydrodynamic:
See class 58

Generators, marker:
See classes 37, 38 & 39

Generators, noise:
See classes 35, 37 & 38

Generators, pulse:
See class 37

Generators, signal:
See classes 34, 35, 38 & 39

Generators, solar:
See class 58

Generators, square-wave:
See class 35

Directory I. Complete Equipment

Generators, sweep:
See classes 38 & 39

Generators, thermoelectric:
See class 58

Generators, time-delay:
See class 37

Generators, UHF-VHF:
See class 39

Generators, ultrasonic:
See class 40

16. Geophysical Apparatus.

5. Control equipment 10. Exploration equipment, complete 15. Galvanometers, recording 20. Microphones

Abrams Instrument Corp., Mich., 5c
Adcole Corp., Mass., 10c
Aero Service Corp., Pa., 5c, 10c
Aerospace Controls, Calif., 5c, 10c
Aga Corp. of America, N.J., 5s

Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 10s, Tel: 617-FOrest 6-4467
See ad on page 82

American Communications Corp., N.Y., 5c
American Systems, Inc., Calif., 5c

American Time Products, Div. of Bulova Watch Co., 61-20 Woodside Ave., Woodside 77, N.Y., 5sc, Tel: 212-OLympia 1-7800
See ad in class 31

Amplivox Exports, Ltd., England, 20s

Associated Research, Inc., 3792 W. Belmont Ave., Chicago 18, Ill., 10s, Tel: 312-COrnelia 7-4040
See ad in class 41

Astatic Corp., Ohio, 20sc
Atlee Corp., Monitor Controller Div., Mass., 5c
Auerbach Electronics Corp., Pa., 5c
Autometric Corp., N.Y., 10c
Ball Brothers Research Corp., Colo., 5c, 10sc
Black Light Eastern Corp., N.Y., 10s
Block Associates, Inc., Mass., 15c
Bristol Co., Conn., 15c
Buck Instrument Co., Colo., 15c
Canadian Applied Research, Ltd., Canada, 5c
Century Electronics & Instruments, Inc., Okla., 10sc, 15sc
Chemalloy Electronics Corp., Calif., 10c
Chesapeake Instrument Corp., Md., 20s
Cole Instrument Co., Calif., 15c
CompuDyne Corp., Pa., 5c
Consolidated Electrodynamics Corp., Calif., 15s
Crane Electronics Co., Calif., 5c
Deltex Laboratories, Div. of Delta Exploration Co., Inc., Miss., 5sc, 10sc
Dresser Electronics/SIE Div., Dresser Industries, Inc., Texas, 10sc, 15sc

16. Geophysical Apparatus.

Dyna Magnetic Devices, Inc., N.Y., 20c
Dynatronics, Inc., Fla., 5c
Electro-Technical Laboratories, Texas, 5sc, 10sc, 15sc
Electro-Voice, Inc., Mich., 20s
Electrodynamic Instrument Corp., Texas, 5c, 10c
Elliott-Automation, Ltd., England, 10c

Eugene Engineering Co., Inc., 1217 Hyde Park Ave., Hyde Park 36, Mass., 10sc, Tel: 617-EMpire 1-7000
See ads in classes 96, 105

Fisher Research Laboratory, Inc., Calif., 10s
General Automatics, Inc., Calif., 5c
General Mills, Inc., Minn., 5c, 10c
Geophysical Instrument Co., Inc., Va., 10s
Geotechnical Corp., Texas, 15sc
Geotronic Laboratories, Inc., Texas, 5s, 10s
Goodyear Aircraft Corp., Arizona Div., Ariz., 5c
Grumman Aircraft Engineering Corp., N.Y., 10c
Hall-Sears, Inc., Texas, 10sc
Heath Co., Subsid. of Daystrom, Inc., Mich., 20s
Industrial Control Co., N.Y., 5sc
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 15s
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5sc, 10sc, 15sc
Kurtston Electronics, N.Y., 15c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 20sc
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., Md., 5c
Mandrel Industries, Inc., Calif., 5sc, 10sc, 15sc
Mandrel Industries, Inc., Houston Div., Texas, 10c
Massa Div., Cohu Electronics, Inc., Mass., 15sc
Maurer, Inc. (J.A.), N.Y., 15sc
McPherson Instrument Corp., Mass., 10c
Midwestern Instruments, Inc., Okla., 15s
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 15s
Moran Instrument Corp., Calif., 10c
Nash & Thompson, Ltd. (Messrs.), England, 10s

New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy., Somerville 43, Mass., 5c, Tel: 617-625-6100
See ad in class 84

Newport Scientific Co., Calif., 5c
Offner Electronics, Inc., Ill., 15s
Omco, Ariz., 10s
Omega Dynamics Corp., Calif., 20sc
Permoflux Products Co., Div. of Linlar, Inc., Calif., 20sc
Philips Electronics Industries, Ltd., Canada, 15s, 20s
Photron Instrument Co., Ohio, 15s
Pick Enterprises, Calif., 10c
Radio Corp. of America, Defense Electronic Products, N.J., 20s
Ray, Daisley Co., Inc., N.Y., 5c
Rich Electronics, Inc., Fla., 5c
Riverbank Laboratories, Dept. of Engineering, Ill., 5c
Schaevitz Engineering, N.J., 5c
Seiscor, Div. of Seismograph Service Corp., Okla., 5sc, 10sc, 20sc
Space Electronics Corp., Calif., 10c
Spectra Electronics Corp., N.Y., 5c
Spectronics Corp., N.Y., 10s
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 5c, 10c
Standard Telephones & Cables, Ltd., England, 20sc
Stearns Electric Corp., Wis., 5s
Stephens Trusonic, Inc., Calif., 20c
Summers & Mills, Inc., Texas, 5c, 10c
Sunshine Scientific Instrument, Pa., 5c, 10c
TRG, Inc. (Technical Research Group), N.Y., 5c
Technical Products Co., Calif., 10s
Techno Instrument Co., Calif., 10sc
Telephone Dynamics Corp., N.Y., 20sc

Texas Instruments Incorporated, Semiconductor-Components Div., 13500 North Central Expressway, P.O. Box 5012, Dallas 22, Texas, 10s, 15s, 20s, Tel: 214-ADams 5-3111
See ad on Cover 3

Tinsley Laboratories, Inc., Calif., 10c
Transformer-Electronics Co., Colo., 5c, 10c
Transistor Applications, Inc., Mass., 5c
United ElectroDynamics, Inc., Calif., 5c, 10c, 15c
Vap-Air Div., Vapor Corp., Ill., 5c
Varian Associates, Instrument Div., Calif., 10s
Virginia Electronics Co., Inc., D.C., 5c

Graphic recorders:
See class 28

Ground-based radar equipment:
See class 25

Ground support equipment:
See class 2

Gyroscopes & gyro testers:
See class 2

Headphones:
See class 79

Hearing aids:
See class 43

Heating equipment:
See class 98

Humidity indicators & testers:
See classes 41 & 61

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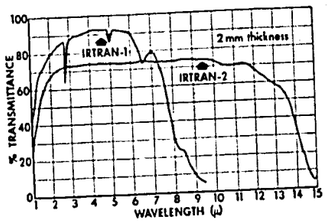
KODAK COMPONENTS FOR INFRARED SYSTEMS

KODAK IRTRAN OPTICAL ELEMENTS

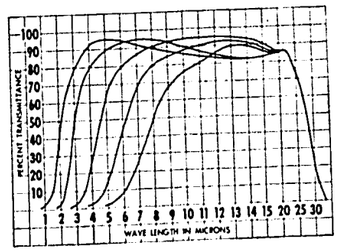
Kodak has developed a new class of "optical" materials for use in infrared and microwave systems and instruments. They retain high transmittance when hot (600°C and beyond). They are not injured by thermal shock, humidity, abrasion, weathering, organic solvents, 0.5N HNO_3, 1N H_2SO_4, 0.5N KOH, or 0.5N NH_4OH.

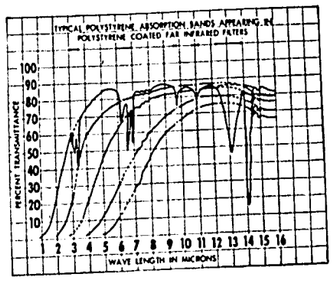
Irtran-1 material, low in refractive index, provides the best answer to the "dual-mode" problem. Infrared and microwave radiation can look through the same window. Irtran-2 material has the relatively high infrared refractive index of 2.2. Both materials we form and polish into lenses, domes, prisms, and flats.



KODAK FAR INFRARED FILTERS

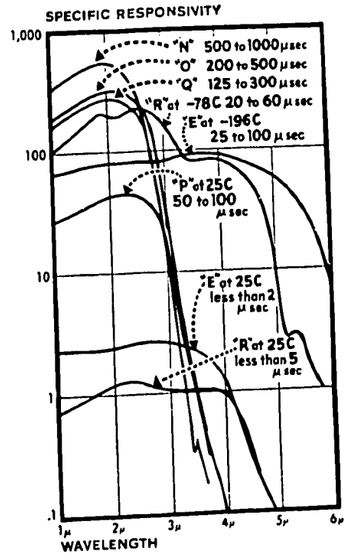
Kodak makes blocking filters of silver chloride with a silver sulfide layer that removes radiation up to a selectable wavelength between 1μ and 5μ. Series 200S filters have polystyrene protective coatings.

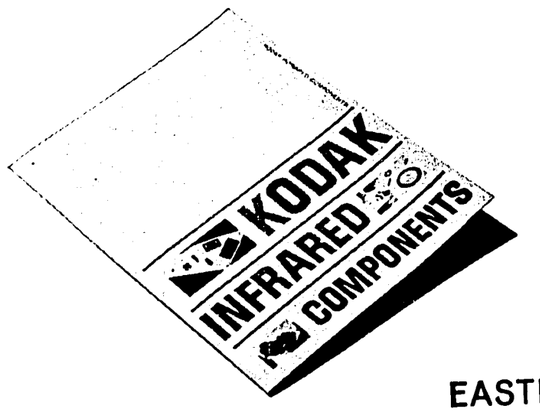




KODAK EKTRON DETECTORS

These photoconductive resistors are made by depositing lead sulfide or lead selenide. They provide a wide-open choice in spectral response and time constant, and a wide-open choice of physical forms—large, small, complex shapes, multiple arrays, "immersed," Dewar-housed.

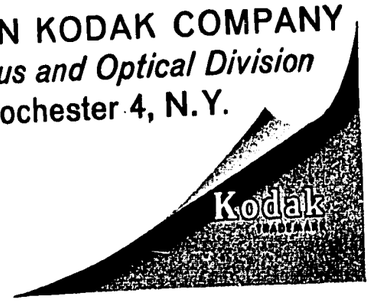




SEND FOR THIS FACT-FOLDER

Kodak makes quite a few kinds of components for systems that detect, analyze, and otherwise respond to infrared radiation. In exchange for your name, address and company affiliation, we will gladly send you a folder full of our latest data sheets. (Things are moving too rapidly at present to permit the finality of a printed catalog.)

EASTMAN KODAK COMPANY
Apparatus and Optical Division
Rochester 4, N.Y.



For details, circle #146 on Reader Service Card

Directory I. Complete Equipment

Indicating displays & lights:
See class 63

Indicating instruments:
See class 61

Indicator displays:
See class 63

Industrial sound systems:
See class 30

Inertial guidance equipment:
See class 2

Infrared control equipment:
See class 4

Infrared cooling devices:
See class 54

Infrared heating equipment:
See class 98

17. Infrared Equipment.

5. Amplifiers
10. Black body sources
15. Detectors
20. Lenses
25. Optical filters
30. Optical transmitting materials
35. Power supplies
40. Pyrometers
45. Radiometers
50. Scanners
55. Windows

ACDC Electronics, Inc., 2979 N. Ontario St., Burbank, Calif., 35s, Tel: 213-VIctoria 9-2414
See ad in class 69

ACF Electronics Div., ACF Industries, Inc., Md., 5c, 45c, 50c

Acme Electric Corp., 44 Water St., Cuba, N.Y., 35c, Tel: Cuba 4
See ad in class 69

Advanced Development Laboratories, Inc., N.H., 5c, 45c

Advanced Vacuum Products, Inc., Subsid. of Glass-Tite Industries, Inc., Conn., 55c

Aeroflex Laboratories, Inc., N.Y., 50c

Aeronutronic, Div. of Ford Motor Co., Calif., 5c, 50c

Airtronics, Inc., D.C., 5c, 35c, 50c

American Avionics, Inc., Div. of Astro-Science Corp., Calif., 5c, 35c

American Communications Corp., N.Y., 35c

American Geloso Electronics, Inc., N.Y., 5s

American Machine & Foundry Co., Greenwich Engineering Div., Conn., 45c

American Optical Co., J. W. Fecker Div., Pa., 5c, 10c, 20sc, 25c, 30c, 35c, 55c

Applied Control Corp., N.J., 5s, 35s, 50c

Ascop, Div. of Electro-Mechanical Research, Inc., N.J., 15c

Associated Electrical Industries (Rugby), Ltd., England, 40s

Astrosystems, Inc., N.J., 10c

Avco Corp., Electronics & Ordance Div., Ohio, 50sc

Bache & Co. (Semon), N.Y., 20sc, 25c, 55sc

Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 5s, 15s, 25s, 30s, 35s, 50s, 55s, Tel: 617-UNiversity 4-7420
See ad in class 86

Ball Brothers Research Corp., Colo., 45c

Barnes Engineering Co., Conn., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc

Basic & Experimental Physics, Mass., 20c, 25c, 50c

Bausch & Lomb, Inc., Instrument Div., N.Y., 20c, 25sc, 30sc

Beckman Instruments, Inc., Scientific & Process Instrument Div., Calif., 15s

Beckman & Whitley, Inc., Calif., 20c, 45s

Block Associates, Inc., Mass., 5sc, 10sc, 15sc, 35sc, 40sc, 45sc, 50c

Bogue Electric Mfg. Co., N.J., 35c

Bolsey Corp. of America, N.Y., 20sc, 25sc, 30sc

Braun-Knecht-Heimann Co., Calif., 25s

Bristol Co., Conn., 40c

Buhl Optical Co., Pa., 25c, 55c

Bulova Research & Development Laboratories, N.Y., 15c

CBS Laboratories, Div. of Columbia Broadcasting System, Inc., Conn., 15s

Cameraflex Corp., N.Y., 5c, 35sc

Canadian Applied Research, Ltd., Canada, 5c

Carborundum Co., Refractories Div., N.J., 10c, 55c

Ceramaseal, Inc., N.Y., 55c

Cetron Electronic Corp., Ill., 15c, 20c, 25c, 30c, 55c

Chicago Aerial Industries, Inc., Ill., 20s, 50c

Chicago Aerial Industries, Inc., Pacific Optical Corp. (Div.), Calif., 20c, 25c, 30sc, 55c

Chrysler Corp., Defense Group, Mich., 5c

Cinematic Developments, Ark., 20c

Cominco Products, Inc., Electronic Materials Dept., Wash., 55c

Components Corp., N.J., 35sc

Comptometer Corp., Ill., 5sc, 10sc, 15s, 45sc, 50c

Comptometer Corp., Radiation Electronics Co. (Div.), Ill., 5sc, 10sc, 15sc, 30sc, 40sc, 45sc, 50sc, 55sc

Connecticut Instrument Corp., Conn., 30sc, 55sc

Consolidated Avionics Corp., N.Y., 35sc

Consolidated Mining & Smelting Co. of Canada, Ltd., Canada, 55c

Control Circuits, Inc., Conn., 35c

Contronics, Inc., Mass., 5c

Cook Electric Co., Cook Technological Center, Ill., 15c

Davidson Optronics, Inc., Calif., 20c

Defender Instrument & Regulator Co., Ill., 40s

Del Electronics Corp., 521 Homestead Ave., Mount Vernon, N.Y., 35c, Tel: 914-OWens 9-2000
See ad in class 69

Dell Optics Co., Ltd., N.J., 20c, 25c

Dero Research & Development Corp., N.Y., 35c, 40c, 45c

Diotron, Inc., Pa., 15c

Douglas Aircraft Co., Inc., Calif., 5c, 15c, 45c

Drexel Dynamics Corp., Pa., 5c

Duncan Electric Co., Inc., Davenport Mfg. Div., Ill., 35sc

Dynex, Inc., N.Y., 20sc, 35sc

Eastman Kodak Co., 343 State St., Rochester 4, N.Y., 15sc, 20c, 25c, 30sc, 55c, Tel: 716-LOcust 2-6000
See ad in this class

Edmund Scientific Co., N.J., 20s, 25s, 30s, 55s

Ednalite Optical Co., Inc., N.Y., 20sc, 25sc, 30sc, 50c, 55sc

Egan Laboratory, N.Y., 15c

Elasco, Inc., Mass., 35c

Electro-Ceramics, Inc., Utah, 25c, 30c

Electro Radiation, Inc., Calif., 15c, 40c

Electromagnetic Technology Corp., Calif., 15c

Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 5c, 35sc, Tel: 617-LYnn 8-2100
See ad in class 69

Electron-Radar Products, Ill., 15sc

Electronic Research Associates, Inc., N.J., 35sc

Electronic Specialty Co., Calif., 35c

Electronics Corp. of America, Mass., 15sc, 40sc, 45c, 50c

Elliott-Automation, Ltd., England, 40c

Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 15c, 20c, 40c, Tel: 201-BIgelow 2-2700
See ad on page 140

Engelhard Industries, Inc., Amersil Quartz Div., N.J., 20sc, 25sc, 30sc, 55sc

Epic, Inc., N.Y., 40s

Eppley Laboratory, Inc., 15 Sheffield Ave., Newport, R.I., 10c, 15sc, 45sc, Tel: 401-VIking 7-1020
See ad in this class

Erwood, Inc., Ill., 5c

Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5s, 20c, 25c, 35s

Filmohm Corp., 48 W. 25th St., New York 10, N.Y., 15c, Tel: 212-WAtkins 4-6605
See ad in class 74

Fish-Schurman Corp., N.Y., 20s, 25sc, 30sc

Franklin Systems, Inc., 2734 Hillsboro Rd., P.O. Box 3250, West Palm Beach, Fla., 5c, 15c, 35c, Tel: 305-TEmple 3-4602
See ad in class 22

General Aniline & Film Corp., Ansco Div., N.Y., 50c

General Controls Co., Calif., 40s

General Dynamics/Electronics, N.Y., 15c, 25c

General Electric Co., Apparatus Sales Dept., N.Y., 35sc, 40s

General Electric Co., Light Military Electronics Dept., N.Y., 15c, 50c

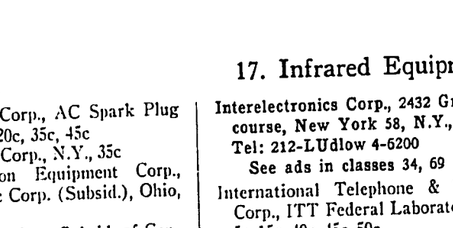
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 35c

General Instrument Corp., Defense & Engineering Products Group, N.Y., 15c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

General Motors Corp., AC Spark Plug Div., Wis., 5c, 20c, 35c, 45c
General Nuclear Corp., N.Y., 35c
General Precision Equipment Corp., Strong Electric Corp. (Subsid.), Ohio, 10sc
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 25sc, 50c
General Precision, Inc., Librascope Div., Calif., 15sc, 25sc
Gibbs Mfg. & Research Corp., Wis., 5c, 35c
Green Rectifier Co., N.J., 35sc
Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 35c, Tel: 312-CHesapeake 3-1100
See ad in class 73
Gulow Transformer Co., Inc., N.J., 35s
Hargbol Precision Optics Laboratory (W.H.), Mass., 25c, 55c
Harshaw Chemical Co., Crystal Div., Ohio, 20c, 25c, 55sc
Houston Fearless Corp., Westwood Div., Calif., 50c
Hycon Mfg. Co., Calif., 50c
Ichizuka Optical Industrial Co., Ltd., Japan, 20sc
Industrial Control Co., N.Y., 50sc
Infrared Industries, Inc., Mass., 5sc, 10sc, 15 Consoles sc, 25sc, 30sc, 35sc, 40c, 45c
Infrared Industries, Inc., West Coast Div., Calif., 5sc, 10sc, 15sc, 25sc, 35sc, 40sc
Instrument Corp. of Florida, Fla., 30c, 35sc
Interelectronics Corp., 2432 Grand Concourse, New York 58, N.Y., 5sc, 35sc, Tel: 212-LUdlow 4-6200
See ads in classes 34, 69
International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 5c, 15c, 40c, 45c, 50c
International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 15c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 5sc, 10s, 15s, 40s, 45sc, 50c, Generators c
Irco Corp., N.Y., 15c, 50c
Isomet Corp., N.J., 20c, 30s, 55s
Jack Scientific Instrument Co. (Bill), Calif., 35c
Jefferson Electronic Products, Div. of Jefferson Electric Co., Calif., 35c
Kaiser Electronics, Inc., N.J., 35c
Keller Engineering (Hugo P., Jr.), N.Y., 20sc, 55sc
Knapic Electro-Physics, Inc., Calif., 20c, 55c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c
Kopp Glass, Inc., Pa., 20c, 25c
Kupfrian Mfg. Div., Robinson Technical Products, Inc., 157 Prospect Ave., Binghamton, N.Y., 35sc, Tel: 607-RAymond 3-9561
See ad in class 69
Leesona Corp., Leesona Moos Laboratories Div., N.Y., 5c, 15c
Lindly & Co., Inc., N.Y., 15c, 25c, 55c
Ling Temco Vought, Inc., Ling Electronics Div., Calif., 20sc
Loyola Laboratories, Calif., 35c
MacKay Research Laboratories, Ariz., 5c
MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 5c, 25c, 35c, 50c, Tel: 305-LOgan 4-8518
See ad in class 4
Madigan Electronic Corp., N.Y., 5c, 35c
Mallory & Co., Inc. (P.R.), Ind., 35c
Martin Co. (Martin-Marietta Corp.), Md., 15c
Martin Co. (Martin-Marietta Corp.), Electronics Div., Md., 5c, 15c, 50c
Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 5c, 15c
Mason Instrument Co., Inc., N.Y., 5sc, 40sc, 45sc
Matthew Laboratories, N.Y., 35c
Maurer, Inc. (J.A.), N.Y., 5c, 25sc, 35c, 50c
McPherson Instrument Corp., Mass., 50c
Mechanical Engraving Co., Inc., N.Y., 55c
Meller Co. (Adolf), R.I., 20c, 30c, 55sc
Melpar, Inc., Va., 5c, 10c, 15c
Metavac, Inc., N.Y., 20sc, 25sc, 30sc, 55sc
Meters, Inc., Ind., 40c
Microwave Chemicals Laboratory, Inc., N.Y., 30sc
Mid-Eastern Electronics, Inc., N.J., 35c
Milro Controls Co., Inc., N.J., 5c, 35c
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 15s, 40s
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 5c, 10c, 15c, 20c, 30c, 35c, 40c, 45c, 50c, 55c
NJE Corp., 20 Boright Ave., Kenilworth, N.J., 35c, Tel: 201-BRidge 2-6000
See ad in class 69
Newton Co., Conn., 5c
Nippon Electric Co., Ltd., Japan, 40s
North American Aviation, Inc., Atomics International Div., Calif., 40c
Northrop Corp., Calif., 15c, 25c, 50c, 55c
O & S Research, Inc., N.J., 20c, 25c, 30c, 55c
Ohio Semiconductors, Div. of Tecumseh Products Co., 1205 Chesapeake Ave., Columbus 12, Ohio, 55sc, Tel: 614-HUdson 6-9561
See ad on page 45
Omega Dynamics Corp., Calif., 5c
Opad Electric Co., 43-8 Walker St., New York 13, N.Y., 35c, Tel: 212-WOrth 6-0380
See ad in class 69
Optical Coating Laboratory, Inc., Calif., 25c
Optics Technology, Inc., Calif., 20c, 25s, 30s, 55s
Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 5sc, 35sc, Tel: 914-DEerfield 7-6132
See ad in class 43
Otis Elevator Co., Defense & Industrial Div., N.Y., 15c, 25c, 55c
Ovitron Corp., Power Controls Div., Conn., 5c, 35c
Packard-Bell Computer Corp., Calif., 5s
Packard-Bell Electronics Corp., Calif., 25c, 30c
Pek Laboratories, Inc., Calif., 10c, 55c

A Superior Detector for Infra-Red Spectroscopy



GOLAY PNEUMATIC DETECTOR*

Among the characteristics that render the Golay Detector superior to other types of detectors for use in infra-red spectroscopy are:

1. An effective sensitive area 1/2" in diameter.
2. Sensitivity of 6 x 10-11 watts RMSENI when used with "chopped beam" method and with recording time constant of 1.6 second.
3. Uniform sensitivity from the ultra-violet through the visible and the entire infra-red, and up to the micro-wave region.
4. Improved, drift-free, A. C. operated amplifier with step gain controls and four response periods.

*Fundamental and experimental aspects of this detector are discussed in the following publications: Rev. Sci. Inst. 18, 347 and 357 ('47); ibid. 20, 816 ('49); Proc. IRE 40, 1161 ('52).

Write for EPLAB Bulletin No. 10

THE EPPLEY LABORATORY, INC.
SCIENTIFIC INSTRUMENTS
15 Sheffield Ave. • Newport • R. I. • U.S.A.
278-8
For details, circle #147 on Reader Service Card

Directory I. Complete Equipment

17. Infrared Equipment.

Perkin-Elmer Corp., Conn., 10sc, 15c, 20c, 25c, 40sc, 45c, 50c, 55c
Permoflux Products Co., Div. of Linlar, Inc., Calif., 5c, 35c
Peschel Electronics, Inc., Towners, R.F.D. 1, Patterson, N.Y., 35c, Tel: 914-TRinity 8-3251
See ad in class 41
Philbrick Researches, Inc. (George A.), Mass., 40s
Philco Corp., Pa., 15sc, 50c, 55c
Philco Corp., Government & Industrial Group, Pa., 15c, 20c
Philco Corp., Lansdale Div., Pa., 15sc, 55sc
Philips Electronics Industries, Ltd., Canada, 15s
Photo-Research Corp., Calif., 5c, 20c, 40c
Photobell Co., Inc., N.Y., 5c, 50c
Photronics Corp., N.Y., 20c
Piezo Products Co., Mass., 10c
Polacoat, Inc., Ohio, 30c
Precise Measurements Co., Millbrook Lane, P.O. Box 172, Flemington, N.J., 35sc, Tel: 201-STate 2-3000
See ad in class 69
Precision Lapping Co., Inc., 34 Clinton Ave., Valley Stream, L.I., N.Y., 55sc, Tel: 516-LOcust 1-2770
See ad in this class
Presin Co., Inc., Calif., 50c
Pyrometer Instrument Co., Inc., N.J., 40s
RCA Victor Co., Ltd., Canada, 5c, 15c, 55c
Radio Corp. of America, Defense Electronic Products, N.J., 5c, 15c
Radio Corp. of America, RCA Electron Tube Div., N.J., 15c
Raytheon Co., Government Marketing, Mass., 5sc, 15sc, 20sc, 25sc, 35sc, 45sc, 55sc
Raytheon Co., Microwave & Power Tube Div., Mass., 15sc
Republic Lens Co., Inc., 31 E. 169th St., New York 52, N.Y., 20c, 25c, 30c, 55c, Precision lenses c, Tel: 212-CYpress 3-2790
See ad in this class
Rescon Electronics Corp., Mass., 40c
Reuter-Stokes Electronic Components, Inc., Ohio, 15c, 55c
Rixon Electronics, Inc., Md., 35sc
Santa Barbara Research Center, Subsid. of Hughes Aircraft Co., Calif., 5c, 10sc, 15sc, 20c, 25c, 30c, 35sc, 40c, 45sc, 50c, 55c
Saturn Electronics Corp., Texas, 35c
Schaevitz Engineering, N. J., 5c, 35c
Scope, Inc., Va., 45c
Semi-Elements, Inc., Pa., 15c, 20c, 30s
Semicon of California, Inc., Calif., 55c
Servo Corp. of America, N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc
Shannon Luminous Materials Co., Calif., 25s
Shaw Instrument Corp., Pa., 15c, 40c
Sheltered Workshops, Inc., Calif., 5c, 35c
Siemens New York, Inc., N.Y., 15s, 40s, 45s
Sinclair Radio Laboratories, Inc., N.Y., 40c
Singer-Bridgeport, Div. of Singer Mfg. Co., Conn., 20c
Skyline Electronics, Inc., Colo., 10c, 25c
Smith-Florence, Inc., Wash., 35s
Solar Systems, Inc., Ill., 15sc
Solid State Materials Corp., Mass., 25c, 55c
Space Electronics Corp., Calif., 5c, 35c, 45c
Spectra Electronics Corp., N.Y., 50c
Spellman High Voltage Co., Inc., 1930 Adee Ave., New York 69, N.Y., 35sc, Tel: 212-KIngsbridge 7-0306
See ad in class 69
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 5sc, 15c, 35sc
Standard Telephones & Cables, Ltd., England, 25sc
Sylvania Electric Products Inc., Chemical & Metallurgical Div., Pa., 55c
TRG, Inc. (Technical Research Group), N.Y., 5c, 10c, 15c, 20c, 25c, 35c, 50c, 55c
Taffet Electronics, Inc., N.Y., 5c, 35c, 45c
Tang Industries, Inc., Mass., 30c
Te Co., Calif., 20c, 45c, 50c
Telechrome Mfg. Corp., N.Y., 35s
Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 5c, 35c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80
Terado Co., Minn., 35sc
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 20c, 45c, 50c, 55c, Tel: 214-ADams 5-3111
See ad on Cover 3
Therm, Inc., N.Y., 55c
Thermal Dynamic Products, Inc., Div. of Waltham Precision Instrument Co., N.Y., 15c, 20s
Thermo Electric Co., Inc., N.J., 40s
Thermovolt Instruments, Ltd., Canada, 40sc
Thompson Ramo Wooldridge Inc., STL Products Div. of Space Technology Laboratories, Calif., 35c
Tinsley Laboratories, Inc., Calif., 20c, 25c, 30c, 55c
Transistor Devices, Inc., N.J., 35sc
Union Carbide Corp., Linde Co. (Div.), N.Y., 30sc, 55sc
Universal Transistor Products Corp., N.Y., 35sc

New

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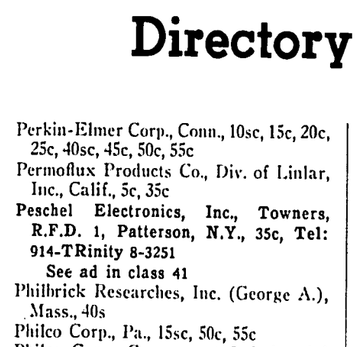
FOR AIRBORNE OPTICAL SYSTEMS & THOSE REQUIRING LOW INERTIA



Illustrated: Lightweight concave spherical mirror, 16" dia.; radius of curvature, 11"; thickness, 4"; Weight, 5 lbs., 4 oz. If of conventional solid fused quartz, it would weigh 41 lbs.!

INFRA-RED OPTICS

DOMES • WINDOWS • LENSES
PRISMS • MIRRORS
to extremely close tolerances.
Send your specs for immediate estimate to:

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34 Clinton Ave., Valley Stream, L. I., N. Y. • LOcust 1-2770

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TO YOUR SPECIFICATIONS

- For every purpose
- American precision made
- Prompt delivery
- Free consultation

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Lenses • Prisms • Mirrors
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Optical Glass • Quartz • Pyrex
Calcium Fluoride • Germanium
Infra Red • Lens Coating

Your inquiry is given immediate attention

REPUBLIC Lens Co., Inc.
31 E. 169th ST., NEW YORK 52, N.Y.
CYpress 3-2790
For details, circle #149 on Reader Service Card

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17. Infrared Equipment.

Valpey Crystal Corp., 1100 Highland St., Holliston, Mass., 20c, 25c, 30c, 55c, Tel: 617-GArden 9-4851
See ads on page 219 & in class 56

Varo, Inc., Texas, 5c, 20c, 25c, 30c, 35c, 50c, 55c
Victor Adding Machine Co., Affil. of Comptometer Corp., Ill., 50sc
Videonics, Inc., Mass., 20s
Wallin Optical Systems, Inc., Calif., 15c, 20c
Warner & Swasey Co., Control Instrument Div., N.Y., 40c
Westinghouse Electric Corp., Air Arm Div., Md., 5c, 15c, 30c, 50c
Westinghouse Electric Corp., Electronic Tube Div., N.Y., 15sc
Westinghouse Electric Corp., Electronics Div., Md., 15c
Wintronics, Calif., 15c
Wollensak Optical Co., N.Y., 20sc, 25sc
Zenith Optical Laboratory, N.Y., 20c, 25c, 30c

Instrument calibrators:
See class 40

Instruments, indicating:
See class 61

Integrators, pulse count:
See class 22

Intercoms:
See class 30

Interference meters:
See class 38

Intermodulation meters:
See class 35

Jewels:
See classes 63 & 97

Lamps & lights:
See class 63

Language laboratories:
See class 13

Leak detectors:
See class 40

Light measuring meters:
See class 40

Lighting equipment, television:
See class 32

Lighting equipment, tower:
See class 44

Liquid level indicators:
See class 61

Magnetizers & demagnetizers:
See class 99

Marine antennas:
See class 44

Marine radar equipment:
See class 25

18. Marine Equipment.

5. Direction finders
10. Radiotelephones
15. Shipborne communications equipment
20. Sonar

Acoustica Associates, Inc., Calif., 20c
Advanced Acoustics Corp., N.J., 20sc
Advanced Development Laboratories, Inc., N.H., 5c, 15c
Aeronautical Electronics, Inc., N.C., 10s, 15s
Aga Corp. of America, N.J., 5s, 10s, 15s
Aircraft Electronics, Ariz., 5c
Airtronics, Inc., D.C., 5c, 10c
Alcar Instruments, Inc., N.J., 20c

Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 20c, Tel: 617-FOrest 6-4467
See ad on page 82

American Electronics Co., N.Y., 15s
American Elite, Inc. (Telefunken), N.Y., 5s
American Geloso Electronics, Inc., N.Y., 5s
American Machine & Foundry Co., Greenwich Engineering Div., Conn., 20c
Amy, Aceves & King, Inc., N.Y., 15s
Andrea Radio Corp., N.Y., 5c
Applied Electronics Co., Calif., 5c, 10c, 15c, 20c

Applied Electronics Corp. of New Jersey, P.O. Box 43, Metuchen, N.J., 5s, 10s, 15s, 20s, Tel: 201-LIberty 9-9200
See ad in class 34

Arkay International, Inc., N.Y., 5s
Audio Equipment Co., Inc., N.Y., 15sc
Autometric Corp., N.Y., 5c
Barth Engineering & Mfg. Co., Inc., Conn., Submarine Simulation c
Basic & Experimental Physics, Mass., 15c, 20c
Belock Instrument Corp., N.Y., 5c, 10c, 15c, 20c
Bendix Corp., Bendix-Pacific Div., Calif., 5sc, 10sc, 15sc, 20sc
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 5c, 15c
Bendix Corp., Bendix Systems Div., Mich., 5c
Bludworth Marine Div., States Electronics Corp., N.Y., 5sc, 10sc, 15c, 20sc, Underwater TV sc
Breeze Corporations, Inc., N.J., 20c
Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., Speed & Salinity Indicators c
Cadre Industries Corp., N.Y., 10c, 15c
Canadian Aviation Electronics, Ltd., Canada, 15c
Canadian General Electric Co., Ltd., Electronic Equipment & Tube Dept., Canada, 5c, 10c, 15c, 20c
Canadian Marconi Co., Canada, 10s
Canadian Westinghouse Co., Ltd., Canada, 20c
Capehart Corp., N.Y., 5c, 10c, 15c, 20c
Carma Mfg. Co., Calif., 5c
Chesapeake Instrument Corp., Md., 20sc
Chrysler Corp., Defense Group, Mich., 20c, Loran c

18. Marine Equipment.

Clevite Corp., Clevite Ordnance Div., Ohio, 5c, 20sc
Co Engineering Co., N.J., 5c
Communication Measurements Laboratory, Inc., N.J., 20c
Continental Electronics Corp., N.Y., 10c, 15c

Control Electronics Co., Inc., 10 Stepar Place, Huntington Station, L.I., N.Y., 5sc, Tel: 516-HAmilton 7-7961
See ad in class 59

Cook Electric Co., Ill., 10c, 15c
Cook Electric Co., Cook Technological Center, Ill., 20c
Cooke Engineering Co., Va., 15c
Cubic Corp., Calif., 5c
Dalmo Victor Co., Div. of Textron, Inc., Calif., 20c
Davis Electronics, Inc., Calif., 5s
Daystrom, Inc., Military Electronics Div., Pa., 15c
Dayton Aviation Radio & Equipment Corp., Ohio, 5c, 15c
Delcon Corp., Calif., 5c, 10c, 15c
Dero Research & Development Corp., N.Y., 10c, 15c
Dicon Corp., N.Y., 5c, 10c, 15c, 20c
Dorne & Margolin, Inc., N.Y., 5c
Douglas Aircraft Co., Inc., Calif., 20c

Dyna-Empire, Inc., 1075 Stewart Ave., Garden City, L.I., N.Y., 20c, Tel: 516-PIoneer 1-2700
See ad in class 40

Dyna Magnetic Devices, Inc., N.Y., 20c
Dynamics Corp. of America, N.Y., 5c, 10c, 15c
E.M.I.-Cossor Electronics, Ltd., Canada, 20c
Edo Corp., N.Y., 20sc
Ehrenpreis Engineers (David), N.Y., 20c
Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., Minn., 20sc
Electronic Engineering Co., Ohio, 15s
Electronic Research Associates, Inc., N.J., 20sc
Electronic Specialty Co., Calif., 15c
Elliott-Automation, Ltd., England, 5c, 15c
Elsco Systems, Inc., Wash., 15c, 20c
Erco Radio Laboratories, Inc., N.Y., 10sc, 15sc
Fairbanks, Morse & Co., Electronics Div., N.Y., 5c, 10c, 20c
Fairchild Camera & Instrument Corp., Defense Products Div., N.Y., 15c
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 20c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5c, 15c
Fisher Research Laboratory, Inc., Calif., 5s, 10s, 15s
Ford Electronics Corp., Calif., 20s
Forway Industries, Inc., N.J., 5c
Galbraith-Pilot Marine Corp., Div. of Marine Electric Corp., N.Y., 15sc
Garrett Corp., AiResearch Mfg. Co., Calif., 20c
General Aniline & Film Corp., Ansco Div., N.Y., 5c
General Automatics, Inc., Calif., 20 Alarms c
General Coil Products Corp., N.Y., 5c, 20c

Directory I. Complete Equipment

18. Marine Equipment.

General Dynamics/Electronics, N.Y., 5c, 10c, 15sc, 20sc
General Electric Co., Communication Products Dept., Va., 10c
General Electric Co. Ltd. of England, Telecommunications Group, England, 15c
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 15c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c
General Instrument Corp., Harris ASW Div., Conn., 20sc
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 5c, 10c, 15c, 20c
General Precision, Inc., Librascope Div., Calif., 15c
Goodrich Co. (B. F.), B. F. Goodrich Aviation Products Div., Ohio, 20sc
Goodyear Aircraft Corp., Arizona Div., Ariz., 15c
Gorham Electronics, Div. of Gorham Corp., R.I., 15c
Gray Radio Co., Inc., Fla., 10s
Harrison Electrosonics, Inc. (B. M.), Mass., 20sc
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 10s, 20s
Henschel Corp., Mass., 15sc
Hitachi New York, Ltd., N.Y., 10c
Houston Fearless Corp., Westwood Div., Calif., 15c
ITA Electronics Corp., Pa., 10c, 15c
ITI Electronics, Inc., N.J., 5c

Instruments For Industry, Inc., 101 New South Rd., Hicksville, L.I., N.Y., 15c, Tel: 516-OVerbrook 1-7100
See ads in classes 43, 74

International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., Underwater TV c
Jefferson, Inc. (Ray), Pa., 5c, 10sc, 20sc, Depthmeters sc
Jetronic Industries, Inc., Pa., 10c, 20sc
Kaar Engineering Corp., Calif., 5s, 10s, 15s
Kinn Electronics Corp., Md., 15c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5c, 10c, 15c
Lear, Inc., Calif., 5sc
Ling Temco Vought, Inc., Texas, 5c, 20sc
Ling Temco Vought, Inc., Temco Electronics Div., Texas, 5c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 20c
Lionel Corp., N.J., 5c, 10c, 15c, 20c
Litton Industries, Inc., Litton Systems, Inc. (Subsid), Calif., 5sc
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., Md., 5c, 15c
Lockheed Electronics Co., N.J., 5c, 20c
Lockheed Electronics Co., Avionics & Industrial Products Div., Calif., 20c
MB Electronics, Div. of Textron Electronics, Inc., Conn., 20c
Mackay Radio & Telegraph Co., N.J., 5sc, 10sc, 15sc

MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 5c, 20c, Tel: 305-LOgan 4-8518
See ad in class 4

Madigan Electronic Corp., N.Y., 5c, 15c

Maico Electronics, Inc., 21 N. Third St., Minneapolis 1, Minn., 20 Beacons c, Tel: 612-FEderal 9-7041
See ad in class 70

Manson Laboratories, Inc., Conn., 15sc
Marconi's Wireless Telegraph Co., Ltd., N.Y., 5s, 10s, 15s
Marine View Electronics, Inc., N.Y., 5c
Martin Co. (Martin-Marietta Corp.), Md., 20sc
Massa Div., Cohu Electronics, Inc., Mass., 20sc
Maxson Electronics Corp., N.Y., 5c, 15c, 20c
McDonnell Aircraft Corp., Mo., 20c
McKiernan-Terry Corp., N.J., 20c
Minicord Corp. of America, N.J., 5s, 10s, 15s
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 5c, 15c, 20c
Model Engineering & Mfg. Corp., Ind., 15c, 20c
Motorola Aviation Electronics, Inc., Calif., 5sc
Motorola Communications & Electronics, Inc., Ill., 10c
Muirhead & Co., Ltd., England, Gyroscopes s
Multi Products Co., Inc., Mich., 10s
Munzig International, Inc., Calif., 5s, 10s, 15s, 20s
National Co., Inc., Mass., 15s
National Radio Co., Inc., Mass., 5s
Olympic Radio & Television, Div. of Siegler Corp., N.Y., 5sc
Osborne Electronics Corp., Ore., 15s
Pabst Engineering Equipment Co., Inc., N.J., 5c
Packard-Bell Electronics Corp., Calif., 15c
Pearce-Simpson, Inc., Fla., 10sc, 20s
Peer, Inc., Texas, 10c
Philco Corp., Government & Industrial Group, Pa., 15c
Philips Electronics Industries, Ltd., Canada, 10s
Planetronics, Inc., Pa., 5c

Polarad Electronics Corp., 43-20 34th St., Long Island City 1, N.Y., 15c, 20c, Tel: 212-EXeter 2-4500
See ads in class 37

Polydoroff & Associates (W. J.), D.C., 5c
Polytronic Research, Inc., Md., 10c, 15c, 20c
Power-Tronic Systems, Inc., N.Y., 5sc
Powertron Ultrasonics Corp., N.Y., 20sc
Pye Corp. of America, N.J., 5s, 10s, 15s
Pye Telecommunications, Ltd., England, 5sc, 10sc
RCA Victor Co., Ltd., Canada, 5s, 10s, 15s
R F Communications Associates, Inc., N.Y., 15c
R-K Laboratories Co., N.Y., 20c
Racal Engineering, Ltd., England, 10sc, 15sc
Radio Corp. of America, Defense Electronic Products, N.J., 5s, 10s, 15s, 20c
Radio Development & Research Corp., N.J., 20c
Rainier Co., Inc., N.Y., 5c, 10c, 15c, 20c
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 5sc, 10sc, 20sc
Raytheon Co., Government Marketing, Mass., 20c
Redifon, Ltd., England, 10s, 15s
Remington Rand Univac, Div. of Sperry Rand Corp., Minn., 15c
Remler Co., Calif., 15c
Republic Electronic Industries Corp., N.Y., 15c
Rich Electronics, Inc., Fla., 15sc, 20sc
Rixon Electronics, Inc., Md., 15c
Rowe Industries, Ohio, 10s, 15s
Rutherford Electronics Co., Calif., 10s

Sangamo Electric Co., Springfield, Ill., 20c, Tel: 217-KIngswood 4-6411
See ad on page 142

Savoy Electronics, Inc., Fla., 10c, 15c

Scanwell Laboratories, Inc., 6601 Scanwell Lane, Springfield, Va., 5c, Tel: 703-FLeetwood 4-5800
See ad in class 44

Schaevitz Engineering, N.J., 5c, 10c, 15c, 20c
Servo Corp. of America, N.Y., 5sc
Sheltered Workshops, Inc., Calif., 10c
Sonar Radio Corp., N.Y., 5s, 10s, 15s, 20s
Sony Corp., N.Y., 5s
Sorensen Industrial Electronic Co., N.J., 10c
Space Electronics Corp., Calif., 15c, 20c
Sparton Electronics, Div. of Sparton Corp., Mich., 20c
Sperific Electronics, Inc., Calif., 5c, 10c, 15c
Sperry Rand Corp., Sperry Gyroscope Co. of Canada, Ltd. (Subsid.), Canada, 5c, 20c
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 5sc, 10c, 15c, 20c
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 5c, Degaussers c
Spilsbury & Tindall, Ltd., Canada, 5s, 10sc
Standard Telephones & Cables, Ltd., England, 10c, 15c
Stewart-Warner Corp., Stewart-Warner Electronics Div., Ill., 5c
Straza Electronics, Div. of Straza Industries, Calif., 20 Displays c
Sturrup, Inc., Conn., 15sc
Summers & Mills, Inc., Texas, 20c
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 5c, 10c, 15c
TMC (Canada), Ltd., 15s
TRG, Inc. (Technical Research Group), N.Y., 5c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

18. Marine Equipment.

Taffet Electronics, Inc., N.Y., 15c
Tamar Electronics, Inc., Calif., 5c, 10c, 15c
Technical Materiel Corp., 700 Fenimore Rd., Mamaroneck, N.Y., 15sc, Tel: 914-OWens 8-4800
See ads in class 38
Telechrome Mfg. Corp., N.Y., 5s, 10s, 15c, 20c
Telecomputing Corp., Calif., 20c
Telecomputing Corp., Value Engineered Products, Inc. (Subsid.), Calif., 15c, 20c
Telectro Industries Corp., N.Y., 5c, 15c
Telephone Dynamics Corp., N.Y., 10sc
Televiso Corp., Ill., 15c
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 20c, Tel: 214-ADams 5-3111
See ad on Cover 3
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 15s, 20c
Tokyo Shibaura Electric Co., Ltd., Japan, 10s, 15c
Topping Electronics, Ltd., Canada, 10sc
U.S. Sonics Corp., Mass., 20sc
Vap-Air Div., Vapor Corp., Ill., 15c
Venner Electronics, Ltd., England, Radio Buoys c
Virginia Electronics Co., Inc., D.C., 15c
Warren Mfg. Co., Inc., Mass., 15c
Webcor, Inc., Electronics Div., Ill., 5c
Westinghouse Electric Corp., Electronics Div., Md., 15c
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 15sc, 20c, Tel: 212-JUdson 2-3030
See ad on page 224

Marker generators:
See classes 37, 38 & 39

Masers & optical masers:
See class 43

Mass spectrometers:
See class 40

Measuring equipment:
See class 40

Medical equipment:
See class 5

Memories:
See class 10

Metal detectors:
See class 40

Meters, field strength:
See class 38

Meters, frequency:
See class 37

Meters, grid dip:
See class 40

Meters, impedance & admittance:
See class 38

Meters, indicating:
See class 61

Meters, light measuring:
See class 40

Meters, noise & field intensity:
See class 37

Meters, ohm & megohm:
See class 40

Meters, pH:
See class 40

Meters, panel:
See class 61

Meters, power:
See classes 37 & 38

Meters, Q:
See class 38

Meters, SWR:
See class 37

Meters, survey:
See class 22

Microammeters:
See class 61

Micromodules:
See class 50

Microwave antennas:
See class 44

Microwave components:
See class 66

Microwave power supplies:
See class 69

Microwave test equipment:
See class 37

19. Microwave Communications.

5. Receivers **15. Transmitters**
10. Relay equipment

A.R.F. Products, Inc., Ill., 5c
Adler Electronics, Inc., N.Y., 5s, 10s, 15s
Advanced Development Laboratories, Inc., N.H., 5c, 15c
Advanced Electronics Corp., N.Y., 15sc
Aeronca Mfg. Corp., Aerospace Div., Md., 5sc, 10c
Airborne Instruments Laboratory, Div. of Cutler-Hammer, Inc., N.Y., 5c, 15c
Airtronics, Inc., D.C., 5s, 10c, 15s
Alto Scientific Co., Inc., Calif., 5c
American Elite, Inc. (Telefunken), N.Y., 5s, 10s, 15s
American Machine & Foundry Co., Government Products Group, N.Y., 10c
American Microwave & Television Corp., Calif., 5sc, 10sc, 15sc

19. Microwave Communications.

Antlab, Inc., Ohio, 5s
Applied Technology, Inc., Calif., 5c
Automation Dynamics Corp., N.J., 5c, 15c
Basic & Experimental Physics, Mass., 5c, 10c, 15c
Bell Aerosystems Co., Avionics Div., N.Y., 10c
Benco Television Associates, Ltd., Canada, 5c, 10c, 15c
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 5c, 15c
Blonder-Tongue Laboratories, Inc., N.J., 10s, 15s
Budelman Electronics Corp., 375 Fairfield Ave., Stamford, Conn., 5s, 10s, 15s, Tel: 203-FIreside 8-9231
See ad on page 96
Canadian Applied Research, Ltd., Canada, 15c
Canadian General Electric Co., Ltd., Electronic Equipment & Tube Dept., Canada, 5c, 10c, 15c
Canadian Marconi Co., Canada, 5s, 10s, 15s
Canadian Westinghouse Co., Ltd., Canada, 5c, 10c, 15c
Collins Radio Co., Iowa, 5s, 10s, 15s
Collins Radio Co., Texas Div., Texas, 15c
CompuDyne Corp., Pa., 5c, 10c, 15c
Cook Electric Co., Ill., 5c, 10c, 15c
Cook Electric Co., Cook Technological Center, Ill., 5c, 10c, 15c
Decker Corp., Pa., 15c
Defense Electronics, Inc., Md., 5c, 15c
Designers for Industry, Inc., Ohio, 5c, 15c
Dicon Corp., N.Y., 5c, 10c, 15c
Dynamics Corp. of America, N.Y., 5c, 15c
Electro Networks, Inc., & Caledonia Electronics & Transformer Corp., N.Y., 5c, 15c
Electronic Communications, Inc., Fla., 5c, 15c
Electronic Research Associates, Inc., N.J., 5sc, 10sc, 15sc
Electronics Development Corp., Calif., 5s, 10s, 15s
Electronics, Missiles & Communications, Inc., N.Y., 5c, 10c, 15c
Elliott-Automation, Ltd., England, 5c, 10c, 15c
Emertron, Inc., Div. of Emerson Radio & Phonograph Corp., N.J., 5c, 15c
Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 5s, Tel: 518-VIctor 2-8400
See ad in class 38
Ewen Knight Corp., Mass., 5 Millimeter & Radio Astronomy c
FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 5c, 15c, Tel: 212-RAvenswood 1-9000
See ad in class 37
Fairbanks, Morse & Co., Electronics Div., N.Y., 10c
Fairchild Camera & Instrument Corp., Defense Products Div., N.Y., 5c, 15c
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 5c, 10c, 15c
Farinon Electric, Calif., 5s, 10s, 15s

Directory I. Complete Equipment

19. Microwave Communications.

Frequency Standards, Div. of Harvard Industries, Inc., N.J., 5c
General Aniline & Film Corp., Ansco Div., N.Y., 10c
General Dynamics/Electronics, N.Y., 5c, 10c, 15c
General Electric Co., Communication Products Dept., Va., 5c, 10c, 15c
General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 5s, 10s, 15s
General Electric Co. Ltd. of England, Telecommunications Group, England, 5c, 10c, 15c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 5c, 10c, 15c
General Microwave Corp., N.Y., 5c, 15c
General Mills, Inc., Minn., 5c
General Precision, Inc., Kearfott Div., Calif., 5c, 15c
Goodyear Aircraft Corp., Arizona Div., Ariz., 5c, 10c, 15c
Granger Associates, Calif., 15s
Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 10c, Tel: 312-CHesapeake 3-1100
See ad in class 73
Hallamore Electronics Div., Siegler Corp., Calif., 5c
Hitachi New York, Ltd., N.Y., 5c, 10c, 15c
Instruments For Industry, Inc., 101 New South Rd., Hicksville, L.I., N.Y., 5c, 15c, Tel: 516-OVerbrook 1-7100
See ads in classes 43, 74
International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 5c, 10c, 15c
LEL, Inc., 77 Akron St., Copiague, L.I., N.Y., 5s, 10c, Tel: 516-AMityville 4-2200
See ad in class 43
LaPointe Industries, Inc., Conn., 5c, 15c
Lear, Inc., Calif., 5c, 15c
Line Electric Co., N.J., 10sc
Lionel Corp., N.J., 5c, 10c, 15c
Lionel Corp., Telerad Div., N.Y., 5c, 15c
Litton Industries, Inc., Components Group, Airtron Div., N.J., 10sc
Lockheed Electronics Co., N.J., 10c
Lynch Communication Systems, Inc., Calif., 5c, 10c, 15c
Madigan Electronic Corp., N.Y., 5c, 10c, 15c
Magnavox Co., Magnavox Research Laboratories, Calif., 5c, 15c
Marconi's Wireless Telegraph Co., Ltd., N.Y., 5s, 10s, 15s
Marine View Electronics, Inc., N.Y., 5c
Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 5c, 15c
Maury & Associates, Calif., 15c
Maxson Electronics Corp., N.Y., 5c, 10c, 15c
Mechanical Products, Inc., Electronic Systems Div., Mich., 5s, 15s
Melabs, Calif., 5sc, 10c, 15c
Melpar, Inc., Va., 5c, 15c
Menlo Park Engineering, 711 Hamilton Ave., Menlo Park, Calif., 5s, Tel: 415-DAvenport 6-9080
See ad in class 43
Micro-Tel Corp., Md., 5c, 15c
Microwave Dynamics Corp., N.Y., 5c
Missile Systems Corp., California Div., Calif., 5c, 10c, 15c
Moore Associates, Inc., Calif., 10sc
Motorola Communications & Electronics, Inc., Ill., 5sc, 10sc, 15sc
Motorola, Inc., Military Electronics Div., Ariz., 5c, 10c, 15c
National Co., Inc., Mass., 5c, 10c, 15c
Nippon Electric Co., Ltd., Japan, 5c, 10c, 15c
Ostlund Associates (E.M.), N.J., 15c
Peer, Inc., Texas, 15c
Philco Corp., Pa., 5s, 10s, 15s
Philco Corp., Government & Industrial Group, Pa., 5s, 10s, 15s
Philips Electronics Industries, Ltd., Canada, 5sc, 10c, 15c
Polarad Electronics Corp., 43-20 34th St., Long Island City 1, N.Y., 5c, Tel: 212-EXeter 2-4500
See ads in class 37
Pye Telecommunications, Ltd., England, 5c, 10c, 15c
RCA Victor Co., Ltd., Canada, 5s, 10s, 15s
RLC Electronics, Inc., 805 Mamaroneck Ave., Mamaroneck, N.Y., 5s, Tel: 914-OWens 8-7440
See ads in classes 45, 59
Radiation at Stanford, Calif., 15c
Radiation, Inc., Fla., 5c, 15s
Radiatronics, Inc., Calif., 5c, 15c
Radio Corp. of America, Defense Electronic Products, N.J., 5s, 10s, 15s
Radio Engineering Laboratories, Inc., N.Y., 5c, 10c, 15c
Radiotronix Communications Laboratories, N.Y., 15c
Raytheon Co., Communications & Data Processing Operation, Mass., 5sc, 10sc, 15sc
Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 5c, 15c
Schaevitz Engineering, N.J., 5c, 10c, 15c
Schutter Microwave Corp., N.Y., 10sc
Scientific-Atlanta, Inc., Ga., 5sc
Siemens New York, Inc., N.Y., 5s, 10s, 15s
Sierra Research Corp., N.Y., 5c, 15c
Space Electronics Corp., Calif., 5c, 10c, 15c
Specialty Electronics Development Corp., N.Y., 5c, 10c, 15c
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 5c, 15c
Standard Telephones & Cables, Ltd., England, 5sc, 10sc, 15sc
Stewart-Warner Corp., Stewart-Warner Electronics Div., Ill., 5c, 15c
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 5c, 10c, 15c
Systems Research Corp., Calif., 5c, 10c, 15c
TMC (Canada), Ltd., Canada, 5s, 15s
TRG, Inc. (Technical Research Group), N.Y., 5c, 10c, 15c
Tamar Electronics, Inc., Calif., 5c, 15c
Telechrome Mfg. Corp., N.Y., 5c, 15c
Telecomputing Corp., Value Engineered Products, Inc. (Subsid.), Calif., 5c, 15c
Telecomtrol Corp., N.J., 5c, 10c, 15c
Telectron Co., Div. of Elliott & Evans, Inc., Fla., 5sc, 15sc
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 5c, 15c, Tel: 214-ADams 5-3111
See ad on Cover 3
Textron Electronics, Inc., Schafer Custom Engineering Div., Calif., 5c, 15c
Thompson Ramo Wooldridge Inc., Educational Electronics Div., N.J., 15c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s
Tokyo Shibaura Electric Co., Ltd., Japan, 5c, 10c, 15c
Trak Microwave Corp., Fla., 15sc
Trepac Corp. of America, N.J., 10s
Turbo Machine Co., Pa., 5c, 15c
United Shoe Machinery Co., Mass., 10c
Vap-Air Div., Vapor Corp., Ill., 10c
Vitro Electronics, Div. of Vitro Corp. of America, Md., 5s
Watkins-Johnson Co., Calif., 5c, 15c
Webcor, Inc., Electronics Div., Ill., 5c, 15c
Westinghouse Electric Corp., Electronics Div., Md., 5c, 10c, 15c
Wheaton Engineering Div., Hurletron, Inc., Ill., 10c

Microwave components:
See class 66

Microwave power supplies:
See class 69

Microwave test equipment:
See class 37

Milliammeters:
See class 61

Missile equipment:
See classes 1, 2, 54 & 58

Mixers:
See classes 37 & 66

Mobile antennas:
See class 44

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-224.

Mobile huts & shelters:
See class 90

20. Mobile & Emergency Equipment.

5. Dispatching
10. Receivers, central
15. Receivers, mobile
20. Selective calling
25. Transceivers, citizen-band
30. Transmitters, central
35. Transmitters, mobile
40. Walkie-talkies

Accurate Electronics Corp., Ohio, 25sc
Adler Electronics, Inc., N.Y., 10c, 30c
Aeronautical Electronics, Inc., N.C., 5s, 10s, 15s, 20s, 30s, 35s
Aga Corp. of America, N.J., 25s, 30s, 35s, 40s
Aircraft Electronics, Ariz., 25c, 40c
Allied International Corp., N.Y., 40s
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 35c
American Development Electronics Co., N.J., 5c
American Electronics Co., N.Y., 15s, 30s, 35s
Andrea Radio Corp., N.Y., 25c, 40c
Applied Electronics Co., Calif., 25c

Applied Electronics Corp. of New Jersey, P.O. Box 43, Metuchen, N.J., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s, Tel: 201-LIberty 9-9200
See ad in class 34

Arkay International, Inc., N.Y., 35s
Basic & Experimental Physics, Mass., 5c, 15c
Bendix Corp., Bendix-Pacific Div., Calif., 25s
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 5s, 10c, 15sc, 20c, 30c, 35sc, 40c
Bendix Corp., Bendix Radio Div., Industrial Electronics Dept., Md., 5s, 10s, 15s, 20c, 30s, 35s, 40s
Boulevard Electronics, Inc., Ill., 15s
Bristol Motors, Div. of Vocaline Co. of America, Inc., Conn., 25s, 40s
Browning Laboratories, Inc., N.H., 5s, 10s, 15s, 25s, 30s, 35s
Budd Electronics, Inc., N.Y., 15c, 35c
Cadre Industries Corp., N.Y., 20c, 25s, 40sc
Cameraflex Corp., N.Y., 35sc, 40sc
Canadian Aviation Electronics, Ltd., Canada, 5c, 10c, 15c, 20c, 35c, 40c
Canadian General Electric Co., Ltd., Electronic Equipment & Tube Dept., Canada, 5s, 10s, 15s, 20s, 30s, 35s, 40s
Canadian Marconi Co., Canada, 5sc, 10s, 15s, 20s, 30s, 35s
Capehart Corp., N.Y., 15c, 25c, 35c
Carma Mfg. Co., Calif., 40c
Clegg Laboratories, Div. of Clegg, Inc., N.J., 25c, 30c, 35c
Collins Radio Co., Iowa, 30s
Colorado Research Corp., Colo., 20s
Communications Co., Inc., Fla., 5s, 10s, 15s, 20s, 30s, 35s

Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 30c, 35c, Tel: 214-EVergreen 1-1135
See ad on page 120

Continental Mfg., Inc., Nebr., 15c, 20c
Continental Merchandise Co., Transistor Products Div., N.Y., 25sc, 40sc
Cook Electric Co., Cook Technological Center, Ill., 10c, 15c, 30c, 35c
Crown Engineering, N.M., 20c
Davis Electronics, Inc., Calif., 25s, 40s
Dayton Aviation Radio & Equipment Corp., Ohio, 10c, 15c, 30c, 35c, 40c
Dero Research & Development Corp., N.Y., 15c
Designers for Industry, Inc., Ohio, 10c, 15c, 40c
DeWald Radio, Div. of United Scientific Laboratories, Inc., N.Y., 25c
Dryomatic Corp., Va., 15s, 35s
E.M.I.-Cossor Electronics, Ltd., Canada, 15s, 30s, 35s
Edgerton, Germeshausen & Grier, Inc., Mass., 35c

Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 25s, 40s, Tel: 212-STillwell 6-8700
See ad in class 41

Electro-Mech Engineering Co., Minn., 20sc, 25c, 30c, 35c, 40c
Electro-Neutronics, Inc., Calif., 20c
Electro-Voice, Inc., Mich., 5s, 25s
Electronic Engineering Co., Ohio, 35s
Electronic Specialty Co., Calif., 40c
Elliott-Automation, Ltd., England, 10c, 15c, 20c, 30c, 35c
Erco Radio Laboratories, Inc., N.Y., 15sc, 35sc
Fairbanks, Morse & Co., Electronics Div., N.Y., 25c, 40c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5s, 10sc, 15sc, 20s, 25sc, 35sc, 40s
Fisher Research Laboratory, Inc., Calif., 10s, 15s, 30s, 35s
Forway Industries, Inc., N.J., 5c, 25c
General Dynamics/Electronics, N.Y., 10sc, 15sc, 20c, 30sc, 35sc, 40c
General Electric Co., Communication Products Dept., Va., 5sc, 10sc, 15sc, 20sc, 30sc, 35sc, 40sc
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 10c, 15c, 25c, 30c, 35c
Goodyear Aircraft Corp., Arizona Div., Ariz., 5c, 10c, 15c, 20c
Hallamore Electronics Div., Siegler Corp., Calif., 15c, 40c
Harmon Co., Inc. (George), Calif., 25sc
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s
Hitachi New York, Ltd., N.Y., 40c
Houston Fearless Corp., Westwood Div., Calif., 10c, 15c, 20c, 25c, 40c
Humble Mfg. Co., Ltd., Canada, 15s, 35s, 40s
I.D.E.A., Inc., Ind., 10s, 15s, 20s, 25s
Infrared Industries, Inc., West Coast Div., Calif., 40sc
Instrument Corp. of Florida, Fla., 5c, 10c, 15c, 20c, 30c, 35c
International Systcoms, Ltd., Canada, 10sc, 15sc, 30sc, 35sc
International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 15c, 20c, 35c
International Telephone & Telegraph Corp., ITT Kellogg, Ill., 5c, 10s, 15s, 20s, 25s, 30s, 35s
Jefferson, Inc. (Ray), Pa., 15sc, 35sc, 40sc
Jetronic Industries, Inc., Pa., 25sc, 40sc
Johnson Co. (E. F.), Minn., 25s, 35s, 40s
Kaar Engineering Corp., Calif., 5s, 10s, 15 Conelrad s, 25s, 30s, 35s, 40s, Radiotelephones s
Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 25s
Lakeshore Industries Div., Aitken-Reed, Inc., Wis., 25s
LaPointe Industries, Inc., Conn., 25c, 30c, 35c
Lionel Corp., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Maryland Div., Md., 10c, 15c, 30c, 35c
Madigan Electronic Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Magnavox Co., Magnavox Research Laboratories, Calif., 20c
Mallory & Co., Inc. (P. R.), Ind., 15c
Mandrel Industries, Inc., Electronic Research & Development Co. (Div.), Canada, 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s

Marconi Instruments, Ltd., 111 Cedar Lane, Englewood, N.J., 10s, Tel: 201-LOwell 7-0607
See ad on pages 66-67

Marconi's Wireless Telegraph Co., Ltd., N.Y., 10s, 15s, 30s, 35s
Martin Co. (Martin-Marietta Corp.), Md., 15c, 35c, 40c
Matsushita Communication Industrial Co., Ltd., Japan, 15s, 20c, 30c, 35c
Maxwell Electronics Corp., Texas, 25sc, 30c, 35sc
Microwave Corp. of America, Conn., 40c
Miles Reproducer Co., Inc., N.Y., 40s
Minicord Corp. of America, N.J., 25s
Miratel Electronics, Inc., Minn., 25s
Mobil Electronics, Inc., Ind., 20c
Morrow Radio Mfg. Co., Ore., 10s, 15s, 20s, 25s, 30s, 35s, 40s
Motorola Communications & Electronics, Inc., Ill., 10sc, 15sc, 20 Airborne sc, 30sc, 35sc, 40sc
Motorola, Inc., Military Electronics Div., Ariz., 10c, 15c, 20c, 30c, 35c, 40c
Multi Products Co., Inc., Mich., 15s, 25s, 35s
Multitone Electronics, Ltd., Canada, 20s
Multronics, Inc., Md., 25c, 30c
Munzig International, Inc., Calif., 25s, 40s
National Co., Inc., Mass., 30c, 35c, 40c
National Radio Co., Inc., Mass., 10s
Neil Co., N.Y., 35c
Nippon Electric Co., Ltd., Japan, 15c, 25c, 35c
Osborne Electronics Corp., Ore., 25s, 30s, 35s, 40s
Otis Elevator Co., Defense & Industrial Div., N.Y., 30c
Pacific Communications, N.J., 35sc, 40sc
Pearce-Simpson, Inc., Fla., 15s, 25s, 35s
Peer, Inc., Texas, 30c, 35c
Perma-Power Co., Ill., 15sc, 20sc, 35sc
Permoflux Products Co., Div. of Linlar, Inc., Calif., 10c, 15c, 40c

Directory I. Complete Equipment

20. Mobile & Emergency Equipment.

Philips Electronics Industries, Ltd., Canada, 5s, 10s, 15s, 20c, 25s, 30s, 35s, 40s
Philmore Mfg. Co., Inc., N.Y., 15s, 25s, 35s
Plectron Corp., Nebr., 15s, 20s
Polytronic Research, Inc., Md., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Port-O-Vox Corp., N.Y., 40s
Pye Corp. of America, N.J., 5s, 10s, 15s, 30s, 35s, 40s
Pye Telecommunications, Ltd., England, 10sc, 15sc, 30sc, 35sc
R F Communications Associates, Inc., N.Y., 10c, 15c, 30c, 35c
Racal Engineering, Ltd., England, 10sc, 15sc, 30sc, 35sc
Radio Communication Co., Wis., 5c, 20c
Radio Corp. of America, Defense Electronic Products, N.J., 10s, 15sc, 35s, 40s
Radio Industries, Inc., Kans., 15c, 35c, 40c
Radio Mfg. Engineers, Inc., Ill., 25s, 40s
Radio Specialty Mfg. Co., Ore., 40sc
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 25c, 35c
Raypar, Inc., Ill., 20c
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 25s
Redifon, Ltd., England, 10s, 15s, 25s, 30s, 35s, 40s
Reeves Instrument Corp., Farmingdale Div., N.J., 15c, 35c
Secode Corp., Calif., 5s, 20s

Security Devices Laboratory, 24 Seneca Ave., Rochester 21, N.Y., 5sc, 20sc, Tel: 716-HOpkins 7-3200
See ads in classes 46, 73

Seeley Electronics, Calif., 15s
Seiscor, Div. of Seismograph Service Corp., Okla., 25sc, 40sc
Shell Electronics Mfg. Corp., N.Y., 25s
Sheltered Workshops, Inc., Calif., 10c, 15c, 25c, 30c, 35c, 40c
Siemens New York, Inc., N.Y., 30s, 35s, 40s
Solar Research Corp., Fla., 15s, 35c, 40sc
Sonar Radio Corp., N.Y., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s
Sorensen Industrial Electronic Co., N.J., 10c, 15c, 25c, 30c, 35c, 40c
Specialty Electronics Development Corp., N.Y., 15c, 35c
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 15c, 20c, 35c
Spilsbury & Tindall, Ltd., Canada, 10sc, 15sc, 30sc, 35sc
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 10c, 15c, 20c, 35c, 40c
Technical Materiel Corp., 700 Fenimore Rd., Mamaroneck, N.Y., 15s, 35s, Tel: 914-OWens 8-4800
See ads in class 38

Telechrome Mfg. Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c
Telecomtrol Corp., N.J., 10c, 15c, 30c, 35c
Telectro Industries Corp., N.Y., 15c, 25c, 35c
Textron Electronics, Inc., Globe Electronics Div., Iowa, 20s, 25s, 35s
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 10s, 15s, 20s, 30s, 35s, 40s
Tokyo Shibaura Electric Co., Ltd., Japan, 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s
Topping Electronics, Ltd., Canada, 35sc, 40c
Virginia Electronics Co., Inc., D.C., 10c, 15c, 30c, 35c
Vocaline Co. of America, Conn., 25sc, 40s
Webster Mfg., Div. of Raytheon Co., Calif., 25s
Westinghouse Electric Corp., Electronics Div., Md., 10c, 15c, 20c, 35c

Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 5sc, 10sc, 15sc, 30sc, 35sc, Tel: 212-JUdson 2-3030
See ad on page 224

Wunderlich Radio Co., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c

Modulation monitor equipment:
See class 21

Modulators, microwave:
See class 66

Modules:
See class 50

21. Monitor Equipment.

5. Frequency
10. Modulation
15. Remote
20. Video

ACF Electronics Div., ACF Industries, Inc., Md., 20c
Acromag, Inc., Mich., 5sc
Advanced Measurement Instruments, Inc., Mass., 5sc, 10sc
Advanced Technology Laboratories, Div. of American-Standard, Calif., 10s

Aerospace Research, Inc., 94 Massachusetts Ave., Cambridge 39, Mass., 5sc, Tel: 617-ELiot 4-7780
See ad in class 26

Airmec, Ltd., England, 10s

Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 5sc, 15sc, Tel: 301-ACademy 8-4600
See ad in class 53

Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 5sc, 15sc, Tel: 305-LUdlow 3-6160
See ad in class 53

American Communications Corp., N.Y., 20c
American Machine & Foundry Co., Government Products Group, N.Y., 15sc
American Microwave & Television Corp., Calif., 20sc
Anadex Instruments, Inc., Calif., 5s

21. Monitor Equipment.

Applied Control Corp., N.J., 15c
Argus Cameras, Inc., Subsid. of Sylvania Electric Products Inc., Mich., 20s
Ascop, Div. of Electro-Mechanical Research, Inc., N.J., 15c
Avtron Mfg., Inc., Ohio, 10sc
Babcock Electronics Corp., Calif., 5c

Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 10s, Tel: 617-UNiversity 4-7420
See ad in class 86

Beckman Instruments, Inc., Berkeley Div., Calif., 5s
Bell Aerosystems Co., Avionics Div., N.Y., 5c, 15c
Bendix Corp., M. C. Jones Electronics Co., Inc. (Subsid.), Conn., 10s, 15c
Blonder-Tongue Laboratories, Inc., N.J., 20s

Borg Equipment Div., Amphenol-Borg Electronics Corp., 120 S. Main St., Janesville, Wis., 5sc, Tel: 608-PLeasant 4-6616
See ad in class 74

Browning Laboratories, Inc., N.H., 10s
Bulova Research & Development Laboratories, N.Y., 5c, 15c, 20c
Calbest Electronics, Calif., 10s, 20c
Calvideo Electronics, Inc., Calif., 20s
Cameraflex Corp., N.Y., 20s
Canadian Aviation Electronics, Ltd., Canada, 15c
Capehart Corp., N.Y., 5c, 15c, 20c
Central Dynamics, Ltd., Canada, 15sc, 20sc
Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., Texas, 15c
Chrysler Corp., Defense Group, Mich., 15c
Clegg Laboratories, Div. of Clegg, Inc., N.J., 10s
Collins Radio Co., Iowa, 5s, 10s
CompuDyne Corp., Mass., 15s
Continental Mfg., Inc., Nebr., 10c
Continental Technical Service, Inc., Ohio, 15sc
Cooke Engineering Co., Va., 5c, 10c, 15c
Daven Co., Subsid. of General Mills, Inc., N.J., 5s, 15s, 20s
Denson Electronics Corp., Conn., 5c
Dero Research & Development Corp., N.Y., 5sc, 10sc
Dewey Corp. (G. C.), N.Y., 5c
Diamond Electronics, Div. of Diamond Power Specialty Corp., Ohio, 20sc
Dicon Corp., N.Y., 15c
Direct T/V Windings, Ltd., England, 20c
Electrend Products Corp., Mich., 10s
Electro-Mech Engineering Co., Minn., 20c
Electronic Counters, Inc., N.Y., 5s
Electronic Specialty Co., Calif., 5c
Elliott-Automation, Ltd., England, 5c, 10c

Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 10s, Tel: 518-VIctor 2-8400
See ad in class 38

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

21. Monitor Equipment.

Erie Resistor Corp., Erie Pacific Div., Calif., 5s
FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 5s, Tel: 212-RAvenswood 1-9000
See ad in class 37
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 15s, 20sc
Ferranti-Packard Electric, Ltd., Electronics Div., Canada, 20c
First Electronics Corp., Ind., 20s
Foto-Video Electronics, Inc., N.J., 20s
Frequency Standards, Div. of Harvard Industries, Inc., N.J., 5sc
Gates Radio Co., Ill., 5sc, 10sc
General Dynamics Corp., Convair Div., Convair/Pomona, Calif., Radar Performance c
General Electric Co. Ltd. of England, Telecommunications Group, England, 15c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 5c, 10c, 15c, 20c
General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 15c, Tel: 612-WEst 9-8571
See ad in class 43
General Microwave Corp., N.Y., 5c, 10c, 15c

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General Radio Co., 22 Baker Ave., West Concord, Mass., 5s, 10s, Tel: 617-EMerson 9-4400
See ad on Cover 4
General Railway Signal Co., N.Y., 15c
General Television Network, Mich., 20sc
Genisco, Inc., Calif., 5s
Gertsch Products, Inc., Calif., 5s, 10s
Giannini Controls Corp., Calif., 20c
Giannini Controls Corp., Conrac Div., Calif., 20 Closed-Circuit sc
Gilfillan Brothers, Inc., Calif., 15c, 20c
Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 15c, Tel: 516-WElls 8-9500
See ad in class 77
Gulton Industries, Inc., N.J., 5sc
Hartman Electrical Mfg. Co., Ohio, 5sc
Hastings-Raydist, Inc., Va., 15s
Hewlett-Packard Co., Dymec Div., Calif., 5c, 10c, 20c
Hitachi New York, Ltd., N.Y., 20c
Hoffman Electronics Corp., Calif., 5c, 10c
Hycon Mfg. Co., Calif., 5c
ITA Electronics Corp., Pa., 5sc, 10sc, 15sc
ITI Electronics, Inc., N.J., 20s
Image Instruments, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 20c, Tel: 617-WOodward 9-8440
See ads in classes 9, 10, 21, 86
Instrument Corp. of Florida, Fla., 5c, 15c
Instruments For Industry, Inc., 101 New South Rd., Hicksville, L.I., N.Y., 10c, 15c, 20c, Tel: 516-OVerbrook 1-7100
See ads in classes 43, 74
International Electronics Mfg. Co., Md., 10s
International Instruments, Inc., 88 Marsh Hill Rd., Orange, Conn., 15s, Tel: 203-SYcamore 5-4711
See ad in class 61
International Research & Development Corp., Ohio, 15c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 20 Slow-Scan & Electro-Optical c
Kaar Engineering Corp., Calif., 15 Conelrad s
Kahn & Co., Inc., Conn., 5c
Kaiser Aircraft & Electronics, Div. of Kaiser Industries Corp., Calif., 15c, 20c
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 15s, 20 Closed-Circuit s
Kinn Electronics Corp., Md., 10sc
Knights Co. (James), 101 E. Church St., Sandwich, Ill., 5s, Tel: 2141
See ad in class 56
Lampkin Laboratories, Inc., Monitor Div., Fla., 5s, 10s
Land-Air, Inc., Ill., 5c, 10c
Lear, Inc., Calif., 15sc
Ling Temco Vought, Inc., Texas, 20s
Ling Temco Vought, Inc., Electron Corp. (Subsid.), Texas, 20s
Ling Temco Vought, Inc., Temco Electronics Div., Texas, 20c
Lionel Corp., N.J., 10c, 20c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 5c, 10c, 15c
Lockheed Electronics Co., N.J., 15s, 20s
Lynch Communication Systems, Inc., Calif., 5c, 10c, 15c
Madigan Electronic Corp., N.Y., 5c
Mandrel Industries, Inc., Electronic Research & Development Co. (Div.), Canada, 10s
Marconi's Wireless Telegraph Co., Ltd., N.Y., 20s
Marine View Electronics, Inc., N.Y., 10c, 15c
Measurements, McGraw-Edison Div., N.J., 5sc
Melabs, Calif., 5sc, 10sc, 15sc, 20sc
Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 10sc, Tel: 617-DAvenport 4-4108
See ad in class 51
Milro Controls Co., Inc., N.J., 5c
Miratel Electronics, Inc., Minn., 15sc, 20sc
Missile Systems Corp., California Div., Calif., 20c
Montek, Inc., Utah, 15c, 20c
Moore Associates, Inc., Calif., 15sc
Motorola Communications & Electronics, Inc., Ill., 5s, 20s
Motorola, Inc., Military Electronics Div., Ariz., 5c
Multi Products Co., Inc., Mich., 5s
Nash & Thompson, Ltd. (Messrs.), England, 20s
Natel Engineering Co., Calif., 5s, 10c
National Co., Inc., Mass., 5s
National Electronics, Wyo., 5c, 15c
New London Instrument Co., Conn., 10sc
Newton Co., Conn., 10sc
North America Electronics, Ala., 20c
Olympic Radio & Television, Div. of Siegler Corp., N.Y., 5sc, 10sc, 15sc, 20sc
Optimized Devices, Inc., N.Y., 15sc
Panoramic Electronics, Inc., 528 S. Fulton Ave., Mount Vernon, N.Y., 5s, Tel: 914-OWens 9-4600
See ad on page 80
Peer, Inc., Texas, 5c, 10c
Perfection Electronics, Inc., N.Y., 10s
Photomechanisms, Inc., 15 Stepar Place, Huntington Station, L.I., N.Y., 20c, Tel: 516-HAmilton 3-4411
See ads in classes 14, 34
Pioneer Magnetics, Inc., Calif., 5c
Probescope Co., Inc., N.Y., 5s, 10s, 20s
R-K Laboratories Co., N.Y., 15c
RMS Associates, Inc., N.Y., 20c
Racal Engineering, Ltd., England, 5c
Remanco, Inc., Calif., 20c
Rixon Electronics, Inc., Md., 5c, 10c, 15c
Rodale Electronics, Inc., N.Y., 5c, 10c
Sanborn Co., Subsid. of Hewlett-Packard Co., 175 Wyman St., Waltham 54, Mass., 20s, Tel: 617-TWinbrook 4-6300
See ad on pages 70-71
Schaevitz Engineering, N.J., 5c, 10c, 20c
Secode Corp., Calif., 15s
Security Devices Laboratory, 24 Seneca Ave., Rochester 21, N.Y., 5sc, 15sc, Tel: 716-HOpkins 7-3200
See ads in classes 46, 73
Setchell-Carlson, Inc., Minn., 20s
Sheltered Workshops, Inc., Calif., 5c, 10c, 15c

Directory I. Complete Equipment

21. Monitor Equipment.

Siemens New York, Inc., N.Y., 5s, 10s, 15s, 20s
Space Electronics Corp., Calif., 5c, 10c
Space Instrumentation Corp., Calif., 5sc
Specialty Electronics Development Corp., N.Y., 15 Meteorological c
Specific Electronics, Inc., Calif., 5c
Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 15c
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 5sc
Standard Systems Corp., N.Y., 20s
Standard Telephones & Cables, Ltd., England, 5sc, 10sc, 15sc, 20sc
Stratocon Corp., N.J., 5c
Sun Electric Corp., Instrumentronics Div., Ill., 5c
Tech-Master Corp., N.Y., 20s
Tektronix, Inc., Ore., 20s
Tel Instrument Electronics Corp., N.J., 20s
TELautograph Corp., Calif., 20s
Telechrome Mfg. Corp., N.Y., 5s, 15sc
Telectro Industries Corp., N.Y., 20c
Television Utilities Corp., Div. of Nord, N.Y., 20s
Textron Electronics, Inc., Schafer Custom Engineering Div., Calif., 5c, 10c, 15 Broadcast-Transmitter c
Thompson Ramo Wooldridge Inc., Dage Div., Ind., 20s
Thompson Ramo Wooldridge Inc., Educational Electronics Div., N.J., 20c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s, 20s
Tipptronic, Inc., Ohio, 15s
Tokyo Shibaura Electric Co., Ltd., Japan, 10s, 20s
Towaco Electronics, N.J., 5s
Union Switch & Signal, Div. of Westinghouse Air Brake Co., Braddock Ave., Pittsburgh 18, Pa., 15c, Tel: 412-CHurchill 2-5000
See ad in class 73
U.S. Recording Co., D.C., 15c
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 10c
Varo, Inc., Texas, 5sc
Veeder-Root, Inc., Electronic Controls Div., Mass., 15c
Videonics, Inc., Mass., 20s
Vitro Electronics, Div. of Vitro Corp. of America, Md., 5s
Waltham Electronics Corp., Mass., 5s, 10s
Warren Mfg. Co., Inc., Mass., 5sc, 10sc, 15sc
Waterman Products Co., Inc., 2445 Emerald St., Philadelphia 25, Pa., 15sc, Tel: 215-GArfield 6-8600
See ad in class 23
Waugh Engineering Co., Calif., 5sc
Westinghouse Electric Corp., Television-Radio Div., N.J., 20c
Wheaton Engineering Div., Hurletron, Inc., Ill., 5c
Whitehall Electronics Corp., Minn., 5c, 10c, 15c, 20c

Multicoders:
See class 34

Multiplex & stereo equipment:
See classes 26, 33, 42 & 88

Multipliers, computer:
See class 10

Multipliers, microwave:
See class 66

Multipliers, servo:
See class 77

Multitesters:
See class 41

Multivibrators:
See class 38

Navigation equipment, aircraft—missile:
See class 2

Navigation equipment, marine:
See class 18

Noise generators:
See classes 35, 37 & 38

Noise meters:
See classes 35, 37 & 38

22. Nuclear Equipment.

5. Accelerators, particle
10. Analyzers
15. Chambers, ionization
20. Crystals
25. Detectors
30. Dosimeters
35. Gages, beta
40. Gages, ionization
45. Integrators, pulse count
50. Meters, survey
55. Sample changers
60. Scalers
65. Sources

Admiral Corp., Ill., 40c, 50c
Advanced Micro-Electronics, Inc., R.I., 20c, 25c
Airmec, Ltd., England, 25s
Allied Research Associates, Inc., Mass., 25c, 30c
Allis-Chalmers Mfg. Co., Wis., 5c
Anadex Instruments, Inc., Calif., 45s
Appalachian Electronic Instruments, Inc., Va., 60c
Applied Physics Corp., Calif., 15s
Ateliers de Montages Electriques (AME), France, 15s, 25s, 45s, 60s
Atomic Accessories, Inc., Subsid. of Baird-Atomics, Inc., 817 W. Merrick Rd., Valley Stream, L.I., N.Y., 15sc, 20s, 25s, 30s, 50s, 65s, Tel: 516-CUrtiss 5-9300
See ad in this class
Atomic Film Badge Corp., Div. of X-Ray Monitoring Corp., N.Y., 30s
Atomic Laboratories, Inc., Calif., 5s, 60s, 65s
Avo, Ltd., England, 25s, 50s
Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s, 65s, Tel: 617-UNiversity 4-7420
See ad in class 86
Barnes Engineering Co., Conn., 25c
Bausch & Lomb, Inc., N.Y., 30s
Bendix Corp., Cincinnati Div., Ohio, 30s
Bon-De Electronic Laboratories, Inc., Mass., 40s
Bulova Research & Development Laboratories, N.Y., 25c, 45c
California Technical Industries, Div. of Textron, Inc., Calif., 10sc
Cambridge Instrument Co., N.Y., 30c
Central Scientific Co., Ill., 60s, 65s
Cole Instrument Co., Calif., 50c
Computer-Measurements Co., Div. of Pacific Industries, Inc., Calif., 60sc
Computing Devices of Canada, Ltd., Subsid. of Bendix Corp., Canada, 10c, 30c
Controls for Radiation, Inc., Mass., 25c, 30c, 50c, 65c
Cook Electric Co., Ill., 15c, 65c
Cook Electric Co., Cook Technological Center, Ill., 15c, 25c, 30c, 45c, 60c
Cosmic, Inc., D.C., 5s
Curtiss-Wright Corp., Princeton Div., N.J., 25sc, 35sc, 65sc
DBM Research Corp., Fla., 60s
Delta Design, Inc., Calif., 55s
Dero Research & Development Corp., N.Y., 10sc, 50sc

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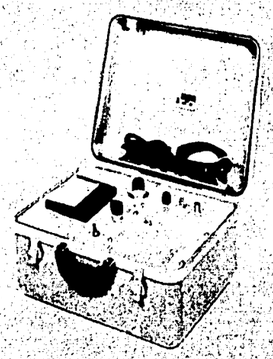
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

22. Nuclear Equipment.

Dewey Corp. (G.C.), N.Y., 45c, 50c, 60c
Dicon Corp., N.Y., 25c, 30c, 45c, 50c, 60c
E-H Research Laboratories, Inc., Calif., 10s
E.M.I.-Cossor Electronics, Ltd., Canada, 30s
E O Electronics, Inc., N.J., 45c, 50c
Eastman Kodak Co., 343 State St., Rochester 4, N.Y., 30c, Tel: 716-LOcust 2-6000
See ad in class 17
Eberline Instrument Corp., N.M., 10s, 25s, 45s, 50s, 60s, 65s
Edgerton, Germeshausen & Grier, Inc., Mass., 25c, 30c, 50c
Edwards High Vacuum, Inc., N.Y., 40s
Egan Laboratory, N.Y., 50c
Ekco Electronics, Ltd., Ekco Works, England, 10s, 15s, 20s, 25s, 30s, 35s, 40s, 50s, 60s, 65s
Elcor, Inc., Va., 45 Current sc
Eldorado Electronics, Calif., 60sc
Electro-Neutronics, Inc., Calif., 10c, 25c
Electronic Instruments, Ltd., England, 10s, 15s, 30s
Electronic Products Co., Div. of Victoreen Instrument Co., N.Y., 25s, 45s, 50s
Elliott-Automation, Ltd., England, 10c, 15c, 25c, 30c, 35c, 40c, 45c, 60c, 65c
Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 10c, 20c, 25c, Tel: 201-BIgelow 2-2700
See ad on page 140
Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 25s, Tel: 814-GLendale 6-8592
See ad on pages 78-79
Exact Electronics, Inc., Ore., 65s
Fairbanks, Morse & Co., Electronics Div., N.Y., 30sc
Fairchild Camera & Instrument Corp., Defense Products Div., N.Y., 25c
Federated Electronics, Inc., N.Y., 20c
Forro Scientific Co., Ill., 10s, 25s, 45s, Radio Chromatographs s
Franklin Systems, Inc., 2734 Hillsboro Rd., P.O. Box 3250, West Palm Beach, Fla., 10sc, 15c, 20c, 25sc, 30sc, 35sc, 40c, 45sc, 50sc, 60sc, 65sc, Tel: 305-TEmple 3-4602
See ad in this class
Gardiner Electronics, Ariz., 25s
Gelman Instrument Co., 106 N. Main St., P.O. Box 118-R, Chelsea, Mich., 25s, 30s, 45s, 50s, Tel: 313-GReenwood 9-4821
See ad in classes 22, 40
General Aniline & Film Corp., Ansco Div., N.Y., 30c
General Dynamics/Electronics, N.Y., 25c, 45sc
General Electric Co., X-Ray Dept., Wis., 15c, 35s
General Nuclear Corp., N.Y., 50c, 60c
General Time Corp., Incremag Div., Conn., 45c, 60c
Geotechnical Corp., Texas, 60sc
Gyra Electronics Corp., Ill., 10s, 45s, 50s
Hamner Electronics Co., Inc., N.J., 10s, 60s
Harshaw Chemical Co., Crystal Div., Ohio, 20sc, 25sc
Harvey-Wells Corp., Mass., 10c
Harvey-Wells Electronics, Inc., Mass., 60sc
High Voltage Engineering Corp., Mass., 5 Isotope-Separator c, 55c, Neutron Generators c
Hitachi New York, Ltd., N.Y., 5c, 25c, 50c, 55c
Houston Fearless Corp., Westwood Div., Calif., 5c
Hughes Aircraft Co., Nuclear Electronics Laboratory, Calif., 5sc, 25sc
Hycon Mfg. Co., Calif., 25c
Iconix, Inc., Calif., 60sc
Industrial Nucleonics Corp., Ohio, 35sc
Instrument Systems Corp., N.Y., 10c
International Electronic Research Corp., Riggs Nucleonics Corp. (Subsid.), Calif., 15sc, 25sc, 45sc, 50sc
International Pump & Machine Works, 81 Dorsa Ave., Livingston, N.J., 40s, Tel: 201-WYman 2-5900
See ad in class 99
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumental Laboratory, Ind., 25s
Isomet Corp., N.J., 20s, 25s
Isotope Developments, Ltd., England, 10s, 25s, 35s, 45s, 55s, 60s, 65s
Isotopes, Inc., N.J., 15c, 20sc, 25sc, 35c, 50sc, 60c
Isotopes Specialties Co., Calif., 50s, 65sc
Johnson & Associates, Inc. (Wm. B.), N.J., 10sc, 15c, 20c, 25sc, 30sc, 50sc, 55c, 60sc, 65sc
Jordan Electronics, Div. of Victoreen Instrument Co., Calif., 15s, 50s
Kahl Scientific Instrument Corp., Calif., 30s, 35s, 45s, 50s, 55s, 60s, 65s
Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 5 Pulsed-Neutron Generators sc, 10c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 10c, 25c, 30c, 50c
Labko Scientific, Inc., Okla., 45c
Landis & Gyr, Inc., N.Y., 15s, 25s
Leesona Corp., Leesona Moos Laboratories Div., N.Y., 30c, 65c
Lincoln Research Laboratory, Nebr., 10c, 45c, 50c, 60c
Lionel Corp., N.J., 5c, 10c, 15c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c
Lionel Corp., Lionel Electronic Laboratories (formerly Anton Electronic Laboratories), Dept. X-2, 1226 Flushing Ave., Brooklyn 37, N.Y., 15sc, 25sc, 30sc, 45sc, 50sc, 55sc, 60sc, Tel: 212-EVergreen 6-5715
See ad in class 52
Magnaelectric Corp., 2635 N. Iroquois, P.O. Box 6008, Tulsa 6, Okla., 5c, 15c, 45c, 50c, 65c, Tel: 918-FIllmore 5-7278
See ad in class 84
Malaker Laboratories, N.J., 15c, 25c, 35c, 40c, 65c
Marshall of Cambridge Electronics, Ltd., England, 10s, 45s, 60s
Marsland Engineering, Ltd., Canada, 60c
Matrix Research & Development Corp., N.H., 40c, 50c

MODEL 15-2
ULTRA-SENSITIVE SCINTILLATION SURVEY METER



10,000 c.p.m. background (.01 mr/hr) up to 10,000,000 c.p.m. 7" diameter plastic scintillator, all transistorized

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POST OFFICE BOX 3250
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SPARROW MINIATURE RADIATION ALARM
Low cost, feather weight, shirt pocket size. Operates 2 weeks on penlight batteries. Gives split-second startling audible warning when approaching danger areas.

RADIATION SURVEY METER
Portable alpha-beta-gamma accuracy of 15%. Flashlight battery operated transistor circuits. Built in loudspeaker and earphones.

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For routine or disaster surveys. Illuminated dials. Extra wide range 5 mR to 500 R per hour. Automatic temperature compensation. Flashlight battery operated transistor circuits.

NUCLEAR AIR SAMPLER
Constant rate sampling. Records amount of air and running time. Operator's control board simplifies use. Built-in vacuum gauge, on-off switch, fuses, lights, and filterholder.

Write for free catalogs or consultation

GELMAN INSTRUMENT COMPANY
106 N. MAIN
P.O. BOX 118-R, CHELSEA, MICHIGAN

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Directory I. Complete Equipment

22. Nuclear Equipment.

Model Engineering & Mfg. Corp., Ind., 10c, 25c, 45c, 60c
Moran Instrument Corp., Calif., 25c
Muirhead Instruments, Inc., N.Y., 40s
NRC Equipment Corp., Mass., 15c, 35c, 40sc
Naniloa Corp., Ohio, 45c, 60c
Nash & Thompson, Ltd. (Messrs.), England, 20s
National Co., Inc., Mass., 15c, 25c
National Radiac, Inc., N.J., 20sc, 25sc, 30s, 50sc, 55s
Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 60c, Tel: 215-GLendale 2-6531
See ad in class 10
Newton Co., Conn., 45c
North American Aviation, Inc., Atomics International Div., Calif., 15s, 40c
Nuclear-Chicago Corp., Ill., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s, 65s
Nuclear Corp. of America, Instrument & Control Div., N.J., 10sc, 15sc, 25sc, 30sc, 40sc, 50sc, 60sc, 65sc
Nuclear Development Laboratory, Inc., Mo., 25sc
Nuclear Measurements Corp., Ind., 25s, 50s, 55s, 60s
Nuclear Research Corp., Pa., 25sc, 35sc, 40sc
Nuclear Science & Engineering Corp., Pa., 30sc, 40c, 65c
Nucleonic Corp. of America, N.Y., 10s, 15s, 20s, 25s, 30s, 35s, 45s, 50s, 55s, 60s, 65s
Optics Technology, Inc., Calif., 30c
Oxford Engineering Corp., Mass., 55c, 60c
Pastoriza Electronics, Inc., Mass., 25c, 45c, 60c
Philco Corp., Lansdale Div., Pa., 20c
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 5sc, 10s, 20s, 25s, 30s, 40sc, 45s, 50s, 55s, 60s, 65s
Philips Electronics Industries, Ltd., Canada, 15s, 20s, 25s, 30s, 35s, 40s, 50s, 60s
Picker X-Ray Corp., N.Y., 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s, 65s
Pilot Chemicals, Inc., Mass., 20sc, 25sc
RCA Victor Co., Ltd., Canada, 25sc
Radiation Applications, Inc., N.Y., 65c
Radiation Counter Laboratories, Inc., Ill., 10s, 20s, 25s, 30s, 35s, 40s, 45s, 50s, 60s, 65s
Radiation Dynamics, Inc., N.Y., 5s
Radiation Instrument Development Laboratories, Inc., Ill., 10s, 15s, 20s, 25s, 30s, 50s, 55s, 60s, 65s
Radio Corp. of America, RCA Electron Tube Div., N.J., 25s
Ransom Research, Inc., Calif., 60c
Reseon Electronics Corp., Mass., 15c
Reuter-Stokes Electronic Components, Inc., Ohio, 15s, 25s
Rochester Instrument Systems, Inc., N.Y., 10c, 25c
Royson Engineering Co., Pa., 45sc
Saint John X-Ray Laboratory, N.J., 30s, 65c
Sampson Chemical & Pigment Corp., Ill., 20c
Santa Barbara Research Center, Subsid. of Hughes Aircraft Co., Calif., 25c
Savoy Electronics, Inc., Fla., 20sc
Savoy Electronics, Inc., Ga., 20c
Semi-Elements, Inc., Pa., 20s, 25c
Servomechanisms/Inc., Calif., 40c
Siemens New York, Inc., N.Y., 25s, 30s, 50s
Space Electronics Corp., Calif., 25c
Special Instruments Laboratory, Inc., Tenn., 15c, 25c
Specialty Electronics Development Corp., N.Y., 30s, 50s
Sperry Rand Corp., Sperry Gyroscope Co. of Canada, Ltd. (Subsid.), Canada, 25c, 35c
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 5c, 10 Reactor c
Standard Electronics Research Corp., N.J., 25s
Stark Electronic Instruments, Ltd., Canada, 10s, 50s
Summers & Mills, Inc., Texas, 10c, 15c, 45c
Systron-Donner Corp., Calif., 60c
TRG, Inc. (Technical Research Group), N.Y., 25c, 30c
Taffet Electronics, Inc., N.Y., 35c
Technical Associates, Calif., 10s, 15s, 25s, 55s, 60s
Technical Measurement Corp., Conn., 10s, 25s, 60s
Telechrome Mfg. Corp., N.Y., 25s, 50s
Telectro Industries Corp., N.Y., 50c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 25s
Tracerlab Keleket, Mass., 10sc, 15sc, 20s, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc, 65sc
Trott Electronics, Inc., N.Y., 45c, 60c
Turner Associates (G. K.), Calif., 30s
Ulmer Co. (H. W.), Calif., 40sc
Union Carbide Corp., Linde Co. (Div.), N.Y., 20sc
U.S. Nuclear Corp., Calif., 15sc, 25sc, 30s, 45sc, 55c, 60s, 65sc
Universal Transistor Products Corp., N.Y., 25sc, 50sc
Vap-Air Div., Vapor Corp., Ill., 55c
Varian Associates, Instrument Div., Calif., 10s
Venner Electronics, Ltd., England, 60c
Victoreen Instrument Co., 5806 Hough Ave., Cleveland 3, Ohio, 10s, 15s, 20s, 25s, 30s, 40s, 45s, 50s, 55s, 60s, Tel: 216-ENdicott 1-6200
See ads in classes 74, 86
Vitro Electronics, Div. of Vitro Corp. of America, Md., 10sc, 25 Air-Particle sc, 65c
Western Radiation Laboratory, Calif., 35c, 65sc
Wood Counter Laboratory (N.), Ill., 25sc
Zimmey Corp., Calif., 15c, 35c, 40c, 45c

Null indicators:
See class 40

Ohm—megohm meters:
See class 40

Optical equipment:
See classes 14 & 17

Optical inspection equipment:
See class 14

Optical masers:
See class 43

Oscillators:
See classes 34, 35, 37 & 38

Oscillographs:
See class 23

Oscilloscopes, bio-medical:
See class 5

23. Oscilloscopes.

5. Calibrators, time & voltage
10. Cameras, oscilloscope
15. Oscillographs, recording
20. Oscilloscopes, general purpose
25. Oscilloscopes, wideband
30. Oscillosynchroscopes
35. UHF & pulse analysis equipment

Admiral Corp., Ill., 5c, 10c, 25c, 30c
Advance Components, Ltd., England, 20s
Advanced Development Laboratories, Inc., N.H., 35c
Advanced Measurement Instruments, Inc., Mass., 35sc
Aero Geo Astro Corp., Va., 35c
Airmec, Ltd., England, 25s
Airtronics, Inc., D.C., 35c
Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 15c, 35c, Tel: 617-FOrest 6-4467
See ad on page 82
Allegany Instrument Co., Div. of Textron Electronics, Inc., Md., 5s, 15s
Analab Instrument Corp., N.J., 5s, 10s, 20s, 25s, 30s
Andrea Radio Corp., N.Y., 15c, 20c
Artronic Instrument Co., Md., 5c
Associated Electrical Industries (Rugby), Ltd., England, 20s
Ateliers de Montages Electriques (AME), France, 20sc
Automation Service Co., Calif., 5c
Autometric Corp., N.Y., 20 Color c
Bach-Simpson, Ltd., Canada, 20s
Beckman & Whitley, Inc., Calif., 10sc
Benrus Watch Co., Inc., Conn., 20c, 25c
Buck Instrument Co., Colo., 10c
Building Blocks Electronic Co., N.Y., 20sc
Bulova Research & Development Laboratories, N.Y., 5c, 10c, 20s, 25c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

SEE Waterman FIRST

FOR YOUR OSCILLOSCOPE AND CATHODE RAY TUBE NEEDS

SYSTEMATS®—The up-to-date custom approach to multi-function monitoring. Any number of modules may be mixed or matched. Built to industrial or military standards and uses PANEL-SCOPES as building blocks.

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PRIMER-SCOPES®—A lightweight economical oscilloscope, ideal for experimenters, school training and industrial monitoring.

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GArfield 6-8600 • CABLE ADDRESS—Poketscope

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The accepted way to measure

Nanosecond **SWITCHING TIMES**

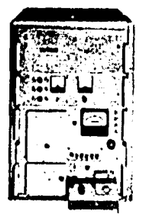
of transistors, diodes, circuits

WORLD'S FASTEST SAMPLING OSCILLOSCOPE

Lumatron Model 112

Bandpass to 2 KMC. Sweep rates to 0.05 ns/cm. Dual channels. Complete test systems available for pulse, transistor switching, and diode recovery measurements.

ACCURATE, DIRECT READING AUTOMATIC TEST SET



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Automatically measures risetime, falltime, storage and delay characteristics from 0.5 ns to 2 usec. Accuracy 5%, or better. Up to 3600 tests per hour.

Write for complete specifications

Lumatron electronics

LUMATRON ELECTRONICS, INC.
116 County Courthouse Rd.
New Hyde Park, L. I., New York

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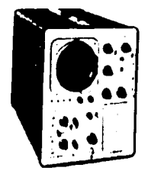
Directory I. Complete Equipment

23. Oscilloscopes.

California Technical Industries, Div. of Textron, Inc., Calif., 5sc, 20sc, 25sc
Capehart Corp., N.Y., 25c, 30c, 35c
Carol Electronics Corp., W.Va., 20c
Central Electronics, Inc., Ill., 25s
Central Scientific Co., Div. of Cenco Instruments Corp., Ill., 20s
Chicago Aerial Industries, Inc., Ill., 10s
Clevite Corp., Brush Instruments Div., Ohio, 15s
Cole Instrument Co., Calif., 5c, 10c
Consolidated Electrodynamics Corp., Calif., 15s
Crown Engineering, N.M., 20c
Dawe Instruments, Ltd., England, 20s
Dero Research & Development Corp., N.Y., 20c
Dicon Corp., N.Y., 15c
Direct T/V Windings, Ltd., England, 20s
Dresser Electronics/SIE Div., Dresser Industries, Inc., Texas, 15s, 20s
Dynage, Inc., Conn., 5sc
EI Laboratories, Calif., 20sc
E.M.I.-Cossor Electronics, Ltd., Canada, 10s, 20s, 25s
Edgerton, Germeshausen & Grier, Inc., Mass., 10c, 25c
Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 20s, Tel: 212-STillwell 6-8700
See ad in class 41
Electro Instruments, Inc., Calif., 25s
Electro-Medical Laboratory, Inc., Vt., 10sc, 15c
Electronic Development Laboratory, Inc., Ill., 20c, 25c
Electronic Measurements Corp., N.Y., 20s
Electronic Tube Corp., Pa., 5c, 10s, 20s, 25s, 30c, 35c
Epic, Inc., N.Y., 15s, 20s, 25s
Fairbanks, Morse & Co., Electronics Div., N.Y., 25s
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 10sc
Foto-Video Electronics, Inc., N.J., 10s
Furzehill Laboratories, Ltd., England, 20s
General Aniline & Film Corp., Ansco Div., N.Y., 10c
General Precision, Inc., Kearfott Div., Calif., 20c
Genisco, Inc., Calif., 35s
Geotechnical Corp., Texas, 5sc, 10sc, 15sc
Gilfillan Brothers, Inc., Calif., 30c
Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 10s, 15s
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 20s, 25s
Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 5s, 10s, 20s, 25s, 30s, 35s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28
Hickok Electrical Instrument Co., Ohio, 5s, 20s, 25s
ITI Electronics, Inc., N.J., 20s
Instrument Corp. of Florida, Fla., 35c
Interlab, Inc., N.Y., 10s, 25s
International Rectifier Corp., Dallons Laboratories, Inc. (Subsid.), Calif., 20s
International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 20c, 25c
Iwasaki Communication Apparatus Co., Ltd., Japan, 25s, 30s
Jackson Electrical Instrument Co., Ohio, 20s, 25s
Jetronic Industries, Inc., Pa., 20c, 25c
Kauke & Co., Inc., Calif., 20c
Kingston Electronics, Div. of Kingston Industries, Inc., Mass., 20s
Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 20s, 25s
Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 15c, 20c, Tel: 516-RAvenswood 9-7580
See ad in class 89
Laboratory For Electronics, Inc., Mass., 5sc, 20sc, 25sc, 35sc
LaPointe Industries, Inc., Conn., 20c
Lavoie Laboratories, Inc., Matawan-Freehold Rd., Morganville, N.J., 20sc, 25sc, 30sc, Tel: 201-LOwell 6-2600
See ad in class 37
Lionel Corp., N.J., 5c, 20c, 25c, 30c, 35c

ETC electronic tube corporation
Cathode Ray Equipment



Model K-120 DC to 20 Megacycle high performance Oscilloscope

Designed around one of ETC's well-known premium-quality single-gun CRT's, the K-120 offers exceptional versatility through plug-in accessory options — sweep delays, time generators, preamplifiers, etc. DC- 15mc ±3 db. 23 nanosecond rise time. 0.2 μ sec. — 5 sec. / cm sweep.

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WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400

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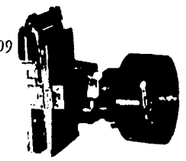
ETC electronic tube corporation
Cathode Ray Equipment



Model SM-209 Multiple Exposure Oscilloscope Camera

Dented, sliding Polaroid Land camera back makes 1 to 9 exposures per print. Actual-size, finished prints in 10 seconds. All adjustments made without removing camera from scope. f:1.9 Oscillo-Raptar lens for perfect edge-to-edge definition.

CRT's of all types.

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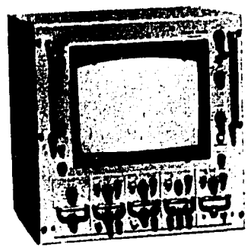
WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400
For details, circle #157 on Reader Service Card

SCHWARZER
Oscilloscope for Industry & Medicine



- For research & monitoring
- Up to 10 phenomena simultaneously
- 15,000 cps frequency response
- Various plug-in preamplifiers
- High accuracy & stability

The SCHWARZER Oscilloscope is a highly qualified measuring tool—simple and economical in use.

SCHWARZER Company
46 Salmi Road, Framingham, Mass.
Write direct for location of nearest Branch Office or Representative.
For details, circle #158 on Reader Service Card

23. Oscilloscopes.

Loral Electronics Corp., N.Y., 35c
Lumatron Electronics, Inc., 116 County Courthouse Rd., New Hyde Park, L.I., N.Y., 25s, 35s, Tel: 516-PIoneer 7-3200
See ad in this class
Mandrel Industries, Inc., Houston Div., Texas, 15c
Marconi Instruments, Ltd., 111 Cedar Lane, Englewood, N.J., 20s, Tel: 201-LOwell 7-0607
See ad on pages 66-67
Matsushita Communication Industrial Co., Ltd., Japan, 20s, 25s, 30s
Medistor Instrument Co., Wash., 5s, 15s
Metrologie, Compagnie Generale de, France, 20s
Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 20sc, 30sc, Tel: 617-DAvenport 4-4108
See ad in class 51
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 15s
Missouri Research Laboratories, Inc., Mo., 5c
Model Engineering & Mfg. Corp., Ind., 20c, 25c, 35c
Mohawk Business Machines Corp., N.Y., 20c
Moran Instrument Corp., Calif., 5s
Mosaic Fabrications, Inc., Mass., 15c
National Scientific Laboratories, Inc., D.C., 5c, 15c, 35c
National Union Electric Corp., Electronics Div., Ill., 20s
OPTOmechanisms, Inc., N.Y., 10sc
Par Products Corp., Calif., 10sc
Philbrick Researches, Inc. (George A.), Mass., 5sc, 20sc
Philco Corp., Pa., 5s, 20s, 25s, 35s
Philco Corp., Government & Industrial Group, Pa., 20s, 25s, 30s, 35s
Philco Corp., Sierra Electronic Corp. (Div.), Calif., 20s
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 5s, 10s, 15s, 20s, 25s, 35s
Philips Electronics Industries, Ltd., Canada, 10s, 15s
Photo-Sonics, Inc., Calif., 10s
Photographic Analysis, Inc., Calif., 10c
Photomechanisms, Inc., 15 Stepar Place, Huntington Station, L.I., N.Y., 10c, Tel: 516-HAmilton 3-4411
See ads in classes 14, 34
Photron Instrument Co., Ohio, 15c
Polytronic Research, Inc., Md., 20c, 25c, 35c
Precise Electronics & Development Corp., Subsid. of Designatronics, Inc., N.Y., 20s, 25s
Precision Apparatus Co., Inc., Div. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 20sc, 25sc, Tel: 212-TWining 4-4290
See ad in class 39
Probescope Co., Inc., N.Y., 5s, 20s, 35s
Pye Telecommunications, Ltd., England, 20sc
RCA Victor Co., Ltd., Canada, 20s
R-K Laboratories Co., N.Y., 5c, 20c, 25c, 30c, 35c
Radio Corp. of America, Defense Electronic Products, N.J., 20s
Radio Corp. of America, RCA Electron Tube Div., N.J., 20s, 25s
Radiometer, Denmark, 20s
Republic Electronic Industries Corp., N.Y., 20c
Sanborn Co., Subsid. of Hewlett-Packard Co., 175 Wyman St., Waltham 54, Mass., 15s, Tel: 617-TWinbrook 4-6300
See ad on pages 70-71
Schaevitz Engineering, N.J., 5c, 15c, 20c, 25c, 30sc, 35sc
Schwarzer Co., 46 Salmi Rd., Framingham, Mass., 15s, 20sc, Tel: 617-TRinity 2-1830
See ads in classes 5, 23, 28
Scopes Co., Inc., N.Y., 20s, 25s, 30s
Siemens New York, Inc., N.Y., 10s, 20s, 25s
Simpson Electric Co., 5218 W. Kinzie St., Chicago 44, Ill., 20sc, 25sc, Tel: 312-ESTebrook 9-1121
See ad in class 61
Skiatron Electronics & Television Corp., N.Y., 20s
Solartron Electronic Group, Ltd., England, 20s
Southern Instruments, Ltd., England, 10s, 15c, 20c
Sparton Electronics, Div. of Sparton Corp., Mich., 20c, 25c
Specialty Electronics Development Corp., N.Y., 20c
Spivey, Inc. (James S.), D.C., 20s
Standard Telephones & Cables, Ltd., England, 25sc, 35sc
Stark Electronic Instruments, Ltd., Canada, 20s
Sterling Instrument Div., Designatronics, Inc., N.Y., 20sc, 25sc
Stevens-Evans, Inc., Calif., 20sc, 25sc
Sun Electric Corp., Instrumentronics Div., Ill., 20sc
Sunshine Scientific Instrument, Pa., 5c
Taffet Electronics, Inc., N.Y., 20c, 25c
Tektronix, Inc., Ore., 10s, 20s, 25s, 30s
Telectro Industries Corp., N.Y., 20c
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 10s, Tel: 214-ADams 5-3111
See ad on Cover 3
Thompson, Ltd. (J. Langham), England, 10s
Tokyo Shibaura Electric Co., Ltd., Japan, 20s, 25s, 30s
Traid Corp., Calif., 10sc
Waterman Products Co., Inc., 2445 Emerald St., Philadelphia 25, Pa., 20sc, 25sc, Tel: 215-GArfield 6-8600
See ad in this class
Waters Mfg., Inc., Mass., 20s
Wharton Unitools, N.Y., 15sc
Whitehall Electronics Corp., Minn., 15c, 20c, 25c, 35c
Wiltron Co., Calif., 35s
Wollensak Optical Co., N.Y., 10sc

Paging systems:
See class 30

Particle accelerators:
See class 22

Parts, tube & semiconductor:
See class 105

Directory I. Complete Equipment

Perforators:
See class 9

Phase meters:
See classes 35 & 38

Phonographs:
See class 68

Photoelectric control equipment:
See class 4

Photographic equipment:
See class 14

Pilot-run plants:
See class 96

Platforms:
See class 2

Playback equipment:
See classes 9 & 68

24. Point To Point Equipment.

5. Receivers **10. Transmitters**

A C Electronics, Inc., Calif., 5c, 10c
Adler Electronics, Inc., N.Y., 5s, 10s
Aeronautical Communications Equipment, Inc., Fla., 5s, 10s
Aeronautical Electronics, Inc., N.C., 5s, 10s
Aerospace Research, Inc., 94 Massachusetts Ave., Cambridge 39, Mass., 5sc, Tel: 617-ELiot 4-7780
See ad in class 26
Aircraft Electronics, Ariz., 5c, 10c
Allied International Corp., N.Y., 10s
Alto Scientific Co., Inc., Calif., 5c
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 5c, 10c
American Elite, Inc. (Telefunken), N.Y., 5s, 10s
Anderton Electronic Laboratory, Utah, 5c, 10c
Andrea Radio Corp., N. Y., 5c
Applied Electronics Co., Calif., 5c, 10c
Applied Technology, Inc., Calif., 5c, 10c
Arkay International, Inc., N.Y., 5s, 10s
Armstrong Whitworth/Brush, Falcon Works, England, 5sc, 10sc
Ateliers de Montages Electriques (AME), France, 5s, 10s
Automatic Telephone & Electric Co., Ltd., Strowger Works, England, 5s, 10s
Automation Dynamics Corp., N.J., 5c, 10c
Barker & Williamson, Inc., Pa., 10c
Bellaire Electronics, Inc., N.J., 5c, 10c
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 5sc, 10sc
Bludworth Marine Div., States Electronics Corp., N.Y., 5c, 10c
Bristol Co., Conn., 5c, 10c
Browning Laboratories, Inc., N.H., 5s, 10s
Budd Electronics, Inc., N.Y., 5c, 10c
Budelman Electronics Corp., 375 Fairfield Ave., Stamford, Conn., 5s, 10s, Tel: 203-FIreside 8-9231
See ad on page 96
Cadre Industries Corp., N.Y., 5c, 10c
Canadian Aviation Electronics, Ltd., Canada, 5c, 10c
Canadian General Electric Co., Ltd., Electronic Equipment & Tube Dept., Canada, 5c, 10c
Canadian Marconi Co., Canada, 5s, 10s
Capehart Corp., N.Y., 5c
Central Electronics, Inc., Ill., 10sc
Clegg Laboratories, Div. of Clegg, Inc., N.J., 5c, 10c
Collins Radio Co., Iowa, 5s, 10s
Communications Co., Inc., Fla., 5s, 10s
CompuDyne Corp., Pa., 5sc, 10sc
Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 10sc, Tel: 214-EVergreen 1-1135
See ad on page 120
Cooke Engineering Co., Va., 5c, 10c
Dayton Aviation Radio & Equipment Corp., Ohio, 5c, 10c
Decker Corp., Pa., 5c, 10c
Defense Electronics, Inc., Md., 5c, 10c
Delcon Corp., Calif., 5c, 10c
Designers for Industry, Inc., Ohio, 5c, 10c
Developmental Engineering Corp., Va., 5c, 10c
Digitronics Corp., N.Y., 5c, 10c
Dynamics Corp. of America, N.Y., 5c, 10c
Edison Industries (Thomas A.), Instrument Div. (McGraw-Edison Co.), N.J., 5s, 10s
Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 5c, 10c, Tel: 617-LYnn 8-2100
See ad in class 69
Electronic Specialty Co., Calif., 5c, 10c
Electronics Development Corp., Calif., 5s, 10s
Electronics, Missiles & Communications, Inc., N.Y., 5c, 10c
Elliott-Automation, Ltd., England, 5c, 10c
Erco Radio Laboratories, Inc., N.Y., 5sc, 10sc
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 5c, 10c
Farinon Electric, Calif., 5s, 10s
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5sc, 10sc
Fisher Research Laboratory, Inc., Calif., 5s, 10s
Foxboro Co., Mass., 5c, 10c
Gates Radio Co., Ill., 10sc
General Dynamics/Electronics, N.Y., 5sc, 10sc
General Electric Co., Communication Products Dept., Va., 5sc, 10sc
General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 5c, 10c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 5c, 10c
Gjadny Corp. (Richard), N.Y., 5c
Goodyear Aircraft Corp., Arizona Div., Ariz., 5sc
Hallamore Electronics Div., Siegler Corp., Calif., 5sc
Harman-Kardon, Inc., N.Y., 5c
Harmon Electronics Co., Mo., 5sc, 10sc
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 10s
Houston Fearless Corp., Westwood Div., Calif., 5c, 10c
Humble Mfg. Co., Ltd., Canada, 5s, 10s
IFA Electronics Corp., Pa., 10sc
ITI Electronics, Inc., N.J., 5c
Instrument Corp. of Florida, Fla., 5sc, 10c
International Electronics Mfg. Co., Md., 5c, 10c
International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 5c, 10c
Johnson Co. (E. F.), Minn., 10s
Kaar Engineering Corp., Calif., 5 Mobiles, 10s
Kahn Research Laboratories, Inc., N.Y., 5c, 10s
LaPointe Industries, Inc., Conn., 5c, 10c
Lenkurt Electric Co., Inc., Calif., 5sc, 10sc
Ling Temco Vought, Inc., Texas, 5s, 10sc
Ling Temco Vought, Inc., Electron Corp. (Subsid.), Texas, 5s, 10s
Lionel Corp., N.J., 5c, 10c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 5c, 10c
Lundell & Co., Ill., 5sc, 10sc
Lynch Communication Systems, Inc., Calif., 5c, 10c
Madigan Electronic Corp., N.Y., 5c, 10c
Manning, Maxwell & Moore, Inc., Conn., 5s, 10s
Manson Laboratories, Inc., Conn., 5c, 10c
Marconi's Wireless Telegraph Co., Ltd., N.Y., 5s, 10s
Martin Co. (Martin-Marietta Corp.), Md., 5c, 10c
Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 5c, 10c
Maxwell Electronics Corp., Tex., 5c, 10c
Melabs, Calif., 5c, 10c
Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 5sc, 10sc, Tel: 305-OXford 1-1220
See ad in class 28
Motorola Communications & Electronics, Inc., Ill., 5sc, 10sc
Motorola, Inc., Military Electronics Div., Ariz., 5c, 10c
National Co., Inc., Mass., 5c, 10c
National Radio Co., Inc., Mass., 5s
Osborne Electronics Corp., Ore., 5s, 10s
Osthud Associates (E. M.), N.J., 5c, 10c
Peer, Inc., Texas, 10c
Philco Corp., Pa., 5s, 10s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-726

24. Point to Point Equipment.

Philco Corp., Government & Industrial Group, Pa., 5c, 10c
Philips Electronics Industries, Ltd., Canada, 5s, 10s
Planetronics, Inc., Pa., 5c, 10c
Polarad Electronics Corp., 43-20 34th St., Long Island City 1, N.Y., 5c, 10c, Tel: 212-EXeter 2-4500
See ads in class 37
Polytronic Research, Inc., Md., 5c, 10c
Pye Corp. of America, N.J., 5s, 10s
Pye Telecommunications, Ltd., England, 5sc, 10sc
RCA Victor Co., Ltd., Canada, 5s, 10s
R F Communications Associates, Inc., N.Y., 5s, 10s
Racal Engineering, Ltd., England, 5c, 10c
Radiatronics, Inc., Calif., 5c, 10c
Radio Communication Co., Wis., 5c, 10c
Radio Corp. of America, Defense Electronic Products, N.J., 5s, 10s
Radio Engineering Laboratories, Inc., N.Y., 5c, 10 FM c
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 5c, 10c
Rainier Co., Inc., N.Y., 5c, 10c
Ramage & Miller, Inc., Calif., 5c
Raytheon Co., Communications & Data Processing Operation, Mass., 5sc, 10sc
Redifon, Ltd., England, 5sc, 10sc
Reeves Instrument Corp., Farmingdale Div., N.J., 5c, 10c
Rixon Electronics, Inc., Md., 5c, 10c
Savoy Electronics, Inc., Fla., 5c, 10c
Scatter Communications, Inc., D.C., 5c, 10c
Schaevitz Engineering, N.J., 5c, 10c
Servo Corp. of America, N.Y., 5s, 10s
Servonic Instruments, Inc., Calif., 5c, 10c
Sheltered Workshops, Inc., Calif., 5c, 10c
Siemens New York, Inc., N.Y., 5s, 10s
Solar Research Corp., Fla., 5s
Space Electronics Corp., Calif., 5c, 10c
Sparton Electronics, Div. of Sparton Corp., Mich., 5c
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 5c, 10c
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 5c, 10c
Sperry Rand Corp., Wheeler Electronic Corp. (Subsid.), Conn., 5c, 10c
Spilsbury & Tindall, Ltd., Canada, 5sc, 10sc
Standard Telephones & Cables, Ltd., England, 5sc, 10sc
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 5c, 10c
TMC (Canada), Ltd., Canada, 5s, 10s
Tamar Electronics, Inc., Calif., 5c, 10c
Technical Materiel Corp., 700 Fenimore Rd., Mamaroneck, N.Y., 5s, 10s, Tel: 914-OWens 8-4800
See ads in class 38
Tele-Communications, Inc., Calif., 5s, 10s
Telecomtrol Corp., N.J., 5c, 10c
Telectro Industries Corp., N.Y., 5c, 10c
Telectron Div., Elliott & Evans, Fla., 5sc, 10sc
Teleregister Corp., Conn., 5c, 10c
Textron Electronics, Inc., Globe Electronics Div., Iowa, 5s, 10s
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s
Tokyo Shibaura Electric Co., Ltd., Japan, 5sc, 10sc
Topping Electronics, Ltd., Canada, 5c, 10c
Warren Mfg. Co., Inc., Mass., 5sc, 10sc
Westinghouse Electric Corp., Electronics Div., Md., 5c, 10c
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 5sc, 10sc, Tel: 212-JUdson 2-3030
See ad on page 224
Wilcox Electric Co., Inc., Mo., 5s, 10s
Zinney Corp., Calif., 5c, 10c

Positioning indicators:
See class 61

Power meters:
See class 37

Power output meters:
See classes 35 & 38

Pressure gages:
See class 40

Pressure indicators:
See class 61

Pressurization equipment:
See class 99

Printers:
See class 9

Production control equipment:
See class 4

Programming devices:
See class 9

Projectors, television:
See class 32

Prototype builders:
See class 96

Public address systems:
See class 30

Pulse analysis equipment:
See class 23

Pulse generators:
See class 37

Pyrometers:
See class 40

Pyrometers, infrared:
See class 17

Radar reflectors:
See class 44

Radar simulators:
See class 37

Radar test equipment:
See class 37

25. Radar Equipment.

5. Airborne **15. Marine**
10. Ground based

Admiral Corp., Ill., 5c, 10c
Advanced Development Laboratories, Inc., N.H., 5c, 10c, 15c
Aero Geo Astro Corp., Va., 10 Target-Augmenters c, 15c
Aeronca Mfg. Corp., Aerospace Div., Md., 5sc, 10sc, 15sc
Airborne Instruments Laboratory, Div. of Cutler-Hammer, Inc., N.Y., 5c, 10c
Allied International Corp., N.Y., 5s
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 5c
American Machine & Foundry Co., Government Products Group, N.Y., 10c, 15c
American Machine & Foundry Co., Greenwich Engineering Div., Conn., 10sc, 15sc
Applied Technology, Inc., Calif., 5c, 10c
Associated Electrical Industries (Rugby), Ltd., England, 10c, 15s
Atlas Precision Products Co., Pa., 5c, 10c, 15c
Autometric Corp., N.Y., 10c
Autonetics, Div. of North American Aviation, Inc., Calif., 5c
Avien, Inc., N.Y., 5c, 10c
Bell Aerosystems Co., Avionics Div., N.Y., 5c, 10c
Belock Instrument Corp., N.Y., 5c, 10c, 15c
Bendix Corp., Bendix-Pacific Div., Calif., 5sc, 15sc
Bendix Corp., Bendix Radio Div., Avionic Products Dept., Md., 5s
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 5s, 10c
Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J., 5c, 10c, Tel: 201-ATlas 8-2000
See ad on pages 46-47
Bendix Corp., York Div., Pa., 5c
Bludworth Marine Div., States Electronics Corp., N.Y., 15s
Bogart Mfg. Corp., 315 Seigel St., Brooklyn 6, N.Y., 5c, 10c, 15c, Tel: 212-HYacinth 7-4972
See ad in class 66
Budd Electronics, Inc., N.Y., 5c, 10c, 15c
Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., 5c
Canadian Applied Research, Ltd., Canada, 5s
Canadian Aviation Electronics, Ltd., Canada, 5c, 10c
Canadian General Electric Co., Ltd., Electronic Equipment & Tube Dept., Canada, 5c, 10c, 15c
Canadian Marconi Co., Canada, 15s
Canadian Westinghouse Co., Ltd., Canada, 5c, 10c
Canoga Electronics Corp., Calif., 10c, 15c
Capehart Corp., N.Y., 5c
Cardwell Condenser Corp., N.Y., 10c
Chapin Electronics Corp., Mass., 10 Security s
Collins Radio Co., Iowa, 5s
Collins Radio Co., Texas Div., Texas, 5c
Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 10sc, 15c, Tel: 214-EVergreen 1-1135
See ad on page 120

Directory I. Complete Equipment

25. Radar Equipment.

Cook Electric Co., Cook Technological Center, Ill., 5c, 10c, 15c
Cosmic, Inc., D.C., 5c, 10c, 15c
Curtiss-Wright Corp., Electronics Div., N.J., 5c, 10c
Data Display, Inc., 1820 Como Ave., Saint Paul 8, Minn., 10 Displays c, Tel: 612-MIdway 6-8673
See ad in class 9
Daystrom, Inc., Military Electronics Div., Pa., 10c, 15c
Del Mar Engineering Laboratories, Calif., 5sc
Dero Research & Development Corp., N.Y., 10c
Designers for Industry, Inc., Ohio, 10c
Dewey Corp. (G. C.), N.Y., 5c, 10c
Diamond Antenna & Microwave Corp., Mass., 5sc, 10sc, 15sc
Dynamics Corp. of America, N.Y., 5c, 10c, 15c
Ehrenpreis Engineers (David), N.Y., 5c, 10c, 15c
Ekco Electronics, Ltd., Ekco Works, England, 5s
Electro Networks, Inc., & Caledonia Electronics & Transformer Corp., N.Y., 5c, 10c
Electronic Assistance Corp., N.J., 5c, 10c
Electronic Research Associates, Inc., N.J., 15sc
Electronic Specialty Co., Calif., 5c, 10c, 15c
Elliott-Automation, Ltd., England, 5c, 10c, 15c
Emerson Electric Mfg. Co., Mo., 5c, 10c, 15c
Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 10c, Tel: 518-VIctor 2-8400
See ad in class 38
Ewen Knight Corp., Mass., 10c, 15c
FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 5c, Tel: 212-RAvenswood 1-9000
See ad in class 37
Fairchild Camera & Instrument Corp., Defense Products Div., N.Y., 5c, 10c, 15c
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 5c, 10c, 15c
Ford Instrument Co., N.Y., 5c, 10c
General Atronics Corp., Pa., 5c, 10c, 15c
General Dynamics/Electronics, N.Y., 5sc, 10c, 15c
General Electric Co., Light Military Electronics Dept., N.Y., 5c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 5c, 10c, 15c
General Microwave Corp., N.Y., 5c, 10c, 15c
General Mills, Inc., Minn., 5c, 10c
General Precision, Inc., GPL Div., N.Y., 5s
Gilfillan Brothers, Inc., Calif., 5c, 10sc, 15c
Goodyear Aircraft Corp., Ohio, 5c
Goodyear Aircraft Corp., Arizona Div., Ariz., 5c, 15sc
Gorham Electronics, Div. of Gorham Corp., R.I., 5c, 10c, 15c
Hazeltine Corp., N.Y., 5c, 10c, 15c
Hewlett-Packard Co., Dymec Div., Calif., 10c
Hoffman Electronics Corp., Calif., 5c, 10c, 15c
I-T-E Circuit Breaker Co., Special Products Div., Pa., 10c, 15c
Intercontinental Electronics Corp., N.Y., 10 Displays c
International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 5c, 10c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 10c
Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 5c
Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 10s, Tel: 201-CApital 6-4000
See ad on pages 72-73
Kennedy & Co. (D. S.), Mass., 5sc, 10sc, 15sc
Laboratory For Electronics, Inc., Mass., 5c, 10c, 15c
LaPointe Industries, Inc., Conn., 10c, 15c
Ling Temco Vought, Inc., Texas, 5c, 10c, 15c
Ling Temco Vought, Inc., Temco Electronics Div., Texas, 5c, 10c, 15c
Lionel Corp., N.J., 5c, 10c, 15c
Lionel Corp., Telerad Div., N.Y., 5c, 10c, 15c
Litton Industries, Inc., Components Group, Airtron Div., N.J., 5c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 5c, 10sc, 15c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 5c, 10c, 15c
Lockheed Electronics Co., N.J., 5c, 10c
Loral Electronics Corp., N.Y., 5c
Madigan Electronic Corp., N.Y., 5c
Magnavox Co., Magnavox Research Laboratories, Calif., 10c
Manson Laboratories, Inc., Conn., 10c
Marconi's Wireless Telegraph Co., Ltd., N.Y., 10s, 15s
Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 5c, 10c
Maxson Electronics Corp., N.Y., 5c, 10c, 15c
McDonnell Aircraft Corp., Mo., 10c
McKiernan-Terry Corp., N.J., 10sc, 15c
Melpar, Inc., Va., 5c, 10c
Menlo Park Engineering, 711 Hamilton Ave., Menlo Park, Calif., 5s, Tel: 415-DAvenport 6-9080
See ad in class 43
Minicord Corp. of America, N.J., 15s
Model Engineering & Mfg. Corp., Ind., 5c
Motorola, Inc., Military Electronics Div., Ariz., 5c, 10c, 15c
National Co., Inc., Mass., 5c
Norden Div., United Aircraft Corp., Conn., 5c
Olympic Radio & Television, Div. of Siegler Corp., N.Y., 10sc
Orion Electric Corp., 108 Columbus Ave., Tuckahoe, N.Y., 5c, 10c, 15c, Tel: 914-DEerfield 7-6132
See ad in class 43
Otis Elevator Co., Defense & Industrial Div., N.Y., 10c
Pabst Engineering Equipment Co., Inc., N.J., 10c
Philco Corp., Pa., 5s, 10c, 15c
Philco Corp., Government & Industrial Group, Pa., 5c, 10c
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 10s
Philips Electronics Industries, Ltd., Canada, 10c, 15c
Pickard & Burns, Inc., Subsid. of Gorham Corp., 103 Fourth Ave., Waltham R & D Park, Waltham 54, Mass., 5c, 10c, Tel: 617-HIllcrest 4-3345
See ads on page 190 & in classes 31, 44
Polarad Electronics Corp., 43-20 34th St., Long Island City 1, N.Y., 5c, 10c, 15c, Tel: 212-EXeter 2-4500
See ads in class 37
RCA Victor Co., Ltd., Canada, 15s
RS Electronics Corp., 435 Portage Ave., P.O. Box 11368, Sta. A, Palo Alto, Calif., 5c, Tel: 415-DAvenport 1-1130
See ad in class 43
Radiation at Stanford, Calif., 5c, 10c, 15c
Radiatronics, Inc., Calif., 5c, 10c, 15c
Radio Corp. of America, Defense Electronic Products, N.J., 5sc, 10c, 15s
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 15sc
Raytheon Co., Government Marketing, Mass., 5c, 10c, 15c
Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, N.Y., 10c
Remanco, Inc., Calif., 5sc, 10sc, 15sc
Republic Electronic Industries Corp., N.Y., 10c
Rexon Electronics Corp., Mass., 5c, 10c, 15c
Resdel Engineering Corp., Calif., 5c, 10c
Rixon Electronics, Inc., Md., 5c, 10c, 15c
Rohr Aircraft Corp., Antenna Systems Div., Calif., 10c
Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 5sc, 15c
Sanders Associates, Inc., N.H., 5c, 10c, 15c
Schaevitz Engineering, N.J., 5c, 10c, 15c
Scope, Inc., Va., 5c
Servonics, Inc., Va., 10c
Sheltered Workshops, Inc., Calif., 5c
Sierra Research Corp., N.Y., 5c, 10c, 15c
Solid State Electronics Co., Dept. I, 15321 Rayen St., Sepulveda, Calif., 5s, Tel: 213-EMpire 4-2271
See ad on page 44
Space Electronics Corp., Calif., 5c, 10c, 15c
Specialty Electronics Development Corp., N.Y., 5c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

TRANSISTOR RECEIVING EQUIPMENT

LOW AND VERY LOW FREQUENCIES

- RECEIVERS
  Fixed and variable tuned, T.R.F. and superheterodyne, for both terrestrial and space environments.
- FOR PRECISION TIMING WITH VLF RELIABILITY

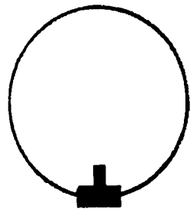
1. CALIVERTER

VLF to HF converter for reception of VLF timing signals on communications receiver. Output 5.000 mcs plus VLF frequency.

2. VLF-18

T.r.f. receiver with speaker and b.f.o. for phase coherent reception of NBA standard time and frequency transmission.

- FOR PRECISION FREQUENCY COMPARISON
  1. VLF servo loop system
  2. LF 100 kc Loran-C system
- Loop Antennas



Shielded, balanced, weather-proof for superior VLF and LF reception.

HIGH FREQUENCIES

- Riometers for studying ionospheric absorption
- WWV pre-amplifiers for remote antenna locations

These units are available from stock and can be easily modified to meet special requirements.

AEROSPACE RESEARCH INC.

94 MASSACHUSETTS AVENUE
CAMBRIDGE 39, MASSACHUSETTS
Eliot 4-7780

For details, circle #159 on Reader Service Card

25. Radar Equipment.

Sperry Rand Corp., Sperry Gyroscope Co. (Div.), N.Y., 5c, 10c
Sperry Rand Corp., Sperry Gyroscope Co. of Canada, Ltd. (Subsid.), Canada, 5c, 10c, 15c
Sperry Rand Corp., Sperry Phoenix Co. (Div.), Ariz., 5c, 10c
Sperry Rand Corp., Sperry Phoenix Co., Sunnyvale Development Center, Calif., 5c
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 5c, 10c, 15sc
Sperry Rand Corp., Vickers, Inc. (Div.), Marine & Ordnance Dept., Conn., 10sc
Spilsbury & Tindall, Ltd., Canada, 15s
Stewart-Warner Corp., Stewart-Warner Electronics Div., Ill., 5c
Strand Engineering Co., Mich., 5c, 10c
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 5c, 10c, 15c
TRG, Inc. (Technical Research Group), 9 Union Square, Somerville 43, Mass., 5c, 10c, 15c, Tel: 617-MOnument 6-8680
See ads in classes 44, 66
Telecomputing Corp., Calif., 5c
Telecomputing Corp., Value Engineered Products, Inc. (Subsid.), Calif., 5c, 10c
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 5c, 10c, 15c, Tel: 214-ADams 5-3111
See ad on Cover 3
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15c
Tokyo Shibaura Electric Co., Ltd., Japan, 5c, 10c, 15c
United Shoe Machinery Co., Mass., 5c, 10c, 15c
Watkins-Johnson Co., Calif., 5c, 10c, 15c
Webcor, Inc., Electronics Div., Ill., 5c
Westinghouse Electric Corp., Electronics Div., Md., 10c, 15c
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 5c, 10c, Tel: 212-JUdson 2-3030
See ad on page 224
Wilcox Electric Co., Inc., Mo., 5s
Wiley Electronic Products Co., Div. of Giannini Scientific Corp., Ariz., 5c, 15c
Wunderlich Radio Co., N.Y., 10c

Radiation counters:
See class 11

Radio frequency test equipment:
See class 38

Radio-telescopes:
See class 44

Radiometers, infrared:
See class 17

Radiotelephones, marine:
See class 18

Radomes:
See class 44

Receivers, airborne & airport:
See class 1

Receivers, amateur:
See class 3

Receivers, command:
See class 1

Receivers, facsimile:
See class 15

Receivers, microwave:
See class 19

Receivers, mobile & emergency:
See class 20

Receivers, point to point:
See class 24

Receivers, SSB:
See class 29

Receivers, telegraph & teleprinter:
See class 33

Receivers, telemetering:
See class 34

26. Receivers, Broadcast.

5. AM broadcast
10. AM shortwave
15. FM broadcast
20. Stereo
25. TV broadcast, B & W
30. TV broadcast, color
35. TV closed circuit
40. UHF-VHF

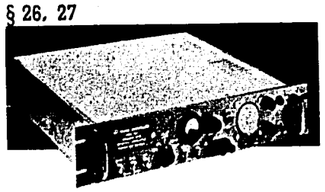
A C Electronics, Inc., Calif., 40c
ATR Electronics, Inc., 300 E. Fourth St., Saint Paul 1, Minn., 5s, 25s, 40s, Tel: 612-CApital 2-3791
See ad in class 53
Adler Electronics, Inc., N.Y., 40s
Aeronca Mfg. Corp., Aerospace Div., Md., 40c
Aerospace Research, Inc., 94 Massachusetts Ave., Cambridge 39, Mass., 10sc, Tel: 617-ELiot 4-7780
See ad on this page
American Communications Corp., N.Y., 5sc
American Electronics Co., N.Y., 40s
American Elite, Inc. (Telefunken), N.Y., 5s, 10s, 15s
American Geloso Electronics, Inc., N.Y., 5s, 10s, 15s, 20s, 25s, 40s
American Microwave & Television Corp., Calif., 35sc
Ampex Audio Co., Calif., 20s
Anderton Electronic Laboratory, Utah, 20c
Andrea Radio Corp., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 40sc
Argus Cameras, Inc., Subsid. of Sylvania Electric Products Inc., Mich., 25s, 35s
Arkay International, Inc., N.Y., 20s
Armstrong Whitworth/Brush, Falcon Works, England, 40sc
Ateliers de Montages Electriques (AME), France, 5s
Audiotronics Corp., Calif., 5s, 15s
Autometric Corp., N.Y., 30c, 35c
Benrus Watch Co., Inc., Conn., 5c
Bogen-Presto, Div. of Siegler Corp. N.J., 5s, 15s, 20s
Boulevard Electronics, Inc., Ill., VLF s
Browning Laboratories, Inc., N.H., 15s, 20s
Calbest Electronics, Calif., 5s, 15s, 20s, 25c

Directory I. Complete Equipment

26. Receivers, Broadcast.

Cameraflex Corp., N.Y., 15sc
Capehart Corp., N.Y., 5sc, 10sc, 15sc, 20sc, 35c, 40sc
Certified Radio Laboratories, N.Y., 25c
Chrysler Corp., Defense Group, Mich., 40c
Clegg Laboratories, Div. of Clegg, Inc., N.J., 40c
Columbus Electronics, Inc., 1000 Saw Mill River Rd., Yonkers, N.Y., 40c, Tel: 914-YOnkers 8-1221
See ads in classes 48, 71
Communication Electronics, Inc., Md., 40c
CompuDyne Corp., Pa., 5c, 10c, 15c, 40c
Continental Mfg., Inc., Nebr., 15c, 20c
Continental Merchandise Co., Transistor Products Div., N.Y., 5sc, 10sc, 15sc, 20sc
Crosby-Teletronics Corp., N.Y., 15s, 20s
Defense Electronics, Inc., Md., 40c
Delcon Corp., Calif., 5c
Denson Electronics Corp., Conn., 15sc
Designers for Industry, Inc., Ohio, 5c, 15c, 20c, 40c
DeWald Radio, Div. of United Scientific Laboratories, Inc., N.Y., 5sc, 15sc, 20c
Diamond Electronics, Div. of Diamond Power Specialty Corp., Ohio, 35sc
Direct T/V Windings, Ltd., England, 35s
Dominion Electrohome Industries, Ltd., Canada, 5s, 15s, 20s, 25s
Drake Co. (R. L.), Ohio, 10s
Educational Electronics Co., Ill., 5sc
Ekco Electronics, Ltd., Ekco Works, England, 5s, 15s, 25s
Electrac, Inc., Calif., 40c
Electro-Mech Engineering Co., Minn., 5c, 10c, 15c, 20c, 25sc, 30sc, 35sc
Electron Enterprises, Inc., Ill., 5sc, 15c
Electronic Communications, Inc., Fla., 40c
Electronic Production & Development, Inc., Calif., 35c
Electronic Products Corp., Subsid. of Futura Mfg. Corp., Mo., 5s
Electronics Development Corp., Calif., 25s, 40s
Elliott-Automation, Ltd., England, 40c
Erco Radio Laboratories, Inc., N.Y., 40sc
Fairbanks, Morse & Co., Electronics Div., N.Y., 5c, 10c, 15c, 20c, 35sc
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 15c
Fisher Berkeley Corp., Calif., 15sc
Fisher Radio Corp., N.Y., 5s, 10c, 15s, 20s
Flush Wall Radio Co., Fla., 5s, 15s
General Antronics Corp., Calif., 40c
General Dynamics/Electronics, N.Y., 5sc, 15sc, 20sc
General Electric Co., Communication Products Dept., Va., 35c
General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 25sc, 30sc, 35sc, 40sc
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
General Microwave Corp., N.Y., 40c
General Mills, Inc., Minn., WWV sc
General Motors Corp., Delco Radio Div., Ind., 5sc, 10c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 35sc
General Precision, Inc., GPL Div., N.Y., 35s
General Television Network, Mich., 35sc
Giannini Controls Corp., Conrac Div., Calif., 25s, 35s
Granger Associates, Calif., 40s
Hallamore Electronics Div., Siegler Corp., Calif., 35sc
Hammarlund Mfg. Co., Inc., N.Y., 5s, 10s
Harman-Kardon, Inc., N.Y., 5s, 10s, 15s, 20s
Hastings Products, Mass., 15s, 20s
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 10s, 15s, 20s, 40s
Hitachi New York, Ltd., N.Y., 25c, 30c, 35c
I.D.E.A., Inc., Ind., 5s
ITA Electronics Corp., Pa., 15c, 40c
Instrument Corp. of Florida, Fla., 10s
Instruments For Industry, Inc., 101 New South Rd., Hicksville, L.I., N.Y., 40c, Tel: 516-OVerbrook 1-7100
See ads in classes 43, 74
International Electronics Mfg. Co., Md., 40c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 35 Storage-Reproducer Units & Telephone-Line Equipment c
Jetronic Industries, Inc., Pa., 5c, 15c
Johnson Electronics, Inc., Fla., 15c, 20c
KLH Research & Development Corp., Mass., 15c
Kahn Research Laboratories, Inc., N.Y., 5c, 20c
Kaiser Aircraft & Electronics, Div. of Kaiser Industries Corp., Calif., 35c
Karg Laboratories, Inc., Conn., 15s, 20s, 40c
Klipsch & Associates, Inc., Ark., 20 Adapters c
Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 5s, 10s, 15s, 20s
Ling Temco Vought, Inc., Texas, 5sc, 15sc, 20sc, 25s, 35s, 40s
Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid), Calif., 5s, 15s, 20s
Ling Temco Vought, Inc., Electron Corp. (Subsid.), Texas, 5s, 15s, 20s, 25s, 35s, 40s
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c, 10c, 15c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 40c
Marconi Instruments, Ltd., 111 Cedar Lane, Englewood, N.J., 40s, Tel: 201-LOwell 7-0607
See ad on pages 66-67
Marine View Electronics, Inc., N.Y., 40c
Mathes Mfg. Co. (Curtis), Texas, 5s, 15s, 20s, 25s, 30s
Matsushita Communication Industrial Co., Ltd., Japan, 35c
McIntosh Laboratory, Inc., N.Y., 5s, 15s, 20s
Microphase Corp., Conn., 40sc
Miratel Electronics, Inc., Minn., 5sc, 25sc, 35sc
Missile Systems Corp., California Div., Calif., 25c, 30c, 35c
Modern Design, Div. of H. C. Schloer, Inc., N.Y., 5c, 10c
Motorola Communications & Electronics, Inc., Ill., 35sc
Munzig International, Inc., Calif., 5s, 10s, 15s, 25s
National Co., Inc., Mass., 5sc, 10sc, 40c
National Radio Co., Inc., Mass., 10s
Newcomb Audio Products Co., Calif., 5s, 15s
Olympic Radio & Television, Div. of Siegler Corp., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc
Pacific Mercury Electronics, Div. of Thomas Organ Co., Calif., 5sc, 10sc, 15sc, 20sc, 25sc, 40sc
Packard-Bell Electronics Corp., Calif., 35c
Pedersen Electronics Corp., Calif., 5sc, 15sc, 20sc
Philco Corp., Pa., 5s, 10s, 15s, 20s, 25s, 35s, 40s
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 35s
Philips Electronics Industries, Ltd., Canada, 35s, 40s
Philmore Mfg. Co., Inc., N.Y., 5s, 10s
Pickard & Burns, Inc. Subsid. of Gorham Corp., 103 Fourth Ave., Waltham R & D Park, Waltham 54, Mass., 5 VLF c, Tel: 617-HIllcrest 4-3345
See ads on page 190 & in classes 31, 44
Polytronic Research, Inc., Md., 15c, 35c
Port-O-Vox Corp., N.Y., 40s
Precision Electronics, Inc., Ill., 15s, 20s
Product & Industrial Engineering Corp., Va., 5c, 15c, 20c
Protection Equipment Co., Inc., Minn., 5c, 15c, 25sc, 35sc
Quality Electronics, Inc., N.Y., 5s, 10s, 15s, 20s
RCA Victor Co., Ltd., Canada, 5s, 10s, 15s, 20s, 25s, 30s, 35s
RLC Electronics, Inc., 805 Mamaroneck Ave., Mamaroneck, N.Y., 40s, Tel: 914-OWens 8-7440
See ads in classes 45, 59
Radio Corp. of America, Defense Electronic Products, N.J., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s

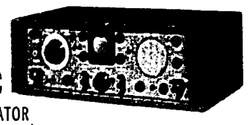
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.



VLF PHASE COMPARATOR

provides 1000% better measurement accuracies than previously possible —

Complete system for making frequency comparisons between local standard oscillators and VLF standard broadcasts. Accuracies better than one part in 10^9 with short measurements. Longer periods give higher accuracies. Measurements may be displayed on strip-chart recorder. Available for frequencies from 15 to 60 KC. 3½"x 19"x 18", 28 lbs. Model **VLA $1490.**

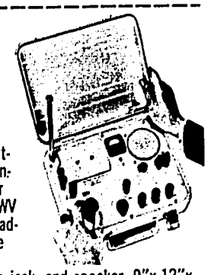


MODEL **WWVC** COMPARATOR

Highly sensitive (1 uv) crystal controlled receiver for utilizing WWV and WWVH transmissions in precision audio and radio frequency work and time interval measurements. 2" oscilloscope, 3" speaker. 5¼"x 19"x 9½" rack mount **$690;** cabinet model **$741.**

MODEL **SR7** WWV RECEIVER

Dual conversion type. S meter, phone jack and speaker. Noise limiter, antenna trimmer, and provision for oscilloscope or headphones. 3½"x 19"x 8½" rack mount or 3½"x 12"x 8½" bench model, **$285.**



MODEL **WWVT** WWV RECEIVER *transistorized*

Completely portable crystal controlled receiver for utilizing WWV and WWVH broadcasts in remote location work. S meter, phone jack, and speaker. 9"x 12"x 5", 9½ lbs. **$690.**

MODEL **WVTR** WWV RECEIVER

Rack mount version of model WWVT. 3½"x 19"x 5½". Battery powered $660; with AC power supply **$725.**

SPECIFIC PRODUCTS

P.O. Box 425, 21051 Costanso
Woodland Hills, California

PRICES & SPECIFICATIONS SUBJECT TO CHANGE

For details, circle #160 on Reader Service Card

26. Receivers, Broadcast.

Railroad Electronic Laboratories of Omaha, Inc., Nebr., 5c, 10c
Rainier Co., Inc., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Ratelco, Inc., Wash., Conelrad sc
Rauland-Borg Corp., Ill., 20s
Redifon, Ltd., England, 5s, 10s, 15s
Resdel Engineering Corp., Calif., 40s
Rheem Mfg. Co., Rheem Califone Corp. (Subsid.), Calif., 5s, 15s
Rixon Electronics, Inc., Md., 5c, 10c, 15c, 20c
Roberts Mfg. Co., Texas, 5sc, 15sc, 20sc
Sanyo Electric Co., Ltd., Japan, 5s, 10s, 15s, 20s, 25s, 30s
Schaevitz Engineering, N.J., 40c
Scott, Inc. (H. H.), Mass., 15sc, 20s
Seg Electronics Co., Inc., 12 Hinsdale St., Brooklyn 7, N.Y., 10s, Tel: 212-DI 5-6262
See ad in class 59
Servo Corp. of America, N.Y., 40sc
Setchell-Carlson, Inc., Minn., 20s, 25s, 40s
Sheltered Workshops, Inc., Calif., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Sherwood Electronic Laboratories, Inc., Ill., 15s, 20s
Siemens New York, Inc., N.Y., 35s, 40s
Simmonds Precision Products, N.Y., 40c
Simpson Mfg. Co., Inc. (Mark), N.J., 5s, 15sc
Solar Research Corp., Fla., 40sc
Sony Corp., N.Y., 5s, 10s, 15s, 20s, 25s
Space Electronics Corp., Calif., 40c
Sparton Electronics, Div. of Sparton Corp., Mich., 5c, 10c, 15c
Specific Products, P.O. Box 425, 21051 Costanso St., Woodland Hills, Calif., VLF s, WWV s, Tel: 213-DIamond 0-3131
See ad in this class
Sperry Rand Corp., Wheeler Electronic Corp. (Subsid.), Conn., 40c
Spilsbury & Tindall, Ltd., Canada, 5sc, 10sc, 15sc
Standard Electronics, Div. of Dynamics Corp. of America, N.J., 15s, 25s, 30s, 40c
Standard Telephone & Cables, Ltd., England, 5c, 10c, 15c, 25c, 40c
Sterling Instrument Div., Designatronics, Inc., N.Y., 5s, 15s
Stoddart Aircraft Radio Co., Inc., 6644 Santa Monica Blvd., Hollywood 38, Calif., VLF sc, Tel: 213-HOllywood 4-9292
See ads in classes 38, 45
Superex Electronics Corp., N.Y., 5s
Surface Conduction, Inc., N.Y., 35sc, 40sc
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 5s, 15s, 20s, 25s, 35s
Taffet Electronics, Inc., N.Y., 5c, 10c, 15c, 20c, 40c
Tech-Master Corp., N.Y., 5s, 15c, 20s, 25s, 35c, 40c
TELautograph Corp., Calif., 35s
Telechrome Mfg. Corp., N.Y., 40c
Television Utilities Corp., Div. of Nord, N.Y., 35s
Thompson Ramo Wooldridge Inc., Bell Sound Div., Ohio, 5sc, 15sc, 20sc
Thompson Ramo Wooldridge Inc., Dage Div., Ind., 35s
Thompson Ramo Wooldridge Inc., Educational Electronics Div., N.J., 35c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s, 20s, 25s, 35s, 40s
Tokyo Shibaura Electric Co., Ltd., Japan, 5s, 10s, 15s, 20s, 25s, 30s, 35s
Transis-Tronics, Inc., Calif., 5s, 15s, 20s
Translite Electronics Corp., Ill., 5sc, 20sc
Trav-Ler Radio Corp., Ill., 5s, 15s, 20s, 25s, 40s
Trutone Electronics, Inc., Calif., 15s, 20s
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 40c
Vector Associates, Inc., N.Y., 25c, 30c
Victoreen Instrument Co., 5806 Hough Ave., Cleveland 3, Ohio, 15s, Tel: 216-ENdicott 1-6200
See ads in classes 74, 86
Videonics, Inc., Mass., 25s, 35s
Vinco Electronics Corp., Conn., 15c
Vitro Electronics, Div. of Vitro Corp. of America, Md., 5sc, 15sc, 25s, 30s, 40sc
Warwick Mfg. Corp., Ill., 5c, 10c, 15c, 20c, 25c, 30c, 40c
Wells-Gardner Electronics Corp., Ill., 5c, 10c, 15c, 20c, 25c, 40c
Westinghouse Electric Corp., Electronics Div., Md., 40c
Westinghouse Electric Corp., Television-Radio Div., N.J., 5s, 10s, 15s, 20s, 25s, 30s, 35s
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 5s, 10s, 15s, Tel: 212-JUdson 2-3030
See ad on page 224
Wilcox Electric Co., Inc., Mo., 10s, 40s

Record changers & players: See class 68

Recorders, airborne: See class 1

Recorders, telemetering-data: See class 34

27. Recorders.

5. Dictation equipment
10. Disk type
15. Embossing type
20. Tape type, digital
25. Tape type, magnetic
30. Tape type, video
35. Wire type, magnetic

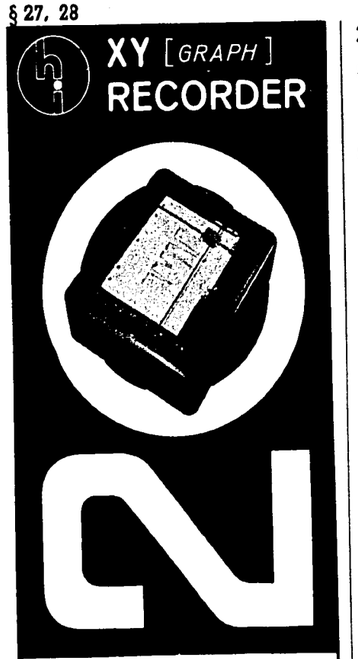
Advanced Instrument Corp., Calif., 20sc
Aga Corp. of America, N.J., 5s
Altron Electronics Co., Pa., 25c
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 20c, 25s
American Bosch Arma Corp., Tele-Dynamics Div., Pa., 20c
American Concertone, Inc., Calif., 25sc
American Elite, Inc. (Telefunken), N.Y., 25s
American Geloso Electronics, Inc., N.Y., 5s, 25s
Ampex Audio Co., Calif., 25s
Ampex Computer Products Co., Calif., 20sc, 25sc, 30sc
Ampex Instrumentation Products Co., Calif., 20sc, 25sc
Ampex Military Products Co., Calif., 20c, 25c, 30c, 35c

Directory I. Complete Equipment

27. Recorders.

Amplifier Corp. of America, N.Y., 25sc
Anderton Electronic Laboratory, Utah, 25c
Applied Magnetics Corp., Calif., 20c, 25c, 35sc
Audio-Master Co., N.Y., 25s
Audiotronics Corp., Calif., 25s
Bach Auricon, Inc., Calif., 25s
Basic & Experimental Physics, Mass., 25c, 35c
Beau Electronics, Inc., Conn., 25c
Benson-Lehner Corp., Calif., 20s, 25s
Bogen-Presto, Div. of Siegler Corp., N.J., 10s, 25s
Bolsey Corp. of America, N.Y., 25 Pocket sc
Broadcast Equipment Specialties Corp., N.Y., 25sc
Bulova Research & Development Laboratories, N.Y., 25c
Burroughs Corp., Electro Data Div., Calif., 20s, 25s
Cinematic Developments, Ark., 25c
Clary Corp., Calif., 20s
Co Engineering Co., N.J., 5c, 20sc, 25sc, 30c
Concord Control, Inc., Mass., 20c, 25c
Consolidated Electrodynamics Corp., Calif., 25s
Continental Merchandise Co., Transistor Products Div., N.Y., 25sc
Cook Electric Co., Cook Technological Center, Ill., 20sc, 25sc
Cousino Electronics Corp., Ohio, 25sc
Crane Electronics Co., Calif., 35s
Dero Research & Development Corp., N.Y., 20c, 25c
Designers for Industry, Inc., Ohio, 25c
Dictaphone Corp., D.C., 5s, 15sc, 25sc
Dictaphone Corp., N.Y., 5sc, 15sc, 25sc
Drexel Dynamics Corp., Pa., 20c, 25c
E.M.I.-Cossor Electronics, Ltd., Canada, 20s, 25s
Edwards Engineering Co., N.Y., 25s
Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 25s, Tel: 212-STillwell 6-8700
See ad in class 41
Ekco Electronics, Ltd., Ekco Works, England, 25s
Electro-Mech Engineering Co., Minn., 25sc
Electro-Pulse, Inc., Div. of Servo Corp. of America, Calif., 35c
Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., Minn., 25sc
Electrodynamic Instrument Corp., Texas, 10c, 25c
Electronic Engineers, Inc., Ill., 20c, 25c
Electronic Products Corp., Subsid. of Futura Mfg. Corp., Mo., 25s
Electronic Secretary Industries, Inc., Wis., Telephone-Answering c
Electronic Specialty Co., Calif., 25c
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 20c, 25c, 35c
Elliott-Automation, Ltd., England, 25c, 30c
Emertron, Inc., Div. of Emerson Radio & Phonograph Corp., N.J., 25c
Fairbanks, Morse & Co., Electronics Div., N.Y., 25sc
Fairchild Recording Equipment Corp., N.Y., 10 Stereo s
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 30c
Fen-Tone Corp., N.Y., 10s, 20s, 25s, 30s
Ferranti Electric, Inc., N.Y., 25c
Gables Engineering, Inc., Fla., 25c
Gates Radio Co., Ill., 25sc
General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 30s
General Instrument Corp., Defense & Engineering Products Group, N.Y., 25sc
General Instrument Corp., Magne-Head Div., Calif., 25c
General Kinetics, Inc., Va., 25sc
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 20sc, 25sc
General Precision, Inc., GPL Div., N.Y., 30s
Goodyear Aircraft Corp., Arizona Div., Ariz., 20sc
Gotham Audio Corp., N.Y., 10s
Gray Mfg. Co., Conn., 5sc, 10sc, 15sc
Hampshire Engineering Co., Mass., 20c
Heath Co., Subsid. of Daystrom, Inc., Mich., 25s
ITA Electronics Corp., Pa., 20sc, 25sc
Image Instruments, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., Video-Storage-Tube Type c, Tel: 617-WOodward 9-8440
See ads in classes 9, 10, 21, 86
Information Systems, Inc., Affil. of Ling Temco Vought, Inc., Calif., 10sc
International Business Machines Corp., N.Y., 5sc
International Business Machines Corp., Federal Systems Div., Md., 5s
International Radio & Electronics Corp., Ind., 25sc
Itek Laboratories, Div. of Itek Corp., Mass., 10c, 25c
Kennedy Co., Calif., 25s
Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 25s
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 20c, 25c
Laboratory For Electronics, Inc., Mass., 10c
Langevin, Div. of Sonotec, Inc., Calif., 25s
Leach Corp., 18435 Susana Rd., Compton, Calif., 25sc, Tel: 213-NEvada 6-1061
See ad in class 73
Lesa Costruzioni Elettromeccaniche S.P.A., Italy, 25s
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 10c, 20c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 20c, 25c
Lockheed Electronics Co., N.J., 25s, 35s
Magnasync Corp., Calif., 5s, 20sc, 25sc
Marshall of Cambridge Electronics, Ltd., England, 25 Pulse s
Maurer, Inc. (J. A.), N.Y., 20c, 25c
Mayberry Electronics Co., Calif., 20c, 25c
Midwestern Instruments, Inc., Okla., 20s, 25s
Miles Reproducer Co., Inc., N.Y., 5s, 15s
Minicord Corp. of America, N.J., 25s, 35s
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 20sc, 25sc
Minneapolis-Honeywell Regulator Co., Industrial Systems Div., Md., 25c
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 25c
Minnesota Mining & Mfg. Co., Magnetic Products Div., Minn., 25s, 30s
Minnesota Mining & Mfg. Co., Mincom Div., Calif., 25s
Mnemotron Corp., 49 S. Main St., Pearl River, N.Y., 20s, 25s, Tel: 914-PEarl River 5-4015
See ad in class 9
Mohawk Business Machines Corp., N.Y., 5s, 10c, 15c, 20c, 25s
Moulic Specialties Co., Ill., 25 Cartridge sc
Muirhead & Co., Ltd., England, 25s
Muirhead Instruments, Inc., N.Y., 25s
Munzig International, Inc., Calif., 5s, 25s
Newcomb Audio Products Co., Calif., 25s
Northrop Corp., Calif., 10c
Olympic Radio & Television, Div. of Siegler Corp., N.Y., 20sc, 25sc
Pacific Electro Magnetics Co., Inc., Calif., 20sc, 25sc
Philco Corp., Government & Industrial Group, Pa., 20c, 25c
Philips Electronics Industries, Ltd., Canada, 5s, 25s
Plastic Mold & Engineering Co., R.I., 5c
Polarad Electronics Corp., 43-20 34th St., Long Island City 1, N.Y., 25c, Tel: 212-EXeter 2-4500
See ads in class 37
Potter Instrument Co., Inc., N.Y., 20c, 25c
Precision Instrument Co., Calif., 20sc, 25sc
RCA Victor Co., Ltd., Canada, 25s, 30s
Rabinow Engineering Co., Inc., D.C., 10c, 25c
Radio Corp. of America, Astro-Electronics Div., N.J., 20c, 25c, 30c
Radio Corp. of America, Defense Electronic Products, N.J., 20s, 25s, 30s
Rangertone, Inc., N.J., 25c
Raymond Engineering Laboratory, Inc., Conn., 25c
Rek-O-Kut Co., Inc., N.Y., 10s, 25s
Rheem Mfg. Co., Rheem Califone Corp. (Subsid.), Calif., 25s
Rheem Mfg. Co., Rheem Electronics Div., Calif., 20c, 25c
Roberts Electronics, Inc., Calif., 25s
Rye Sound Corp., N.Y., 5s
S.E.D. Memories, Inc., N.J., 20c, 25c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.



20 important features to consider

- ½% accuracy
- Standard 8½"x 11" graph paper
- Flat bed
- 7½ in/sec. pen speed
- Clip on pens for multicolor trace
- Unconditional one year warranty
- Drift free
- Continuously variable attenuators
- Each axis mechanically & electrically independent
- Critically damped response
- Rugged construction
- 120% zero offset
- Full chart visibility
- Floating inputs to 100 volts dc
- Interchangeable chopper stabilized amplifiers
- Inline simplified control panel
- 10 or 1 mv/in sensivity
- 10 k or potentiometric input
- Unobstructed paper loading
- Completely portable (35#—14" x 15" x 8")

CHECK LIST FOR ONLY $595

BONUS FEATURE
Immediate shipment within 48 hours.

Write today for BULLETIN 792-4 and PRICE LIST. All inquiries answered immediately.

houston instrument

Box 22234E · Houston 27, Texas
MO 7-7405

For details, circle #161 on Reader Service Card

27. Recorders.

S-I Electronics, Inc., 103 Park Ave., Nutley 10, N.J., 20sc, 25sc, Tel: 201-NOrth 7-0055
See ad in class 10
Sangamo Electric Co., Springfield, Ill., 25s, Tel: 217-KIngswood 4-6411
See ad on page 142
Sanyo Electric Co., Ltd., Japan, 25s
Solar Research Corp., Fla., 25s
Solartron Electronic Group, Ltd., England, 25sc
Sonograf Electric Co., N.Y., 10c
Sony Corp., N.Y., 20c, 25sc, 30sc
Soroban Engineering, Inc., Fla., 20sc
Soundpac Electronics Corp., Mich., 25s
SoundScriber Corp., Conn., 5sc, 25sc
Speidel Corp., Industrial Div., R.I., 20c, 25c
Stancil-Hoffman Corp., Calif., 25sc
Standard Instrument Corp., N.Y., 20s
Standard Systems Corp., N.Y., 25s
Streeter-Amet Co., Ill., 20c
Tandberg of America, Inc., N.Y., 25s
Tape-Athon Corp., Calif., 25s
Technical Products Co., Calif., 25sc
Techno Instrument Co., Calif., 25sc
Techtro-Matic Corp., Vt., 10c
Telecomputing Corp., Calif., 20sc
Telectro Industries Corp., N.Y., 20c, 25c, 30c
Television Utilities Corp., Div. of Nord, N.Y., 30c
Textron Electronics, Inc., Schafer Custom Engineering Div., Calif., 20c, 25c
Thompson Ramo Wooldridge Inc., Bell Sound Div., Ohio, 5sc, 10sc, 15sc, 25sc
Thompson Ramo Wooldridge Inc., Dage Div., Ind., 5s
Thompson Ramo Wooldridge Inc., Educational Electronics Div., N.J., 5c, 10c
Tokyo Shibaura Electric Co., Ltd., Japan, 10s, 20s, 25s, 30s
Transelectric Mfg. Co., Pa., 5s
Trav-Ler Radio Corp., Ill., 25s
U.S. Recording Co., D.C., 15c, 25c
V-M Corp., Mich., 25s
Viewlex, Inc., N.Y., 10c, 25sc
Viking of Minneapolis, Inc., Minn., 25s
Vue-Tronics, Inc., Div. of Prescott Television Co., Calif., Video-Film Type sc
Warwick Mfg. Corp., Ill., 25c
Webcor, Inc., Electronics Div., Ill., 25c
Webster Electric Co., Wis., 25sc
Western Electro-Acoustic Laboratory, Inc., Calif., 25sc
Westinghouse Electric Corp., Television-Radio Div., N.J., 25s
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 10sc, 25sc, 30sc, Tel: 212-JUdson 2-3030
See ad on page 224

28. Recorders, Graphic.

5. Boards, plotting
10. Charts & papers
15. Ink writing type
20. Inkless type
25. Fixed speed type
30. Variable speed type

Aeronca Mfg. Corp., Aerospace Div., Md., 5c
Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 10s, 20s, Tel: 617-FOrest 6-4467
See ad on page 82

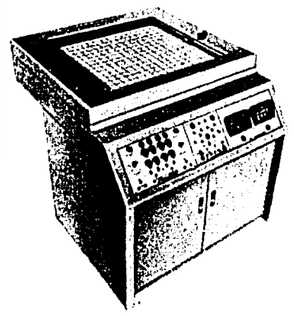
28. Recorders, Graphic.

Alfax Paper & Engineering Co., Inc., Dept. A-1, Alden Research Center, Washington St., P.O. Box 125, Westboro, Mass., 10c, 20c, Tel: 617-FOrest 6-4467
See ad on page 84
American Bosch Arma Corp., N.Y., 20sc, 25sc, 30c
American Bosch Arma Corp., Tele-Dynamics Div., Pa., 20c
American Optical Co., Instrument Div., N.Y., 20 Analog s
Annis Co. (R. B.), Ind., 15s
Antlab, Inc., Ohio, 10s, 15sc, 30sc
Assembly Products, Inc., 75 Wilson Mills Rd., Chesterland 33, Ohio, 20s, Tel: 216-HAmilton 3-3131
See ad in class 73
Atkins Technical, Inc., Ohio, 15s, 20s, 25s, 30s
Atomic Accessories, Inc., Subsid. of Baird-Atomic, Inc., 817 W. Merrick Rd., Valley Stream, L.I., N.Y., 15s, 30s, Tel: 516-CUrtiss 5-9300
See ad in class 22
Auerbach Electronics Corp., Pa., 5c
Austin Electronics, Div. of Austin Co., N.Y., 5c
Automatic Telegraph Keyer Corp., N.Y., 15c
Automatic Timing & Controls, Pa., 25s
Automation Research & Design Associates, N.J., 20c, 25c
B & K Instruments, Inc. of Bruel & Kjaer, Ohio, 15s, 20s, 30s
Bach-Simpson, Ltd., Canada, 30 Digital-Presentation c
Barnes Development Co., 213 W. Baltimore Pike, Lansdowne, Pa., 20c, 30c, Tel: 215-MAdison 2-1525
See ad in class 41
Barth Engineering & Mfg. Co., Inc., Conn., 15c, 20c, 25c, 30c
Basic & Experimental Physics, Mass., 20c, 30c
Beckman Instruments, Inc., Berkeley Div., Calif., 15s
Beckman Instruments, Inc., Scientific & Process Instrument Div., Calif., 30s
Beckman & Whitley, Inc., Calif., 10s, 25s, 30s
Benson-Lehner Corp., Calif., 5sc, 15sc
Block Associates, Inc., Mass., 20c, 25c, 30c
Bludworth Marine Div., States Electronics Corp., N.Y., 20c, 25c, 30c
Bolsey Corp. of America, N.Y., 25sc
Bristol Co., Conn., 10c, 15c, 20c, 25c
Bruel & Kjaer (A/S), Denmark, 10s, 15s, 20s, 25s, 30s
Burroughs Corp., Mich., 15c
California Computer Products, Inc., Calif., 5sc, 15sc, 30sc
Canadian Aviation Electronics, Ltd., Canada, 5c, 20c
Century Electronics & Instruments, Inc., Okla., 20sc, 25sc, 30sc
Clevite Corp., Brush Instruments Div., Ohio, 10s, 15s, 20s, 30s
Coldstream Engineering Co., Okla., 15c
Computer Sciences, Inc., N.Y., 5c, 10sc, 15c, 20c, 25c, 30c
Computer Systems, Inc., N.J., 5sc
Concord Control, Inc., Mass., 5c
Control Circuits, Inc., Conn., 10c
Curtiss-Wright Corp., Princeton Div., N.J., 10sc, 15sc, 20sc, 25sc, 30sc

Directory I. Complete Equipment

28. Recorders, Graphic.

Dalmo Victor Co., Div. of Textron, Inc., Calif., 10c, 15c, 25c, 30c
Designers for Industry, Inc., Ohio, 5c
Dick Co. (A. B.), Ill., 25c, 30c
Dicon Corp., N.Y., 5c, 25c, 30c
Dresser Electronics/SIE Div., Dresser Industries, Inc., Texas, 20s, 25s
Drexel Dynamics Corp., Pa., 5c
Edison Industries (Thomas A.), Instrument Div., (McGraw-Edison Co.), N.J., 10s, 20s, 30s
Ehrenpreis Engineers (David), N.Y., 5c
Electric Tachometer Corp., Pa., 25s
Electro Instruments, Inc., Calif., 5s
Electro-Medical Laboratory, Inc., Vt., 15c, 20c
Electro Radiation, Inc., Calif., 20c
Electronic Associates, Inc., N.J., 5sc
Electronic Counters, Inc., N.Y., 20s
Elliott-Automation, Ltd., England, 10c, 25c
Elm Laboratories, N.Y., 5sc
Emeloid Co., Inc., Subsid of Addressograph-Multigraph Corp., N.J., 5c
Emerson Electric Mfg. Co., Mo., 15s
Engler Instrument Co., N.J., 30s
Epic, Inc., N.Y., 20s
Epsco, Inc., Mass., 15sc, 20sc
Epsco Medical, Mass., 15sc, 20sc
Esterline Angus Instrument Co., Inc., Ind., 10s, 15s, 20c, 25s, 30s
Foxboro Co., Mass., 10s, 15c
General Aniline & Film Corp., Ansco Div., N.Y., 5c
General Dynamics/Electronics, N.Y., 5c
General Electric Co., Apparatus Sales Dept., N.Y., 10s, 15s, 20s, 25s, 30s
General Electric Co., Instrument Dept., 40 Federal St., Lynn, Mass., 10s, 15s, 20s, Tel: 617-LYnn 3-3400
See ad in class 61
General Nuclear Corp., N.Y., 10c, 30c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5sc
General Radio Co., 22 Baker Ave., West Concord, Mass., 15s, 30s, Tel: 617-EMerson 9-4400
See ad on Cover 4
General Railway Signal Co., N.Y., 15c
Geotechnical Corp., Texas, 20sc, 25sc, 30sc
Gerber Scientific Instrument Co., Conn., 5sc
Gilmore Industries, Inc., Ohio, 5c, 30c
Goodyear Aircraft Corp., Arizona Div., Ariz., 5c, 20c
Graphic Controls Corp.: See Technical Recording Chart Div.
Hagan Chemicals & Controls, Inc., Pa., 25c
Hays Corp., Ind., 10sc, 15sc, 25sc
Hogan Faximile Corp., N.Y., 5c, 10sc, 20c, 25c, 30c
Houston Instrument Corp., P.O. Box 22234E, Houston 27, Texas, X-Y sc, Tel: 713-MOhawk 7-7405
See ad in this class
Huyck Systems Co., N.Y., 5c
Impact-O-Graph Corp., Ohio, 20 Impact c, 30c
Instron Engineering Corp., Mass., 10s, 15sc, 30sc
Instrument Corp. of Florida, Fla., 10c, 15c, 25c
Instrument Systems Corp., N.Y., 5c
Invengineering, Inc., N.J., 5c, 25c, 30c
Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 15c, 20c, 25c, 30c, Tel: 516-RAvenswood 9-7580
See ad in class 89
Labelon Corp., N.Y., 10c
Larson Instrument Co., 21 Greenbush Rd., Orangeburg, N.Y., 20sc, 25sc, 30sc, Tel: 914-ELmwood 9-2310
See ad in class 61
Las-Lab, Inc., Md., 25c, 30c
Leeds & Northrup Co., Pa., 10s, 15s
Lehigh Valley Electronics Engineering & Mfg., Inc., Pa., 10s
Leupold & Stevens Instruments, Inc., Ore., 15c
Ling Temco Vought, Inc., Texas, 5s, 20s, 30s
Ling Temco Vought, Inc., F F & M Electronics, Inc. (Subsid.), Calif., 5s, 20s, 30s
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 5c
Marsland Engineering, Ltd., Canada, 5c
Massa Div., Cohu Electronics, Inc., Mass., 10sc, 15sc, 20sc, 30sc
Matsushita Communication Industrial Co., Ltd., Japan, 15c
Matthew Laboratories, N.Y., 15c
McElroy Electronics Corp., Mass., 15sc
Mechanical Engraving Co., Inc., N.Y., 5c, 10c
Midwestern Instruments, Inc., Okla., 20s, 25s, 30s
Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 5sc, 15sc, 20c, 25c, 30c, Tel: 305-OXford 1-1220
See ad in this class
Minneapolis-Honeywell Regulator Co., Fall River Div., Mass., 10c, 15c, 25c
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 10s, 15s, 20s, 25s, 30s
Morgan Electronics, Mass., 10s, 15s, 30s
Moseley Co. (F. L.), Div. of Hewlett-Packard Co., Calif., 5s, 10s, 15s, 25s, 30s, Converting Equip. s, Strip-Chart & X-Y s
Muirhead & Co., Ltd., England, 15s



MEC MODEL 1587
VERTICAL/HORIZONTAL
X-Y RECORDER

The MEC Model 1587 Vertical/Horizontal Plotting Board accurately and instantaneously presents four independent variables of analog or converted digital data as two simultaneous and permanent recordings. Both plots utilize the entire back lighted surface and may be shown as continuous curves, a series of points or symbols, or a combination of these.

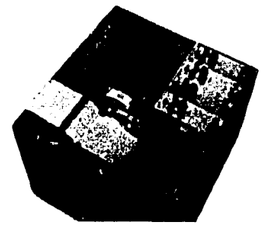
This plotting capability is entirely unaffected by the attitude of the plotting surface, which may be vertical, horizontal or at any intermediate angular position.

MEC

MILGO ELECTRONIC CORPORATION
7620 N.W. 36TH AVENUE, MIAMI, FLORIDA
TEL. OX 1-1220 TWX MM-272

For details, circle #163 on Reader Service Card

SCHWARZER
High-Frequency
Graphic Recorders



- Five basic sizes available
- 1 to 16 channels, more channels on request
- Plug-in, high-gain DC-AC preamplifiers
- Frequency response: up to 300 cps within 3 db
- Rectilinear, dry & permanent tracings with unique SCHWARZER carbon paper method
- Economical recording principle: cost is less than $2 per thousand feet per channel!

SCHWARZER Company
46 Salmi Road, Framingham, Mass.
Write direct for location of nearest Branch Office or Representative.

For details, circle #164 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-276.

NEW!

Heat-sensitive

RECORDING CHARTS

Quality-Proven in Test after Test!

After lengthy research and extensive testing, GC brings you the best all purpose heat-sensitive oscillograph paper for a wide range of recorders and every industrial application.

GC heat-sensitive charts provide finer trace lines for accuracy in recording, outstanding dimensional stability, and greater resistance to abrasion in handling.

Through volume production, and with over 50 years of experience, the world's largest producer of recording charts can bring substantial savings to you for all your chart requirements.

Our new folder gives you the facts on GC heat-sensitive charts. Clip and mail the coupon for your copy.

RECORDING CHARTS

Use This Coupon

TECHNICAL RECORDING CHART DIV.
GRAPHIC CONTROLS CORPORATION

189 Van Rensselaer St., Dept. IR
Buffalo 10, N. Y.

Please send me your new folder on GC heat-sensitive Recording Charts.

Name_____

Firm_____

Address_____

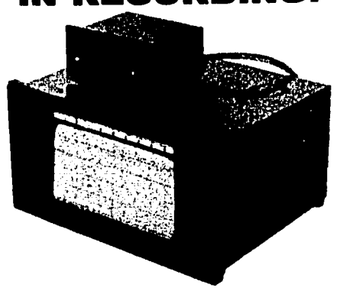
City_____ State_____

For details, circle #165 on Reader Service Card

28. Recorders, Graphic.

Nashua Corp., N.J., 10c
Newport Scientific Co., Calif., 10s, 15s, 25s, 30s
Offner Electronics, Inc., Ill., 10s, 15s, 20s, 25c, 30s
Ogilvie Press, Inc., N.Y., 5c, 10c
Pace Controls Corp., Mass., 5c
Partlow Corp., N.Y., 15sc, 20sc, 25sc
Philco Corp., Pa., 5c, 20c
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 25s, 30s
Philips Electronics Industries, Ltd., Canada, 10s, 20s, 30s
Photron Instrument Co., Ohio, 15sc, 20sc, 25sc, 30sc
Radiation Instrument Development Laboratories, Inc., Ill., 10s
Radiometer, Denmark, 15s
Research, Inc., Minn., 15sc
Rustrak Instrument Co., Inc., N.H., 20s, 25s, 30s
Sanborn Co., Subsid. of Hewlett-Packard Co., 175 Wyman St., Waltham 54, Mass., 10s, 20s, 30s, Tel: 617-TWinbrook 4-6300
See ad on pages 70-71
Sangamo Electric Co., Springfield, Ill., 25s, Tel: 217-KIngswood 4-6411
See ad on page 142
Schaevitz Engineering, N.J., 5c, 10c, 15c, 20c, 25c, 30c
Schwarzer Co., 46 Salmi Rd., Framingham, Mass., 10s, 20sc, 30sc, Tel: 617-TRinity 2-1830
See ads in classes 5, 23, 28

NEW CONCEPT IN RECORDING!



Westronics, Inc. proudly announces the introduction of the totally new UNIVERSAL RECORDER to its present recorder line. This new Universal Recorder can operate as a standard fixed-span recorder, or it can function with one or more EXTERNAL PLUG-IN Modules.

This "Family" of External Plug-In Modules, 24 in all, contain the circuitry necessary to allow this recorder to function as a Strain Gage, Adjustable Span & Zero, Resistance Bulb, Flow, Temperature, Pressure or Potentiometer Following recorder. These Modules, which feature convenient, calibrated controls, may be panel mounted or used as a table-top laboratory instrument. No re-wiring of the recorder is necessary to change from one module to another. Modules are available for almost any recording application you may have.

The Universal Recorder is available in both 5" and 11" strip chart sizes in single pen, dual pen and multipoint models. Consult the Westronics representative nearest you for more information.

westronics, inc.

TWX FT 8246 U • 3001 McCART STREET • FORT WORTH 11, TEXAS

For details, circle #166 on Reader Service Card

Scientific-Atlanta, Inc., Ga., 15 Antenna-Pattern sc
Siemens New York, Inc., N.Y., 10s, 15s, 20s, 25s, 30s
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 10c, 15c
Stafford Mfg. Co., Inc., N.Y., 5c
Standard Instrument Corp., N.Y., 15s
Stoelting Co. (C. H.), Ill., 15s, 30s
Sun Dial Corp., N.J., 5c
Sunshine Scientific Instrument, Pa., 5s, 10s, 15s, 20s
Taylor Instrument Companies, N.Y., 10c, 15c, 25c
Technical Products Co., Calif., 15s, 25s
Technical Recording Chart Div., Subsid. of Graphic Controls Corp., Dept. IR, 189 Van Rensselaer St., Buffalo 10, N.Y., 10sc, Tel: 716-TL 3-7500
See ad in this class
TELautograph Corp., Calif., 15s
Texas Instruments Incorporated, Apparatus Div., Industrial Products Group, Texas, 20c
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 10sc, 15sc, 30sc, Tel: 214-ADams 5-3111
See ad on Cover 3
Thermovolt Instruments, Ltd., Canada, 15c, 20c, 30c
Thompson, Ltd. (J. Langham), England, 15s, 30s
Thompson Ramo Wooldridge Inc., STL Products Div. of Space Technology Laboratories, Calif., 30s
Tipptronic, Inc., Ohio, 20s
United Electric Controls Co., Mass., 15sc
U.S. Recording Co., D.C., 15c
Varian Associates, Instrument Div., Calif., 20s, 25s, 30s
Varian Associates, Tube Div., Calif., 10s, 15s
Warren Mfg. Co., Inc., Mass., 15c
West Instrument Corp., Ill., 15s, 25s, 30s
Westgate Laboratory, Inc., Ohio, 5c, 15c, 20c, 25c, 30c
Westinghouse Electric Corp., Pa., 15sc, 25sc, 30sc
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 10sc, 15sc, 20sc, 25sc, 30sc, Tel: 212-JUdson 2-3030
See ad on page 224
Westronics, Inc., 3605 McCart St., Fort Worth 10, Texas, 10s, 15s, 25s, 30s, Tel: 817-WA 3-8211
See ads on page 223 & in this class
Whitehall Electronics Corp., Minn., 30c
Woodland Electronics Co., Inc., N.J., 10sc, 20sc
Xerox Corp., N.Y., 20c
Yellow Springs Instrument Co., Inc., Ohio, 20s, 30s

Recording accessories:
See class 70

Recording equipment:
See class 27

Recording equipment, camera:
See class 14

Directory I. Complete Equipment

Recording oscillographs:
See class 23

Relay broadcast equipment:
See class 42

Relay equipment, carrier current:
See class 7

Relay equipment, microwave:
See class 19

Remote control equipment:
See class 4

Remote monitor equipment:
See class 21

Rotators, antenna:
See class 44

Scalers:
See class 22

Scanners:
See classes 14 & 17

Selective calling equipment:
See class 20

Servomechanisms:
See class 77

Shortwave receivers:
See class 26

Signal generators, AF:
See class 35

Signal generators, AM, FM, RF & SSB:
See class 38

Signal generators, telemetering:
See class 34

Signal generators, television:
See class 39

Signals, standard:
See class 31

Simulation, flight:
See class 2

Simulators, radar:
See class 37

29. Single Sideband Communications Equipment.

5. Adapters
10. Receivers
15. Transmitters

Adler Electronics, Inc., N.Y., 10c, 15c
Admiral Corp., Ill., 10c, 15c
Advanced Development Laboratories, Inc., N.H., 5c, 10c, 15c
Aerospace Research, Inc., 94 Massachusetts Ave., Cambridge 39, Mass., 10c, Tel: 617-ELiot 4-7780
See ad in class 26
Airtronics, Inc., D. C., 10c, 15c
American Geloso Electronics, Inc., N.Y., 10s
Andrea Radio Corp., N.Y., 10c
Applied Electronics Co., Calif., 15c
Ateliers de Montages Electriques (AME), France, 5c, 10s, 15s
Barker & Williamson, Inc., Pa., 15sc
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 10c, 15c
Canadian General Electric Co., Ltd., Electronic Equipment & Tube Dept., Canada, 5c, 10c, 15c
Canadian Marconi Co., Canada, 10s, 15s
Capehart Corp., N.Y., 5c, 10c, 15c
Central Electronics, Inc., Ill., 5sc, 10sc, 15sc
Chrysler Corp., Defense Group, Mich., 10c, 15c
Clegg Laboratories, Div. of Clegg, Inc., N.J., 5c, 10c, 15c
Collins Radio Co., Iowa, 10s, 15s
Communication Electronics, Inc., Md., 10c
Communications Co., Inc., Fla., 10s, Transceivers c
CompuDyne Corp., Pa., 5c, 10c, 15c
Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 15sc, Tel: 214-EVergreen 1-1135
See ad on page 120
Cooke Engineering Co., Va., 5c, 10c, 15c
Crosby-Teletronics Corp., N.Y., 5s, 10s, 15s
Daystrom, Inc., Military Electronics Div., Pa., 15c
Dayton Aviation Radio & Equipment Corp., Ohio, 10c, 15c
Delcon Corp., Calif., 15c
Designers for Industry, Inc., Ohio, 10c, 15c
Dow-Key Co., Inc., Minn., 5sc
Dynamics Corp. of America, N.Y., 5sc, 10sc, 15sc
Electrac, Inc., Calif., 10c
Electro-Mech Engineering Co., Minn., 15c
Electro-Voice, Inc., Mich., 10s
Electronic Communications, Inc., Fla., 10c, 15c
Ericsson Corporation, Subsid. of L. M. Ericsson Telephone Co. (Stockholm), 100 Park Ave., New York 17, N.Y., 5s, Tel: 212-MUrray Hill 5-4030
See ad in class 86
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 10c, 15c
Gates Radio Co., Ill., 10s, 15s
General Dynamics/Electronics, N.Y., 5sc, 10sc, 15sc
General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 15c
General Electric Co. Ltd. of England, Telecommunications Group, England, 10c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 5c, 10c, 15c
General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 5c, Tel: 612-WEst 9-8571
See ad in class 43
General Motors Corp., Delco Radio Div., Ind., 10c, 15c
Goodyear Aircraft Corp., Arizona Div., Ariz., 10c
Hallicrafters Co., Ill., 10sc
Hammarlund Mfg. Co., Inc., N.Y., 10s, 15s
Harristahl Laboratories, N.Y., 5c, 10c, 15c
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 10s, 15s
Hermes Electronics Co., Mass., 15sc
Hoffman Electronics Corp., Calif., 5c, 10c, 15c
Inland Electronics Corp., Ill., 15c
Instrument Corp. of Florida, Fla., 5c, 10c, 15c
Instruments For Industry, Inc., 101 New South Rd., Hicksville, L.I., N.Y., 5c, 10c, 15c, Tel: 516-OVerbrook 1-7100
See ads in classes 43, 74
International Electronics Mfg. Co., Md., 5c, 10c, 15c
Itek Electro-Products Co., Div. of Itek Corp., 75 Cambridge Parkway, Cambridge 42, Mass., 5c, Tel: 617-UNiversity 4-7200
See ad in class 59
Johnson Co. (E. F.), Minn., 15s
Kahn Research Laboratories, Inc., N.Y., 5s, 10s, 15s
Koito Electronics Co., Ltd., Japan, 5s
LEL, Inc., 77 Akron St., Copiague, L.I., N.Y., 10c, Tel: 516-AMityville 4-2200
See ad in class 43
Lakeshore Industries Div., Aitken-Reed, Inc., Wis., 15sc
LaPointe Industries, Inc., Conn., 5c, 10c
Lionel Corp., N.J., 5c, 10c, 15c
Lynch Communication Systems, Inc., Calif., 5c, 10c, 15c
Mackay Radio & Telegraph Co., N.J., 15sc
Madigan Electronic Corp., N.Y., 5c, 10sc, 15c
Mallory & Co., Inc. (P. R.), Ind., 10c, 15c
Manson Laboratories, Inc., Conn., 5c, 10c, 15c
Marconi's Wireless Telegraph Co., Ltd., N.Y., 10s, 15s
Marine View Electronics, Inc., N.Y., 5c
Matsushita Communication Industrial Co., Ltd., Japan, 10c, 15c
Maxson Electronics Corp., N.Y., 10c, 15c
Model Engineering & Mfg. Corp., Ind., 5c, 10c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-228.

29. Single Sideband Communications Equipment.

Motorola Communications & Electronics, Inc., Ill., 10sc, 15sc
Motorola, Inc., Military Electronics Div., Ariz., 10c, 15c
Multronics, Inc., Md., 15c
National Co., Inc., Mass., 5c, 10s, 15c
National Radio Co., Inc., Mass., 10s
Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 5c, 10c, 15c, Tel: 914-DEerfield 7-6132
See ad in class 43
Ostlund Associates (E. M.), N.J., 15c
Packard-Bell Electronics Corp., Calif., 10c, 15c
Parisier & Co. (Maurice L.), N.Y., 15c
Peer, Inc., Texas, 15c
Philco Corp., Pa., 5c, 10c, 15c
Philco Corp., Government & Industrial Group, Pa., 10c, 15c
Philips Electronics Industries, Ltd., Canada, 5s, 10s, 15s
Planetronics, Inc., Pa., 10c
Polytronic Research, Inc., Md., 5c, 10c, 15c
Probescope Co., Inc., N.Y., 5s
RCA Victor Co., Ltd., Canada, 10s, 15s
R F Communications Associates, Inc., N.Y., 5c, 10s, 15s
Racal Engineering, Ltd., England, 5c, 10c, 15c
Radiation at Stanford, Calif., 15c
Radio Corp. of America, Defense Electronic Products, N.J., 5s, 10s, 15s
Radio Engineering Laboratories, Inc., N.Y., 10c, 15c
Radio Industries, Inc., Kans., 10c, 15c
Radio Mfg. Engineers, Inc., Ill., 10s
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 10c, 15c
Redifon, Ltd., England, 5s, 10s, 15s
Reeves Instrument Corp., Farmingdale Div., N.J., 5sc, 10sc, 15sc
Rixon Electronics, Inc., Md., 5c, 10c, 15c
Sangamo Electric Co., Springfield, Ill., 10c, 15c, Tel: 217-KIngswood 4-6411
See ad on page 142
Schaevitz Engineering, N.J., 5c, 10c, 15c
Sheltered Workshops, Inc., Calif., 5c, 10c, 15c
Siemens New York, Inc., N.Y., 10s, 15s
Sonar Radio Corp., N.Y., 10s, 15s
Space Electronics Corp., Calif., 5c, 10c, 15c
Sparton Electronics, Div. of Sparton Corp., Mich., 10c
Specialty Electronics Development Corp., N.Y., 10c, 15c
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 10c, 15c
Standard Electronics, Div. of Dynamics Corp. of America, N.J., 5s, 10s, 15s
Standard Telephones & Cables, Ltd., England, 10c, 15c
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 10c, 15c
Systems, Inc., Fla., 5c
TMC (Canada), Ltd., Canada, 5s, 10s, 15s
Tamar Electronics, Inc., Calif., 10c, 15c
Technical Materiel Corp., 700 Fenimore Rd., Mamaroneck, N.Y., 5s, 10s, 15s, Tel: 914-OWens 8-4800
See ads in class 38
Telechrome Mfg. Corp., N.Y., 5sc, 10sc, 15sc
Telecomtrol Corp., N.J., 10c, 15c
Telephonics Corp., N.Y., 10c, 15c
Televiso Corp., Ill., 15c
Textron Electronics, Inc., Globe Electronics Div., Iowa, 15s
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s
Tokyo Shibaura Electric Co., Ltd., Japan, 5c, 10c, 15c
Vitro Electronics, Div. of Vitro Corp. of America, Md., 10c
Weitermann Electronics, Wis., 10c
Westinghouse Electric Corp., Electronics Div., Md., 10c, 15c
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 5sc, 10sc, 15sc, Tel: 212-JUdson 2-3030
See ad on page 224
Wilcox Electric Co., Inc., Mo., 5s, 10s, 15s
Woodland Electronics Co., Inc., N.J., 10sc, 15sc
Wunderlich Radio Co., N.Y., 10c, 15c

Slotted lines & measuring accessories:
See class 37

Solar batteries:
See class 46

Solar generators:
See class 58

Sonar equipment:
See class 18

Sound-level meters:
See class 35

30. Sound Systems.

5. Intercoms **15. Public address**
10. Paging

Aderafters Co., Ill., 5s, 10s, 15s
Advanced Acoustics Corp., N.J., 5sc, 10sc, 15sc
Airtronics International Corp., Fla., 5c
American Communications Corp., N.Y., 5sc, 10sc, 15sc
American Development Electronics Co., N.J., 5c
American Elite, Inc. (Telefunken), N.Y., 10s, 15s
American Geloso Electronics, Inc., N.Y., 5s, 10s, 15s
Amplivox Esports, Ltd., England, 5c
Anderton Electronic Laboratory, Utah, 5c, 10c, 15c
Andrea Radio Corp., N.Y., 5c
Arkay Products Mfg. Co., Calif., 5s
Audio Equipment Co., Inc., N.Y., 5c, 10sc, 15sc, Megaphones sc
Audio-Master Co., N.Y., 15s
Audiofax Associates, Inc., N.Y., 15c
Audiotronics Corp., Calif., 15s
Auth Electric Co., Inc., N.Y., 10sc
Autocall Co., Ohio, 10sc
Bellaire Electronics, Inc., N.J., 5sc, 10sc, 15sc
Bendix Corp., Bendix Radio Div., Avionic Products Dept., Md., 5s, 15s

30. Sound Systems.

Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 15s
Bliss Electronic Corp., N.J., 5s, 10s
Bogen-Presto, Div. of Siegler Corp., N.J., 5s, 10s, 15s
Boulevard Electronics, Inc., Ill., 5c, 10c, 15c
Bristol Motors, Div. of Vocaline Co. of America, Inc., Conn., 5s
Bruno-New York Industries Corp., N.Y., 5sc
Budelman Electronics Corp., 375 Fairfield Ave., Stamford, Conn., 10s, 15c, Tel: 203-FIreside 8-9231
See ad on page 96
CBC Electronics Co., Inc., Pa., 5s
Cable Specialists of Conn., Conn., 5c, 15c
Cadre Industries Corp., N.Y., 10c
Calbest Electronics, Calif., 5sc, 10c, 15s
Cambridge Co., Ill., 5sc, 10sc, 15sc
Cameraflex Corp., N.Y., 5s, 10s, 15s
Campbell-Norquist & Co., Ore., 5c, 10c, 15c
Capehart Corp., N.Y., 5c, 10c, 15c
Central Dynamics, Ltd., Canada, 5sc
Chrysler Corp., Defense Group, Mich., 5 Airborne c, 15 Airborne c
Cinaudagraph, Inc., Ill., 5c, 10c, 15c
Communications Equipment Co., Me., 5c, 10c, 15c
Continental Electronics Corp., N.Y., 5c
Continental Mfg., Inc., Nebr., 5c, 10c
Continental Sound Engineering, Inc., Wis., 5c, 10s, 15s
Cooke Engineering Co., Va., 5c
Denson Electronics Corp., Conn., 15c
DeWald Radio, Div. of United Scientific Laboratories, Inc., N.Y., 5c, 10c, 15c
Dicon Corp., N.Y., 15c
Dictograph Products, Inc., Conn., 5sc, 10sc, 15c
Digitrols, Inc., Md., 10s, 15s
Direct T/V Windings, Ltd., England, 5c
Dominion Electrohome Industries, Ltd., Canada, 5s
Electramatic, Inc., Minn., 15c
Electro-Mech Engineering Co., Minn., 5c, 10c, 15c
Electro-Voice, Inc., Mich., 10s, 15s
Electrodynamic Instrument Corp., Texas, 15c
Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 10c, 15c, Tel: 617-LYnn 8-2100
See ad in class 69
Electronic Controls, Inc., Conn., 5c
Electronic Engineering Co., Ohio, 5s, 10s, 15s
Electronic Engineers, Inc., Ill., 5c, 15c
Electronic Products Corp., Subsid. of Futura Mfg. Corp., Mo., 15s
Electronic Research Associates, Inc., N.J., 5sc, 10sc, 15sc
Electronic Systems, Calif., 5c, 10c, 15c
Elliott-Automation, Ltd., England, 5c
Emerson Electric Mfg. Co., Mo., 5s
Eprad, Inc., Ohio, 5sc, 10sc
Ericsson Corp., Subsid. of L. M. Ericsson Telephone Co. (Stockholm), 100 Park Ave., New York 17, N.Y., 5s, Tel: 212-MUrray Hill 5-4030
See ad in class 86
Etelco, Ltd., England, 5sc
Executone, Inc., N.Y., 5sc, 10sc, 15sc

Directory I. Complete Equipment

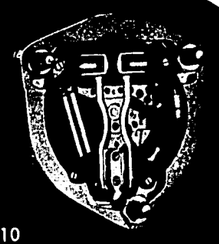
30. Sound Systems.

Fairbanks, Morse & Co., Electronics Div., N.Y., 5sc, 10sc, 15sc
Fanon Transistor Corp., 439 Frelinghuysen Ave., Newark 12, N.J., 5sc, 10s, 15s, Tel: 201-BIgelow 3-1020
See ad in class 76
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 10s
Fedtro, Inc., N.Y., 10s, 15s
Feiler Engineering & Mfg. Co., Ill., 5s, 10s, 15s
Fidelity Amplifier Co., Ill., 5s
First Electronics Corp., Ind., 5c
Fisher Berkeley Corp., Calif., 5sc, 10sc, 15sc
Flite-Tronics, Inc., Calif., 5sc, 10sc
Flush Wall Radio Co., Fla., 5s, 10s
Franklin Systems, Inc., 2734 Hillsboro Rd., P.O. Box 3250, West Palm Beach, Fla., 5c, Tel: 305-TEmple 3-4602
See ad in class 22
Frazier, Inc., Texas, 15c
Gables Engineering, Inc., Fla., 5c
Galbraith-Pilot Marine Corp., N.Y., 5c, 10c, 15sc
Gates Radio Co., Ill., 10c, 15c
General Dynamics/Electronics, N.Y., 5sc, 10sc, 15sc
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 5c, 10c
General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 5c, Tel: 612-WEst 9-8571
See ad in class 43
Gjadny Corp. (Richard), N.Y., 15c
Godfrey Mfg. Co., Ill., 5s
Gray Mfg. Co., Conn., 15c
HRB-Singer, Inc., Pa., 15c
Hamilton Electronics Corp., Ill., 5c, 10s, 15s
Harman-Kardon, Inc., N.Y., 5s, 15s
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 10s, 15s
Holmin Corp. (William A.), Ill., 10s, 15 Megaphones s
Hughes Research Div. (J. Willis), Miss., 15c
Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif., 10s, Tel: 213-TRiangle 7-1144
See ads on page 162 & in class 63
Instrument Corp. of Florida, Fla., 5c, 10c, 15c
Interelectronics Corp., 2432 Grand Concourse, New York 58, N.Y., 15sc, Tel: 212-LUdlow 4-6200
See ads in classes 34, 69
Iwasaki Communication Apparatus Co., Ltd., Japan, 5s, 10c, 15c
Jetronic Industries, Inc., Pa., 5c
Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 10c
Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 5s
Lake Mfg. Co., Calif., 5s
Langevin, Div. of Sonotec, Inc., Calif., 15s
Lehigh Valley Electronics Engineering & Mfg., Inc., Pa., 10c
Lesa Costruzioni Elettromeccaniche S.P.A., Italy, 15c
Lignes Telegraphiques et Telephoniques, France, 5s
Line Electric Co., N.J., 10sc
Ling Temco Vought, Inc., Texas, 5c, 10c, 15c
Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid.), Calif., 10s, 15s
Ling Temco Vought, Inc., Altec Service Co. (Div. of Altec Companies, Inc.), N.Y., 5c, 10c, 15c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c, 10sc, 15sc
Lionel Corp., N.J., 5c, 10c, 15c
Loge Electronics, Inc., Calif., 5sc, 10sc, 15sc
MP Engineering Co., Conn., 5c, 15c
Matsushita Communication Industrial Co., Ltd., Japan, 5s, 15s
McGohan, Inc. (Don), Ill., 15sc
Melody Master Mfg. Co., Ill., 5c, 15c
Miles Reproducer Co., N.Y., 5s, 10s, 15s
Modern Design, Div. of H.C. Schloer, Inc., N.Y., 5c, 15c
Motorola Communications & Electronics, Inc., Ill., 10sc
Multitone Electronics, Ltd., Canada, 10s
Murdock Corp., Mass., 5c
Neptune Electronics Co., N.Y., 5c, 15c
Newcomb Audio Products Co., Calif., 10s, 15s
North Electric Co., Ohio, 5c, 10c
Pace Circuits Corp., N.Y., 10c
Parkway Specialties Co., Mich., 5s
Permoflux Products Co., Div. of Linlar, Inc., Calif., 5c, 10s, 15s
Philips Electronics Industries, Ltd., Canada, 5s, 15s
Polytronic Research, Inc., Md., 5c, 10c, 15sc
Port-O-Vox Corp., N.Y., 5c, 10c, 15sc
Precision Apparatus Co., Inc., Div. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 15sc, Tel: 212-TWining 4-4290
See ad in class 39
Precision Electronics, Inc., Ill., 15s
Private Tele-Communications, Inc., Ill., 5sc, 10 Telephone sc, 15sc
Protection Equipment Co., Inc., Minn., 5sc, 10sc, 15sc
Radio Communication Co., Wis., 10c
Radio Corp. of America, Defense Electronic Products, N.J., 5s, 10s, 15s
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 5c, 10c, 15c
Rainier Co., Inc., N.Y., 5c, 10c, 15c
Rauland-Borg Corp., Ill., 5s, 10s, 15s
Rek-O-Kut Co., Inc., N.Y., 15s
Remler Co., Calif., 5c
Republic Electronic Industries Corp., N.Y., 5c
Rheem Mfg. Co., Rheem Califone Corp. (Subsid.), Calif., 15s
Rittenhouse Co., Inc., N.Y., 5c
Roanwell Corp., N.Y., 5c
Roberts Mfg. Co., Texas, 5sc, 10c, 15c
Round Hill Associates, Inc., N.Y., 10c
Royal Communication Systems, Inc., Ohio, 5sc, 10sc, 15sc
Seg Electronics Co., Inc., 12 Hinsdale St., Brooklyn 7, N.Y., 5c, 10c, 15c, Tel: 212-DI 5-6262
See ad in class 59
Seiscor, Div. of Seismograph Service Corp., Okla., 5sc, 10sc
Sheltered Workshops, Inc., Calif., 5c, 10c, 15c
Shrader Sound, Inc., D.C., 5sc, 10sc, 15sc
Siemens New York, Inc., N.Y., 5s, 10s, 15s
Simpson Mfg. Co., Inc. (Mark), N.J., 5s, 10s, 15sc
Smith-Meeker Engineering Co., N.Y., 10c, 15c
Sonograf Electric Co., N.Y., 10c
Sony Corp., N.Y., 15c
Sorensen Industrial Electronic Co., N.J., 5c, 10c
Soundpac Electronics Corp., Mich., 5s, 10s, 15s
Special Instruments Lab., Tenn., 15c
Sperry Rand Corp., Wheeler Electronic Corp. (Subsid.), Conn., 5s
Standard Systems Corp., N.Y., 5sc, 10sc, 15sc
Standard Telephones & Cables, Ltd., England, 5sc, 10sc, 15sc
Sturrup, Inc., Conn., 5sc, 10c, 15sc
Taffet Electronics, Inc., N.Y., 5c, 15c
Talk-A-Phone Co., Ill., 5s, 10s
Talkmaster, Inc., Calif., 5sc
Tamar Electronics, Inc., Calif., 5c
Techtro-Matic Corp., Vt., 5c
Tele-Communications, Inc., Calif., 10s
Telectro Industries Corp., N.Y., 5c, 15c
Tensor Electric Development Co., Inc., N.Y., 15c
Thompson Ramo Wooldridge Inc., Bell Sound Div., Ohio, 5sc, 10c, 15sc
Tokyo Shibaura Electric Co., Ltd., Japan, 5s, 10s, 15s
Transelectric Mfg. Co., Pa., 5s, 10s
Transis-Tronics, Inc., Calif., 10s, 15s
Translite Electronics Corp., Ill., 5sc
Trutone Electronics, Inc., Calif., 10s, 15s
Ultraudio Products, Div. of Oberline, Inc., Calif., 10sc, 15sc
United States Instrument Corp., Va., 5sc, 10c, 15c
U.S. Recording Co., D.C., 10c
Univox Corp., N.Y., 5c
Viewlex, Inc., N.Y., 15c
Vinco Electronics Corp., Conn., 10sc, 15sc
Virginia Electronics Co., Inc., D.C., 5c
Warwick Mfg. Corp., Ill., 15c
Webster Electric Co., Wis., 5s, 10s, 15s
Westlab, Inc., N.Y., 5c, 10c, 15c
Westmore, Inc., N.J., 15c
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 5sc, 10sc, 15sc, Tel: 212-JUdson 2-3030
See ad on page 224
Wintronics, Calif., 5c, 15c
Worner Electronic Devices, Ill., 5 Photoelectric s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

FREQ STDS.

AND PRECISION FORK UNITS 1 TO 40,000 CYCLES

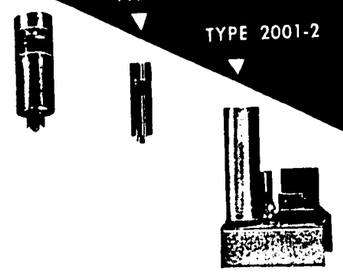


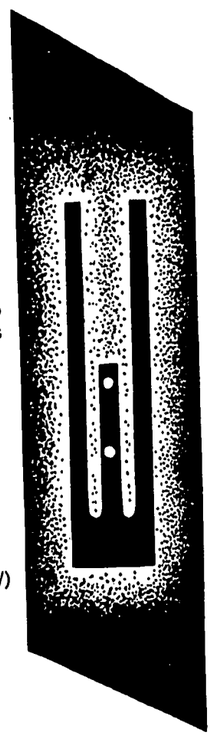
TYPE 10
$1\frac{3}{8}$" x $1\frac{3}{8}$" x $\frac{3}{8}$"

This frequency standard (360 or 400 cycles) is accurate to ± 50 parts per million at 10° to 35°C. Aging has been greatly minimized.

External power of 1.4 volts at 6 microamperes powers the unit.

TYPE 2007-6 ▼ TYPE 25 ▼ TYPE 2001-2 ▼





TYPE 2007-6 FREQUENCY STANDARD

Transistorized, Silicon type
Size, 1½" dia., x 3½" H., Wt., 7 oz.
Frequencies: 360 to 1000 cy.
Accuracies:
2007-6 ± 0.2% (−50° to +85°C)
R2007-6 ± .002% (+15° to +35°C)
W2007-6 ± .005% (−65° to +85°C)
Input: 10 to 30V DC at 6 ma.
Output: Multitap, 75 to 100,000 ohms

TYPE 2001-2 FREQUENCY STANDARD

Size, 3¾" x 4½" x 6" H., Wt., 26 oz.
Frequencies: 200 to 3000 cycles
Accuracy: ±.001% at +20° to +30°C
Output: 5V at 250,000 ohms
Input: Heater voltage, 6.3 - 12 - 28
B voltage, 100 to 300 V, at 5 to 10 ma.
Accessory Modular units are available to divide, multiply, amplify and power this unit.

TYPE K-5A FREQUENCY STANDARD

Size, 3½" x 3" x 1¾"
Weight, 1½ lbs.
Frequency: 400 cycles
Accuracy: .03%, −55° to +71°C
Input: 28V DC ±10%
Output: 400 cy. approx. sq. wave at 115V into 4000 ohm load (approx. 4W)

TYPE 25 PRECISION FORK

Size, ⅜" dia. x 2⅜"
Weight: 2 ounces
Frequencies: 200 to 1000 cy.
Accuracies:
R-25T and R-25V ± .002% (15° to 35°C)
25T and 25V ± .02% (−65° to 85°C)
For use with tubes or transistors.

INQUIRIES INVITED

For over 20 years we have made frequency standards and precision fork units for applications where consistent accuracy and rugged dependability are vital. Shown are just a few typical examples.

Some users integrate our products with instruments of their own manufacture. In other cases we develop complete assemblies to meet special needs.

You are invited to submit any problems within the area of our activity for study by our engineering staff.

ATP

AMERICAN TIME PRODUCTS
DIV. OF BULOVA WATCH COMPANY, INC.
61-20 Woodside Ave., Woodside 77, L. I., N. Y.
WESTERN OFFICE, 234 N. LAKE AVE., PASADENA, CALIF.

For details, circle #167 on Reader Service Card

Directory I. Complete Equipment

Sources:
See classes 14 & 22

Spectrometers:
See class 40

Spectrum analyzers:
See classes 35, 37 & 38

Splicing equipment:
See class 70

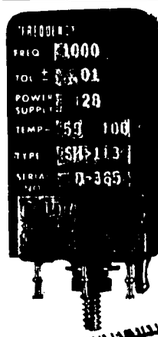
31. Standards.

5. Capacitance
10. Elapsed time measuring equipment
15. Frequency, primary
20. Frequency, secondary
25. Inductance
30. Resistance
35. Time, primary
40. Time, secondary
45. Tuning forks
50. Voltage, AC
55. Voltage, DC

A C Electronics, Inc., Calif., 25c
Abrams Instrument Corp., Mich., 10c, 20c, 40c
Accurate Instrument Co., 2414 W. Alabama St., P.O. Box 66373, Houston 6, Texas, 15sc, 20sc, Tel: 713-JAckson 6-4947
See ads in classes 31, 59
Adcole Corp., Mass., 20sc
Advanced Measurement Instruments, Inc., Mass., 15c, 20c
Aerospace Research, Inc., 94 Massachusetts Ave., Cambridge 39, Mass., 15sc, 20sc, 35c, 40c, Tel: 617-ELiot 4-7780
See ad in class 26
Airmec, Ltd., England, 15s, 20s, 35s, 40s
Allegany Instrument Co., Div. of Textron Electronics, Inc., Md., 10s
Altron Electronics Co., Pa., 50s
Ameresco, Inc., N.J., 10s
American Time Products, Div. of Bulova Watch Co., Inc., 61-20 Woodside Ave., Woodside 77, N.Y., 15sc, 20sc, 35sc, 40sc, 45sc, Tel: 212-OLympia 1-7800
See ad in this class
Arco Electronics, Inc., Community Dr., Great Neck, L.I., N.Y., 5sc, Tel: 516-HUnter 7-0500
See ads in classes 31, 48
Artronic Instrument Co., Md., 20c, 40c
Ateliers de Montages Electriques (AME), France, 15c, 20c
Balco Capacitors Div., Balco Research Laboratories, Dept. E, 40-53 Edison Place, Newark 2, N.J., 5c, Tel: 201-MItchell 3-5200
See ad in class 48
Ballantine Laboratories, Inc., Boonton, N.J., 50s, Tel: 201-DEerfield 4-1432
See ad in class 40
Bliley Electric Co., Union Station Bldg., Erie, Pa., 20sc, Tel: 814-GLendale 6-7561
See ad in class 56
Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 10sc
Boonton Electronics Corp., 738 Speedwell Ave., Morris Plains, N.J., 5s, Tel: 201-JEfferson 8-4210
See ad in class 6

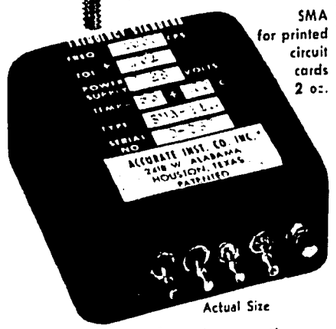
31. Standards.

Boonton Radio Corp., Subsid. of Hewlett-Packard Co., 50 Intervale Rd., Boonton, N.J., Q s, Tel: 201-DEerfield 4-3200
See ad in class 38
Borg Equipment Div., Amphenol-Borg Electronics Corp., 120 S. Main St., Janesville, Wis., 10sc, 15sc, 35sc, Tel: 608-PLeasant 4-6616
See ad in class 74
Bulova Research & Development Laboratories, N.Y., 10c, 45c, 50c, 55c
Bulova Watch Co., Inc., Dept. A-1376, 61-10 Woodside Ave., Woodside 77, N.Y., 15c, 20c, 45c, Tel: 212-NEwtown 9-5700
See ad in class 56
Calibration Standards Corp., Subsid. of Royal Industries, Inc., Calif., 55s
Cardwell Condenser Corp., N.Y., 5sc
Clauser Technology Corp., Calif., 15c
Collins Corp. (G. L.), Calif., 50s, 55s
Conn, Ltd. (C. G.), Ind., 15s
Consolidated Controls Corp., Conn., 50c, 55c
Cooke Engineering Co., Va., 15c, 20c
Daven Co., Subsid. of General Mills, Inc., N.J., 30c
Daystrom, Inc., Weston Instruments Div., N.J., 10s
Daystrom-Wiancko Engineering Co., Calif., 20sc
Dayton Electronic Products Co., Ohio, 45c
Delta-F, Inc., 113 E. State St., Geneva, Ill., 10c, 20sc, 40sc, 45sc, 50c, Tel: 312-CEnter 2-7600
See ad in this class
Deltime, Inc., N.Y., 35c, 40c
DeMornay-Bonardi Corp., 780 S. Arroyo Parkway, Pasadena, Calif., 20s, Tel: 213-SYcamore 2-4142
See ad on pages 68-69
Developmental Electronics Corp., Calif., 20c, 40c
Di-Tran Corp., Calif., 50c, 55c
Djeco, Div. of Djordjevic Engineering Co., Ill., 55c
Dmeter Mfg. Co., Inc., N.Y., 30c
Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 20sc, Tel: 914-MOunt Vernon 8-6900
See ad in class 66
Duncan Electric Co., Inc., Davenport Mfg. Div., Ill., 50sc, 55sc
Dynage, Inc., Conn., 55sc
Electro Scientific Industries, Inc., Ore., 5s, 30s
Electromagnetic Technology Corp., Calif., 20c



Subminiature
Tuning Fork Oscillators
SM When challenged by a space problem

Frequency Range
360 cps to 4 kc
Tolerances %: ±:
0.2, 0.5, 0.02, 0.01, 0.005, 0.001
Temperature Ranges:
+15 to +35°C
−20 to +71°C
−55 to +100C
Power Supply Voltage:
12 or 28 vdc ± 15%



SMA for printed circuit cards 2 oz.

Actual Size

Complete catalog sent on request

Accurate Instrument Company
P.O. Box 66373
Houston 6, Texas
JA 6-4947

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ARCO PRECISION CAPACITOR STANDARDS
±0.1% TOLERANCE

MINIATURIZED
LIGHT WEIGHT
LOW IN COST!

AVAILABLE SINGLY OR IN COMPLETE SETS — VALUES .0001 TO 1.0 MFD. CAN BE USED IN COMBINATION WITH SPECIAL FOUR POSITION PLUG-IN ADAPTER TO OBTAIN PRECISE CAPACITANCE VALUES TO FOUR SIGNIFICANT FIGURES.

ARCO Electronics Inc.
COMMUNITY DRIVE, GREAT NECK, N.Y.
HUnter 7-0500
PFC Division

For details, circle #169 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

31. Standards.

Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 10c, 15c, 20c, Tel: 617-LYnn 8-2100
See ad in class 69

Electronic Development Laboratory, Inc., Ill., 5c, 30c

Electronic Engineering Co. of California, Calif., 40s

Engelhard Industries, Inc., Instruments & Systems Section, N.J., 50s, 55s

Epic, Inc., N.Y., 50s, 55s

Eppley Laboratory, Inc., 15 Sheffield Ave., Newport, R.I., 55s, Tel: 401-VIking 7-1020
See ad in class 17

Epsco, Inc., Mass., 10c, 50sc, 55sc

Erie Resistor Corp., Erie Pacific Div., Calif., 10s, 20s, 40s

Exact Electronics, Inc., Ore., 55s

FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 20s, Tel: 212-RAvenswood 1-9000
See ad in class 37

Ferris Instrument Co., N.J., 20c

Fluke Mfg. Co., Inc. (John), Wash., 55s

Frequency Standards, Div. of Harvard Industries, Inc., N.J., 20sc

Friend Engineering (Albert W.), Pa., 40c

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 10sc, 15sc, 20sc, 35sc, 40sc, 45sc, Tel: 216-SHadyside 9-0700
See ad in class 50

OSCILLATORS
from 60 cps. to 200 mc.
- Tuning Fork Oscillators
- Crystal Oscillators

OVENS
plug-in & printed circuit type
- Crystal Ovens
- Component Ovens
- Proportional Control

INSTRUMENTS
60 cps. to 6500 cps.
- AC Voltage Standard

For complete information write:
DELTA-f INC.,
113 East State St.
Geneva, Illinois
CEnter 2-7600
TWX—GVA ILL 3397U

For details, circle #170 on Reader Service Card

General Radio Co., 22 Baker Ave., West Concord, Mass., 5s, 15s, 20s, 25s, 30s, 35s, Tel: 617-EMerson 9-4400
See ad on Cover 4

Genisco, Inc., Calif., 15s, 20s, 45s

Geotechnical Corp., Texas, 15sc, 20sc, 35sc, 40sc

Geotronic Laboratories, Inc., Texas, 45sc

Gertsch Products, Inc., Calif., 20s

Gibbs Mfg. & Research Corp., Wis., 15c, 20sc, 40sc

Gilmore Industries, Inc., Ohio, 50c, 55c

Gray Instrument Co., Pa., 30sc

Greenray Industries, Pa., 10c, 15c, 20sc, 35c, 40sc, 45c

Greibach Instruments Corp., 329 North Ave., New Rochelle, N.Y., 50c, 55sc, Tel: 914-NEw Rochelle 3-7900
See ad in class 61

Guildline Instruments, Ltd., Canada, 25s, 30s, 45s, 55s, Standard-Cells s

Gyrex Corp., Calif., 20sc, 40sc, 45sc

Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 45sc

Haydon Co. (A. W.), Conn., 10c, 40c

Hermes Electronics Co., Mass., 15s, 35sc

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 15s, 20s, 35s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28

Hewlett-Packard Co., Dymec Div., Calif., 15c, 20c

Hill Electronics, Inc., 300 N. Chestnut St., Mechanicsburg, Pa., 15c, 20c, Tel: 717-POplar 6-7611
See ad in class 59

Holt Instrument Laboratories, Wis., 50sc

Iconix, Inc., Calif., 10sc

Industrial Instruments, Inc., N.J., 5s, 30s

Industrial Test Equipment Co., 55 E. 11th St., New York 3, N.Y., 15s, 20s, 50s, Tel: 212-GRamercy 3-4684
See ad in class 69

Industrial Timer Corp., N.J., 10sc

Instrument Corp. of Florida, Fla., 10c, 15c, 20c, 35c, 40c

International Electronic Research Corp., ELIN Div., Calif., 50s

International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 15c, 35c

Itek Laboratories, Div. of Itek Corp., Mass., 15sc

Jacobs Instrument Co., Md., 10c, 40c

Jordan Electronics, Div. of Victoreen Instrument Co., Calif., 35s

Julie Research Laboratories, Inc., N.Y., 30s, 50s, 55s

Kennedy Co., Calif., 20c

Kin Tel, Div. of Cohu Electronics, Inc., Calif., 50s, 55s

Knights Co. (James), 101 E. Church St., Sandwich, Ill., 15sc, Tel: 2141
See ad in class 56

Knopp, Inc., Calif., 25c, 50c, 55c

Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c

LaPointe Industries, Inc., Conn., 5c

Lavoie Laboratories, Inc., Matawan-Freehold Rd., Morganville, N.J., 15s, Tel: 201-LOwell 6-2600
See ad in class 37

Leeds & Northrup Co., Pa., 5s, 25s, 30s

Lewis Co., Inc. (E. B.), Conn., 20c

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 5c, 10c, 15c, 20c

Lockheed Electronics Co., N.J., 10s, 35c, 40c, 50c, 55c

Magnetico, Inc., N.Y., 25sc

Manson Laboratories, Inc., Conn., 15sc, 20sc, 50c, 55c

Marconi's Wireless Telegraph Co., Ltd., N.Y., 15s

Marstan Electronics Corp., N.Y., 30s

Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 15c, 35c

Measurements, McGraw-Edison Div., N.J., 20sc

Medistor Instrument Co., Wash., 50sc, 55sc

Melpar, Inc., Special Products Div., Va., 45sc

Micro-Now Instrument Co., Ill., 20s

Micro-Tel Corp., Md., 30s

Mid-Eastern Electronics, Inc., N.J., 30sc, 50sc, 55sc

Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 30s, Tel: 305-OXford 1-1220
See ad in class 28

Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 30s

Minneapolis-Honeywell Regulator Co., Rubicon Div., Pa., 30sc

Mittelmann Engineering (Eugene), Ill., 5c

Monitor Products Co., Inc., Calif., 15c, 20c, 35c, 40c

Motorola Communications & Electronics, Inc., Ill., 15s, 20s

Muirhead & Co., Ltd., England, 5s, 30s, 45s, 55s

Muirhead Instruments, Inc., N.Y., 5s, 15s, 20s, 30s, 45s, 55s, Standard-Cells s

Murata Mfg. Co., Ltd., Nagaoka-cho, Otokuni-gun, Kyoto, Japan, 45s, Tel: Kotari 236
See ad on page 214

NJE Corp., 20 Boright Ave., Kenilworth, N.J., 50c, 55c, Tel: 201-BRidge 2-6000
See ad in class 69

National Co., Inc., Mass., 15s, 20s, 35c, 40c

Norrman Laboratories (Ernst), Williams Bay, Wis., 15sc, 35sc, 40sc, Tel: 414-CIrcle 5-5516
See ad in this class

North Hills Electronics, Inc., Alexander Place, Glen Cove, L.I., N.Y., 55s, Tel: 516-ORiole 1-5700
See ads in classes 69, 84

Northeastern Engineering, Inc., N.H., 20sc, 40c

Northern Engineering Laboratories, Inc., 845 Beloit St., Burlington, Wis., 20c, Tel: 414-ROckwell 3-3591
See ad in class 56

PRD Electronics, Inc., 202 Tillary St., Brooklyn 1, N.Y., 15c, 20s, Tel: 212-ULster 2-6800
See ad in class 37

Pacific Electro Magnetics Co., Inc., Calif., 20c

Parametrics, Calif., 50sc

Parks Laboratory (Henry Francis), Wash., 15s

Parsons Co. (Ralph M.), Electronics Div., Calif., 10c

Directory I. Complete Equipment

31. Standards.

Pennwood Numechron Co., 7249 Frankstown Ave., Pittsburgh 8, Pa., 10sc, Tel: 412-FRemont 1-4200
See ad in class 11

Performance Measurements Co., Mich., 55s

Philamon Laboratories, Inc., N.Y., 20sc, 45sc

Physics Research Laboratories, Inc., Dept. SA-1, P.O. Box 555, Hempstead, L.I., N.Y., 5c, 30sc, 55s, Tel: 516-IVanhoe 3-8299
See ad in class 40

Pickard & Burns, Inc., Subsid. of Gorham Corp., 103 Fourth Ave., Waltham R & D Park, Waltham 54, Mass., 15s, 20s, 35s, 40s, Tel: 617-HIllcrest 4-3345
See ads on page 190 & in classes 31, 44

Polytronics Co., Canada, 30c

Power-Tronic Systems, Inc., N.Y., 50sc, 55sc

R F Communications Associates, Inc., N.Y., 15s, 20s

R-K Laboratories Co., N.Y., 20s, 40c, 50c, 55s

Racal Engineering, Ltd., England, 15c

Radio Frequency Laboratories, Inc., N.J., 50s, 55s

Reeves-Hoffman, Div. of Dynamics Corp. of America, 145 Cherry St., Carlisle, Pa., 20c, Tel: 717-CHapel 3-5929
See ad in class 56

Remanco, Inc., Calif., 20c, 50sc, 55sc

Riverbank Laboratories, Dept. of Engineering, Ill., 20sc, 40c, 45sc

Rixon Electronics, Inc., Md., 50c, 55c

Rochar Electronique, France, 10s, 20s

Rodale Electronics, Inc., N.Y., 5c, 25c, 30c, 50c, 55c

Rohde & Schwarz, P.O. Box 275, 111 Lexington Ave., Passaic, N.J., 5s, 15s, 20s, 35s, 40s, Tel: 201-PRescott 3-8010
See ad in class 38

Rotek Instrument Corp., Mass., 50sc, 55sc

Savoy Electronics, Inc., Fla., 20sc

Schaevitz Engineering, N.J., 45c

Security Devices Laboratory, 24 Seneca Ave., Rochester 21, N.Y., 15sc, 45sc, Tel: 716-HOpkins 7-3200
See ads in classes 46, 73

Sensitive Research Instrument Corp., 310-316 Main St., New Rochelle, N.Y., 15s, 20s, 25s, 30s, 45s, 50s, 55s, Tel: 914-EVerly 5-2300
See ad in this class

Shallcross Mfg. Co., N.C., 30sc

Simmonds Precision Products, N.Y., 5c

Simpson Electric Co., 5218 W. Kinzie St., Chicago 44, Ill., 50sc, 55sc, Tel: 312-EStebrook 9-1121
See ad in class 61

Smith-Florence, Inc., Wash., 55s

Snelgrove Co., Ltd. (C. R.), Canada, 20c

Specific Electronics, Inc., Calif., 15c, 35c

Specific Products, P.O. Box 425, 21051 Costanso St., Woodland Hills, Calif., 15s, 20s, 35s, 40s, Tel: 213-DIamond 0-3131
See ad in class 26

Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 55c

Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 20c

Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 50s, 55s

Sprague Electric Co., Mass., 5sc

Standard Electronics Research Corp., N.J., 15s, 20s

Standard Instrument Corp., N.Y., 10sc

Stevens-Arnold, Inc., 7 Elkins St., South Boston 27, Mass., 5sc, 45sc, Tel: 617-ANdrew 8-1170
See ad in class 53

Stewart-Warner Corp., John W. Hobbs Corp. (Div.), Ill., 10sc

PICKARD & BURNS, Inc.
Subsidiary of Gorham Corp.

Time:
- Complete time systems vlf
- VLF Time Signal Receivers
- VLF Clock Setting Units
- Loran-C Time Signal Receivers
- Loran-C Clock Setting Units

Frequency:
- RALOC Radio Locked Frequency Standards
- RALOC Precision Frequency Comparators
- VLF Phase Comparator Systems

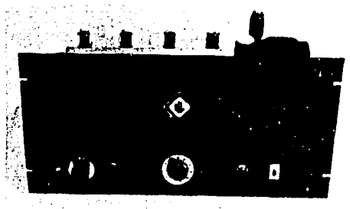
New militarized, transistorized, modular units for a wide variety of frequency control applications.

PB

PICKARD & BURNS, Inc.
103 Fourth Avenue
Waltham 54, Massachusetts

For details, circle #171 on Reader Service Card

FREQUENCY STANDARDS — 50 DIFFERENT MODELS
ANY FREQUENCY • ANY POWER OUTPUT • ANY SIZE
Frequency Stability up to 5 parts in 10^{10}. Most models are kept in stock.



The picture shows the front panel of Model 67.

Specifications: Stability 1 part in 10^7. Input voltage 95 to 135 volts. 60 cps (Sola Power Transf.). Output voltage 50 volts across 10,000 ohms.

Model 71 is similar but has a 10-watt, 115 volts power output.

Specifications: Stability 1 part in 10^8. Input voltages 95 to 135 volts, 60 cps (Sola Power Transf.). Output 115 volts, 10 watts.

Model 304 Transistorized Frequency-Time Standard is provided with a time-of-day clock with hour hand, minute hand, and seconds hand. The required input is 24 volts d-c, 2 amps Output 115 volts, 25 watts

50 other models of FREQUENCY STANDARDS

1. SUBASSEMBLIES
Models 52, 54, 56, 124, 126 and many others not listed here.

2. GENERAL PURPOSE UNITS:
Models 61, 63, 65, 67, 128

3. MOTOR AMPLIFIERS:
Models 71, 101-6L8, 103, 104, 119, 140, 141, 200-IN, 201-IN.

4. FREQUENCY MEASUREMENT UNITS:
Models 105, 110, 111, 129, 138

5. TIME KEEPING UNITS:
Models 25L6B, 35L6B, 103, 104, 110, 111

6. FREQUENCY DIVIDERS:
107, 115, 117, 130

7. TRANSISTOR STANDARDS:
Models 73, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310

8. CRYSTAL CLOCKS FOR SIDERAL TIME

See also our ads in 1961 IRE Directory and Electronic Engineers Master, 1959 Edition

ERNST NORRMAN LABORATORIES
WILLIAMS BAY, WISCONSIN
TEL. Circle 5-5516

For details, circle #172 on Reader Service Card

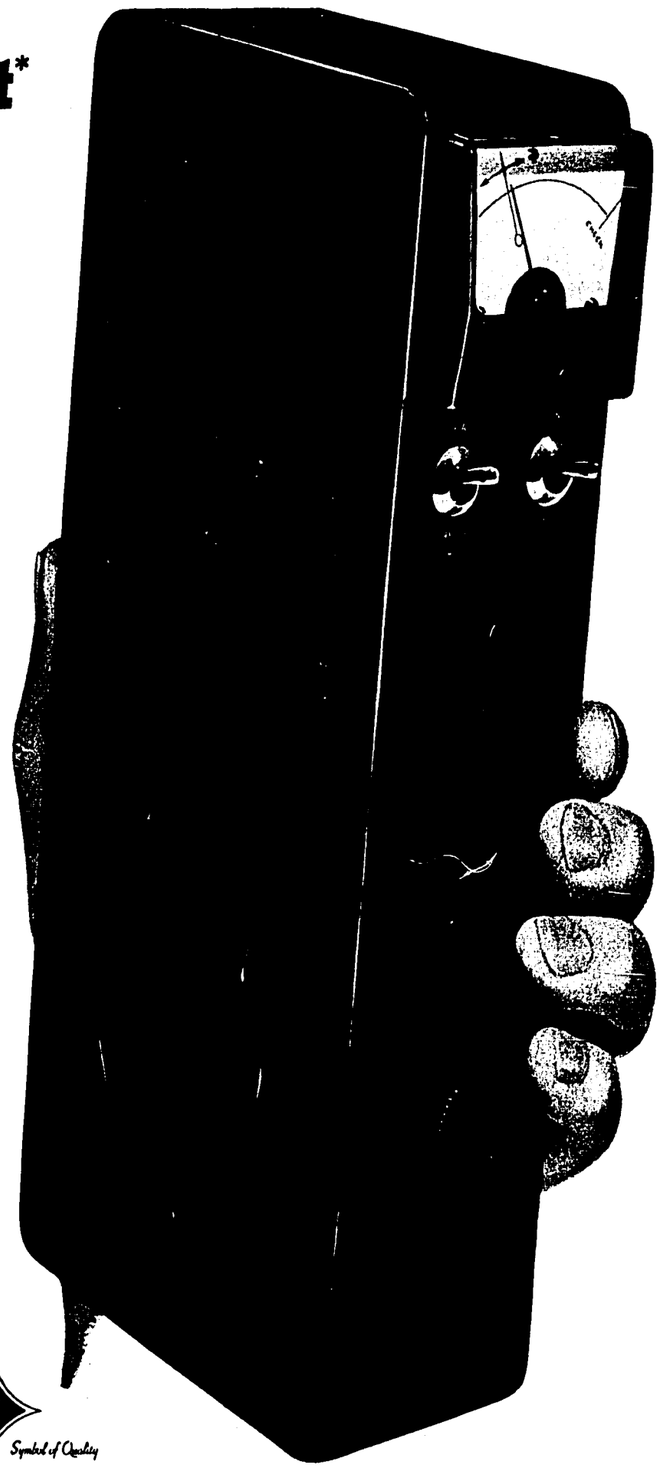
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

A new slant on making high accuracy DC measurements conveniently and economically!

The model PC

PocketPot*

(PHOTO ACTUAL SIZE)



SENSITIVE RESEARCH'S NEW MINIATURE DC POTENTIOMETER!

The Model PC "PocketPot," is a stable, completely self contained, high accuracy DC potentiometer, with internal galvanometer, reference standard source, and direct "in line" readout. It is ideally suited for use as an infinite impedance calibrator or measuring instrument. Additional voltage and current ranges can be obtained by using it in combination with the Model PC-S, a switch controlled, .05% accurate "plug in" unit of the same size. Both models, when used together, may be easily held and operated in the palm of the hand!*

PocketPot*

SPECIFICATIONS

ACCURACY: ± .05% of reading or ± .5 mv., whichever is greater.

RANGES: 0—5,100 v. When used with PC-S 0—500 v. and 0—1 amp.

SENSITIVITY: Infinite resistance at null. When used with PC-S, 2,000 Ω/v.

RESOLUTION: Continuous, 1 mv. divisions on slide wire.

BATTERY OPERATED: Does not require an external power source.

READOUT: Direct "in line."

SIZE: 9" x 4¼" x 1¾". **WT:** 3 lbs.

PRICE: Model PC, $325.00; Model PC-S $125.00. F.O.B., New Rochelle, N. Y.

PocketPot*

Write for additional information or contact your nearest SRIC sales representative.

*Copyright U.S.A. Patent Applied for.

SENSITIVE RESEARCH
INSTRUMENT CORPORATION
NEW ROCHELLE, N. Y.

Symbol of Quality

ELECTRICAL INSTRUMENTS OF PRECISION SINCE 1927

For details, circle #173 on Reader Service Card

Directory I. Complete Equipment

31. Standards.

Strand Laboratories, Inc., 294 Centre St., Newton 58, Mass., 20sc, Tel: 617-WOodward 9-8890
See ads in classes 37, 40

Sunshine Scientific Instrument, Pa., 5sc, 10sc, 20s, 25s, 30s, 40s, 45c, 50s, 55s
Systems Research Corp., Calif., 20c, 40c
TRG, Inc. (Technical Research Group), N.Y., 15c, 20c

Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 30c, Tel: 201-WIndsor 4-2221
See ad in class 80

Technology Instrument Corp., Mass., 5s, 15s, 20s, 25s, 30s
Telectro Industries Corp., N.Y., 5c
Ten Bosch, Inc. (M.), N.Y., 50c, 55c
Textran Corp., Texas, 40sc
Thompson Ramo Wooldridge Inc., STL Products Div. of Space Technology Laboratories, Calif., 15sc, 20sc, 35sc, 40sc
Time & Frequency, Ill., 20sc, 40sc, 45sc, 50sc

Torotron Corp., Dept. D, 256 E. Third St., Mount Vernon, N.Y., 25c, Tel: 914-MOunt Vernon 8-6900
See ad in class 51

Transistor Devices, Inc., N.J., 50sc, 55sc
Transistor Specialties, Inc., N.Y., 20s

Trio Laboratories, Inc., Du Pont Dr., Plainview, L.I., N.Y., 50c, 55c, Tel: 516-OVerbrook 1-0400
See ad in class 40

Ultronix, Inc., Calif., 30c

Valpey Crystal Corp., 1100 Highland St., Holliston, Mass., 20c, Tel: 617-GArden 9-4851
See ads on page 219 & in class 56

Vap-Air Div., Vapor Corp., Ill., 50c, 55c
Varian Associates, Instrument Div., Calif., 15s, 20s
Varo, Inc., Texas, 15sc, 20sc, 35c, 40c, 45sc
Viking Industries, Inc., Calif., 55s
Voltron Products, Inc., Calif., 55s
Walkirt Co., Calif., 10c
Waltham Electronics Corp., Mass., 50c
Waltham Precision Instrument Co., Mass., 10sc
Wayne Kerr Corp., Pa., 5s

Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., 15sc, 55sc, Tel: 301-LOckwood 4-0121
See ad in class 45

Westinghouse Electric Corp., Pa., 50sc, 55sc

Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 15sc, 35sc, 40s, 45s, Tel: 212-JUdson 2-3030
See ad on page 224

Winslow Co., Inc., N.J., 5s, 30s

Standby power supplies: See class 69

Stereo equipment: See classes 26, 42, 43 & 88

Stimulators: See class 5

Storage devices: See class 10

Storage mechanisms, telemetering data: See class 34

Storage tubes: See class 86

Strain gages: See class 40

Strain indicators: See class 61

Stroboscopes: See class 40

32. Studio Equipment.

5. Cameras, television
10. Camera control equipment
15. Camera lenses, television
20. Consoles & speech input equipment
25. Dollies
30. Film projectors, television
35. Lighting equipment, television
40. Tripods
45. Turntables

Airtronics, Inc., D.C., 10s
American Communications Corp., N.Y., 20 Closed-Circuit sc
American Elite, Inc. (Telefunken), N.Y., 20s
American Microwave & Television Corp., Calif., 5sc, 10sc
Anderton Electronic Laboratory, Utah, 20c
Argus Cameras, Inc., Subsid. of Sylvania Electric Products Inc., Mich., 5s, 15s, 25s, 40s, TV Sound-Modulators s
Audiofax Associates, Inc., N.Y., 20c
Auerbach Electronics Corp., Pa., 10c
Bach Auricon, Inc., Calif., 5s, 40s
Bausch & Lomb, Inc., Instrument Div., N.Y., 15sc
Benco Television Associates, Ltd., Canada, 5c
Bogen-Presto, Div. of Siegler Corp., N.J., 45s
Bolsey Corp. of America, N.Y., 5c, 10sc, 15c, 30c, 35c
British Industries Corp., N.Y., 45s

Bud Radio, Inc., 2118 E. 55th St., Cleveland 3, Ohio, 20sc, 25c, Tel: 216-HEnderson 1-7166
See ad in class 90

Buhl Optical Co., Pa., 15c
Burke & James, Inc., Ill., 15sc

Camera Equipment Co., Inc., Dept. RE-2, 315 W. 43rd St., New York 36, N.Y., 40sc, Tel: 212-JUdson 6-1420
See ad in this class

Central Dynamics, Ltd., Canada, 20sc

32. Studio Equipment.

Chicago Aerial Industries, Inc., Pacific Optical Corp. (Div.), Calif., 15sc
Chrono-Log Corp., Pa., 10s
Cole Instrument Co., Calif., 20c
Comfort Lines, Inc., Ill., 25sc
Components Corp., N.J., 45sc
Daven Co., Subsid. of General Mills, Inc., N.J., 20sc
Delta Broadcasting System, Ohio, 20c
Direct T/V Windings, Ltd., England, 5s
Dynair Electronics, Inc., Calif., 10 Closed-Circuit s
E.M.I.-Cossor Electronics, Ltd., Canada, 5s, 10s, 20c

Eastman Kodak Co., 343 State St., Rochester 4, N.Y., 15s, 30sc, Tel: 716-LOcust 2-6000
See ad in class 17

Ednalite Optical Co., Inc., N.Y., 15c, 30c
Electro Engineering Products Co., Inc., Ill., 45s
Electro-Mech Engineering Co., Minn., 5c, 10c, 20c, 35c
Electronic Controls, Inc., Conn., 10c, 45c

Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., 20c, Tel: 301-HAmilton 6-1268
See ad in class 73

Engelhard Industries, Inc., Amersil Quartz Div., N.J., 15c
Fairchild Recording Equipment Corp., N.Y., 45s
Fairfield Controls, Inc., Conn., 35c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 10sc, 30 Rear-Screen sc, 35sc
Flight Research, Inc., Va., 5sc, 10sc
Foto-Video Electronics, Inc., N.J., 5s, 10s
Gates Radio Co., Ill., 20sc, 45s
General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 5sc, 10sc, 15s, 20sc, 25s, 30s, 40s, 45s
General Precision Equipment Corp., Strong Electric Corp. (Subsid.), Ohio, 35s
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5sc, 10sc, 30sc, 35sc
General Precision, Inc., GPL Div., N.Y., 5s, 15s, 30 Closed-Circuit s
General Television Network, Mich., 30c
Gray Mfg. Co., Conn., 20s, 30sc, 45s
Hallamore Electronics Div., Siegler Corp., Calif., 5s, 10s
Hargbol Precision Optics Laboratory (W. H.), Mass., 15c
Harwood Electronics Co., Ill., 25c, 35c, 40c
Heath Co., Subsid. of Daystrom, Inc., Mich., 45s
Hitachi New York, Ltd., N.Y., 5c
Houston Fearless Corp., Westwood Div., Calif., 10c, 25c, 40c
ITA Electronics Corp., Pa., 20sc, 45sc
Ichizuka Optical Industrial Co., Ltd., Japan, 15sc
Ilex Optical Co., N.Y., 15sc

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

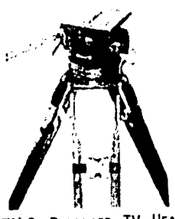
32. Studio Equipment.

Instrument Corp. of Florida, Fla., 5c, 10c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 5 Slow-scan c, 10c
Kahn Research Laboratories, Inc., N.Y., 20s
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 5 Closed-Circuit & Ruggedized c, 10c, 15s, 20c, 40 Mounts s
Langevin, Div. of Sonotec, Inc., Calif., 20s
Ling Temco Vought, Inc., Texas, 5s, 10s, 15s, 20sc, 30s
Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid.), Calif., 20c
Ling Temco Vought, Inc., Altec Service Co. (Div. of Altec Companies, Inc.), N.Y., 20c
Ling Temco Vought, Inc., Electron Corp. (Subsid.), Texas, 5s, 10s, 15s, 20s, 30s
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 40c
Magnasync Corp., Calif., 20sc
Marconi's Wireless Telegraph Co., Ltd., N.Y., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s
Mastertone Recording Studios, Inc., N.Y., 20c
Matsushita Communication Industrial Co., Ltd., Japan, 20c
Maurer, Inc. (J. A.), N.Y., 5sc, 10sc
Miratel Electronics, Inc., Minn., 10sc
Missile Systems Corp., California Div., Calif., 5c
Mole-Richardson Co., Calif., 35s
Motorola Communications & Electronics, Inc., Ill., 5s
Nash & Thompson, Ltd. (Messrs.), England, 5s, 10c
National Cine Equipment, Inc., N.Y., 10sc, 15sc, 25sc, 30c, 35c, 40sc
Natural Lighting Corp., Calif., 35sc
Nikon, Inc., Dept. IR-62, 111 Fifth Ave., New York 3, N.Y., 15s, 30s, Tel: 212-ORegon 4-7970
See ad in class 14
Nippon Electric Co., Ltd., Japan, 5c, 10c, 30c
Northern Electronics, Inc., Minn., 20c
Paillard, Inc., N.Y., 15s, 30s, 40s
Peer, Inc., Texas, 20c
Pelco Sales, Inc., Calif., 10s, 40s, Closed-Circuit Accessories s
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 5s, 10s, 15s
Photo-Research Corp., Calif., 5sc
Photo-Sonics, Inc., Calif., 10c
Photographic Analysis, Inc., Calif., 10c
Pickering & Co., Inc., N.Y., 45s
Planet Mfg. Corp., N.Y., 40c
Polacoat, Inc., Ohio, Rear-Projection Screens c
Polytronic Research, Inc., Md., 20c
RCA Victor Co., Ltd., Canada, 5s, 10s
R-K Laboratories Co. N.Y., 20c
RMS Associates, Inc., N.Y., 5 Storage c
Radio Corp. of America, Defense Electronic Products, N.J., 5s, 10s, 20s, 30s, 45s
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 20c, 25c
Ray, Daisley Co., Inc., N.Y., 20c, 25c, 40c
Rek-O-Kut Co., Inc., N.Y., 45s
Robinson Recording Laboratories, Pa., 45s
Shrader Sound, Inc., D.C., 20sc
Skiatron Electronics & Television Corp., N.Y., 5c, 10c
Skyline Products, Inc., 819 Grand Blvd., Deer Park, L.I., N.Y., 25c, Tel: 516-MOhawk 7-8644
See ad in class 90
Slidecraft, Inc., N.Y., 25c
Smith-Meeker Engineering Co., N.Y., 20c
Snyder Mfg. Co., Pa., 25sc
Sony Corp., N.Y., 5s, 10s, 20sc
Soundpac Electronics Corp., Mich., 20s
Special Instruments Laboratory, Inc., Tenn., 5s, 10c
Stancil-Hoffman Corp., Calif., 20sc
Standard Telephones & Cables, Ltd., England, 20c
Staples-Hoppmann, Inc., Va., 30 Rear-view sc
Superior Electric Co., 100 Ames Ave., Bristol, Conn., 35s, Tel: 203-LUdlow 2-9561
See ad on pages 2-11
Technical Products Co., Calif., 20c, 25c
Telechrome Mfg. Corp., N.Y., 10sc
Television Associates, Inc., Div. of Melpar, Inc., Ind., 35c, 40sc
Television Zoomar Co., N.Y., 15s

CECO offers you a variety of dependable equipment for

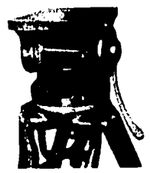
IMAGE ORTHICON VIDICON MICRO RELAY

IMAGE ORTHICON



TH-2 BALANCED TV HEAD MODEL C with adjustable center of gravity for Image Orth Cameras weighing up to 135 lbs. **$425.00**

MICRO RELAY



TH-3 MICRO RELAY TILT HEAD for mounting Parabola Beam Reflectors. **$285.00**

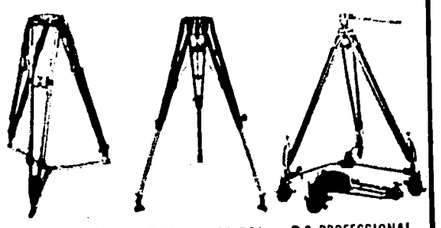
VIDICON

X-140 REMOTE CONTROL PAN & TILT HEAD with "Dialastop" for remotely panning and tilting Vidicon Cameras weighing up to 20 lbs. **$400.00**

X-141 CONTROL BOX for REMOTE HEAD **$40.00**

TR-6 PRO JR. SPRING BALANCED PAN & TILT HEAD for Vidicon Cameras weighing up to 35 lbs. (With Tripod) **$200.00**

TRIPODS



TR-19 PROFESSIONAL TYPE TRIPOD with wooden tripod legs for BALANCED TV Head and LARGE VIDICON HEAD. **$150.00**

TR-3 METAL TRIPOD for mounting MICRO RELAY TILT HEAD, LARGE VIDICON and BALANCED TV HEAD. **$200.00**

D-3 PROFESSIONAL SENIOR DOLLY for PRO JR., METAL and Professional Type Tripods. **$150.00**

TH-3-V LARGE VIDICON SPRING BALANCED PAN & TILT HEAD for Vidicon Cameras weighing up to 100 lbs. **$310.00**

**Dealer and quantity price inquiries invited.*

Write today for information on the equipment you need

CAMERA EQUIPMENT CO., INC.

Dept. RE-2 315 West 43rd St., New York 36, N.Y. JUdson 6-1420

For details, circle #174 on Reader Service Card

Directory I. Complete Equipment

32. Studio Equipment.

Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 30sc, Tel: 612-MIdway 6-7211
See ads in classes 79, 80
Thompson Ramo Wooldridge Inc., Dage Div., Ind., 5s, 10s, 20s
Thompson Ramo Wooldridge Inc., Educational Electronics Div., N.J., 5c, 10c, 20c, 25c, 40c
Thompson Ramo Wooldridge Inc., STL Products Div. of Space Technology Laboratories, Calif., 10sc, 25sc, 40sc
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s
Titchener & Co. (E. H.), N.Y., 25c
Tokyo Shibaura Electric Co., Ltd., Japan, 5s, 10s, 20s, 25s, 35s, 40s, 45s
Traid Corp., Calif., 15s
Trans-Lux Corp., N.Y., 30 Rear-Screen sc
Ultraudio Products, Div. of Oberline, Inc., Calif., 20sc
U.S. Recording Co., D.C., 20sc
Vap-Air Div., Vapor Corp., Ill., 20c
Vare Industries, Inc., N.J., 5c, 10c
Vector Associates, Inc., N.Y., 10c, 20c
Videonics, Inc., Mass., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s
Viewlex, Inc., N.Y., 30s, 45c
Western Devices, Inc., Calif., 25s
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 20sc, Re-Recorders sc, Tel: 212-JUdson 2-3030
See ad on page 224
Wollensak Optical Co., N.Y., 15sc, 40s

Superconductive devices:
See classes 10 & 50

Sweep generators:
See classes 38 & 39

Tachometers:
See class 40

Tape readers, computer:
See class 9

Tape recorders:
See classes 9 & 27

Tape storage devices:
See class 10

Teaching machines:
See class 13

Telegraph test equipment:
See class 35

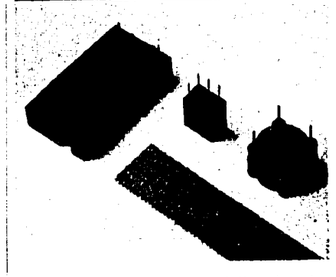
See the pink section preceding page 1 for complete instructions on how to get the most out of this Directory.

33. Telegraph & Teleprinter Equipment.

5. Converters, frequency shift
10. Keyers, frequency shift
15. Multiplex
20. Receivers
25. Transmitters

ACF Electronics Div., ACF Industries, Inc., Md., 15c
Aeronutronic, Div. of Ford Motor Co., Calif., 15c, 25c
Allied Research Associates, Inc., Mass., 15c
American Electronics Co., N.Y., 20s, 25s
Andrea Radio Corp., N.Y., 20c
Ateliers de Montages Electriques (AME), France, 5s, 10s, 20s, 25s
Automatic Telegraph Keyer Corp., N.Y., 25c
Automatic Telephone & Electric Co., Ltd., Strowger Works, England, 5s
Barker & Williamson, Inc., Pa., 5c, 10c, 25c
Beckman Instruments, Inc., Systems Div., Calif., 15c
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 5c
Boehme, Inc. (H. O.), N.Y., 5s, 10s
Burroughs Corp., Mich., 20s
Collins Radio Co., Iowa, 5c, 10c, 20c, 25c
Communications & Control Corp., Calif., 5s, 10s, 20s, 25s
Comptometer Corp., Ill., Handwritten Systems sc
ComputDyne Corp., Mass., 15s
Connecticut Telephone & Electric Corp. of Meriden, Conn., 5c, 10c, 15c, 20c, 25c
Continental Mfg., Inc., Nebr., 15c
Continental Technical Service, Inc., Ohio, 25sc
Contronics, Inc., Mass., 15c
Cooke Engineering Co., Va., 5c, 10c
Data Products Co., Inc., Md., 15s
Deltime, Inc., N.Y., 15c
Denson Electronics Corp., Conn., 5sc
Dittmore-Freimuth Corp., Wis., 10c
Electric Wave Filters, Inc., Puerto Rico, 5c, 15c
Electro Networks, Inc., & Caledonia Electronics & Transformer Corp., N.Y., 20c, 25c
Erco Radio Laboratories, Inc., N.Y., 5sc, 10sc
Ericsson Corporation, Subsid. of L. M. Ericsson Telephone Co. (Stockholm), 100 Park Ave., New York 17, N.Y., 15c, Switching Equipment c, Tel: 212-MUrray Hill 5-4030
See ad in class 86
Etelco, Ltd., England, 15sc
Forbes & Wagner, Inc., 350 Central Ave., Silver Creek, N.Y., Shift Registers, Tel: 716-YEllowstone 4-2691
See ads in classes 33, 51, 57, 84
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 5sc, Tel: 216-SHadyside 9-0700
See ad in class 50
Gates Radio Co., Ill., 25s
General Dynamics/Electronics, N.Y., 5c, 10c, 15c, 20c, 25c
General Electric Co., Communication Products Dept., Va., 15c
General Electric Co. Ltd. of England, Telecommunications Group, England, 15c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 15c, 20c, 25c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 15c, 20c, 25c
General Instrument Corp., Systematics Div., Calif., 20sc, 25sc
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5c, 10c, 15c, 20c, 25c
Gjadny Corp. (Richard), N.Y., 5c, 10c, 20sc
Goodyear Aircraft Corp., Ohio, 20sc, 25sc
Goodyear Aircraft Corp., Arizona Div., Ariz., 5c, 20c
Hammarlund Mfg. Co., Inc., N.Y., 10s, 20s
Hitachi New York, Ltd., N.Y., 25c
Hoffman Electronics Corp., Calif., 5c
Houston Fearless Corp., Westwood Div., Calif., 5c, 10c, 15c, 20c, 25c
ITA Electronics Corp., Pa., 25sc
Instrument Corp. of Florida, Fla., 15c, 20c

SHIFT REGISTERS



Forbes and Wagner specialize in the design and packaging of single and multiple bit magnetic memory type shift registers, gates and related devices. Several standard cases are available.

As a large scale producer of these units for computer manufacturers, Forbes and Wagner has developed skilled personnel in this field and is well equipped with specialized test facilities.

We will be glad to assist you with your problems in this area.

forbes and wagner, inc.

350 Central Avenue

Silver Creek, N.Y. • Phone YE 4-2691

For details, circle #175 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

solid
state
airborne
TELEMETRY
system

Applied Electronics Corporation of N J are producers of the most reliable solid state telemetry systems available today

Supplied for use on Titan, Minute Man, Sub Roc and other major missile programs with an outstanding record of operational performance. In addition to the company's standard line of PAM, PDM and PCM systems, a new family of satellite telemeters is being produced and supplied for

QUALIFIED.....

use on several satellite projects. These equipments are characterized by low power dissipation, small size and high accuracy. Technical Specifications are available to produce the most efficient and reliable completely solid state telemetry systems. Several of these are already in production

Applied Electronics Corporation
OF NEW JERSEY

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Liberty 9 9200

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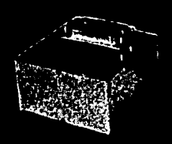
33. Telegraph & Teleprinter Equipment.

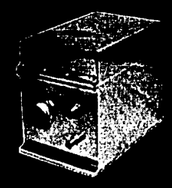
International Electronics Mfg. Co., Md., 5c, 10c
International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 20s, 25s
International Telephone & Telegraph Corp., ITT Kellogg, Ill., 15s, 20s, 25s
Johnson Co. (E. F.), Minn., 25s
Kahn Research Laboratories, Inc., N.Y., 20c, 25c
Lenkurt Electric Co., Inc., Calif., 15s, 20s, 25s
Lignes Telegraphiques et Telephoniques, France, 5s, 10s, 15s
Lionel Corp., N.J., 5c, 10c, 15c, 20c, 25c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 15c, 20c, 25c
Lockheed Electronics Co., N.J., 5c, 10c
Lynch Communication Systems, Inc., Calif., 15c, 20c, 25c
Mackay Radio & Telegraph Co., N.J., 20sc, 25sc
Madigan Electronic Corp., N.Y., 5c, 10c, 15c, 20c, 25c
Marconi's Wireless Telegraph Co., Ltd., N.Y., 5s, 10s, 15s, 20s, 25s
Marine View Electronics, Inc., N.Y., 5c, 10c
Melpar, Inc., Va., 5c, 10c, 15c
Metropolitan Telecommunications Corp., N.Y., 10c, 15c, 20c, 25c
Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 5sc, 15sc, 20sc, 25sc, Tel: 305-OXford 1-1220
See ad in class 28
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 5c, 10c, 20c
Mite Corp., Engineering Laboratories, N.J., 20sc, 25sc
Molectronics, Div. of Motec Industries, Calif., 20c, 25c
Moore Associates, Inc., Calif., 15s
Motorola, Inc., Military Electronics Div., Ariz., 5c
Muirhead & Co., Ltd., England, 5s
National Radio Co., Inc., Mass., 20s
Northern Radio Co., Inc., 147 W. 22nd St., New York 11, N.Y., 5s, 10s, 15s, 20s, Tel: 212-WAtkins 9-9117
See ad on pages 58-61
Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 20c, 25c, Tel: 914-DEerfield 7-6132
See ad in class 43
Ortronix, Inc., Fla., 5c, 10c, 15c
Otis Elevator Co., Defense & Industrial Div., N.Y., 20c, 25c
Pacific Communications, N.J., 5s, 10s, 20s, 25s
Packard-Bell Computer Corp., Calif., 15s
Parametrics, Calif., 5sc
Philco Corp., Government & Industrial Group, Pa., 20c, 25c
Philips Electronics Industries, Ltd., Canada, 15s, 20s, 25s
Racal Engineering, Ltd., England, 20c, 25c
Radiation, Inc., Fla., 25s
Radio Communication Co., Wis., 5c, 10c
Radio Corp. of America, Defense Electronic Products, N.J., 15c, 20c, 25c
Radio Engineering Products, Ltd., Canada, 5sc, 10sc, 15sc

45 x 20 PDM MULTICODER
MODEL MDH – 3 SERIES



PDM ...

HIGH SPEED SOLID STATE
PCM MULTICODER MCH SERIES



PCM ...

PDM, PCM, PAM

30 CHANNEL LOW LEVEL PAM
MULTICODER MAL-3 SERIES

PAM ...

30 CHANNEL TWO POLE
SOLID STATE PAM MULTICODER
MODEL MAH-3-2 SERIES

Engineering Specifications are available on all available AEC Designed Equipment. our Engineering and Research and Design Departments are always available to discuss your specific telemetry problems

OFFICES
WASHINGTON EX 3 0451
SANTA MONICA CALIF
GL 1-2214

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Directory I. Complete Equipment

33. Telegraph & Teleprinter Equipment.

Radio Frequency Laboratories, Inc., N.J., 5s, 15s
Redifon, Ltd., England, 5s, 10s, 15s
Reeves Instrument Corp., Farmingdale Div., N.J., 5sc, 10sc
Rixon Electronics, Inc., Md., 5c, 10c, 15sc, 20sc, 25sc
Sangamo Electric Co., Springfield, Ill., 15c, 20c, 25c, Tel: 217-KIngswood 4-6411
See ad on page 142
Saturn Electronics Corp., Texas, 5c
Schaevitz Engineering, N.J., 5c, 10c, 15c, 20c, 25c
Sheltered Workshops, Inc., Calif., 15c, 20c, 25c
Siemens New York, Inc., N.Y., 5s, 10s, 15s, 20s, 25s
Specialty Electronics Development Corp., N.Y., 5c, 10c, 15c, 20c, 25c
Standard Telephones & Cables, Ltd., England, 5c, 10c, 15c, 20c, 25c
Stelma, Inc., Conn., 5c, 10c, 15c, 20c, 25c
TMC (Canada), Ltd., Canada, 5s, 10s
Technical Materiel Corp., 700 Fenimore Rd., Mamaroneck, N.Y., 5s, 10s, 20s, 25s, Tel: 914-OWens 8-4800
See ads in class 38
TELautograph Corp., Calif., 20s, 25s
Tele-Communications, Inc., Calif., 5s, 10s, 20s, 25s
Telechrome Mfg. Corp., N.Y., 5s, 10s, 15s
Teletype Corp., Ill., 5s, 10s, 15s, 20s, 25s
Telkor, Inc., Ohio, 5sc, 20c, 25c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s, 20s
Topping Electronics, Ltd., Canada, 5sc, 10sc, 20sc
Trepac Corp. of America, N.J., 20s, 25s, Repeaters & Relays s
Vector Associates, Inc., N.Y., 5c, 10c, 15c, 20c, 25c
Virginia Electronics Co., Inc., D.C., 10c
Warren Mfg. Co., Inc., Mass., 5c, 10c, 15c, 20c, 25c
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, Tel: 212-JUdson 2-3030
See ad on page 224
Wilcox Electric Co., Inc., Mo., 20s, 25s

Telemetry, biological:
See class 5

For further information on advertised products, use the Reader Service Card at the back of this book.

34. Telemetering Equipment.

5. Calibrators
10. Commutators
15. Data recorders
20. Data storage mechanisms
25. Decommutators
30. Multicoders
35. Oscillators
40. Receivers
45. Signal generators
50. Translators
55. Transmitters

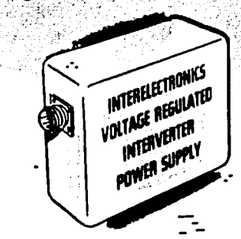
A R & T Electronics, Inc., Subsid. of Baldwin Piano Co., 1101 McAlmont St., P.O. Box 627, Little Rock, Ark., 55c, Tel: 501-FRanklin 5-6441
See ads in classes 9, 10, 11, 83
Abacus, Inc., Calif., 10sc, 25sc
Adage, Inc., Mass., 15sc
Adcole Corp., Mass., 10c
Advanced Development Laboratories, Inc., N.H., 10c, 25c, 30c, 40c, 45c, 50c, 55c
Advanced Electronics Corp., N.Y., 35sc, 55sc
Advanced Measurement Instruments, Inc., Mass., 5sc, 45sc
Advanced Research Associates, Md., 10c, 15c, 20c, 25c, 30c
Aero Geo Astro Corp., Va., 5c
Aero Mechanism, Inc., Calif., 55c
Aeronca Mfg. Corp., Aerospace Div., Md., 40c
Aeronutronic, Div. of Ford Motor Co., Calif., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc
Aircraft Armaments, Inc., Md., 40c
Airflyte Electronics Co., 537 Ave. A, Bayonne, N.J., 10sc, Tel: 201-HEmlock 6-2230
See ad in class 80
Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 5 Discriminators sc, Tel: 301-ACademy 8-4600
See ad in class 53
Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 5sc, 15sc, Tel: 305-LUdlow 3-6160
See ad in class 53
Airtronics, Inc., D.C., 55sc
Airtronics International Corp., Fla., 35sc
Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 15s, Tel: 617-FOrest 6-4467
See ad on page 82
Allen Organ Co., Inc., Pa., 35sc
Alto Scientific Co., Inc., Calif., 35c, 40c, 45c
Alwac Computer Div., El-Tronics, Inc., Calif., 15c, 20c
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 5c, 10c, 25c, 35c, 40c, 55c
American Bosch Arma Corp., N.Y., 10sc, 25sc, 30sc, 35sc, 40sc, 50c, 55sc
American Bosch Arma Corp., Tele-Dynamics Div., Pa., 5c, 10sc, 15c, 25sc, 30c, 35sc, 40sc, 50c, 55sc
American Missile Products Co., Inc., Calif., 10c, 35c, 45c
Ampex Computer Products Co., Calif., 15sc, 20sc
Ampex Instrumentation Products Co., Calif., 15sc
Amtron Corp., 17 Felton St., Waltham 54, Mass., 40c, 55c, Tel: 617-TWinbrook 4-5020
See ad in class 66
Andrea Radio Corp., N.Y., 40c
Applied Electronics Corp. of New Jersey, P.O. Box 43, Metuchen, N.J., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 45sc, 50sc, 55sc, Tel: 201-LIberty 9-9200
See ad in this class, page 316
Applied Research, Inc., 76 S. Bayles Ave., Port Washington, L.I., N.Y., 40c, Tel: 516-POrt Washington 7-8707
See ad in class 43
Applied Technology, Inc., Calif., 40sc, 55sc
Armstrong Whitworth/Brush, Falcon Works, England, 10sc, 30sc, 40sc, 55sc
Ascop, Div. of Electro-Mechanical Research, Inc., N.J., 10sc, 25sc, 30sc, 50sc, 55sc
Associated Electrical Industries (Rugby), Ltd., England, 10c, 30c, 35c, 40c, 45c, 55c
Astronautics Corp. of America, Wis., 20c
Auerbach Electronics Corp., Pa., 20c, 50c
Automatic Control Co., Minn., 40sc, 55sc
Automation Dynamics Corp., N.J., 10s, 40c, 55c
Automation Management, Inc., Mass., 15c, 20sc
Avien, Inc., N.Y., 10c, 15c, 20c, 25c, 30c, 45c, 55c
Avionics Research Products Corp., Calif., 15sc, 20sc, 35sc, 40sc, 55sc
B & F Instruments, Inc., Pa., 5sc, 15sc
Bailey Meter Co., Ohio, 15s, 40s, 55s
Baldwin Piano Co., Ohio, 55sc
Ball Brothers Research Corp., Colo., 10c
Ballantine Laboratories, Inc., Boonton, N.J., 5s, Tel: 201-DEerfield 4-1432
See ad in class 40
Barth Engineering & Mfg. Co., Inc., Conn., 15c, 20c, 40c, 55c
Beckman Instruments, Inc., Systems Div., Calif., 15c, 20c, 50c
Bell Aerosystems Co., Avionics Div., N.Y., 30c
Bell Helicopter Co., Electronics Dept., Texas, 10c, 25c
Bendix Corp., Bendix-Pacific Div., Calif., 5sc, 10sc, 15sc, 35sc, 50sc, 55sc
Bendix Corp., Bendix Systems Div., Mich., 25c
Block Associates, Inc., Mass., 10c
Boonton Radio Corp., Subsid. of Hewlett-Packard Co., 50 Intervale Rd., Boonton, N.J., 45s, Tel: 201-DEerfield 4-3200
See ad in class 38
Briggs Associates, Inc., Pa., 15c, 50c
Bristol Co., Conn., 15c
Budd Electronics, Inc., N.Y., 40c, 55c
Bulova Research & Development Laboratories, N.Y., 15c, 20c
Bulova Watch Co., Inc., Electronics Div., Dept. A-1376, 61-10 Woodside Ave., Woodside 77, N.Y., 35c, 45c, Tel: 212-NEwtown 9-5700
See ad in class 56

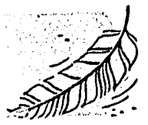
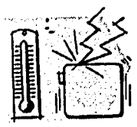
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

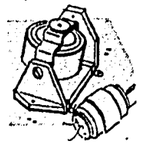
34. Telemetering Equipment.

Bundy Electronics Corp., N.J., 35c, 40c, 55c
California Computer Products, Inc., Calif., 10c, 25c, 30c
Cameraflex Corp., N.Y., 40sc, 55sc
Canadian Westinghouse Co., Ltd., Canada, 40c, 55c
Canoga Electronics Corp., Calif., 40c, 55c
Central Dynamics, Ltd., Canada, 15sc, 35c, 40c
Chrysler Corp., Defense Group, Mich., 40c, 55c
Clegg Laboratories, Div. of Clegg, Inc., N.J., 35sc
Co Engineering Co., N.J., 10c, 15c, 20c
Cole Instrument Co., Calif., 35c
Colorado Research Corp., Colo., 40c, 45c
Communication Electronics, Inc., Md., 40c, 55c
CompuDyne Corp., Mass., 5s, 10s, 25s, 30s, 40s, 55s
CompuDyne Corp., Pa., 10sc, 25sc, 30sc, 35sc, 40sc, 45c, 50sc, 55sc
Computer Equipment Corp., Calif., 50c
Consolidated Avionics Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 45c, 50c
Consolidated Electrodynamics Corp., Calif., 15s, 20s

PROVEN RELIABILITY—
SOLID-STATE POWER INVERTERS
over 260,000 logged hours— voltage-regulated, frequency-controlled, for missile, telemeter, ground-support, 135°C all-silicon units available now—





Interelectronics all-silicon thyratron-like gating elements and cubic-grain toroidal magnetic components convert DC to any desired number of AC or DC outputs from 1 to 10,000 watts.

Ultra-reliable in operation (over 260,000 logged hours), no moving parts, unharmed by shorting output or reversing input polarity. Wide input range (18 to 32 volts DC), high conversion efficiency (to 92%, including voltage regulation by Interelectronics patented reflex high-efficiency magnetic amplifier circuitry).

Light weight (to 6 watts/oz.), compact (to 8 watts/cu. in.), low ripple (to 0.01 mv. p-p), excellent voltage regulation (to 0.1%), precise frequency control (to 0.2% with Interelectronics extreme environment magnetostrictive standards or to 0.0001% with fork or piezoelectric standards).

Complies with MIL specs. for shock (100G 11 mlsc.), acceleration (100G 15 min.), vibration (100G 5 to 5,000 cps.), temperature (to 150 degrees C), RF noise (I-26600).

AC single and polyphase units supply sine waveform output (to 2% harmonics), will deliver up to ten times rated line current into a short circuit or actuate MIL type magnetic circuit breakers or fuses, will start gyros and motors with starting current surges up to ten times normal operating line current.

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Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 55c, Tel: 214-EVergreen 1-1135
See ad on page 120
Continental Technical Service, Inc., Ohio, 15sc, 20sc, 50sc, 55sc
Control Data Corp., Minn., 15sc, 20sc, 25c, 30c, 35c, 40sc, 45sc, 55sc
Control Data Corp., Control Corp. (Subsid.), Minn., 35c, 45c, 55c
Cook Electric Co., Ill., 15c, 20c
Cook Electric Co., Cook Technological Center, Ill., 15c, 20c, 30c, 55c
Cooke Engineering Co., Va., 40c, 55c
Crescent Engineering & Research Co., Calif., 50c
Crosby-Teletronics Corp., N.Y., 35s
Crown Engineering, N.M., 35c
Cubic Corp., Calif., 55sc
Data-Master Corp., N.Y., 15sc, 40sc, 50sc, 55sc
Datalog Corp., Metrolog Div., 2415 Amsler St., Torrance, Calif., 5c, Tel: 213-SPruce 5-6621
See ad in class 40
Datex Corp., Calif., 10sc, 15sc, 20sc
Daven Co., Subsid. of General Mills, Inc., N.J., 10c
Daystrom-Wiancko Engineering Co., Calif., 10sc, 35sc
Defense Electronics, Inc., Md., 40sc, 55sc, Multicouplers sc
Del Mar Engineering Laboratories, Calif., 40c
Dero Research & Development Corp., N.Y., 5sc, 35sc, 40sc, 45sc, 50sc, 55sc
Developmental Electronics Corp., Calif., 10c, 25c, 30c, 50c
Dewey Corp. (G. C.), N.Y., 15c, 25c, 50c
Dicon Corp., N.Y., 5c, 20c, 25c, 30c, 50c
Dimensions, Inc., N.Y., 15c
Dorsett Electronics, Inc., Okla., 5c, 10c, 25c, 30c, 35sc, 40c, 45c, 50c, 55sc
Douglas Aircraft Co., Inc., Calif., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c
Dynage, Inc., Conn., 5sc
Dynair Electronics, Inc., Calif., Modulators & Demodulators c
Dynamics Corp. of America, N.Y., 40c, 45c, 55c
Dynatronics, Inc., Fla., 5sc, 10c, 15c, 20c, 25c, 30sc, 35c, 40sc, 45c, 50c, 55sc
E D P Corp., Fla., 5c, 35c
Electrada Corp., Calif., 15c
Electro Development Corp., Wash., 5c, 10c
Electro Logic Corp., Calif., 10c, 15c, 20c, 25c
Electro-Mechanical Research, Inc., Fla., 5sc, 10s, 15s, 25s, 30s, 35s, 45s, 50s, 55sc
Electro Radiation, Inc., Calif., 20c, 30c, 50c
Electro-Tec Corp., N.J., 10c
Electronetics Corp., Fla., 5sc, 10c, 15c, 25c, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc
Electronic Communications, Inc., Fla., 15c, 30c, 40c, 55c
Electronic Controls, Inc., Conn., 15c
Electronic Engineering Co. of California, Calif., 15c
Electronic Production & Development, Inc., Calif., 15c
Electronic Specialty Co., Calif., 40c, 55c

Directory I. Complete Equipment

34. Telemetering Equipment.

Electronics Development Corp., Calif., 40s, 55s
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 20c
Elliott-Automation, Ltd., England, 10sc, 25sc, 30sc, 35sc, 40sc, 45sc, 55sc
Engelhard Industries, Inc., Makepeace Div., Mass., 10c
Epsco, Inc., Mass., 10sc, 15sc, 20sc, 25sc, 35s
Epsco, Inc., Monitor Systems, Inc. (Subsid.), Pa., 10c, 15c, 20c, 25c, 30c
Eteleo, Ltd., England, 30c, 40c, 50c, 55c
Ewen Knight Corp., Mass., 40 Radio-Telescope c
Exact Electronics, Inc., Ore., 5c, 45s
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 25c, 35c, 40c, 45c, 55c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5c, 10c, 35c, 40c, 45c, 55c
Ferroxcube Corp. of America, E. Bridge St., Saugerties, N.Y., 20sc, Tel: 914-CHerry 6-2811
See ads in classes 10, 34, 55, 74, 92, 100
Fischer & Porter Co., Pa., 15s, 55s
Foxboro Co., Mass., 40c, 55c
Friend Engineering (Albert W.), Pa., 35c, 55c
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 35sc, 45sc, 55sc, Tel: 216-SHadyside 9-0700
See ad in class 50
General Atronics Corp., Pa., 45c, Video-Sweep-Integrators c
General Devices, Inc., P.O. Box 253, Princeton, N.J., 5s, 10s, 15c, 30s, 35s, 45c, 50 Digital c, Tel: 609-WAlnut 4-2500
See ad adjacent to Index to Advertisers, back of book
General Dynamics/Electronics, N.Y., 40c
General Electric Co., Apparatus Sales Dept., N.Y., 40s, 55s
General Electric Co., Instrument Dept., 40 Federal St., Lynn, Mass., 15c, 40s, 55s, Tel: 617-LYnn 3-3400
See ad in class 61
General Electric Co., Ltd. of England, Telecommunications Group, England, 40c, 55c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 15c, 20c, 30c, 40c, 50c, 55c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 20c, 40c, 55c
General Magnetics, Inc., 135 Bloomfield Ave., Bloomfield N.J., Modulators s, Tel: 201-PIlgrim 8-2400
See ad on pages 42-43
General Microwave Corp., N.Y., 40c, 45c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 15c, 20c
General Railway Signal Co., N.Y., 40 Analog c, 55c
General Time Corp., N.Y., 20c
Genisco, Inc., Calif., 10sc
Geotechnical Corp., Texas, 15sc, 20sc, 35sc
Gertsch Products, Inc., Calif., 45s
Gibbs Mfg. & Research Corp., Wis., 45c
Gilfillan Brothers, Inc., Calif., 35sc, 55sc
Gilliland Instrument Co., Inc., Calif., 50c
Gjadny Corp. (Richard), N.Y., 55c
Goodyear Aircraft Corp., Arizona Div., Ariz., 15sc, 40c
Greenray Industries, Pa., 35sc
Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 15c, 20c, Tel: 312-CHesapeake 3-1100
See ad in class 73
Gulton Industries, Inc., N.J., 5sc, 10sc, 15 Digital sc, 25sc, 30sc, 35sc, 40sc, 50sc, 55 Analog sc
Hallamore Electronics Div., Siegler Corp., Calif., 40sc
Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 10c, 45s
Haydon Co. (A. W.), Conn., 45c
Hazeltine Corp., N.Y., 10c, 25c, 40c, 55c
Hermes Electronics Co., Mass., 35sc
Hewlett-Packard Co., Dymec Div., Calif., 5sc
Hickok Electrical Instrument Co., Ohio, 45s
Hill Electronics, Inc., 300 N. Chestnut St., Mechanicsburg, Pa., 35c, 45c, Tel: 717-POplar 6-7611
See ad in class 59
Hoffman Electronics Corp., Calif., 10c
Hogan Faximile Corp., N.Y., 15c
Holt Instrument Laboratories, Wis., 35s
Hoover Co., Electronics Div., Md., 5c, 30c, 35s
Howard Instrument Co., N.J., 45s
Huggins Laboratories, Inc., Calif., 35sc, 40sc
ITI Electronics, Inc., N.J., 40c, 55c
Information Systems, Inc., Affil. of Ling Temco Vought, Inc., Calif., 40c
Instrument Corp. of Florida, Fla., 5c, 15c, 30c, 35c, 40c, 45c, 50c, 55c
Instrument Development Laboratories, Inc., Mass., 10sc
Instruments For Industry, Inc., 101 New South Rd., Hicksville, L.I., N.Y., 35c, 40c, 50c, 55c, Tel: 516-OVerbrook 1-7100
See ads in classes 43, 74
Instruments, Inc., Calif., 10c
Intectron, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 20c, Tel: 617-WOodward 9-9311
See ad on page 163
Intellux, Inc., Scientific Components Div., Calif., 10c
Intercontinental Dynamics Corp., N.J., 45sc
International Business Machines Corp., N.Y., 20c
International Rectifier Corp., Dallons Laboratories, Inc. (Susid.), Calif., 15s, 20s, 35s, 40s, 55s
International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 35s
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 20c, 50c, 55 Video c, Demodulators c
Interstate Electronics Corp., Calif., 5c, 25c, 35c
Kaman Aircraft Corp., Conn., 10c, 25c, 30c, 50c, 55c
Kauke & Co., Inc., Calif., 30sc, 35sc, 40c, 55c
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 5s
Kinetics Corp., Calif., 10s, 35s
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5c, 15c, 20c, 50c
LEL, Inc., 77 Akron St., Copiague, L.I., N.Y., 40sc, Tel: 516-AMityville 4-2200
See ad in class 43
Laboratory For Electronics, Inc., Mass., 15c, 20c, 35c, 45c
Landis & Gyr, Inc., N.Y., 40s, 55s
LaPointe Industries, Inc., Conn., 10c
Leach Corp., 18435 Susana Rd., Compton, Calif., 10c, 15c, 20c, 40c, Tel: 213-NEvada 6-1061
See ad in class 73
Lear, Inc., Calif., 10c, 25c, 30c, 40c, 50c, 55c
Leeds & Northrup Co., Pa., 15s

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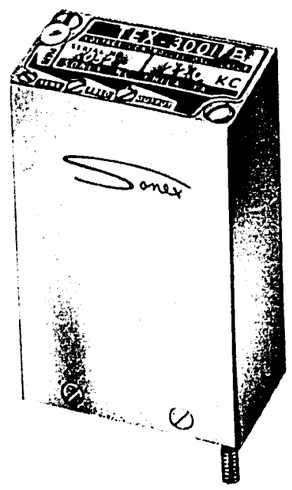

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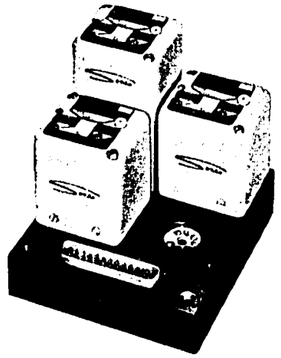

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34. Telemetering Equipment.

Lenkurt Electric Co., Inc., Calif., 40s, 55s
Leupold & Stevens Instruments, Inc., Ore., 55s
Lind Instruments, Inc., Calif., 10c
Ling Temco Vought, Inc., Texas, 5s, 15c, 20c, 45s
Ling Temco Vought, Inc., F F & M Electronics, Inc. (Subsid.), Calif., 5s, 15c, 20c
Ling Temco Vought, Inc., Ling Electronics Div., Calif., 45s
Lionel Corp., N.J., 30c, 35c, 40c, 45c, 55c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 20c, 40c, 55sc
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 5c, 15c, 25c, 35c, 40c, 45c, 55c
Litton Industries, Inc., Monroe Calculating Machine Co., Electronic Components Div., Calif., 15c
Lockheed Electronics Co., N.J., 15c, 20c, 25c, 30c, 40c, 50c, 55c
Lockheed Electronics Co., Avionics & Industrial Products Div., Calif, 25c, 30c
Lome Electronics, Inc., Texas, 35sc
Lundell & Co., Ill., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc
Lynch Communication Systems, Inc., Calif., 40c, 55c

MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 20c, Tel: 305-LOgan 4-8518
See ad in class 4

Madigan Electronic Corp., N.Y., 15c, 30c, 35c, 40c, 45c, 50c, 55c
Magnavox Co., Magnavox Research Laboratories, Calif., 10sc, 30c
Magnetics Research Co., Inc., N.Y., 20sc
Mallory & Co., Inc. (P. R.), Ind., 35c, 40c, 45c, 55c
Mandrel Industries, Inc., Electronic Research & Development Co. (Div.), Canada, 55c
Manson Laboratories, Inc., Conn., 35sc, 55c

Marconi Instruments, Ltd., 111 Cedar Lane, Englewood, N.J., 45s, Tel: 201-LOwell 7-0607
See ad on pages 66-67

Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 55c
Matrix Research & Development Corp., N.H., 35c, 55c
Matsushita Communication Industrial Co., Ltd., Japan, 55c
Maurer, Inc. (J. A.), N.Y., 15c, 20c
Maury & Associates, Calif., 35c, 55c
Mayberry Electronics Co., Calif., 15c 50c, 55c
Melabs, Calif., 40sc, 45sc
Micro-Tel Corp., Md., 5c
Microdot, Inc., Calif., 35s, 45s, 55s
Micromega Corp., Calif., 35c, 45c, 55c
Microwave Corp. of America, Conn., 40c, 55c
Midwestern Instruments, Inc., Okla., 15s, 20s, 35s, 50s

Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 15sc, 20sc, Tel: 305-OXford 1-1220
See ad in class 28

Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 15sc, 40s, 55s
Minnesota Mining & Mfg. Co., Mincom Div., Calif., 15s, 20s
Mira Corp., Calif., 25s
Missile Systems Corp., California Div., Calif., 10c, 25c

Mnemotron Corp., 49 S. Main St., Pearl River, N.Y., 15s, 20s, Tel: 914-PEarl River 5-4015
See ad in class 9

Mohawk Business Machines Corp., N.Y., 15c
Monitor Products Co., Inc., Calif., 35c
Moore Associates, Inc., Calif., 10s, 25s, 30s, 50s, 55s
Motorola, Inc., Military Electronics Div., Ariz., 40c, 55c
Mycalex Electronics Corp., N.J., 10c, 40c
National Radio Co., Inc., Mass., 40s
National Scientific Laboratories, Inc., D.C., 20c, 50c

Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 15c, 25c, Tel: 215-GLendale 2-6531
See ad in class 10

Neptune Electronics Co., N.Y., 35c
New London Instrument Co., Conn., 35sc, 45sc
Nichols, Ltd. (R. H.), Canada, 15c, 20c, 40c, 55c
Norbatrol Electronics Corp., Pa., 35c, 40c, 55c
Northeastern Engineering, Inc., N.H., 55c

Northern Engineering Laboratories, Inc., 845 Beloit St., Burlington, Wis., 35c, Tel: 414-ROckwell 3-3591
See ad in class 56

Omega Dynamics Corp., Calif., 55c

Orion Electric Corp., 108 Columbus Ave., Tuckahoe, N.Y., 35sc, 40c, 55c, Tel: 914-DEerfield 7-6132
See ad in class 43

Ortronix, Inc., Fla., 5c, 25c, 30c, 35c, 50c, 55c
Pace Engineering Co., Calif., 35s
Pacific Electro Magnetics Co., Inc., Calif., 15sc
Pacific Mercury Electronics, Div. of Thomas Organ Co., Calif., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c
Packard-Bell Computer Corp., Calif., 10s

Panoramic Electronics, Inc., 528 S. Fulton Ave., Mount Vernon, N.Y., 5s, 45s, Tel: 914-OWens 9-4600
See ad on page 80

Parsons Co. (Ralph M.), Electronics Div., Calif., 25sc, 45sc, 55sc
Peer, Inc., Texas, 55c
Philco Corp., Pa., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c
Philco Corp., Government & Industrial Group, Pa., 20c, 55c
Philco Corp., Sierra Electronic Corp. (Div.), Calif., 5s, 40s, 45s, 55s
Photographic Analysis, Inc., Calif., 35c

Photomechanisms, Inc., 15 Stepar Place, Huntington Station, L.I., N.Y., 15c, 40c, Tel: 516-HAmilton 3-4411
See ads in classes 14, 34

Photron Instrument Co., Ohio, 15s
Plectron Corp., Nebr., 45s

Polarad Electronics Corp., 43-20 34th St., Long Island City 1, N.Y., 40c, 45c, 55c, Tel: 212-EXeter 2-4500
See ads in class 37

Poly-Scientific Corp., Va., 10c

Directory I. Complete Equipment

34. Telemetering Equipment.

Polytronic Research, Inc., Md., 45c
Potter Aeronautical Corp., N.J., 45s
Precision Instrument Co., Calif., 15sc, 50sc
Probescope Co., Inc., N.Y., 5s

RS Electronics Corp., 435 Portage Ave., P.O. Box 11368, Sta. A, Palo Alto, Calif., 35sc, 40sc, 45sc, Tel: 415-DAvenport 1-1130
See ad in class 43

Radiaphone Co., Inc., Calif., 35s, 40c, 55s
Radiation, Inc., Fla., 10sc, 15sc, 55sc
Radiatronics, Inc., Calif., 40c, 55c
Radio Communication Co., Wis., 10c, 25c
Radio Corp. of America, Defense Electronic Products, N.J., 15c, 20c, 30c, 40c, 45c, 50c, 55c
Radio Frequency Laboratories, Inc., N.J., 40s, 55s
Raytheon Co., Government Marketing, Mass., 40c
Remanco, Inc., Calif., 40c, 45c
Resdel Engineering Corp., Calif., 55c
Rheem Mfg. Co., Rheem Electronics Div., Calif., 15c, 20c
Rich Electronics, Inc., Fla., 25c
Rixon Electronics, Inc., Md., 10c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c
Rotary Devices Corp., N.J., 10c
Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 30c, 55c
Sampson Chemical & Pigment Corp., Ill., 35c

Sanborn Co., Subsid. of Hewlett-Packard Co., 175 Wyman St., Waltham 54, Mass., 15s, Tel: 617-TWinbrook 4-6300
See ad on pages 70-71

Sangamo Electric Co., Springfield, Ill., 40c, 55c, Tel: 217-KIngswood 4-6411
See ad on page 142

Schaevitz Engineering, N.J., 5c, 10c, 15sc, 20c, 30c, 35c, 40c, 45c, 50c, 55c

Schwarzer Co., 46 Salmi Rd., Framingham, Mass., 15sc, Tel: 617-TRinity 2-1830
See ads in classes 5, 23, 28

Scope, Inc., Va., 30c, 35c, 55c

Security Devices Laboratory, 24 Seneca Ave., Rochester 21, N.Y., 35s, 45sc, Tel: 716-HOpkins 7-3200
See ads in classes 46, 73

Servo Corp. of America, N.Y., 5c, 10c, 15c, 25c, 30c
Shand & Jurs Co., Calif., 40sc, 50c, 55sc
Sheltered Workshops, Inc., Calif., 40c, 55c
Siemens New York, Inc., N.Y., 15s
Sierra Research Corp., N.Y., 10c, 25c
Slip Ring Co. of America, Calif., 10sc
Solartron Electronic Group, Ltd., England, 35s, 45s

Solid State Electronics Co., Dept. I, 15321 Rayen St., Sepulveda, Calif., 45s, 50s, Tel: 213-EMpire 4-2271
See ad on page 44

Sonex, Inc., 20 E. Herman St., Philadelphia 44, Pa., 10c, 25c, 30c, 35s, Tel: 215-VIctor 3-6400
See ad in class 34

Sony Corp., N.Y., 15sc
Soroban Engineering, Inc., Fla., 15c, 20c
Space Electronics Corp., Calif., 5c, 15c, 20c, 40c, 55c
Sparton Electronics, Div. of Sparton Corp., Mich., 5c, 30c, 40c
Speidel Corp., Industrial Div., R.I., 15c, 20c, 35c
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 45c, 55c
Sperry Rand Corp., Sperry Phoenix Co. (Div.), Ariz., 10c, 25c, 30c
Sperry Rand Corp., Sperry Phoenix Co., Sunnyvale Development Center, Calif., 55c
Sperry Rand Corp., Sperry Utah Co. (Div.), Utah, 5c, 15c, 20c, 25c
Standard Telephone & Cables, Ltd., England, 10c, 15c, 20c, 30c, 35c, 40sc, 50c, 55sc
Starling Corp., Calif., 40c, 55s
Stelma, Inc., Conn., 15c, 20c, 30c, 35c, 40c, 45c, 55c
Streeter-Amet Co., Ill., 15c
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 40c, 55c
Systems Research Corp., Calif., 5sc, 25sc, 35sc, 45sc
TRG, Inc. (Technical Research Group), N.Y., 20c, 35c, 45c
Taffet Electronics, Inc., N.Y., 35c, 40c, 45c

Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 10c, 20c, Tel: 201-WIndsor 4-2221
See ad in class 80

Technology Instrument Corp., Mass., 10s
Telechrome Mfg. Corp., N.Y., 25s, 30c, 35s, 40s, 45c, 55sc
Telecomputing Corp., Calif., 10c, 15c, 20c, 25sc, 30c, 35sc, 50sc
Telecomtrol Corp., N.J., 40c, 55c
Telectro Industries Corp., N.Y., 15c, 20c, 35c, 40c, 45c
Telemetrics, Inc., Calif., 5sc, 25sc, 45sc
Tempo Instrument, Inc., N.Y., 5c

Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 10sc, 20c, 25c, 35sc, 40c, 55sc, Tel: 214-ADams 5-3111
See ad on Cover 3

Textron Electronics, Inc., Schafer Custom Engineering Div., Calif., 40c, 55c
Therm, Inc., N.Y., 10c, 15c, 20c
Thompson, Ltd. (J. Langham), England, 40c, 50c, 55c
Thompson Ramo Wooldridge Inc., STL Products Div. of Space Technology Laboratories, Calif., 45sc
Thompson Ramo Wooldridge Inc., Tapco Div., Ohio, 40c, 55c
Time-O-Matic, Ill., 15s
Trak Microwave Corp., Fla., 35sc, 55c
Transmagnetics, Inc., N.Y., Modulators s
United Control Corp., Wash., 15c, 20c
United ElectroDynamics, Inc., Calif., 5sc, 10sc, 20sc, 25c, 30sc, 35sc, 55sc
United Shoe Machinery Co., Mass., 40c, 55c

Valpey Crystal Corp., 1100 Highland St., Holliston, Mass., 35c, Tel: 617-GArden 9-4851
See ads on page 219 & in class 56

Vap-Air Div., Vapor Corp., Ill., 5sc
Vare Industries, Inc., N.J., 30c, 35c, 55c
Vector Mfg. Co., Inc., Pa., 5sc, 10sc, 15sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc
Vidar Corp., Calif., 35s
Vitro Electronics, Div. of Vitro Corp. of America, Md., 40sc
Waltham Electronics Corp., Mass., 5sc, 35sc, 45sc, 55c
Wang Laboratories, Inc., Mass., 55c
Warren Mfg. Co., Inc., Mass., 40c, 55c
Watkins-Johnson Co., Calif., 40c, 45c, 55c

Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., 5c, 45c, Tel: 301-LOckwood 4-0121
See ad in class 45

West Instrument Corp., Ill., 15s
Westinghouse Electric Corp., Pa., 40c, 55c

Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 15sc, 20c, 40sc, 55sc, Tel: 212-JUdson 2-3030
See ad on page 224

Whitehall Electronics Corp., Minn., 40c, 55c
Wiley Electronic Products Co., Ariz., 10sc, 55sc
Zimney Corp., Calif., 5c, 35c, 55c

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Teleprinter equipment:
See class 33

Television amplifiers:
See class 43

Television antennas:
See class 44

Television broadcast equipment:
See classes 26 & 42

Television cameras:
See class 32

Television equipment, closed-circuit: See classes 26, 32 & 42

Television equipment, studio:
See class 32

Television test equipment:
See class 39

Television tubes:
See class 85

Television tuners:
See class 88

Temperature control equipment:
See class 4

Temperature indicators:
See class 61

Terminal equipment:
See class 7

35. Test Equipment, Audio Frequency.

5. Analyzers, AF spectrum
10. Analyzers, distortion & noise
15. Generators, harmonic frequency
20. Generators, noise
25. Generators, square wave
30. Meters, intermodulation
35. Meters, output power
40. Meters, phase
45. Meters, sound level
50. Oscillators
55. Signal generators, AF
60. Telegraph test
65. Voltmeters, AF

A C Electronics, Inc., Calif., 15c, 20c, 25c

Accurate Instrument Co., 2414 W. Alabama St., P.O. Box 66373, Houston 6, Texas, 15sc, Tel: 713-JAckson 6-4947
See ads in classes 31, 59

Ad-Yu Electronics Laboratory, Inc., 249 Terhune Ave., Passaic, N.J., 40sc, Tel: 201-GRegory 2-5622
See ad in class 57

Advance Components, Ltd., England, 20s, 25s, 50s, 55s

Advanced Measurement Instruments, Inc., Mass., 55c

Airborne Instruments Laboratory, Div. of Cutler-Hammer, Inc., N.Y., 25s, 50s, 55s

Airmec, Ltd., England, 40s, 50s, 55s

Airtronics International Corp., Fla., Telephone-Test c

Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 5s, 60c, Tel: 617-FOrest 6-4467
See ad on page 82

Alfred Electronics, Calif., 25s

Allen Organ Co., Inc., Pa., 50sc

Allison Laboratories, Inc., Calif., 5s, 20s, 45s

Altron Electronics Co., Pa., 20c, 65s

American Machine & Foundry Co., Government Products Group, N.Y., 5sc, 10sc, 35s, 65s

Amplifier Corp. of America, N.Y., 10 Wow & Flutter c

Anderton Electronic Laboratory, Utah, 25c, 35c, 50c, 55c, 65c

Arkay International, Inc., N.Y., 55s

Audiotex Mfg. Co., Div. of G-C Textron Electronics, Ill., 35s, 65s

Automatic Telephone & Electric Co., Ltd., Strowger Works, England, 35s, 55s, 60s

Automation Laboratories, Inc., N.Y., 10sc, 20sc

Automation Research & Design Associates, N.J., 65c

Avo, Ltd., England, 5s

B & K Instruments, Inc. of Bruel & Kjaer, Ohio, 5s, 10s, 45s, 55s, 65s

Bach-Simpson, Ltd., Canada, 35s, 65s

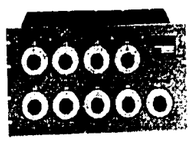
Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 5s, 35s, 40s, 65s, Tel: 617-UNiversity 4-7420
See ad in class 86

Ballantine Laboratories, Inc., Boonton, N.J., 65s, Tel: 201-DEerfield 4-1432
See ad in class 40

Barker & Williamson, Inc., Pa., 10s, 35s, 50s, 65s

ALLISON LABS
ALLISON LABORATORIES
Audio Frequency Test Instrumentation

Model 349 Noise Generator and Octave Band Equalizer.



A controlled, calibrated audio noise source, as well as an octave band analyzer. 20-19,200 cycles. Unique continuously-variable passive filters of every type. Noise Generators, Octave-Band Equalizers, Band-Elimination Filter sets. Extremely high rejection, smooth flat-topped characteristics.

FOR PROMPT, INFORMED SERVICE IN THE NORTHEAST ..... CALL
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MOUNT VERNON, N.Y. • MOunt Vernon 4-7530
WALTHAM .....TWinbrook 4-1955
SYRACUSE .....GRanite 4-7409
PHILADELPHIA .....SHerwood 7-9080
WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400
For details, circle #181 on Reader Service Card

Bearing Inspection, Inc., Calif., 10s

Beckman Instruments, Inc., Berkeley Div., Calif., 35s, 55s

Benrus Watch Co., Inc., Conn., 25c

Boonshaft & Fuchs, Inc., Pa., 55c

Briggs Associates, Inc., Pa., 5c

Bruel & Kjaer (A/S), Denmark, 5s, 10s, 15s, 45s, 50s, 55s, 65s

Bulova Research & Development Laboratories, N.Y., 35c, 40c, 50s

Bulova Watch Co., Inc., Electronics Div., Dept. A-1376, 61-10 Woodside Ave., Woodside 77, N.Y., 50c, 55c, Tel: NEwtown 9-5700
See ad in class 56

Burr-Brown Research Corp., Ariz., 25s, 65s

C.E.S. Electronic Products, Inc., Calif., 50c, 55c

California Technical Industries, Div. of Textron, Inc., Calif., 50sc

Canadian Aviation Electronics, Ltd., Canada, 5c, 10c, 15c, 20c, 25c

Canadian Marconi Co., Canada, 10s

Capehart Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 35c, 50c, 55c

Carol Electronics Corp., W.Va., 50c, 55c

Chesapeake Instrument Corp., Md., 10 Random-Noise c

Clegg Laboratories, Div. of Clegg, Inc., N.J., 50s, 55s

Clough-Brengle Co., Ill., 35s, 50s, 55s, 65s

Cole Instrument Co., Calif., 40c

Columbia Research Laboratories, Inc., Pa., Accelerator-Amplifiers c, Cathode-Followers c

Columbus Electronics, Inc., 1000 Saw Mill River Rd., Yonkers, N.Y., 65c, Tel: 914-YOnkers 8-1221
See ads in classes 48, 71

Communication Measurements Laboratory, Inc., N.J., 15sc, 25c, 50sc, 55sc, 65sc

Communications & Control Corp., Calif., 5sc

Comptometer Corp., Radiation Electronics Co. (Div.), Ill., 50s, 65s

CompuDyne Corp., Pa., 25c, 55c, 65c

Computer Sciences, Inc., N.Y., 5s

Conn, Ltd. (C. G.), Ind., 45s

Connecticut Telephone & Electric Corp. of Meriden, Conn., 55c

Control Electronics Co., Inc., 10 Stepar Place, Huntington Station, L.I., N.Y., 40s, Tel: 516-HAmilton 7-7961
See ad in class 59

Contronics, Inc., Mass., 5c, 25sc, 65c

Crane Electronics Co., Calif., 25s

Crosby-Teletronics Corp., N.Y., 50s

Data Products Co., Inc., Md., 60s

Daven Co., Subsid. of General Mills, Inc., N.J., 35s, 50s, 55s, 65s

Dawe Instruments, Ltd., England, 50s

Daystrom, Inc., Weston Instruments Div., N.J., 30c, 35c, 45c

Decker Corp., Pa., 5s

Deeco Instruments, Inc., Calif., 5c

Dero Research & Development Corp., N.Y., 50c, 55c

Dewey Corp. (G. C.), N.Y., 5c

Digitrols, Inc., Md., 25c, 50s, 55s

Direct T/V Windings, Ltd., England, 55s, 65s

Donner Scientific Co., Calif., 5s

Duncan Electric Co., Inc., Davenport Mfg. Div., Ill., 45c, 50c

Directory I. Complete Equipment

35. Test Equipment, Audio Frequency.

Dytronics Co., Ohio, 5s, 40s

E O Electronics, Inc., N.J., 65c

Ehrenpreis Engineers (David), N.Y., 20c

Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 25s, Tel: 212-STillwell 6-8700
See ad in class 41

Electrac, Inc., Calif., 5c

Electro-Mechanical Instrument Co., Eighth & Chestnut Sts., Perkasie, Pa., 35c, 45c, 65c, Tel: 215-ALpine 7-6561
See ad in class 61

Electro Radiation, Inc., Calif., 5c

Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 50c, Tel: 617-LYnn 8-2100
See ad in class 69

Electronic Applications Co., Calif., 50c

Electronic Development Laboratory, Inc., Ill., 25c, 35c, 50c, 55c, 65c

Electronic Measurements Corp., N.Y., 55s

Elgenco, Inc., Calif., 20sc

Elliott-Automation, Ltd., England, 15sc, 20sc, 40sc, 50sc, 55sc, 60sc

Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 10s, 20s, Tel: 518-VIctor 2-8400
See ad in class 38

Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 65c, Tel: 201-BIgelow 2-2700
See ad on page 140

Ensco, Inc., Utah, 25c, 50c

Exact Electronics, Inc., Ore., 15s, 25s

FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 15s, 35s, 50s, Tel: 212-RAvenswood 1-9000
See ad in class 37

Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 20c, 25c, 50c, 55c

Federal Scientific Corp., N.Y., 5sc, 40c

Ferranti Electric, Inc., N.Y., 5c

Ferrotran Electronics Co., Inc., N.Y., 20s

Fisher Research Laboratory, Inc., Calif., 20s

Fluke Mfg. Co., Inc. (John), Wash., 65s, VAW Meters s

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 15sc, 25c, 50sc, 55c, Tel: 216-SHadyside 9-0700
See ad in class 50

Furzehill Laboratories, Ltd., England, 25s, 50s, 65s

GPS Instrument Co., Inc., Mass., 10sc, 20 Analog-Simulation sc

General Applied Science Laboratories, Inc., Merrick & Stewart Aves., Westbury, L.I., N.Y., 5s, 10s, 25s, Tel: 516-EDgewood 3-6960
See ad in this class

General Atronics Corp., Pa., 5c

General Communication Co., 677 Beacon St., Boston 15, Mass., 35c, 50s, Tel: 617-COpley 7-6030
See ads in class 37

General Dynamics/Electronics, N.Y., 5c

General Hermetic Sealing Corp., Subsid of Electrospace Corp., N.Y., 55c

General Kinetics, Inc., Va., 5sc

General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 40s

General Radio Co., 22 Baker Ave., West Concord, Mass., 5s, 10s, 20s, 25s, 35s, 45s, 50s, 55s, 65s, Tel: 617-EMerson 9-4400
See ad on Cover 4

Genisco, Inc., Calif., 65c

Geotechnical Corp., Texas, 50sc

Gertsch Products, Inc., Calif., 40s

Goodman's Industries, Ltd., Axiom Works, England, 50s

Greenray Industries, Pa., 25c, 50sc

Gulton Industries, Inc., N.J., 5 Airborne sc, 10sc

Wide Range
PULSE and SQUARE WAVE GENERATOR
PSG-1

Broad Range of Frequencies and Pulse Widths

- Frequency—1 cycle to 1 mc
- Pulse Width—.1 μsec. to .3 seconds
- Rise and Fall Time—.02 μsec. for 10 v, 100 ohm output
- Rise and Fall Time—.1 μsec. for 50 v, 500 ohm output

Price $690.00

DOUBLE PULSE ADAPTER • PSG-1/DG Price $135.00
Pulse and Square Wave Generator—Rack Mounted PSG-1/RM Price $740.00
Double Pulse Adapter—Rack Mounted PSG-1/DG/RM Price $145.00

Variable Width
PULSE GENERATOR
PG-10

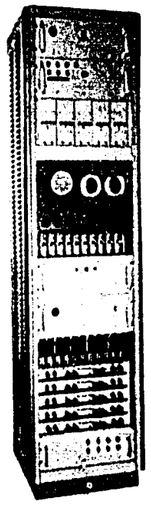
The Pulse Generator, PG-10, generates variable width pulses in the frequency range 1 megacycle per second to 20 megacycles per second. It is especially useful where high repetition rates and narrow pulses are required. Price $1250.00

- Frequency range: 1-20 mcps (3 overlapping ranges)
- Rise and fall time less than .006 μsec.
- Minimum pulse width approximately .02 μsec.
- Can be externally synchronized.

Very Low Frequency
SPECTRUM ANALYZER
SA-11

This analyzer system is designed for use wherever real time, accurate, high-resolution analysis of the very low frequencies is required. Some typical fields of application are:

- Seismology
- Underwater acoustics
- Heartbeat analysis
- Speech analysis
- Shock and vibration analysis



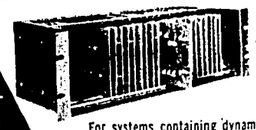
Frequency range—
0 to 5000 cps

Analysis time—
1 second for maximum selectivity

Resolution:
500 lines on all scales

Transistorized models SA-12 and SA-14 will provide frequency ranges up to 250,000 cps and, with GASL auxiliary equipment, offer power density and normal density capability

GENERAL APPLIED SCIENCE LABORATORIES INC
GASL
Merrick & Stewart Avenues
Westbury N Y
EDgewood 3-6960



Transistorized
LOGIC MODULES

For systems containing dynamic and static type digital logic as well as analog computation devices.

FHS-I	Hi Speed Flip Flop (2)	$76	CG-I	Computer Gate Card	$49
FMS-I	Medium Speed Flip Flop (2)	63	MG-I	Multiplexer Gate (6)	59
DG-I	Digital Gate (4)	52	OA-I	Summing Amplifier	71
DM-I	Delay Multivibrators (3)	57	SA-I	Servo Amplifier	87
ND-I	Nixie Driver	58	CDX-I	Card Extender	30
BO-I	Blocking Oscillator (3)	88	BCP-I	Bucket—27 card capability—wired for power	357
OS-I	Clock Oscillator	77	BC-I	Bucket—27 card capability—not wired for power	241
CPA-I	Clock Pulse Amplifier (4)	105			
AE-I	Active Element	61	TLG-I	2 Leg Gate (8 gates)	58
DL-I	Delay Line Card	89	LD-I	Light Driver (4)	42
MDL-I	Magnetostrictive Delay Line	522	ST-I	Schmidt Trigger (2)	75
MCR	Counter-Register (4 Flip Flops)	77	MSC-I	Special Circuit Card	15

Visit us at our plant for a demonstration, or call our Marketing Department at EDgewood 3-6960 to arrange for analysis of one of your sample tapes

All prices subject to change without notice.

For details, circle #182 on Reader Service Card

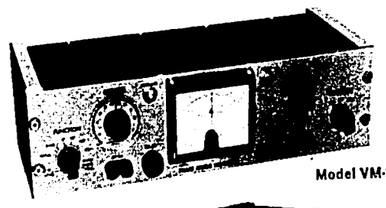
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

NORTH ATLANTIC *industries, inc.*

PHASE ANGLE & RATIO INSTRUMENTS

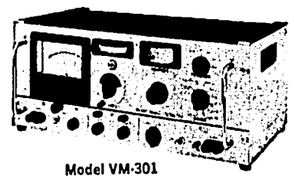
PHASE ANGLE VOLTMETERS

Provide direct reading of total, fundamental, in-phase and quadrature voltages; phase sensitive nulling of in-phase or quadrature components; direct reading of phase angle without ambiguity. Single-, three-frequency and broadband types, in bench, rack-mount and miniaturized models.



Model VM-202

Model VM-230



Model VM-301

Model VM-202 Single Frequency Voltmeter. 1 mv to 300 v in 12 ranges; accuracy ±2% of f.s. Phase accuracy: dial 1°, meter ±3% of f.s. degrees. Signal: 1 freq., 30 cps to 10 kc. Input impedance: 10 meg. Reference: 100k ohms, 0.25 v min. Nulling sensitivity: 2 uv, phase sensitive. Harmonic rejection (with filters): 55 db. Scale: 3-0-3, 10-0-10, linear. Phase dial: 4 scales, 90° (elec.) apart. Dimensions: 5¼" h. x 19" w. x 7⅛" d.

Model VM-204 Three Frequency Voltmeter. Similar to VM-202 but accommodates signals at any three specified frequencies. Choice of frequencies from 60 to 4500 cps in standard models, to 10 kc on special order. Dimensions as VM-202, but 2" deeper case.

Model VM-230 Transistorized Voltmeter. Miniaturized, ruggedized version of VM-202 for modular inclusion in ground support and other systems requiring small size, dependable performance in severe environments. Range down to 300 microvolts f.s. on order. Input impedance 1 meg. Voltmeter response 20 cps. to 20 kc.

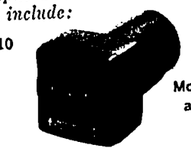
Model VM-301 Broadband Voltmeter. For applications where signals from 10 cps to 100 kc must be instrumented with highest accuracy. Phase shift accuracy 0.2° absolute, uniform over full 360°. Phase shift can be read while sweeping frequency in half-decade steps. Nulls unaffected by changes in signal level; harmonic effects eliminated by plug-in filters.

Complete data on any of these models will be forwarded on request

Model RB-503 (10 ppm) and RB-504 (1 ppm)

RATIO BOXES

Precision inductive AC voltage dividers to meet all range, accuracy and cost requirements. Rack, panel and portable bench models, deviation, binary ratio standards and automatic stepping types. Maintain accuracy over specified frequency range; feature in-line readout, high input and low series impedance. Range of characteristics available in this series include:



Model RB-520 and RB-521 (10 ppm)

Ratio Range	—.111110 to +1.111110
Frequency	30 cps to 10 kc
Accuracy	10 ppm to 1.0 ppm
Input Voltage	0.35f to 2.5f
Input Impedance	60 k to 1 megohm
Effective Series Impedance	7.5 ohms to 0.5 ohms

PHASE SENSITIVE AC-to-DC CONVERTERS

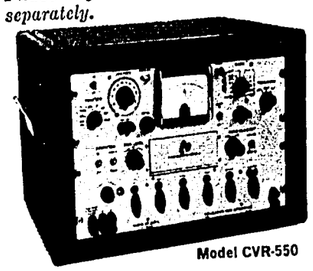
Compact, modular units meet requirements of ground checkout, production and other test systems for phase sensitive conversion of AC signals to proportional DC voltages. High linearity, sensitivity and fast response. Manual selection or remote relay programming of total, fundamental, in-phase and quadrature voltage functions. Half-panel rack mount models also available.

Model PSC-410

	PSC-410	PSC-420
Signal	single freq.	multiple freq.
Range	10 mv to 300 v	10 mv to 300 v
Frequency: Total	60 cps to 5 kc	30 cps to 10 kc
Phase Sens.	400 and 800 cps (60 cps to 2 kc special)	60 cps to 10 kc (3 per unit, max.)
Accuracy: Total	0.1% to 1/10 f.s.	0.1% to 1/10 f.s.
Phase Sens.	0.1% f.s.	0.1% f.s. to 5 kc 0.25% f.s. to 10 kc
Response	0.1 sec at 400 cps	0.1 sec at 400 cps
Output (10 k load)	0-10 v dc	0-10 v dc
Programming	range, function	range, function, freq.

COMPLEX VOLTAGE RATIOMETER

Single unit, integrated system includes all instrumentation, circuitry and accessories for measurement of phase angle, transformation ratio and related quantities. Direct reading of phase angles up to 0.5 radians, and transformation ratios to 0.001% unaffected by quadrature. Standard model accommodates any three specified frequencies from 60 cps to 3 kc, and includes both signal and reference channel filters. Phase angle voltmeter may be used separately.



Model CVR-550

Ratio Range	±1.111110
Ratio Accuracy (max)	± (0.001+ 0.0001/ratio) %
Outputs	Ratio on six-digit ratio box. Angle in both degrees and milliradians

NORTH ATLANTIC *industries, inc.*
INSTRUMENTATION AND CONTROL SYSTEMS

TERMINAL DRIVE • PLAINVIEW, L.I., NEW YORK
TELEPHONE: OVerbrook 1-8600

For details, circle #183 on Reader Service Card

Directory I. Complete Equipment

35. Test Equipment, Audio Frequency.

Gyrex Corp., Calif., 50sc
Harrison Electrosonics, Inc. (B. M.), Mass., 65s
Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 55s, 65s
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 10s, 15s, 25s, 30s, 50s, 55s, 65s

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 10s, 25s, 40s, 50s, 55s, 65s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28

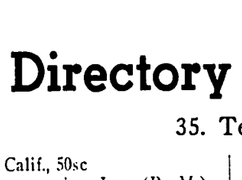
Hewlett-Packard Co., Dymec Div., Calif., 50sc, Field Strength Meters sc
Hickok Electrical Instrument Co., Ohio, 25s, 30c, 35c, 40c, 45c, 55s, 65s

Hill Electronics, Inc., 300 N. Chestnut St., Mechanicsburg, Pa., 25c, 50c, Tel: 717-POplar 6-7611
See ad in class 59

Hoffman Electronics Corp., Calif., 5c
Holt Instrument Laboratories, Wis., 50s
Hurletron, Inc., Electric Eye Equipment Div., Ill., 10sc
Iconix, Inc., Calif., 25c

Industrial Test Equipment Co., 55 E. 11th St., New York 3, N.Y., 40s, 50s, 65s, Tel: 212-GRamercy 3-4684
See ad in class 69

HOLT INSTRUMENT LABORATORIES
Laboratory-Standard AC Instrumentation



Model AVS-321 Audio Voltage Standard

Output continuously variable in both frequency and voltage, for thorough investigation of unit or system characteristics.
1 - 1000 VRMS 35 cps - 2 kc;
1 - 300 VRMS 35 cps - 10 kc.
Accuracy ±0.25%.

Regulators, Amplifiers, Thermal Transfer Voltmeters, Oscillators, Reference Standards.

FOR PROMPT, INFORMED SERVICE IN THE NORTHEAST ..... CALL
BURLINGAME ASSOCIATES
MOUNT VERNON, N.Y. • MOunt Vernon 4-7530
WALTHAM .....TWinbrook 4-1955
SYRACUSE .....GRanite 4-7409
PHILADELPHIA .....SHerwood 7-9080
WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400

For details, circle #184 on Reader Service Card

Instrument Corp. of Florida, Fla., 5c, 10c, 15c, 40c, 50c
Instrument Laboratories, Ill., 55s, 65s
Intercontinental Dynamics Corp., N.J., 20s
Interlab, Inc., N.Y., 45sc, 65sc
International Electronic Research Corp., ELIN Div., Calif., 50sc
International Electronics Mfg. Co., Md., 5s
International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 50s

Itek Electro-Products Co., Div. of Itek Corp., 75 Cambridge Parkway, Cambridge 42, Mass., 5c, 10c, Tel: 617-UNiversity 4-7200
See ad in class 59

Iwasaki Communication Apparatus Co., Ltd., Japan, 25s
Jackson Electrical Instrument Co., Ohio, 25s, 55s, 65s
Jefferson, Inc. (Ray), Pa., 5s
Jetronic Industries, Inc., Pa., 5c, 10c, 55c, 65c

Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 5s, 20s, 50s, Tel: 201-CApital 6-4000
See ad on pages 72-73

Kin Tel, Div. of Cohu Electronics, Inc., Calif., 65s
Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 50s, 55s, 65s

Knights Co. (James), 101 E. Church St., Sandwich, Ill., 50sc, Tel: 2141
See ad in class 56

Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 5c, 10c, 45c, Tel: 516-RAvenswood 9-7580
See ad in class 89
Krohn-Hite Corp., Mass., 25s, 50s
Kurtston Electronics, N.Y., 15c, 25c, 50sc, 55sc
Laboratory For Electronics, Inc., Mass., 10c, 50c, 55c
LaPointe Industries, Inc., Conn., 5c, 50c, 55c
Ling Temco Vought, Inc., Texas, 5s, 25c, 30c, 35c, 50c, 55c
Ling Temco Vought, Inc., Ling Electronics Div., Calif., 5s
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 25c, 30c, 35c, 50c, 55c
Lionel Corp., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 15c, 20c, 25c, 55c
Lynch Communication Systems, Inc., Calif., 55c
MB Electronics, Div. of Textron Electronics, Inc., Conn., 5sc

M F Electronics Corp., 118 E. 25th St., New York 10, N.Y., 50sc, 55sc, Tel: 212-OREgon 4-5360
See ads in classes 10, 35, 50

Madigan Electronic Corp., N.Y., 55sc

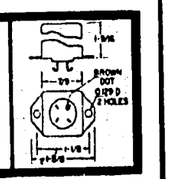
Marconi Instruments, Ltd., 111 Cedar Lane, Englewood, N.J., 5s, 15s, 20s, 25s, 35s, 50s, 60s, Tel: 201-LOwell 7-0607
See ad on pages 66-67

Marine View Electronics, Inc., N.Y., 5c, 25c, 55c, 65c
Matsushita Communication Industrial Co., Ltd., Japan, 10s, 50s, 65s
Maxson Electronics Corp., N.Y., 50sc
Mayberry Electronics Co., Calif., 65c
Measurements, McGraw-Edison Div., N.J., 25sc, 30sc, 55sc, 65sc
Mesur-Matic Electronics Corp., N.H., 40s
Meters, Inc., Ind., 35c, 65c
Metrologic, Compagnie Generale de, France, 55s
Metropolitan Telecommunications Corp., N.Y., 55c, 60c
Model Engineering & Mfg. Corp., Ind., 65c
Modern Design, Div. of H. C. Schloer, Inc., N.Y., 25c, 35c
Mohawk Business Machines Corp., N.Y., 10c, 25c, 35c, 50c, 55c, 65c
Morgan Electronics, Mass., 25s, 35s, 50s, 65s
Muirhead & Co., Ltd., England, 5s, 10s, 40s, 50s, 55s, 65s
Muirhead Instruments, Inc., N.Y., 5s, 10s, 25s, 40s, 50s, 65s

AUDIO TONE OSCILLATORS

This is a group of transistorized RC Sine Wave Oscillators which are hermetically sealed. Fixed frequency or slightly variable. Fixed or variable amplitude. Any frequency from 100 cps. to 10 KC. Temperature —25 to +55°C.

	Series 101	Series 101A	Series 102	Series 102A	Series 106	Series 106A	Series 110
Input Volts	12	28	12	28	12	28	12
Frequency Accuracy %	5	5	2	2	1	1	3
Distortion, max., %	2	2	2	2	2	2	2
Maximum Load	10K	20K	10K	20K	600	600	220
Output VRMS	1	2	1	2	1	2	1



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Uses: Telemetry, portable equipment, test sets, bridge circuits, audio testing.

MF ELECTRONICS CORP.
118 E. 25th St., N.Y., N.Y. OREgon 4-5360

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

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FACILITIES to simulate every climatic and environmental condition.

random and sine vibration	acoustic noise
variable pulse shock	temperature
temperature-vibration	salt spray
temperature-altitude	altitude
temperature-humidity	sand and dust
radial acceleration	fungus

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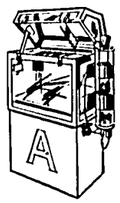
SERVICE: Thirty thousand square foot main plant, plus New England and Florida laboratories, operating around the clock for your convenience.

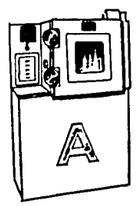
test chambers

All types, including:

Econ-O-Line Low-High Temperature Chambers, Liquified CO_2



Salt Spray Chambers, All Lucite Construction



Low-High Temperature Liquified CO_2 Chambers, Or Cascade Refrigeration

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35. Test Equipment, Audio Frequency.

Nash & Thompson, Ltd. (Messrs.), England, 65s
Natel Engineering Co., Calif., 40c
National Scientific Laboratories, Inc., D.C., 60c
Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 25sc, Tel: 215-GLendale 2-6531
See ad in class 10
New London Instrument Co., Conn., 15s, 20c, 25s
Newton Co., Conn., 30s
North Atlantic Industries, Inc., Terminal Drive, Plainview, L.I., N.Y., 40sc, 65 Phase-Angle sc, Tel: 516-OVerbrook 1-8600
See ad in this class
Northeast Electronics Corp., N.H., 35s, 50s, 55s
Northern Radio Co., Inc., 147 W. 22nd St., New York 11, N.Y., 25s, Tel: 212-WAtkins 9-9117
See ad on pages 58-61
Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 20sc, 35c, 40sc, 50sc, 55sc, 65sc, Tel: 914-DEerfield 7-6132
See ad in class 43
Ortronix, Inc., Fla., 65c
PRD Electronics, Inc., 202 Tillary St., Brooklyn 1, N.Y., 5sc, 20s, Tel: 212-ULster 2-6800
See ad in class 37
Pace Electrical Instruments Co., Inc., Subsid. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 45sc, Tel: 212-TWining 4-4290
See ad in class 61
Pacific Transducer Corp., Calif., Sweep-Generators c
Panoramic Electronics, Inc., 528 S. Fulton Ave., Mount Vernon, N.Y., 5s, 10s, 55s, 65s, Sweep-Generators s, Tel: 914-OWens 9-4600
See ad on page 80
Parabam, Inc., Calif., 25s
Parametrics, Calif., 55sc
Parker Electrical Instrument Corp., 375 Fairfield Ave., Stamford, Conn., 45sc, 65sc, Tel: 203-DAvis 5-3841
See ad in class 61
Parks Laboratory (Henry Francis), Wash., 50s
Pastoriza Electronics, Inc., Mass., 20c
Phaostron Instrument & Electronic Co., Calif., 35sc, 45sc, 65sc
Philamon Laboratories, Inc., N.Y., 15c, 50c
Philco Corp., Government & Industrial Group, Pa., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s, 65s
Philco Corp., Sierra Electronic Corp. (Div.), Calif., 5s, 10s
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 15s, 25s, 50s, 55s, 65s
Philips Electronics Industries, Ltd., Canada, 50s, 55s
Planetronics, Inc., Pa., 25sc, 45s
Plectron Corp., Nebr., 50s, 55s
Polytronic Research, Inc., Md., 5c, 10c, 15c, 30c, 35c, 45c, 55c
Power-Tronic Systems, Inc., N.Y., 35sc, 65c
Precise Electronics & Development Corp., Subsid. of Designatronics, Inc., N.Y., 55s
Precision Apparatus Co., Inc., Div. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 10c, 15sc, 25sc, 30sc, 35sc, 45sc, 50sc, 55sc, 65c, Tel: 212-TWining 4-4290
See ad in class 39
Probescope Co., Inc., N.Y., 5s, 10s, 30s
Quan-Tech Laboratories, Inc., N.J., 5sc, 10sc
RCA Victor Co., Ltd., Canada, 5s, 10s, 55s, 65s
R-K Laboratories Co., N.Y., 20s, 25s, 50s, 55s, 60c, 65s
Radio Corp. of America, RCA Electron Tube Div., N.J., 25s, 50s, 55s
Radio Engineering Laboratories, Inc., N.Y., 10c
Radiometer, Denmark, 5s, 25s, 45s, 50s, 55s, 65s
Railway Communications, Inc., Mo., 5s, 10s
Rainier Co., Inc., N.Y., 50c, 55c, 60c, 65c
Ram Meter, Inc., Mich., 35c, 40c
Rangertone, Inc., N.J., 55s
Rawson Electrical Instrument Co., Inc., 118 Potter St., Cambridge 42, Mass., 65c, Tel: 617-KIrkland 7-4041
See ad in class 61
Raytheon Co., Industrial Components Div., Mass., 5s, 20s
Reeves-Hoffman, Div. of Dynamics Corp. of America, 145 Cherry St., Carlisle, Pa., 25c, 50c, Tel: 717-CHapel 3-5929
See ad in class 56
Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, N.Y., 20s
Republic Electronic Industries Corp., N.Y., 55c
Riverbank Laboratories, Dept. of Engineering, Ill., 50sc
Rixon Electronics, Inc., Md., 5sc, 10c, 15c, 20c, 25c, 50c, 60c
Robins Industries Corp., N.Y., 45s
Rohde & Schwarz, P.O. Box 275, 111 Lexington Ave., Passaic, N.J., 5s, 20s, 40s, 45s, 50s, 55s, Tel: 201-PRescott 3-8010
See ad in class 38
Rototest Laboratories, Inc., Calif., 20c
Salford Electrical Instruments, Ltd., England, 65s
Sampson Chemical & Pigment Corp., Ill., 50c
Schaevitz Engineering, N.J., 5c, 15c, 20c, 25sc, 50c, 55c, 60c
Scientific-Atlanta, Inc., Ga., 25s, 55s
Scopes Co., Inc., N.Y., 50s, 65s
Scott, Inc. (H. H.), Mass., 5s, 20sc, 45s
Security Devices Laboratory, 24 Seneca Ave., Rochester 21, N.Y., 55sc, Tel: 716-HOpkins 7-3200
See ads in classes 46, 73
Sencore, Inc., Ill., 20s
Sensitive Research Instrument Corp., 310-316 Main St., New Rochelle, N.Y., 65s, Tel: 914-BEverly 5-2300
See ad in class 31
Servo Corp. of America, N.Y., 15c, 20c, 25c
Servomex Controls, Ltd., England, 20s, 25s, 55s
Seven Associates, Inc., Calif., 25s
Shallcross Mfg. Co., N.C., 55c, 60s, 65c

Directory I. Complete Equipment

35. Test Equipment, Audio Frequency.

Siemens New York, Inc., N.Y., 5s, 10s, 20s, 30s, 50s, 55s, 60s, 65s
Smith-Florence, Inc., Wash., 65s
Snelgrove Co., Ltd. (C. R.), Canada, 50c
Solartron Electronic Group, Ltd., England, 50s, 55s, 65s
Solartron, Inc., Calif., 5s, 25s, 40s, 50s, 55s, 65s
Solid State Electronics Co., Dept. I, 15321 Rayen St., Sepulveda, Calif., 50s, Tel: 213-EMpire 4-2271
See ad on page 44
Space Electronics Corp., Calif., 5c, 20c, 55c
Specialty Electronics Development Corp., N.Y., 50s, 55s, 65s
Spectrum Instruments, Inc., N.Y., 5sc
Standard Telephones & Cables, Ltd., England, 10sc, 15sc, 20sc, 25sc, 45sc, 50sc, 60sc
Stark Electronic Instruments, Ltd., Canada, 20s
States Co., Conn., 40 Shifters c
Stereosonics, Inc., N.Y., 40 Stereo s
Sterling Instrument Div., Designatronics, Inc., N.Y., 50s, 55s, 65s
Sun Electric Corp., Instrumentronics Div., Ill., 35s, 45s
Systems, Inc., Fla., 20c, 55c
Systems Research Corp., Calif., 25sc, 50sc, 55sc
Systron-Donner Corp., Calif., 65s
TRG, Inc. (Technical Research Group), N.Y., 5c, 15c, 20c
Taffet Electronics, Inc., N.Y., 15c, 20c, 25c, 35c, 45c, 50c, 55c, 60c, 65c
Technical Products Co., Calif., 5s, 10s, 30s, 45s
Technology Instrument Corp., Mass., 40s
Telecomputing Corp., Calif., 25c
Televiso Corp., Ill., 5s, 20s
Telonic Engineering Corp., P.O. Box 277, Laguna Beach, Calif., 15c, 25c, 50c, 55c, Tel: 714-HYatt 4-7581
See ad in class 39
Teltronics, Inc., 23-27 Main St., Nashua, N.H., 5c, 25c, 40c, 50c, 55c, Tel: 603-TUxedo 2-6264
See ad in class 38
Theta Instrument Corp., 520 Victor St., Saddle Brook, N.J., 40s, 65s, Tel: 201-HUbbard 7-3508
See ad in class 97
Time & Frequency, Ill., 50s
Topping Electronics, Ltd., Canada, 15sc, 50sc, 55sc
Towaco Electronics, N.J., 60sc
Ultraudio Products, Div. of Oberline, Inc., Calif., 35s
United States Gauge Div., American Machine & Metals, Inc., Pa., 65sc
Valpey Crystal Corp., 1100 Highland St., Holliston, Mass., 50c, Tel: 617-GArden 9-4851
See ads on page 219 & in class 56
Virginia Electronics Co., Inc., D.C., 50c, 55c
Vitro Electronics, Div. of Vitro Corp. of America, Md., 40s
Voltron Products, Inc., Calif., 35s, 65s
Waltham Electronics Corp., Mass., 20c, 25s, 30c, 50sc
Wang Laboratories, Inc., Mass., 25c
Warren Mfg. Co., Inc., Mass., 60c
Waveforms, Inc., N.Y., 25s, 35s, 50s, 55s, 65s
Wayne Kerr Corp., Pa., 10s, 15s, 55s, 65s
Western Electro-Acoustic Laboratory, Inc., Calif., 5sc, 10sc, 20sc, 45sc
Westinghouse Electric Corp., Pa., 65c
Wiltron Co., Calif., 25s, 40s
Wintronics, Calif., 40s

36. Test Equipment, Environmental.

5. Acoustic
10. Chambers, test
15. Enclosures, shielded
20. Racks, aging
25. Vibration analyzers
30. Vibration exciters

Abbott-Clark Machine & Tool, Inc., N.J., 20c
Ace Engineering & Machine Co., Inc., Pa., 5c, 15sc
Advanced Acoustics Corp., N.J., 5sc
Advanced Electronics, Inc., Conn., 25s
Aeroflex Laboratories, Inc., N.Y., 25 Shock sc, 30sc
Aerospace Controls, Calif., 25sc
Aerotronic Associates, Inc., N.H., 20s
Aireco, Inc., N.Y., 10c
Airflow Co., Md., 10c
Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 25c, Tel: 617-FOrest 6-4467
See ad on page 82
All American Tool & Mfg. Co., Ill., 30sc
Allied Research Associates, Inc., Mass., 30c
Allison Laboratories, Inc., Calif., 30s
American Instrument Co., Inc., Md., 10sc
American Measurement & Control, Inc., Mass., 5sc
American Research Corp., Conn., 10c
American Research & Mfg. Corp., Md., 25c
Anchor Specialty Mfg. Co., Inc., N.J., 10c, 15c, 20c, 25c
Arde Engineering Div., N.J., 10c
Associated Testing Laboratories, Inc., 115 Route 46, Wayne, N.J., 5c, 10sc, Tel: 201-CLifford 6-2800
See ad in this class, page 326
Astrosystems, Inc., N.J., 10c
Automation Laboratories, Inc., N.Y., 25sc
Avco Research & Advanced Development Div., Mass., 5sc
Avtron Mfg., Inc., Ohio, 10c, 20c
B & K Instruments, Inc. of Bruel & Kjaer, Ohio, 25s
Baker Co., Inc., Me., 10sc, 15sc
Barnes Development Co., 213 W. Baltimore Pike, Lansdowne, Pa., 20sc, Tel: 215-MAdison 2-1525
See ad in class 41
Barry Controls, Div. of Barry Wright Corp., Mass., Shock-Simulation sc
Basic & Experimental Physics, Mass., 5c
Bearing Inspection, Inc., Calif., 25s

36. Test Equipment, Environmental.

Bendix Corp., Sheffield Corp. (Subsid.), Ohio, 10c
Bethlehem Corp., Environmental Engineering Div., 225 W. Second St., Bethlehem, Pa., 10c, Tel: 215-UNiversity 7-4605
See ad in this class
Blickman, Inc. (S.), N.J., 10c, 15c
Blue M Electric Co., Ill., 10s, 20s
Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 10c
Bon-De Electronic Laboratories, Inc., Mass., 10s
Boomshaft & Fuchs, Inc., Pa., 25c, 30c
Bracke-Seib X-Ray Co., Inc., N.Y., X-Ray Generators c
Braun-Knecht-Heimann Co., Calif., 25s
Briggs Associates, Inc., Pa., 25c
Bruel & Kjaer (A/S), Denmark, 5s, 25s
Chadwick-Helmuth Co., Calif., 25s
Cincinnati Sub Zero Products, Inc., Ohio, 10c
Clevite Corp., Clevite Ordnance Div., Ohio, 5c
Cole Instrument Co., Calif., 30c
Columbia Research Laboratories, Inc., Pa., 5c, 25 Shock c
Communications & Control Corp., Calif., 25sc

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226

36. Test Equipment, Environmental.

Conductorlab, Inc., Main St., Groton, Mass., 20c, Tel: 617-GIlbert 8-5140
See ad in class 50
Conrad, Inc., Mich., 10sc
Consolidated Electrodynamics Corp., Calif., 25s
Consolidated Vacuum Corp., N.Y., 10c, Shock c
Controlled Atmosphere Enclosures Mfg. Co., Inc., Fla., 5c, 10sc, 15sc
Cook Electric Co., Ill., 5c, 10c, 15c, 25c, 30c
Cook Electric Co., Cook Technological Center, Ill., 10c
Corona Engineering Service, N.Y., 10s
Cosa Corp., N.Y., 25sc
Cosmodyne Corp., Calif., 10c
Cryogenerators, Inc., R.I., 10sc
Custom Scientific Instruments, Inc., N.J., 10c
Daven Co., Subsid. of General Mills, Inc., N.J., 10c, 20c
Decker Corp., Pa., 25c
Delta Design, Inc., Calif., 10s
Delta-F, Inc., 113 E. State St., Geneva, Ill., 10c, Tel: 312-CEnter 2-7600
See ad in class 31
Development Engineering Co., Inc., Conn., 10sc
Di-Tran Corp., Calif., 20c, 30c
Donner Scientific Co., Calif., 25c
Drexel Dynamics Corp., Pa., 25c
Dunn Engineering Corp., Mass., 10c
E O Electronics, Inc., N.J., 25c
Ehrenpreis Engineers (David), N.Y., 5c, 10c, 15c, 20c, 25c, 30c
Electric Hotpack Co., Inc., Pa., 10sc
Electro-Ceramics, Inc., Utah, 5c
Electromagnetic Technology Corp., Calif., 15c
Electronic Measurements Corp., N.Y., 25c
Elgenco, Inc., Calif., 5s, 30sc
Elliott-Automation, Ltd., England, 20sc, 25sc
Emerson & Cuming, Inc., Mass., 10sc, 15sc
Endevco Corp., Calif., 25sc
Enviro Equipment Corp., N.Y., 10c
Erwood, Inc., Ill., 25c
Everlast Refrigeration Co., N.Y., 10 Refrigeration c
Exact Electronics, Inc., Ore., 30s
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 25c
Flite-Tronics, Inc., Calif., 10 Diode sc, 20sc
Forma Scientific, Inc., Ohio, 10c
Formweld Products Co., Ohio, 15c
Garrett Corp., AiResearch Mfg. Co., Calif., 10c, 25c
General Applied Science Laboratories, Inc., Merrick & Stewart Aves., Westbury, L.I., N.Y., 25s, Tel: 516-EDgewood 3-6960
See ad in class 35
General Dynamics Corp., Electric Boat Div., Conn., 25c
General Dynamics/Electronics, N.Y., 25sc
General Electric Co. Ltd. of England, Telecommunications Group, England, 30sc
General Instrument Corp., Harris ASW Div., Conn., 5sc
General Precision Equipment Corp., Strong Electric Corp. (Subsid.), Ohio, 10 Solar-Simulator sc
General Radio Co., 22 Baker Ave., West Concord, Mass., 25s, Tel: 617-EMerson 9-4400
See ad on Cover 4
General Vacuum Corp., Mass., 10c
Genisco, Inc., Calif., 25c
Geotechnical Corp., Texas, 25sc
Goodman's Industries, Ltd., Axiom Works, England, 30sc
Goodrich Sponge Products (B. F.), 239 Derby Place, Shelton, Conn., 10s, Tel: 203-REgent 5-4661
See ad in class 103
Gruenberg Electric Co., Inc., N.Y., 10sc, 20c
Guildline Instruments, Ltd., Canada, 10 Constant c
Gulton Industries, Inc., N.J., 5sc, 25sc
Gyrex Corp., Calif., 10sc, Centrifugal sc
Harris Mfg. Co., Inc., Mass., 10c
Heldor Electronics Mfg. Co., N.J., 15sc, 20sc
High Vacuum Equipment Corp., Mass., 10sc
Hudson Bay Co., Div. of Labline, Inc., Ill., 10sc
Ideal-Aerosmith, Div. of Royal Industries, Inc., Wyo., 10s

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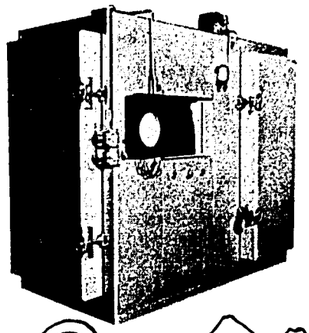
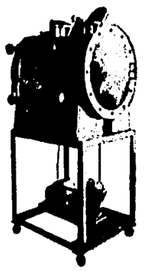
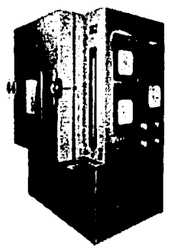
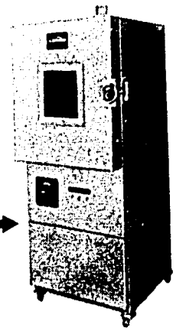






ECONO-MODEL



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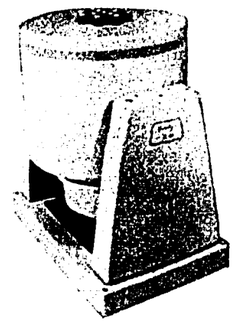
Directory I. Complete Equipment

36. Test Equipment, Environmental.

Impact-O-Graph Corp., Ohio, Shock-Recorders c
Industrial Acoustics Co., Inc., N.Y., 5c, 10c, 15c
Instron Engineering Corp., Mass., 25c
International Pump & Machine Works, 81 Dorsa Ave., Livingston, N.J., 10s, Tel: 201-WYman 2-5900
See ad in class 99
International Research & Development Corp., Ohio, 25s
International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 30c
Iwasaki Communication Apparatus Co., Ltd., Japan, 5c
Jan Hardware Mfg. Co., Inc., N.Y., Shock Testers sc
Kahl Scientific Instrument Corp., Calif., 10sc
Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 25s, Tel: 201-CApital 6-4000
See ad on pages 72-73
Kewaunee Scientific Equipment Co., Mich., 10c
Kinn Electronics Corp., Md., 10c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 10c, 15c, 25c, 30c
Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 5c, 15c, 30c, Tel: 516-RAvenswood 9-7580
See ad in class 89
L.A.B. Corp., N.Y., 30sc, Shock Testers sc
Labline, Inc., Ill., 10sc
Lattin Radio Laboratories, Ky., 20c
Lennard Co., Inc. (P. M.), Fla., 5sc, 10s, 15s
Lessells & Associates, Inc., Mass., 30c
Lindgren & Associates, Inc. (Erik A.), Ill., 15c
Ling Temco Vought, Inc., Texas, 5sc, 25s, 30sc
Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid.), Calif., 5c
Ling Temco Vought, Inc., Calidyne Co., Inc. (Div.), Mass., 30sc
Ling Temco Vought, Inc., Ling Electronics Div., Calif., 5s, 25s, 30s
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 30c
MB Electronics, Div. of Textron Electronics, Inc., Conn., 25sc, 30sc
Massa Div., Cohu Electronics, Inc., Mass., 5sc, 30s
Mast Development Co., Iowa, 10sc, 25c
McKiernan-Terry Corp., N.J., 10c, 30c
McMillan Laboratory, Inc., McMillan Industrial Corp., Mass., 10 Anechoic c, 15c
Microsecond Electronics, Inc., Ariz., 20c
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 25sc
Missimers, Inc., Calif., 10sc
Modern Design, Div. of H. C. Schloer, Inc., N.Y., 20c
Modern Laboratory Equipment Co., N.Y., 10 Aging sc, 20sc
Moog Servocontrols, Inc., Industrial Div., N.Y., 30c
Moulic Specialties Co., Ill., 5c, 10c, 25c
Muirhead & Co., Ltd., England, 25s
Muirhead Instruments, Inc., N.Y., 25s
NRC Equipment Corp., Mass., 10sc
National Research Corp., Mass., 10sc
Needco Cooling Semiconductors, Ltd., Canada, 10c
New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy., Somerville 43, Mass., 20c, Tel: 617-625-6100
See ad in class 84
New York Air Brake Co., Kinney Vacuum Div., Mass., 10s
Newton Co., Conn., 25s
Omega Dynamics Corp., Calif., 5sc, 25c
Omtronics Mfg., Inc., Nebr., 10sc
Optron Corp., Calif., 25s
Otis Elevator Co., Defense & Industrial Div., N.Y., 20c
Pacific Scientific Instrument Laboratory, Calif., 10s, 20s
Panoramic Electronics, Inc., 528 S. Fulton Ave., Mount Vernon, N.Y., 25s, Tel: 914-OWens 9-4600
See ad on page 80
Philco Corp., Lansdale Div., Pa., 20s
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 25s, 30s
Philips Electronics Industries, Ltd., Canada, 25s
Physical Sciences Corp., Affil. of Packard-Bell Electronics, Calif., Nuclear c
Power-Tronic Systems, Inc., N.Y., 25sc, 30sc
Probescope Co., Inc., N.Y., 25s
Radio Industries, Inc., Kans., 20c
Ray, Daisley Co., Inc., N.Y., 10c, 15c, 20c
Ray Proof Corp., Conn., 15sc
Research, Inc., Minn., 10sc
Rimak Electronics, Inc., Calif., 10c, 15c, 20c
Rixon Electronics, Inc., Md., 25sc
Rototest Laboratories, Inc., Calif., 5c, 10c, 30s
Schaevitz Engineering, N.J., 25c, 30c
Scientific Engineering Laboratories, Calif., 10c
Scott, Inc. (H. H.), Mass., 5s
Sel-Rex Corp., N.J., 10s
Shampaine Scientific Co., Div. of Shampaine Industries, Inc., N.J., 10sc
Shielding, Inc., N.J., 15sc
Siemens New York, Inc., N.Y., 5s
Skyline Electronics, Inc., Colo., 20c
Slidecraft, Inc., N.Y., 20c
Sorensen Industrial Electronic Co., N.J., 10c, 20c
Space Electronics Corp., Calif., 25c
Sperry Rand Corp., Sperry Gyroscope Co. (Div.), N.Y., 25sc
Stainless, Inc., Pa., 20c
Standard Cabinet Co., Inc., 53 Washington Ave., Carlstadt, N.J., 10sc, Tel: 201-GEneva 8-1500
See ad in this class
Standard Telephones & Cables, Ltd., England, 5sc, 30sc
Stark Electronic Instruments, Ltd., Canada, 10s, 15s
Statham Instruments, Inc., Calif., 10sc, 20sc
Stelon, Inc., N.J., 20c
Stephens Trusonic, Inc., Calif., 5sc, 30c
Stokes Corp. (F. J.), Pa., 10sc
Sun Electric Corp., Instrumentronics Div., Ill., 25sc
Swift Textile Metalizing & Laminating Corp., 10 Love Lane, Hartford 1, Conn., 15c, Tel: 203-JAckson 2-1181
See ad in class 103
Systems Development, Inc., N.Y., 20c
Technical Products Co., Calif., 25s
Tel Instrument Electronics Corp., N.J., 25s
Televiso Corp., Ill., 25c
Temperature Engineering Corp., N.J., 10s, 15c
Temney Engineering, Inc., N.J., 5c, 10c
Thermal Dynamic Products, Inc., Div. of Waltham Precision Instrument Co., N.Y., 10 Solar-Simulation s
Thermalic Electronics Corp., Calif., 10sc
Thermel, Inc., R.I., 10c
Thermovolt Instruments, Ltd., Canada, 10c



VIBRATION TEST EQUIPMENT

Complete systems from 175 to 5000 pounds force, featuring economical expandability, automatic control, minimum distortion or lateral motion, low gauss level at table, environmental models and limited random testing with minimum accessories.

DIAL-A-GAIN INSTRUMENTS

1. Low noise cathode follower of unique design
2. Up to 100 feet of shielded input signal cable
3. Precision calibrated adjustment of gain
4. Direct dialing of accelerometer sensitivity
5. Standardized data through normalized output
6. Usable with recording instruments
7. Direct indicating meter models
8. Simultaneous displacement, velocity and acceleration outputs

UNHOLTZ-DICKIE CORPORATION, 2994 Whitney Ave., Hamden 18, Conn.

For details, circle #189 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

POLARAD

MICROWAVE SPECTRUM ANALYZERS

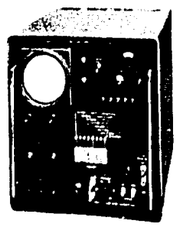
10 to 100,000 mc

FEATURING:

- 1 to 30 cps adjustable sweep rate
- Direct-reading UNIDIAL* tuning control, with no klystron modes to set
- High accuracy, resolution and sensitivity
- Frequency dial accuracy ±1%
- Non-contacting klystron cavity chokes for noiseless tuning
- Five-inch flat-face CRT
- Provision for use with Multi-pulse Spectrum Decoder (Model SD-1)

TRANSISTORIZED MULTI-BAND, SINGLE UNIT SPECTRUM ANALYZER

Complete Frequency Coverage, From 10 to 40,880 mc



Model SA-84T

Completely transistorized lightweight unit.

Dispersion: 500 kc to 25 mc, adjustable

Resolution: 20 kc at all frequencies

Internal Marker: ± 13 mc

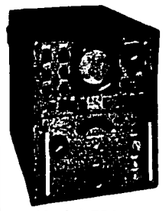
Power Input: 115/230 VAC, 50/60 cps or 12 VDC

Power consumption: when battery operated, 110 watts

Sensitivity: —50 to —105 dbm, depending on frequency.

Weight: 70 lbs. One half the weight of conventional vacuum-tube equivalent

Meets MIL-I-26600 for r-f interference



Model TSA

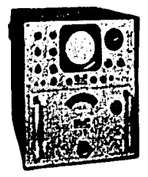
DIRECT READING SPECTRUM ANALYZER

10 to 44,000 mc in 5 Plug-In Tuning Units

To test missiles, radar, microwave components, telemetering and multi-pulse transmission

Features:

- Dispersion: 400 kc to 25 mc
- Resolution: 2 to 80 kc variable
- Attenuation: Continually variable
- Sensitivity: —50 to —95 dbm, depending on frequency
- Internal Marker: ± 14 mc



Model TSA-S

COMBINATION SYNCHROSCOPE-SPECTRUM ANALYZER

10 to 44,000 mc in 5 Plug-In Tuning Units

PROVIDES TIME AND FREQUENCY DISPLAYS

Time Display: Shows signal waveform

Frequency Display: Shows power vs. frequency

Bandwidth: 5 kc, 50 kc, 500 kc, 5 mc. Synchroscope sweep rate: 2, 10, 100, 1,000, 10,000 and 100,000 μsec per screen diameter. Dispersion, Sensitivity and Internal Marker same as TSA.

Model TSA-W

WIDE DISPERSION SPECTRUM ANALYZER

FOR NARROW AND WIDE PULSE ANALYSIS

10 to 44,000 mc in 5 Plug-In Tuning Units

Dispersion: 200 kc to 80 mc (2 ranges)

Resolution: 2 to 80 kc variable

Internal Marker: ±40 mc

Screen Display: Linear or log

80 mc dispersion displays pulses narrow as 0.1 μ sec. For wide pulses, dispersion may be adjusted down to 200 kc.

UNIVERSAL SPECTRUM ANALYZERS

Complete frequency coverage 10-40,880 mc in single self-contained units—no additional tuning units required. Expanded, direct-reading, slide rule dial

Model SA-84

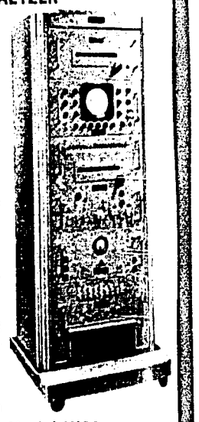
- **Dispersion:** 10 to 55 mc: 500 kc to 5 mc, adjustable 55 to 40,880 mc: 500 kc to 25 mc, adjustable
- **Resolution:** 20 kc :
- Internal Marker variable

Model SA-84W
Wide Dispersion

- **Dispersion:** 10 mc to 240 mc: 10 mc 240 mc to 40,800 mc: 80 mc
- **Resolution:** 2 kc to 80 kc variable
- **Crystal controlled markers from 10 to 40,880 mc**
- **Log-linear display**
- **Accurately calibrated IF attenuator**

WIDE BAND SPECTRUM ANALYZER

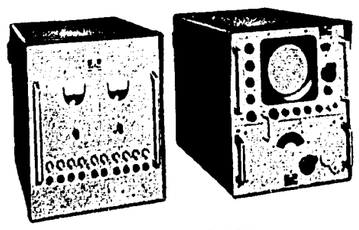
Self-Contained Unit Covers 10 to 40,000 mc in 20 Bands



Model WSA

- **Dispersion:** 1 mc to 25 mc in narrow band 50 mc to 4000 mc in wide band
- **Resolution:** 20 kc in narrow band 1.5 mc in wide band
- Rapid band selection by means of illuminated push-button switches.
- Frequency marker up to 4000 mc.
- End-markers indicate frequency limits of each band.
- Center-marker permits switching from wide to narrow bands without hunting for r-f signal.
- **Sensitivity:** —50 to —80 dbm, depending on frequency.

100 GC SPECTRUM ANALYZER



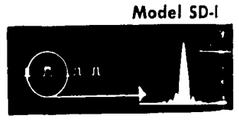
Model DA-70

Covers 50,000 mc to 100,000 mc in Three Bands

- **Dispersion:** Continuously adjustable from 50 mc to 1000 mc. Permits narrow pulse inspection.
- **Resolution:** 1 mc
- High intermediate frequency assures image rejection and prevents video detection.
- **Frequency marker:** for measuring frequency differences.
- **Dial frequency Accuracy:** ±1.0%
- **Nominal Sensitivity:** —50 dbm for entire frequency range.

MULTI-PULSE SPECTRUM SELECTOR

Model SD-I



Permits spectrum analysis of individual microwave pulses in a pulse group when used with any Polarad Spectrum Analyzer. Any pulse in a complex coded signal may be isolated for examination.

For details, circle #190 on Reader Service Card

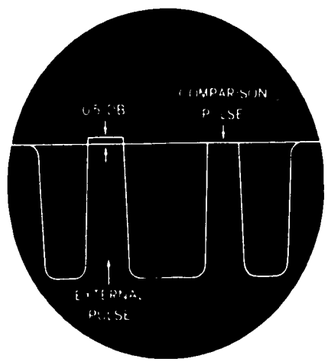
POLARAD
ELECTRONICS CORPORATION

43-20 34th Street
Long Island City 1, N. Y.

FREE LIFETIME SERVICE

DETERMINE

PEAK PULSE POWER WITHIN 0.5 DB



WITH MULTI-BAND FLEXIBILITY

The Series 5000 Pulse Power Calibrator is the only instrument that will give a final, direct reading of peak rf pulse power to this degree of accuracy . . . quickly, regardless of waveshape, and without introducing unknown errors. In addition, it provides multiple-band coverage, through the use of interchangeable rf heads.

RF Unit Model 5205, now available, covers the range from 8500 to 9600 mc. Other rf heads, in development, will cover further important bands. The display, essentially a notch wattmeter, permits comparative power discrimination within less than 0.1 db. Direct input power level range is approximately −5 to + 63 dbm.

WRITE TODAY for more information on this and other new GCC developments in microwave components, wavemeters, attenuators, oscillators and test equipment.

GENERAL COMMUNICATION COMPANY

677 Beacon Street
Boston, Mass.

For details, circle #191 on Reader Service Card

Directory I. Complete Equipment

36. Test Equipment, Environmental.

Thompson, Ltd. (J. Langham), England, 10s
Tipptronic, Inc., Ohio, 10c
Topatron, Inc., Calif., 10sc, 15sc
Transistor Applications, Inc., Mass., 20c
Tri Metal Works, Inc., N.J., 10c
Trott Electronics, Inc., N.Y., 20c
Ultrasonic Industries, Inc., N.Y., 5 Sonic-Gun s, 30 Ultrasonic sc
Unholtz-Dickie Corp., 2994 Whitney Ave., Hamden 18, Conn., 25c, 30s, Tel: 203-ATwater 8-3358
See ad in this class
United Shoe Machinery Co., Mass., 15c
U.S. Sonics Corp., Mass., 5sc
Vactronic Lab. Equipment, Inc., 21 Monmouth Ct., East Northport, L.I., N.Y., 10c, Tel: 516-ANdrew 1-2660
See ad in class 99
Vacuum Specialties Co., Inc., Mass., 10c
Vap-Air Div., Vapor Corp., Ill., 10c
Varian Associates, Instrument Div., Calif., 10s
Vibroscope Co., N.Y., 25s
Wallson Associates, Inc., 912-914 Westfield Ave., Elizabeth, N.J., 10c, 15c, 20c, Tel: 201-FLanders 1-0700
See ad in class 41
Wayne Kerr Corp., Pa., 25s
Webber Mfg. Co., Inc., Ind., 10 Temp. c
Western Electro-Acoustic Laboratory, Inc., Calif., 5sc, 25sc
Wharton Unitools, N.Y., 25sc, 30sc
Wright Equipment Corp., N.J., 10c, 20c
Wyle Laboratories, Calif., 10sc, 20sc, 30sc
York Research Corp., Kip Electronics Div., Conn., 10c, 25c

37. Test Equipment, Microwave.

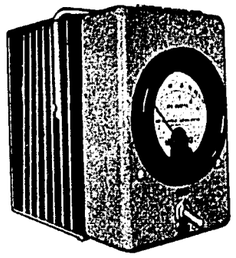
5. Analyzers, microwave spectrum
10. Bolometers
15. Calorimeters
20. Generators, marker
25. Generators, noise
30. Generators, pulse
35. Generators, time delay
40. Meters, frequency
45. Meters, noise & field intensity
50. Meters, power
55. Meters, SWR
60. Mixers
65. Oscillators
70. Simulators
75. Slotted lines & measuring accessories
80. Wattmeters, absorption
85. Wavemeters

ACF Electronics Div., ACF Industries, Inc., Md., 40c, 60sc, 65sc, 85c
A.R.F. Products, Inc., Ill., 30s
Ad-Yu Electronics Laboratory, Inc., 249 Terhune Ave., Passaic, N.J., 35sc, Tel: 201-GRegory 2-5622
See ad in class 57
Adler Electronics, Inc., N.Y., 65c, 85c
Advance Components, Ltd., England, 25s
Advanced Development Laboratories, Inc., N.H., 5c, 60c, 65c
Airborne Instruments Laboratory, Div. of Cutler-Hammer, Inc., N.Y., 25s, 45s, 50s, 65s
Aircom, Inc., 48 Cummington St., Boston 15, Mass., 15sc, 25sc, 40c, 65sc, 75sc, 85sc, Tel: 617-COpley 7-9115
See ads in classes 44, 66
Aircraft Armaments, Inc., Md., 50c, 70c, 85c
Airtec, Inc., N.J., 40sc, 60sc, 75sc, 85c
Alford Mfg. Co., 299 Atlantic Ave., Boston 10, Mass., 75s, Automatic Impedance Plotters s, Tel: 617-HAncock 6-2150
See ad in class 66
Alfred Electronics, Calif., 25s, 30s, 65s, 70c
Altron Electronics Co., Pa., 75s
Amerac, Inc., Mass., 30sc, 40sc, 60sc, 65sc, 85sc
American Electronic Laboratories, Inc., Richardson Rd., Colmar, Pa., 5c, Tel: 215-VAn Dyke 2-0131
See ad adjacent to Index to Advertisers, back of book
Andrew Antenna Corp., Ltd., Canada, 75s
Antenna & Radome Research Associates, Inc. (ARRA), 27 Bond St., Westbury, L.I., N.Y., 75c, Tel: 516-EDgewood 4-8770
See ad in class 45
Applied Research, Inc., 76 S. Bayles Ave., Port Washington, L.I., N.Y., 5c, Tel: 516-POrt Washington 7-8707
See ad in class 43
Ardwin Microlab, Inc., Mass., 40sc, 60sc, 75sc, 80sc, 85sc
Associated Electrical Industries (Rugby), Ltd., England, 5sc, 25c, 40s, 55s, 60s, 75s, 85s
Auerbach Electronics Corp., Pa., 25c, 30c
Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 5s, 10s, 40s, 45s, 55s, Tel: 617-UNiversity 4-7420
See ad in class 86
Bay-Tronic Co., N.J., 40c
Bayside Watch Tool Co., Inc., N.Y., 70sc
Beckman Instruments, Inc., Berkeley Div., Calif., 40s
Bellaire Electronics, Inc., N.J., 80sc
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 5c
Bendix Corp., M. C. Jones Electronics Co., Inc. (Subsid.), Conn., 10c, 15s, 50sc, 55sc, 75c, 80sc
Biddle Co. (James G.), Pa., 40s
Bird Electronic Corp., 30303 Aurora Rd., Cleveland 39, Ohio, 50sc, 55sc, 80sc, Tel: 216-CHurchill 8-1200
See ad on page 210
Borg-Warner Corp., Borg-Warner Controls Div., Calif., 50s, 55s, 65s, 75s
Brumo-New York Industries Corp., N.Y., 10s, 50s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Average Reading R.F. POWER METERS

1. Calibrate these Power Meters in your plant or laboratory against low frequency power standards at power line frequencies. No need to ship to manufacturer for repair and recalibration.
2. No correction curves necessary.
3. Simple operation.

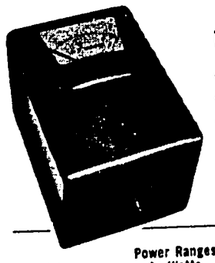


200 KC TO 500 MC GREATLY IMPROVED

- **Portable, Continuous Duty.**
- **Can be recalibrated anywhere with DC or Alternating Current Power against a low frequency standard.**

These broad band R.F. Power Meters are of the absorption-type consisting of an oil filled, air cooled, coaxial load resistor and a voltmeter calibrated to read watts. The power meter is suitable for use as a field or laboratory test instrument, is completely shielded and non-radiating, permitting transmitter testing and adjustment without interference. The meter box is easily detached, permitting location of the load resistor at a remote point. In cases where power measurements are not required the load resistor may be used as a dummy load. No correction curve is necessary to cover the frequency range. The spurious response usually associated with directional couplers and capacitative voltage dividers is absent in this purely resistive voltage divider. Since this is a resistive voltage divider which has the same voltage division at DC, 60 cycle AC, and at high radio frequencies, this instrument can be calibrated and its calibration can be checked frequently on 60 cycle supply voltages.

Model	Power Ranges In Watts	Dielectric	Max. Power Dissipation	Price
PM-3	60, 150	Oil	150 watts	$220.00
PM-4	.15, .6	Air	1 watt	95.00
PM-5	.6, 1.5	Air	1.5 watts	95.00
PM-6	1.5, 6	Air	10 watts	95.00
PM-7	150, 600	Oil	600 watts	285.00
PM-8	1.5, 6, 15, 60	Oil	100 watts	225.00
PM-9	2.5, 10	Air	10 watts	105.00
PM-10	15, 60	Oil	90 watts	145.00
PM-14	25, 100, 500	Oil	500 watts	325.00
PM-16	150, 600, 1500	Oil	1500 watts	375.00
PM-18	1.5, 6, 15, 60, 150, 600	Oil	600 watts	485.00
PM-19	1.5, 6, 15, 60, 120	Oil	100 watts	250.00



100 KC TO 200 MC

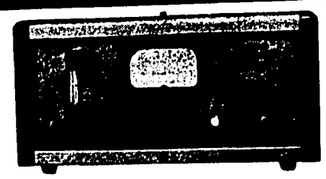
- **Intermittent Duty.**
- **Portable.**
- **Can be recalibrated anywhere with DC or Alternating Current Power against a low frequency standard.**

Model	Power Ranges In Watts	Dielectric	Max. Power Dissipation (Intermittent Duty)	Price
AM-3	60, 150	Oil	150 watts	$95.00
AM-6	1.5, 6	Air	10 watts	60.00
AM-7	150, 6	Oil	600 watts	150.00
AM-8	1.5, 6, 16, 60	Oil	100 watts	95.00
AM-9	2.5, 10	Air	10 watts	60.00
AM-10	15, 60	Oil	90 watts	75.00
AM-14	25, 100, 500	Oil	500 watts	175.00
AM-16	150, 600, 1500	Oil	1500 watts	200.00
AM-18	1.5, 6, 15, 60, 150, 600	Oil	600 watts	250.00
AM-19	1.5, 6, 15, 60, 120	Oil	100 watts	125.00

DIRECT READING

Calorimetric Power Meter

3% ACCURACY



ACCURACY: 3% (less load error)

These power meters are greatly simplified Calorimeters, which use an accurate metering pump of the gear type driven by an overpowered synchronous motor to keep the fluid flow constant. The instrument is fully self-contained, portable, self-cooled and requires only connection to the power line. It does not use any flow meters, thermometers or any other controls. There is only the "ON" & "OFF" switch for the operator to use on the front panel, when a measurement is to be made. A sensitive thermopile and microammeter measures the power dissipated in the R.F. load. The microammeter is calibrated in watts and is direct reading. These Calorimeters are available with either a coaxial or a waveguide load.

COAXIAL CALORIMETERS

Type	Full Scale Power	Freq. Range KMC	Price
CPM-10	10	DC-10	$950.00
CPM-50	50	DC-10	950.00
CPM-100	100	DC-10	950.00
CPM-500	500	DC-10	950.00
CPM-5000	5000	DC-1	1400.00
CPM-10000	10000	DC-1	2000.00
CPM-20000	20000	DC-1	3250.00

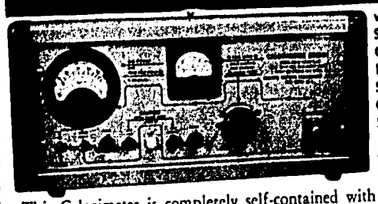
WAVEGUIDE CALORIMETERS

Type	Full Scale Power	Price
CPW-10	10	$850.00
CPW-50	50	800.00
CPW-100	100	800.00
CPW-500	500	800.00
CPW-5000	5000	1200.00
CPW-10000	10000	1750.00
CPW-20000	20000	2950.00

DIRECT READING

Calorimeter Bridge

2% ACCURACY



with Self-Contained Calorimeter Loads, Cooling System & Circulating System.

ACCURACY: 2% (less load error)

This Calorimeter is completely self-contained with its own circulating system, cooling system and the radio frequency dummy load and requires only connection to the regular power line. The R.F. power is read directly on a 4½" meter in watts. A single coaxial dummy load is available to cover the frequency range from DC to 10,000 Mc and for the power range from 1 to 1000 watts. The overall accuracy of this Calorimeter is 3%. However, this accuracy can be improved greatly by calibrating the Calorimeter by means of an external laboratory-type wattmeter.

Model	Range	Frequency	Price
CB-11	1 watt	DC-4 KMC	$900.00
CB-12	5 watts	"	900.00
CB-13	25 watts	"	1250.00
CB-14	150 watts	"	1250.00
CB-15	500 watts	"	1450.00
CB-16	1000 watts	"	1650.00
CBW-1	1 watt	7-12 KMC	1450.00
CBW-2	5 watts	"	1450.00
CBW-3	25 watts	"	1250.00
CBW-4	150 watts	2.4-12 KMC	1100.00
CBW-5	750 watts	1-12 KMC	1500.00
CBW-6	3000 watts	"	2400.00
CBW-7	6000 watts	"	3000.00

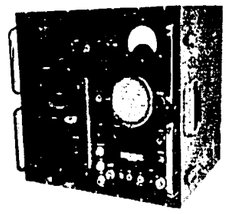
Electro IMPULSE Laboratory

208 RIVER STREET • RED BANK, N J • Phone SHadyside 1-0404

For details, circle #192 on Reader Service Card

ed EMPIRE DEVICES

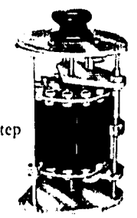
Specialists in noise and field intensity measuring equipment, microwave systems and components, and radar instrumentation.



Noise and Field Intensity Meters
14 KC - 10,000 MC
Illustrated: Model NF-112
1,000 - 10,000 MC;

Broadband Power Density Meter Model NF-157
200-10,000MC;
0.1-2,000MW/CM²

COAXIAL ATTENUATORS



Model AT-109
DC—4000MC
12 steps: 0.1 to 6 db/step

Pad and Step attenuators DC—10,000 MC

Noise and Field Intensity Meters
Power Density Meters
Impulse Generators
Modulation Meters
Crystal Mixers
Coaxial Attenuators & Terminations
Microwave Components
Variable Frequency Power Supplies

FOR PROMPT, INFORMED SERVICE IN THE NORTHEAST ..... CALL

BURLINGAME ASSOCIATES

MOUNT VERNON, N.Y. • MOunt Vernon 4-7530
WALTHAM .....TWinbrook 4-1955
SYRACUSE .....GRanite 4-7409
PHILADELPHIA .....SHerwood 7-9080
WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400

For details, circle #193 on Reader Service Card

Directory I. Complete Equipment

37. Test Equipment, Microwave.

Brunswick Instruments, N.J., 50c
Budd-Stanley Co., Inc., 175 Eileen Way, Syosset, L.I., N.Y., 40s, 60c, 75s, 85s, Tel: 516-WAlnut 1-7550
See ad on page 92
Bulova Watch Co., Inc., Electronics Div., Dept. A-1376, 61-10 Woodside Ave., Woodside 77, N.Y., 65c, Tel: 212-NEwtown 9-5700
See ad in class 56
Burmac Electronics Co., Inc., 142 S. Long Beach Rd., Rockville Centre, L.I., N.Y., 30c, Tel: 516-ORiole 8-3070
See ad in class 69
California Technical Industries, Div. of Textron, Inc., Calif., 10sc, 40sc, 65sc
Canadian Marconi Co., Canada, 5s, 35s
Canadian Westinghouse Co., Ltd., Canada, 30c, 35c
Canoga Electronics Corp., Calif., 30c
Capehart Corp., N.Y., 5c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 60c, 65c, 70c, 85c
Caswell Electronics Corp., Calif., 75c
Chemalloy Electronics Corp., Calif., 15s, 80s
Chesapeake Instrument Corp., Md., 30s
Collins Radio Co., Iowa, 5s, 45s
Columbus Electronics, Inc., 1000 Saw Mill River Rd., Yonkers, N.Y., 40c, 85c, Tel: 914-YOnkers 8-1221
See ads in classes 48, 71
Concord Control, Inc., Mass., 40s
Conn, Ltd. (C. G.), Ind., 40s
Continental Electronics & Sound Co., Ohio, 45sc, 55sc
Control Electronics Co., Inc., 10 Stepar Place, Huntington Station, L.I., N.Y., 20s, 40s, 50s, 80s, Tel: 516-HAmilton 7-7961
See ad in class 59
Cook Electric Co., Cook Technological Center, Ill., 20c, 30c, 65c, 75c
Cosmic, Inc., D.C., 5sc
Crosby-Teletronics Corp., N.Y., 30s
Cubic Corp., Calif., 50sc, 55sc, 80sc
Datalog Corp., Metrolog Div., 2415 Amsler St., Torrance, Calif., 65c, 70c, Tel: 213-SPruce 5-6621
See ad in class 40
Dawe Instruments, Ltd., England, 25s, 30s, 40s, 45s
Daystrom, Inc., Weston Instruments Div., N.J., 40s, 50s
Dayton Electronic Products Co., Ohio, 75c
DeMornay-Bonardi Corp., 780 S. Arroyo Parkway, Pasadena, Calif., 40s, 60s, 75s, 80s, 85s, Tel: 213-SYcamore 2-4142
See ad on pages 68-69
Dero Research & Development Corp., N.Y., 40c, 45c
Diamond Antenna & Microwave Corp., Mass., 40sc, 60sc, 65sc, 75sc, 85sc
Dielectric Products Engineering Co., Inc., Me., 75c
Dorne & Margolin, Inc., N.Y., 50c
Douglas Aircraft Co., Inc., Calif., 70c
Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 5sc, 15sc, 40sc, 45sc, 50sc, 55sc, 60sc, 65sc, 75sc, 80sc, 85sc, Tel: 914-MOunt Vernon 8-6900
See ad in class 66
E-H Research Laboratories, Inc., Calif., 30s
Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 15s, 75c, 80s, Tel: 415-LYtell 1-1451
See ad on pages 29-32
Electro Impulse Laboratory, Inc., 208 River St., Red Bank, N.J., 15sc, 40sc, 50sc, 80sc, 85sc, Tel: 201-SHadyside 1-0404
See ad in this class
Electro-Pulse, Inc., Div. of Servo Corp. of America, Calif., 35c
Electromagnetic Technology Corp., Calif., 15c, 45c, 65c, 70c
Electronic Tube Corp., Pa., 30c
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 30sc, 35sc
Elliott-Automation, Ltd., England, 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc, 65sc, 70sc, 75sc, 80sc, 85sc
Emerson Electric Mfg. Co., Mo., Radar-Scatter c
Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 25s, 30s, 45s, 50s, 60s, 65s, Tel: 518-VIctor 2-8400
See ad in class 38
FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 5s, 10s, 40s, 50s, 55s, 60s, 65s, 75s, Tel: 212-RAvenswood 1-9000
See ad in this class
Farinon Electric, Calif., 50s, 55s, 60s
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 65c, 70c
Federal Scientific Corp., N.Y., 70sc
Ferranti Electric, Inc., N.Y., 5c
Fidelitone Microwave, Inc., Ill., 10sc, 60sc, 85sc
Field Emission Corp., Ore., 35sc
Filmohm Corp., 48 W. 25th St., New York 10, N.Y., 10sc, Tel: 212-WAtkins 4-6605
See ad in class 74
Forway Industries, Inc., N.J., 75c
Frequency Standards, Div. of Harvard Industries, Inc., N.J., 40sc, 60sc, 65c, 85sc
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 30c, 35c, 65sc, Tel: 216-SHadyside 9-0700
See ad in class 50
Gar Precision Parts, Inc., Conn., 75c
General Aniline & Film Corp., Ansco Div., N.Y., 30c, 60c, 65c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

FXR a division of Amphenol-Borg Electronics Corporation
25-26 50th STREET • RA. 1-9000
WOODSIDE 77, N. Y. • TWX: NY 43745

FXR OFFICES IN NEW YORK • BOSTON • LOS ANGELES
REPRESENTATIVES IN ALL MAJOR CITIES THROUGHOUT THE WORLD.

Short Form Catalog of
MICROWAVE TEST EQUIPMENT
DELIVERY FROM STOCK

FXR offers the finest and most complete line of MICROWAVE TEST EQUIPMENT in the world! Craftsmanship and engineering know-how, housed in over 250,000 sq. ft. of modern facilities, are the keys to this quality FXR line.

Contact your nearest FXR representative for full information in these additional fields:

- Microwave System Components
- Microwave Transmitters
- High Power Electronics
- Electronic Instrumentation

(164) DIRECT READING PRECISION VARIABLE ATTENUATORS

(175) FIXED PRECISION ATTENUATORS

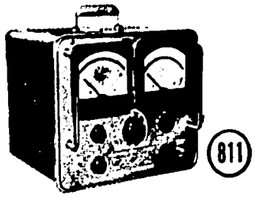
(410) DIRECT READING FREQUENCY METERS

(103) PRECISION SLOTTED SECTIONS

(641) WAVEGUIDE SWITCHES

WAVEGUIDE TEST EQUIPMENT

FXR SERIES PREFIX WAVEGUIDE SIZE IN INCHES (I.D.)	J 21.00x18.50	L 6¼x2¾	R 4.410x2.310	S 3x1½	H 2x1	C 1½x¾	W 1¼x⅝	X 1x½
FREQUENCY RANGE IN KMC/SEC	0.35-0.53	1.12-1.70	1.70-2.60	2.60-3.95	3.95-5.85	5.85x8.20	7.05-10.00	8.20-12.40
SLOTTED SECTIONS Fixed W.C.	J104A $2350	L101A $950	R101A $1349	S101A $445	H101A $385	S101A $335	W101A $300	X101A $245
Interchangeable W.C.					H115A $110	C115A $110	W115A $110	X115A $ 90
ATTENUATORS Flap		L150B $170	R150B $225	S151A $100	H151A $ 95			
Semiprecision				S155A $170	H155A $170	C155A $ 95	W155A $ 85	X155A $ 75
Precision Calibrated		L160B $575	R160B $500					
Precision Direct Reading				S164A $595	H164A $500	C164A $350	W164A $350	X164A $270
Fixed		L168A-E $215			(Models A-30B, B 60B, C-100B, D 200B, E-300B)			
Fixed Precision				S175A $165	H175A $240	C175A $135	W175A $115	X175A $ 95
400B Step							W176A $185	X176A $165
FERRITE ISOLATORS					H157A $740	C157A $720	W157A $220	X157A $195
CRYSTAL DETECTOR MOUNTS Tuneable								
Fixed								X211A $ 54
MATCHED BOLOMETER MOUNTS				S207A $145	H207A $140	C207A $135	W207A $120	X207A $ 80
THERMISTOR MOUNTS		L216A $225	R216A $250	S216A $170	H215A $ 94	C216A $ 88	W216A $ 79	X216A $ 74
THERMISTOR HEADS TEMPERATURE COMPENSATED		L218A $350	R218A $350	S218A $225	H218A $180	C218A $170	W218A $150	X218A $145
TUNERS Slide screw		L310A $250	R310A $325	S311A $150	H311A $140	C311A $135	W311A $130	X311A $125
E/H				S312A $270	H312A $210	C312A $180	W312A $150	X312A $130
PRECISION PHASE SHIFTERS								
DIRECT READING FREQUENCY METERS Precision						C402A $1275		X402A $1275
Reaction					H410A $250	C410A $180	W410B $165	X410B $150
Reaction, micrometer								X411A $175
Transmission								
TERMINATIONS Fixed	J501A $750	L501A $210	R501A $180	S501B $ 44	H501B $ 34	C501B $ 30	W501B $ 25	X501B $ 24
		L502A $350		S502A $ 95	H502A $ 70	C502A $ 65	W502A $ 55	X502A $ 45
Sliding						C505A †	W505A $125	X505A †
High power								
STANDARD MISMATCHES VSWR 1.00				S510A $500	H510A $420	C510A $390	W510A $370	X510A $360
VSWR 1.05				S510B $350	H510B $310	C510B $295	W510B $285	X510B $275
VSWR 1.10				S510C $790	H510C $250	C510C $235	W510C $225	X510C $215
VSWR 1.20				S510D $250	H510D $210	C510D $195	W510D $185	X510D $175
VSWR 1.50				S510E $350	H510E $310	C510E $295	W510E $285	X510E $275
WAVEGUIDE-TO-COAX ADAPTERS	J600BN $200 J600B $170	L600B $170	R601B $225	S601B $ 50	H601B $ 40	C601B $ 35	W601B $ 30	X601B $ 25
DIRECTIONAL COUPLERS Multihole				S610AD $370	H610A-D $240	C610A-D $140	W610A-D $115	X610A-D $ 95
Crossguide		L612E $300	R612E $250	S612D $140	H612D $120	C612D $ 85	W612D $ 75	X612D $ 50
WAVEGUIDE TEES Series		L620A $175	R620A $175	S670A $ 90	H620A $ 80	C620A $ 60	W620A $ 45	X670A $ 35
Shunt		L621A $175	R621A $175	S621A $ 90	H621A $ 80	C621A $ 60	W621A $ 45	X621A $ 35
Hybrid		L622A $220	R622A $220	S622A $110	H622A $ 95	C622A $ 75	W622A $ 60	X622A $ 49
WAVEGUIDE BENDS 90° E plane	J623B $420	L623B $125	R623B $150	S623B $ 90	H623B $ 65	C623B $ 45	W623B $ 35	X623B $ 24
90° H plane	J624B $420	L624B $125		S624B $ 90	H624B $ 65	C624B $ 45	W624B $ 35	X624B $ 24
WAVEGUIDE 90° TWISTS				S625A $175	H625A $125	C625A $ 75	W625A $ 65	X625A $ 40
PRECISION SLIDING SHORTS		L630A $275		S630A $175	H630A $165	C630A $155	W630A $145	X630B $130
STRAIGHT WAVEGUIDE SECTIONS (Min. length)		L634A $110	R634A $110	S634A $ 75	H634A $ 50	C634A $ 38	W634A $ 35	X634A $ 30
STANDARD GAIN HORNS		L638A $350	R638A $500	S638A $ 75	H638A $150	C638A $175	W638A $120	X638A $100
WAVEGUIDE SWITCHES	Manual Electrical				H641A $350 H641AE $400	C641A $300 C641AE $335	W641A $265 W641AE $290	X641A $225 X641AE $250
					H760A $150		W760A $130	X760A $130
SHIELDED TUBE MOUNTS								
HARMONIC GENERATORS		L911A $ 15		Z910A $ 7	Z910A $ 7	Z910A $ 7	Z910A $ 7	Z910A $ 7
WAVEGUIDE STANDS								



(811) UNIVERSAL RATIOMETER

RATIO METER AND STANDING WAVE AMPLIFIER IN ONE COMPACT PACKAGE

Model B811A • $610

NOTE:
†Price will be furnished on request.
*Specify required flanges when ordering.
BIDIRECTIONAL COUPLERS available on special order.
WAVEGUIDE FLANGES and FLANGE SCREWS available.

Due to continuing product improvement, specifications and prices are subject to change without notice.

Prices indicated are domestic.

For details, circle #194 on Reader Service Card

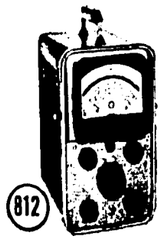
COAXIAL TEST EQUIPMENT

INSTRUMENT	MODEL NO.	FREQ KMC/SEC	PRICE	COMMENT
SLOTTED SECTIONS	N101A	1.00- 4.00	$470.00	Type N or C adapter connector supplied for N101A, B
	N101B	4.00-10.00	$460.00	
	*V101A	1.00- 4.00	$470.00	
	*V101B	3.00- 4.00	$470.00	
	N11CA	0.70- 4.00	$550.00	
FERRITE ISOLATORS	N157A	1.00- 4.00	$390.00	
FIXED ATTENUATORS	N180A,B,C,D	1.00-11.00	$ 42.00	3, 6, 10, 20 db
TUNABLE PROBES	B200A	1.00-12.40	$145.00	1N23B supplied
	B202A	0.35- 1.40	$225.00	1N21B supplied
DETECTOR MOUNTS Tunable	N200A	1.00-12.40	$145.00	1N23B crystal supplied
Untuned	N210A	0.10-10.00	$ 50.00	
	**N210B	0.10-10.00	$ 55.00	
THERMISTOR MOUNTS Broadband Temp Compensated	N215A	0.50-10.50	$ 75.00	Z215L element supplied
	N217A	0.50-10.50	$140.00	
THERMISTOR HEAD	N218A	0.01-10.00	$145.00	Used with Model B831A
DOUBLE STUB TUNER	N300A	1.00-12.00	$ 90.00	
SLIDE SCREW TUNER	N311A	1.00-10.00	†	
FREQUENCY METERS, DIRECT READING	N412A	1.00- 4.00	$495.00	Accuracy 0.08%
	N414A	4.00-11.00	$495.00	Accuracy 0.15%
DIRECTIONAL COUPLERS (20 DB)	N616D	0.25- 1.00	$160.00	
	N617D	1.00- 4.00	$150.00	
KLYSTRON TUBE MOUNT	N761A		$ 95.00	Z761P cable not supplied
KLYSTRON TUBE MOUNT	Z762B		$145.00	Z772P cable supplied

*Mating coax dim. ⅞" all others ⅜" **Model N216B has built in DC return. †Price will be furnished on request.

WAVEGUIDE TEST EQUIPMENT

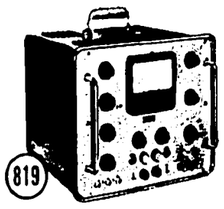
FXR SERIES PREFIX WAVEGUIDE SIZE IN INCHES (I.D.)	Y .622x.311	K* .420x.170	U* .280x.140	Q .224x.112	M .148x.074	E .122x.061	F .080x.040	G .051x.0255
FREQUENCY RANGE IN KMC/SEC	12.40x18.00	18.00-26.50	26.50-40.00	33.00x50.00	50.00-75.00	60.00x90.00	90.00-140.00	140.00x220.00
SLOTTED SECTIONS Fixed W.C.	Y102A $545	K102A $545	U102A $545	Q103A $1100	M103A $995	E103A $1650	F105A $1400	G105A $1400
Interchangeable W.C.	Y115A			TYPE Z116A CARRIAGE $160				
ATTENUATORS Flap				Q151A $110	M151A $100	E151A $190		
Semiprecision	Y155A $ 90	K155A $135	U155A $170					
Precision Calibrated							F163A $975	G163A $975
Precision Direct Reading	Y164A $275	K164A $425	U164A $450	Q164A $825	M164A $800	E164A $1200		
Fixed								
Fixed Precision	Y175A $115	K175A $240	U175A $250	Q175A $475	M175A $475	E175A $675	(Values to 300B)	
400B Step								
FERRITE ISOLATORS	Y157A $220	K157A $240						
CRYSTAL DETECTOR MOUNTS Tuneable			U205B $200		M206A $325	E206A $400		
Fixed	Y205B $175	K205B $175	U206B $200	Q206B $210	M206B $210	E206C $150	F206A $400	G206A $400
MATCHED BOLOMETER MOUNTS	Y217A $ 80	K212A $ 80	U212A $ 80					
THERMISTOR MOUNTS	Y216A $110	K216A $350	U216S $270					
THERMISTOR HEADS TEMPERATURE COMPENSATED	Y218A $210	K218A $250	U218S $400					
TUNERS Slide screw	Y311A $130				M311A $195			
E/H	Y312C $135	K312C $155	U312B $170	Q312B $235	M312C $245	E312C $390	F313A $775 F314A $950	G313A $775 G314A $950
PRECISION PHASE SHIFTERS								
DIRECT READING FREQUENCY METERS Precision	Y410A $210	K410A $230	U410A $250					
Reaction				Q410X $325	M410X $300	E410X $500	F412A $750	G412A $750 G413A $850
Reaction, micrometer								
Transmission								
TERMINATIONS Fixed	Y501A $ 24	K501A $ 30	U501A $ 35	Q501A $ 95	M501A $ 90	E501A $150	F501A $150	G501A $150
Sliding	Y502A $ 50	K502A $ 70	U502A $ 75					
High power								
STANDARD MISMATCHES VSWR 1.00	Y510A $450	K510A $480	U510A $675					
VSWR 1.05	Y510B $375	K510B $340	U510B $525					
VSWR 1.10	Y510C $375	K510C $280	U510C $450					
VSWR 1.20	Y510D $225	K510D $240	U510D $280					
VSWR 1.50	Y510E $325	K510E $340	U510E $350					
WAVEGUIDE-TO-COAX ADAPTERS	Y610A-D $100 Models A-30B, B 60B, C-100B, D 200B	K610A-D $165	U610A-D $185		M610A-D $500			
DIRECTIONAL COUPLERS Multihole	Y612D $ 55	K612D $110				Models D 200B, E 300B		
Crossguide								
WAVEGUIDE TEES Series	Y620A $ 40	K620A $ 45	U520A $ 55	Q620A $ 65	M620A $ 60	E620A $110	F620A $275	G620A $275
Shunt	Y621A $ 40	K621A $ 45	U621A $ 55	Q621A $ 65	M621A $ 60	E621A $110	F621A $275	G621A $275
Hybrid	Y622A $ 54	K622A $ 65	U622A $ 80	Q622A $100	M622A $100	E622A $170	F622A $325	G622A $325
WAVEGUIDE BENDS 90° E plane	Y623B $ 32	K623B $ 38	U623B $ 42	Q623B $ 55	M623B $ 50	E623B $ 90	F623A $275	G623A $275
90° H plane	Y624B $ 32	K624B $ 38	U624B $ 42	Q624B $ 55	M624B $ 50	E624B $ 90	F624A $275	G624A $275
WAVEGUIDE 90° TWISTS	Y625A $ 60	K625A $ 60	U625A $ 70	Q625A $100	M625A $100	E625A $100	F625A $160	G625A $100
PRECISION SLIDING SHORTS	Y630C $145	K630C $155	U630B $150	Q630B $155	M630C $160	E630B $250	F631A $275	G631A $275
STRAIGHT WAVEGUIDE SECTIONS (Min. length)	Y634A $ 35	K634A $ 38	U634A $ 38	Q634A $ 50	M634A $ 50	E634A $ 50	F634A $ 85	G634A $ 85
STANDARD GAIN HORNS	Y638A $125	K638A $150	U638A $175	Q638A $120	M638A $125	E638A $250	F639A $200	G638A $200
WAVEGUIDE SWITCHES	Y641A $250 Y641AE $275	K641A $275 K641AE $300	U641A $300 U641AE $325					
SHIELDED TUBE MOUNTS				Q780A $165	M780A $160	E780A $250	F781A $475	G781A $475
HARMONIC GENERATORS	Z910B $ 7	Z910B $ 7	Z910B $ 7	Z910C $ 7	Z910C $ 7	Z910C $ 7		
WAVEGUIDE STANDS								



(812) STANDING WAVE AMPLIFIER

- Full scale sensitivity, 0.1μV signal-to-noise ratio 3:1
- Tunable 1000 cps filter

Model B812A • $225



(819) KLYSTRON POWER SUPPLY

- Beam: 300-1000V at 85 MA.
- Grid: 0 to +150V; 0 to −300V
- Reflector: 0-900V

Model Z819A • $625

For details, circle #195 on Reader Service Card

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25-26 50th STREET • RA. 1-9000
WOODSIDE 77, N. Y. • TWX: NY 43745

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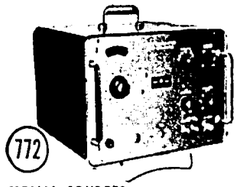
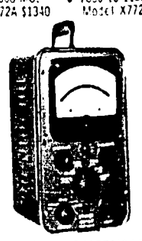


(772) SIGNAL SOURCES

- 950 to 2090 MC. Model L772A $1340
- 1900 to 4000 MC. Model S772A $1340
- 3950 to 8200 MC. Model C772A $1340
- 7000 to 11000 MC. Model X772A $1340



(831) TEMPERATURE COMPENSATED POWER METER

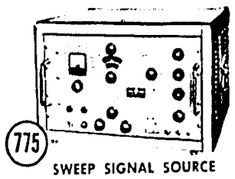
- Power Range, full scale −20DBM or 0.010 MW. to + 50BM or 3.00 MW.
- Type 218 Heads required

Model B831A • $335
Model B832F (Transistorized) • $450

(815) UNIVERSAL KLYSTRON POWER SUPPLY

- Beam: 200-3600V
  Grid: 0 to +150V; 0 to −300V
  Reflector: 0-1000V

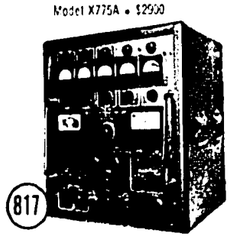
Model Z815B • $1350



(775) SWEEP SIGNAL SOURCE

- Freq. Range: 8200 12400 MC.
- Provisions for AGC

Model X775A • $2990



(817) UNIVERSAL MICROWAVE POWER SUPPLY

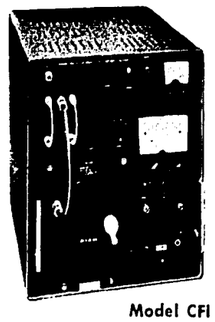
- Helix: 0-3500V • Filament: 0-15V D.C.
- Separate Grid Voltages #1, #2, #3, #4 plus Collector and Anode Voltages

Model Z817A • $2650

POLARAD

MICROWAVE RECEIVERS
400 to 84,200 mc

TRANSISTORIZED CALIBRATED FIELD INTENSITY RECEIVER



Model CFI

1,000 to 10,000 mc

Four Interchangeable Plug-In Tuning Units Cover All Frequencies.

Transistorized, low power drain, ruggedized field intensity receiver provides accurate measurements of frequency and absolute power level of conducted or radiated microwave energy. Combines a Field Intensity Calibrator, a Monitor and Power Unit and a Calibrated Antenna System. The Model CFI covers 950 to 11,260 mc when used as a microwave receiver.

FEATURES:

- Built-in power inverter for use with 12 volt DC source.
- Direct-reading frequency dial.
- Output level: read directly in db.
- Audio, video and recorder outputs.
- AM, FM, CW and PULSE reception.
- One third lighter than equivalent vacuum-tube Field Intensity Receiver.
- Calibrated antenna system includes an omni-directional band antenna and separate directional antennas to match each tuning unit.

Sensitivity: —90 dbm.

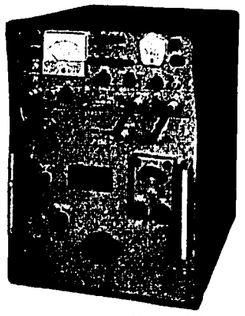
Frequency Dial Accuracy: ±1%

Maximum RF input: 3 volts

Impulse Bandwidth: 1 mc, 5 mc and 8 mc

Image and Spurious Response Rejection: Better than 60 db

CALIBRATED MICROWAVE FIELD INTENSITY RECEIVER



Model FIM

1,000 to 10,000 mc

Two compatible tuning units under development will extend frequency to 20,000 mc.

Indicates Absolute Power Level By Comparing Input Signal Against Internally Generated Signal In A Single Unit.

Four Interchangeable Plug-In Tuning Units Cover All Frequencies.

- Only Microwave Field Intensity Receiver with self-contained signal generator which calibrates entire system under test at any level.
- First single microwave test system to determine radiated r-f interference and susceptibility.
- Front-panel meter indicates average, peak, slide-back peak or quasi-peak value of r-f signals. Outputs for video, audio and recorder.
- Direct-indicating peak VTVM for ease of frequency location of impulse noise.
- Single UNIDIAL® tuning control tunes both the receiver and signal generator.
- Calibrated antenna system includes an omni-directional broad band antenna and separate directional antennas to match each tuning unit.

Frequency Dial Accuracy: ±1%

Maximum RF Input: 3 volts

Sensitivity: —80 dbm

Impulse Bandwidth: 5 mc

Image and Spurious Response Rejection: Better than 60 db

Attenuation: 0 to 80 db in steps of 1 db

TRANSISTORIZED MICROWAVE RECEIVER

Fully Transistorized Circuitry Ehsures Low Power Drain and Rugged Construction. One-third lighter than equivalent vacuum-tube receiver.

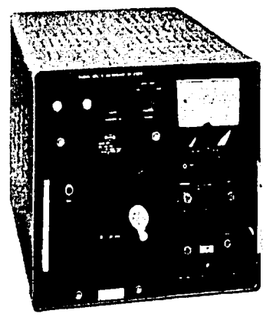
950 mc to 11,260 mc

Four Plug-In r-f Tuning Units Cover All Frequencies.

Four Instruments In One.

- AM, FM, CW, MCW, Pulse receiver
- Field intensity receiver
- Pulse, pulse-time or pulse-position demodulator
- Sensitive power meter

- Power consumption when battery operated, 180 watts. Built in power inverter for use with 12 volt DC battery source.
- AFC and AGC circuits.
- Audio, video and recorder outputs.
- Output level: read directly in db.



Model TR

Frequency Dial Accuracy: ±1%
Impulse Bandwidth: 1 mc, 5 mc, or 8 mc
Image Rejection: Better than 60 db
Video Bandwidth: 3.5 mc
Sensitivity: —90 dbm

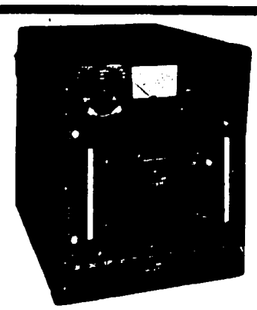
MICROWAVE RECEIVER

400 to 84,200 mc

Nine Interchangeable Plug-In Tuning Units Cover the Frequency Range.

Four Instruments In One.

- AM, FM, CW, MCW Pulse receiver
- Field intensity receiver
- Pulse, pulse-time or pulse-position demodulator
- Sensitive power meter



Model R

For quantitative analysis of microwave signals, and monitoring of all types of radio and radar communication.

Features: UNIDIAL® control with direct-reading frequency dial. AFC and AGC. Audio, video, recorder and trigger outputs. Output level read directly in db.

Frequency Dial Accuracy: ±1%
I-F Bandwidth: 3 mc
Video Bandwidth: 2 mc
Image Rejection: Greater than 60 db to 11,260 mc
Range of Linearity: With AGC, 60 db
Sensitivity: —55 to —90 dbm, depending on frequency

ANTENNA PATTERN TUNING UNIT 2,000 to 75,000 mc

Designed For Use With Model R Receiver

- External Mixer With Flexible Cable. May be located at or near antenna, any distance up to 75 feet from receiver.
- Internal electronic 1000 cps sweep allows direct operation into any standard make AC antenna pattern recorder.

Model RW-T

TRANSISTORIZED MICROWAVE IMPULSE GENERATOR

1,000 cps to 10,000 mc

Model IC-120

For use with microwave receivers when making field intensity measurements, as a signal source for spectrum analyzers, in noise measurements, and other applications. Generates 0.020 nanosecond pulses.

CALIBRATED ANTENNAS
1,000 to 10,000 mc
and
TEST ANTENNAS
1,000 to 40,000 mc

For details, circle #196 on Reader Service Card

POLARAD ELECTRONICS CORPORATION

43-20 34th Street
Long Island City 1, N. Y.

FREE LIFETIME SERVICE

READ
RF FREQUENCIES TO ±0.03%

WITHOUT TABLES

NOW you can get direct-reading convenience plus extreme precision of tuning plus broad frequency coverage . . . without using tables or calibration charts.

Only DATA-DIAL (patented) direct-reading wavemeters bring you these advantages. The tuning knob drives a long tape carrying a sloped frequency scale, which moves behind an index curve accurately drawn on a transparent window. As the cavity is tuned, the moving intersection point of these curves compensates for inherent variations, giving the frequency for each setting without further correction.

Model 3102 covers frequencies from 900 to 2100 mc, with a direct-reading accuracy of ±0.03% below 1700 mc and ±0.05% above that point. The cavity has an integral crystal detector output. Model 3103, in final development, covers frequencies from 2350 to 3750 mc. Other models will extend the range of this new line to further bands.

WRITE TODAY for more information on this and other new GCC developments in microwave components, pulse power calibrators, attenuators, oscillators and test sets.

GENERAL COMMUNICATION COMPANY

677 Beacon Street
Boston, Mass.

For details, circle #197 on Reader Service Card

Directory I. Complete Equipment

37. Test Equipment, Microwave.

General Communication Co., 677 Beacon St., Boston 15, Mass., 10s, 30c, 50s, 65s, 85c, Tel: 617-COpley 7-6030
See ads in this class

General Dynamics/Electronics, N.Y., 5c

General Dynamics/Electronics, Information Technology Div., Calif., 70sc

General Electric Co., Apparatus Sales Dept., N.Y., 10s

General Electric Co., Instrument Dept., 40 Federal St., Lynn, Mass., 40s, Tel: 617-LYnn 3-3400
See ad in class 61

General Microwave Corp., N.Y., 5c, 10sc, 15sc, 25sc, 30c, 40c, 45c, 50sc, 55sc, 60c, 65c, 70c, 75sc, 80c, 85c

General Mills, Inc., Minn., Radar Testers sc

General Precision, Inc., Kearfott Div., Calif., 5c

General Precision, Inc., Kearfott Div., N.J., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s, 65s, 70s, 75s, 80s, 85s

General Radio Co., 22 Baker Ave., West Concord, Mass., 30s, 35s, 55s, 60s, 65s, 75s, Tel: 617-EMerson 9-4400
See ad on Cover 4

Genisco, Inc., Calif., 30s

Gertsch Products, Inc., Calif., 40s, 65s

Gilfillan Brothers, Inc., Calif., 70c

Gombos Co., Inc. (John), N.J., 40sc, 65 Triode sc, 85sc

Goodyear Aircraft Corp., Arizona Div., Ariz., 70c

Greenray Industries, Pa., 65sc

Gulton Industries, Inc., N.J., 5 Airborne sc

Heath Co., Subsid. of Daystrom, Inc., Mich., 50s, 55s

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 10s, 25s, 30s, 40s, 45 Noise-Figure s, 50s, 55s, 60s, 65s, 75s, 85s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28

Hewlett-Packard Co., Dymec Div., Calif., 40c, 50c, 70c, Signal Generators c

Huggins Laboratories, Inc., Calif., 65sc

Hughes Industries, N.J., 75s

Huyck Systems Co., N.Y., 70c

I-T-E Circuit Breaker Co., Special Products Div., Pa., 75c

Instrument Corp. of Florida, Fla., 65c

Instrument Systems Corp., N.Y., 65c, 70c, 85c

Interference Testing & Research Laboratory, Inc., Mass., 45c

International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 65c

Itek Electro-Products Co., Div. of Itek Corp., 75 Cambridge Pkwy., Cambridge 42, Mass., 5c, Tel: 617-UNiversity 4-7200
See ad in class 59

Iwasaki Communication Apparatus Co., Ltd., Japan, 30s

Jacobs Instrument Co., Md., 30c

Jerrold Electronics Corp., Dept. ITE—104, 15th & Lehigh Ave., Philadelphia 32, Pa., 20s, Tel: 215-BAldwin 6-3456
See ad in class 38

Jetronic Industries, Inc., Pa., 5c, 40c

Kahl Scientific Instrument Corp., Calif., 15sc

Kahn & Co., Inc., Conn., 40c

Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 25s, 65s, Tel: 201-CApital 6-4000
See ad on pages 72-73

Kennedy & Co. (D. S.), Mass., 75c

Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 45c, Tel: 516-RAvenswood 9-7580
See ad in class 89

Laboratory For Electronics, Inc., Mass., 5c, 60c, 65c, 70c

Land-Air, Inc., Stepper Motors Div., Calif., 30c

LaPointe Industries, Inc., Conn., 45c, 50c, 60c, 65sc

Lavoie Laboratories, Inc., Matawan-Freehold Rd., Morganville, N.J., 5sc, 30s, 40s, Tel: 201-LOwell 6-2600
See ad in this class

Lieco, Inc., 130 Eileen Way, Syosset, L.I., N.Y., 10sc, 60sc, 75sc, Tel: 516-WAlnut 1-6300
See ad in class 66

Lignes Telegraphiques et Telephoniques, France, 15s, 25s, 40s, 50s, 55s, 75s, 80s, 85s

Ling Temco Vought, Inc., Ling Electronics Div., Calif., Pulse Modulators s

Lionel Corp., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c, 75c, 80c, 85c

Lionel Corp., Telerad Div., N.J., 85c

Lionel Corp., Telerad Div., N.Y., 40c, 60c, 65c

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 25c, 30c, 40c, 65c, 70c, 75c

Loral Electronics Corp., N.Y., 5c, 40c

Lumatron Electronics, Inc., 116 County Courthouse Rd., New Hyde Park, L.I., N.Y., 30s, Tel: 516-PIoneer 7-3200
See ad in class 23

Madigan Electronic Corp., N.Y., 70c

Manson Laboratories, Inc., Conn., 65sc

Marshall of Cambridge Electronics, Ltd., England, 30s

Marstan Electronics Corp., N.Y., 40c

Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 5c

Maury & Associates, Calif., 60c, 65c, 75c

McElroy Electronics Corp., Mass., 55c

Measurements, McGraw-Edison Div., N.J., 30sc

Melabs, Calif., 60sc, 65sc

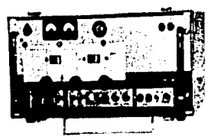
Menlo Park Engineering, 711 Hamilton Ave., Menlo Park, Calif., 25s, 65sc, Tel: 415-DAvenport 6-9080
See ad in class 43

Meridian Metalcraft, Inc., Calif., 40c, 60c, 80c, 85c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Lavoie INSTRUMENTS

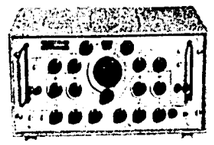
for precision measurement and analysis



LA-70A
FREQUENCY METER

The LA-70A offers exceptional accuracy, fine tuning stability, and portability. It is uniquely suited to meet FCC requirements for .0005% tolerance of fixed station transmitters in the 50-1000 Mc range. The companion LA-71 Deviation Meter provides rapid and accurate measurement of peak frequency deviation over a center frequency range of 5 Mc to 1000 Mc.

Price LA-70A $1,595.
LA-71 $ 490.



LA-593
PULSE GENERATOR

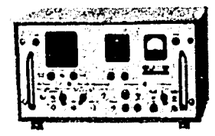
A versatile double-pulse generator with wide range control and excellent pulse shape. The amplitude of each pulse is separately adjustable. The LA-593 performs excellently in the testing of network transient response, checking delay lines, and in measuring AVC circuit recovery time.

Price..... $1,175.

LA-90
FREQUENCY STANDARD

A completely self-contained package, including power supply, this 5 Mc frequency standard provides exceptional stability of 1 part in 10^9 per day. A new approach to crystal oven regulation results in shifts of less than 0.01°C over several months of operation. Six standard output frequencies.

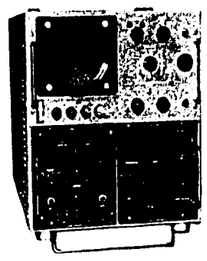
Price..... $1,950.



LA-800D
WWV FREQUENCY COMPARATOR

The LA-800D is the first to provide an accurate means for continuous monitoring of local frequency standards without frequency dividers or synchronous clock. Instantaneous accuracy is better than 1 part in 10^7. Receives either the 5.0 or 15.0 Mc WWV transmission.

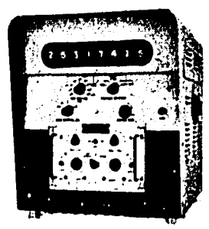
Price ..... $985.



LA-270
OSCILLOSCOPE

Incorporating new design concepts in sync systems and circuitry, the LA-270 features high sensitivity (.05 V/CM), DC to 70 Mc (down less than 3 db at 70 Mc), and full 6 CM vertical deflection. A rugged, militarized unit with all circuitry built into removable modular constructed assemblies.

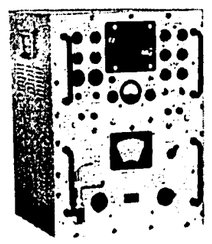
Basic Unit $1,985.
S-70 high Gain Pre-Amplifier Plug-in $ 175.
D-70 Dual Trace Pre-Amplifier Plug-in $ 285.



LA-80
ELECTRONIC COUNTER

The only 10 megacycle counter with directly coupled in-line readout. Binary conversion is eliminated by a true decade system. Time base stability is ±one part in 10^8 per day. Ten cycles to ten megacycles frequency range, with extended ranges available. The LA-80 offers outstanding reliability with minimum maintenance.

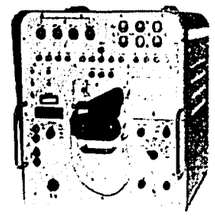
Price..... $2,250.



LA-18M
SPECTRUM ANALYZER

The bench-size LA-18M is one of a line of Lavoie spectrum analyzers featuring high stability and wide range in compact units. Unique detachable waveguide mixers provide versatility and adaptability at low cost. Range of the LA-18M is 10 Mc to 44,000 Mc.

Price..... $4,950.



LA-303
ROBOTESTER

High speed sampling and comparison reduce production line checkout and operational test time 80%. Pre-programmed acceptance standards guarantee exact measurements of resistance, insulation resistance, voltages AC and DC, and impedance. Accessories permit handling of complex problems and provide complete test systems built on Robotester capabilities.

Price..... $5,600.

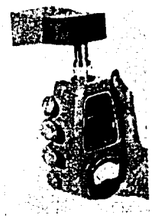
Write for complete technical information.

Lavoie Laboratories, Inc.

MORGANVILLE, NEW JERSEY

For details, circle #198 on Reader Service Card

RAMCOR

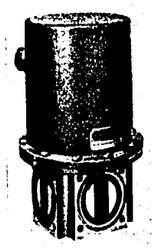


DENSIOMETER
MODEL 1200

Specifically engineered to detect unsafe levels of VHF, UHF, L, S, C and X-band energy from tubes and antennas. Battery-powered, direct reading, easily used by non-technical personnel.

WAVEGUIDE SWITCHES

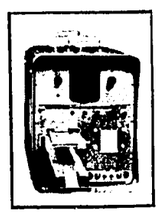
Covering all frequency ranges, Isolation better than 60 db over entire band. Fully interlocked for magnetron protection. Switching time .05 seconds. Mechanical units and specials available.



WATTMETER
MODEL 1300

Panel mounted or portable. Designed for accuracy and ease of operation over a range 10 mc to 10,250 mc. Displayed in 3 ranges: 0-1, 0-5, 0-10 milliwatts.

Thermistor Mounts
•
Coaxial Couplers
•
Microwave Attenuators
•
Phase Shifters
•
Electronic Instrumentation
•
Special Test Equipment



For complete product data or quotation on specific design, development or production requirements, write or call.

RADAR MEASUREMENTS CORPORATION

190 Duffy Ave., Hicksville, L. I., N. Y.
Telephone: OVerbrook 1-5600
For details, circle #199 on Reader Service Card

Directory I. Complete Equipment

37. Test Equipment, Microwave.

Merrimac Research & Development, Inc., 517 Lyons Ave., Irvington 11, N.J., 60c, Tel: 201-ESsex 1-1616
See ad in class 45

Metrologie, Compagnie Generale de, France, 30s

Mico Instrument Co., Mass., 85s

Micro-Now Instrument Co., Ill., 20s, 40s

Micro-Tel Corp., Md., 5c, 30s, 35s

Microlab, 570 W. Mount Pleasant Ave., Livingston, N.J., 40c, 60sc, 85c, Tel: 201-WYman 2-5700
See ad in class 66

Microtech, Inc., Conn., 10c, 60c, 75c

Microwave Associates, Inc., South Ave., Burlington, Mass., 10s, 15s, 40s, 55s, 60s, 65s, 75s, 85s, Tel: 617-BRowning 2-3000
See ad on page 178

Microwave Dynamics Corp., N.Y., 10c, 15c, 20c, 40s, 50s, 55s, 60c, 65c, 70c, 75s, 85s

Microwave Semiconductor & Instruments, Inc., N.Y., 10s, 50c, 60s

Miller Associates, Conn., 70c

Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 10c

Missouri Research Laboratories, Inc., Mo., 20sc, 70sc

Model Engineering & Mfg. Corp., Ind., 65c, 75c

Monitor Products Co., Inc., Calif., 65c

Multi Products Co., Inc., Mich., 45s

Mutron Corp., Mass., 35c

Narda Microwave Corp., Dept. IRED-61-3, 118-160 Herricks Rd., Mineola, L.I., N.Y., 10s, 40s, 50s, 75s, 85s, Tel: 516-PIoneer 6-4650
See ad in class 66

Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 30sc, 35sc, Tel: 215-GLendale 2-6531
See ad in class 10

New England Instrument Co., Mass., 85c

New London Instrument Co., Conn., 25c, 65sc

Nichols Products Co., N.J., 75sc

Northeast Scientific Corp., 30 Wetherbee St., Acton, Mass., Millimeter Signal-Generators c, Tel: 617-COlonial 3-7706
See ad in class 69

Northeastern Engineering, Inc., N.H., 5sc, 40sc

Omega Laboratories, Inc., Haverhill St., Rowley, Mass., 25c, 40sc, 60sc, 75sc, Tel: 617-WHitney 8-7757
See ad in class 66

Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 25c, 30c, 50sc, 60c, 65sc, 70sc, Tel: 914-DEerfield 7-6132
See ad in class 43

Otis Elevator Co., N.Y., 70c

PRD Electronics, Inc., 202 Tillary St., Brooklyn 1, N.Y., 5c, 10s, 15s, 25s, 40s, 50s, 55s, 60s, 65s, 75s, 85sc, Tel: 212-ULster 2-6800
See ad in this class

Panoramic Electronics, Inc., 528 S. Fulton Ave., Mount Vernon, N.Y., 5s, Deviation Meters s, Tel: 914-OWens 9-4600
See ad on page 80

Phaostron Instrument & Electronic Co., Calif., 40sc, 50sc

Philco Corp., Pa., 15sc, 50sc, 55sc, 75sc, 80sc

Philco Corp., Sierra Electronic Corp. (Div.), Calif., 15s, 50s, 80s

Philips Electronic Instruments, N.Y., 40s, 50s, 60s, 65s, 75s, 85s

Philips Electronics Industries, Ltd., Canada, 85s

Pitometer Log Corp., N.Y., 65c

Planetronics, Inc., Pa., 30c

Polarad Electronics Corp., 43-20 34th St., Long Island City 1, N.Y., 5s, 25s, 30s, 45s, 50s, 65c, Pulse-Jitter testers s, Sweep Generators s, Test receivers s, Tel: 212-EXeter 2-4500
See ads in this class

Portchester Instrument Corp., Subsid. of Premier Microwave Corp., 114 Wilkins Ave., Port Chester, N.Y., 85c, Tel: 914-WEstmore 9-4092
See ad in class 66

narda microwave corporation
Microwave System Components & Instrumentation

Power Meter Model 440 Portable, self-contained, gives direct readings of CW or pulse power. Rechargeable battery, fully transistorized.

Narda microwave equipment is well in advance of the field — operation over one to several octaves of frequency has been achieved in many components.

Bolometers, slotted lines, ferrite devices, directional couplers, echo boxes, magnetron modulators — complete lines of components and assemblies.

FOR PROMPT, INFORMED SERVICE IN THE NORTHEAST ..... CALL

BURLINGAME ASSOCIATES

MOUNT VERNON, N.Y. • MOunt Vernon 4-7530
WALTHAM .....TWinbrook 4-1955
SYRACUSE .....GRanite 4-7409
PHILADELPHIA .....SHerwood 7-9080
WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400

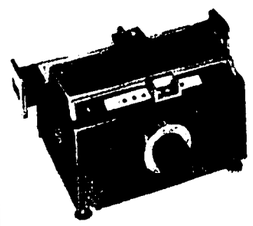
For details, circle #200 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

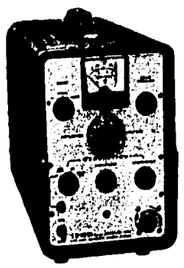
FROM DC TO MILLIMETER

THE MOST COMPLETE LINE OF PRECISION MICROWAVE TEST INSTRUMENTS

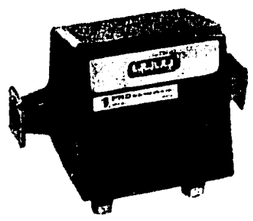
WAVEGUIDE DIMENSIONS (INCHES)	3x1½		2x1	
FREQUENCY RANGE (kmc/sec)	2.60-3.95		3.95-5.85	
ATTENUATORS Broadband Variable Precision gauge Precision dial Fixed waveguide Level set	175-B† 174-B† 137 171-B 171-A	$375 $335 $ 75 $125 $120	G101 170-B 169-B 120 162-B 162-A	$49 $32 $ 7 $12 $11
TERMINATIONS Fixed Sliding	129-A 1129	$ 60 $100	115-A 1115	$ 5 $ 7
FERRITE ISOLATORS			1205	$27
SLIDING SHORTS	315	$150	316	$14
PRECISION MISMATCHES	1404	$300	1401	$22
SLOTTED SECTIONS	209-A	$590	201-A	$39
SLOTTED LINES*				
TUNERS: Slide screw E-H	309-A	$150	300-A	$18
ADAPTER: Waveguide to coaxial	365-A	$ 50	357	$ 4
DIRECTIONAL COUPLERS (10 db) (20 db)	409	$375	410 400	$25 $25
BENDS AND TEES E Bend E Tee H Bend H Tee E-H Tee			450 452 451 453 478	$ 7 $ 8 $ 7 $ 8 $10
CRYSTAL MOUNTS Fixed Tunable				
BOLOMETER MOUNTS Tunable Fixed				
THERMISTOR MOUNTS	644	$125	645	$ 9
WAVEGUIDE STANDS				
BROADBAND PROBES	250-A			
WAVEGUIDE ADAPTERS				
FREQUENCY METERS Broadband direct reading Precision direct reading Direct reading			532 590-A†	ON RE $35
FLANGE BOLT ASSEMBLY	369-A	$4/dz.	369-B	$4/dz.
TUBE MOUNTS			704†	$20



PRD 230 Universal Probe Carriage



PRD 809-A Klystron Power Supply



PRD 101 series Broadband Attenuators

PRD N680 Calorimetric Power Meter

ADDITIONAL MICROWAVE INSTRUMENTATION

- PRD 277-B Standing Wave Amplifier—$235 • PRD 809A Klystron Power Supply—$350
- PRD 812 Universal Klystron Power Supply—$1495 • PRD 813 Universal BWO/TWT Power Supply—$2900
- PRD L712 Signal Source—$1250 • PRD S712 Signal Source—$1050 • PRD 650-B Universal Power Bridge—$320
- PRD 904 VHF-UHF Noise Generator—$490 • PRD N680 Calorimetric Power Meter—$1495

TERMS: 1/2%, 10 DAYS DATE OF INVOICE, NET 30 DAYS. • F.O.B. BROOKLYN, N.Y. • DATA AND PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

WAVEGUIDE DIMENSIONS (INCHES)	1½x¾		1¼x⅝		1x½		.702x.391		.500x.250		.360x.220		.228x.154	
FREQUENCY RANGE (kmc/sec)	5.85-8.20		7.05-10.0		8.20-12.4		12.4-18.0		18.0-26.5		26.5-40.0		50.0-75.0	
ATTENUATORS Broadband Variable Precision gauge Precision dial Fixed waveguide Level set	C101 1156 178-B 177-B 119† 156-B 156-A	$ 340 $ 75 $ 300 $ 265 $ 65 $ 100 $ 100	H101 185-B 184-B 118 160-B 160-A	$ 340 $ 275 $ 235 $ 60 $ 100 $ 85	X101 154-A 195-B 196-C 140 159-B 159-A	$ 265 $ 70 $ 215 $ 180 $ 55 $ 90 $ 75	U101 188-B 187-B 138 158-B 158-A	$ 265 $ 275 $ 235 $ 60 $ 115 $ 100	K101 153-B K1180 155	$ 425 $ 325 $ 100 $ 110	A101 192-A A1180 157	$ 425 $ 350 $ 100 $ 125	193	$ 370
TERMINATIONS Fixed Sliding	121-A 1121	$ 35 $ 70	114-A 1114	$ 30 $ 60	116-A 1116	$ 25 $ 50	131-A 1131	$ 30 $ 55	132-A 1132	$ 30 $ 65	133-A 1133	$ 35 $ 75	1103	$ 65
FERRITE ISOLATORS	1204	$ 245	1206	$ 230	1203	$ 220	1208	$ 220	1209	$ 270				
SLIDING SHORTS	317	$ 130	318	$ 120	319	$ 110	320-A	$ 125	312	$ 170	322	$ 150	326	$ 160
PRECISION MISMATCHES	1403	$ 175	1400	$ 150	1402	$ 125	1405	$ 150	1406	$ 330	1407	$ 340		
SLOTTED SECTIONS	204-B	$ 340	202-B	$ 340	203-D	$ 280	210-B	$ 425	211-B	$ 425	212-B	425	216-A	$1250
SLOTTED LINES*					X231	$ 90	U231	$ 110	K231	$ 235	A231	$ 235		
TUNERS: Slide screw E-H	305-A	$ 150	302-B	$ 130	303-A	$ 125	311-A 314-A	$ 130 $ 150	313-A	$ 155	312-A	$ 170	323	$ 280
ADAPTER: Waveguide to coaxial	356-A	$ 35	355-A	$ 30	354-C	$ 25								
DIRECTIONAL COUPLERS (10 db) (20 db)	411 404	$ 140 $ 200	412 401	$ 120 $ 175	408 402	$ 100 $ 130	413 405	$ 115 $ 200	K414	$ 175	A414	$ 195		
BENDS AND TEES E Bend E Tee H Bend H Tee E-H Tee	454 456 455 457 479	$ 50 $ 65 $ 50 $ 65 $ 85	458 460 459 461 480	$ 35 $ 50 $ 35 $ 50 $ 70	462 464 463 465 481	$ 30 $ 37 $ 30 $ 37 $ 50	466 468 467 469 482	$ 35 $ 45 $ 35 $ 40 $ 55	470 472 471 473 483	$ 40 $ 50 $ 40 $ 50 $ 70	474 476 475 477 484	$ 45 $ 60 $ 45 $ 60 $ 85	490 488 486 487 489	$ 50 $ 60 $ 50 $ 60 $ 80
CRYSTAL MOUNTS Fixed Tunable					601	$ 55	6604 616-A	$ 140 $ 175	6605 621-A	$ 140 $ 185	6606	$ 140		
BOLOMETER MOUNTS Tunable Fixed							616-A 6604	$ 175 $ 140	621-A 620	$ 185 $ 115	618	$ 115	632	$ 125
THERMISTOR MOUNTS	646	$ 90	647	$ 90	643-A	$ 85	648	$ 110	607	$ 150				
WAVEGUIDE STANDS	370				$7.50									
BROADBAND PROBES	$145						253		$145					
WAVEGUIDE ADAPTERS									3360 3361	$ 38 $ 38	3362 3363	$ 38 $ 38		
FREQUENCY METERS Broadband direct reading Precision direct reading Direct reading	533 555† 556† 588-A†	ON REQ. $1500 $1500 $ 250	534 557† 558† 586†	ON REQ. $1500 $1500 $ 150	535 559† 565† 585†	ON REQ. $1200 $1500 $ 150	536 566† 567†	ON REQ. $1500 $1500	537 568† 569†	ON REQ. $1500 $1500	538 570† 571†	ON REQ. $1500 $1500		
FLANGE BOLT ASSEMBLY	369-B	$4/dz.	369-C	$4/dz.	369-D	$4/dz.	369-E	$4/dz.						
TUBE MOUNTS			702†	$ 200	703†	$ 130								

*For PRD 230 UNIVERSAL PROBE CARRIAGE — $160 †not full band coverage

COAXIAL TEST EQUIPMENT

INSTRUMENT	MODEL NUMBER	FREQUENCY kmc/sec	PRICE
Adapters "N" to 7/8" "C" to 7/8"	389 to 392 3350 to 3353	0 - 5.0 0 - 5.0	$ 53 $ 55
VHF-UHF Detector	641	0.01- 1.0	$ 40
Bolometers	631-C,-D	0.5 -10.0	$ 25
Ferrite Isolators	1210 1211 1212	1.0 - 2.0 2.0 - 4.0 4.0 - 8.0	$ 440 $ 360 $ 410
Slotted Sections	200-C 215-A 205-A	1.0 - 5.0 1.0 - 4.0 4.0 -10.0	$ 475 $ 475 $ 475
Slotted Line*	N231	4.0 -10.0	$ 195
Standing Wave Detector	219	0.1 - 1.0	$ 580
Tuners: E-H Double Stub E-H	327 306-A 328	0.95- 5.0 2.0 -10.0 2.7 -10.0	$ 125 $ 90 $ 125
Bolometer and Crystal Mounts	612 Series 613 622	1.0 -10.0 1.0 -12.0 1.0 -12.0	$ 145 $ 50 $ 55
Terminations	139-A 145-A 1107	0 -10.0 0 - 4.0 2.0 -10.0	$ 35 $ 100 $ 53

INSTRUMENT	MODEL NUMBER	FREQUENCY kmc/sec	PRICE
Broadband Thermistor and Bolometer Mounts	627-A 628 A	0.5 -10.0 0.5 -10.0	$ 95 $ 95
Fixed Attenuators	130 136 1100	2.0 -10.0 1.0 - 4.0 0 - 4.0	$ 45 $ 160 $ 55
Variable Cutoff Attenuators	180-A 181 198	8.2 -10.0 1.0 - 4.0 1.0 - 4.0	$ 200 $ 125 $ 150
Oscillators	701 707 706 705	2.4 - 3.6 0.95 - 2.3 3.6 - 7.3 7.0 -11.0	$ 300 $1500 $ 950 $ 950
Frequency Meters	500 504 560 560-S1 578 579 583-D 587-A	0.042-10.0 0.1 -10.0 2.4 - 3.4 2.7 - 3.7 0.925- 1.65 1.60 - 2.60 2.7 - 3.7 0.250- 1.0	On Req. $ 695 On Req. On Req. $1500 $1500 $ 650 $ 325
Directional Coupler	430 Series	0.3 - 1.0	$ 150

Complete specifications on all of these products and more can be found in the giant PRD catalog. If you don't have your own copy contact your nearest engineering representative or write:

PRD ELECTRONICS, INC.
A Subsidiary of Harris-Intertype Corporation
Formerly Polytechnic Research & Development Co., Inc.

HARRIS INTERTYPE CORPORATION

202 Tillary Street, Brooklyn 1, New York, ULster 2-6800
1608 Centinela Avenue, Inglewood, Calif., ORegon 8-9048

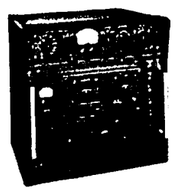
POLARAD

MICROWAVE SIGNAL GENERATION EQUIPMENT

500 to 50,000 mc

500 to 21,000 mc. Polarad signal generators in this range feature: Continuously variable attenuators calibrated directly in —dbm. Internal pulse, FM and square wave modulation, external pulse and multi-pulse modulation. Delayed and undelayed sync outputs. UNIDIAL* tuning. Direct-reading frequency dials accurate to ± 1%. High stability non-contacting klystron cavity chokes for noiseless tuning and accurate calibration.

UHF SIGNAL GENERATOR



Model PMR

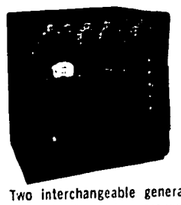
500 to 1,000 mc

Single unit covers entire frequency range.

Internal pulse (40-4,000 pps), and square wave modulation (10-10,000 pps.) Internal FM with interchangeable modulator.

Calibrated output: 0 dbm (1 mw) to —127 dbm.

MICROWAVE SIGNAL GENERATOR



10,000 to 21,000 mc

Model PMK

Two interchangeable generator units.

Internal pulse and square wave modulation (10-10,000 pps.) Output to 10 mw. DIGITAL frequency indicator.

Calibrated power output: +10 dbm (10 mw).

MICROWAVE SIGNAL SOURCE

1,050 to 11,000 mc

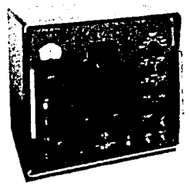
in 4 interchangeable tuning units.

Model KSS

A stable source of microwave energy at relatively high power output level. Internal square wave 10-10,000 pps. External pulse, square wave or FM modulation. Adjustable attenuator.

Power output: 14 to 400 mw, depending upon frequency.

ULTRA-BROADBAND MICROWAVE SIGNAL GENERATOR



4,200 to 11,000 mc

in one instrument

Model MSG-34

Internal pulse and square wave modulation (10-10,000 pps.) 0 to —127 dbm attenuator output.
DIGITAL frequency indicator.

MICROWAVE SIGNAL GENERATOR

4,450 to 11,000 mc

Model PMX

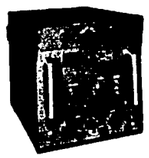
Two interchangeable r-f generator units.

Internal pulse and square wave modulation (10-10,000 pps.) 0 to —127 dbm attenuator output.

MICROWAVE SWEEP GENERATOR FOR INSTANTANEOUS MICROWAVE ANALYSIS 1,000 to 16,000 mc

At single frequency or over a wide range

in 5 interchangeable tuning units. Provides high-power microwave signal adjustable from single frequency to 2:1 frequency range. .001 to 100 cps sweep rate. Int. mod.: 1,000 cps and 456 kc square wave. Ext. mod.: square wave, FM and pulse.



Model CSG

RAPID SCAN RATIO SCOPE

Model VS-2A

Displays ratio of two input signals, gives visual plot of VSWR as function of frequency, at a single frequency or over an entire sweep range. Calibrated 7" CRT. For use with Model CSG.

MICROWAVE SIGNAL GENERATORS

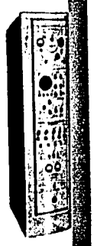
Model MSG

	Frequency	Calibrated Power Output	Internal Pulse Modulation: Internal Square Wave	Width in μ sec.	Pulse Repetition Rate in pps	Delay in μ sec.	FM deviation in mc minimum
MSG-1	950-2,400 mc	1 mw (0 dbm)	40- 4,000 pps	0.5-10	40- 4,000	2.5-300	±2.5
MSG-1P*	950-2,400 mc	10 mw (+10 dbm)	10-10,000 pps	0.2-10	10-10,000	2-2,000	±2.5
MSG-1R	950-2,400 mc	1 mw (0 dbm)	10-10,000 pps	0.3-10	10-10,000	2-2,000	±2.5
MSG-2A	2,000-4,600 mc	1 mw (0 dbm)	40- 4,000 pps	0.5-10	40- 4,000	2.5-300	±2.5
MSG-2R	2,000-4,600 mc	1 mw (0 dbm)	10-10,000 pps	0.3-10	10-10,000	2-2,000	±2.5
MSG-2P*	2,000-4,600 mc	10 mw (+10 dbm)	10-10,000 pps	0.2-10	10-10,000	2-2,000	±2.5

*Attenuator Accuracy: ±3 db between 0 and +10 dbm. ±2 db below 0 dbm.

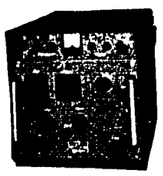
CODE MODULATED MULTI-PULSE MICROWAVE SIGNAL GENERATOR

950 to 10,750 mc **Model B**



in 4 interchangeable tuning units. Provides 5 independently adjustable pulse channels, each with variable pulse width and delay. Built-in precision oscilloscope.

EHF SIGNAL GENERATORS AND SOURCES



EHF Signal Generators and Sources

12,400 to 50,000 mc. Units in this range provide cw signals, 1,000 cps internal square wave, external modulation provisions, accurate frequency calibration.
EHF SIGNAL GENERATOR 18,000 to 39,700 mc, 7 plug-in units. Accurate power calibration. EHF SIGNAL SOURCE 18,000 to 50,000 mc, 9 plug-in units. High power output.

EHF SIGNAL GENERATOR Tuning Unit	Frequency Range	EHF SIGNAL SOURCE Tuning Unit
G1822-1	18,000 to 22,000 mc	S1822-1
G2225-1	22,000 to 25,000 mc	S2225-1
G2427-1	24,700 to 27,500 mc	S2427-1
G2730-1	27,270 to 30,000 mc	S2730-1
G3033-1	29,700 to 33,520 mc	S2933-1
G3336-1	33,520 to 36,250 mc	S3336-1
G3540-1	35,100 to 39,700 mc	S3540-1
	39,600 to 46,000 mc	S4046-1
	45,900 to 50,000 mc	S4650-1

Model SG-1218 Signal Generator and Model SS-1218 Signal Source. Available with a frequency range of 12,400 to 17,500 mc.

ROUNDING OUT ITS COMPLETE LINE OF MICROWAVE INSTRUMENTS, POLARAD ALSO OFFERS:

Model PJ-1 — Pulse Jitter Tester: displays jitter magnitude and jitter waveform.

Model SV-1 — Servo-Analyzer: frequency range:—.001 to 100 cps in 5 ranges.

Model MP-1A—Coded Multi-Pulse Generator: provides up to five independently adjustable pulse channels for generation of precise coded multi-pulse trains. Each pulse can be independently pulse-time modulated by means of an external signal.

Model N-1 — Precision Noise Generator: 1,000 cps to 500 mc — 1 to 20 db.

Model P-3—Transistorized Microwave Power Meter: 10 to 40,000 mc; measures absolute r-f power instantly.

All-Ceramic Reflex Klystron Tubes

Polarad Tube Type	Frequency Range
ZV 1012	500 to 3,000 mc
ZV 1010	700 to 3,000 mc
ZV 1010X	950 to 2,800 mc
ZV 1021X	1,000 to 4,000 mc
ZV 1009	1,500 to 6,000 mc
ZV 1009X	1,700 to 5,000 mc
ZV 1011	4,000 to 11,000 mc

Model K-200—Microwave Tube Tester: both internal cavity and external klystron tubes, pencil triodes, tubes and lighthouse tubes.

For details, circle #203 on Reader Service Card

POLARAD ELECTRONICS CORPORATION 43-20 34th Street Long Island City 1, N. Y.

FREE LIFETIME SERVICE

Directory I. Complete Equipment

37. Test Equipment, Microwave.

Premier Microwave Corp., 33 New Broad St., Port Chester, N.Y., 60sc, 85c, Tel: 914-WEstmore 9-8900
See ad in class 50

Pye Telecommunications, Ltd., England, 30c

RCA Victor Co., Ltd., Canada, 25s, 40s, 45s, 55s, 85 IF s, Delay & Linearity Test-Sets s

R-K Laboratories Co., N.Y., 20c, 25s, 30s, 40c, 50c, 65c

RMS Associates, Inc., N.Y., 70 Doppler sc

Radar Design Corp., N.Y., 10s, 40sc, 75sc, 85sc

Radar Measurements Corp., 190 Duffy Ave., Hicksville, L.I., N.Y., 5c, 50sc, 80c, Tel: 516-OVerbrook 1-5600
See ad in this class

Radiation at Stanford, Calif., 30c

Ram Meter, Inc., Mich., 40c, 50sc, 55c

Ramage & Miller, Inc., Calif., 65s, Signal Generators s

Rantec Corp., Calif., 60c, 70c

Raytheon Co., Commercial Apparatus & Systems Div., Production Equipment Dept., Mass., 30s, 65s

Reflectone Electronics, Inc., Subsid. of Universal Match Corp., Conn., 70sc

Remanco, Inc., Calif., 25s, 30c, 35sc, 70sc

Roberts Co., Inc. (R. O.), Calif., 60c

Rodale Electronics, Inc., N.Y., 30c, 40c, 50c

Rohde & Schwarz, P.O. Box 275, 111 Lexington Ave., Passaic, N.J., 40s, 50s, 75s, 80s, 85s, Tel: 201-PRescott 3-8010
See ad in class 38

Rutherford Electronics Co., Calif., 30sc, 35sc

Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 45c

Sage Laboratories, Inc., 3 Huron Dr., East Natick Industrial Park, Natick, Mass., 60sc, Tel: 617-OLympic 3-0844
See ad in class 66

Sampson Chemical & Pigment Corp., Ill., 65c

Santa Barbara Research Center, Subsid. of Hughes Aircraft Co., Calif., 10c

Schaevitz Engineering, N.J., 20sc, 30sc, 35c, 50c, 55c, 60c, 65c, 70c

Schutter Microwave Corp., N.Y., 40sc, 55sc, 60sc, 65sc, 75sc, 85sc

Servonics, Inc., Va., 70c

Siemens New York, Inc., N.Y., 10s, 25s, 40s, 50s, 55s, 65s, 75s, 80s

Sigma Electronics Research Corp., Wash., 15c, 40s, 55s, 75c, 85c

Sivers Laboratory, Sweden, 40sc, 55sc, 60sc, 65sc, 75sc, 85s

Solartron Electronic Group, Ltd., England, 25s, 30s, 65s, 70s

Somerset Radiation Laboratory, Inc., N.J., 20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s, 70s, 75s, 80s, 85s

Specialty Electronics Development Corp., N.Y., 30c, 50c, 65sc, 85sc

Speidel Corp., Industrial Div., R.I., 20c, 30c

Spencer-Kennedy Laboratories, Inc., Mass., 30s

Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 5c, 10s, 20sc, 30sc, 40s, 45sc, 50sc, 55sc, 60sc, 65sc, 70sc, 75sc, 80sc, 85sc

Standard Telephones & Cables, Ltd., England, 5sc, 10sc, 15sc, 25sc, 30sc, 35sc, 45sc, 50sc, 55sc, 60sc, 65sc, 70sc, 80sc, 85sc

Stoddart Aircraft Radio Co., Inc., 6644 Santa Monica Blvd., Hollywood 38, Calif., 30s, 45s, Tel: 213-HOllywood 4-9292
See ads in classes 38, 45

Strand Laboratories, Inc., 294 Centre St., Newton 58, Mass., Signal generators sc, Tel: 617-WOodward 9-8890
See ads in classes 37, 40

TRG, Inc. (Technical Research Group), 9 Union Square, Somerville 43, Mass., 10s, 15s, 25s, 40s, 60s, 75s, 85s, Tel: 617-MOnument 6-8680
See ads in classes 44, 66

Technicraft Div., Electronic Specialty Co., Conn., 75sc, 85sc

Tektronix, Inc., Ore., 30s

Telechrome Mfg. Corp., N.Y., 5sc, 25sc, 40sc, 45sc, 50sc

Telecomputing Corp., Calif., 20c, 30c, 70c

Telonic Engineering Corp., P.O. Box 277, Laguna Beach, Calif., 20c, 30c, 65c, Tel: 714-HYatt 4-7581
See ad in class 39

Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 30c, Tel: 214-ADams 5-3111
See ad on Cover 3

Therm, Inc., N.Y., 75c, 85c

Thermovolt Instruments, Ltd., Canada, 15c

Thompson Ramo Wooldridge Inc., Radio Condenser Co. (Subsid.), N.J., 65c

Thompson Ramo Wooldridge Inc., STL Products Div. of Space Technology Laboratories, Calif., 30sc, 35sc

Tokyo Shibaura Electric Co., Ltd., Japan, 15s, 50s

Trak Microwave Corp., Fla., 65sc

Transdyne Corp., N.Y., 70c

Turbo Machine Co., Pa., 60c, 70sc, 75sc

Unison Products, Inc., Mich., 70c

United Shoe Machinery Co., Mass., 5c, 25c, 40c, 85c

Vap-Air Div., Vapor Corp., Ill., 15c, 80c

Vitro Electronics, Div. of Vitro Corp. of America, Md., 45sc

Washington Aluminum Co., Inc., Md., 75sc

Watkins-Johnson Co., Calif., 25c

Waveline, Inc., N.J., 10s, 25s, 40s, 45s, 55s, 60c, 65s, 75s, 85s

Wayne Kerr Corp., Pa., 10s, 85s

Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., 15c, 40c, 45c, 50 Loss c, 60c, 65sc, 75c, 85c, Tel: 301-LOckwood 4-0121
See ad in class 45

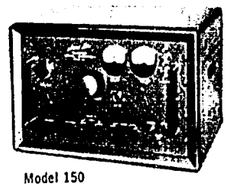
Wharton Unitools, N.Y., 5sc

Wheaton Engineering Div., Hurletron, Inc., Ill., 35c

Wiltron Co., Calif., 70c, 75s, Phase-Meters s

Complete addresses are supplied in the product sections of this directory for those firms who have placed advertisements in this issue. For addresses and phone numbers of non-advertisers, see the Alphabetical Directory, pages 81-226.

for **ULTRA-STABLE SIGNAL GENERATORS** *specify* **Strand Labs**



Model 150
Generator for K-Band

- Models available from L-Band to millimeter waves.
- Frequencies variable over wide ranges.
- Some models with octave bandwidth.
- New Model 400 covers X-Band from 8.2 to 12.4 Kmc.
- All models have extreme stability achieved by patented AFC discriminator and high-gain dc amplifier feedback.

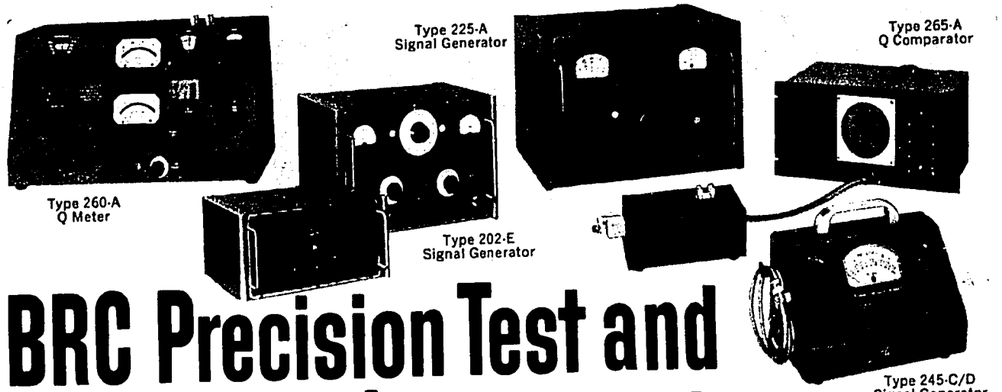
Write for complete information

Strand Labs INC.

294 Centre St., Newton 58, Mass.
Tel: WOodward 9-8890
Manufacturers of Signal Generators and Microwave Spectrometers

For details, circle #204 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.



BRC Precision Test and Measuring Instruments

—Specified World-wide for Quality and Dependability

	TYPE	FREQ. RANGE	Q RANGE	TUNING CAP. RANGE	Q ACCURACY	PRICE
Q Meters	260-A	50KC to 50MC	10 to 625	30 to 460$\mu\mu$f	5% to 30MC	$ 925.00
	190-A	20 to 260MC	5 to 1200	7.5 to 100$\mu\mu$f	7% to 100MC	$ 975.00
	280-A	210 to 610MC	10 to 25000	4 to 25$\mu\mu$f	± 20%	$2375.00

	TYPE	FREQ. RANGE	Q RANGE	L RANGE	C RANGE	R RANGE	PRICE
Q Comparators	265-A	200KC to 70MC	30 to 500	.15μh to 15mh	5$\mu\mu$f to .01μf	500Ω to 20MΩ	$795.00

	TYPE	FREQ. RANGE	OUTPUT RANGE	FM MOD.	AM MOD.	PRICE
FM-AM Signal Generators	202-E	54 to 216MC	0.1μv to 0.2 v	0 to 240KC	0 to 50%	$1125.00
	202-G	195 to 270MC	0.1μv to 0.2 v	0 to 240KC	0 to 100%	$1100.00
	225-A	10 to 500MC	0.1 μv to 0.1 v	0 to 60KC	0 to 30%	$ 945.00

	TYPE	FREQ. RANGE	OUTPUT RANGE	SWEEP RANGE	AM MOD.	MARKERS	PRICE
Sweep Signal Generators	240-A	4.5 to 120MC	1μv to 0.3v. Sweep 1μv to 0.1v. CW & AM	±1% to ±30% of center freq.	30%	crystal and pip.	$1820.00

	TYPE	FREQ. RANGE	OUTPUT RANGE	MODULATION	MODULATING FREQ.	PRICE
Aircraft VOR ILS Signal Generators	211-A	88 to 140MC	0.1μv to 0.2v.	0-100% AM	400 & 1000 cps	$1890.00
	232-A	329.3 to 335MC	1μv to 0.2v.	0-100% AM	90/150 & 1000 cps	$1990.00

	TYPE	FREQ. RANGE	OUTPUT RANGE	POWER RANGE	PRICE
Aircraft DMET ATC Test Set	235-A	960 to 1215MC	−10 to −100 dbm	+17 to +33 dbw	$3950.00

	TYPE	α RANGE	β RANGE	H ib RANGE	PRICE
Transistor Test Set	275-A	0 to 0.9999	0 to 200	0.30 to 3000Ω	$935.00

	TYPE	FREQ. RANGE	R RANGE	C RANGE	L RANGE	PRICE
RX Meters	250-A	500KC to 250MC	15Ω to 100,000Ω	0 to 20$\mu\mu$f	0.001μh to 100mh	$1525.00

	TYPE	FREQ. RANGE	CALIBRATED INPUT	CALIBRATED OUTPUT	% AM RANGE	PRICE
Signal Generator Calibrators	245-C	500KC to 1000MC	0.025, 0.05, 0.1v	5, 10 or 20μv	10-100%	$390.00
	245-D	500KC to 1000MC	0.025, 0.05, 0.1v	0.5, 1.0, or 2.0μv	10-100%	$385.00

	TYPE	FREQ. RANGE	OUTPUT RANGE	FM MOD.	AM MOD.	ACCESSORY TO:	PRICE
Univerters	207-E	100KC to 55MC	1μv to 0.1v.	0 to 240KC	0 to 50%	202-E	$430.00
	207-G	100KC to 55MC	1μv to 0.1v.	0 to 240KC	0 to 100%	202-G	$520.00
	203-B	100KC to 25MC	1μv to 0.1v.	0 to 15MC	30%	240-A	$420.00

BRC Precision Test Equipment is engineered and manufactured to the highest standards of the industry—standards that have made the BRC trademark a recognized symbol of precision and dependability throughout the world. Highly qualified representatives—specialists in electronic test equipment—stand ready to solve customer problems in every major foreign and domestic area. Write today for the illustrated BRC catalog.

Precision Electronic Instruments since 1934

Boonton Radio Corporation
BOONTON, NEW JERSEY, U.S.A.

A Subsidiary of Hewlett-Packard Company

For details, circle #205 on Reader Service Card

Improved High Power Pulsed Oscillator, PG-650-C

PG-650-C model has been further improved to include a ½ μsec pulse with 3 cycles rise and fall, and change of mode of operation for C.W. and as a gated amplifier. This high powered pulsed oscillator has become standard equipment in leading laboratories in the United States and Europe for research in ultrasonics, nuclear magnetic resonance and transient analysis.

R.F. Output voltage (min)
into 93 ohms .....0-300 p. to p.
0-600 Special order
Pulse length—continuous .....½—13 μsec
Rise and Fall times (max.) .....0.3 μsec
Pulse droop 5%
Noise output .....Therma. noise from termination
Harmonic output (mostly third) 10%
R. F. Leakage .....Negligible

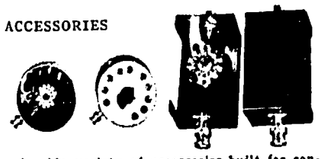
SPECIAL FEATURES
Pulse lengths available from ½ to 50 μsec.
Internal delay ranges from calibrated Helipot: 120, 1100, 11000 μsec.
Gate Output available for intensifying and blanking purposes.
External modulation of r.f. oscillator using varying pulse length and p.r.f.'s for Carr-Purcell method.
Double Pulse output
Fine controls on P.R.F. pulse length and Delay Time.
Special coils will extend coverage from 12KC to 200 MC.

PREAMPLIFIER, PA-620

This Preamplifier is a general purpose device for matching ultrasonic transducers with capacities as high as 100 pfd between 5 and 65 MC, and to provide a limited amount of gain with a good signal to noise ratio. Two of the three stages have variable bandwidth as well as center frequencies. An additional feature is a comparer stage with separate gain control low impedance input for attenuation measurements.

SPECIFICATIONS
Input impedances .....93 to 3200 ohms
Bandwidths .....0.5—17 MC
Low noise cascode input with 6922 tube
Three other tubes—6AK5
Gain .....35—50 db

ACCESSORIES



A wide variety of accessories built for convenience and accuracy are available—resistors, capacitors and resistances.
Single units or decade boxes are conveniently designed in series and parallel combinations.

For details and price list write to:

ARENBERG ULTRASONIC LABORATORY, INC.
94 Green St., Jamaica Plain 30, Mass.
TEL. JAmaica 2-8640
For details, circle #206 on Reader Service Card

Directory I. Complete Equipment

38. Test Equipment, Radio Frequency.

5. Analyzers, RF spectrum
10. Generators, marker
15. Generators, noise
20. Generators, sweep
25. Meters, field strength
30. Meters, impedance & admittance
35. Meters, interference & noise
40. Meters, phase
45. Meters, Q
50. Meters, output power
55. Multivibrators
60. Oscillators
65. Signal generators, AM
70. Signal generators, FM
75. Signal generators, RF
80. Signal generators, SSB

A C Electronics, Inc., Calif., 10c, 15c, 20c, 60c

A.R.F. Products, Inc., Ill., 70c

Ad-Yu Electronics Laboratory, Inc., 249 Terhune Ave., Passaic, N.J., 40sc, Tel: 201-GRegory 2-5622
See ad in class 57

Adler Electronics, Inc., N.Y., 70c

Admiral Corp., Ill., 5c, 50c

Advance Components, Ltd., England, 15s, 45s, 60s, 65s, 70s, 75s

Advanced Development Laboratories, Inc., N.H., 5c, 75c

Advanced Measurement Instruments, Inc., Mass., 65c, 70sc

Airborne Instruments Laboratory, Div. of Cutler-Hammer, Inc., N.Y., 15s, 35s

Airmec, Ltd., England, 5s, 60s, 65s, 70s, 75s

Airtronics International Corp., Fla., 65s

Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 5s, Tel: 617-FOrest 6-4467
See ad on page 82

Alfred Electronics, Calif., 20s, 60s

American Geloso Electronics, Inc., N.Y., 60s

Andrew Antenna Corp., Ltd., Canada, 40s

Applied Electro Mechanics, Inc., Va., 30 Conductance s

Applied Research, Inc., 76 S. Bayles Ave., Port Washington, L.I., N.Y., 5c, Tel: 516-POrt Washington 7-8707
See ad in class 43

Arenberg Ultrasonic Laboratory, Inc., 94 Green St., Jamaica Plain 30, Mass., 60sc, 75s, Tel: 617-JAmaica 2-8640
See ad in this class

Arkay International, Inc., N.Y., 75s

Auerbach Electronics Corp., Pa., 15c

Automatic Telephone & Electric Co., Ltd., Strowger Works, England, 50s, 60s, 70s

Automation Research & Design Associates, N.J., 60c

Autonetics, Div. of North American Aviation, Inc., Calif., 40s

Avo, Ltd., England, 65s, 70s, 75s

Babcock Electronics Corp., Calif., 70sc

Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 5s, 40s, 50s, Tel: 617-UNiversity 4-7420
See ad in class 86

Beckman Instruments, Inc., Berkeley Div., Calif., 65s

Benco Television Associates, Ltd., Canada, 25s

Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 5c

Bendix Corp., M.C. Jones Electronics Co., Inc. (Subsid.), Conn., 50sc

Bird Electronic Corp., 30303 Aurora Rd., Cleveland 39, Ohio, 50sc, Tel: 216-CHurchill 8-1200
See ad on page 210

Bliley Electric Co., Union Station Bldg., Erie, Pa., 60sc, Tel: 814-GLendale 6-7561
See ad in class 56

Boonton Electronics Corp., 738 Speedwell Ave., Morris Plains, N.J., 50s, 60s, Distortion Meters s, Tel: 201-JEfferson 8-4210
See ad in class 6

Boonton Radio Corp., Subsid. of Hewlett-Packard Co., 50 Intervale Rd., Boonton, N.J., 20s, 30s, 45s, 65s, 70s, 75s, Tel: 201-DEerfield 4-3200
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Browning Laboratories, Inc., N.H., Multiplex Monitors c

Bruel & Kjaer (A/S), Denmark, 25s

Budelman Electronics Corp., 375 Fairfield Ave., Stamford, Conn., 25c, Frequency-Deviation Meters c, Tel: 203-FIreside 8-9231
See ad on page 96

Bulova Research & Development Laboratories, N.Y., 40c, 50c

Bulova Watch Co., Electronics Div., Dept. A-1376, 61-10 Woodside Ave., Woodside 77, N.Y., 60c, 75c, Tel: 212-NEwtown 9-5700
See ad in class 56

California Technical Industries, Div. of Textron, Inc., Calif., 60sc

Canoga Electronics Corp., Calif., 5c

Carol Electronics Corp., W.Va., 60c

Capehart Corp., N.Y., 15c, 45c, 65c, 70c, 75c, 80c

Clough-Brengle Co., Ill., 10s, 20s, 50s, 60s, 65s, 75s

Collins Radio Co., Iowa, 5s, 80s

Columbus Electronics, Inc., 1000 Saw Mill River Rd., Yonkers, N.Y., 65c, 75c, Tel: 914-YOnkers 8-1221
See ads in classes 48, 71

Comptron Corp., Mass., 60c

Compudyne Corp., Pa., 45c, 50c, 60c, 65c, 70c, 75c, 80c

Continental Electronics & Sound Co., Ohio, 25sc, 50s

Controlomag Laboratories, Pa., 45sc

Contronics, Inc., Mass., 5c

Cosmic, Inc., D.C., 5s

Crosby-Teletronics Corp., N.Y., 80s

Crown Engineering, N.M., 35c

Dawe Instruments, Ltd., England, 15s, 40s, 50s

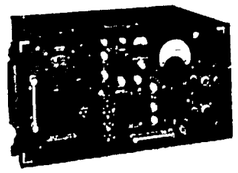
Daystrom, Inc., Weston Instruments Div., N.J., 40s, 50s

Dayton Aviation Radio & Equipment Corp., Ohio, 65c

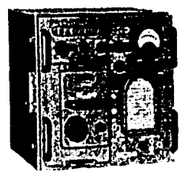
Decade Instrument Co., N.J., 60s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

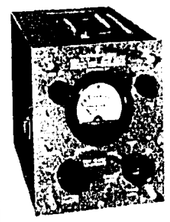
When Reliability is a must... specify EMPIRE



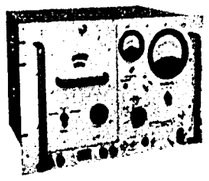
NOISE AND FIELD INTENSITY METER
Model NF-105 • 14 KC to 1000 MC
Use of five quick-change tuning heads avoids costly repetition of components common to all frequency ranges. Built-in impulse generator serves as calibrator. Carrier and peak reading VTVM. Fully regulated power supply.



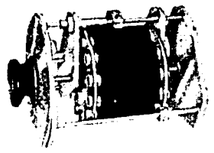
NOISE AND FIELD INTENSITY METER
Model NF-112 • 1 KMC to 10 KMC
Companion unit to NF-105. Four interchangeable tuning heads. Excellent shielding effectiveness. Calibration by means of built-in impulse generator. Compact. Simple to operate.



BROADBAND POWER DENSITY METER
Model NF-157
200 MC to 10 KMC
Personnel safety indicator. Average power from 0.1 mw/cm² to 2 w/cm². Complete with 3 pick-up probes. Portable. Self-contained.

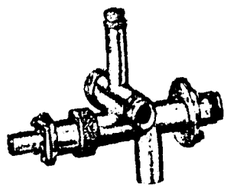


AM MODULATION METER
Model MM-120 • 15 KC to 1000 MC
Indicates modulation percentage of signal generators and transmitters. RF sensitivity 0.01 volts. Two plug-in tuning units.

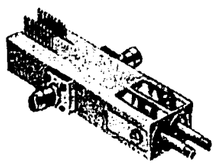


BROADBAND COAXIAL ATTENUATORS
DC to 4 KMC
Pads, 6 and 12 position step attenuators (manually and motor operated), attenuator panels. Many models, of 1 through 50 watts power dissipation. Large range of values. Low VSWR. Long term stability. Conservative power ratings.

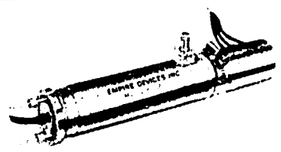
VARIABLE FREQUENCY POWER SUPPLIES
Models VP-410, VP-1000
400 VA, 1000 VA
Low distortion. Excellent regulation. Quick recovery. Wide frequency range.



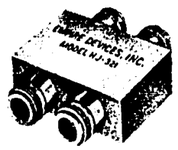
BROADBAND CRYSTAL MIXER
Model CM-107 • 225 MC to 5600 MC
Eight fixed tuned models. Low noise figure. Laboratory or production applications. Versatile.



MICROWAVE PRESELECTORS
Model CF-190
Tunable selection of desired signals from 850 to 11,000 MC by means of 4 models. Rejection of undesired signals from signal generators and other sources makes for accurate measurements and prevents receiver overload.



WIDE RANGE KLYSTRON OSCILLATORS
Model KL-280
Three models produce RF power from 1000 to 6000 MC with a minimum of unwanted radiation and spurious responses. Low noise and long service life are insured by non-contacting plungers. Available for CW and pulsed operation.



BROADBAND HYBRID JUNCTIONS
Model HJ-321
The entire range from 1000 to 8000 MC is covered by only 3 units. All four terminals are brought out for maximum flexibility. Excellent isolation between diagonally opposite terminals.

BROADBAND COAXIAL STUB TUNERS
200 MC to 10 KMC
Single, double and triple stub tuners of rugged construction. Locking nuts insure stable operation.

COAXIAL TERMINATION
Model TE-80 • DC to 10 KMC
Low VSWR throughout. Type "N" connector. Many special versions available.

Send for our Catalog 614

ed EMPIRE DEVICES, Inc.
AMSTERDAM, NEW YORK • VICTOR 2-8400

MANUFACTURERS OF: FIELD INTENSITY METERS • DISTORTION ANALYZERS • IMPULSE GENERATORS • COAXIAL ATTENUATORS • CRYSTAL MIXERS

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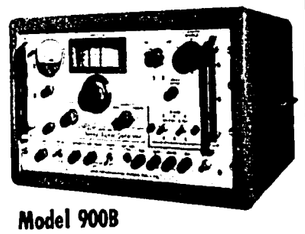
JERROLD® SWEEP GENERATORS

NEW!

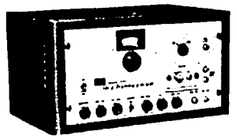


Model 900B

Very narrow to very wide sweep widths in one sweep SIGNAL generator

$1880.00

Unusual stability in sweep widths from 10 kc to 400 mc. Frequency range 500 kc to 1200 mc. Built-in crystal-controlled harmonic markers, direct coupled scope pre-amplifier, and attenuators. The ultimate instrument for your IF-VHF-UHF requirements.



Model 900A

Wide-band sweep generator

$1260.00

Center frequency: VHF, 0.5 to 400 mc; UHF, 275 to 1000 mc. Sweep widths from 100 kc up to 400 mc. Flatness: ±0.5 db over widest sweep.

Model 707

Ultra-flat sweep generator

$795.00

Featuring ±5/100 db flatness; plug-in oscillator heads*; variable sweep rates from 1/min. to 60/sec.; all electronic sweep fundamental frequencies; sweep width min. of 1% to 120% of C.F.

*Heads available within the spectrum 2 to 265 mc. Narrow-band heads on request.

For applications bulletin and complete catalog (including wide-band comparators, precision attenuators and accessories), write:

JERROLD® ELECTRONICS CORPORATION
Industrial Products Division, Dept. ITE-104
The Jerrold Building, Philadelphia 32, Pa.

Jerrold Electronics (Canada) Ltd., Toronto
Export Representative: Rocke International, N. Y. 16, N. Y.

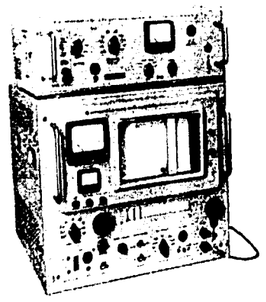
For details, circle #208 on Reader Service Card

Directory I. Complete Equipment

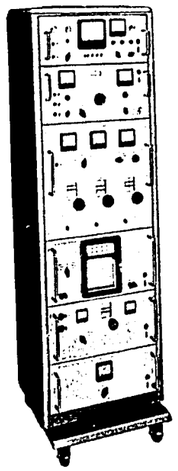
38. Test Equipment, Radio Frequency.

Defense Electronics, Inc., Md., 5sc
Denson Electronics Corp., Conn., 60c
Dero Research & Development Corp., N.Y., 20sc, 25sc, 70sc, 75sc
Dewey Corp. (G. C.), N.Y., 5c
Diamond Antenna & Microwave Corp., Mass., 40sc, 60sc
Dielectric Products Engineering Co., Inc., Me., 30c
Direct T/V Windings, Ltd., England, 55c
Dorne & Margolin, Inc., N.Y., 50c
Douglas Aircraft Co., Inc., Calif., 45c, 60c
Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 25c, 30sc, Tel: 914-MOunt Vernon 8-6900
See ad in class 66
Dynatronics, Inc., Fla., 5c, 75c
Dytronics Co., Ohio, 40s
Ecco Electronic Components Corp., N.Y., 75sc
Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 10s, 20s, 75s, Tel: 212-STillwell 6-8700
See ad in class 41
Electrac, Inc., Calif., 5c
Electro Impulse Laboratory, Inc., 208 River St., Red Bank, N.J., 50sc, Tel: 201-SHadyside 1-0404
See ad in class 37
Electro-Mechanical Instrument Co., Eighth & Chestnut Sts., Perkasie, Pa., 25c, Tel: 215-ALpine 7-6561
See ad in class 61
Electronet Div., Rue Products, Calif., 65c, 75c
Electronic Development Laboratory, Inc., Ill., 25c, 60c
Electronic Measurements Corp., N.Y., 65s, 75s
Electronic Tube Corp., Pa., 20c
Elliott-Automation, Ltd., England, 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c, 75c
Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 15s, 25s, 35s, Tel: 518-VIctor 2-8400
See ad in this class
Espey Mfg. & Electronics Corp., N.Y., 25c, 35c
FXR, Inc., Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 5s, 30s, 50s, 60s, 75s, Tel: 212-RAvenswood 1-9000
See ad in class 37
Farinon Electric, Calif., 50s
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 10c, 15c, 65c, 70c, 75c
Federal Scientific Corp., N.Y., 5sc
Ferris Instrument Co., N.J., 25c, 35s, 65s, 70c, 75s, 80c
Ferrotran Electronics Co., Inc., N.Y., 15s
Fidelitone Microwave, Inc., Ill., 60sc
Frequency Standards, Div. of Harvard Industries, Inc., N.J., 60c, 75c
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 60sc, 65c, 70c, 75c, 80c, Tel: 216-SHadyside 9-0700
See ad in class 50
Furzehill Laboratories, Ltd., England, 5s
General Atronics Corp., Pa., 5c
General Dynamics/Electronics, N.Y., 5c
General Hermetic Sealing Corp., Subsid of Electrospace Corp., N.Y., 25c, 65c, 70c, 75c, 80c
General Microwave Corp., N.Y., 5c, 15c, 20c, 25c, 30c, 35c, 40c, 50c, 60c, 65c, 70c, 75c
General Radio Co., 22 Baker Ave., West Concord, Mass., 15s, 20s, 30s, 60s, 65s, 75s, Tel: 617-EMerson 9-4400
See ad on Cover 4
Gertsch Products, Inc., Calif., 75s
Goodman's Industries, Ltd., Vxtom Works, England, 20s, 60s
Gorham Electronics, Div. of Gorham Corp., R.I., 30c, 50c
Granger Associates, Calif., 35c, Ionosphere-Sounders c
Greenray Industries, Pa., 60sc, 75c
Gulton Industries, Inc., N.J., 5 Airborne sc, 35sc, 45sc
Hallamore Electronics Div., Siegler Corp., Calif., 75c
Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 75s
Heath Co., Subsid. of Daystrom, Inc., Mich., 20s, 25s, 30s, 45s, 60s, 65s, 70s, 75s
Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto Calif., 15s, 20s, 30s, 35 Noise-Figure s, 60s, 65s, 75s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28
Hewlett-Packard Co., Dymec Div., Calif., 25c
Hickok Electrical Instrument Co., Ohio, 5s, 10s, 40c, 65s, 70s, 75s
Hill Electronics, Inc., 300 N. Chestnut St., Mechanicsburg, Pa., 60c, Tel: 717-POplar 6-7611
See ad in class 59
Hogan Faximile Corp., N.Y., 5c
Inland Electronics Corp., Ill., 20c, 75c
Instrument Corp. of Florida, Fla., 5c, 60c, 75c, 80c
Interference Testing & Research Laboratory, Inc., Mass., 15c, 35sc
International Electronics Mfg. Co., Md., 5s
Itek Electro-Products Co., Div. of Itek Corp., 75 Cambridge Pkwy., Cambridge 42, Mass., 5c, Tel: 617-UNiversity 4-7200
See ad in class 59
Iwasaki Communication Apparatus Co., Ltd., Japan, 10s, 35s
Jackson Electrical Instrument Co., Ohio, 10s, 20s, 70s
Jerrold Electronics Corp., Dept ITE-104, 15th & Lehigh Ave., Philadelphia 32, Pa., 10s, 20s, 25s, 75s, Tel: 215-BAldwin 6-3456
See ad in this class

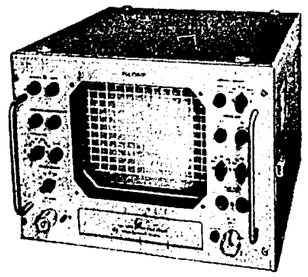
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-228.



An Audio-Frequency Spectrograph



A Decade Frequency Measuring System



The Polyskop - - A Swept Frequency Generator

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MEASURING EQUIPMENT

- Frequency Synthesizers and Decade Frequency Measuring Systems 0-12.6 kmc
- Time Standards and Portable Crystal Clocks
- Impedance Measuring Devices - - Diagraphs
- Power Signal Generators
- Audio-Frequency Spectrograph
- Swept Frequency Generators and Indicators - Polyskop
- Wave Analyzers
- Capacitance, Inductance and Resistance Bridges
- Teraohmmeters
- Standard Attenuators
- Selective Voltmeters and Amplifiers
- Standard Capacitors
- Power Meters
- Equipment For Measurement of Dieletric Losses
- Field Intensity Meters

Communications Equipment

- Multicouplers 60 kc - 400 mc
- FM Relay Receivers
- Dummy Antennas
- Frequency Synthesizers and Exciters

Within its scope, this equipment represents some of the most refined and precise available. Each of the equipment groups is described in detailed special catalogs or leaflets which are available on request.

All the equipment offered is backed by high engineering competence and field experience. Skilled repair personnel and a generous reservoir of spare parts assure that all equipment sold by Rohde & Schwarz will meet warranties and give long years of service.

Write for literature covering your special areas of interest. Quotations promptly furnished.

IN USE... AROUND THE WORLD

ROHDE & SCHWARZ

111 Lexington Ave., Passaic, New Jersey
Telephone: PRescott 3-8010
Cable Address: ROHDESCHWARZUSA

For details, circle #209 on Reader Service Card

Directory I. Complete Equipment

38. Test Equipment, Radio Frequency.

Jetronic Industries, Inc., Pa., 20c, 65c, 70c, 75c

Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 5s, 10s, 15s, 20s, 60s, 70s, Tel: 201-CApital 6-4000
See ad on pages 72-73

Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 20s, 65s, 70s, 75s

Knights Co. (James), 101 E. Church St., Sandwich, Ill., 60sc, Tel: 2141
See ad in class 56

Kurtston Electronics, N.Y., 20c, 60sc, 65sc, 75sc

Lampkin Laboratories, Inc., Monitor Div., Fla., 75s

LaPointe Industries, Inc., Conn., 25c, 60c

Lavoie Laboratories, Inc., Matawan-Freehold Rd., Morganville, N.J., 5s, Tel: 201-LOwell 6-2600
See ad in class 37

Lehigh Valley Electronics Engineering & Mfg., Inc., Pa., 60s

Lepel High Frequency Laboratories, Inc., 54-18 37th Ave., Woodside 77, N.Y., 60 Short-wave sc, Tel: 212-HAvemeyer 6-4580
See ad in class 98

Ling Temco Vought, Inc., Texas, 15c, 45c, 60c

Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 15c, 45c, 60c

Lionel Corp., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c, 75c, 80c

Lionel Corp., Telerad Div., N.Y., 65c, 70c, 75c

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), 60c, 75c

Loral Electronics Corp., N.Y., 5c, 10c, 20c

Madigan Electronic Corp., N.Y., 65c, 70c, 75c, 80c

Mallory & Co., Inc. (P. R.), Ind., 55c, 60c, 75c, 80c

Manson Laboratories, Inc., Conn., 10sc, 60sc, 65sc, 70sc, 75sc, 80sc

Marconi Instruments, Ltd., 111 Cedar Lane, Englewood, N.J., 5s, 15s, 45s, 65s, 70s, 75s, FM Deviation-Meters s, Tel: 201-LOwell 7-0607
See ad on pages 66-67

Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 5c

Matsushita Communication Industrial Co., Ltd., Japan, 65s, 70s

Maury & Associates, Calif., 60c

Measurements, McGraw-Edison Div., N.J., 25sc, 35sc, 65sc, 70sc, 75sc

Melabs, Calif., 20s

Menlo Park Engineering, 711 Hamilton Ave., Menlo Park, Calif., 60s, Tel: 415-DAvenport 6-9080
See ad in class 43

Metrologie, Compagnie Generale de, France, 10s, 20s, 65s, 70s

Microwave Dynamics Corp., N.Y., 70c, 75c

Missouri Research Laboratories, Inc., Mo., 10sc

Mobil Electronics, Inc., Ind., 50s

Model Engineering & Mfg. Corp., Ind., 20c, 75c

Monitor Products Co., Inc., Calif., 60c

Montek, Inc., Utah, 55c

Motorola Communications & Electronics, Inc., Ill., 70s

Motorola, Inc., Military Electronics Div., Ariz., 5c

Muirhead & Co., Ltd., England, 5s

Muirhead Instruments, Inc., N.Y., 5s, 40s, 60s

Narda Microwave Corp., Dept. IRED-61-3, 118-160 Herricks Rd., Mineola, L.I., N.Y., 30s, Tel: 516-PIoneer 6-4650
See ad in class 66

Natel Engineering Co., Calif., 40c

Network Industries, Inc., N.J., 25c

New London Instrument Co., Conn., 15c, 60sc, 65sc, 70sc, 75sc

STODDART

RFI MEASURING SYSTEMS

frequency coverage — 30 cps to 10 kmc

approved by U.S.N.
U.S.A.F.
U.S.A.(SIG. C.)

NM-40A (AN/URM-41)
30 cps to 15 kc

NM-10A (AN URM-6B)
14 kc to 250 kc

Stoddart RFI instrumentation is an approved standard of the services. It is designed to comply with the DOD's RFI Compatibility Program and Spectrum Signature Plan MIL-STD-449. This equipment is approved for interference measurements required by the following Military Specification series

MIL-I-6181
MIL-I-11748 (Sig. C.)
MIL-I-16910 (Ships)
MIL-I-26600 (U.S.A.F.)

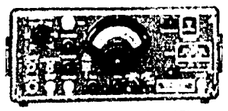
Stoddart instrumentation is also approved for measurements in accordance with other Military Specifications, S.A.E. and F.C.C. requirements and can be supplied with C.I.S.P.R. recommended time constants

Equipments are portable, dripproof, dustproof and ruggedized for all-weather field use . . . precise and dependable for sensitive and selective laboratory measurements.

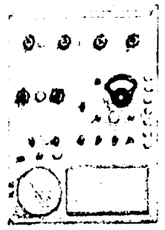
Precision measurements are assured by calibration methods using equipment with accuracies traceable to the National Bureau of Standards

(Instrumentation covering the range of 30 cps to 1000 mc available for immediate delivery from stock.)

NM-20B
(AN/PRM-1A)
150 kc to 25 mc



NM-30A (AN-URM-47)
20 mc to 400 mc



NEW!

NM-62A (AN/URM-138)
1000 mc to 10 kmc

NM-52A (AN/URM-17)
375 mc to 1000 mc

Detailed literature upon request.
Immediate delivery from stock.

STODDART
AIRCRAFT RADIO CO., INC.
6644 Santa Monica Blvd., Hollywood 38, Calif.; HOllywood 4-9292
serving 33 countries in Radio Interference control

For details, circle #210 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

There are

3 SPECIFIC WAYS

in which "Proceedings of the IRE" serves the advertiser differently and more effectively than other publications.

1. Pre-Specification Selling

Because "Proceedings of the IRE" publishes basic research and engineering application articles, it is closely studied by those design engineers who must "keep ahead of the market." Often, the research published leads the industry production by from two to six years! The alert engineer, who needs this amount of time for his own design applications and for tooling up and changing the production in his own factory, studies the "Proceedings of the IRE" carefully. Its articles keep him abreast with the changes that will inevitably come and make it possible for him to be ready for them. This is the time for you to sell the unknown engineer designing the never-dreamed-of-product "before it happens!" It is an insurance that you will be ahead of the market instead of behind it!

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The Institute of Radio Engineers is an engineering society for individual engineers who must qualify on their own education, experience and engineering work. Thus, the magazine follows the reader as his private possession, wherever he goes. Wherever new engineering progress is developing, the work is done by individual engineers—and it is these men that must be sold! Only the engineer knows enough to specify and buy in a highly technical industry. Selling is a matter of reaching the minds of men because *a company cannot sign a purchase order.* Wherever radio engineering activity is the greatest, companies employ IRE members. An engineer moves into a new job in advance of production and with him goes "Proceedings of the IRE," with all the advertising you so urgently need to place where engineering activity is the greatest.

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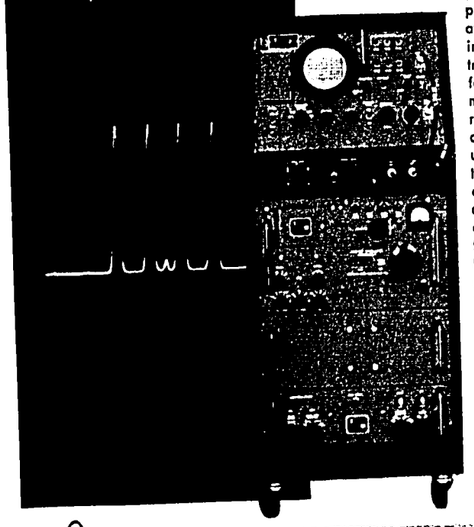
It is a specific purpose of the Institute of Radio Engineers that its advertising rates should benefit and help the industry grow, by being economical. Part of the economy of a tax-free organization is thus passed on to advertisers in the form of low-cost advertising to a high-quality audience. The page rate per thousand engineers of "Proceedings of the IRE" is the lowest in the radio-electronic industry by deliberate intent. Thus, the Institute finds an extra way that it can help the firms that hire its engineers to gain new business at lower costs.

THE INSTITUTE OF RADIO ENGINEERS
ADVERTISING DEPARTMENT
72 W. 45th St.
New York 36, N.Y.

PTE-3
AN/GRM-33A

SINGLE SIDEBAND ANALYZER



The TMC Model PTE-3 (AN/GRM-33A) is a multi-purpose test instrument used at communication facilities, in laboratories, and in electronic production facilities for visual analysis of RF signals within the frequency range of 1.5 to 64.5 megacycles. The PTE-3 may be used for tuning and aligning transmitters, sideband exciters, RF filters, and for band occupancy studies. Detailed analysis of any portion of the selected spectrum for intermodulation distortion, harmonic distortion, sideband suppression, carrier suppression, spurious signals, hum, noise, and adjacent channel interference is made possible by a manual sweep control.

The PTE-3 contains a variable frequency oscillator with long term stability, a two tone RF generator for unit test and calibration, and a two tone audio generator for distortion analysis.

THE TEST EQUIPMENT DIVISION OF
THE TECHNICAL MATERIEL CORPORATION
World Wide Suppliers of Electronic Communications Equipment
and Subsidiaries MAMARONECK, NEW YORK
OTTAWA, ONTARIO • GARLAND, TEXAS • ALEXANDRIA, VIRGINIA

For details, circle #211 on Reader Service Card

UNIQUE
PORTABLE, PLUG-IN SWEEP GENERATOR

the NEW MICRO-SWEEPER

Here's a small, lightweight sweep generator that attaches directly to your oscilloscope panel. No cables or batteries. Just plug in and operate. MICRO-SWEEPER sweeps speeds up to 2 microseconds/centimeter on your scope. Use it for IF alignment; wideband amplifier testing; filter studies; tv test work; field testing where portability is a must; classroom demonstrations.

And check these performance advantages!

- **Choose from 3 models:**
  Model 200 — .15 to 2mc
  Model 201 — 2.0 to 15mc
  Model 202 — 15.0 to 115mc
- **Output voltage:** 0.25 Volts rms into 600 ohms for Model 200.
  0.1 Volts rms into 50 ohms for Models 201 and 202.
- **Flatness:** ±0.5 db or better on all bands (±0.25 db on Model 200)
- **Over-all flatness, band-to-band:** ±1 db or less (±0.5 db on Model 200)
- **Easy maintenance, fully transistorized**

. . . Now — check the prices!

Model 200 $160.00 201 $160.00 202 $160.

For complete information, please write

TELTRONICS INC
23-27 Main Street, Nashua, N.H.
Export Division: EMEC, Inc. Plainview, L.I., N.Y.
For details, circle #212 on Reader Service Card

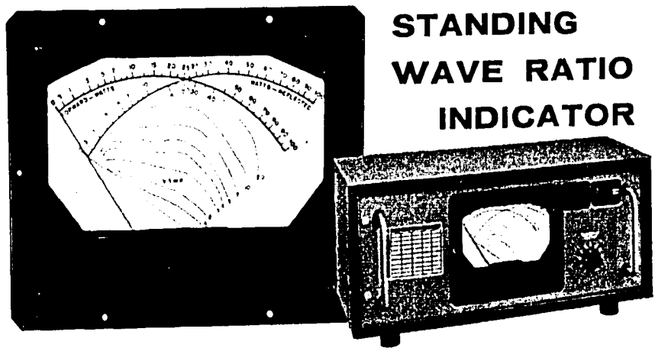
Directory I. Complete Equipment

38. Test Equipment, Radio Frequency.

Norrman Laboratories (Ernst), Williams Bay, Wis., 60sc, Tel: 414-CIrcle 5-5516
See ad in class 31
Northeast Electronics Corp., N.H., 50s
Northeastern Engineering, Inc., N.H., 5sc
Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 20c, 40sc, 60sc, 65sc, Tel: 914-DEerfield 7-6132
See ad in class 43
Ortronix, Inc., Fla., 75c, 80c
Panoramic Electronics, Inc., 528 S. Fulton Ave., Mount Vernon, N.Y., 5 SSB s, 20s, 75s, 80s, Tel: 914-OWens 9-4600
See ad on page 80
Phaostron Instrument & Electronic Co., Calif., 50sc
Philco Corp., Government & Industrial Group, Pa., 15s, 20s, 30s, 50s, 60s, 65s, 70s, 75s, 80s
Philco Corp., Sierra Electronic Corp. (Div.), Calif., 5s, 70s
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 10s, 20s, 60s, 65s, 70s
Philips Electronics Industries, Ltd., Canada, 20s, 60s, 65s, 70s
Pickard & Burns, Inc., Subsid. of Gorman Corp., 103 Fourth Ave., Waltham R & D Park, Waltham 54, Mass., 25c, Tel: 617-HIllcrest 4-3345
See ads on page 190 & in classes 31, 44
Planetronics, Inc., Pa., 60c, 65c, 75c
Plectron Corp., Nebr., 70s
Polarad Electronics Corp., 43-20 34th St., Long Island City 1, N.Y., 15s, Tel: 212-EXeter 2-4500
See ads in class 37
Polytronic Research, Inc., Md., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c, 75c, 80c
Precise Electronics & Development Corp., Subsid. of Designatronics, Inc., N.Y., 10s, 65s, 75s
Precision Apparatus Co., Inc., Div. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 10sc, 20sc, 25sc, 50c, 55c, 60c, 65sc, 70sc, 75sc, 80c, Tel: 212-TWining 4-4290
See ad in class 39
Probescope Co., Inc., N.Y., 5s
RCA Victor Co., Ltd., Canada, 15s, 20s, 65s, 70s, 75s
R-K Laboratories Co., N.Y., 10s, 15s, 20s, 50c, 60s, 65s, 75s
RS Electronics Corp., 435 Portage Ave., P.O. Box 11368, Sta. A, Palo Alto, Calif., 35 IF c, 70sc, 75sc, Tel: 415-DAvenport 1-1130
See ad in class 43
Radio Corp. of America, Defense Electronic Products, N.J., 65c, 70c, 75c, 80c
Radio Corp. of America, RCA Electron Tube Div., N.J., 10s, 20s, 60s, 65s, 70s, 75s
Radio Specialty Mfg. Co., Ore., FM Deviation-Meters c
Radiometer, Denmark, 20s, 45s, 60s, 65s, 70s
Radionics, Inc., 76 Cambridge St., Burlington, Mass., 60sc, Tel: 617-BRowning 2-1233
See ads in classes 40, 77
Railway Communications, Inc., Mo., 5s
Rainier Co., Inc., N.Y., 10c, 20c, 45c, 60c
Ramage & Miller, Inc., Calif., 20s, 60s, 65s, 70s, 75s
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 75s
Raytheon Co., Industrial Components Div., Mass., 15s
Reeves-Hoffman, Div. of Dynamics Corp. of America, 145 Cherry St., Carlisle, Pa., 60c, Tel: 717-CHapel 3-5929
See ad in class 56
Republic Electronic Industries Corp., N.Y., 25c, 45c
Rixon Electronics, Inc., Md., 5c, 10c, 15c, 20c, 25c, 55c, 60c, 65c, 70c, 75c, 80c
Rodale Electronics, Inc., N.Y., 30c, 75c
Rohde & Schwarz, P.O. Box 275, 111 Lexington Ave., Passaic, N.J., 15s, 20s, 25s, 30s, 40s, 45s, 50s, 65s, 70s, 75s, Tel: 201-PRescott 3-8010
See ad in this class
Sadelco, Inc., N.Y., 25s
Savoy Electronics, Inc., Fla., 60sc
Schaevitz Engineering, N.J., 10sc, 20sc, 25sc, 40c, 55c, 60c, 65c, 70c, 75c, 80c
Scientific-Atlanta, Inc., Ga., 30c, 40c, 75s
Scopes Co., Inc., N.Y., 60s
Seco Electronics, Inc., Minn., 25s, 50s
Sheltered Workshops, Inc., Calif., 25c, 50c
Siemens New York, Inc., N.Y., 5s, 15s, 20s, 60s
Simpson Electric Co., 5218 W. Kinzie St., Chicago 44, Ill., 25s, Tel: 312-EStebrook 9-1121
See ad in class 61
Smith Electronics, Inc., Ohio, 25sc
Solartron Electronic Group, Ltd., England, 60s, 65s, 70s
Space Electronics Corp., Calif., 5c, 15c, 75c, 80c
Specialty Electronics Development Corp., N.Y., 65c, 70c, 75s
Spectrum Instruments, Inc., N.Y., 5c
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 10sc, 75sc
Springer Aircraft Radio Corp., Ind., 65s, 70s

SWR-3000

STANDING WAVE RATIO INDICATOR



The TMC Model SWR-3000 is a multi-purpose instrument which will instantaneously provide visual indications of Forward Power, Reflected Power, and Voltage Standing Wave Ratio.

The SWR-3000 may be used in any 50 or 70 ohm unbalanced transmission system covering 2-30 MCS, with average powers up to 3000 watts.

The SWR-3000 is used as an operational and maintenance tool at transmitter stations, in electronic plants for production testing of transmitters, and laboratories for RF transmission system measurements.

For additional information about the SWR-3000 and other test equipment, please contact TMC Test Equipment Division, Mamaroneck, New York.

THE TEST EQUIPMENT DIVISION OF
THE TECHNICAL MATERIEL CORPORATION
World Wide Suppliers of Electronic Communications Equipment
and Subsidiaries MAMARONECK, NEW YORK
OTTAWA, ONTARIO • GARLAND, TEXAS • ALEXANDRIA, VIRGINIA

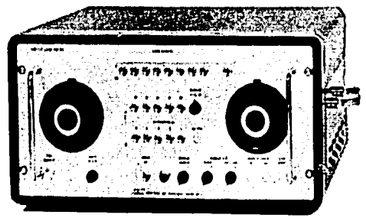
For details, circle #213 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

SWEEP GENERATORS

Telonic Industries, Inc.

- *Fast, accurate frequency response testing*
- *Ranges from 20 cps to 2500 mc*
- *Built in attenuation and frequency markers*



A Telonic Sweep Generator provides your laboratory or production line the quickest, most accurate means available for measuring frequency response of RF circuits.

Scanning the entire frequency range in one 60th of a second, a Telonic Sweep Generator completely eliminates time-consuming point-to-point response tests. Available in many models covering various portions of the RF range, they may be used to check response of filters, mixers, amplifiers and many other RF circuits.

Quantitative measurements are provided by integral, precision attenuators. Marker systems, both fixed and variable, are also available on many models.

Write for catalog 8-C.

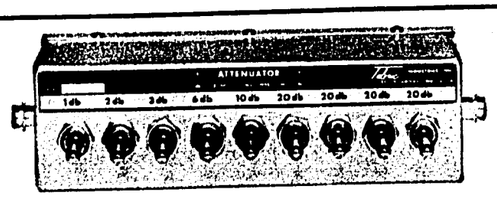
SERIES	RANGES	PRICES
HD	10 kc — 910 mc	$695.00 — 995.00
LD	3.5 — 140 mc	695.00
LR	3.4 — 140 mc	995.00
PLR	Plug-in oscillators for LR models	
SD	200 — 1260 mc	745.00
ED	975 — 2450 mc	1,495.00
PD	4.2 — 1010 mc	2,750.00
SV	VHF Channels	725.00 — 775.00

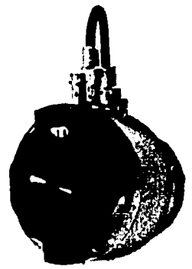
GENERAL SPECIFICATIONS

Flatness..... 5%
Zero Base Line..... Oscillator off during return sweep
Sweep Rate..... Line frequency (50-60 cps)
Horizontal Sweep..... 20 volts
Vernier Attenuation... 0-10 db.
Physical Description.. Panel—⅛" x 8¾" x 19" Chassis—2" x 14½" x 17"
Power..... 115 v. 50/60 cycle, approx. 120 watts
Display Linearity..... Better than 1.2:1
Radiation..... Less than 10 microvolts
Source VSWR..... Below 1.3:1
Markers..... Birdy-By-Pass Marker System
Variable Markers..... Available on LD, LR, SD & ED Models

R F ATTENUATORS

Telonic Industries Inc.





Turret and Toggle Switch Types

Telonic RF Attenuators are precision-built units designed to operate with long-term accuracy and low insertion loss.

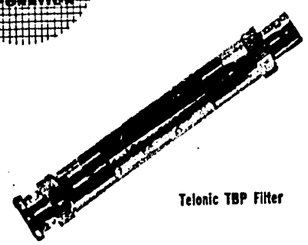
Toggle switch models are available with 6 or 9 steps of attenuation in 1 db increments from 0 to 42 or 0 to 102 db. Switches are silver-plated wiping contact types for continuous operation. Special versions can also be furnished to meet most operating requirements.

Telonic Turret Attenuators use self-cleaning knife type contacts to maintain reliable service. These attenuators are available as single units with steps of 1, 2, 5, or 10 db, tandem units to operate 2 circuits simultaneously, or the TAB (shown) providing 0 to 59 db attenuation in 1 db steps through a dual, concentric knob and dial.

TYPES	ATTENUATION (max.)	PRICE RANGE
Turrets	to 59 db	$65.00 — 225.00
Tandem Turrets	to 50 db	160.00 — 200.00
Multiple Turrets	to 110 db	325.00
Toggles	to 20 db	65.00 — 85.00

R F FILTERS

Telonic Engineering Corporation



Telonic TBP Filter

Miniature Band Pass and Low Pass

Telonic TLP-4 Low-Pass Filters are exceptionally rugged devices available with any cut-off frequency from 200 to 2000 mc in 5 mc increments. Inherent simplicity makes them ideal where low-cost dependable performance is required.

TBP Band-Pass Filters cover the frequency range from 200 mc to 2000 mc and may be set at any value between 2.5 and 25%. They are available in 2 or 4 sections depending on band pass and rejection requirements. Miniature construction makes them especially well suited for missile and aircraft applications.

TTF Tunable Band Pass Filters consist of 5 resonant line sections capacity loaded to tune over a 2:1 range. Insertion loss is less than 1.5 db. Standard units are available covering frequencies from 250 to 2500 mc.

TCF Cavity Band Pass Filters consist of machined aluminum cavities, capacity loaded, and are adjustable over a ± 25% range. Center frequencies are available from 200 to 2500 mc and are set to factory standards or to customer requirements.

Telonic Industries Inc. — Beech Grove, Indiana | Telonic Engineering Corp. — Laguna Beach, California

For details, circle #214 on Reader Service Card

Directory I. Complete Equipment

38. Test Equipment, Radio Frequency.

Stark Electronic Instruments, Ltd., Canada, 10s, 20s, 45s
States Co., Conn., 40 Shifters c
Sterling Instrument Div., Designatronics, Inc., N.Y., 10s, 75s
Stoddart Aircraft Radio Co., Inc., 6644 Santa Monica Blvd., Hollywood 38, Calif., 25s, 35s, Tel: 213-HOllywood 4-9292
See ads in classes 38, 45
Superior Instruments Co., N.Y., 10s, 60s, 65s
Systems, Inc., Fla., 65sc, 70sc, 75c, 80c
Systron-Donner Corp., Calif., 60c
TRG, Inc. (Technical Research Group), 9 Union Square, Somerville 43, Mass., 15s, Tel: 617-MOnument 6-8680
See ads in classes 44, 66
Taffet Electronics, Inc., N.Y., 25c, 60c, 65c, 70c, 75c, 80c
Technical Materiel Corp., 700 Fenimore Rd., Mamaroneck, N.Y., 5s, 60s, Tel: 914-OWens 8-4800
See ads in this class
Technology Instrument Corp., Mass., 30s, 40s
Technology Instrument Corp. of Acton, Mass., 30c, 40c
Tektronix, Inc., Ore., 10s
Tel Instrument Electronics Corp., N.J., 20s, 65s, 70s, 75s
Televiso Corp., Ill., 15c, 80c
Telonic Engineering Corp., P.O. Box 277, Laguna Beach, Calif., 10c, 20c, 60c, 65c, 70c, 75c, Tel: 714-HYatt 4-7581
See ad in class 39
Telonic Industries, Inc., 60 N. First Ave., Beech Grove, Ind., 10sc, 20sc, 60s, 75sc, Tel: 317-STate 7-7241
See ad in class 39
Teltronics, Inc., 23-27 Main St., Nashua, N.H., 5c, 20s, 40c, 60c, 65c, 75c, Tel: 603-TUxedo 2-6264
See ad in this class
Textron Electronics, Inc., Globe Electronics Div., Iowa, 25s, 30s
Theta Instrument Corp., 520 Victor St., Saddle Brook, N.J., 40s, Tel: 201-HUbbard 7-3508
See ad in class 97
Topping Electronics, Ltd., Canada, 60sc, 75sc, 80sc
Valpey Crystal Corp., 1100 Highland St., Holliston, Mass., 60c, Tel: 617-GArden 9-4851
See ads on page 219 & in class 56
Varian Associates, Tube Div., Calif., 30s, 35s, 40s, 60s
Virginia Electronics Co., Inc., D.C., 25c, 75c
Vitro Electronics, Md., 25s, 35s, 40s
Waltham Electronics Corp., Mass., 15c, 20c, 60sc, 65sc, 70sc, 75sc
Wayne Kerr Corp., Pa., 35s, 75s
Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., 25c, 50 Loss c, 60sc, 75sc, Tel: 301-LOckwood 4-0121
See ad in class 45
Wiltron Co., Calif., 40s
Wintronics, Calif., 40s
York Research Corp., Kip Electronics Div., Conn., 35c

Test equipment, telegraph: See class 35

39. Test Equipment, Television.

5. Calibrators
10. Generators, marker
15. Generators, sweep
20. Generators, synchronizing
25. Generators, UHF-VHF
30. Signal generators, TV

Admiral Corp., Ill., 5c, 10c, 15c, 30c
Advance Components, Ltd., England, 5s, 25s, 30s
Advanced Development Laboratories, Inc., N.H., 25c
Advanced Measurement Instruments, Inc., Mass., 5sc, 10c, 15c, 20c, 25c, 30c
Allegany Instrument Co., Div. of Textron Electronics, Inc., Md., 5s
Andrea Radio Corp., N.Y., 10c, 15c
Automation Laboratories, Inc., N.Y., 15sc, 20sc, 30sc
B & K Mfg. Co., Ill., 30s
Ballantine Laboratories, Inc., Boonton, N.J., 5s, Tel: 201-DEerfield 4-1432
See ad in class 40
Bulova Research & Development Laboratories, N.Y., 30c
Clough-Brengle Co., Ill., 10s, 15s, 25s
Controlomag Laboratories, Pa., 30sc
Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 10s, 15s, Tel: 212-STillwell 6-8700
See ad in class 41
Electro-Mech Engineering Co., Minn., 5c, 20c, 30c
Epic, Inc., N.Y., 15s
Exact Electronics, Inc., Ore., 5s
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5sc, 15c, 30c
Ferris Instrument Co., N.J., 5c
Foto-Video Electronics, Inc., N.J., 20s, 30s
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 30c, Tel: 216-SHadyside 9-0700
See ad in class 50
General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 20s
General Microwave Corp., N.Y., 5c, 25c
General Radio Co., 22 Baker Ave., West Concord, Mass., 25s, Tel: 617-EMerson 9-4400
See ad on Cover 4
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 10s, 15s, 30s
Hewlett-Packard Co., Dymec Div., Calif., 5s
Hickok Electrical Instrument Co., Ohio, 10s, 15s, 25s, 30s

39. Test Equipment, Television.

Instrument Corp. of Florida, Fla., 15c, 25c
Intectron, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 20c, Tel: 617-WOodward 9-9311
See ad on page 163
International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 15c
Jackson Electrical Instrument Co., Ohio, 10s, 15s, 30s
Jefferson, Inc. (Ray), Pa., 10sc, 15sc
Jerrold Electronics Corp., Dept. ITE-104, 15th & Lehigh Ave., Philadelphia 32, Pa., 10s, 15sc, Tel: 215-BAldwin 6-3456
See ad in class 38
Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 10s, 15s, 25s, 30s, Tel: 201-CApital 6-4000
See ad on pages 72-73
Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 15s
Lionel Corp., N.J., 5c, 10c, 15c, 20c, 25c, 30c
Litton Industries, Inc., Electron Tube Div., 960 Industrial Rd., San Carlos, Calif., 30s, Tel: 415-LYtell 1-8411
See ad in class 86

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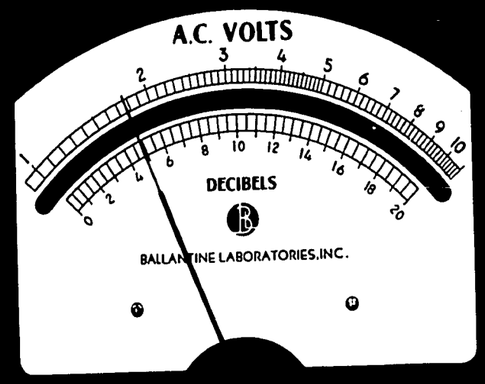
For details, circle #215 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

SAME HIGH ACCURACY OVER ENTIRE LOGARITHMIC VOLTAGE SCALE

BALLANTINE ELECTRONIC VOLTMETERS



AC/DC Calibrators, Capacitance Meter, AF Amplifiers, DC/AC Inverters, AC/DC Converters, and Accessories to extend Voltage Range from 10 Microvolts to 28,000 Volts. Laboratory Standards for Voltages to 1,000 MC.

Available in Cabinet and Rack Models. Prices F.O.B. Boonton, N. J., subject to change without notice.

ELECTRONIC VOLTMETERS

MODEL	FREQUENCY RANGE	VOLTAGE RANGE	INPUT IMPEDANCE	ACCURACY	PRICE
300	10 cps-150 kc	1 mV-100 V	0.5 MΩ shunted by 30 pF	2%	$220
300D	10 cps-250 kc	1 mV-1000 V	2 MΩ shunted by 15 to 25 pF	2%	$255
300E	30 cps-100 kc	300 μV-300 V	2 MΩ shunted by 20 to 30 pF	2%	$260
300G	10 cps-250 kc	1 mV-1000 V	2 MΩ shunted by 10 to 25 pF	1% 20 cps-20 kc, 1 mV-250 V; 2% elsewhere	$315
302C Battery Operated	2 cps-150 kc	100 μV-1000 V	2 MΩ shunted by 10 to 25 pF	3% 5 cps-100 kc; 5% elsewhere	$255
305A Peak Reading	5 cps-500 kc, sine waves. Pulses 0.5 μs up, and 5 pps up	1 mV-1000 V Peak or Peak-to-Peak	2 MΩ shunted by 5 to 15 pF	2% sine waves, 20 cps-200 kc; 4% elsewhere; 3% pulses above 3 μs and 100 pps; up to 5% elsewhere	$415
310A	10 cps-2 Mc; 5 cps-4 Mc as a null detector	100 μV-100 V (Down to 40 μV as null detector)	2 MΩ shunted by 9 to 19 pF	3% 15 cps-1 Mc; 5% elsewhere	$250
314 Wide Band	15 cps-6 Mc	1 mV-1000 V (100 μV-1 mV without probe)	11 MΩ shunted by 8 pF with probe, or 1 MΩ shunted by 25 pF without probe	3% 15 cps-3 Mc; 5% elsewhere	$300
316 Infrasonic	0.05 cps-30 kc; 0.01 cps with corrections supplied	0.02 V-200 V Peak-to-Peak	10 MΩ shunted by 17 to 40 pF	3%	$330
317 Wide Band	10 cps-11 Mc	300 μV-300 V	10 MΩ shunted by 7 pF with probe; 2 MΩ shunted by 11 to 24 pF without probe	2% 20 cps-2 Mc 4% 10 cps-6 Mc 6% 10 cps-11 Mc	$495 with probe
320 True RMS	5 cps-500 kc	100 μV-320 V	10 MΩ shunted by 8 to 18 pF	3% 15 cps-150 kc; 5% elsewhere	$445
350 True RMS	50 cps-20 kc	0.1 V-1199.9 V	2 MΩ shunted by 15 to 45 pF	¼% 0.1 V-300 V, 100 cps-10 kc; ½% outside these limits	$720

ELECTRONIC TEST EQUIPMENT

DECADE AMPLIFIER
Model 220C
Battery-operated amplifier, 10x or 100x; 10 cps-150 kc; 5 MΩ input; 2% accuracy. $115

CALIBRATOR, Precision dc and ac
Model 420
Provides precise output, rms, peak-to-peak, or dc, from 0-10 V; accuracy ¼% with cal. chart. $365

CAPACITANCE METER, Direct-reading
Model 520
Direct-reading of capacitance 0.01 pF to 12 μF; accuracy 2% above 0.1 pF. $335

INVERTER, Sensitive dc to ac
Model 700
Inverts dc as low as 10 μV and up to 100 V, to ac to be measured on any of VTVM's listed. $365

CONVERTER, Linear ac to dc
Model 710
Converts ac to dc linearly over each decade, 1 mV-1000 V; 30 cps-250 kc; accuracy ¼% 50 cps-10 kc, ½% 30 cps-50 kc, 1% above 50 kc. $450

LABORATORY STANDARDS

A-T VOLTMETER
Model 390
10 Mc to 1000 Mc; as laboratory standard for high voltage. NBS calibration not included in price. $2,250

H-F TRANSFER VOLTMETER
Model 393
25 cps to 30 Mc; a transfer device for accurate measurement of voltages or calibration of voltmeters; each probe covers 2 to 1 voltage range, 1 V to 50 V. $550 Inc. one probe ($100 for each add. probe)

MICROPOTENTIOMETER
Model 440
0 to 900 Mc; as laboratory standard for 40 μV to 0.33 V. NBS calibration not included in price. Price includes one resistor-thermocouple combination. $250

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Directory I. Complete Equipment

39. Test Equipment, Television.

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 25c
Madigan Electronic Corp., N.Y., 25c
Manson Laboratories, Inc., Conn., 10sc, 25sc
Manufacturers' Engineering & Equipment Corp., Pa., 15c
Marconi's Wireless Telegraph Co., Ltd., N.Y., 10s, 15s, 20s
Matsushita Communication Industrial Co., Ltd., Japan, 10s
Measurements, McGraw-Edison Div., N.J., 5sc, 25sc, 30sc
Metrologie, Compagnie Generale de, France, 10s, 15s, 25s, 30s
Philips Electronic Instruments, N.Y., 5s, 10s, 15s, 20s, 25s, 30s
Philips Electronics Industries, Ltd., Canada, 5s, 10s, 15s, 25s
Precise Electronics & Development Corp., Subsid. of Designatronics, Inc., N.Y., 10s
Precision Apparatus Co., Inc., Div. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 5c, 10sc, 15sc, 25sc, 30sc, Tel: 212-TWining 4-4290
See ad in this class
RCA Victor Co., Ltd., Canada, 10s, 15s, 30s
R-K Laboratories Co., N.Y., 5c, 10c, 15c, 20c, 25sc, 30sc
Radio Corp. of America, RCA Electron Tube Div., N.J., 5s, 10s, 15s, 25s, 30s
Radiometer, Denmark, 15s
Research Industrial Laboratory of Electronics, Pa., 10s, 15s, 30s
Rohde & Schwarz, P.O. Box 275, 111 Lexington Ave., Passaic, N.J., 15s, Tel: 201-PRescott 3-8010
See ad in class 38
Siemens New York, Inc., N.Y., 25s
Simpson Electric Co., 5218 W. Kinzie St., Chicago 44, Ill., 15s, Tel: 312-EStebrook 9-1121
See ad in class 61
Standard Telephones & Cables, Ltd., England, 5sc, 15sc, 20sc, 25sc, 30sc
Stark Electronic Instruments, Ltd., Canada, 10s, 15s, 30s
Superior Instruments Co., N.Y., 10s, 30s
TRG, Inc. (Technical Research Group), N.Y., 5c
Tektronix, Inc., Ore., 5 Scope s, Color-Vectorscopes s
Tel Instrument Electronics Corp., N.J., 10s, 15s, 20s, 25s, 30s
Telonic Engineering Corp., P.O. Box 277, Laguna Beach, Calif., 10c, 15c, 25c, 30c, Tel: 714-HYatt 4-7581
See ad in this class, page 352
Telonic Industries, Inc., 60 N. First Ave., Beech Grove, Ind., 15sc, 25sc, Tel: 317-STate 7-7241
See ad in this class, page 352
Thompson Ramo Wooldridge Inc., Dage Div., Ind., 20s
Tokyo Shibaura Electric Co., Ltd., Japan, 10s, 15s, 20s, 25s
Videonics, Inc., Mass., 20s

Test equipment, testers: See class 41

40. Test & Measuring Equipment.

2. Analyzers, gas
4. Analyzers, servo
6. Calibrators, instrument
8. Chemical analysis equipment
10. Detectors, flaw
12. Detectors, leak
14. Detectors, metal
16. Dividers, voltage
18. Dynamometers
20. Electrometers
22. Gages, pressure
24. Gages, strain
26. Gages, vacuum
28. Galvanometers
30. Gaussmeters
32. Generators, digital timing
34. Generators, function
36. Generators, ultrasonic
38. Indicators, null
40. Meters, grid dip
42. Meters, light measuring
44. Meters, ohm & megohm
46. Meters, pH
48. Pyrometers
50. Spectrometers
52. Spectrometers, mass
54. Stroboscopes
56. Tachometers
58. Voltmeters, digital
60. Voltmeters, VTVM
62. Weighing equipment, electronic

Acoustica Associates, Inc., Calif., 36sc
Adage, Inc., Mass., 58sc
Admiral Corp., Ill., 4c, 32c
Advance Components, Ltd., England, 6s, 34s, 50s, 60s
Advanced Instrument Corp., Calif., 58sc
Advanced Measurement Instruments, Inc., Mass., 6sc
Advanced Research Associates, Md., 62c
Aero Mechanism, Inc., Calif., 22c, 26c
Aerollex Laboratories, Inc., N.Y., 4c
Aetna Electronics Corp., N.J., 4s
Aircraft Electronics, Ariz., 44c
Airmec, Ltd., England, 60s
Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 38sc, 56sc, Tel: 301-ACademy 8-4600
See ad in class 53
Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 38sc, 56sc, Tel: 305-LUdlow 3-6160
See ad in class 53
All American Engineering Co., Commercial Products Div., Del., 8c
Allen Electric & Equipment Co., Mich., 2s, 12s, 22s, 26s, 56s
Allied Research Associates, Inc., Mass., 42 Colorimeters c
Altron Electronics Co., Pa., 6s, 38c
Ameresco, Inc., N.J., 54s
American Electronics, Inc., Instrument Div., Calif., 56sc
American Instrument Co., Inc., Md., 2s, 6s, 8s, 24s, 50s
American Machine & Foundry Co., Government Products Group, N.Y., 8c, 62c
American Measurement & Control, Inc., Mass., 4c, 34s, 38s
American Systems, Inc., Calif., 2s, 8s, 12s
Anchor Specialty Mfg. Co., Inc., N.J., 4c, 6c, 16c, 62c
Angler Industries, Inc., N.J., 4c
Applied Control Corp., N.J., 2s, 6c, 30s, 56c, 60c, 62c
Applied Physics Corp., Calif., 20s, 42 Spectrophotometers s

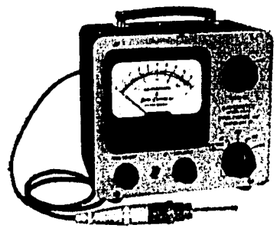
40. Test & Measuring Equipment.

Applied Research Laboratories, Inc., Calif., 8c, 42 Microphotometers & Spectrographs c, 50c
Arenberg Ultrasonic Laboratory, Inc., 94 Green St., Jamaica Plain 30, Mass., 36sc, Tel: 617-JAmaica 2-8640
See ad in class 38
Arkay International, Inc., N.Y., 60sc
Armstrong Whitworth/Brush, Falcon Works, England, 56sc
Armstrong Whitworth Equipment, Sir W. G. Armstrong Whitworth Aircraft, Ltd., England, 22sc, 24sc
Ascop, Div. of Electro-Mechanical Research, Inc., N.J., 14sc
Assembly Products, Inc., 75 Wilson Mills Rd., Chesterland 33, Ohio, 48s, Tel: 216-HAmilton 3-3131
See ad in class 73
Associated Electrical Industries (Rugby), Ltd., England, 12s, 30s, 48s
Associated Research, Inc., 3792 W. Belmont Ave., Chicago 18, Ill., 44sc, 56s, Phase-Sequence Indicators sc, Tel: 312-COrnelia 7-4040
See ad in class 41
Ateliers de Montages Electriques (AME), France, 20s
Atkins Technical, Inc., Ohio, 48s
Audiotex Mfg. Co., Div. of G-C Textron Electronics, Ill., 60s
Auerbach Electronics Corp., Pa., 4c, 32c, 62c
Auto-Test, Inc., Ill., 54s, 56sc
Automation Devices, Inc., Pa., 14s
Automation Products, Inc., Texas, 2s, 8s
Automation Research & Design Associates, N.J., 6c, 16c, 34c, 36c, 38c, 40c, 42c, 44c, 56c, 58c, 62c
Autotronics, Inc., Mo., 6sc, 38sc
Avien, Inc., N.Y., 22sc, 24c, 26c
Avo, Ltd., England, 42s, 60s
Avtron Mfg., Inc., Ohio, 18c, 58c
B & F Instruments, Inc., Pa., 6sc, 18sc, 24sc
B & K Instruments, Inc. of Bruel & Kjaer, Ohio, 44s, 50s
B & K Mfg. Co., Ill., 60s
Bach-Simpson, Ltd., Canada, 28s, 44s, 48s, 60s
Bailey Meter Co., Ohio, 2s, 22s, 26s, 48s
Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 2s, 6s, 8s, 14s, 42s, 50s, 52s, 60s, Tel: 617-UNiversity 4-7420
See ad in class 86
Baldwin-Lima-Hamilton Corp., Electronics & Instrumentation Div., Mass., 6sc, 24sc, 38sc
Ballantine Laboratories, Inc., Boonton, N.J., 6s, 38s, 58s, 60s, Tel: 201-DEerfield 4-1432
See ad in this class
Barker & Williamson, Inc., Pa., 40s
Barnes Development Co., 213 W. Baltimore Pike, Lansdowne, Pa., 6sc, 38c, Tel: 215-MAdison 2-1525
See ad in class 41

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Select the transistorized **DYNA-EMPIRE** GAUSSMETER best suited to your needs

Completely transistorized Dyna-Empire gaussmeters accurately measure flux density and determine "flow" direction. Ideal for measuring and locating stray fields, plotting variations in strength and performing rapid comparisons of production lots against a standard. Easy-to-operate,—no jerk, pull, ballistic readings or circuit breaking required.



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Special Features:

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LINEAR OVER ENTIRE OPERATING RANGE
PORTABLE, OPERATES FROM OWN SELF-CONTAINED BATTERIES
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UNIVERSAL PROBE SUPPLIED IS 0.025" THICK BY 0.200" WIDE. ACTIVE AREA IS ONLY 0.0079 SQUARE INCHES LOCATED NEAR THE TIP OF THE PROBE.

Complete with Universal probe $195.

TRANSISTORIZED GAUSSMETER MODEL D-855

This quality precision built Gaussmeter reads flux densities to 30,000 Gauss full scale ±2.5%. It is a highly sensitive instrument and provides tremendous flexibility. Complete with two linear probes—one high sensitivity probe for measurement of low density fields and one probe for measurement of high density fields. Special probe available for reading 3 gauss full scale.

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DYNA EMPIRE

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Bausch & Lomb, Inc., Instrument Div., N.Y., 50sc
Bearing Inspection, Inc., Calif., 10s
Beckman Instruments, Inc., Berkeley Div., Calif., 58s
Beckman Instruments, Inc., Scientific & Process Instrument Div., Calif., 2s, 8s, 42s, 46s
Beckman Instruments, Inc., Spinco Div., Calif., 2 Bio-Medical sc, 8 Bio-Medical c, 46c
Beckman & Whitley, Inc., Calif., Spectrographs c
Bell, Inc. (F. W.), Ohio, 30s, 58s
Bell Helicopter Co., Electronics Dept., Texas, 4c
Bendix Corp., Cincinnati Div., Ohio, 52s
Bendix Corp., Montrose Div., Pa., 22s, 56c
Bendix Corp., Pioneer-Central Div., Iowa, 6c, 36s
Bendix Corp., Sheffield Corp. (Subsid.), Ohio, 36s
Benson-Lehner Corp., Calif., 8c, 52c
Bently Scientific Co., Calif., 10s, 14s, 22s, 24s, 62s
Berkshire Laboratories, N.H., 54s, 60s
Berman Laboratories, N.Y., 14 Bio-Medical c
Bethlehem Instrument Co., Inc., Pa., 44c
Biddle Co. (James G.), Pa., 28s, 44s, 50s, 52s, 56s

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Model 6000 Digital Voltmeter. Basic unit, offering great accuracy and ease of operation in applications where printout is not required. Manual ranging and polarity.

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Bliss Electronic Corp., N.J., 44s
Block Associates, Inc., Mass., 28sc, 48sc, 50c
Bludworth Marine Div., States Electronics Corp., N.Y., 14 Underwater sc
Blue M Electric Co., Ill., 48s
Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 56sc
Bon-De Electronic Laboratories, Inc., Mass., 26s
Boonshaft & Fuchs, Inc., Pa., 4s, 34c
Boonton Electronics Corp., 738 Speedwell Ave., Morris Plains, N.J., 28s, 38s, 40s, 60s, Tel: 201-JEfferson 8-4210
See ad in class 6
Boonton Radio Corp., Subsid. of Hewlett-Packard Co., 50 Intervale Rd., Boonton, N.J., 6 Signal-Generator s, Tel: 201-DEerfield 4-3200
See ad in class 38
Booth Co. (Arthur E.), Calif., 6sc
Braun-Knecht-Heimann Co., Calif., 8sc, 12s, 36s
Brilmayer Laboratories, Inc. (E. W.), N.Y., 14c
Bristol Co., Conn., 20c, 22c, 26c, 28c, 38c, 46c, 48c, 56c
Brooks Instrument Co., Inc., Pa., 6c
Bruel & Kjaer (A/S), Denmark, 24s, 44s, 50s, 60s
Bruno-New York Industries Corp., N.Y., 44s, 60sc
Buck Instrument Co., Colo., 22c, 24c, 26c
Buckbee Mears Co., 245 E. Sixth St., Saint Paul 1, Minn., 24c, Tel: 612-CApital 7-7361
See ad in class 105
Building Blocks Electronic Co., N.Y., 56sc
Burr-Brown Research Corp., Ariz., 60s
Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., 46c
Bytrex Corp., Mass., 6s, 24s, 62c
Calibration Standards Corp., Calif., 6s, 44s, 58s
California Computer Products, Inc., Calif., 58c
California Technical Industries, Div. of Textron, Inc., Calif., 4sc
Cambridge Instrument Co., N.Y., 2c, 28c, 46c, 48c
Campbell X-Ray Corp., Mass., 10sc
Canadian Westinghouse Co., Ltd., Canada, 60c
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Cetron Electronic Corp., Ill., 26s
Chadwick-Helmuth Co., Calif., 54s
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Chesapeake Instrument Corp., Md., Impedance Meters s
Chicago Aerial Industries, Inc., Ill., 18c
Cimron Corp., Calif., 58sc
Circo Corp., Subsid. of Branson Instruments, Inc., 51 Terminal Ave., Clark, N.J., 10s, 36s, Tel: 201-FUlton 8-8600
See ad in class 99

Directory I. Complete Equipment

Clark Electronic Laboratories, Calif., 24c
Clevite Corp., Brush Instruments Div., Ohio, 4s
Clough-Brengle Co., Ill., 60s
Co Engineering Co., N.J., 62s
Cole Instrument Co., Calif., 44c
Coleman Instruments, Inc., Ill., 8s, 46s
Columbia Electric Mfg. Co., Ohio, Tong-Test Ammeters sc
Columbus Electronics, Inc., 1000 Saw Mill River Rd., Yonkers, N.Y., 60c, Tel: 914-YOnkers 8-1221
See ads in classes 48, 71
Communication Measurements Laboratory, Inc., N. J., 54s
Comptometer Corp., Radiation Electronics Co. (Div.), Ill., 48s, 60s
CompuDyne Corp., Mass., 24s, 62s
CompuDyne Corp., Pa., 4c, 62sc
Computer Equipment Corp., Calif., 32sc
Computer-Measurements Co., Div. of Pacific Industries, Inc., Calif., 14s, 32c
Computronics, Inc., Colo., 34 Diode c
Consolidated Airborne Systems, Inc., N.Y., 4c, 6sc, 8c, 16c, 32c, 38sc, 44sc, 62c
Consolidated Avionics Corp., N.Y., 32c
Consolidated Controls Corp., N.M., 22c
Consolidated Electrodynamics Corp., Calif., 2s, 6s, 12s, 22s, 24s, 26s, 28s, 50s, 52s
Consolidated Vacuum Corp., N.Y., 26s
Continental Technical Service, Inc., Ohio, 10c, 12c, 14c, 62c
Controlomag Laboratories, Pa., 2sc, 14c, 20c, 26sc, 44s, 60sc
Contronics, Inc., Mass., 4c, 32c, 58sc
Cook Electric Co., Ill., 6sc
Cosa Corp., N.Y., 18sc
Cox Instruments Div., George L. Nankervis Co., Mich., 6sc, 18sc
Crescent Engineering & Research Co., Calif., 14c, 38c
Crosby-Teletronics Corp., N.Y., 12s
Cubic Corp., Calif., 58sc, Electronic Surveying Equip. sc
Curtiss-Wright Corp., Electronics Div., N.J., Waveform Analyzers sc, 58 Peak-Reading sc
Curtiss-Wright Corp., Electronics Div., N.M., 58c
Curtiss-Wright Corp., Princeton Div., N.J., 10sc, 20s, 36sc
Custom Scientific Instruments, Inc., N.J., 6s
Daco Instrument Co., N.Y., 4s
Data Products Co., Inc., Md., 32s, 34s, Digital Simulation s
Datalog Corp., Metrolog Div., 2415 Amsler St., Torrance, Calif., 4sc, Tel: 213-SPruce 5-6621
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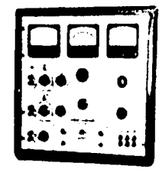
Datex Corp., Calif., 4sc
Daven Co., Subsid. of General Mills, Inc., N.J., 16c, 60s
Davidson Optronics, Inc., Calif., 50s
Dawe Instruments, Ltd., England, 6s, 36s
Daystrom, Inc., Weston Instruments Div., N.J., 6s, 28s, 38c, 42s, 44s, 48c, 56s
Daytronic Corp., Ohio, 24s, 62sc
Decker Corp., Pa., 22s, 26s, 56c
Defender Instrument & Regulator Co., Ill., 2s, 6s, 22s, 26s
Del Electronics Corp., 521 Homestead Ave., Mount Vernon, N.Y., 12c, Tel: 914-OWens 9-2000
See ad in class 69
Delsen Corp., Calif., 10c
Dero Research & Development Corp., N.Y., 48sc, 62sc
Devco Engineering, Inc., N.J., 2c, 12c
Di-Tran Corp., Calif., 12 Fluid c
Dice Co. (J. W.), N.J., 10s, 14c, 44s, Micrometers c
Dicon Corp., N.Y., 30c, 32c, 36c, 52c, 58c
Digital Equipment Corp., Mass., 6s, Computer-Simulation & Memory-Test s
Digitool Corp., Texas, 56sc
Dillon & Co., Inc. (W. C.), Calif., 18s
Donner Scientific Co., Calif., 34sc
Duncan Electric Co., Inc., Davenport Mfg. Div., Ill., 6sc, 44sc, 54c, 58sc, Phase-Sequence Indicators sc
Dunn Engineering Corp., Mass., 18c
Dyna-Empire, Inc., 1075 Stewart Ave., Garden City, L.I., N.Y., 30s, Tel: 516-PIoneer 1-2700
See ad in this class
Dyna Magnetic Devices, Inc., N.Y., 28c
Dynage, Inc., Conn., 6sc
Dynamics Instrumentation Co., Calif., 20s, 38s, 44s, 60s
Dynatronics, Inc., Fla., 6sc, 32c
E-H Research Laboratories, Inc., Calif., 20s
E O Electronics, Inc., N.J., 60c
Ealing Corp., Mass., 28s, 50s
Edgerton, Germeshausen & Grier, Inc., Mass., 54c
Edison Industries (Thomas A.), Instrument Div. (McGraw-Edison Co.), N.J., 22s
Edmund Scientific Co., N.J., 54s
Ednalite Optical Co., Inc., N.Y., 8sc, 24c
Edwards High Vacuum (Canada), Ltd., Canada, 12s, 26s
Edwards High Vacuum, Inc., N.Y., 26s
Ehrenpreis Engineers (David), N.Y., 24c, 26c, 30c
Eichner Instruments (L. C.), N.J., 50c
Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 40s, 60s, Tel: 212-STillwell 6-8700
See ad in class 41
Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 26s, Tel: 415-LYtell 1-1451
See ad on pages 29-32
Ekco Electronics, Ltd., Ekco Works, England, 20s
Eldorado Electronics, Calif., 42 Photometers c
Electric Tachometer Corp., Pa., 56c
Electro Instruments, Inc., Calif., 58s
Electro-Mec Div. of Waltham Precision Instrument Co., Inc., 47-51 33rd St., Long Island City 1, N.Y., Goniometers sc, Tel: 212-STillwell 6-3402
See ad in class 80
Electro-Mechanical Instrument Co., Eighth & Chestnut Sts., Perkasie, Pa., 44c, Tel: 215-ALpine 7-6561
See ad in class 61
Electro-Mechanical Research, Inc., Fla., 14c
Electro-Physics Co., N.Y., 42c
Electro Products Laboratories, Inc., Ill., 14sc, 56sc, Micrometers sc
Electro Radiation, Inc., Calif., 22c, 24c, 34c
Electro Scientific Industries, Inc., Ore., 6s, 16s
Electronetics Corp., Fla., 6sc, 10c, 24sc
Electronic Applications Co., Calif., 50c
Electronic Associates, Inc., N.J., 58s
Electronic Brazing Co., N.J., 54s
Electronic Development Laboratory, Inc., Ill., 38c, 44c, 56c, 60c
Electronic Instruments, Ltd., England, 2s, 8s, 20s, 44s, 46s
Electronic Measurements Co., Inc., Lewis St. & Maple Ave., Eatontown, N.J., 6s, Tel: 201-LIberty 2-0300
See ad on page 138
Electronic Measurements Corp., N.Y., 60s
Electronic Specialty Co., Calif., 18c
Elliott-Automation, Ltd., England, 2c, 4c, 6c

DATALOG **METROLOG DIVISION**
DATALOG CORPORATION
Advanced Design Servo-Analyzers

Direct-Reading Model 204A Servo Analyzer with Recording Capability



Simultaneous readout of frequency, amplitude ratio, and phase angle. Automatic plotting of Bode-Nyquist and Nichols diagrams. For use in laboratory design and testing, production, quality control and inspection, and field service trouble shooting.

FOR PROMPT, INFORMED SERVICE ..... CALL

DATALOG CORP.

2415 Amsler Street, Torrance, Calif.
SPruce 5-6621

For details, circle #219 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

PRECISION TEST & MEASURING EQUIPMENT

AIR & GAS SAMPLING

Automatic Tape Samplers
Automatic Sequential Samplers
Vacuum and Pressure Pumps
Bantam Samplers
Nuclear Air Samplers
Filterholders and Accessories

MEASURING & RECORDING EQUIPMENT

Ultrasensitive Micromanometers
Thermoanemometers
Precision Resistance Thermometers
Hydrographic Thermometers
Ultrasensitive Windvanes
Dual Chart Recorders

RADIATION DETECTORS

Pocket Radiation Alarms
Pocket Radiation Survey Meters
Wide Range Radiation Survey Meters
Nuclear Air Samplers

ANALYTICAL INSTRUMENTS

Gas Analyzers and Leak Detectors
Densitometers and Color Comparators
Spectrophotometers
Flame Photometers
Galvanometers
Analytical Equipment

SUBMICRON MEMBRANE FILTERS

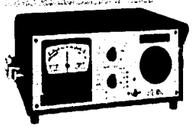
Produce ultrapure air, gas, lubricants, solvents, and water quickly and easily. Control white room contamination.

Request complete product literature

GELMAN INSTRUMENT COMPANY
P.O. Box 118-R, Chelsea, Mich.

For details, circle #220 on Reader Service Card

SF Smith-Florence Inc.
A Modern Approach to Electronic Instrumentation



Model 951 Transistorized precision differential (potentiometric) microvoltmeter. Accuracy, 0.01%

An example of advanced engineering applied to general-purpose instrumentation: combining 100% solid state circuitry and the ultimate in component selection, Model 951 measures DC potentials from 1 μV to 1000 V with extreme accuracy and reliability. Ask about other S-F advanced designs in Precision Measuring Equipment, Cable Fault Finders, Precision HV Sources and VTVM's.

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MOUNT VERNON, N.Y. • MOunt Vernon 4-7530
WALTHAM .....TWinbrook 4-1955
SYRACUSE .....GRanite 4-7409
PHILADELPHIA .....SHerwood 7-9080
WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400

For details, circle #221 on Reader Service Card

40. Test & Measuring Equipment.

Ellison Draft Gage Co., Inc., Ill., 2s, 22s, 26s

Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 2c, 48c, 58c, 60c, Tel: 201-BIgelow 2-2700
See ad on page 140

Engelhard Industries, Inc., Instruments & Systems Section, N.J., Volt-Ammeters s

Engineered Electronics Co., Calif., Breadboard Equip. s

Engineering Specialties, Ohio, 8 Water sc, 46sc

Epic, Inc., N.Y., 20s, 28s, 30s, 48s, 56s

Eppley Laboratory, Inc., 15 Sheffield Ave., Newport, R.I., Pyrheliometers sc, Thermopiles sc, Tel: 401-VIking 7-1020
See ad in class 17

Erdco Engineering Corp., Ill., 2s

Esterline Angus Instrument Co., Inc., Ind., 56s

Etelco, Ltd., England, 56sc

Exact Electronics, Inc., Ore., 6s, 32s, 34 Waveform s, 36s

Exactel Instrument Co., Calif., 22s, 26s

F & M Scientific Corp., Pa., 2s, 8s, 20s

Fairbanks, Morse & Co., Electronics Div., N.Y., 62sc

Falcon Div., General Thermodynamics Corp., 211 Concord Turnpike, Cambridge 40, Mass., 18sc, Tel: 617-TRowbridge 6-3269
See ad in class 41

Farrall Instrument Co., Nebr., 8c

Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 4c, 6c

Fisher Research Laboratory, Inc., Calif., 12s, 14s

Fisher Scientific Co., Pa., 2s, 8s, 50s

Flite-Tronics, Inc., Calif., 34 Diode sc

Flow Corp., Mass., 2 Anemometers s, 60s, Random-Signal Voltmeters & Correlators s

Fluke Mfg. Co., Inc. (John), Wash., 6s, 16s, 44s, 60s

Foxboro Co., Mass., 2c, 6c, 22c, 26c, 46c, 48c, 56c, 62c

Franklin Electronics, Inc., Pa., 58c

Franklin Systems, Inc., 2734 Hillsboro Rd., P.O. Box 3250, West Palm Beach, Fla., 32c, 62c, Tel: 305-TEmple 3-4602
See ad in class 22

Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 38s, Tel: 212-EVergreen 6-1300
See ad in class 84

Frequency Standards, Div. of Harvard Industries, Inc., N.J., 6sc

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 32sc, Tel: 216-SHadyside 9-0700
See ad in class 50

Furzehill Laboratories, Ltd., England, 54s, 60s

Geartronics Corp., Actuator Products Div., Mass., 56s

Gelman Instrument Co., 106 N. Main St., P.O. Box 118-R, Chelsea, Mich., 2s, 8s, 12s, 28s, 42s, Tel: 313-GReenwood 9-4821
See ads in classes 22, 40

Gemco Electric Co., Mich., 2sc

General Aniline & Film Corp., Ansco Div., N.Y., 42 Densitometers c, 50c

General Dynamics/Electronics, N.Y., 12sc

General Dynamics/Electronics, Information Technology Div., Calif., 12s

General Electric Co., Apparatus Sales Dept., N.Y., 6s, 18c, 22s, 26s, 28s, 30s, 48s, 54s

General Electric Co., Instrument Dept., 40 Federal St., Lynn, Mass., 12s, 22s, 24s, 26s, 30s, 38s, 42s, 44s, 46s, 48s, 56s, Tel: 617-LYnn 3-3400
See ad in class 61

General Electric Co., X-Ray Dept., Wis., 8s, 50s

General-Electro Mechanical Corp., N.Y., 18c

General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 36c

General Instrument Corp., Harris ASW Div., Conn., 36sc

General Kinetics, Inc., Va., 22c

General Meters, Inc., Colo., 28sc, 44sc, 56sc

General Mills, Inc., Magnaflux Subsid., Ill., 10sc, 12s, 14s, 30sc

General Precision Equipment Corp., GPE Controls, Inc. (Subsid.), Ill., 4s, 22s

General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 22c, 34c, 38c

General Precision, Inc., Kearfott Div., N.J., 4sc, 36sc, 56sc

General Precision, Inc., Link Div., N.Y., Micrometers sc

General Radio Co., 22 Baker Ave., West Concord, Mass., 16s, 20s, 36s, 38s, 44s, 54s, 56s, 60s, Tel: 617-EMerson 9-4400
See ad on Cover 4

General Railway Signal Co., N.Y., 36s

General Resistance, Inc., 430 Southern Blvd., New York 55, N.Y., 16sc, Tel: 212-CYpress 2-1500
See ad in class 74

Genisco, Inc., Calif., 6s, 34s, 56s, 58s

Geotechnical Corp., Texas, 24sc, 28sc

Gerber Scientific Instrument Co., Conn., 6sc

Gertsch Products, Inc., Calif., 16s, 38s, 60s

Giannini Controls Corp., Calif., 4c

Gilford Instrument Laboratories, Inc., Ohio, 42 Optical-Density Standards & Bio-Medical Spectrophotometers sc

Gilmore Industries, Inc., Ohio, 6c, 18c, 22c, 24c, 62c

Gow-Mac Instrument Co., N.J., 2 Density sc

Gray Instrument Co., Pa., 16sc

Green Rectifier Co., N.J., 26c

Greenray Industries, Pa., 36c

Greibach Instruments Corp., 329 North Ave., New Rochelle, N.Y., 6sc, 38sc, 44c, Tel: 914-NEw Rochelle 3-7900
See ad in class 61

Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 16sc, Tel: 516-WElls 8-9500
See ad in class 77

Guildline Instruments, Ltd., Canada, 28s, 38s

Gulton Industries, Inc., N.J., 22sc, 24sc, 36sc

Gurley Co. (W. & L. E.), N.Y., 32sc, 56sc

Gyra Electronics Corp., Ill., 20s, 60s

Halex, Inc., Calif., 20s, 30s

Directory I. Complete Equipment

40. Test & Measuring Equipment.

Hammer Electronics Co., Inc., N.J., 50s

Harman-Kardon, Inc., N.Y., 32c

Harrison Electrosonics, Inc. (B. M.), Mass., 36s, 60sc

Harvey-Wells Corp., Mass., 30sc, 50c, 52c

Harworth Mfg. Co., Calif., 14 Bio-Medical c

Hass Instrument Corp., D.C., 6sc

Hastings-Raydist, Inc., Va., 2s, 22s, 26s

Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 6s, 28s, 44s, 60s

Hays Corp., Ind., 2sc, 46sc

Heath Co., Subsid. of Daystrom, Inc., Mich., 34s, 40s, 44s, 60s

Hett Associates, Inc., N.J., 48c

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 16s, 32s, 34s, 38s, 44s, 56s, 58s, 60s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28

Hewlett-Packard Co., Dymec Div., Calif., 56s, Non-Destructive Physical-Test sc

Hickok Electrical Instrument Co., Ohio, 28c, 30c, 38sc, 44c, 60s

Hidyne Instrument & Engineering Co., Tenn., Transducer-Calorimeters c

High Vacuum Equipment Corp., Mass., 26s

High Voltage Engineering Corp., Mass., 52c

Hill & Co. (E. Vernon), Wis. 12s, 22s, 26s, 56s

Hitachi New York, Ltd., N.Y., 2c, 8c, 40 Spectrophotometers c, 46c, 48c, 52c

Hoffman Electronics Corp., Calif., 24c

Holt Instrument Laboratories, Wis., 6s

Houston Instrument Corp., P.O. Box 22234E, Houston 27, Texas, 60sc, Tel: 713-MOhawk 7-7405
See ad in class 28

Howard Instrument Co., N.J., 32s, 34c, 38s, 58c, 60s

Howe Scale Co., Vt., 62sc

Howell Instruments, Inc., Texas, 6s, 28s, 38s, 48s, 58s

Hunter Spring Co., Div. of American Machine & Metals, Inc., Pa., 24c

IMC Magnetics Corp., Eastern Div., N.Y., 18c, 34c, 56c

ITA Electronics Corp., Pa., 36c

ITI Electronics, Inc., N.J., 60c

Iconix, Inc., Calif., 32sc

Ideal-Aerosmith, Div. of Royal Industries, Inc., Wyo., 38s

Industrial Control Co., N.Y., 4sc

Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif., 62s, Tel: 213-TRiangle 7-1144
See ads on page 162 and in class 63

Industrial Instruments, Inc., N.J., 2s, 8s, 12s, 16s, 28s, 44s

Industrial Nucleonics Corp., Ohio, 8sc, 62s

Industrial Test Equipment Co., 55 E. 11th St., New York 3, N.Y., 6s, 38s, Tel: 212-GRamercy 3-4684
See ad in class 69

Infrared Industries, Inc., West Coast Div., Calif., 48sc, 60sc

Instron Engineering Corp., Mass., 24sc, 62sc

Instrument Corp. of Florida, Fla., 32s

Instrument Development Laboratories, Inc., Mass., 42 Colorimeters s, 48s, 50s

Instrument Electronics Corp., N.Y., 60sc

Instrument Systems Corp., N.Y., 30sc

Interelectronics Corp., 2432 Grand Concourse, New York 58, N.Y., 36sc, Tel: 212-LUdlow 4-6200
See ads in classes 34, 69

Interlab, Inc., N.Y., 44sc

International Electronic Research Corp., ELIN Div., Calif., 6sc

International Instruments, Inc., 88 Marsh Hill Rd., Orange, Conn., 38s, 44s, Tel: 203-SYcamore 5-4711
See ad in class 61

International Pump & Machine Works, 81 Dorsa Ave., Livingston, N.J., 26s, Tel: 201-WYman 2-5900
See ad in class 99

International Research & Development Corp., Ohio, 54s

International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 10c, 42 Collimators c, 50c, 54 Video c

Interstate Electronics Corp., Calif., 6c, 32s

Isotope Developments, Ltd., England, 20s

J-B-T Instruments, Inc., 133 Hamilton St., New Haven 8, Conn., 48s, 56c, Tel: 203-STate 7-5825
See ads in classes 61, 80

Jackson Electrical Instrument Co., Ohio, 60s

Jacobs Instrument Co., Md., 32c, 52c

Japan Servo Co., Ltd., N.Y., 56c

Jarrell-Ash Co., Mass., 2s, 50s

Jetronic Industries, Inc., Pa., 60c

Julie Research Laboratories, Inc., N.Y., 6s, 16s

Kahl Scientific Instrument Corp., Calif., 8s, 46s, 54sc

Kahn & Co., Inc., Conn., 18c, 56c

Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 2c, 8c, 12c, 14c, 52c

Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 6c, Tel: 201-CApital 6-4000
See ad on pages 72-73

Keithley Instruments, Inc., Ohio, 20s, 44s, 60s

Kemlite Laboratories, Inc., Ill., 54c

Kentron Hawaii, Ltd., Hawaii, 42s

Kin Tel, Div. of Cohu Electronics, Inc., Calif., 6s, 28s, 58s, 60s

Kistler Instrument Corp., N.Y., 22s

Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 40s, 44s, 56s, 60s

Knopp, Inc., Calif., 6c, Phase-Shifters c, Phase-Sequence Indicators c

Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 4c, 6c, 10c, 12c, 22c, 24c, 26c, 28c, 38c, 56c, 58c

Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 22c, 24c, Tel: 516-RAvenswood 9-7580
See ad in class 89

Krohn-Hite Corp., Mass., 34s, 36s

Kulite-Bytrex Corp., Mass., 24 Semiconductor s

Kulite Semiconductor Products, Inc., N.J., 24sc

L.A.B. Corp., N.Y., 18sc

Laboratory Equipment Corp., Mich., 2s, 8s

Lear, Inc., Calif., 4sc, 6sc, 18sc

Lear, Inc., Instrument Div., Mich., 4sc

Leeds & Northrup Co., Pa., 2s, 8s, 28s, 38s, 44s, 46s, 48s

Leitch-Huard Corp., N.H., 60s

Lektra Laboratories, Inc., N.Y., 42s

Lewis Engineering Co., Conn., 48c

Lewis Instruments, Inc., N.Y., 8c

Lewis & Kaufman Electronics Corp., Calif., 24c

Lignes Telegraphiques et Telephoniques, France, 12s, 48s

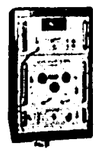
Lindly & Co., Inc., N.Y., 8c

Lionel Corp., N.J., 8c, 10c, 12c, 14c, 16c, 40c, 60c

Litton Engineering Laboratories, P.O. Box 949, Grass Valley, Calif., 26c, Tel: 916-273-6176
See ad in class 99

HOLT INSTRUMENT LABORATORIES
Laboratory-Standard AC Instrumentation

Model TV-1 Thermal Transfer Voltmeter NBS Certifiable 0.5 - 1200 v; .02% - 50 kc .004%/mm null sensitivity



New AC-DC transfer standard makes transfer measurements to a calibrated DC supply of the same voltage as the unknown AC being measured; eliminates ratio errors in high frequency multiplier resistors.

Regulators, Amplifiers, Oscillators, Reference Standards, Calibration and measuring devices for the entire audio spectrum.

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SYRACUSE .....GRanite 4-7409
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WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400

For details, circle #222 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

PRECISION TEST & MEASURING EQUIPMENT

AIR & GAS SAMPLING

Automatic Tape Samplers
Automatic Sequential Samplers
Vacuum and Pressure Pumps
Bantam Samplers
Nuclear Air Samplers
Filterholders and Accessories

MEASURING & RECORDING EQUIPMENT

Ultrasensitive Micromanometers
Thermoanemometers
Precision Resistance Thermometers
Hydrographic Thermometers
Ultrasensitive Windvanes
Dual Chart Recorders

RADIATION DETECTORS

Pocket Radiation Alarms
Pocket Radiation Survey Meters
Wide Range Radiation Survey Meters
Nuclear Air Samplers

ANALYTICAL INSTRUMENTS

Gas Analyzers and Leak Detectors
Densitometers and Color Comparators
Spectrophotometers
Flame Photometers
Galvanometers
Analytical Equipment

SUBMICRON MEMBRANE FILTERS

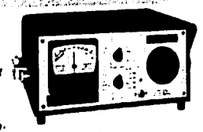
Produce ultrapure air, gas, lubricants, solvents, and water quickly and easily. Control white room contamination.

Request complete product literature

GELMAN INSTRUMENT COMPANY
P.O. Box 118-R, Chelsea, Mich.

For details, circle #220 on Reader Service Card

SF Smith-Florence Inc.
A Modern Approach to Electronic Instrumentation



Model 951 Transistorized precision differential (potentiometric) microvoltmeter. Accuracy, 0.01%

An example of advanced engineering applied to general-purpose instrumentation: combining 100% solid state circuitry and the ultimate in component selection, Model 951 measures DC potentials from 1 μV to 1000 V with extreme accuracy and reliability. Ask about other S-F advanced designs in Precision Measuring Equipment, Cable Fault Finders, Precision HV Sources and VTVM's.

FOR PROMPT, INFORMED SERVICE IN THE NORTHEAST ..... CALL
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WALTHAM .....TWinbrook 4-1955
SYRACUSE .....GRanite 4-7409
PHILADELPHIA .....SHerwood 7-9080
WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400

For details, circle #221 on Reader Service Card

40. Test & Measuring Equipment.

Ellison Draft Gage Co., Inc., Ill., 2s, 22s, 26s

Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 2c, 48c, 58c, 60c, Tel: 201-BIgelow 2-2700
See ad on page 140

Engelhard Industries, Inc., Instruments & Systems Section, N.J., Volt-Ammeters s

Engineered Electronics Co., Calif., Breadboard Equip. s

Engineering Specialties, Ohio, 8 Water sc, 46sc

Epic, Inc., N.Y., 20s, 28s, 30s, 48s, 56s

Eppley Laboratory, Inc., 15 Sheffield Ave., Newport, R.I., Pyrheliometers sc, Thermopiles sc, Tel: 401-VIking 7-1020
See ad in class 17

Erdco Engineering Corp., Ill., 2s

Esterline Angus Instrument Co., Inc., Ind., 56s

Etelco, Ltd., England, 56sc

Exact Electronics, Inc., Ore., 6s, 32s, 34 Waveform s, 36s

Exactel Instrument Co., Calif., 22s, 26s

F & M Scientific Corp., Pa., 2s, 8s, 20s

Fairbanks, Morse & Co., Electronics Div., N.Y., 62sc

Falcon Div., General Thermodynamics Corp., 211 Concord Turnpike, Cambridge 40, Mass., 18sc, Tel: 617-TRowbridge 6-3269
See ad in class 41

Farrall Instrument Co., Nebr., 8c

Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 4c, 6c

Fisher Research Laboratory, Inc., Calif., 12s, 14s

Fisher Scientific Co., Pa., 2s, 8s, 50s

Flite-Tronics, Inc., Calif., 34 Diode sc

Flow Corp., Mass., 2 Anemometers s, 60s, Random-Signal Voltmeters & Correlators s

Fluke Mfg. Co., Inc. (John), Wash., 6s, 16s, 44s, 60s

Foxboro Co., Mass., 2c, 6c, 22c, 26c, 46c, 48c, 56c, 62c

Franklin Electronics, Inc., Pa., 58c

Franklin Systems, Inc., 2734 Hillsboro Rd., P.O. Box 3250, West Palm Beach, Fla., 32c, 62c, Tel: 305-TEmple 3-4602
See ad in class 22

Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 38s, Tel: 212-EVergreen 6-1300
See ad in class 84

Frequency Standards, Div. of Harvard Industries, Inc., N.J., 6sc

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 32sc, Tel: 216-SHadyside 9-0700
See ad in class 50

Furzehill Laboratories, Ltd., England, 54s, 60s

Geartronics Corp., Actuator Products Div., Mass., 56s

Gelman Instrument Co., 106 N. Main St., P.O. Box 118-R, Chelsea, Mich., 2s, 8s, 12s, 28s, 42s, Tel: 313-GReenwood 9-4821
See ads in classes 22, 40

Gemco Electric Co., Mich., 2sc

General Aniline & Film Corp., Ansco Div., N.Y., 42 Densitometers c, 50c

General Dynamics/Electronics, N.Y., 12sc

General Dynamics/Electronics, Information Technology Div., Calif., 12s

General Electric Co., Apparatus Sales Dept., N.Y., 6s, 18c, 22s, 26s, 28s, 30s, 48s, 54s

General Electric Co., Instrument Dept., 40 Federal St., Lynn, Mass., 12s, 22s, 24s, 26s, 30s, 38s, 42s, 44s, 46s, 48s, 56s, Tel: 617-LYnn 3-3400
See ad in class 61

General Electric Co., X-Ray Dept., Wis., 8s, 50s

General-Electro Mechanical Corp., N.Y., 18c

General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 36c

General Instrument Corp., Harris ASW Div., Conn., 30sc

General Kinetics, Inc., Va., 22c

General Meters, Inc., Colo., 28sc, 44sc, 56sc

General Mills, Inc., Magnaflux Subsid., Ill., 10sc, 12s, 14s, 30sc

General Precision Equipment Corp., GPE Controls, Inc. (Subsid.), Ill., 4s, 22s

General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 22c, 34c, 38c

General Precision, Inc., Kearfott Div., N.J., 4sc, 36sc, 56sc

General Precision, Inc., Link Div., N.Y., Micrometers sc

General Radio Co., 22 Baker Ave., West Concord, Mass., 16s, 20s, 36s, 38s, 44s, 54s, 56s, 60s, Tel: 617-EMerson 9-4400
See ad on Cover 4

General Railway Signal Co., N.Y., 36s

General Resistance, Inc., 430 Southern Blvd., New York 55, N.Y., 16sc, Tel: 212-CYpress 2-1500
See ad in class 74

Genisco, Inc., Calif., 6s, 34s, 56s, 58s

Geotechnical Corp., Texas, 24sc, 28sc

Gerber Scientific Instrument Co., Conn., 6sc

Gertsch Products, Inc., Calif., 16s, 38s, 60s

Giannini Controls Corp., Calif., 4c

Gilford Instrument Laboratories, Inc., Ohio, 42 Optical-Density Standards & Bio-Medical Spectrophotometers sc

Gilmore Industries, Inc., Ohio, 6c, 18c, 22c, 24c, 62c

Gow-Mac Instrument Co., N.J., 2 Density sc

Gray Instrument Co., Pa., 16sc

Green Rectifier Co., N.J., 26c

Greenray Industries, Pa., 36c

Greibach Instruments Corp., 329 North Ave., New Rochelle, N.Y., 6sc, 38sc, 44c, Tel: 914-NEw Rochelle 3-7900
See ad in class 61

Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 16sc, Tel: 516-WElls 8-9500
See ad in class 77

Guildline Instruments, Ltd., Canada, 28s, 38s

Gulton Industries, Inc., N.J., 22sc, 24sc, 36sc

Gurley Co. (W. & L. E.), N.Y., 32sc, 56sc

Gyra Electronics Corp., Ill., 20s, 60s

Halex, Inc., Calif., 20s, 30s

Directory I. Complete Equipment

40. Test & Measuring Equipment.

Hamner Electronics Co., Inc., N.J., 50s

Harman-Kardon, Inc., N.Y., 32c

Harrison Electrosonics, Inc. (B. M.), Mass., 36s, 60sc

Harvey-Wells Corp., Mass., 30sc, 50c, 52c

Harworth Mfg. Co., Calif., 14 Bio-Medical c

Hass Instrument Corp., D.C., 6sc

Hastings-Raydist, Inc., Va., 2s, 22s, 26s

Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 6s, 28s, 44s, 60s

Hays Corp., Ind., 2sc, 46sc

Heath Co., Subsid. of Daystrom, Inc., Mich., 34s, 40s, 44s, 60s

Hett Associates, Inc., N.J., 48c

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 16s, 32s, 34s, 38s, 44s, 56s, 58s, 60s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28

Hewlett-Packard Co., Dymec Div., Calif., 56s, Non-Destructive Physical-Test sc

Hickok Electrical Instrument Co., Ohio, 28c, 30c, 38sc, 44c, 60s

Hidyne Instrument & Engineering Co., Tenn., Transducer-Calorimeters c

High Vacuum Equipment Corp., Mass., 26s

High Voltage Engineering Corp., Mass., 52c

Hill & Co. (E. Vernon), Wis. 12s, 22s, 26s, 56s

Hitachi New York, Ltd., N.Y., 2c, 8c, 40 Spectrophotometers c, 46c, 48c, 52c

Hoffman Electronics Corp., Calif., 24c

Holt Instrument Laboratories, Wis., 6s

Houston Instrument Corp., P.O. Box 22234E, Houston 27, Texas, 60sc, Tel: 713-MOhawk 7-7405
See ad in class 28

Howard Instrument Co., N.J., 32s, 34c, 38s, 58c, 60s

Howe Scale Co., Vt., 62sc

Howell Instruments, Inc., Texas, 6s, 28s, 38s, 48s, 58s

Hunter Spring Co., Div. of American Machine & Metals, Inc., Pa., 24c

IMC Magnetics Corp., Eastern Div., N.Y., 18c, 34c, 56c

ITA Electronics Corp., Pa., 36c

ITI Electronics, Inc., N.J., 60c

Iconix, Inc., Calif., 32sc

Ideal-Aerosmith, Div. of Royal Industries, Inc., Wyo., 38s

Industrial Control Co., N.Y., 4sc

Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif., 62s, Tel: 213-TRiangle 7-1144
See ads on page 162 and in class 63

Industrial Instruments, Inc., N.J., 2s, 8s, 12s, 16s, 28s, 44s

Industrial Nucleonics Corp., Ohio, 8sc, 62s

Industrial Test Equipment Co., 55 E. 11th St., New York 3, N.Y., 6s, 38s, Tel: 212-GRamercy 3-4684
See ad in class 69

Infrared Industries, Inc., West Coast Div., Calif., 48sc, 60sc

Instron Engineering Corp., Mass., 24sc, 62sc

Instrument Corp. of Florida, Fla., 32s

Instrument Development Laboratories, Inc., Mass., 42 Colorimeters s, 48s, 50s

Instrument Electronics Corp., N.Y., 60sc

Instrument Systems Corp., N.Y., 30sc

Interelectronics Corp., 2432 Grand Concourse, New York 58, N.Y., 36sc, Tel: 212-LUdlow 4-6200
See ads in classes 34, 69

Interlab, Inc., N.Y., 44sc

International Electronic Research Corp., ELIN Div., Calif., 6sc

International Instruments, Inc., 88 Marsh Hill Rd., Orange, Conn., 38s, 44s, Tel: 203-SYcamore 5-4711
See ad in class 61

International Pump & Machine Works, 81 Dorsa Ave., Livingston, N.J., 26s, Tel: 201-WYman 2-5900
See ad in class 99

International Research & Development Corp., Ohio, 54s

International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 10c, 42 Collimators c, 50c, 54 Video c

Interstate Electronics Corp., Calif., 6c, 32s

Isotope Developments, Ltd., England, 20s

J-B-T Instruments, Inc., 133 Hamilton St., New Haven 8, Conn., 48s, 56c, Tel: 203-STate 7-5825
See ads in classes 61, 80

Jackson Electrical Instrument Co., Ohio, 60s

Jacobs Instrument Co., Md., 32c, 52c

Japan Servo Co., Ltd., N.Y., 56c

Jarrell-Ash Co., Mass., 2s, 50s

Jetronic Industries, Inc., Pa., 60c

Julie Research Laboratories, Inc., N.Y., 6s, 16s

Kahl Scientific Instrument Corp., Calif., 8s, 46s, 54sc

Kahn & Co., Inc., Conn., 18c, 56c

Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 2c, 8c, 12c, 14c, 52c

Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 6c, Tel: 201-CApital 6-4000
See ad on pages 72-73

Keithley Instruments, Inc., Ohio, 20s, 44s, 60s

Kemlite Laboratories, Inc., Ill., 54c

Kentron Hawaii, Ltd., Hawaii, 42s

Kin Tel, Div. of Cohu Electronics, Inc., Calif., 6s, 28s, 58s, 60s

Kistler Instrument Corp., N.Y., 22s

Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 40s, 44s, 56s, 60s

Knopp, Inc., Calif., 6c, Phase-Shifters c, Phase-Sequence Indicators c

Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 4c, 6c, 10c, 12c, 22c, 24c, 26c, 28c, 38c, 56c, 58c

Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 22c, 24c, Tel: 516-RAvenswood 9-7580
See ad in class 89

Krohn-Hite Corp., Mass., 34s, 36s

Kulite-Bytrex Corp., Mass., 24 Semiconductor s

Kulite Semiconductor Products, Inc., N.J., 24sc

L.A.B. Corp., N.Y., 18sc

Laboratory Equipment Corp., Mich., 2s, 8s

Lear, Inc., Calif., 4sc, 6sc, 18sc

Lear, Inc., Instrument Div., Mich., 4sc

Leeds & Northrup Co., Pa., 2s, 8s, 28s, 38s, 44s, 46s, 48s

Leitch-Huard Corp., N.H., 60s

Lektra Laboratories, Inc., N.Y., 42s

Lewis Engineering Co., Conn., 48c

Lewis Instruments, Inc., N.Y., 8c

Lewis & Kaufman Electronics Corp., Calif., 24c

Lignes Telegraphiques et Telephoniques, France, 12s, 48s

Lindly & Co., Inc., N.Y., 8c

Lionel Corp., N.J., 8c, 10c, 12c, 14c, 16c, 40c, 60c

Litton Engineering Laboratories, P.O. Box 949, Grass Valley, Calif., 26c, Tel: 916-273-6176
See ad in class 99

HL LAB Holt INSTRUMENT LABORATORIES
Laboratory-Standard AC Instrumentation

Model TVT-1 Thermal Transfer Voltmeter NBS Certifiable 0.5 - 1200 v; .02% - 50 kc .004%/mm null sensitivity

New AC-DC transfer standard makes transfer measurements to a calibrated DC supply of the same voltage as the unknown AC being measured; eliminates ratio errors in high frequency multiplier resistors.

Regulators, Amplifiers, Oscillators, Reference Standards, Calibration and measuring devices for the entire audio spectrum.

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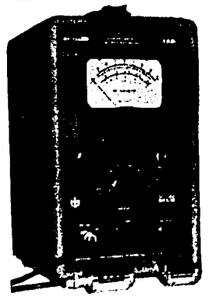
WALTHAM .....TWinbrook 4-1955
SYRACUSE .....GRanite 4-7409
PHILADELPHIA .....SHerwood 7-9080
WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400

For details, circle #222 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

PRECISION LABORATORY INSTRUMENTS!

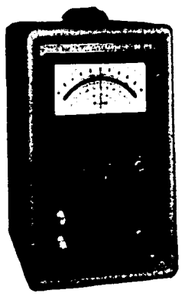
MODELS MV27D-L, MV-127A-L, MV111A-L and MV-07B are equipped with insulated high and low input.



ULTRA-SENSITIVE RF VOLTMETER

1mV-3V F.Sc., 50KC-260MC, 5% accy.; 30 KC-700MC, 10%. DC output 1.5V @ 1mA.

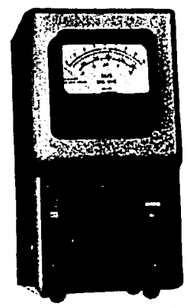
MODEL MV-28A ...$495
MODEL MV-38A ...$395
(Same as 28A except 3mV-3V)



ULTRA-SENSITIVE DC VOLT-AMMETER

10uV-1KV mid. sc., 10uuA-1mA mid. sc.; inp. Imp. 1-60 meg. DC output 1.25V @ 1mA. Basic accy. V-2%, A-3%.

MODEL MV-07B ...$495



ULTRA-SENSITIVE AC VOLTMETER

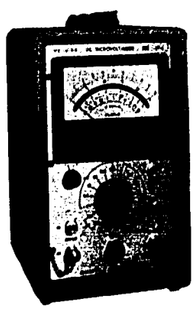
10uV-1KV F.Sc. Inp. Imp. 10K to 3.3 meg., Frvq. Resp. 10cps-150KC. Basic accy 2%, AC output 40db.

MODEL MV-45A ...$350

GENERAL PURPOSE DC VOLTMETER

250uV mid. sc. 1000V F.Sc., 6 to 60 meg., Inp. Imp., DC output 2.5V @ 1mA. 2% Basic accy.

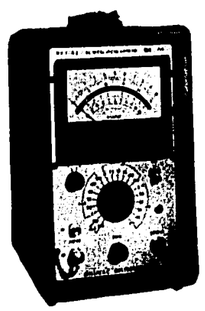
MODEL MV-27D-L ..$335



LABORATORY TYPE DC VOLTMETER

100uV-1000V F.Sc., 1 to 60 meg. Inp. Imp., DC output 2.5V @ 1mA. 1% Basic accy.

MODEL MV-127A-L .$395



LABORATORY TYPE DC AMMETER

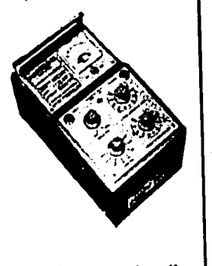
100uuA-250mA F.Sc., 1 meg to .004 ohm Input Shunt. DC output 2.5V @ 1mA. 1% Basic accy.

MODEL MV-111A-L .$420

ELECTRONIC WHEATSTONE BRIDGE

Measures 1 ohm to 1000 megs in 9 ranges. Max applied power to Rx 50 mw. Basic accy. .05%.

MODEL MV-276A ..$795



"Hushed Transistor" AMPLIFIER

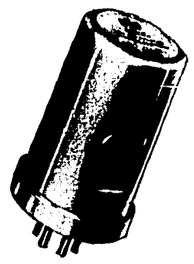
2 uV Noise Shorted Input, 10 KC Band Pass 10-80db gain, 10K or 100K Inp. Imp., 2 cps-180KC, HI & LO Pass filter.

MODEL VS-64A $395
MODEL VS-68A $495
(Same as 64A except 10 meg. tube input)

LINEAR SCALE OHMMETER

Direct reading, measures 1 ohm to 2.5 megs. F.Sc., 10mV drop across 1K. Basic accy. 1%.

MODEL MV-279B ..$465



DC MODULATORS

High qual. low noise chopper. Less than 2 uV drift. Dwell time —55%. Other dwell times avail. Guar. life 1 yr. 50-60 cps. Plug-in.

MODEL DCM-99K-1 ..$45

(For rackmount change MV to RM, or in case of VS model add R after type number, and add $25)

National & International Representatives

NEW ENGLAND: BROGER, 48 Pearl St., Brookline, Mass.
UPPER N.Y. STATE: WINICK CO., 1445 Valencia Rd., Schenectady, N.Y.
SOUTH N.Y. STATE: QED SALES, 9 Elm Ave., Mt. Vernon, N.Y.
EAST PA. & SOUTH NEW JERSEY: HOLDSWORTH CO., Box 71, Lansdowne, Pa.
VA., MD., DEL. & WASH., D.C.: F. R. JODON, INC., 4922 St. Elmo Ave., Bethesda, Md.
ILL., IND. & WIS.: GREEN ASS., 5218 W. Diversey Ave., Chicago, Ill.
OHIO, MICH. & WEST PA.: ELLIOT-SARLES CO., 23473 Concord Dr., Westlake, Ohio
GA., FLA., ALA., N.C. & S.C., TENN. & MISS.: ROY ATTAWAY, 912 Bob Wallace Ave. S.W., Huntsville, Ala.
TEX., OKLA., ARK. & LA.: SCIENTIFIC SALES, 3603 Lemmon Ave., Dallas, Tex.
CALIF. & NEV.: J. C. VAN GROOS, 21051 Costanso St., Woodland Hills, Calif. and 1178 Los Altos Ave., Los Altos, Calif.
WASH. & ORE.: WIDDEKIND CO., 222 First Ave. N., Seattle, Wash.
CANADA: CONWAY ENT., 1514 Eglinton Ave. W., Toronto, Ontario
EXPORT REP.: FRATHOM CO., 33 W. 42nd St., New York, N.Y.

MILLIVAC INSTRUMENTS

Box #997, Schenectady, New York
Tel: FRanklin 2-4781, TWX Scdy 551

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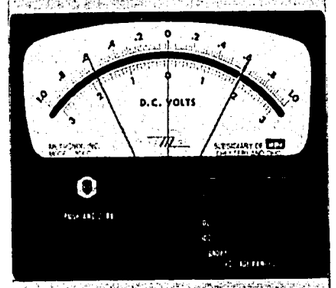
10 Megohms



PLUS Control

An electronic voltmeter with a meter-relay

This happy combination makes an extremely versatile and acute instrument.

It has critical measuring ability that goes with high input impedance, in space-saving panel-mounting style.

It also has the reliable, simple control of a locking contact meter-relay, with adjustable set points.

Many difficult functions can be easily controlled: conductivity cells, life testing of components or systems, production testing and sorting, automatic Go-No Go of missile circuits.

Ready When Needed

Metronix DC instruments such as Model 301-C-CMR (illustrated) have input resistances up to 10 megohms. AC input impedances go as high as 5 megohms. Like all Metronix panel-mounting electronic voltmeters (PMEV's), they are always connected—immediately available for continuous monitoring of critical parameters.

Send for data sheets describing Metronix PMEV's in single or multiple ranges, DC or AC, with either meter-relays or conventional indicating meters.

METRONIX, INC.
a subsidiary of Assembly Products, Inc.
Chesterland, Ohio
Telephone: HAmilton 3-4440

For details, circle #224 on Reader Service Card

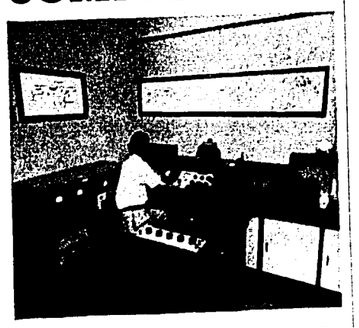
Directory I. Complete Equipment

40. Test & Measuring Equipment.

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 4c, 6c, 32c, 34c
Lockheed Electronics Co., Avionics & Industrial Products Div., Calif., 24c
Lome Electronics, Inc., Texas, 58s
Lyman Electronic Corp., Mass., 44c
MacLeod & Hanopol, Inc., Mass., 44c
MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 2c, 4c, 6c, 32c, 56c, 58c, 62c, Tel: 305-LOgan 4-8518
See ad in class 4
Magtrol, Inc., N.Y., 18c, 56c
Maico Electronics, Inc., 21 N. Third St., Minneapolis 1, Minn., 56sc, Tel: 612-FEderal 9-7041
See ad in class 70
Mallory & Co., Inc. (P. R.), Ind., 58c
Manning, Maxwell & Moore, Inc., Conn., 22s, 26s
Manufacturers' Engineering & Equipment Corp., Pa., 2c
Marconi Instruments, Ltd., 111 Cedar Lane, Englewood, N.J., 46s, Tel: 201-LOwell 7-0607
See ad on pages 66-67
Martindale Electric Co., Ohio, 56s
Mason Instrument Co., Inc., N.Y., 42s, 48s
Massa Div., Cohu Electronics, Inc., Mass., 28sc, 36s
Mast Development Co., Iowa, 2 Ozone sc
Matsushita Communication Industrial Co., Ltd., Japan, 24s, 60s
Matthew Laboratories, N.Y., 8s
Maurer, Inc. (J. A.), N.Y., 24c, 28sc
Mayberry Electronics Co., Calif., 30c, 60c
McPherson Instrument Corp., Mass., 8c
Measurements, McGraw-Edison Div., N.J., 6sc, 36sc, 40sc, 44sc, 60sc
Mechtronics Corp., Subsid. of Mechmetal-Tronics, Inc., Calif., 22c
Medistor Instrument Co., Wash., 6c, 20sc, 60c
Menlo Research Laboratory, Calif., 12s, 14s
Mercury Electronic Co., N.J., 16s, 54s, 56s
Mesur-Matic Electronics Corp., N.H., 44s, 60s
Metaplast Co., Inc., N.Y., 22c, 24c, 26c
Meteorology Research, Inc., Calif., 20sc
Meters, Inc., Ind., 28c, 38c, 44c, 48c, 56c
Metrologie, Compagnie Generale de, France, 44s, 60s
Metronix, Inc., Subsid. of Assembly Products, Inc., 75 Wilson Mills Rd., Chesterland, Ohio, 60s, Tel: 216-HAmilton 3-4440
See ad in this class
Micro Systems, Inc., Calif., 22sc, 24sc
Microdot, Inc., Calif., 24s, 56s
Mid-Eastern Electronics, Inc., N.J., 6s, 44s
Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 40s, Tel: 617-DAvenport 4-4108
See ad in class 51
Miller Laboratories, N.Y., 26s
Miller-Trojan Co., Inc., Ohio, 42sc
Millivac Instruments, Inc., P.O. Box 997, Schenectady, N.Y., 44s, 60s, Tel: 518-FRanklin 2-4781
See ad in this class
Minneapolis-Honeywell Regulator Co., Fall River Div., Mass., 22c, 48c
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 2s, 16s, 22s, 26s, 28s, 40s, 48s
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 4c, 6c
Minneapolis-Honeywell Regulator Co., Precision Meter Div., N.H., 6s
Minneapolis-Honeywell Regulator Co., Rubicon Div., Pa., 2c, 16c, 28sc
Mittelmann Engineering (Eugene), Ill., 4c, 6c, 30c
Model Engineering & Mfg. Corp., Ind., 56c, 60c
Modern Design, Div. of H.C. Schloer, Inc., N.Y., 58c
Molectronics, Div. of Motec Industries, Calif., 58 Voltohmmeters c
Monroe Electronic Laboratories, Inc., N.Y., 12c, 20s, 28s, 38s, 42c
Morgan Electronics, Mass., 34 LF c, 60s
Motorola Communications & Electronics, Inc., Ill., 60s
Mueller Engineering Co. (Heinz), Ill., 56c
Muirhead & Co., Ltd., England, 4s, 16s, 18s, 56s
Muirhead Instruments, Inc., N.Y., 4s, 6s, 16s, 24s, 28s, 38s, 44s, 60s
Multi-Amp Electronic Corp., N.J., 44s
NRC Equipment Corp., Mass., 26sc
Nash & Thompson, Ltd. (Messrs.), England, 2s, 8s, 44s, 56s, 60s
Natel Engineering Co., Calif., 56s
National Electronics, Wyo., 42c, 44c
National Instrument Laboratories, Inc., D.C., 2c, 8c
National Research Corp., Mass., 26sc
National Ultrasonic Corp., N.J., 36sc
Network Industries, Inc., N.J., 38sc
Newark Controls Co., N.J., 2c, 12c, 22c, 26c
Niagara Electron Laboratories, N.Y., 62s
Non-Linear Systems, Inc., P.O. Box 728, Del Mar, Calif., 6s, 44 Digital sc, 58sc, Tel: 213-SKyline 5-1134
See ad on pages 76-77
Norden Div., United Aircraft Corp., Conn., 56sc
North American Aviation, Inc., Atomics International Div., Calif., 48c
North Atlantic Industries, Inc., Terminal Drive, Plainview, L.I., N.Y., 4sc, 16sc, 38sc, 60sc, Tel: 516-OVerbrook 1-8600
See ad in class 35
Northeastern Engineering, Inc., N.H., 6c
Northern Electronics, Inc., Minn., 62c
Nuclear Corp. of America, Central Electronic Mfrs. Div., N.J., Ionization-Gages c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

COMMERCIAL



ELECTRICAL

STANDARDS

LABORATORY

Physics Research Laboratories, Inc. offers, on a commercial basis, the facilities of a primary standards laboratory for the calibration of basic electric standards. For the first time, the testing and certification of precision electrical instruments, and such standards as resistors, cells and condensers are available from a commercial laboratory. All standards and instruments used at PRL in tests are directly traceable to the National Bureau of Standards. Complete detailed information relative to PRL's testing laboratory services is available on request to Dept. SA-1. Also request catalogs describing PRL's complete line of fine electrical instruments.

Physics Research
LABORATORIES
P.O. Box 555 • Hempstead, L. I., N.Y. • IV 3-8299
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Nuclear Measurements Corp., Ind., 50s
Nuclear Science & Engineering Corp., Pa., 2c
Oilgear Co., Servocontrol Div., Mass., 18c
Omco, Ariz., 14s
Omega Dynamics Corp., Calif., 6sc, 22sc, 42c
Opad Electric Co., 43-8 Walker St., New York 13, N.Y., Phase-sequence Indicators sc, Tel: 212-WOrth 6-0380
See ad in class 69
OPTOmechanisms, Inc., N.Y., 6sc, 56sc
Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 16c, 34sc, 38sc, 44sc, 60sc, Tel: 914-DEerfield 7-6132
See ad in class 43
Ortronix, Inc., Fla., 58c, 60c
Osborne Electronics Corp., Ore., 16c
Owens-Illinois Glass Co., Ohio, 8sc
Pabst Engineering Equipment Co., Inc., N.J., 26c
Pacific Scientific Instrument Laboratory, Calif., 6s
Palomar Scientific Corp., Calif., 22c
Panoramic Electronics, Inc., 528 S. Fulton Ave., Mount Vernon, N.Y., 6s, 36s, Tel: 914-OWens 9-4600
See ad on page 80
Parker Electrical Instrument Corp., 375 Fairfield Ave., Stamford, Conn., 44sc, Tel: 203-DAvis 5-3841
See ad in class 61
Pastoriza Electronics, Inc., Mass., 30c

rese engineering, inc.
Digital Magnetic Test Equipment

Precision Voltage-Current Calibrator, Model 1082
Range: 0.01 - 10 V
Accuracy ±0.1%

Accurate reference for oscilloscope analysis of high speed waveforms. Wide input signal bandwidth. High speed digital and pulse equipment — core testers, memory plane testers, pulse generators and drivers, magnetic memories and sequential buffers, logic circuit plug-ins (LOGIX BLOCKS). One of the largest and most sophisticated lines in the field.

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SYRACUSE .....GRanite 4-7409
PHILADELPHIA .....SHerwood 7-9080
WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400
For details, circle #226 on Reader Service Card

Pearson Electronics, Inc., 707 Urban Lane, Palo Alto, Calif., 16sc, Tel: 415-DAvenport 6-7285
See ad in class 84
Pek Laboratories, Inc., Calif., 26c
Pennsylvania Tool & Mfg. Co., Pa., 8c
Performance Measurements Co., Mich., 56s, 62c
Perkin-Elmer Corp., Conn., 2sc, 8sc, 12sc, 30sc, 50sc
Perkin-Elmer Corp., Vernistat Div., Conn., 34 DC sc
Peschel Electronics, Inc., Towners, R.F.D. 1, Patterson, N.Y., 10s, 44c, Tel: 914-TRinity 8-3251
See ad in class 41
Phaostron Instrument & Electronic Co., Calif., 28sc, 38sc, 44sc, 60sc
Philco Corp., Pa., 6c
Philco Corp., Sierra Electronic Corp. (Div.), Calif., 6s, 26s, 60s
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 8s, 10s, 24s, 40s, 44s, 46s, 50s, 54s, 60s, 62s, X-Ray Spectrographs s
Philips Electronics Industries, Ltd., Canada, 6s, 18s, 20s, 22s, 24s, 26s, 28s, 40s, 44s, 46s, 50s, 54s, 62s
Phoenix Precision Instrument Co., Inc., Pa., 2sc, 8 Refractometers sc, 42 Photometers & Colorimeters sc
Photo-Research Corp., Calif., 42sc
Photobell Co., Inc., N.Y., 10c, 12c
Photovolt Corp., N.Y., 8s, 20s, 42s, 46s
Photron Instrument Co., Ohio, 28sc
Physical Sciences Corp., Affil. of Packard-Bell Electronics, Calif., 20c, 58c
Physics Research Laboratories, Inc., Dept. SA-1, P.O. Box 555, Hempstead, L.I., N.Y., 16s, 38s, 44s, Tel: 516-IVanhoe 3-8299
See ad in this class
Pioneer Electric & Research Corp., Ill., 56s
Pioneer Scientific Co., N.Y., 42 Polariscopes c
Polarad Electronics Corp., 43-20 34th St., Long Island City 1, N.Y., 4s, 46s, Tel: 212-EXeter 2-4500
See ads in class 37
Polytronic Research, Inc., Md., 60c
Polytronics Co., Canada, 8c, 16c
Poole Instruments, Inc., Texas, 12c, Micrometers c, Fluid-Density Meters c
Potter Aeronautical Corp., N.J., 12s, 56s
Potter Instrument Co., Inc., N.Y., 32c
Power Instruments, Inc., Ill., 18c, 54s, 56s
Power-Tronic Systems, Inc., N.Y., 60c
Precise Electronics & Development Corp., Subsid. of Designatronics, Inc., N.Y., 60s
Probescope Co., Inc., N.Y., 4s
Process & Instruments Corp., N.Y., 2c, 26c, 42 Flame-Photometers s, 46c, 50s, 52c
Pyramid Instrument Corp., N.Y., 14 Cable s, 42s
Pyro-Electric, Inc., Ind., 48c
Pyrometer Instrument Co., Inc., N.J., 6s, 48s
RCA Victor Co., Ltd., Canada, 44s, 60s
R-K Laboratories Co., N.Y., 6s, 32s, 34s, 40c, 44c, 46c, 58c, 60s

Directory I. Complete Equipment

Radio Corp. of America, RCA Electron Tube Div., N.J., 44s, 60s
Radio Frequency Laboratories, Inc., N.J., 6s, 30s
Radiometer, Denmark, 28s, 40s, 44s, 46s, 60s
Radionics, Inc., 76 Cambridge St., Burlington, Mass., 34s, 36sc, Tel: 617-BRowning 2-1233
See ads in classes 40, 77
Rainier Co., Inc., N.Y., 38c, 40c, 54c, 60c
Ram Meter, Inc., Mich., 18c, 30c, 42c, 44sc, 46c, 48c, 56c, 58sc
Ramapo Instrument Co., Inc., N.J., 62c
Rampe Mfg. Co., Ohio, 56s
Rawson Electrical Instrument Co., Inc., 118 Potter St., Cambridge 42, Mass., 20c, 30sc, Tel: 617-KIrkland 7-4041
See ad in class 61
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 36c
Red Point Corp., Calif., 26s
Redford Corp., N.Y., 56c, 58c
Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, N.Y., 34s
Remanco, Inc., Calif., 4sc
Republic Electronic Industries Corp., N.Y., 60c
Rescon Electronics Corp., Mass., 26c, 48s, 52c
Rese Engineering, Inc., Pa., 6s, Digital-Simulation c
Research Industrial Laboratory of Electronics, Pa., 26s, 60s
Revere Corp. of America, Conn., 6s, 62s
Rixon Electronics, Inc., Md., 16c, 32sc
Robins Industries Corp., N.Y., 54sc
Rosemount Engineering Co., Minn., 6c, 22c
Rotiform Co., Calif., 4s, 18s
Rototest Laboratories, Inc., Calif., X-Ray Motion Picture c
Rowan Controller Co., Md., 44sc, 60sc
Rowan Controller Co., Solid State Instrument Laboratories (Div.), N.J., 6sc, 16sc, 28c, 38c, 44s, 60sc
Roy Co. (Milton), Pa., 2sc, 8sc, 46sc
Royco Instruments, Inc., Calif., 2 Particle-Counter sc, 48c
Rucker Co., Calif., 4c
Sage Instruments, Inc., N.Y., 22c, 62c
Salford Electrical Instruments, Ltd., England, 18s, 30s, 42s, 56s
Sanborn Co., Subsid. of Hewlett-Packard Co., 175 Wyman St., Waltham 54, Mass., 4s, 28s, Tel: 617-TWinbrook 4-6300
See ad on pages 70-71
Schaevitz Engineering, N.J., 4c, 6c, 10c, 12c, 14c, 16c, 18sc, 20c, 22sc, 24c, 26c, 28c, 32c, 34c, 36c, 38sc, 62sc
Scherr Tumico, Inc., Minn., 18s, 56s
Schoene Electronics Lab., Ind., 38c
Schwarzer Co., 46 Salmi Rd., Framingham, Mass., 22c, Tel: 617-TRinity 2-1830
See ads in classes 5, 23, 28
Scientific-Atlanta, Inc., Ga., 30sc
Scopes Co., Inc., N.Y., 60s
Seco Electronics, Inc., Minn., 44s, 60s
Sel-Rex Corp., N.J., 46s
Sencore, Inc., Ill., 60s
Sensitive Research Instrument Corp., 310-316 Main St., New Rochelle, N.Y., 6sc, 16s, 18s, 20s, 28s, 30s, 38s, 44s, Tel: 914-BEverly 5-2300
See ad in class 31
Servo Corp. of America, N.Y., 4sc, 6c, 32sc, 34sc, 48sc
Servo-Tek Products Co., Inc., 6s, 32s, 34s, 56s
Servomex Controls, Ltd., England, 2s, 4s, 34s
Servonic Instruments, Inc., Calif., 22c
Servonics, Inc., Va., 58c
Shalleross Mfg. Co., N.C., 16sc, 38s, 44sc
Shannon Luminous Materials Co., Calif., 10sc, 12sc
Shapiro & Edwards Electronic Instruments, Dept. I, Calif., 2 Anemometers c, 54sc
Shaw Instrument Corp., Pa., 6s, 48s
Sheltered Workshops, Inc., Calif., 40c, 60c
Siemens New York, Inc., N.Y., 2s, 20s, 22s, 24s, 28s, 30s, 36s, 38s, 44s, 46s, 48s, 58s, 60s, 62s
Simmons Precision Products, N.Y., 22c, 38c
Simpson Electric Co., 5218 W. Kinzie St., Chicago 44, Ill., 6s, 28sc, 38sc, 44sc, 60s, Tel: 312-ESTebrook 9-1121
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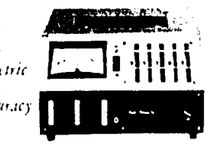
Slaughter Co., Ohio, 52c, 54sc
Smith-Florence, Inc., Wash., 6s, 20s, 38s, 44s, 46s, 58s, 60s
Snap-On Tools Corp., Wis., 2s, 56s
Solartron Electronic Group, Ltd., England, 50 X-Ray s, 58s, 62s
Solartron, Inc., Calif., 4s, 34s, 50s, 58s, 60s
Sony Corp., N.Y., 60s
Southern Instruments, Ltd., England, 22s, 56s
Space Instrumentation Corp., Calif., 6c, 56c
Specialty Electronics Development Corp., N.Y., 60sc
Specific Products, P.O. Box 425, 21051 Costanso St., Woodland Hills, Calif., 6s, Tel: 213-DIamond 0-3131
See ad in class 26
Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 4c, 62c
Spectronics Corp., N.Y., 10s
Sperry Products Co., Div. of Howe Sound Co., Conn., 10s
Standard Electric Time Co., Mass., 56sc
Standard Electronics Research Corp., N.J., 10s
Standard Instrument Corp., N.Y., 32c

Smith-Florence Inc.
A Modern Approach to Electronic Instrumentation

Model 851 Solid State Potentiometric Voltmeter, .05% Accuracy



Another example of the S-F "max-min" concept in instrumentation. Widest range (1mv - 1kv), rugged design, greater stability, recorder output, reference voltage source, polarity reversal for negative voltages, in-line read-out plus many other features, for less money.

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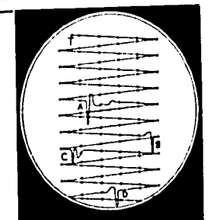
TIMING GENERATOR...
For Precision Timing One-Shot Events

Radionics Model TWM-2A Timing Generator provides waveforms for a zig-zag sweep with triangular waves and Z-axis marker dots—for high accuracy timing of one-shot, multiple-signal events. Extensively used in R & D on shock tubes, explosives, hypersonics, gas dynamics, and other fast events.



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- Ultrasonic analyzers
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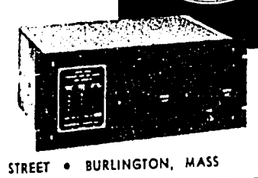

RADIONICS INC. 76 CAMBRIDGE STREET • BURLINGTON, MASS
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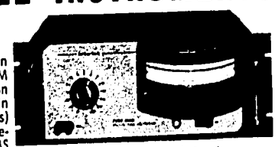
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

triolab

UNIQUE, VERSATILE INSTRUMENTS

0.25% ACCURACY RACK MOUNTING TRUE RMS VTVM MODEL 120-7

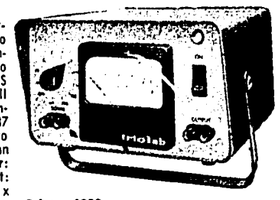


Exclusive from trio/lab: laboratory precision measurement of complex waves with VTVM versatility. Overcomes problems of distortion caused by harmonics and spikes (inherent in peak responding and average reading meters) through the use of special dynamometer movement which achieves direct-reading, true RMS values of both sine and complex waves with deflection directly proportional to the square of the current. **Range:** 15 ranges: from .01 to 500 RMS Volts full scale. **Sensitivity:** Needle deflection directly proportional to true RMS value of input signal. **Input Impedance:** 1 Megohm. **Frequency Response:** 50-2000 cps (usable to 4kc). **Accuracy** (above 50% electrical deflection): 0.25% of full scale at 400 cps; 0.50% all other frequencies. **Power:** 115 Volts, 50-400 cps. **Tube Complement:** 3-5751; 1-5687; 1-6V6; 1-5R4; 1-6AS7. **Dimensions:** 19" wide x 7" high. **Weight:** 26 lbs. **Price:** $985. Portable version—Model 120-1.

ALL TRANSISTOR DC VOLTAGE COMPARATOR MODELS 204-1 and 204-2

A ruggedized, sealed monitoring control device which compares an unknown voltage to a known input reference level, and operates a double pole, double throw relay when the reference level exceeds the known voltage by 1 millivolt or more. Response is less than 25 milliseconds in the 204-1, 100 milliseconds in the 204-2. Operation is unaffected by temperatures between —55°C and +55°C. It can be used for either high or low limit comparison by reversing the input leads. The most reliable technique for automatic, programmed accurate measurement with computer-speed. Applications include: military ground support devices, airborne instrumentation, production test equipment, alarm/control systems, and many data gathering and processing systems. Using printed circuitry and miniature components throughout, this compact (2-3/8" x 3-3/16" x 4-3/8") instrument meets applicable portions of MIL specs. **Power Requirements:** 204-1—115V, 400 cps ± 20 cps; 204-2—115V, 60 cps ± 2 cps. Both—1.5 watts with relay pull-in; 1.25 watts with relay dropout. **Input Impedance:** Both—1 megohm min. **Speed of Response:** 204-1—25 milliseconds (max); 204-2—100 milliseconds (max). **Temperature Range:** Both—operating: —55° to +55°C (with 20-minute operation at 71°C); **Storage:** —62° to +85°C. **Finish:** Both—semi-gloss black. **Weight:** 1 lb., 10 oz. **Terminal Connections:** Both—15-pin solder. Latch and inhibit facilities built-into both instruments. **Price:** $285 each.

PORTABLE AC VTVM MODEL 109-2

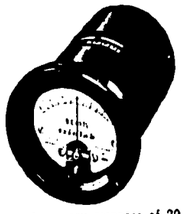


A superb laboratory instrument with signal circuits isolated from case and power circuits to provide floating measurements previously impractical, and accurate voltage measurements to 5 cps. **Ranges:** 12 ranges calibrated to RMS value of a sine wave: 0.001 to 300 VAC full scale. **Sensitivity:** (Lowest Range): 1 MV. **Input Impedance:** 10 Megohms shunted by 37 mmf from 0.001 to 0.3 volts; 23 mmf from 1 to 300 volts. **Accuracy:** 2% of full scale. Can measure accurately to 20 microvolts. **Power:** 105-125 VAC, 50-420 cps. **Tube Complement:** 4-7025, 1-6X5, 1-0A2. **Dimensions:** 6¼" high x 10¾" wide x 12" deep. **Weight:** 13 lbs. **Price:** $220.

1% ACCURACY PANEL MOUNTING PRECISION AC VTVM MODEL 130-1

Designed to provide all advantages of electronic measurement of AC voltages without exceeding the area required for its indicating meter. Circuit utilizes generous amounts of feedback to assure constant meter indication over a wide range of tube characteristics and operating voltages, while the possibility of oscillation is eliminated by carefully designed amplitude-phase characteristics. **Standard Ranges:** 10, 30, 100, 300 millivolts; 1, 3, 10, 100, 300 Volts. **Accuracy:** ± 1% of full scale. **Input Impedance:** 1 Megohm (0.5 megohms for ranges 51-99 millivolts). **Frequency Range:** 50-30,000 cps @ ± 1%. **Power Requirements:** 6.3V (AC or DC) at 0.5 amp, 200-250 VDC at 4.0 ma (max). **Weight:** 1 Pound. **Connections:** 5 Solder terminals: Input, Gnd, B+, 6.3V, 6.3V. **Tubs Complement:** 1-6AB4; 1-5751. **Color:** Black bakelite meter, black wrinkle dust cover.

RUGGEDIZED PANEL-MOUNTING SINGLE RANGE AC & DC TRANSISTOR VOLTMETERS



The AC instruments have standard ranges of 10, 30, 100, 300 MV; 1, 3, 10, 30, 100, 300 V. Power requirements are 115 V at 50-2000 cps. All are ruggedized per Mil-M-10304, and have accuracy of 2% of full range; input impedance 1 megohm (min). **MODEL 301-1,** AC, zero left, TRVM has a frequency response of 20 cps to 500 kc (contact factory for other ranges); weight is 1 lb., 2 oz. Size is 3½" round and connections are 5 double turret solder terminals. **Price: $250. MODEL 302-1,** AC, phase-sensitive, zero center, TRVM has a response of 380-2000 cps (signal & reference frequency must be the same). Weight is 1 lb., 12 oz. Size is 3½" round and connections are 7 double turret solder terminals. **PRICE: $275. MODEL 303-1,** AC, zero left, TRVM has a frequency response of 20 cps to 500 kc (for 10 MV range. Contact factory for other ranges); weight is 1 lb. Size is 2½" round and connections are 5 double turret solder terminals. **Price: $275. MODEL 304-1,** AC phase-sensitive, zero center, TRVM has a frequency response of 380-2000 cps (signal & reference frequency must be the same). Weight is 1 lb., 10 oz. Size is 2½" round and connections are 7 double turret solder teminals. **Price: $300. MODEL 305-1** (Zero Center) and **MODEL 305-2** (Zero Left) DC TRVM's have standard ranges of 1, 3, 10, 30, 100, 300 volts DC. The range of Model 305-1 also includes a 0.5 volts DC reading. Power requirements are 115 V, 400 cps, 2 watts (max). Weight is 1 lb., 5 oz. Size is 3½" round and connections are 5 double turret solder terminals. **Price: $225.**

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EXPORT: EMEC, 127 Grace St., Plainview, N. Y.

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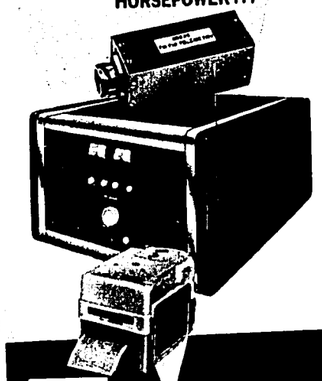
WIRELESS MEASURING SYSTEMS

FOR... PHYSICAL PARAMETERS, HORSEPOWER...



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MIDAS provides reliable multi-channel data on stress, strain, pressure, physiological response, etc., without the use of slip rings.

Applications include continuous monitoring of helicopter blades, propellers, shafts, turbine physical parameters.

Three channel, FM FM solid-state transmitter measures only 1⅛" x 1¼" x 6". Complete system includes multi-channel receiver and recorder.

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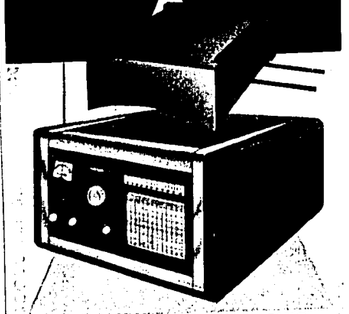

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Directory I. Complete Equipment

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Standard Telephones & Cables, Ltd., England, 50sc, 52sc
Stark Electronic Instruments, Ltd., Canada, 44s, 56s, 60s
Starling Corp., Calif., 2c, 20c
Statham Instruments, Inc., Calif., 2sc, 18sc, 22sc, 24sc
Stator Electric Corp., N.Y., 32c, 34c, 36c
Stelma, Inc., Conn., 4c, 32c
Sterling Instrument Div., Designatronics, Inc., N.Y., 60s

Sticht Co., Inc. (Herman H.), 27 Park Place, New York 7, N.Y., 20s, 42s, 44s, 48s, 54s, 56s, Tel: 212-REctor 2-8163
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Strand Laboratories, Inc., 294 Centre St., Newton 58, Mass., 50sc, Tel: 617-WOodward 9-8890
See ads in classes 37, 40

Sun Electric Corp., Instrumentronics Div., Ill., 28c, 38c, 60sc
Sunshine Scientific Instrument, Pa., 2sc, 6sc, 10s, 12s, 14sc, 28c, 30c, 36c, 38c, 42c, 44sc, 46c, 48c, 50c, 56sc, 60sc
Superior Instruments Co., N.Y., 44s, 60s
Superior Mfg. & Instrument Corp., N.Y., 4sc
Systems Research Calif., 28 Control c
Systron-Donner Corp., Calif., 58s
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Taylor Instrument Companies, N.Y., 26c

Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 16c, Tel: 201-WIndsor 4-2221
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Technique Associates, Div. of Duncan Electric Co., Inc., Ind., 6s, 48s
Technology Instrument Corp., Mass., 6s
Telecomtrol Corp., N.J., 6c
Temperature Engineering Corp., N.J., 26s
Tensor Electric Development Co., Inc., N.Y., 6c, 34s
Tesla Research Foundation, Utah, 60sc
Therm, Inc., N.Y., 22c, 24sc
Thermo Electric Co., Inc., N.J., 6s, 48s
Thermovolt Instruments, Ltd., Canada, 2c, 4c, 6c, 22c, 26c, 28c, 38c, 44c, 48sc, 60c

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Trionics Corp., Div. of Nantec Corp., Wis., 8c, 12c
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Turner Associates (G. K.), Calif., 8s, 42 Fluorometers & Nephelometers s
Ulmer Co. (H. W.), Calif., 12c, 22s, 26sc
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Unilectron, Inc., 129 Binney St., Cambridge 42, Mass., 4c, 18sc, 56sc, Telemetry-System sc, Tel: 617-TRowbridge 6-6400
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United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 44s, 56s, Tel: 212-BEekman 3-8870
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United States Gauge Div., American Machine & Metals, Inc., Pa., 22sc, 2sc
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 6 Pressure c, 12 Pressure c
U.S. Sonics Corp., Mass., 10sc, 22sc, 36c

Vactronic Lab. Equipment, Inc., 21 Monmouth Court, East Northport, L.I., N.Y., 22c, 26c, Tel: 516-ANdrew 1-2660
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Vacuum-Electronics Corp., N.Y., 2s, 12s, 26s, 50c
Vacuum Instrument Corp., N.Y., 12s, 26s
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Varian Associates, Instrument Div., Calif., 8s, 26s, 50s
Varian Associates, Tube Div., Calif., 50sc
Veeder-Root, Inc., Electronic Controls Div., Mass., 56c
Venner Electronics, Ltd., England, 56c, 58s
Vibroscope Co., N.Y., 56c

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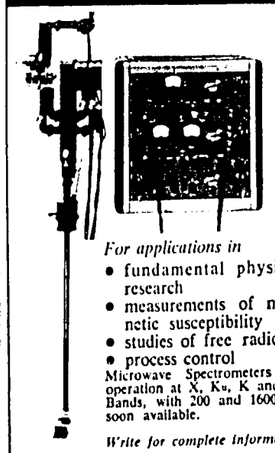
ELECTRON MAGNETIC RESONANCE SPECTROMETERS by Strand Labs



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Microwave Spectrometers for operation at X, Ku, K and Ka Bands, with 200 and 1600 mc soon available.

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Strand Labs INC.

294 Centre St., Newton 58, Mass.
Tel: WOodward 9-8890
Manufacturers of Ultra-Stable Signal Generators and EMR Spectrometers

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  Dielectric strength determined to laboratory precision. Interchangeable test fixtures for varnishes, porcelain, tape, acetate sheet, films, tubing and cloth. Write for Bulletin, Model 4501 HYPOT® Materials Tester.
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  VIBROGROUND® measures resistance to ground of electronic, telephone, and power equipment. Direct reading. Operates from self-contained battery. Write for Bulletin "VIBROGROUND"®
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  A. R. I. engineers have developed instrumentation to meet many specialized research, development, and production applications. Your inquiry for special equipment will receive prompt attention.

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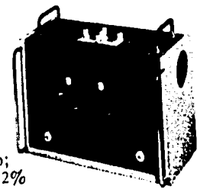
THE WAYNE KERR CORPORATION
Electronics for Measurement and Control



Transformer Ratio-Arm Type B801 VHF Admittance Bridge
1-100 Mc;
0-100 mmho;
±230pf; ±2%

A complete line, world renowned for its excellence. Precision *Transformer* bridges from 60 cps to 250 MC for *direct 2, 3 or 4 terminal measurements.* Audio, Video, and VHF oscillators, voltmeters, wave analyzers, wattmeters. Industrial electronic micrometers and vibration *instruments.*

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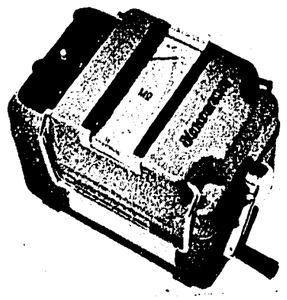
40. Test & Measuring Equipment.

Vitro Electronics, Div. of Vitro Corp. of America, Md., 6 Radiation c
Voltron Products, Inc., Calif., 60s
Waber Electronics, Inc., Pa., 54s
WacLine, Inc., Ohio, 20c, 28c, 30c, 38c, 44c, 56sc
Wallace & Tiernan, Inc., N.J., 6s, 22s, 26s
Waltham Electronics Corp., Mass., 6c, 44s, 60c
Waltham Precision Instrument Co., Mass., 56s, Goniometers s
Wang Laboratories, Inc., Mass., 32c, 34c
Waugh Engineering Co., Calif., 56s
Waveforms, Inc., N.Y., 36s, 60s
Wayne Kerr Corp., Pa., 4s, 8s, 20s, 60s
Weighing & Controls, Inc., Subsid. of CompuDyne Corp., Pa., 62c
Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., 6sc, 16sc, 38sc, Tel: 301-LOckwood 4-0121
See ad in class 45
Weksler Instruments Corp., N.Y., 22s, 26s
Welch Scientific Co., Ill., 26s, 28s, 44s, 46s, 50s
West Instrument Corp., Ill., 48s
Westberg Mfg. Co., Calif., 56s
Westgate Laboratory, Inc., Ohio, 12s, 22c, 34c
Westinghouse Electric Corp., Pa., 38c

INSULATION TESTER
Model L-5



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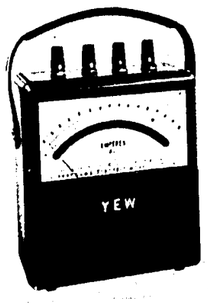
- *Optional accessory of leather carrying case and leads*

PORTABLE PRECISION AC-DC INSTRUMENTS

Rated accuracy 0.5 of 1% of full scale



- *DC, AC and High Frequency Voltmeter and Ammeter*
- *DC: Model MPF*
- *AC: Models SPF, CPF*
- *HF: Model TPF*
- *Wattmeter DC-AC: Model DPB-1W*

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For details, circle #235 on Reader Service Card

Directory I. Complete Equipment

40. Test & Measuring Equipment.

Westronics, Inc., 3605 McCart St., Fort Worth 10, Texas, 6s, 38s, Tel: 817-WA 3-8211
See ads on page 223 & in class 28
Wharton Unitools, N.Y., 2sc, 4sc
Wilcox Electronics Co., Calif., 54c
Wiley Electronic Products Co., Div. of Giannini Scientific Corp., Ariz., 24sc, 44sc, 54c, 56sc
Wiltron Co., Calif., 54s
Winslow Co., Inc., N.J., 16c, 28s, 38sc, 44sc
Wintronics, Calif., 6s
Woodwelding, Inc., Calif., 40s
Yokogawa Electric Works, Inc., 40 Worth St., New York 13, N.Y., 44s, 56s, Tel: 212-BEekman 3-6720
See ad in this class
Zimney Corp., Calif., 20c, 50c
Zoomar, Inc., N.Y., 42s

Testers, gyro:
See class 2

Testers, vibration:
See class 36

41. Testers.

5. Cable
10. Capacitor
15. Circuit
20. Coil
25. Crystal
30. Diode
35. Electron tube
40. High voltage
45. Humidity
50. Insulation
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60. Relay
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75. Torque
80. Transistor
85. Ultrasonic

Abbeon, Inc., N.Y., 45sc
Acoustronics, Inc., N.Y., Magnetic-Tape Dropout c, Magnetic-Core c
Advanced Instrument Corp., Calif., 45s
Aero Geo Astro Corp., Va., 80c
Aeroflex Laboratories, Inc., N.Y., 75c
Aerolux Light Corp., N.Y., 40sc
Aerotronic Associates, Inc., N.H., 30c, 80c
Airborne Instruments Laboratory, Div. of Cutler-Hammer, Inc., N.Y., 15s
Aircraft & Electronic Specialties, Ind., 5c
Aircraft Electronics, Ariz., 50c, 80c
Airmec, Ltd., England, 5s, 50s
Airtronics, Inc., D.C., 5c
Airtronics International Corp., Fla., 5s
Alcar Instruments, Inc., N.J., 85c
Alectric Mfg. Co., Wis., 35c
Allegany Instrument Co., Div. of Textron Electronics, Inc., Md., 15s
Alloys Unlimited, Inc., N.Y., 30c
Altron Electronics Co., Pa., 80c
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 5c
American Electronic Laboratories, Inc., Richardson Rd., Colmar, Pa., 80s, Tel: 215-VAn Dyke 2-0131
See ad adjacent to Index to Advertisers, back of book

41. Testers.

American Elite, Inc. (Telefunken), N.Y., 80s
American Instrument Co., Inc., Md., 45sc, 70s
American Machine & Foundry Co., Government Products Group, N.Y., 15s
Anchor Specialty Mfg. Co., Inc., N.J., 5c, 10c, 15c, 45c, 50c, 60c, 65c, 75c, 80c, 85c
Anko Mfg. Co., Inc., Wis., 35s, 80s
Antlab, Inc., Ohio, Antenna sc
Appalachian Electronic Instruments, Inc., Va., 35c
Apparatus Development Co., Conn., 15s, 35sc
Applied Control Corp., N.J., 15c, 80c
Arch Instrument Co., Inc., Mass., Gear-Testers c
Arenberg Ultrasonic Laboratory, Inc., 94 Green St., Jamaica Plain 30, Mass., 85sc, Tel: 617-JAmaica 2-8640
See ad in class 38
Armstrong Whitworth/Brush, Falcon Works, England, 75sc
Associated Electrical Industries (Rugby), Ltd., England, 25s
Associated Research, Inc., 3792 W. Belmont Ave., Chicago 18, Ill., 5sc, 15sc, 40sc, 50sc, 55sc, 60sc, Ground-Resistance sc, Tel: 312-COrnelia 7-4040
See ad in this class, page 366
Astral Electronics, Inc., Calif., 5s, 15s, 40s, 50s, 55s, 60s, 65s
Astronautics Corp. of America, Wis., 75c
Atlantis Electronics Corp., Texas, 10c, 30sc, 65c, 80sc
Auerbach Electronics Corp., Pa., 5c, 15c, 70c, 80c
Automation Dynamics Corp., N.J., 5s
Automation Research & Design Associates, N.J., 10c, 30c, 35c, 40c, 50c, 60c, 65c, 80sc
Autonetics, Div. of North American Aviation, Inc., Calif., 15s
Autotronics, Inc., Mo., 75sc
Avnet Electronics Corp., N.Y., 15c, 50c
Avo, Ltd., England, 55s, 80s
B & F Instruments, Inc., Pa., 75sc
B & K Mfg. Co., Ill., 55s
B & M Electronics Mfg. Co., Ind., 20s, 40s
Babcock Electronics Corp., Calif., 15c
Bach-Simpson, Ltd., Canada, 10s, 15s, 35s, 40s, 50s, 55s, 65s, 80s
Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 15s, 30s, 35s, 40s, 45s, 80s, Tel: 617-UNiversity 4-7420
See ad in class 86
Baldwin-Lima-Hamilton Corp., Electronics & Instrumentation Div., Mass., 75sc
Ballantine Laboratories, Inc., Boonton, N.J., 10s, Tel: 201-DEerfield 4-1432
See ad in class 40
Barnes Development Co., 213 W. Baltimore Pike, Lansdowne, Pa., 10sc, 30sc, 35c, 60sc, 65sc, 80c, Tel: 215-MAdison 2-1525
See ad in this class
Barnett Instrument Co., Tenn., 15s, 35s, 40s
Basic & Experimental Physics, Mass., 75c, 85c
Bay-Tronic Co., N.J., 5sc, 10c, 40sc
Bendix Corp., Cleveland Instrument Co., Ohio, 70c, Roughness c, Dimensional c, Roundness c
Bendix Corp., Friez Instrument Div., Md., 45s
Bendix Corp., Industrial Controls Section, Mich., 15s
Bendix Corp., Sheffield Corp. (Subsid.), Ohio, 70c
Bergen Laboratories, Inc., N.J., 75c
Biddle Co. (James G.), Pa., 15s, 40s, 50s
Blackburn Electronic Corp., Pa., 65c
Bliss Electronic Corp., N.J., 5s, 15s, 40s, 50s, 60s
Boonton Radio Corp., Subsid. of Hewlett-Packard Co., 50 Intervale Rd., Boonton, N.J., 80s, Tel: 201-DEerfield 4-3200
See ad in class 38
Booth Co. (Arthur E.), Calif., 60sc
Bracke-Seib X-Ray Co., Inc., N.Y., 40c, 50c
Branson Instruments, Inc., Conn., 85s
Briggs Associates, Inc., Pa., 10c, 15c, 35sc
Brooks Research, Inc., N.Y., 5sc, 15c
Bruel & Kjaer (A/S), Denmark, Roughness s
Bruno-New York Industries Corp., N.Y., 55s, 65s
Brunswick Instruments, N.J., 65c
Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., 75c
Bytrex Corp., Mass., 75c
CBS Electronics, Div. of Columbia Broadcasting System, Inc., Mass., 30c, 35c, 80c
C.E.S. Electronic Products, Inc., Calif., 10s
Cable Electric Products, Inc., R.I., 15s
Cadre Industries Corp., N.Y., 5c
California Computer Products, Inc., Calif., 30c, 80c
California Technical Industries, Div. of Textron, Inc., Calif., 5sc, 15sc, 70sc
Capehart Corp., N.Y., 30c, 40c, 80c
Central Engineering Co., Minn., 5sc
Century Coil Corp., Ill., 5c, 40c, 50c, 70c
Chatillon & Sons (John), N.Y., 75sc
Chester-Morton Electronics Corp., Pa., 5s, 15s
Chicago Aerial Industries, Inc., Ill., 15c
Cincinnati Sub Zero Products, Inc., Ohio, 45c
Circo Corp., Subsid. of Branson Instruments, Inc., 51 Terminal Ave., Clark, N.J., 70s, 85s, Tel: 201-FUlton 8-8600
See ad in class 99
Clippard Instrument Laboratory, Inc., Ohio, 10s, 65s
Clough-Brengle Co., Ill., 10s, 65s
Cole Instrument Co., Calif., 5c, 15c, 30c, 40c, 50c, 60c
Columbus Electronics, Inc., 1000 Saw Mill River Rd., Yonkers, N.Y., 25c, Tel: 914-YOnkers 8-1221
See ads in classes 48, 71

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226

BARNES

TEST INSTRUMENTS for COMPONENTS

AUTOMATIC CAPACITOR TEST SETS

These instruments, with fully automatic null balancing and range switching, offer a speed advantage of 4 to 1 over manual balancing. Even non-technical help can make quick, accurate measurements. Visual, digital readout eliminates balancing and readout of vernier dials by operator and insures correct reading. Standard lab type capacitance bridges are used and the accuracy of the automatic set is the same as the basic bridge. Units are available for use with digital readout systems and adjustable tolerance limits can be provided for classification of components.

TYPE 15. BASIC BRIDGE: General Radio Type 716C. CAPACITANCE RANGE: 100 $\mu\mu$f to 1.1 μf. DISSIPATION FACTOR RANGE: 0 to 21%. TEST FREQUENCY: 1000 cps. DIRECT OR SUBSTITUTION MEASUREMENT.
TYPE 61. BASIC BRIDGE: General Radio Type 1611B. CAPACITANCE RANGE: 0.1 μf to 11,000 μf. DISSIPATION FACTOR RANGE: 0 to 60%. TEST FREQUENCY: 120 cps.
TYPE 63. BASIC BRIDGE: Boonton Electronics 75A. TEST FREQUENCY: 1 megacycle. CAPACITANCE RANGE: .01 $\mu\mu$f to 1000 μf.
CONDUCTANCE RANGE: .1 to 1000 μmhos.

DIGITAL DEVIATION BRIDGE

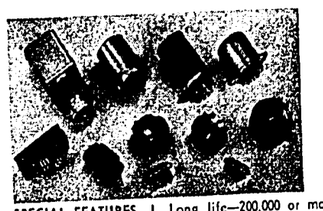
A servo driven "Null Balance" Bridge for comparing resistance of a sample resistor to a standard resistor of the same nominal value. Indicates deviation of sample from standard in percent of nominal value and is used for sorting, inspection, and matching of resistors, potentiometer linearity checking and resistor adjusting. Deviation indication is given by pointer on front of instrument and by an analog digital commutator for printout, recording or digital comparison. Can be used with a relay output system for automatic sorting and binning and will achieve production rates of 3000 pieces per hour or more.

SPECIFICATIONS. RANGE: Standard ± 2% and ± 20%. MEASUREMENT RANGE: 10 ohms to 30 megohms. ACCURACY: ± 0.5% of scale. POWER SUPPLY: Self-contained for D.C. bridge voltage 1—100 V. D.C.

SORTING MECHANISMS

BARNES Sorting and Test Systems are designed to handle, test and sort all types of electronic components, including axial lead, radial lead and disc types. Equipment is available for Resistors, Capacitors and Diodes. Sorting into 2 to 8 categories can be provided. Units can be furnished for semi-automatic and fully automatic operation and also for testing taped components. Speeds to 5000 pieces per hour are achieved depending on the handling method and number of categories. We can supply fully automatic models for sorting resistor blanks into 10 equiproportional categories at rates to 4000 pieces per hour.

TEST SOCKETS



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41. Testers.

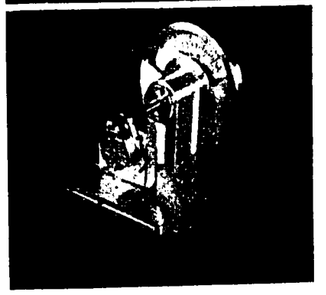
Communication Measurements Laboratory, Inc., N.J., 50sc, 65sc
CompuDyne Corp., Mass., 45s
Computer Control Co., Inc., Eastern Div., 983 Concord St., Framingham, Mass., 30s, Tel: 617-TRinity 5-6185
See ad in class 8
Computer Control Co., Inc., Western Div., 2251 Barry Ave., Los Angeles 64, Calif., 30c, Tel: 213-GRanite 8-0481
See ad in class 8
Computer Sciences, Inc., N.Y., Power-Supply c
Conductorlab, Inc., Main St., Groton, Mass., 15c, 30c, Tel: 617-GIlbert 8-5140
See ad in class 50
Connecticut Telephone & Electric Corp. of Meriden, Conn., 5c, 15c, 30c, 60c
Consolidated Airborne Systems, Inc., N.Y., 10sc
Consolidated Avionics Corp., N.Y., 5c, 15c, 55c, 80c
Continental Technical Service, Inc., Ohio, 70c
Control Circuits, Inc., Conn., 15c
Controlomag Laboratories, Pa., 15c, 30c, 35sc, 65s, 70sc, 80c
Contronics, Inc., Mass., 5c, 15c, 30sc, 60c, 65c, 80sc
Cook Electric Co., Cook Technological Center, Ill., 80c
Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 10s
Crane Electronics Co., Calif., 60s
Crescent Engineering & Research Co., Calif., 75s
Crosby-Teletronics Corp., N.Y., 30s
Curtiss-Wright Corp., Electronics Div., N.J., 80sc
Curtiss-Wright Corp., Electronics Div., N.M., 30c, 80sc
Curtiss-Wright Corp., Princeton Div., N.J., 70sc, 85sc
Custom Scientific Instruments, Inc., N.J., 70s
Dale Electronics, Inc., Subsid. of Hathaway Instruments, Inc., 1318 28th Ave., P.O. Box 488, Columbus, Nebr., 5c, Tel: 402-LOcust 4-3131
See ad in class 74
Datascan, Inc., N.J., 80c
Dawe Instruments, Ltd., England, 85s
Daystrom, Inc., Weston Instruments Div., N.J., 15s, 35s, 45s
Daytronic Corp., Ohio, 70s, 75s
Decker Corp., Pa., 45c, 70s, 75c
Delcon Corp., Calif., 85c
Delsen Corp., Calif., 50 Dielectric s, 70sc, Arc-Resistance c
DeRyder Engineering (Herbert), N.J., 35c
Desco Mfg. Co., Calif., 5s, 15s
Designers for Industry, Inc., Ohio, 5c, 10c, 15c, 20c, 30c, 40c, 50c, 65c, 80c
Development Engineering Co., Inc., Conn., 25sc
Developmental Electronics Corp., Calif., 5c, 15c, 30c
Di-Tran Corp., Calif., 5c, 10c, 15c, 30c, 50c, 60c, 65c, 80c
Dice Co. (J. W.), N.J., 50c, 70s, Hardness s, Polarity s
Digital Equipment Corp., Mass., Core c
Dillon & Co., Inc. (W. C.), Calif., 70s
Direct T/V Windings, Ltd., England, 80s

Directory I. Complete Equipment

41. Testers.

Dit-Mco, Inc., Mo., 5s, 15 Logic s, 50s
Djeco, Div. of Djordjevic Engineering Co., Ill., 70c
Dmeter Mfg. Co., Inc., N.Y., 65c
Douglas Aircraft Co., Inc., Calif., 40c
Drexel Dynamics Corp., Pa., 35c
Duncan Electric Co., Inc., Davenport Mfg. Div., Ill., 5sc, 15sc, 40sc, 50sc
Dunn Engineering Corp., Mass., 80c
Dynamics Research Corp., Mass., 75s
Dynatran Electr. Corp., N.Y., 30s, 80s
E D P Corp., Fla., 15sc
Eastern Precision Resistor Co., Div. of Dynacron Electronic Corp., N.Y., 65c
Ebauches, S. A., Switzerland, 80c
Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 10s, 15s, 35s, 55s, 65s, 80s, Tel: 212-STillwell 6-8700
See ad in this class
Electramatic, Inc., Minn., 5c
Electro Impulse Laboratory, Inc., 208 River St., Red Bank, N.J., 30c, 80 Lifetime c, Tel: 201-SHadyside 1-0404
See ad in class 37
Electro Instruments, Inc., Calif., 10s, 65s
Electro-Pulse, Inc., Calif., Core c
Electro Scientific Industries, Inc., Ore., 10s, 15s, 65s
Electron-Radar Products, Ill., 45sc
Electronet Div., Rue Prods., Calif., 15c
Electronic Brazing Co., N.J., 5s, 40s, 50s
Electronic Dev. Lab., Inc., 10c, 50c, 65c
Electronic Engineering Co. of California, Calif., 60s
Electronic Instruments, Ltd., Engl., 50s
Electronic Measurements Co., Inc., Lewis St. & Maple Ave., Eatontown, N.J., 80c, Tel: 201-LIberty 2-0300
See ad on page 138
Electronic Measurements Corp., N.Y., 10s, 30s, 35s, 55s, 80s
Electronic Prod. & Dev., Inc., Calif., 40sc
Electronic Research Associates, Inc., N.J., 25sc, 30sc, 80sc
Electronic Specialty Co., Calif., 5c, 15c
Elion Instruments, Inc., Pa., 85sc
Engineering Model Laboratory, Inc., Mass., 30c, 35c, 80c
Ensco, Inc., Utah, 80c
Epic, Inc., N.Y., 5s, 50s
Erdco Engineering Corp., Ill., 5c, 10s
Espey Mfg. & Electr. Corp., N.Y., 40c
Etelco, Ltd., England, 60c
Fairchild Semiconductor Corp., 545 Whisman Rd., Mountain View, Calif., 30c, 80sc, Tel: 415-YOrkshire 8-8161
See ad in class 76
Falcon Div., General Thermodynamics Corp., 211 Concord Tnpke., Cambridge 40, Mass., 75sc, Tel: 617-TRowbridge 6-3269
See ad in this class
Farinon Electric, Calif., 80s
Federal Mfg. & Engineering Corp., N.Y., 5c, 10c, 15c, 30c, 80c
Fedtro, Inc., N.Y., 5s, 15s
Ferrotran Electr. Co., Inc., N.Y., 80s
First Electronics Corp., Mass., 5c, 40c
Fisher Research Lab., Inc., Calif., 5s
Fleetwood Labs., Inc., N.Y., 60sc, 70sc
Flite-Tronics, Inc., Calif., 30sc
Forway Industries, Inc., N.J., 35sc
Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 50s, Tel: 212-EVergreen 6-1300
See ad in class 84
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 5c, Tel: 216-SHadyside 9-0700
See ad in class 50
Gates Electronic Co., 2243 White Plains Rd., New York 67, N.Y., 80s, Tel: 212-TUlip 1-5900
See ad in class 69
Gelman Instrument Co., 106 N. Main St., P.O. Box 118-R, Chelsea, Mich., 45s, Tel: 313-GReenwood 9-4821
See ads in classes 22, 40
General Dynamics Corp., Convair Div., Convair/Pomona, Calif., 80c
General Electric Co., High Voltage Spec. Transf. Sect., Mass., 5sc, 40sc, 50sc
General Electric Co., Instrument Dept., 40 Federal St., Lynn, Mass., 15s, 50c, 70s, Tel: 617-LYnn 3-3400
See ad in class 61
General Electric Co., Specialty Control Dept., Va., 5sc, 10c, 15c, 20c, 30sc, 40c, 50sc, 60sc, 65sc, 80sc
General Hermetic Sealing Corp., N.Y., 5c, 15c, 40c, 50c
General Instrument Corp., Capacitor Div., S.C., 10s
General Kinetics, Inc., Va., Magnetic-Tape Testers sc
General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 5c, Tel: 612-WEst 9-8571
See ad in class 43
General Meters, Inc., Colo., 40sc, 50c
General Mills, Inc., Magnaflux Subsid., Ill., 70s, 85s
General Precision Equipment Corp., GPE Controls, Inc. (Subsid.), Ill., 70s
General Precision Equipment Corp., Kearfott Semiconductor Corp. (Subsid.), Mass., 80c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5c, 80c
General Precision, Inc., Kearfott Div., N.J., 80c
General Precision, Inc., Link Div., N.Y., 15sc
General Radio Co., 22 Baker Ave., West Concord, Mass., 50s, Tel: 617-EMerson 9-4400
See ad on Cover 4
General Resistance, Inc., 430 Southern Blvd., New York 55, N.Y., 65s, Tel: 212-CYpress 2-1500
See ad in class 74

DYNAMIC TORQUE TESTER AND DYNAMOMETER



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Dynamometer— measures torque while absorbing power at variable speeds.

A stable, rugged, mechanical instrument, where torque range may be varied by exchange of load cells.

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41. Testers.

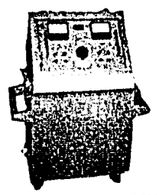
Genisco, Inc., Calif., 10s, 80s
Geotronic Laboratories, Inc., Texas, 20c
Gibbs Mfg. & Research Corp., Wis., 5c
Graham Research, Inc., Minn., 10s, 20s
Green Instr., Inc. (H. J.), N.Y., 45sc
Green Rectifier Co., N.J., 5c
Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 5c, 15c, 60c, Tel: 312-CHesapeake 3-1100
See ad in class 73
Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 65c, Tel: 516-WElls 8-9500
See ad in class 77
Guildline Instruments, Ltd., Canada, 65c
Gunnar Labs., Inc., Fla., 5c, 60c, 65c
Halex, Inc., Calif., 55s
Hampshire Eng. Co., Mass., 5c, 60sc
Harrison Electrosonics, Inc. (B. M.), Mass., 85c
Harshaw Chemical Co., Ohio, 25c
Hathaway Denver, Colo., 10s, 65s
Haydon Co. (A. W.), Calif., 5c, 10c, 15c, 20c, 30c, 40c, 50c, 55c, 60c
Heath Co., Mich., 10s, 15s, 30s, 35s, 40s, 55s, 65s, 80s
Hevi-Duty Electric Co., Wis., 40c
Hewlett-Packard Co., Dymec Div., Calif., 10c, 30c, 65c, 80c
Hi-Spec Electronics Corp., Calif., 60c
Hickok Electrical Instrument Co., Ohio, 30s, 35s, 80s
Hill & Co. (E. Vernon), Wis., 45s
Hirschmann Co., Inc. (Carl), 30 Park Ave., Manhasset, L.I., N.Y., 70c, Tel: 516-MAnhasset 7-5300
See ad in class 99
Hitachi New York, Ltd., N.Y., 35c, 50c
Hoover Co., Electr. Div., Md., 5c, 15c
Hudson Bay Co., Ill., 45s
Hunter Tool Co., Calif., 15s, 75sc
Hycon Mfg. Co., Calif., 5c
ITI Electronics, Inc., N.J., 15c
Iconix, Inc., Calif., 10sc, 20sc, 30sc, 65sc
Ideal Industries, Inc., Ill., 15s
Indiana Steel Products, Div. of Indiana General Corp., 405 Elm St., Valparaiso, Ind., Magnet-Testers c, Tel: 219-HOward 2-3131
See ad in class 64
Indikon Co., Inc., Mass., 10c
Industrial Devices, Inc., N.J., 40s
Industrial Instruments, Inc., N.J., 5s, 10s, 15s, 40s, 50s, 65s
Industrial Nucleonics Corp., Ohio, 70s
Industrial Test Equipment Co., 55 E. 11th St., New York 3, N.Y., 10s, 50s, 65s, Tel: 212-GRamercy 3-4684
See ad in class 69
Instron Eng. Corp., Mass., 25sc, 60s, 75sc
Instrument Laboratories, Ill., 15s, 55s
Instruments of New England, Mass., 70sc
International Instruments, Inc., 88 Marsh Hill Rd., Orange, Conn., 15s, 55s, Tel: 203-SYcamore 5-4711
See ad in class 61
International Telephone & Telegraph Corp., ITT Federal Labs., Ind., 5c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 35c
Invar Electronics Corp., Calif., 15s
Iwasaki Communication Apparatus Co., Ltd., Japan, 45c, 70c, 80c
Jack Scientific Instrument Co. (Bill), Calif., 30s, 60s
Jackson Electr. Instr. Co., Ohio, 5s, 35s
Janco Corp., Calif., 5s, 50s
Jefferson Electronic Prods., Calif., 5c
Jefferson, Inc. (Ray), Pa., 15c, 80c
Jo-Line Tools, Inc., Calif., 75s
Kahl Scientific Instrument Corp., Calif., 45sc, 50sc
Kahn & Co., Inc., Conn., 45c
Kartron, Calif., 20 Shorted-Turn sc
Kennedy Co., Calif., 30 Thermal c, 80 Thermal c
Kilovolt Corp., 238 High St., Hackensack, N.J., 40c, 50c, Tel: 201-HUbbard 8-7373
See ad in class 69
Kinn Electronics Corp., Md., 45c
Knapic Electro-Physics, Inc., Calif., 25c
Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 10s, 15s, 20s, 65s
Knopp, Inc., Calif., 5c, 15s, 50c, Transformer Testers c
Koiled Kords, Inc., Conn., 5s
Kulicke & Soffa Mfg. Co., Pa., 80 Mesa-Wafer c
Labline, Inc., Ill., 45s
LaPointe Industries, Inc., Conn., 10c, 15c, 25c, 30c, 35c, 80c
Lavoie Laboratories, Inc., Matawan-Freehold Rd., Morganville, N.J., 55s, Tel: 201-LOwell 6-2600
See ad in class 37
Lehigh Valley Electronics Engineering & Mfg., Inc., Pa., 25s
Lignes Telegraphiques et Telephoniques, France, 5s, 80s
Lindly & Co., Inc., N.Y., 70c
Line Electric Co., N.J., 60c
Ling Temco Vought, Inc., Texas, 20c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 20c
Lionel Corp., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c, 75c, 80c, 85c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 5c
Lockheed Electronics Co., N.J., 15c
Lumatron Electronics, Inc., 116 County Courthouse Rd., New Hyde Park, L.I., N.Y., 15s, 30s, 80s, Tel: 516-PIoneer 7-3200
See ad in class 23
Lundell & Co., Ill., 30sc, 70c, 80sc
Lyman Electronic Corp., Mass., 5c
Madigan Electronic Corp., N.Y., 25sc, 30sc, 80sc
Magnatran, Inc., N.J., 50c
Magnavox Co., Calif., 15c
Magnetic Metals Co., 2200 River Rd., Camden 1, N.J., Core Testers sc, Tel: 609-WOodlawn 4-7842
See ads in class 55
Manson Laboratories, Inc., Conn., 5sc, 30sc, 35sc, 50sc
Manufacturers' Engineering & Equipment Corp., Pa., 45c
Marine View Electronics, Inc., N.Y., 5c, 20c, 30c, 35c, 55c, 60c
Marstan Electronics Corp., N.Y., 65c
Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 15c
Martindale Electric Co., Ohio, 15s, 20s, 55s
McLean Dev. Labs., Inc., N.Y., 15s
Measurements, McGraw-Edison Div., N.J., 30sc, 80sc
Metrologie, Compagnie Generale de, France, 35s, 80s
Metronix, Inc., Subsid. of Assembly Products, Inc., 75 Wilson Mills Rd., Chesterland, Ohio, 35s, 80s, Tel: 216-HAmilton 3-4440
See ad in class 40
Micro Balancing, Inc., N.Y., 5s
Microsecond Electronics, Inc., Ariz., 80c
Mid-Eastern Electronics, N.J., 50sc, 65s
Millitest Corp., N.Y., Rotary sc
Minneapolis-Honeywell Regulator Co., Rubicon Div., Pa., 20s
Missouri Research Laboratories, Inc., Mo., Rotational-Device sc
Mitchell Radiation Products Corp., Pa., Non-Destructive X-Ray & Magnetic-Particle c
Modern Design, N.Y., 15c, 30c, 80c
Molectronics, Calif., 5c, 60c
Molecular Electronics, Inc., N.Y., 30sc, 80sc
Monroe Electr. Labs., Inc., N.Y., 70c
Morgan Electronics, Mass., 10s
Muirhead & Co., Ltd., England, 65s
Muirhead Instruments, Inc., N.Y., 5s, 50s, 70s, 75s, Thermocouple s
Multi-Amp Electronic Corp., N.J., 5c, 40c, 50c, 60c, Circuit-Breaker c
Mutron Corp., Mass., 5c, 15c
NJE Corp., 20 Boright Ave., Kenilworth, N.J., 50c, Tel: 201-BRidge 2-6000
See ad in class 69
Nash & Thompson, Ltd. (Messrs.), England, 65s, 80s
National Electronics, Wyo., 80c
National Video Corp., Ill., 35c
Network Industries, Inc., N.J., 5sc, 50c
New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy., Somerville 43, Mass., 80sc, Tel: 617-625-6100
See ad in class 84
New London Instrument Co., Conn., 50s
Non-Linear Systems, Inc., P.O. Box 728, Del Mar, Calif., 55 Digital sc, Tel: 213-SKyline 5-1134
See ad on pages 76-77
North America Electronics, Ala., 80s
North Electric Co., Ohio, 5c, 15c, 60c, 80c
North Hills Electronics, Inc., Alexander Place, Glen Cove, L.I., N.Y., 30s, 40s, 80s, Tel: 516-ORiole 1-5700
See ads in classes 69, 84
Omega Dynamics Corp., Calif., 85s
Opad Electric Co., 43-8 Walker St., New York 13, N.Y., 40sc, 50sc, Ground sc, Tel: 212-WOrth 6-0380
See ad in class 69
Optimized Devices, Inc., N.Y., 5s, 10s, 30s, 50s, 55s, 60sc, 65c, 80s
Ortronix, Inc., Fla., 15c
Owen Laboratories, Inc., Calif., 30s, 80s, Rectifier s
PRL Electronics, Inc., N.J., 80s
Pacific Scientific Co., Calif., 5c
Panoramic Electronics, Inc., 528 S. Fulton Ave., Mount Vernon, N.Y., 85s, Tel: 914-OWens 9-4600
See ad on page 80
Parks Lab. (H. F.), Wash., 45 Moisture s
Pearce-Simpson, Inc., Fla., 5sc, 15sc, 50c

Directory I. Complete Equipment

41. Testers.

Performance Measurements Co., Mich., 5s, 15s, 75s
Perkin-Elmer Corp., Vernistat Div., Conn., Potentiometer sc
Peschel Electronics, Inc., Towners, R.F.D. 1, Patterson, N.Y., 5s, 15s, 40sc, 50sc, Tel: 914-TRinity 8-3251
See ad in this class
Phaostron Instrument & Electronic Co., Calif., 15sc, 55sc
Philadelphia Scientific Glass Co., Pa., 45s, 60s
Philco Corp., Pa., 15s
Philco Corp., Lansdale Div., Pa., 30s, 70s, 80s
Philco Corp., Sierra Electronic Corp. (Div.), Calif., 5s, 80s
Philips Electronic Instruments, N.Y., 15s, 55s, 65s, 70 X-Ray s, 80s
Philips Electronics Industries, Ltd., Canada, 35s, 80s
Plug-In Instruments, Inc., Tenn., 80s
Polytronic Research, Inc., Md., 25c, 30c, 35c, 80c
Polytronics Co., Canada, 65c
Potter Instrument Co., Inc., N.Y., Tape c
Power Instruments, Inc., Ill., 75sc
Powertron Ultrasonics Corp. N.Y., 85sc
Precise Electronics & Development Corp., N.Y., 35s
Precise Measurements Co., Millbrook Lane, P.O. Box 172, Flemington, N.J., 40sc, 50sc, Tel: 201-STate 2-3000
See ad in class 69
Precision Apparatus Co., Inc., Subsid. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 5c, 10s, 25sc, 30sc, 35sc, 40sc, 55sc, 65sc, 80sc, Tel: 212-TWining 4-4290
See ad in class 39
Pyramid Instr. Corp., N.Y., 5s, 15s, 40s
Quan-Tech Laboratories, Inc., N.J., 10sc, 30sc, 65 Noise sc, 80sc
RCA Victor Co., Ltd., Canada, 35s
R-K Labs. Co., N.Y., 5c, 10s, 30s, 80s
Radiation at Stanford, Calif., 35c, 40c
Radio Corp. of America, RCA Electron Tube Div., N.J., 35s
Radio Engineering Labs., Inc., N.Y., 5c
Radio Frequency Labs., Inc., N.J., 25s
Radio Industries, Inc., Kans., 5c, 15c, 35c
Radionics, Inc., 76 Cambridge St., Burlington, Mass., 85sc, Tel: 617-BRowning 2-1233
See ads in classes 40, 77
Rainier Co., Inc., N.Y., 5c, 15c, 35c
Ram Meter, Inc., Mich., 5c, 40c, 55c, 60c
Rawson Electrical Instrument Co., Inc., 118 Potter St., Cambridge 42, Mass., 40c, 55c, Tel: 617-KIrkland 7-4041
See ad in class 61
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 5s
Republic Aviation Corp., N.Y., Battery sc
Rescon Electronics Corp., Mass., 35 Thermal-Analog sc
Rese Engineering, Inc., Pa., 15c, Magnetic-Core Testers sc
Research Industrial Laboratory of Electronics, Pa., 35s, 40sc, 70s
Rheem Mfg. Co., Rheem Electronics Div., Calif., 30c, 80c
Richardson-Allen Corp., N.Y., 15c, 40c
Richmont, Inc., Calif., 75sc
Rixon Electronics, Inc., Md., 5c, 15c, 20c, 40c
Rodale Electronics, Inc., N.Y., 5c, 15c, 40c, 50c, 55c, 60c, 65c
Rodale Mfg. Co., Inc., Pa., 15s
Rohde & Schwarz, P.O. Box 275, 111 Lexington Ave., Passaic, N.J., 10s, 50s, Tel: 201-PRescott 3-8010
See ad in class 38
Roller Mike, Inc., N.Y., 70sc
Rotiform Co., Calif., 75s
Rowan Controller Co., Md., 55sc, 80sc
Rowan Controller Co., Solid State Instrument Laboratories (Div.), N.J. 30sc, 80c
Royco Instruments, Inc., Calif., 45sc
Schaevitz Engineering, N.J., 15c, 20c, 45c, 55c, 70sc, 75sc, 85c
Schaffer Air Industries, Inc., N.Y., 15c
Scherr Tumico, Inc., Minn., 70s
Schmeling Electronics, N.J., 60sc
Schoene Electronics Lab., Ind., 35c
Scientific-Atlanta, Inc., Ga., Antenna sc
Scopes Co., Inc., N.Y., 30s, 80s
Scott Instrument Laboratories, Inc., N.Y., Tape c
Seco Electronics, Inc., Minn., 15s, 20s, 35s, 80s, Antenna s
Secode Corp., Calif., 5s
Sel-Rex Corp., N.J., 60s
Sencore, Inc., Ill., 30s, 35s, 80s
Serdex, Inc., Mass., 45s
Shallcross Mfg. Co., N.C., 5sc, 50sc, 65sc
Shasta Electronic Co., Calif., 60c
Shell Electronics Mfg. Corp., N.Y., 35c
Sheltered Workshops, Inc., Calif., 25c, 30c
Siemens New York, Inc., N.Y., 5s, 10s, 45s, 50s
Simmonds Precision Products, N.Y., 10c
Simpson Electric Co., 5218 W. Kinzie St., Chicago 44, Ill., 20s, 35s, 55sc, Tel: 312-ESTebrook 9-1121
See ad in class 61
Sittler Corp., Ill., 15sc, 60sc
Slaughter Co., Ohio, 5sc, 15c, 20sc, 40sc, 50sc
Smith-Florence, Inc., Wash., 5s, 40s
Snap-On Tools Corp., Wis., 75sc
Sonex, Inc., 20 E. Herman St., Philadelphia 44, Pa., 80s, Tel: 215-VIctor 3-6400
See ad in class 34
Sorensen & Co., Inc., Conn., 5sc
Sorensen Industrial Electronic Co., N.J., 5c, 20c, 35c, 50c, 60c
Southern Instruments, Ltd., England, 55s
Specialty Electronics Development Corp., N.Y., 5c

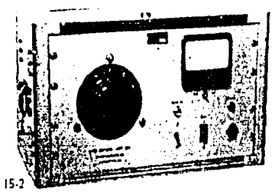
PESCHEL **HIGH VOLTAGE TEST EQUIPMENT**



DC OVERPOTENTIAL TESTERS

Models cover voltage ranges 0-50, 0-120, 0-150, 0-250 0-300 KV DC. Curret rating 5 ma.

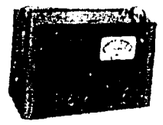
- Non-destructive quantitative testing
- Small size, light weight
- Rugged design for industrial use
- Selenium rectifiers for long life
- HV terminates in shielded cable
- Control cabinet stacks on top of HV section (may be separated for cont-ol)
- Fully instrumented control section



K 15-2

SERIES-K HIGH VOLTAGE AC TEST SETS

- High current capacity to ASTM standards
- Low waveform distortion, below 5%
- Dual-scale voltmeter directly across output
- Continuously adjustable output voltage
- Convenience and safety controls
- Zero-start interlock
- External interlock provision
- Surge protection on meters, relays and transformer primary
- High speed air circuit breaker to protect unit.



SENSITIVE HIPOT TESTERS, SERIES H

Models include H2-B, H5-B, H10, H20, H30. (0-2 to 0-30 KV DC)

- 5 microamp over-current meter relay, continuously adjustable to 5000 microamp deenergizes high-voltage (on DC)
- Non-destructive quantitative testing (on DC)
- Auxiliary AC output voltage available
- HV selenium rectifiers—no tubes
- Completely instrumented, with safety & convenience features

Send today for our latest catalog

PESCHEL ELECTRONICS, INC.

Towners, R.F.D. 1, Patterson, New York TRinity 8-3251

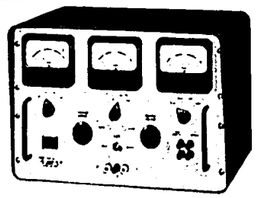
For details, circle #239 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

SEMICONDUCTOR TEST EQUIPMENT

To Accurately Evaluate Semiconductor Parameters

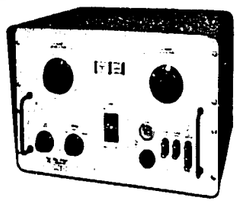
• Incoming Inspection • Production Test • Reliability Systems



20 AMPERE DYNAMIC RECTIFIER ANALYZER

- Forward current 0.5 1 2 5 10 20 amp. D.C. full scale
- Reverse voltage 250/1000V. peak
- Forward voltage drop 0-1, 0-5V.
- Reverse current from 1μa to 50ma. in four ranges
- Self-contained, no external load resistors
- Mirror scale 1% instruments
- Tests under actual operating conditions in accordance with Mil. Specs.

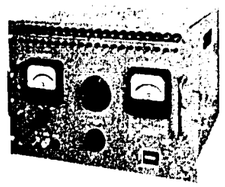
Model 170A Price $895.00 Delivery: Stock-2 Weeks



600 AMPERE SURGE TEST SET

- Provides surge current test for silicon rectifiers in accordance with Mil. S-19500-B
- Continually adjustable to 600 amp. peak
- Self-contained, portable
- Single half wave sinusoidal pulse
- 75, 2500 and 6000 amp. units available
- 1% monitoring accuracy
- Automatic programming available

Model 220 Price $1200.00 Delivery: Stock-2 Weeks

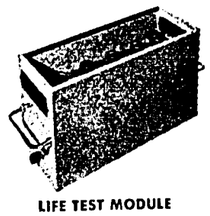


MODULAR DYNAMIC TEST POWER SUPPLY

- Forward current & reverse voltage adjusted independently
- Reduces operating costs by a factor of 50
- Capacity is 20 rectifiers 0.1 to 1 amp. or any combination up to 2 rectifiers, 10 amp. each
- Mirror scale 1% instruments

Model 154D Price $895.00 Delivery: 2 Weeks

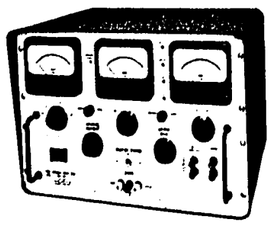
Model 154E -- Same as 154D, with provisions for reverse current measurement $995.00



LIFE TEST MODULE

- Self-contained switching module
- Simulator circuit
- Units may be set up in parallel for testing above 10 amp.
- Reduces operating costs by a factor of 50
- Plug-in rack adapters available for 3, 4, and 5 modules
- Forward drop equalizing resistors

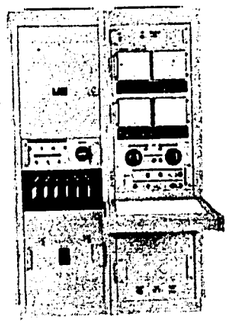
Model 180A Price $250.00 Delivery: Stock-2 Weeks



THERMAL RESISTANCE TEST INSTRUMENT

- Measures junction temperature rise
- Accuracy within 5% (under standard conditions)
- Heating current 0-.5/1/5/10 amps
- Centigrade ranges 0-50/150
- 1% instruments
- Measuring pulse 100-500μ sec
- ½ Wave or D.C. heating current

Model 222 Price $1800.00 Delivery: Stock-2 Weeks
Higher power units available



200 AMPERE DYNAMIC TEST SET

- Forward current 20/200 amp. D.C. full scale
- Reverse voltage 0/1500V. peak
- Forward voltage drop 0-5/10V. peak
- Reverse current from 2 μa to 250ma. in four ranges
- Self-contained, no external load resistors
- Mirror scale 1% instruments
- Tests under actual operating conditions in accordance with Mil. Specs.

Model 164 (Basic Unit) Price $11,525.00 Delivery 8-10 Weeks

Complete Reliability Evaluation Systems Available

WALLSON ASSOCIATES, INC.

912-914 Westfield Avenue • Elizabeth, N. J. • FLanders 1-0700

Manufacturers of Semiconductor Test Equipment

For details, circle #240 on Reader Service Card

41. Testers.

Spellman High Voltage Co., Inc., 1930 Adee Ave., New York 69, N.Y., 5c, 10c, 40sc, 50sc, Tel: 212-KIngsbridge 7-0306
See ad in class 69

Sperry Rand Corp., Sperry Gyroscope Co. of Canada, Ltd. (Subsid.), Canada, 5c, 15c
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 5s
Sprague Electric Co., Mass., 10s
Standard Electronics Research Corp., N.J., 70s
Standard Instrument Corp., N.Y., 60c
Standard Telephones & Cables, Ltd., England, 5sc, 80sc
Stark Electronic Instruments, Ltd., Canada, 35s, 50s, 80s
States Co., Conn., 60c, 65c
Sticht Co., Inc. (Herman H.), 27 Park Pl., New York 7, N.Y., 15s, 50s, Tel: 212-REctor 2-8163
See ad in class 61
Stone Laboratories, Inc., Mass., 70c
Strand Engineering Co., Mich., 15c
Strandberg Eng. Labs., Inc., N.C., 45c
Sturtevant Co. (P. A.), Ill., 75s
Summers & Mills, Inc., Texas, 80sc
Sunshine Scientific Instrument, Pa., 5sc, 10sc, 15c, 20sc, 40c, 50sc, 60sc, 70sc, 75sc, 85sc, Core sc
Superior Instruments Co., N.Y., 5s, 10s, 15s, 25s, 30s, 35s, 40s, 50s, 55s, 65s, 80s
Systems Development, Inc., N.Y., 5c, 15c, 35c, 50c, 80c
Systems, Inc., Fla., 5c, 25c
TRG, Inc., N.Y., 80c
Taffet Electronics, Inc., N.Y., 5c, 10c, 15c, 25c, 40c, 50c, 55c, 60c, 65c
Tang Industries, Inc., Mass., 25c, 70c
Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 5c, 15c, Tel: 201-WIndsor 4-2221
See ad in class 80
Technitron Div., N.J., 15sc
Tektronix, Inc., Ore., 35s, 80s
Telecomtrol Corp., N.J., 35sc
Teltronics, Inc., 23-27 Main St., Nashua, N.H., 30c, 80c, Tel: 603-TUxedo 2-6264
See ad in class 38
Ten Bosch, Inc. (M.), N.Y., Rotor sc
Tenco Electronics, Inc., Mass., 30c, 80c
Tensitron, Inc., Mass., 75c
Teradyne, Mass., 10c, 25c, 30c, 65c, 80c
Tesla Research Foundation, Utah, 65sc
Texas Instruments Incorporated, Apparatus Div., Industrial Products Group, Texas, 80c
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 10c, 15c, 30c, 60c, 65c, 80c, Tel: 214-ADams 5-3111
See ad on Cover 3
Thermovolt Instruments, Canada, 45c
Tipptronic, Inc., Ohio, 75s
Trans Electronics, Inc., Calif., 30sc, 80c
Transformer-Electronics Co., Colo., 80c
Transis-Tronics, Inc., Calif., 80s
Transistor Applications, Mass., 80sc
Transistor Electr. Corp., Minn., 30s, 80s
Transitron Electr. Corp., Mass., 30c, 80c
Transport Products Corp., Ky., 60c
Trenton Transformer Corp., N.J., 40c
Triangle Electronic Mfg. Co., Inc., N.Y., 5c, 15c
Trionics Corp., Wis., 45c, 70c, 75c
Trott Electronics, Inc., N.Y., 10c, 80c
U-Test-M Mfg. Co., Inc., Wis., 35s
Ultrasonic Industries, Inc., N.Y., 85s
Ultraudio Products, Calif., 15s
Ultronix, Inc., Calif., 65c
Unholtz-Dickie Corp., 2994 Whitney Ave., Hamden 18, Conn., Transducer sc, Tel: 203-ATwater 8-3358
See ad in class 36
Unilectron, Inc., 129 Binney St., Cambridge 42, Mass., 40c, 75c, Tel: 617-TRowbridge 6-6400
See ad in class 40
Unit Process Assemblies, Inc., N.Y., 70sc
United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 5s, 10s, 20s, 50s, Tel: 212-BEekman 3-8870
See ads in classes 74, 104
U.S. Science Corp., Calif., 15c
U.S. Sonics Corp., Mass., 85sc
Universal Mfg. Co., Inc., N.J., 20s
Vare Industries, Inc., N.J., 50c
Vidar Corp., Calif., 15s, 65s
Wabash Magnetics, Inc., Miniature Products Div., 812 Manchester Ave., Wabash, Ind., 20s, Tel: 219-563-2191
See ad in class 51
Wallson Associates, Inc., 912-914 Westfield Ave., Elizabeth, N.J., 10c, 30sc, 65c, 80c, Tel: 201-FLanders 1-0700
See ad in this class
Waltham Precision Instrument Co., Mass., Core s
Warren Components Div., El-Tronics, Inc., Pa., 45s
Warrick Co. (Charles F.), Mich., 20sc
Waters Mfg., Inc., Mass., 75s
Wayne Kerr Corp., Pa., 5s, 10s, 20s, 65s, 70s, 80s
Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., Antenna-Pattern sc, Tel: 301-LOckwood 4-0121
See ad in class 45
Weksler Instruments Corp., N.Y., 45s
Wells Industries Corp., Calif., 45sc
Westinghouse Electric Corp., Small Motor Div. of Aircraft Equipment Dept., Ohio, 30sc
Westmore, Inc., N.J., 15sc, 25sc, 30sc, 35sc, 55sc, 80sc
Wheaton Engineering Div., Hurletron, Inc., Ill., 30c, 60c, 80c
Whitney Blake Co., Conn., 5s
Wickes Eng. & Construction Co., N.J., 5c
Wiley Electronic Products Co., Ariz., 5c, 40sc, 50sc
Wiltron Co., Calif., 30s, 80s
Winslow Co., Inc., N.J., 5s, 50s, 65s
Wintronics, Calif., 40s, 60c
Woodwelding, Inc., Calif., 50s
Wright Equipment Corp., N.J., 10c, 35c, 50c, 60c, 65c, 80c
Wyle Laboratories, Calif., 45sc
York Research Corp., Conn., 60c

Thermal devices: See class 82

Thermoelectric devices: See classes 54 & 58

Thin-film circuits: See class 50

Time standards: See class 31

Directory I. Complete Equipment

Timers: See class 61

Timing controls: See class 4

Timing devices, precision: See class 10

Torque testers: See class 41

Towers & supports: See class 44

Training aids: See class 13

Transceivers, aircraft & airport: See class 1

Transceivers, citizen-band: See class 20

Translators, telemetering: See class 34

Transmitters, airborne & airport: See class 1

Transmitters, amateur: See class 3

Transmitters, facsimile: See class 15

Transmitters, microwave: See class 19

Transmitters, mobile & emergency: See class 20

Transmitters, point to point: See class 24

Transmitters, SSB: See class 29

Transmitters, telegraph & teleprinter: See class 33

Transmitters, telemetering: See class 34

42. Transmitters, Broadcast.

5. AM broadcast
10. FM broadcast
15. Fixed frequency
20. Relay broadcast & STL equipment
25. Stereo
30. TV broadcast
35. TV closed circuit
40. UHF-VHF

Adler Electronics, Inc., N.Y., 20s, 30s, 40s
Allied International Corp., N.Y., 5s, 15s
American Elite, Inc. (Telefunken), N.Y., 5s, 10s, 15s, 20s, 40s
American Microwave & Television Corp., Calif., 35sc
Amtron Corp., 17 Felton St., Waltham 54, Mass., 40c, Tel: 617-TWinbrook 4-5020
See ad in class 66
Armstrong Whitworth/Brush, Falcon Works, England, 40sc
Ateliers de Montages Electriques (AME), France, 5s, 10c
B & K Mfg. Co., Ill., 35s
Babcock Electronics Corp., Calif., 40c
Benco Television Associates, Ltd., Canada, 30s, 35s, 40s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Bendix Corp., Friez Instrument Div., Md., 35sc
Blonder-Tongue Labs., Inc., N.J., 35s
Budelman Electronics Corp., 375 Fairfield Ave., Stamford, Conn., 5c, Tel: 203-FIreside 8-9231
See ad on page 96
Canadian General Electric Co., Ltd., Canada, 5s, 10c, 30s, 40c
Capehart Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Carol Electronics Corp., W.Va., 15c
Chrysler Corp., Mich., 40c
Clegg Laboratories, N.J., 40c
Collins Radio Co., Iowa, 5s, 10s, 20s
Columbus Electronics, Inc., 1000 Saw Mill River Rd., Yonkers, N.Y., 15c, 40c, Tel: 914-YOnkers 8-1221
See ads in classes 48, 71
Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 5sc, 10c, 15c, 20c, 25c, 30c, 35c, 40c, Tel: 214-EVergreen 1-1135
See ad on page 120
Crosby-Teletronics Corp., N.Y., 25c
Designers for Industry, Inc., Ohio, 40c
Dynair Electronics, Inc., Calif., 10s, 30s, 35s, 40s
Dynamics Corp. of America, N.Y., 5c, 10sc, 15c, 30sc, 40sc
EMI/U.S., Ltd., Calif., 30sc
Electro-Mech Engineering Co., Minn., 20c, 30c, 35c
Electronic Communications, Fla., 40c
Electronics Development Corp., Calif., 15s, 20s, 30s, 40s
Electronics, Missiles & Communications, Inc., N.Y., 30s, 40 Translator s
Erco Radio Labs., Inc., N.Y., 40sc
Gates Radio Co., Ill., 5s, 10s, 30s
General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 5sc, 10c, 15c, 20sc, 30sc, 35sc, 40sc
General Instrument Corp., Defense & Engineering Products Group, N.Y., 15c, 35c, 40c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 35c, 40c
General Precision, Inc., GPL Div., N.Y., 35s
Hitachi New York, Ltd., N.Y., 5c, 10c, 30c, 35c
Hughes Research Div. (J. W.), Miss., 20c
ITA Electronics Corp., Pa., 5sc, 10sc, 15sc, 20sc, 25sc, 40sc
Inland Electronics Corp., Ill., 40c
Instrument Corp. of Florida, Fla., 15c
Intercontinental Electr. Corp., N.Y., 35sc
International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 35sc
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 35 Telephone-Line Equipment c
Kahn Research Labs., Inc., N.Y., 25sc
Kaiser Aircraft & Electronics, Div. of Kaiser Industries Corp., Calif., 35c
Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 35s, Tel: 201-CApital 6-4000
See ad on pages 72-73
Kin Tel, Calif., 35s
Lettine Radio Mfg. Co., N.Y., 40c
Ling Temco Vought, Inc., Texas, 5s, 10s, 15c, 30s, 35s, 40s
Ling Temco Vought, Inc., Electron Corp. (Subsid.), Texas, 5s, 10s, 30s, 35s, 40s
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 15c, 40c
Lockheed Electronics Co., N.J., 35s
Manson Labs., Inc., Conn., 15sc, 40sc
Marconi's Wireless Telegraph Co., Ltd., N.Y., 5s, 10s, 15s, 20s, 30s, 35s, 40s
Matsushita Communication Industrial Co., Ltd., Japan, 5c, 10c, 35c
Microdot, Inc., Calif., 40s
Missile Systems Corp., California Div., Calif., 30c, 35c
Moore Associates, Inc., Calif., 20sc
Nippon Electric Co., Ltd., Japan, 5c, 20c, 30c, 35c
Ostlund Associates (E. M.), N.J., 40c
Packard-Bell Electr. Corp., Calif., 35c
Parisier & Co. (M. I.), N.Y., 5c, 15c
Peer, Inc., Texas, 5c, 10c, 15c, 20c, 30c, 35c, 40c
Philco Corp., Government & Industrial Group, Pa., 35s
Philco Corp., Sierra Electronic Corp. (Div.), Calif., 40s
Philips Electronics Industries, Ltd., Canada, 35s, 40s
Polytronic Research, Inc., Md., 10c, 15c
Port-O-Vox Corp., N.Y., 40s
RCA Victor Co., Canada, 5s, 10s, 30s
Radiation at Stanford, Calif., 40c
Radio Corp. of America, Defense Electronic Products, N.J., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s
Radio Eng. Labs., Inc., N.Y., 30c
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 5c, 10c
Redifon, Ltd., England, 5s, 10s
Reeves Instrument Corp., Farmingdale Div., N.J., 10sc, 20sc, 30sc, 35sc, 40sc
Rixon Electronics, Md., 5c, 10c, 15c, 20c
Servo Corp. of America, N.Y., 15c, 40c
Sheltered Workshops, Calif., 5c, 10c, 15c
Siemens New York, Inc., N.Y., 40s
Skiatron Electronics & Television Corp., N.Y., 35c
Spilsbury & Tindall, Canada, 5sc, 10sc
Standard Electronics, N.J., 10s, 30s, 40c
Standard Telephones & Cables, Ltd., England, 5c, 10c, 15c, 20c, 30c, 40c
Surface Conduction, Inc., N.Y., 20sc, 35sc, 40sc
TMC (Canada), Ltd., Canada, 5s
Tele-Communications, Calif., 15s, 40s
Telechrome Mfg. Corp., N.Y., 40sc
Telecomtrol Corp., N.J., 20sc, 40c
Television Utilities Corp., N.Y., 35s
Textron Electronics, Inc., Schafer Custom Engineering Div., Calif., 20c, Studio-Programming Equip. c
Thompson Ramo Wooldridge Inc., Dage Div., Ind., 35s
Thompson Ramo Wooldridge Inc., Educational Electronics Div., N.J., 35c
Thomson-Houston, France, 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s
Tokyo Shibaura Electric Co., Ltd., Japan, 5sc, 10c, 15c, 20c, 30c, 35c
Vap-Air Div., Vapor Corp., Ill., 20c
Victoreen Instrument Co., 5806 Hough Ave., Cleveland 3, Ohio, 10s, Tel: 216-ENdicott 1-6200
See ads in classes 74, 86
Westinghouse Electric Corp., Electronics Div., Md., 40c

Transponders: See class 2

Tuners: See class 88

Tuning forks: See class 31

Ultraviolet equipment: See class 5

Ultrasonic cleaning equipment: See class 99

Ultrasonic control equipment: See class 4

Ultrasonic generators: See class 40

Ultrasonic testers: See class 41

Ultrasonic tools: See class 111

Vacuum control equipment: See class 4

Vacuum gages: See class 40

Vacuum machinery, pumps & accessories: See class 99

Valves—all types: See class 99

Vibration mounts: See class 89

Vibration test equipment: See class 36

Video monitor equipment: See class 21

Video recorders: See class 27

Voltage dividers: See class 40

Voltage standards: See class 31

Voltage testers: See class 41

Voltmeters: See class 61

Voltmeters, AF: See class 35

Voltmeters, digital & VTVM: See class 40

Walkie-talkies: See class 20

Water-treatment equipment: See class 99

Wattmeters, absorption: See class 37

Wattmeters & watt-hour meters: See class 61

Wavemeters: See class 37

Weighing equipment: See class 40

X-Ray equipment: See class 5

1962 IRE DIRECTORY

Directory II Components

47 major groups 532 products

The products and services of the radio-electronics industry have been organized into three basic directories:

I. Complete Equipment

II. Components

III. Materials & Services

Within these three basic directories, 112 major product and service groups are numbered consecutively throughout. Under each of these 112 classes a further breakdown is given, showing in detail by a system of code numbers after each firm listed what specific products within the class are manufactured by that firm.

For a terminology cross-index listing the subproducts in alphabetical order, consult the pink section preceding page 1.

The first few times you use this EDGE INDEX

follow the "How to use" instructions slowly—one step at a time. After that you will be able to open easily and almost instantly to the section that you seek.

HOW TO USE

1. Bend the Directory almost double with the back cover page on the inside.
2. Hold in your right hand with your four fingers near to the bound edge and your right thumb near the middle of the open side of this page.
3. From the heavy or light line symbol adjacent to the subject you seek, run your eyes across the page edges until you reach the horizontally corresponding symbol.
4. OPEN THERE!

LICENSE NO. 25H
MACHOL EDGE INDEX PATENT #2680630

For complete list of products and services, arranged alphabetically for fast reference, see the pink section preceding page 1.

COMPLETE DATA SPREADS
ALPHABETICAL DIRECTORY
DIRECTORY I COMPLETE EQUIPMENT
DIRECTORY II COMPONENTS
DIRECTORY III MATERIALS & SERVICES
DISTRIBUTION

INDEX TO COMPONENTS DIRECTORY

43. Amplifiers
44. Antennas & Accessories
45. Attenuators
46. Batteries
47. Blowers & Fans
48. Capacitors, Fixed
49. Capacitors, Variable
50. Circuits
51. Coils
52. Connectors
53. Converters
54. Cooling Devices
55. Cores
56. Crystals & Accessories
57. Delay Lines
58. Energy Conversion Devices
59. Filters
60. Fuses
61. Indicating Instruments
62. Jacks & Plugs
63. Lights and Displays
64. Magnets
65. Microphones
66. Microwave Components
67. Motors & Synchros
68. Phonographs, Pickups, etc.
69. Power Supplies
70. Recording Accessories
71. Rectifiers
72. Regulators, Voltage
73. Relays
74. Resistors
75. Seals, Hermetic
76. Semiconductor Devices
77. Servomechanisms
78. Sockets
79. Speakers
80. Switches & Contacts
81. Terminals
82. Thermal Devices
83. Transducers
84. Transformers
85. Tubes, Entertainment-Type
86. Tubes, Industrial-Type
87. Tubes, Rectifying
88. Tuners
89. Vibration Mounts

RF

components demonstrating exceptional performance characteristics

broadband amplifiers • low noise amplifiers
tunable amplifiers • bandpass filters
multicouplers • multiplexers • converters
coaxial attenuators • terminations
impedance matching transformers

Broadband RF Amplifiers

40-1500 mcps

Model HFW Amplifiers cover an octave of frequency. Their truly exceptional performance features low noise, high gain with low power drain.

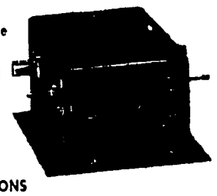
SPECIFICATIONS (condensed)

Freq range	40-1500 mcps
Z in/out	50 or 75 ohms
Noise figure	5-11 db
Gain	10-30 db or greater if desired

Bandpass Filters

30-2000 mcps

Model HFF and HFF-T Bandpass Filters are rugged, reversible in operation, remarkable in performance (which approximates theoretical expectations). Advanced filter designs are also available for antenna couplers and diplexers.



SPECIFICATIONS (condensed)

	HFF	HFF-T
F_o, mcps	30-1000	200-2000
Bandwidth	5-25% F_o	1-15% F_o
Insertion loss	≦1 db	≦1 db
VSWR	≦1.2 in passband	

Attenuators and Terminations

DC-2000 mcps

Impedances of 52.5 and 75 ohms
VSWR 1.2 maximum
Nominal attenuation from 1 to 20 db
BNC, TNC, or N connectors

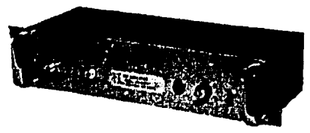
Impedance Transformers

DC to 1000 mcps
VSWR 1.2 maximum
Minimum loss
Matching any pair of 50, 75, 93 ohms
BNC connectors

Low Noise RF Amplifiers

30-300 mcps

Model UH-2(A)SP Amplifiers offer broadband response, high gain, and low noise figure, with additional advantages of simplicity, high reliability, ruggedness, small size and low weight.



SPECIFICATIONS (condensed)

Freq. range	F_o preset between 30 and 300 mcps
Gain	Greater than 20 db
Bandwidth	Up to 10% of F_o
Noise Figure	<1 db at 30 mcps to <3 db at 300 mcps

telephone or write for full information

Applied Research inc.

76 S. Bayles Avenue, Port Washington, N.Y., Port Wash. 7-8707

For details, circle #241 on Reader Service Card

Abrasives:
See class 94

Accelerometers:
See class 83

Adapter sockets:
See class 78

Adapters, coaxial:
See class 66

Aircraft antennas:
See class 44

Amateur antennas:
See class 44

Ammeters:
See class 61

Amplifiers, infrared:
See class 17

Amplifiers, servo:
See classes 43 & 77

43. Amplifiers.

2. Audio
4. DC
6. Decade
8. Differential
10. Dynamic noise suppressors
12. Hearing aid
14. High fidelity
16. IF
18. Linear
20. Magnetic
22. Maser
24. Maser, optical
26. Microwave
28. Null
30. Parametric
32. Peak limiting
34. Photocell
36. Power
38. Preamplifiers
40. Printed circuit
42. Pulse
44. RF
46. Servo
48. Strain gage
50. Television
52. Television boosters
54. Transistor
56. Ultrasonic
58. Vibration pickup
60. Wideband

ACDC Electronics, Inc., 2979 N. Ontario St., Burbank, Calif., 20c, Tel: 213-VIctoria 9-2414
See ad in class 69

A C Electronics, Inc., Calif., 2c, 4c, 16sc, 20sc, 44sc

ACF Electronics Div., ACF Industries, Inc., Md., 26c

ADC Products, Div. of Magnetic Controls Co., 2863 13th Ave. S., Minneapolis 7, Minn., 20c, Tel: 612-PArkway 1-5551
See ad in class 84

AMP, Inc., Capitron Div., Pa., 20c

A R & T Electronics, Inc., Subsid. of Baldwin Piano Co., 1101 McAlmont St., P.O. Box 627, Little Rock, Ark., 44c, 52c, Tel: 501-FRanklin 5-6441
See ads in classes 9, 10, 11, 83

Abbott-Clark Machine & Tool, Inc., N.J., 12c, 26c, 50c, 54c

Acme Electric Corp., 44 Water St., Cuba, N.Y., 20c, Tel: Cuba 4
See ad in class 69

Acoustica Associates, Inc., Calif., 56c

Acoustical Mfg. Co., Ltd., England, 2s, 14s

Acro Electronic Products Co., Pa., 2s, 14s, 36s, 38s, 40c

Acromag, Inc., Mich., 4sc, 8sc, 20sc, 28sc, 34sc, 38sc, 46sc, 48sc

Ad-Yu Electronics Laboratory, Inc., 249 Terhune Ave., Passaic, N.J., 4sc, 38sc, Tel: 201-GRegory 2-5622
See ad in class 57

Adage, Inc., Mass., 4sc, 6sc, 8sc, 28sc, 38sc

Directory II. Components

43. Amplifiers.

Adcrafters Co., Ill., 2s, 38s

Adler Electronics, Inc., N.Y., 50s, 52s, 60s

Advanced Development Laboratories, Inc., N.H., 2c, 4c, 6c, 8c, 16c, 26c, 28c, 30c, 36c, 38c, 40c, 42c, 44c, 46c, 48c, 54c, 60c

Advanced Electronics Corp., N.Y., 4sc, 44s

Advanced Electronics, Inc., Conn., 58s

Advanced Measurement Instruments, Inc., Mass., 60c

Advanced Research Associates, Md., 36sc, 46s, 54s

Aero Geo Astro Corp., Va., 8c, 16c, 26c, 42c

Aerocoil, Inc., N.J., 20c

Aeroflex Laboratories, Inc., N.Y., 2c, 20c, 38c, 46c, 54c

Aerolite Electronics Corp., N.J., 52sc

Aeronautical Communications Equipment, Inc., Fla., 2s

Aeronca Mfg. Corp., Aerospace Div., Md., 16sc, 26c, 30sc, 42sc, 44sc, 46sc, 60c

Aerospace Research, Inc., 94 Massachusetts Ave., Cambridge 39, Mass., 4c, 8c, 16sc, 18c, 38c, 40c, 46c, 54sc, 60c, Tel: 617-ELiot 4-7780
See ad in class 26

Aerovox Corp., Mass., 2s

Aetna Electronics Corp., N.J., 4c, 36c, 44c, 46c, 56c

Ainslie Corp., 531 Pond St., South Braintree 85, Mass., 26sc, Tel: 617-VIctor 8-0850
See ad in class 44

Airborne Accessories Corp., N.J., 20sc, 36sc, 38sc, 54sc

Airborne Instruments Laboratory, Div. of Cutler-Hammer, Inc., N.Y., 16s, 26c, 30s, 38s, 44c

Aircom, Inc., 48 Cummington St., Boston 15, Mass., 26sc, 30c, Tel: 617-COpley 7-9115
See ads in classes 44, 66

Aircraft Armaments, Inc., Md., 26c

Aircraft Electronics, Ariz., 2c, 4c, 16c, 34c, 36c, 38c, 40c, 44c, 54c, 60c

Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 2sc, 4sc, 8sc, 18sc, 20sc, 28sc, 36sc, 38sc, 46sc, Tel: 301-ACademy 8-4600
See ad in class 53

Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 2sc, 4sc, 8sc, 18sc, 20sc, 28sc, 36sc, 38sc, 46sc, Tel: 305-LUdlow 3-6160
See ad in class 53

Airtec, Inc., N.J., 26sc

Airtronics, Inc., D.C., 2c, 4c, 6c, 8c, 14c, 16c, 18c, 34c, 36c, 38c, 40c, 42c, 44c, 46c, 48c, 54c, 56c, 60c

Airtronics International Corp., Fla., 2c, 8c

Albano Co., Inc., Honeycomb Div., 555 W. 54th St., New York 19, N.Y., 40s, Tel: 212-PLaza 7-5887
See ad in class 90

Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 2s, 4s, 6s, 18s, 34s, 40s, 42s, 60s, Tel: 617-FOrest 6-4467
See ad on page 82

Alfred Electronics, Calif., 26s

Allegri-Tech, Inc., N.J., 40c

Allison Associates, Mass., 40c

Altron Electronics Co., Pa., 38s, 48s, 54s

Alwac Computer Div., El-Tronics, Inc., Calif., 40c

American Avionics, Inc., Div. of Astro-Science Corp., Calif., 2c, 4c, 36c, 38c, 40c, 42c, 44c, 46c, 48c, 54c

American Bosch Arma Corp., N.Y., 4sc, 60s

American Bosch Arma Corp., Tele-Dynamics Div., Pa., 60sc

American Brake Shoe Co., Raymond Atchley Div., Calif., 4sc, 34c, 40sc

American Communications Corp., N.Y., 2sc, 14c, 36c, 38sc, 44sc, 50sc, 52sc, 60sc

American Development Electronics Co., N.J. 2c

American Electronic Laboratories, Inc., Richardson Rd., Colmar, Pa., 4s, 26s, Tel: 215-VAn Dyke 2-0131
See ad adjacent to Index to Advertisers, back of book

American Electronics, Inc., Calif., 20c, 46c

American Electronics, Inc., Electro-Mechanical Div., Calif., 20c

American Electronics, Inc., Instrument Div., Calif., 46sc

American Geloso Electronics, Inc., N.Y., 2s, 12s, 36s, 38s, 54s

American Machine & Foundry Co., Government Products Group, N.Y., 44c, 46c

American Machine & Foundry Co., Greenwich Engineering Div., Conn., 26sc

American Magnetics Corp., Ill., 20c

American Measurement & Control, Inc., Mass., 46sc, 48sc

American Microwave & Television Corp., Calif., 50sc, 60sc

American Missile Products Co., Inc., Calif., 2c, 4c, 6c, 8c, 18c, 36c, 38c, 40c, 42c, 48c, 54c, 58c

American Monarch Corp., American Electronics Div., Minn., 4c, 20c, 36c

American Optical Co., J. W. Fecker Div., Pa., 4sc, 8sc, 38sc, 46sc

American Optical Co., Instrument Div., N.Y., 4s, 8s, 48s

American Research & Mfg. Corp., Md., 20sc, 36sc, 38sc

Ampex Audio Co., Calif., 2s, 36s, 38s

Amplifier Corp. of America, N.Y., 2sc, 14sc, 32c, 38sc

Amplivox Exports, Ltd., England, 12s, 38sc

Andersen Laboratories, Inc., Conn., 16c, 20c, 38c, 56c

Anderton Electronic Laboratory, Utah, 2c, 14c, 18c, 32c, 34c, 36c, 38c

Andrea Radio Corp., N.Y., 2c, 14c, 16c, 38c, 50c, 60c

Anelex Corp., Mass., 40c

Antlab, Inc., Ohio, 28c, 46sc

Appalachian Electronic Instruments, Inc., Va., 4c, 18c, 38c

Applegate & Co. (C. J.), Colo., 60sc

Applied Control Corp., N.J., 38c, 46s, 54s

Applied Electro Mechanics, Inc., Va., 2 Voice s

Applied Electronics Corp. of New Jersey, P.O. Box 43, Metuchen, N.J., 4sc, 8sc, Tel: 201-LIberty 9-9200
See ad in class 34

Applied Research, Inc., 76 S. Bayles Ave., Port Washington, L.I., N.Y., 16c, 26c, 38sc, 44sc, 52sc, 60sc, Tel: 516-POrt Washington 7-8707
See ad in this class

Applied Technology, Inc., Calif., 16c, 26c, 30c, 36c, 42c, 44c, 60c

Ardente Acoustic Laboratories, Ltd., England, 12c, 54c

Arenberg Ultrasonic Laboratory, Inc., 94 Green St., Jamaica Plain 30, Mass., 38sc, 56sc, 60sc, Tel: 617-JAmaica 2-8640
See ad in class 38

Arkay Products Mfg. Co., Calif., 54c

Arlo Electronic Corp., N.Y., 2s

Armstrong Whitworth/Brush, Falcon Works, England, 2sc, 4sc, 8sc, 16sc, 36sc, 40c, 48sc, 54sc

Armstrong Whitworth Equipment, Sir W. G. Armstrong Whitworth Aircraft, Ltd., England, 46c

Associated Electrical Industries (Rugby), Ltd., England, 4s, 14s, 20c, 34s, 54s

Astronautics Corp. of America, Wis., 8c, 28c, 36c, 40c, 46sc

Ateliers de Montages Electriques (AME), France, 2s, 4s, 18s, 20s, 36c, 38s, 42s, 44c, 54s, 60s

Atlas Coil, Inc., Conn., 20c

Atlas Controls, Inc., Mass., 20c

Atlas Engineering Co., Inc., Mass., 20c

Audio Equipment Co., Inc., N.Y., 2c, 54c

Audiotronics Corp., Calif., 2c, 14c

Autocrat Electronics Co., Ill., 2c

Automation Research & Design Associates, N.J., 2c, 4c, 6c, 8c, 14c, 18c, 20c, 28c, 34c, 36c, 38c, 42c, 44c, 46c, 48c, 54c, 58c

Autometric Corp., N.Y., 40c

Autotron, Inc., Ill., 34s

Avien, Inc., N.Y., 4sc, 26c, 46sc, 48c

Avtron Mfg., Inc., Ohio, 2c, 4c

B & F Instruments, Inc., Pa., 48c

B & K Instruments, Inc. of Bruel & Kjaer, Ohio, 6s, 18s, 48s, 58s

B & M Electronics Mfg. Co., Ind., 2c

Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Minn., 2s, 8s, 18s, 36s, 38s, 42s, Tel: 617-UNiversity 4-7420
See ad in class 86

Baldwin-Lima-Hamilton Corp., Electronics & Instrumentation Div., Mass., 48sc

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226

43. Amplifiers.

Baldwin Piano Co., Ohio, 34sc, 44sc, 52sc

Ballantine Laboratories, Inc., Boonton, N.J., 6s, Tel: 201-DEerfield 4-1432
See ad in class 40

Barker Products Co., Mass., 2sc, 14sc, 40sc, 50sc

Basic & Experimental Physics, Mass., 24c, 26c, 38c, 46c, 48c

Basler Electric Co., Magnetic Components Dept., Ill., 20c

Bay-Tronic Co., N.J., 2c, 4c, 36c

Beckman Instruments, Inc., Helipot Div., Calif., 46sc

Beckman Instruments, Inc., Systems Div., Calif., 4sc, 8sc, 38sc

Behlman Engineering Co., Calif., 2sc, 36sc

Belclere Co., Ltd., England, 2c, 12sc, 38c, 40c

Bell Aerosystems Co., Avionics Div., N.Y., 4c

Bellaire Electronics, Inc., N.J., 2sc, 12c

Beltone Hearing Aid Co., Ill., 12sc

Benco Television Associates, Ltd., Canada, 38s, 44s, 50s, 52s, 54s

Bendix Corp., Bendix-Pacific Div., Calif., 46c

Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 2c, 18c, 30c, 40c, 42c

Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J., 46c, Tel: 201-ATlas 8-2000
See ad on pages 46-47

Bendix Corp., Friez Instrument Div., Md., 46c, 50c

Bendix Corp., Montrose Div., Pa., 46c

Bendix Corp., Pioneer-Central Div., Iowa, 46sc, 56c

Bendix Corp., Sheffield Corp. (Subsid.), Ohio, 18c, 20s, 46c, 54s

Benrus Watch Co., Inc., Conn., 2c, 6c, 38c, 48c, 54c

Bently Scientific Co., Calif., 2s, 4s, 8s, 46s, 54s

Bergen Laboratories, Inc., N.J., 54c

Beva Laboratory, Inc., N.J., 18c, 42c

Blackburn Electronic Corp., Pa., 42c

Block Associates, Inc., Mass., 34c, 38c, 54c

Blonder-Tongue Laboratories, Inc., N.J., 44s, 50s, 52s, 54s, 60s

Bogen-Presto, Div. of Siegler Corp., N.J., 2s, 14s, 36s, 38s, 54s

Bolsey Corp. of America, N.Y., 34sc

Boonshaft & Fuchs, Inc., Pa., 4c, 46s

Boonton Radio Corp., Subsid. of Hewlett-Packard Co., 50 Intervale Rd., Boonton, N.J., 36s, Tel: 201-DEerfield 4-3200
See ad in class 38

Boulevard Electronics, Inc., Ill., 2s, 14s, 20c, 38c

Bowmar Instrument Corp., 8000 Bluffton Rd., Fort Wayne, Ind., 4c, 8c, 18c, 46c, Tel: SHerwood 3121
See ad in class 77

Brach Mfg. Corp., Div. of General Bronze Corp., N.J., 18sc, 20sc, 38sc, 46sc, 54sc

Breeze Corporations, Inc., N.J., 48c

British Industries Corp., N.Y., 2s, 14s, 38s

Browning Laboratories, Inc., N.H., 2s

Bruel & Kjaer (A/S), Denmark, 2s, 6s, 8s, 18s, 38s, 46s, 48s, 54s, 58s, 60s

Bruno-New York Industries Corp., N.Y., 2sc, 4c, 8c, 36sc, 38sc

Buckbee Mears Co., 245 E. Sixth St., Saint Paul 1, Minn., 40c, Tel: 612-CApital 7-7361
See ad in class 105

Budelman Electronics Corp., 375 Fairfield Ave., Stamford, Conn., 18c, 26s, Tel: 203-FIreside 8-9231
See ad on page 96

Bulova Research & Development Laboratories, N.Y., 4s

Bureau of Engraving, Inc., Minn., 40c

Burmac Electronics Co., Inc., 142 S. Long Beach Rd., Rockville Centre, L.I., N.Y., 42c, Tel: 516-ORiole 8-3070
See ad in class 69

Burr-Brown Research Corp., Ariz., 2s, 4s, 6s, 8s, 18s, 28s, 36s, 40s, 46s, 48s, 54s, 56s, 60s

Bush Transformer Corp., N.Y., 20c

C.E.S. Electronic Products, Inc., Calif., 2s, 4s, 6s, 8s, 38s, 40s, 48s, 54s

Cable Specialists of Conn., Conn., 2c, 4c, 14c, 36c, 38c, 40c

Cadre Industries Corp., N.Y., 40c

Calbest Electronics, Calif., 2sc, 14sc, 38c

California Computer Products, Inc., Calif., 42sc

California Magnetic Control Corp., Calif., 4c, 20c

California Technical Industries, Div. of Textron, Inc., Calif., 18sc

Cameraflex Corp., N.Y., 2sc, 4sc, 8sc, 16sc, 18sc, 36sc, 38sc, 42sc, 44sc, 50sc, 54sc, 60sc

Canadian Applied Research, Ltd., Canada, 54c

Canadian Aviation Electronics, Ltd., Canada, 2c, 16c, 18c, 30c, 36c, 38c, 40c, 42c, 44c, 46c, 54c, 60c

Canadian Westinghouse Co., Ltd., Canada, 26c, 36c, 44c, 60c

Canoga Electronics Corp., Calif., 16c, 46c

Capehart Corp., N.Y., 2sc, 4c, 6c, 8c, 10c, 14sc, 16c, 18c, 22c, 26c, 28c, 30c, 32c, 36c, 38c, 40c, 42c, 44c, 60c

Carol Electronics Corp., W.Va., 2c, 38c

Celco Constantine Engineering Laboratories Co., 70 Constantine Dr., Mahwah, N.J., 20sc, 46sc, Tel: 201-DAvis 7-1123
See ad on page 130

Central Dynamics, Ltd., Canada, 2sc, 4c, 14c, 38c, 46c, 50sc, 54c, 60c

Centralab, Electronics Div. of Globe-Union, Inc., 900A E. Keefe Ave., Milwaukee 1, Wis., 54sc, Tel: 414-WOodruff 2-9200
See ad in class 74

Centroid Engineering & Mfg. Corp., 126 Jackson St., Cambridge 40, Mass., 2c, 8c, 36c, 38c, Tel: 617-TRowbridge 6-7250
See ads on page 111 & in class 91

Certified Radio Laboratories, N.Y., 2c

Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., Texas, 8c, 16c, 30c, 38c, 42c, 44c, 46s, 60c

Chemprint Corp., Calif., 2sc, 40sc

Chesapeake Instrument Corp., Md., 38s

Chicago Magnetic Control Div., Ill., 20sc

Cinaudagraph, Inc., Ill., 2c, 14c, 36c

Cinch Mfg. Co., Graphik-Circuits Div., Calif., 40c

Circuitdyne Corp., Calif., 2c, 20c, 54c

Clegg Laboratories, Div. of Clegg, Inc., N.J., 42sc

Cleveland Metal Specialties Co., Electronics Div., Ohio, 12c, 40c

Clevite Corp., Brush Instruments Div., Ohio, 4s, 28s, 40s, 46s, 48s, 54s

Clippard Instrument Laboratory, Inc., Ohio, 16c, 44c

Coast Coil Co., Calif., 20c

Coldstream Engineering Co., Okla., 4sc, 20sc

Cole Instrument Co., Calif., 4c, 6c, 28c, 34c, 40c, 48c, 54c

Collins Radio Co., Iowa, 2s

Columbia Research Laboratories, Inc., Pa., 2s, 36s, 54s

Columbus Process Co., Inc., Ind., 2c

Communication Accessories Co., U.S. Highway 50 & 71 By-Pass, Lee's Summit, Mo., 20c, Tel: 816-LAclede 4-3500
See ad on page 112

Communication Measurements Laboratory, Inc., N.J., 2sc, 36sc, 38sc, 40c, 46c, 54c, 56sc, 60sc

Community Engineering Corp., Pa., 38sc, 44sc, 50sc, 52sc, 54sc, 60sc

Compact Circuits Co., Div. of Electrons, Inc., N.J., 46sc

Components Corp., Ill., 20c

Comptometer Corp., Radiation Electronics Co. (Div.), Ill., 8sc, 34sc, 38sc, 54sc, 60sc

Comptron Corp., Mass., 2sc, 4c, 34c, 40sc, 42sc, 46c

CompuDyne Corp., Mass., 8c, 46s, 48c, 54c

CompuDyne Corp., Pa., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 38c, 40c, 42c, 44c, 46c, 48c, 50c, 52c, 54c, 56c, 58c, 60c

Computer Engineering Associates, Div. of Susquehanna Sciences, Inc., Calif., 4s, 8s

Computer Equipment Corp., Calif., 42s, 60s

Computer Sciences, Inc., N.Y., 46sc

Computer Systems, Inc., N.J., 4sc, 8sc, 46sc, 60sc

Computronics, Inc., Colo., 4c

Consolidated Airborne Systems, Inc., N.Y., 4c, 8c, 28c, 36c, 46sc, 48c

Consolidated Electrodynamics Corp., Calif., 4s, 18s, 48s, 58s

Continental Electronics Corp., N.Y., 2c

Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 18sc, 26c, 36c, 42c, 44c, 50c, 60c, Tel: 214-EVergreen 1-1135
See ad on page 120

Continental Electronics & Sound Co., Ohio, 58c

Continental Mfg., Inc., Nebr., 2c, 54c

Control Electronics Co., Inc., 10 Stepar Place, Huntington Station, L.I., N.Y., 26sc, 30sc, Tel: 516-HAmilton 7-7961
See ad in class 59

Control Equipment Corp., Mass., 40s, 42s

Directory II. Components

43. Amplifiers.

Control Technology Co., Inc., N.Y., 4sc, 8sc, 20sc, 28sc, 38sc, 40sc, 46sc, 54sc

Controlomag Laboratories, Pa., 4sc, 8sc, 20sc

Contronics, Inc., Mass., 4c, 8c

Cook Electric Co., Ill., 4sc, 16sc, 18sc, 20sc, 26sc, 36sc, 42sc, 44s

Cook Electric Co., Cook Technological Center, Ill., 46c, 48c, 54c

Cooke Engineering Co., Va., 2c, 4c, 16c, 38c, 40c, 44c

Cornwell Electronics Corp., N.Y., 20sc

Cosmic, Inc., D.C., 24sc

Crane Electronics Co., Calif., 42c

Crown Engineering, N.M., 2c

Cubic Corp., Calif., 4sc, 38c

Curtiss-Wright Corp., Princeton Div., N.J., 56sc

Custom Components, Inc., N.J., 26sc

Cycle Transformer Corp., N.J., 20c

DBM Research Corp., Fla., 16c, 26c, 38c, 60c

Daltronics, Inc., R.I., 20sc

Datalog Corp., Metrolog Div., 2415 Amsler St., Torrance, Calif., 26c, Tel: 213-SPruce 5-6621
See ad in class 40

Daven Co., Subsid. of General Mills, Inc., N.J., 2c, 4c, 6c, 16c, 38c, 40c

Dayton Electronic Products Co., Ohio, 2s, 14s, 16c, 44c, 46c, 54s, 58s, 60c

Daytronic Corp., Ohio, 48s

Decker Corp., Pa., 8c, 40c

Deeco Instruments, Inc., Calif., 20c

Defense Electronics, Inc., Md., 16sc, 38sc, 44sc

Deitz Co., Inc., N.J., 34sc

Delcon Corp., Calif., 2c, 18c, 36c, 38c

Delta Broadcasting System, Ohio, 2c, 14c, 36c, 38c

Deltex Laboratories, Div. of Delta Exploration Co., Inc., Miss., 2 VLF sc, 4s, 8s, 20c

Deltime, Inc., N.Y., 42c

Deltron Co., Calif., 20c

DeMornay-Bonardi Corp., 780 S. Arroyo Parkway, Pasadena, Calif., 16s, Tel: 213-SYcamore 2-4142
See ad on pages 68-69

Denrad Mfg. Co., Inc., Texas, 2sc, 14sc, 36sc, 38sc, 40sc, 54c

Denson Electronics Corp., Conn., 2c, 14c, 16c, 44c

Dependable Printed Circuit Corp., 827 Black Oak Ridge Rd., Wayne, N.J., 40c, Tel: 201-TEmple 5-2765
See ad in class 50

Developmental Electronics Corp., Calif., 2sc, 28sc, 40sc, 42sc, 46sc

DeWald Radio, Div. of United Scientific Laboratories, Inc., N.Y., 2sc, 14sc

Di/An Controls, Inc., Mass., 46sc

Di-Tran Corp., Calif., 4c

Dicon Corp., N.Y., 2c, 4c, 8c, 14c, 34c, 36c, 38c, 42c, 48c, 54c, 56c, 60c

Diehl Mfg. Co., N.J., 46sc

Digital Equipment Corp., Mass., 42s

Digitrols, Inc., Md., 2s, 40s

Diotron, Inc., Pa., 20sc, 34c

Direct T/V Windings, Ltd., England, 2c, 16sc, 44sc, 50sc, 52c

Dittmore-Freimuth Corp., Wis., 2c, 4c

Djeco, Div. of Djordjevic Engineering Co., Ill., 4c, 8c, 18c, 20c, 26c, 36c, 38c, 54c

Dominion Electrohome Industries, Ltd., Canada, 4s

Donner Scientific Co., Calif., 2sc, 4sc, 18sc, 28sc, 38c, 40sc

Dorne & Margolin, Inc., N.Y., 30c

Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 26c, Tel: 914-MOunt Vernon 8-6900
See ad in class 66

Dresser Electronics/HST Div., Texas, 4c, 20c, 46c, 48c

Dynaco, Inc., Pa., 2s, 14s, 36s, 38s, 40s

Dynair Electronics, Inc., Calif., 50s, 52s

Dynamics Instrumentation Co., Calif., 4sc, 6sc, 8sc, 18sc, 28sc, 40sc, 48sc, 54sc, 58sc

Dynamics Research Corp., Mass., 34sc

Dynatronics, Inc., Fla., 4c, 16c, 38c, 42c, 60c

E D P Corp., Fla., 2c, 4c, 40c, 42c

E.M.I.-Cossor Electronics, Ltd., Canada, 2s, 14s, 44s, 50s, 52s, 60s

EMP Electronics Research Laboratories, Inc., Ariz., 20sc

E O Electronics, Inc., N.J., 6s, 38 Instruments

E.P. Electric Products Co., Ltd., Canada, 20c

Eastern Precision Resistor Co., Div. of Dynaeron Electronic Corp., N.Y., 6c

Edgerton, Germeshausen & Grier, Inc., Mass., 24c

Edison Industries (Thomas A.), Instrument Div. (McGraw-Edison Co.), N.J., 46sc

Ednalite Optical Co., Inc., N.Y., 24c

Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 14s, 36s, 38s, Tel: 212-STillwell 6-8700
See ad in class 41

Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 26s, 50s, Tel: 415-LYtell 1-1451
See ad on pages 29-32

Elcor, Inc., Va., 4sc, 8sc, 60sc

Electramatic, Inc., Minn., 2sc

Electric Regulator Corp., Conn., 20c

Electrical Insulation Co., Inc., N.Y., 40c

Electrical Service Co., Calif., 34sc

Electro-Craft Corp., Minn., 2c, 20c, 26c, 30c, 40c

Electro Development Corp., Wash., 4c, 48c, 58c

Electro Instruments, Inc., Calif., 2s, 4s, 60s

Electro-Mech Engineering Co., Minn., 2sc, 14sc, 16sc, 32sc, 34sc, 40sc, 42sc, 44sc, 50sc, 54sc, 60sc

Electro Powerpacs, Inc., Mass., 24sc

Electro Radiation, Inc., Calif., 34c

Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., Minn., 46c, 54sc

Electrodynamic Instrument Corp., Texas, 36c, 40c, 46c, 58c

Electromagnetic Technology Corp., Calif., 26c

Electromation Co., Calif., 46s

Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 2c, 4c, 34c, 36c, 38c, Tel: 617-LYnn 8-2100
See ad in class 69

Electron Enterprises, Inc., Ill., 2sc, 14sc

Electronic Associates, Inc., N.J., 4s, 8s

Electronic Communications, Inc., Fla., 2c, 16c, 18c, 26c, 44c, 46c

Electronic Control Corp., Mich., 34s, 54s, 56s

Electronic Controls, Inc., Conn., 2sc, 4c, 40sc, 46sc

Electronic Engineering Co., Ohio, 2s

Electronic Instruments, Ltd., England, 4s

Electronic Measurements Corp., N.Y., 14s

Electronic Plastics Co., Calif., 4sc, 8sc, 40sc, 54c

Electronic Products Corp., Subsid. of Futura Mfg. Corp., Mo., 2s, 40s

Electronic Research Associates, Inc., N.J., 2sc, 4sc, 20sc, 36sc, 54sc

Electronic Specialty Co., Calif., 2c, 20c, 36c, 38c, 42c, 44c, 46c, 54c

Electronic Systems, Calif., 14c, 38c

Electronic Teaching Laboratories, Md., 2sc, 38sc, 40c

AMPLIFIERS and PRECISION POWER SUPPLIES

ANALOG COMPUTER BUILDING BLOCKS

Full line of plug-in DC amplifiers. Band width and low drift are outstanding characteristics. Price range: $23 to $95.

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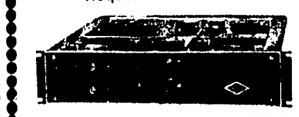

Instrument power supplies (.001% specs). Price range: $295 to $850.

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993 FARMINGTON AVENUE
WEST HARTFORD 7, CONNECTICUT

For details, circle #242 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages a1-226.

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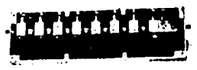
We've emerged from seven years' designing, engineering and producing some of the nation's most sophisticated electronic countermeasures systems.

Experience and knowledge gained has been applied in developing a line of IFI amplifiers that meet some pretty tough specifications at lower cost than you'll find elsewhere.

Available for immediate delivery.



P-205 SERIES PRE-AMPLIFIERS

M-200 SERIES I-F AMPLIFIERS

300 SERIES VIDEO AMPLIFIERS

M-500 SERIES WIDE BAND AMPLIFIERS

600 SERIES AMPLIFIERS

M-400 SERIES HIGH POWER DISTRIBUTED AMPLIFIERS

LOG-LIN AMPLIFIERS

T-330 TRANSISTORIZED AMPLIFIERS

Write for data sheets, and judge for yourself.

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101 NEW SOUTH ROAD

HICKSVILLE, L. I. NEW YORK

For details, circle #243 on Reader Service Card

43. Amplifiers.

Electronic Tube Corp., Pa., 8sc, 36sc, 38sc, 42c
Electronic Wiring Corp., N.Y., 2c, 4c, 14c, 18c, 20c, 36c, 38c, 40c, 42c, 44c, 46c, 54c
Electronica Industrial S. A., Brazil, 14sc
Electrophono & Parts Corp., N.Y., 2s
Elm Instrument Corp., N.Y., 46sc
Elsco Systems, Inc., Wash., 2c, 4c, 8c, 36c, 40c, 42c, 54c

Embree Electronics Corp., 993 Farmington Ave., West Hartford 7, Conn., 4s, 8s, Tel: 203-ADams 2-5144
See ad in this class

Emerson Electric Mfg. Co., Mo., 36c, 38c, 40c, 42c, 44c, 46c
Emertron, Inc., Div. of Emerson Radio & Phonograph Corp., N.J., 16c

Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 16c, 26c, 38c, 42c, 44c, 60c, Tel: 518-VIctor 2-8400
See ad in class 38

Endeveo Corp., Calif., 54sc, 58sc
Engelhard Industries, Inc., Makepeace Div., Mass., 48c
Engineered Electronics Co., Calif., 18s
Engineering Model Laboratory, Inc., Mass., 2c, 36c, 40c, 54c
Engineering Specialties, Ohio, 20c
English Electric Valve Co., Ltd., England, 30s
Ensco, Inc., Utah, 4s, 38s, 48c
Entron, Inc., Md., 50s, 52s
Epsco, Inc., Mass., 4sc, 18sc, 20sc, 36sc, 38sc, 40sc, 42sc, 46sc, 48sc, 54sc, 60sc
Erwood, Inc., Ill., 2c, 6c, 8c, 58c
Espey Mfg. & Electronics Corp., N.Y., 2c, 4c, 8c, 20c, 36c, 42c
Etelco, Ltd., England, 2c
Ewen Knight Corp., Mass., 16c, 22c, 26sc, 30c, 38sc, 40c, 44sc, 60c
Exactel Instrument Co., Calif., 46s, 48c
Fairchild Recording Equipment Corp., N.Y., 2s, 32s, 36s, 38s
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 2c, 4c, 6c, 8c, 16c, 18c, 26c, 30c, 34c, 38c, 42c, 44c, 46c, 50c, 54c, 60c
Fairfield Controls, Inc., Conn., 4c, 20 Thyratron sc, 46c, 54c

Fanon Transistor Corp., 439 Frelinghuysen Ave., Newark 12, N.J., 2sc, Tel: 201-BIgelow 3-1020
See ad in class 76

Farmer Electric Products Co., Inc., Mass., 34s
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 2sc, 10c, 16s, 28c, 36s, 38sc, 40s, 44s, 46c, 50s, 60s
Federal Scientific Corp., N.Y., 14sc, 16c, 32c, 36c, 38c, 42c
Ferricore, Inc., N.J., 20c
Ferrotran Electronics Co., Inc., N.Y., 2s, 4s, 16s, 18s, 36s, 38s, 40s, 42s, 44s, 46s, 54s, 60s
Fidelitone Microwave, Inc., Ill., 26sc, 36sc, 42sc, 44sc
Fidelity Amplifier Co., Ill., 2c, 14c, 34c, 36c, 38c, 54c, 56c
Finney Co., Ohio, 52s
First Electronics Corp., Ind., 50s
Fisher Berkeley Corp., Calif., 2sc, 40sc
Fisher Engineering, Inc., Ind., 20c
Fisher Radio Corp., N.Y., 2s, 14s, 36s, 38s
Flite-Tronics, Inc., Calif., 2sc, 36sc, 40c
Fortiphone, Ltd., Components & Transformer Divs., England, 12sc
Foto-Video Electronics, Inc., N.J., 50s

Franklin Systems, Inc., 2734 Hillsboro Rd., P.O. Box 3250, West Palm Beach, Fla., 2c, 18sc, 38sc, 40c, 42sc, 44sc, 48c, 54sc, Tel: 305-TEmple 3-4602
See ad in class 22

Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 28s, Tel: 212-EVergreen 6-1300
See ad in class 84

Frequency Standards, Div. of Harvard Industries, Inc., N.J., 26c, 30c, 38sc
Friend Engineering (Albert W.), Pa., 20c, 36c, 42c, 44c, 46c, 50c, 54c, 60c

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 2c, 40c, 42c, 44c, 54c, Tel: 216-SHadyside 9-0700
See ad in class 50

Fugle-Miller Laboratories, Inc., N.J., 16c
Gables Engineering, Inc., Fla., 2c
Galbraith-Pilot Marine Corp., Div. of Marine Electric Corp., N.Y., 2sc, 14sc, 36sc, 38sc
Garrett Corp., AiResearch Mfg. Co., Calif., 20sc
Gates Radio Co., Ill., 2s, 18s
Gemco Electric Co., Mich., 8sc, 20sc, 34sc, 36sc, 46sc, 54sc
General Aniline & Film Corp., Ansco Div., N.Y., 26c, 34c, 46c

General Applied Science Laboratories, Inc., Merrick & Stewart Aves., Westbury, L.I., N.Y., 4s, 46s, 60s, Tel: 516-EDgewood 3-6960
See ad in class 35

General Circuits, Inc., N.Y., 40c

General Communication Co., 677 Beacon St., Boston 15, Mass., 44s, Tel: 617-COpley 7-6030
See ads in class 37

General Communications Broadcast Division, Inc., Wis., 42c, 50c
General Computers, Inc., Calif., 4sc, 8sc

General Devices, Inc., P.O. Box 253, Princeton, N.J., 4s, 8s, 18s, 42s, 48s, 54s, Tel: 609-WAlnut 4-2500
See ad adjacent to Index to Advertisers, back of book

General Dynamics/Electronics, N.Y., 2s, 14s, 36s, 38s
General Dynamics/Electronics, Information Technology Div., Calif., 40s
General Electric Co., Apparatus Sales Dept., N.Y., 20c
General Electric Co., Communication Products Dept., Va., 26c, 30c, 38c
General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 2s, 36sc, 38sc, 42c, 50sc, 52c
General Electric Co. Ltd. of England, Telecommunications Group, England, 4s
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 38c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 26c, 44c, 52c, 54c, 56c
General Instrument Corp., Harris ASW Div., Conn., 56c

Directory II. Components

43. Amplifiers.

General Instrument Corp., F. W. Sickles Div., 165 Front St., P.O. Box 330, Chicopee, Mass., 20c, Tel: 413-LYceum 4-4781
See ad in class 57

General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 2c, 4c, 8c, 20sc, 38c, 40c, 42c, 46c, Tel: 612-WEst 9-8571
See ad in this class

General Magnetics, Inc., 135 Bloomfield Ave., Bloomfield, N.J., 20c, Tel: 201-PIlgrim 8-2400
See ad on pages 42-43

General Meters, Inc., Colo., 40c
General Microwave Corp., N.Y., 4c, 26c
General Plastics Corp., N.J., 40c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 24c, 30c, 36sc, 38sc, 40sc, 42sc, 46sc, 50sc
General Precision, Inc., Kearfott Div., N.J., 4sc, 8sc, 20sc, 26sc, 28sc, 30sc, 36sc, 46sc
General Precision, Inc., Librascope Div., Calif., 8c, 18sc, 20sc, 28sc, 36c, 40sc, 46sc, 54sc
General Precision, Inc., Link Div., N.Y., 4sc, 40sc, 46sc

General Radio Co., 22 Baker Ave., West Concord, Mass., 2s, 4s, 16s, 18s, 28s, 36s, 42s, 44s, 58s, 60s, Tel: 617-EMerson 9-4400
See ad on Cover 4

Genisco, Inc., Calif., 42s, 44sc
Geotechnical Corp., Texas, 4sc, 28sc, 34sc, 38sc, 48sc, 58sc
Geotronic Laboratories, Inc., Texas, 20c
Gerst & Co. (Paul E.), Ill., 20c
Gertsch Products, Inc., Calif., 28s
Gilfillan Brothers, Inc., Calif., 16c, 26c, 40c, 42c, 46c
Godfrey Mfg. Co., Ill., 54c
Gombos Co., Inc. (John), N.J., 26sc
Good Electronic Corp., Fla., 4sc, 6sc, 8sc, 18sc, 38sc, 40sc, 48sc, 54sc
Goodman's Industries, Ltd., Axiom Works, England, 2s, 36s
Goodyear Aircraft Corp., Arizona Div., Ariz., 16sc
Gorham Electronics, Div. of Gorham Corp., R.I., 26c, 30c
Granger Associates, Calif., 18s, 38s, 44s, 60s
Granite State Machine Co., Inc., N.H., 20c
Gray Mfg. Co., Conn., 2sc, 14sc, 38sc
Greenray Industries, Pa., 40c, 54c, 56c
Gregory Research Engineering Group, N.Y., 2sc, 38sc, 40sc
Gresham Transformers, Ltd., England, 20c
Guildline Instruments, Ltd., Canada, 34s
Gulow Transformer Co., Inc., N.J., 20s, 36s
Gulton Industries, Inc., N.J., 6sc, 8sc, 18sc, 20sc, 46sc, 48sc, 54sc, 58sc
Gyra Electronics Corp., Ill., 18s
Gyrex Corp., Calif., 54c
Gyro Electronics, Inc., N.Y., 38s, 44s, 50s, 52s
HRB-Singer, Inc., Pa., 26c, 30c, 38c, 40c, 54c, 56c, 60c
Hadley Co., Inc. (Robert M.), Calif., 20c
Hagan Chemicals & Controls, Inc., Pa., 20c
Halex, Inc., Calif., 4s, 38s, 54c
Hallamore Electronics Div., Siegler Corp., Calif., 4s
Hamilton Electronics Corp., Ill., 38c
Hamilton Hall Resistor Corp., Wis., 50sc
Hamner Electronics Co., Inc., N.J., 38s, 42s
Harman-Kardon, Inc., N.Y., 2s, 14s, 36s, 38s, 40c, 42c
Harrel, Inc., N.Y., 4c, 8c, 20c, 36c, 38c, 46c
Harrison Electrosonics, Inc. (B. M.), Mass., 36c, 56sc
Heath Co., Subsid. of Daystrom, Inc., Mich., 2s, 4s, 14s, 18s, 36s, 38s, 40s
Hevi-Duty Electric Co., Div. of Basic Products Corp., Wis., 40c

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 2s, 4s, 26s, 42s, 44s, 62s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28

Highland Design, Inc., N.Y., 2c, 14c, 36c, 38c
Hoffman Electronics Corp., Calif., 2c, 4c, 10c, 16c, 18c, 40c, 44c, 48c, 54c, 60c
Holmin Corp. (William A.), Ill., 2 Portables, 54s
Holt Instrument Laboratories, Wis., 2s
Hoover Co., Electronics Div., Md., 2c, 40c

Houston Instrument Corp., P.O. Box 22234E, Houston 27, Texas, 4sc, Tel: 713-MOhawk 7-7405
See ad in class 28

Huggins Laboratories, Inc., Calif., 26sc
Hughes Aircraft Co., Microwave Tube Div., Calif., 26sc, 36sc
Hughes Aircraft Co., Nuclear Electronics Laboratory, Calif., 38s
Hughes Research Div. (J. Willis), Miss., 2c, 4c, 18c, 36c, 38c, 52c, 56c, 60c

Hughey & Phillips, Inc., 3200 N. San Fernando Blvd., Burbank, Calif., 2s, 36s, Tel: 213-VIctoria 9-1104
See ad in class 44

Huyck Systems Co., N.Y., 4c, 8c, 46c

Hyletronics Corp., 185 Cambridge St., Burlington, Mass., 22c, 24c, 26c, 30c, 44c, 60c, Tel: 617-BRowning 2-0670
See ad in class 66

I.D.E.A., Inc., Ind., 2c, 36c, 38c, 40c, 54c
ITA Electronics Corp., Pa., 2sc, 18sc, 32sc, 38sc, 44sc, 60c
ITI Electronics, Inc., N.J., 2c, 40c

Image Instruments, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 50s, Tel: 617-WOodward 9-8440
See ads in classes 9, 10, 21, 86

Inductor Engineering, Inc., Del., 20c
Industrial Control Co., N.Y., 4sc, 6sc, 8sc, 20sc, 28sc, 40sc, 46sc

Industrial Test Equipment Co., 55 E. 11th St., New York 3, N.Y., 2s, 18s, 28s, 36s, 46c, Tel: 212-GRamercy 3-4684
See ad in class 69

Industro Transistor Corp., N.Y., 54sc
Infrared Industries, Inc., Mass., 34sc, 38sc
Infrared Industries, Inc., West Coast Div., Calif., 34sc, 38sc, 60sc
Inland Motor Corp. of Virginia, Va., 4sc, 36sc
Instron Engineering Corp., Mass., 46sc, 48sc
Instrument Corp. of Florida, Fla., 34c, 36c, 44c, 46c, 50c, 60c
Instrument Laboratories, Ill., 2s, 54s
Instrument Systems Corp., N.Y., 20sc, 26c, 46sc

Instruments For Industry, Inc., 101 New South Rd., Hicksville, L.I., N.Y., 16sc, 18c, 26c, 30c, 38sc, 42sc, 44sc, 54sc, 60sc, Tel: 516-OVerbrook 1-7100
See ads in classes 43, 74

Instruments, Inc., Calif., 20c

Intectron, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 4sc, 46c, 54c, Tel: 617-WOodward 9-9311
See ad on page 163

Intercontinental Electronics Corp., N.Y., 2sc, 20sc, 48c

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also: CURRENT TRANSFORMERS
PULSE TRANSFORMERS
CONTROL REACTORS
FILTERS
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DESIGN CAPABILITY: Specialized experience in high performance magnetics qualifies us to design your problem components. (Details of past achievements on request.)

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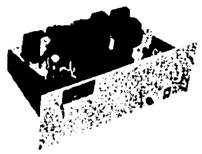
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Interesting instruments

Model 759-6 $225.00

Practically-Priced DC Amplifier

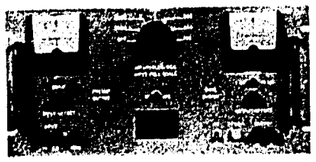
Now—a low-level DC amplifier costing less than $200.00, that has the features usually found in instruments costing twice as much. Model 759-6 accepts dc signals from 5 μv to 1 volt...has 5 meg input impedance...½% linearity...panel meter...is fully isolated from ground...with 0 to ± 1% recorder output.



Model 557-2B $1250.00

Computer for Ratios

This instrument computes, to ±1%, ratios of two independent low-level (to 1 mv full scale) variables. The Ratio Computer has a wide variety of uses in measurement or control of the process industries, thermal studies, medical instrumentation, and other modern circuits.



Model 557-1A $ 950.00

Rate of Change Computer

An accurate device for measuring slow changes in low-level DC potential as low as 10 μv/sec. Magnetic Instruments' Rate of Change Computer is used for measurement and/or study of temperatures, pressures, radiation, chemical concentration, and other physical phenomena.

MAGNETIC INSTRUMENTS CO., INC.

Thornwood, New York
ROdgers 9-5312

For details, circle #245 on Reader Service Card

43. Amplifiers.

Interelectronics Corp., 2432 Grand Concourse, New York 58, N.Y., 2sc, 4sc, 12sc, 18sc, 20sc, 36sc, 38sc, 42sc, 46sc, 54sc, 56sc, 58sc, 60sc, Tel: 212-LUdlow 4-6200
See ads in classes 34, 69

International Electronic Research Corp., ELIN Div., Calif., 2sc, 36sc

International Electronics Mfg. Co., Md., 2c, 4c, 36c, 38s, 44c, 54c, 60c

International Power Metallurgy Co., Inc., Pa., 20c

International Radio & Electronics Corp., Ind., 2sc, 38sc

International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 22c, 24c, 30c

International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 36s, 38s

International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 24c

International Ultrasonics, Inc., N.J., 36c, 56sc, 58sc, 60c

Interstate Electronics Corp., Calif., 4c, 30c, 38s, 44s, 54s

Invar Electronics Corp., Calif., 36s

Irvan Engineering Co., Inc., Calif., 26c

Isomet Corp., N.J., 22c, 24c

Isotope Developments, Ltd., England, 42s

Itek Electro-Products Co., Div. of Itek Corp., 75 Cambridge Pkwy., Cambridge 42, Mass., 16c, Tel: 617-UNiversity 4-7200
See ad in class 59

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Itek Laboratories, Div. of Itek Corp., Mass., 34c, 60c

J.V.M. Microwave Co., Ill., 26sc, 38c, 44sc

Jack & Heintz, Div. of Siegler Corp., Ohio, 20c

James Electronics, Inc., 4050 N. Rockwell St., Chicago 18, Ill., 4c, Tel: 312-COrnelia 7-6333
See ad in class 53

Jerrold Electronics Corp., Dept. ITE-104, 15th & Lehigh Ave., Philadelphia 32, Pa., 44s, 50s, 52s, Tel: 215-BAldwin 6-3456
See ad in class 38

Johnson & Associates, Inc. (Wm. B.), N.J., 36c, 38sc, 40c

Johnson Electronics, Inc., Fla., 2c, 4c, 16c, 20c, 44c

Jordan Controls, Inc., Wis., 46s

Jordan Electronics, Div. of Victoreen Instrument Co., Calif., 46sc, 54c

Kane Engineering Labs., Calif., 2sc

Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 54s, Tel: 201-CApital 6-4000
See ad on pages 72-73

Keithley Instruments, Inc., Ohio, 6s, 28s

Kemlite Laboratories, Inc., Ill., 24c

Keystone Products Co., N.J., 20c, 46c

Kidde Electronics Laboratories, Walter Kidde & Co., Inc., N.J., 54c

Kin Tel, Div. of Cohu Electronics, Inc., Calif., 4s, 6s, 8s, 38s, 40s, 46s, 48s, 50s, 52s, 54s, 58s, 60s

Kings Electronics Co., Inc., N.Y., 4c, 26c, 44c

Kinn Electronics Corp., Md., 2c, 4c, 14c

Kistler Instrument Corp., N.Y., 58s

Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 14s, 36s, 38s

Knopp, Inc., Calif., 20c, 28c, 30c

Koito Electronics Co., Ltd., Japan, 54c, Telephone c

Kollmorgen Corp., Mass., 4c, 36c, 50c

Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 8c, 12c, 18c, 20c, 22c, 24c, 28c, 30c, 46c, 48c

Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 48c, 58c, Tel: 516-RAvenswood 9-7580
See ad in class 89

Krohn-Hite Corp., Mass., 2s, 4s, 36s, 56s, 60s

LEL, Inc., 77 Akron St., Copiague, L.I., N.Y., 16s, 26s, 30sc, 38s, 42s, 44s, 54s, 60s, Tel: 516-AMityville 4-2200
See ad in this class

Labko Scientific, Inc., Okla., 2c, 4c, 8c, 18c, 54c

Lake Mfg. Co., Calif., 2s, 14s

Lakeshore Industries Div., Aitken-Reed, Inc., Wis., 2c

Land-Air, Inc., Stepper Motors Div., Calif., 42c

Langevin, Div. of Sonotec, Inc., Calif., 2s, 14s, 36s, 38s, 40s, 50s

Lansing Sound, Inc. (James B.), Calif., 2s, 36s, 38s

LaPointe Industries, Inc., Conn., 2c, 4c, 6c, 16c, 26c, 36c, 40c, 42c

Leach Corp., 18435 Susana Rd., Compton, Calif., 2s, 4sc, 8sc, 20sc, 48sc, Tel: 213-NEvada 6-1061
See ad in class 73

Directory II. Components

43. Amplifiers.

Lear, Inc., Calif., 46c

Leeds & Northrup Co., Pa., 4s

Lesa Costruzioni Elettromeccaniche S.P.A., Italy, 2sc, 14sc, 38c

Lessells & Associates, Inc., Mass., 48c

Lignes Telegraphiques et Telephoniques, France, 26s, 30s, 40s

Lindly & Co., Inc., N.Y., 34sc, 42sc

Ling Temco Vought, Inc., Texas, 2sc, 4c, 6c, 8c, 14sc, 16c, 26c, 28c, 32c, 34c, 36sc, 38sc, 40sc, 44c, 46sc, 48c, 50s, 52s, 54sc, 56c, 58c, 60c

Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid.), Calif., 2s, 14s, 36s, 38s, 40s, 54s

Ling Temco Vought, Inc., Electron Corp. (Subsid.), Texas, 50s, 52s

Ling Temco Vought, Inc., F F & M Electronics, Inc. (Subsid.), Calif., 46s

Ling Temco Vought, Inc., Ling Electronics Div., Calif., 2s, 36s, Sonar s

Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 2sc, 4c, 6c, 8c, 14c, 16c, 28c, 32c, 34c, 36c, 38c, 40c, 46c, 48c, 54c, 56c, 58c, 60c

Lionel Corp., N.J., 2c, 4c, 6c, 8c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 38c, 40c, 42c, 44c, 46c, 48c, 50c, 52c, 54c, 56c, 58c, 60c

Lionel Corp., Telerad Div., N.Y., 26c

Liquidometer Corp., N.Y., 28c, 46c

Litton Industries, Inc., Components Group, Airtron Div., N.J., 26sc, 30sc

Litton Industries, Inc., Components Group, Triad Transformer Corp., Calif., 20sc

Litton Industries, Inc., Electron Tube Div., 960 Industrial Rd., San Carlos, Calif., 20sc, 30c, 50sc, 60 CRT sc, Tel: 415-LYtell 1-8411
See ad in class 86

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 46c, 54c

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 2c, 4c, 16c, 20c, 26c, 36c, 38c, 40c, 42c, 44c, 46c

Lockheed Electronics Co., Avionics & Industrial Products Div., Calif., 36sc, 40sc, 48sc

MB Electronics, Div. of Textron Electronics, Inc., Conn., 2s, 58s

M F Electronics Corp., 118 E. 25th St., New York 10, N.Y., 2sc, 54s, Tel: 212-OREgon 4-5360
See ads in classes 10, 35, 50

MP Engineering Co., Conn., 2sc, 14sc, 38sc

MacLaren & Co., Inc. (F. B.), N.Y., 18c, 34c, 38c, 46sc, 54c

MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 2c, 34c, 46c, Tel: 305-LOgan 4-8518
See ad in class 4

Magnalectric Corp., 2635 N. Iroquois, P.O. Box 6008, Tulsa 6, Okla., 20c, Tel: 918-FIllmore 5-7278
See ad in class 84

Magnasync Corp., Calif., 2s, 38s

Magnetic Amplifiers Div., Siegler Corp., 632 Tinton Ave., New York 55, N.Y., 4sc, 20sc, 36sc, Tel: 212-CYpress 2-6610
See ad in class 69

Magnetic Circuit Elements, Inc., Calif., 4c, 20c, 46c

Magnetic Controls Co., Minn., 20sc, 46c, 54c

Magnetic Corp., Calif., 20sc, 46sc

Magnetic Instruments Co., Inc., 637 Commerce St., Thornwood, N.Y., 4sc, 6c, 8c, 20c, 38sc, 46sc, Tel: 914-RODgers 9-5312
See ad in this class

Magnetico, Inc., N.Y., 20sc, 46sc, 54sc

Magnetics, Inc., Pa., 20sc, 38s

Magnetics Research Co., Inc., N.Y., 18sc, 20sc

Maico Electronics, Inc., 21 N. Third St., Minneapolis 1, Minn., 12sc, 60c, Tel: 612-FEderal 9-7041
See ad in class 70

Manson Laboratories, Inc., Conn., 18sc, 42sc, 44sc

Marantz Co., Inc., N.Y., 2s, 14s, 36s, 38s

Marconi's Wireless Telegraph Co., Ltd., N.Y., 2s, 14s, 44s, 50s, 60s

Marine View Electronics, Inc., N.Y., 2c, 14c, 16c

Marquardt Corp., Pomona Div., Calif., 46c

Marsland Engineering, Ltd., Canada, 46c, 54c

Marstan Electronics Corp., N.Y., 2c, 4c, 34c, 54c

Martin Co. (Martin-Marietta Corp.), Md., 26c, 30sc, 40c, 44c, 46c

Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 22c, 24c, 30c, 40c

Mason Instrument Co., Inc., N.Y., 8s, 34s

Massa Div., Cohu Electronics, Inc., Mass., 4s, 8s, 36s, 38s, 48s, 56s

Mathes Mfg. Co. (Curtis), Texas, 2s

Matrix Research & Development Corp., N.H., 26c, 40c, 60c

Matsushita Communication Industrial Co., Ltd., Japan, 48c, 52c

Maurer, Inc. (J. A.), N.Y., 4c, 20c, 34c, 36c, 38c

Mayberry Electronics Co., Calif., 2c, 8s, 38c, 40c, 42c, 46s, 48s, 54s

McDonnell Aircraft Corp., Mo., 2c, 4c, 42c, 44c

McGohan, Inc. (Don), Ill., 2sc

McIntosh Laboratory, Inc., N.Y., 2s, 14s, 36s, 38s

Medistor Instrument Co., Wash., 4s, 8s, 38s, 48s, 54s

Melabs, Calif., 22c, 26sc, 30c, 38sc, 60sc

Melcor Electronics Corp., Dept. ID, 48 Toledo St., South Farmingdale, L.I., N.Y., 2sc, 4sc, 8sc, 36sc, 38sc, 42sc, 44c, 46sc, 56sc, Tel: 516-MYrtle 4-5570
See ad in this class

Meller Co. (Adolf), R.I., 22c, 24c

Menlo Park Engineering, 711 Hamilton Ave., Menlo Park, Calif., 26s, 38s, 44s, Tel: 415-DAvenport 6-9080
See ad in this class

Meridian Metalcraft, Inc., Calif., 30c

Mesur-Matic Electronics Corp., N.H., 4s

Metaplast Co., Inc., N.Y., 48s

Metropolitan Telecommunications Corp., N.Y., 2c, 4c

Micarta Fabricators, Inc., Ill., 40c

Micro Gee Products, Inc., Calif., 4sc, 36sc, 46c

Microdot, Inc., Calif., 4s, 20s, 54s

Micromega Corp., Calif., 30c

Microphase Corp., Conn., 2c, 26sc, 38sc, 44c, 54sc

Microwave Associates, Inc., South Ave., Burlington, Mass., 26s, 30s, Tel: 617-BRowning 2-3000
See ad on page 178

Microwave Corp. of America, Conn., 26c

Microwave Dynamics Corp., N.Y., 26c, 44c

Microwave Electronics Corp., Calif., 22c, 26sc, 30c, 36c, 44sc, 60sc

Microwave Semiconductor & Instruments, Inc., N.Y., 26c

Midwestern Instruments, Inc., Okla., 2s, 4s, 18s, 20s, 38s, 46s, 48s, 58s, 60s

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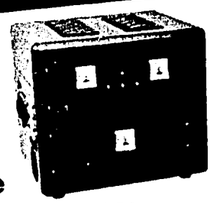
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

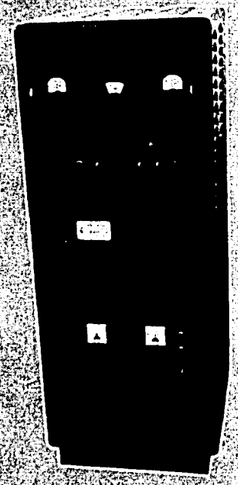
microwave instrumentation



Low noise TWT Amplifiers

- *Noise figures as low as 4.5 DB*
- *Frequency coverage 0.5 to 18.0 KMC*
- *Remote operation*

Ideal as antenna and low noise receiver pre-amplifiers. MPE Low Noise Amplifiers are designed for ease in system integration. TWT, solenoid and solenoid supply can be located up to 100 feet from the electrode supply. Remote control permits complete operation from electrode supply. High regulation, low ripple achieves maximum capabilities of low noise traveling wave tubes. Write for complete specifications.



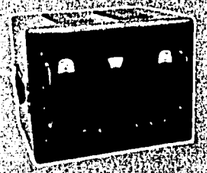
Power Leveling Systems

- *Constant output power*
- *Sweep frequencies of 0.01 to 100 CPS*
- *Six models cover 0.5 to 18.0 KMC*

The Microwave Power Leveling Systems find wide applications in the testing and development of microwave components and systems where a constant power, sweeping signal source is required. The system may also be used as a CW signal source. Provisions for amplitude, pulse and frequency modulation are included. Sweep speeds permit display on oscilloscope or recorder. Write for further details.

Special applications for TWT's

Although MPE offers the most complete line of TWT Amplifiers available, we have delivered many TWT Amplifiers and Electronically Swept Oscillators for special applications. Quotations for specific requirements will be prepared by our technical staff. MPE also supplies solenoids for all TWT's and BWO's. Write for complete catalog or send us your requirements.

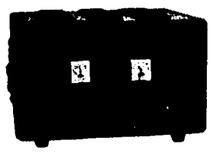


Electronically Swept Oscillators

0.5 to 18.0 KMC

- *Speed frequency response measurements on wideband microwave systems*
- *Reflectometer measurements*
- *Broadband antenna development*
- *ECM equipment design*
- *Modulated or CW signal source*

Direct reading of frequency and sweep width provide simplicity of operation in these wideband swept oscillators. Each model is a complete, self-contained unit capable of amplitude, pulse and frequency modulation. Six models provide complete coverage, 0.5 to 18.0 kmc. Sweep speeds continuously adjustable from 0.01 to 100 cps for display on oscilloscope or recorder. Single frequency (CW) operation also provided. Request Data Sheet for more details.



TWT Amplifiers

- *Broadband* (approximately octave bandwidths)
- *Full coverage* 0.25 to 18.0 kmc
- *Standard amplifiers provide up to 10 watts output*

MPE Broadband TWT Amplifiers provide wide bandwidth, high gain amplifier for laboratory use or system applications. Output power levels of 10mw, 1 watt and 10 watts are standard over most of the 0.25 to 18.0 kmc frequency range. Intermediate or higher powers are available in many frequency ranges. PM focused amplifiers are available where size, weight and power consumption are critical. Standard line includes amplifiers especially designed for pulse operation. Most amplifiers provide for grid modulation. 10 mw amplifiers provide for helix serrodyne modulation. Write for details.

See listings in directory section.

Engineering representatives in principal cities.

MPE

MENLO PARK ENGINEERING

711 HAMILTON AVENUE, MENLO PARK CALIF • TWX PAL AL 110 • DAVENPORT 6-9080

For details, circle #248 on Reader Service Card

Directory II. Components

43. Amplifiers.

Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 4sc, Tel: 305-OXford 1-1220
See ad in class 28

Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 16c, 38sc, 44s, Tel: 617-DAvenport 4-4108
See ad in class 51

Millivac Instruments, Inc., P.O. Box 997, Schenectady, N.Y., 4s, 6s, 38s, 40s, 54s, 60s, Tel: 518-FRanklin 2-4781
See ad in class 40

Milro Controls Co., Inc., N.J., 4c, 20sc, 36c, 38c, 42c, 46sc

Minneapolis-Honeywell Regulator Co., Boston Div., Mass., 8c

Minneapolis-Honeywell Regulator Co., Fall River Div., Mass., Computer c

Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 4sc, 8s, 36s, 46sc, 48s, 54sc, 58s

Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 36c, 40c, 42c

Minshall Organ & Electronics, Inc., Vt., 2sc, 4sc, 36sc, 40sc

Mira Corp., Calif., 54s

Miratel Electronics, Inc., Minn., 2sc, 4sc, 44sc, 50sc, 60sc

Missouri Research Laboratories, Inc., Mo., 4c, 8c, 42c, 46c, 60c

Model Engineering & Mfg. Corp., Ind., 2c, 6c, 18c, 36c, 42c, 44c, 46c, 60c

Modern Design, Div. of H. C. Schloer, Inc., N.Y., 2c, 4c, 6c, 8c, 14c, 18c, 54c

Mohawk Business Machines Corp., N.Y., 2sc, 40c

Monroe Electronic Laboratories, Inc., N.Y., 2s, 4s, 6c, 8s, 32c, 38s, 48s, 54s

Montek, Inc., Utah, 4c, 8sc, 40sc, 42sc, 54sc

Moran Instrument Corp., Calif., 46c

Motorola, Inc., Military Electronics Div., Ariz., 22c, 30c

Moulic Specialties Co., Ill., 2sc, 36c, 38c, 42c, 58c

Muirhead Instruments, Inc., N.Y., 28s, 46s, 58s

Multi Products Co., Inc., Mich., 2s, 4s, 28c, 36s

Mutron Corp., Mass., 8c, 42c, 54c, 60c

Myers & Sons, Inc. (E. A.), Pa., 12sc

NJE Corp., 20 Boright Ave., Kenilworth, N.J., 36c, Tel: 201-BRidge 2-6000
See ad in class 69

Naniloa Corp., Ohio, 40c

Narda Microwave Corp., Dept IRED-61-3, 118-160 Herricks Rd., Mineola, L.I., N.Y., 26s, Tel: 516-PIoneer 6-4650
See ad in class 66

Natel Engineering Co., Calif., 4s, 8s, 46s, 48s

National Co., Inc., Mass., 2c, 4c, 10c, 16c, 26c, 30c, 38c

National Scientific Laboratories, Inc., D.C., 30c, 40c, 42c, 54c, 56c

National Ultrasonic Corp., N.J., 56sc

Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 40c, 42sc, Tel: 215-GLendale 2-6531
See ad in class 10

Neff Instrument Corp., Calif., 4s, 8s, 38s, 48s, 54s

Neptune Electronics Co., N.Y., 2c, 4c, 6c, 16c, 36c, 38c, 42c, 60c

Network Industries, Inc., N.J., 2c, 4c, 36c

Networks Electronic Corp., Calif., 2c, 4c, 8c, 18c, 20c, 28c, 38c, 40c, 42c, 46c, 48c, 54c, 60c

New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy., Somerville 43, Mass., 2c, 4c, 8c, 16c, 42c, 46c, Tel: 617-625-6100
See ad in class 84

New London Instrument Co., Conn., 44c, 60sc

New York Air Brake Co., Feedback Controls Subsid., Mass., 8sc, 20sc, 28sc

Newcomb Audio Products Co., Calif., 2s, 36s, 38s

Newport Scientific Co., Calif., 46c, 54c

Nichols & Clark, Inc., Mass., 12sc

Nobatrol Electronics Corp., Pa., 20sc, 28sc, 38sc, 46c, 48c

Norden Div., United Aircraft Corp., Ketay Dept., N.Y., 20sc, 40sc

Northeast Electronics Corp., N.H., 2sc, 46c

Northern Electronic & Vacuum Industries, Canada, 20s

Northern Electronics, Inc., Minn., 2c

Nortronics Co., Inc., Minn., 2s, 14s

Offner Electronics, Inc., Ill., 4s, 6c, 8s, 28s, 36s, 38s, 46s, 48s, 54s, 58s, 60s

Oilgear Co., Servocontrol Div., Mass., 4sc, 36sc, 38s, 46sc

Olympic Radio & Television, Div. of Siegler Corp., N.Y., 46sc

Omega Dynamics Corp., Calif., 58sc

OPTOmechanisms, Inc., N.Y., 34c, 38c

Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 2sc, 4c, 6c, 8c, 16sc, 18sc, 26sc, 36sc, 38sc, 40sc, 42sc, 44sc, 46c, 48c, 54sc, 60sc, Tel: 914-DEerfield 7-6132
See ad in this class

Ortho Industries, Inc., 7 Paterson St., Paterson 1, N.J., 20c, Tel: 201-MUlberry 4-5858
See ad in class 59

Osborne Electronics Corp., Ore., 2s

Ostlund Associates (E. M.), N.J., 4c, 16c, 26c, 30c

Otarion Listener Corp., N.Y., 12sc

Ovitron Corp., Power Controls Div., Conn., 20sc, 36sc, 38sc, 40sc, 42c, 46c, 54c, Phase-Control sc

PRD Electronics, Inc., 202 Tillary St., Brooklyn 1, N.Y., 26s, Tel: 212-ULster 2-6800
See ad in class 37

Pabst Engineering Equipment Co., Inc., N.J., 26c

Pace Circuits Corp., N.Y., 40c

Pacific Electro Magnetics Co., Inc., Calif., 2c, 4c, 38sc, 40sc, 44c

Pacific Instrument Co., Calif., 20c

Pacific Magnetic Corp., Calif., 4c, 20c

Pacific Mercury Electronics, Div. of Thomas Organ Co., Calif., 2c, 14c, 36c, 38c, 40c

Packard-Bell Computer Corp., Calif., 4s, 8s, 48s, 60s

Paraplegics Mfg. Co., Inc., Ill., 2c, 4c, 20c, 36c, 40c

Pastoriza Electronics, Inc., Mass., 2c, 4c, 8c, 36c, 38c, 40c, 42c, 48c

Peer, Inc., Texas, 18c, 20c, 36c, 42c, 44c, 50c, 52c, 60c

Pegasus Laboratories, Inc., Mich., 4sc, 8sc, 36sc, 40sc, 46sc, 48sc, 54sc

Penn Keystone Corp., Conn., 54c

Pennon Electronics, Inc., Calif., 4c, 8c, 20c, 36c, 38c, 46c, 54c

Perfection Electronics, Inc., N.Y., 2c, 8c, 34c, 38c, 40c, 54c

Permoflux Products Co., Div. of Linlar, Inc., Calif., 2sc, 4sc, 14c, 36c, 38c

Philamon Laboratories, Inc., N.Y., 36c

Philbrick Researches, Inc. (George A.), Mass., 4sc, 6sc, 8sc, 18sc, 28sc, 32sc, 34sc, 38sc, 40sc, 46sc, 54sc

Philco Corp., Government & Industrial Group, Pa., 26s, 40s

Philco Corp., Lansdale Div., Pa., 2s, 4s, 12s, 14s, 16s, 26s, 36s, 38s, 42s

Philco Corp., Sierra Electronic Corp. (Div.), Calif., 26sc

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- RF Vacuum Tube Voltmeters
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- Dual Power Supplies
- Electronic Voltmeters
- Phase Angle Meter
- Microwave Power Meter

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- Mixer-Preamplifiers
- IF Preamplifiers
- Post IF Amplifiers
- AFC Systems
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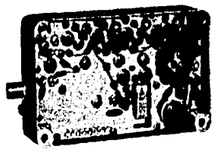
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

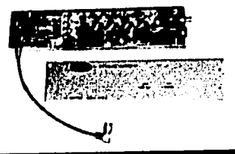
RS ELECTRONICS CORPORATION

Receiving & Transmitting Equipment: Command Receivers & Decoders, Radar Receivers, Beacons, Frequency Multipliers & Transmitters
Amplifiers: Intermediate Frequency Amplifiers, Distributed Amplifiers
Ground Equipment: Missile Check-Out Equipment, Ground Support Equipment
Instruments: FM Signal Generators (400 to 550 Mc), IF Noise Figure Measurement Equipment
Specifications of representative products follow:



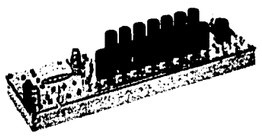
RSE COMMAND RECEIVER, TRANSISTORIZED, UHF: Model 2621 crystal controlled receiver. **Frequency:** Fixed tuned within ± .01% of desired frequency between 406 Mc and 549 Mc. **Frequency modulation:** ± 150 Kc. **Sensitivity:** 5 μv for 6 db $\frac{S+N}{N}$. **Interference:** To Mil-I-26600. **Limiting level:** 90% of max. output on 14 μv input. **Selectivity:** —60 db at ± 2 Mc from carrier. **Image rejection:** 60 db. **I-F bandwidth:** 400 Kc. **Disc. P-P separation:** 400 Kc. **Power input:** 1.2 watts at 29 ± 2 VDC. **Size:** 3" x 5" x 1¼". **Weight:** 16 oz. Used with Models 1801, 1802, 1803 Decoders.

RSE TRANSPONDER, UHF/L-BAND: Model 2611A/2703A includes subminiature tube receiver, transmitter, and power supply. **RECEIVER**—Fixed tuned to any frequency between 406 Mc and 549 Mc. **Sensitivity:** 10 μv for 6 db $\frac{S+N}{N}$. **Modulation:** FM ± 350 Kc. **Output:** 5 VRMS. **Image rejection:** 30 db. **Selectivity:** — 55 db at ± 2 Mc from carrier. **Output bandwidth:** 2.2 to 50 Kc. **TRANSMITTER—Frequency:** 1650 Mc to 1680 Mc. **Modulation:** FM ± 500 Kc. **Output:** 27 dbm. **Frequency stability:** ± 4 Mc. **FM ripple:** ± 20 Kc. **GENERAL—Input power:** 29 ± 2 VDC at 1.8 Amps. **Weight:** 4 lbs. **Size:** 3 1/16" x 6 13/16" x 7 7/8". **Temperature range:** —55° C to + 70° C. Used with Models 1801, 1802, 1803 Decoders.



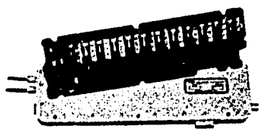
RSE TRANSISTORIZED I-F AMPLIFIERS: Model 84201A is typical of others in RSE's line of transistorized amplifiers. **Center frequency:** 42 Mc. **Bandwidth:** 1.4 Mc. **Gain:** 120 db. **Source Impedance:** 300 ohms with 25 $\mu\mu$f. **Output impedance:** 35 ohms. **Noise figure:** 2.6 db. **Video output voltage:** + 15 volts. **Nominal pulse width:** 1 μsec. **Gain control provisions:** manual, automatic and sensitivity time control. **Temperature range:** —20° C to + 55° C. **Size:** 12" x 2½" x 1¼". **Weight:** 25 oz. **Power required:** 120 VDC at 30 ma, 6.3 VAC at .6 amps, 28 VDC at 70 ma.

RSE SERIES 2200 DISTRIBUTED AMPLIFIERS



Model	3db Bandpass	Input Impedance	Output Impedance	Voltage Gain	Dimensions (inches)	Application
2210	0.1 - 175 mc	200Ω	50Ω	18 db	15⅝" x 3¼" x 3¼"	Low noise preamplifier (noise figure 8 db)
2220	0.1 - 300 mc	50Ω	50Ω	20 db	15⅝" x 3¼" x 3¼"	General purpose voltage amplifier
2230	0.1 - 300 mc	50Ω	50Ω	18 db	15⅝" x 3¼" x 3¼"	Power amplifier (1 watt output)

RSE STANDARD SUBMINIATURE IF AMPLIFIERS



Model	Center Frequency	Band Width	Noise Figure	Source Impedance	Output	Gain	Gain Control Type & Range AGC	Gain Control Type & Range MGC	Overall Dimensions (including tubes)
810-030	30.0 mc	10.0 mc	2.4 db	400Ω at 10 $\mu\mu$f	IF	93 db	80 db	none	8⅝" x 3⅛" x ⅞"
810-060	60.0 mc	10.0 mc	3.0 db	400Ω at 10 $\mu\mu$f	IF	93 db	80 db	none	8⅝" x 3⅛" x ⅞"
815-030	30.0 mc	15.0 mc	3.0 db	400Ω at 10 $\mu\mu$f	IF	96 db	80 db	60 db	11⅛" x 3⅛" x ⅞"
815-060	60.0 mc	15.0 mc	3.5 db	400Ω at 10 $\mu\mu$f	IF	96 db	80 db	60 db	11⅛" x 3⅛" x ⅞"

RSE STANDARD MINIATURE IF AMPLIFIERS

Model	Center Frequency	Band Width	Noise Figure	Source Impedance	Output IF	Output Video	Gain	Gain Control Type & Range AGC	Gain Control Type & Range MGC	Remarks
902-030	30.0 mc	2.0 mc	2.8 db	50Ω	None	Yes (+)	97 db	None	60 db	
902-060	60.0 mc	2.0 mc	3.2 db	50Ω	None	Yes (+)	97 db	None	60 db	
905-030A	30.0 mc	2.0 mc	1.5 db	200 to 400Ω & 10 $\mu\mu$f	Yes	Yes (—)	110 db	60 db	None	Switchable 3 db attenuator included
905-060A	60.0 mc	2.0 mc	2.3 db	200 to 400Ω & 10 $\mu\mu$f	Yes	Yes (—)	103 db	40 db	None	
Model										
910-030A pre-amp with 915-030A post amplifier	30.0 mc	10.0 mc	1.8 db	400Ω & 10 $\mu\mu$f	Yes	Yes (+)	97 db	80 db	30 db	40 db linear dynamic range at IF or Video outputs
910-060A pre-amp with 915-060A post amplifier	60.0 mc	10.0 mc	2.4 db	400Ω & 10 $\mu\mu$f	Yes	Yes (+)	97 db	80 db	30 db	
910-030A pre-amp with 916-030A post amplifier	30.0 mc	4.0 mc	1.0 db	400Ω & 10 $\mu\mu$f	Yes	Yes (+)	97 db	80 db	30 db	
910-060A pre-amp with 916-060A post amplifier	60 0 mc	4.0 mc	2.4 db	400Ω & 10 $\mu\mu$f	Yes	Yes (+)	97 db	80 db	30 db	
920-030	30.0 mc	9.0 mc	—	93Ω	None	Yes (+)	72 db	None	50 db	Available with commercial construction only
920-060	60.0 mc	9.0 mc	—	93Ω	None	Yes (+)	65 db	None	50 db	
93003A Lin-Log	30.0 mc	2.0 mc	1.5 db	400Ω & 10 $\mu\mu$f	None	Yes (+)	90 db	Lin-Log response: 15 db gain in linear section & 75 db gain in Log section; Dynamic Range 80 db		

All specifications subject to change without notice.

P. O. BOX 11368 • STATION A • PALO ALTO, CALIFORNIA • DAvenport 1-1130 • Laboratories and General Offices ... 435 Portage Ave., Palo Alto

For details, circle #250 on Reader Service Card

Directory II. Components

43. Amplifiers.

Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 18s, 20sc, 36sc, 38sc, 48s, 58s
Philips Electronics Industries, Ltd., Canada, 2s, 4s, 14s, 28s, 36s, 38s, 46s, 48s, 58s
Philmore Mfg. Co., Inc., N.Y., 38s, 40s
Photo-Color Process Corp., N.Y., 40c
Photobell Co., Inc., N.Y., 34s
Photochron Instruments, Inc., N.Y., 34c
Photomation, Inc., N.J., 34s
Photron Instrument Co., Ohio, 4s, 8s, 38s, 48s, 60s
Photronics Corp., N.Y., 60c
Piezo Products Co., Mass., 20sc
Pioneer Electric & Research Corp., Ill., 34sc
Pioneer Magnetics, Inc., Calif., 4c, 8c, 20c, 38c, 40c
Planetronics, Inc., Pa., 16c, 18c, 38c, 40c, 42c
Plug-In Instruments, Inc., Tenn., 2s, 4s, 6s, 8s, 36s, 38s, 40s, 42s, 46s, 48s
Polytronic Research, Inc., Md., 2c, 8c, 50c, 52c, 54c, 60c

Portchester Instrument Corp., Subsid. of Premier Microwave Corp., 114 Wilkins Ave., Port Chester, N.Y., 26c, Tel: 914-WEstmore 9-4092
See ad in class 66

Power Instruments Corp., Inc., Calif., 20sc
Power-Tronic Systems, Inc., N.Y., 2sc, 4sc, 8c, 16c, 18sc, 36sc, 38sc, 40sc, 42sc
Powertron Ultrasonics Corp., N.Y., 56sc
Precise Electronics & Development Corp., Subsid. of Designatronics, Inc., N.Y., 2s, 14s

Precision Apparatus Co., Inc., Div. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 2sc, 14sc, Tel: 212-TWining 4-4290
See ad in class 39

Precision Electronics, Inc., Ill., 2s, 14s, 36s, 38s
Preferred Coils, Inc., Mass., 44c

Premier Microwave Corp., 33 New Broad St., Port Chester, N.Y., 30c, Tel: 914-WEstmore 9-8900
See ad in class 50

Private Tele-Communications, Inc., Ill., 2s
Product & Industrial Engineering Corp., Va., 2c, 14c, 38c
Pulse Techniques, Inc., N.J., 2s
Qualitone Co., Inc., Minn., 12s
Quality Electronics, Inc., N.Y., 2 Stereo s, 14s, 38s
Quan-Tech Laboratories, Inc., N.J., 2sc, 4sc, 6sc, 8sc, 38sc
Qutronic Transformer Corp., N.Y., 20c

RLC Electronics, Inc., 805 Mamaroneck Ave., Mamaroneck, N.Y., 16s, Tel: 914-OWens 8-7440
See ads in classes 45, 59

RMS Associates, Inc., N.Y., 2c, 4c, 6sc, 8sc, 38sc, 40c, 50sc, 56sc, 60sc

RS Electronics Corp., 435 Portage Ave., P.O. Box 11368, Sta. A, Palo Alto, Calif., 16sc, 38sc, 40sc, 42sc, 44sc, 54sc, 60sc, Tel: 415-DAvenport 1-1130
See ad in this class

Radar Engineers, Wash., 54sc
Radiation at Stanford, Calif., 26c, 36c, 42c
Radiation Counter Laboratories, Inc., Ill., 42s
Radiation, Inc., Fla., 40sc
Radiation Instrument Development Laboratories, Inc., Ill., 38s, 42s
Radiatronics, Inc., Calif., 26c, 38c, 42c, 44c, 54c
Radio Corp. of America, Defense Electronic Products, N.J., 2s, 14s, 20s, 22c, 24c, 26s, 36s, 38s, 40s, 42c, 50s, 52s
Radio Development & Research Corp., N.J., 20sc, 36sc
Radio Engineering Laboratories, Inc., N.Y., 10c, 26c, 30c, 36c, 38c, 50c, 60c
Radio Frequency Laboratories, Inc., N.J., 36s
Radio Mfg. Engineers, Inc., Ill., 44s

Radionics, Inc., 76 Cambridge St., Burlington, Mass., 46s, 56c, Tel: 617-BRowning 2-1233
See ads in classes 40, 77

Railroad Electronic Laboratories of Omaha, Inc., Nebr., 2c, 4c, 16c, 20c, 36c
Rainier Co., Inc., N.Y., 2c, 4c, 14c, 16c, 38c, 40c, 44c, 60c
Ram Electronics, Inc., N.J., 36c, 38c, 42c, 46c, 54c, 60c
Ramage & Miller, Inc., Calif., 26sc, 38s, 60s
Ramapo Instrument Co., Inc., N.J., 4s, 48s
Rangertone, Inc., N.J., 42c
Rantec Corp., Calif., 26c, 30c
Ratelco, Inc., Wash., 54sc
Raypar, Inc., Ill., 2c, 36c, 42sc, 44c
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 56c
Raytheon Co., Microwave & Power Tube Div., Mass., 22sc, 26sc, 30sc
Reed & Reese, Inc., Calif., 2c, 16c, 20c
Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, N.Y., 4s, 8s, 28s, 38s, 46s
Rek-O-Kut Co., Inc., N.Y., 2s, 14s, 38s
Remanco, Inc., Calif., 16sc, 26c, 38sc, 40sc, 42c, 44c, 54sc
Remington Rand Univac, Div. of Sperry Rand Corp., N.Y., 20s
Remler Co., Calif., 2c
Resdel Engineering Corp., Calif., 16s, 26s, 38s, 44s, 60s
Rese Engineering, Inc., Pa., 42s
Research Industrial Laboratory of Electronics, Pa., 4sc, 8sc, 20sc
Rixon Electronics, Inc., Md., 2sc, 4c, 6c, 8c, 10c, 16c, 18c, 28c, 30c, 32c, 34c, 36c, 38sc, 40c, 42sc, 44sc, 46c, 48c, 50c, 52c, 54sc, 56c, 58c, 60c
Roberts Mfg. Co., Texas, 2sc
Rochar Electronique, France, 8c, 48c
Rochester Instrument Systems, Inc., N.Y., 42sc
Rodale Electronics, Inc., N.Y., 16c, 36c, 40c, 46c, 54c
Rogers Electronic Corp., N.Y., 2c, 4c, 20c, 38c, 50c, 52c

Rohde & Schwarz, P.O. Box 275, 111 Lexington Ave., Passaic, N.J., 26c, Tel: 201-PRescott 3-8010
See ad in class 38

Rollan Electric Co., Ill., 16c
Rosemount Engineering Co., Minn., 54c
Rotary Devices Corp., N.J., 40c
Rowe Industries, Ohio, 2s
Rustrak Instrument Co., Inc., N.H., 4s, 6s
Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 26c
Rye Sound Corp., N.Y., 12c
Rytron Co., Inc., Calif., 20c
S-F-D Laboratories, Inc., 20c, 30c

Sage Laboratories, Inc., 3 Huron Dr., East Natick Industrial Park, Natick, Mass., 26sc, 30sc, Tel: 617-OLympic 3-0844
See ad in class 66

Sampson Chemical & Pigment Corp., Ill., 40c

Sanborn Co., Subsid. of Hewlett-Packard Co., 175 Wyman St., Waltham 54, Mass., 4s, 36s, 38s, 46s, 48s, Tel: 617-TWinbrook 4-6300
See ad on pages 70-71

Sangamo Electric Co., Springfield, Ill., 20c, 54c, Tel: 217-KIngswood 4-6411
See ad on page 142

Santa Barbara Research Center, Subsid. of Hughes Aircraft Co., Calif., 34sc, 38sc
Sargent-Rayment Co., Calif., 2s, 14s, 38s
Sartron, Inc., Ore., 20c
Scaico Controls, Inc., N.J., 26sc
Schaevitz Engineering, N.J., 2sc, 4c, 8sc, 10c, 16c, 18c, 20c, 26c, 28sc, 32c, 36c, 38c, 40c, 42c, 44c, 46sc, 48sc, 54sc, 56c, 58sc, 60c
Schulmerich Electronics, Inc., Pa., 2sc, 46sc, 54sc
Scope, Inc., Va., 8c, 26c, 40c, 42c, 44c, 46c, 54c, 60c
Scott, Inc. (H. H.), Mass., 2sc, 6sc, 10s, 14s, 36sc
Sealomatic Electronics Corp., N.Y., 44c

Security Devices Laboratory, 24 Seneca Ave., Rochester 21, N.Y., 2s, 40s, Tel: 716-HOpkins 7-3200
See ads in classes 46, 73

Seg Electronics Co., Inc., 12 Hinsdale St., Brooklyn 7, N.Y., 44sc, 60sc, Tel: 212-DI 5-6262
See ad in class 59

Seneca Falls Machine Co., N.Y., 30s, 46s

Sensitive Research Instrument Corp., 310-316 Main St., New Rochelle, N.Y., 34s, Tel: 914-BEverly 5-2300
See ad in class 31

Sensory, Inc., N.J., 34c
Servo Corp. of America, N.Y., 38c, 42sc, 46sc, 54sc

Servo Development Corp., 2 Willis Court, Hicksville, L.I., N.Y., 46sc, Tel: 516-OVerbrook 1-4343
See ad in class 77

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

43. Amplifiers.

Servo Systems Co., N.J., 46s
Servo-Tek Products Co., Inc., N.J., 4s, 20sc, 46s
Servomechanisms/Inc., Calif., 4c, 8c, 18c, 20c, 28c, 40c, 42c, 46c
Servomechanisms/Inc., Mechatrol Div., N.Y., 46s
Servomex Controls, England, 4s, 46s
Servonics, Inc., Va., 4c, 40c, 46c
Servotronics, Inc., N.Y., 46c
Setchell-Carlson, Inc., Minn., 2s, Stereo s
Shallcross Mfg. Co., N.C., 28sc
Shapiro & Edwards Electronic Instruments, Dept. I, Calif., 2c, 4c, 6c, 8c, 18c, 46c, 48c, 54c
Shell Electronics Mfg. Corp., N.Y., 2s
Sheltered Workshops, Inc., Calif., 2c, 4c, 14c, 36c, 38c
Sherwood Electronic Laboratories, Inc., Ill., 14s
Shrader Sound, Inc., D.C., 2sc
Shure Brothers, Inc., Ill., 38 Special s
Siemens New York, Inc., N.Y., 26s, 36s, 38s
Sigma Electronics Research Corp., Wash., 26s
Simpson Mfg. Co., Inc. (Mark), N.J., 2s
Skiatron Electronics & Television Corp., N.Y., 4s, 40s, 42s
Smith-Florence, Inc., Wash., 38s
Solartron Electronic Group, Ltd., England, 8s, 38s
Solatron, Inc., Mass., 2c, 8c, 36c, 38c
Solid State Electronics Co., Dept. I, 15321 Rayen St., Sepulveda, Calif., 2c, Tel: 213-EMpire 4-2271
See ad on page 44
Sonex, Inc., 20 E. Herman St., Philadelphia 44, Pa., 2c, 14c, 38c, 54c, Tel: 215-VIctor 3-6400
See ad in class 34
Sonotone Corp., N.Y., 12s, 54c
Soundpac Electronics Corp., Mich., 2s
Southern Instruments, Ltd., England, 4s, 38s, 48s
Space Electronics Corp., Calif., 16c, 38c, 60c
Sparton Electronics, Div. of Sparton Corp., Mich., 2c, 4c, 6c, 8c, 16c, 18c, 20c, 26c, 40c, 42c, 44c, 46c, 60c
Specialty Electronics Development Corp., N.Y., 4c, 26c
Specific Electronics, Inc., Calif., 2c, 16c, 40c, 44c, 46c, 54c
Speck Electronics, Inc., Calif., 36sc, 38sc, 40sc
Spectra Electronics Corp., N.Y., 34c
Speed Electronics, N.J., 2c, 40c, 54c
Spencer-Kennedy Laboratories, Inc., Mass., 38s, 40s, 44s, 50s, 52s, 54s, 60s
Sperry Rand Corp., Sperry Electronic Tube Div., Fla., 26sc, 42sc
Sperry Rand Corp., Sperry Gyroscope Co. of Canada, Ltd. (Subsid.), Canada, 20c, 40c, 46c, 54c
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 30sc
Sperry Rand Corp., Sperry Phoenix Co. (Div.), Ariz., 18c, 20c
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 4c, 16c, 20c, 30c, 40c, 42c, 44c, 46sc
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 4s, 18s, 20s, 36s, 46s
Sperry Rand Corp., Wheeler Electronic Corp. (Subsid.), Conn., 2c, 36c, 38c, 40c
Sprague Electric Co., VecTrol Engineering, Inc. (Subsid.), Conn., 4c, 8c, 38c
Stafford Mfg. Co., Inc., N.Y., 40c
Standard Electrical Products Co., Ohio, 20c
Standard Systems Corp., N.Y., 2s, 32s, 36s, 38s, 40s, 54s
Standard Telephones & Cables, Ltd., England, 14sc, 26sc, 38sc, 44sc
Statham Instruments, Inc., Calif., 4sc, 8sc, 18sc, 40sc, 48sc, 54sc, 58sc
Stelma, Inc., Conn., 42c
Stelon, Inc., N.J., 40c
Stevens-Evans, Inc., Calif., 36sc
Steward Engineering Co., Santa Cruz 12, Calif., 26sc, Tel: 408-GArden 6-4100
See ad in class 86
Stewart-Warner Corp., Stewart-Warner Electronics Div., Ill., 42c
Strand Laboratories, Inc., 294 Centre St., Newton 58, Mass., 4sc, Tel: 617-WOodward 9-8890
See ads in classes 37, 40
Straza Electronics, Div. of Straza Industries, Calif., 8c, 46sc, 54sc
Sturrup, Inc., Conn., 2c, 14c, 16c
Sun Dial Corp., N.J., 40c
Sunshine Scientific Instrument, Pa., 48c, 56c, 58c
Superior Electric Co., 100 Ames Ave., Bristol, Conn., 20s, Tel: 203-LUdlow 2-9561
See ad on pages 2-11
Sylvania Electric Products Inc., Semiconductor Div., Mass., 26s, 30s, 54s
TMC (Canada), Ltd., Canada, 2s, 38s, 44s
TRG, Inc. (Technical Research Group), N.Y., 4c, 6c, 26c, 30c, 34c, 38c, 44c, 46c
Taber Instrument Corp., N.Y., 2s, 4s, 6s, 8s, 18s, 28s, 32s, 36s, 38s, 40s, 42s, 46s, 48s, 54s
Taffet Electronics, Inc., N.Y., 2c, 4c, 6c, 14c, 16c, 28c, 60c
Tamar Electronics, Inc., Calif., 2c, 4c, 16c, 18c, 26c, 38c, 60c
Tapetone, Inc., Mass., 16c, 30c, 44c
Tech-Master Corp., N.Y., 2s, 14c, 38c
Technical Materiel Corp., 700 Fenimore Rd., Mamaroneck, N.Y., 18s, 44s, Tel: 914-OWens 8-4800
See ads in class 38
Technology Instrument Corp., Mass., 6s, 60s
Technology Instrument Corp. of Acton, Mass., 60c
Techtro-Matic Corp., Vt., 40c
Tektronix, Inc., Ore., 4s, 8s, 38s
Tel Instrument Electronics Corp., N.J., 16s, 50s, 60s
Telechrome Mfg. Corp., N.Y., 26sc, 36sc, 44sc, 50sc, 54sc, 60sc
Telecomputing Corp., Calif., 42c
Telecomtrol Corp., N.J., 2c, 4c, 8c, 16c, 26c, 36c, 38c, 42c, 44c
Telectro Industries Corp., N.Y., 2c, 4c, 14c, 20c, 40c, 44c
Telephonics Corp., N.Y., 2sc, 16c, 38c, 40s
Television Utilities Corp., Div. of Nord, N.Y., 50s
Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 2c, 4c, 12sc, 18c, 20c, 28c, 34c, 38c, 46c, 48c, 54c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80
Telkor, Inc., Ohio, 2sc, 4c, 36c
Teltronics, Inc., 23-27 Main St., Nashua, N.H., 2sc, 16c, 18c, 28c, 36c, 38c, 40c, 42c, 44sc, 46c, 54c, 60sc, Tel: 603-TUxedo 2-6264
See ad in class 38
Ten Bosch, Inc. (M.), N.Y., 46s
Tensor Electric Dev. Co., Inc., N.Y., 2c
Teradyne, Inc., Mass., 4s
Tesla Research Foundation, Utah, 4s, 8s
Texas Instruments Incorporated, Apparatus Div., Government Products Group, Texas, 30c
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 4s, 26c, 30c, Tel: 214-ADams 5-3111
See ad on Cover 3
Thermo Electric Co., Inc., N.J., 30s, 46s
Theta Instrument Corp., 520 Victor St., Saddle Brook, N.J., 28s, 46s, Tel: 201-HUbbard 7-3508
See ad in class 97
Thompson, Ltd. (J. Langham), England, 40s, 48s, 54s
Thompson Ramo Wooldridge Inc., Bell Sound Div., Ohio, 2sc, 14sc, 16sc, 38sc
Thompson Ramo Wooldridge Inc., Dage Div., Ind., 50s
Thompson Ramo Wooldridge Inc., Educational Electronics Div., N.J., 14c, 50c, 54c, 60c
Thompson Ramo Wooldridge Inc., STL Products Div. of Space Technology Laboratories, Calif., 42c
Thompson Ramo Wooldridge Inc., Tapco Div., Ohio, 8c, 46sc, 60c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 22s, 26s, 36s, 38s, 40s, 50s, 54s, 60s
Toko Radio Coil Laboratories, Ltd., Japan, 16c, 60c
Topping Electronics, Ltd., Canada, 2sc, 16c, 44c, 60c
Torocoil Co., Ill., 20c
Torotel, Inc., 5512 E. 110th St., Kansas City 34, Mo., 20sc, 46sc, Tel: 816-SOuth 1-6314
See ad in class 51
Torotor A/S, N.Y., 16sc, 40sc
Torotron Corp., Dept. D, 256 E. Third St., Mount Vernon, N.Y., 20c, Tel: 914-MOunt Vernon 8-6900
See ad in class 51
Torwico Electronics, Inc., N.J., 2c, 4c, 20c, 36c, 46c
Trak Microwave Corp., Fla., 44sc
Transformer Engineers, Calif., 20c
Transformer Technicians, Inc., Ill., 2c, 4c
Transformers, Inc., N.Y., 20c
Transis-Tronics, Inc., Calif., 2 Stereo s, 14s, 38s, 54s
Transistor Applications, Inc., Mass., 2c, 4c, 8c, 16c, 42c, 46c
Transmagnetics, Inc., N.Y., 20c
Transonic, Inc., Calif., 20c
Trepac Corp. of America, N.J., 54sc
Tresco, Inc., Pa., 20c

Directory II. Components

43. Amplifiers.

Trio Laboratories, Inc., Du Pont Dr., Plainview, L.I., N.Y., 40c, Tel: 516-OVerbrook 1-0400
See ad in class 40
Trott Electronics, Inc., N.Y., 2c, 4c, 8c, 16c, 18c, 34c, 36c, 38c, 40c, 54c, 56c, 60c
Trutone Electronics, Inc., Calif., 2s, 14s, 38s
Ultrasonic Industries, Inc., N.Y., 56c
Ultraudio Products, Div. of Oberline, Inc., Calif., 2s, 36s, 38s
Unholtz-Dickie Corp., 2994 Whitney Ave., Hamden 18, Conn., 58c, Tel: 203-ATwater 8-3358
See ad in class 36
Unison Products, Inc., Mich., 48c
Uni-Tel, Inc., N.Y., 50c
United Control Corp., Wash., 46c, 54c
United ElectroDynamics, Inc., Calif., 2sc, 4sc, 8sc, 36sc, 44sc, 60sc
United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 60s, Tel: 212-BEekman 3-8870
See ads in classes 74, 104
United Shoe Machinery Co., Mass., 26c, 30c
U.S. Recording Co., D.C., 2sc, 38c, 40c, 54c
U.S. Sonics Corp., Mass., 16sc, 56c
U.S. Transistor Corp., N.Y., 54c
United Transformer Corp., 150 Varick St., New York 13, N.Y., 20sc, Tel: 212-ALgonquin 5-3500
See ad on Cover 2
Universal Match Corp., Armament Div., Mo., 46sc, 54sc
Universal Toroid Coil Winding, Inc., N.J., 20c, 36c
Univox Corp., N.Y., 2c
Utah Radio Products Corp., Ind., 2c, 14c, 36c, 38c, 54c, 56c
V-M Corp., Mich., 14s
Vactric (Control Equipment), Ltd., England, 46c
Valco Mfg. Co., Ill., 2sc
Valor Instruments, Inc., Calif., 4c, 8c, 48c
Valpey Crystal Corp., 1100 Highland St., Holliston, Mass., 24c, Tel: 617-GArden 9-4851
See ads on page 219 & in class 56
Vap-Air Div., Vapor Corp., Ill., 2c, 4c, 20sc, 36sc, 40sc, 46c
Vari Corp., Minn., 12c
Vari-L Co., Inc., 207 Greenwich Ave., Stamford, Conn., 20c, Tel: 203-DAvis 3-2176
See ad in class 51
Varian Associates, Tube Div., Calif., 26s, 30s, 36s, 42s
Varo, Inc., Texas, 2c, 4c, 8c, 16c, 18c, 20c, 36c, 38c, 46c, 54c
Vector Associates, Inc., N.Y., 2c, 38c
Venner Electronics, Ltd., England, 38s, 54s
Victoreen Instrument Co., 5806 Hough Ave., Cleveland 3, Ohio, 18s, 38s, Tel: 216-ENdicott 1-6200
See ads in classes 74, 86
Vidaire Electronics Mfg. Corp., N.Y., 14s, 44s, 54s
Video Instruments Co., Inc., Calif., 4s, 8s, 18s, 28s, 38s, 46s, 48s, 58s
Viking of Minneapolis, Inc., Minn., 2 Stereo s
Vinco Electronics Corp., Conn., 2c, 14c, 38c, 54c, 58c, 60c
Virginia Electronics Co., Inc., D.C., 2c, 16c, 36c, 38c, 40c, 44c
Vitro Electronics, Div. of Vitro Corp. of America, Md., 38s
Walkirt Co., Calif., 36s, 42s, 54s
Warren Mfg. Co., Inc., Mass., 2c, 4c, 36c, 38c
Warwick Mfg. Corp., Ill., 2c, 14c, 38c, 50c
Watkins-Johnson Co., Calif., 26sc, 30c, 60c
Waugh Engineering Co., Calif., 42s
Webster Electric Co., Wis., 2s
Wells Electronics Co., Ind., 16c, 40c, 46c, 54c
Westamp, Inc., Calif., 4c, 46c
Western Electro-Acoustic Laboratory, Inc., Calif., 2sc, 14sc
Westgate Laboratory, Inc., Ohio, 8c, 46c
Westinghouse Electric Corp., Pa., 4c
Westlab, Inc., N.Y., 2c
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 2sc, 10sc, 14sc, 18sc, 20c, 34c, 36c, 38sc, 40sc, 60sc, Tel: 212-JUdson 2-3030
See ad on page 224
White Avionics Corp., N.Y., 8c, 46sc
Whitehall Electronics Corp., Minn., 48c, 56c, 58c
Wickes Engineering & Construction Co., N.J., 2c, 20c, 54c
Wilcox Electric Co., Inc., Mo., 20c, 22c, 42c
Wiley Electronic Products Co., Div. of Giannini Scientific Corp., Ariz., 2sc, 4sc, 18sc, 36sc, 38sc, 40sc, 48sc, 54sc
Winegard Co., Iowa, 44s, 50s, 52s, 54s, 60s
Wintronics, Calif., 2sc, 14sc, 36s, 40c, 54sc
Woodland Electronics Co., Inc., N.J., 20sc, 36sc
Zacharias Electronics Co., N.J., 2sc, 6sc, 18sc, 28sc, 38sc, 54sc, 56sc

Anodes:
See class 105

Antenna beacons:
See class 1

Antenna feeds:
See class 66

Antenna tuners:
See class 88

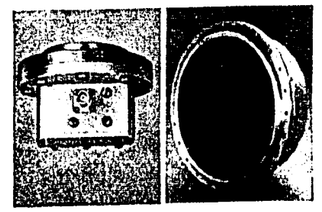
Antenna wire:
See class 91

44. Antennas & Accessories.

2. AM broadcast transmitting
4. Aircraft
6. All-wave receiving
8. Amateur type, accessories, & rotators
10. Automobile
12. Dummy
14. FM broadcast transmitting
16. Ferrite rod
18. Fixed station
20. Ground-plane
22. Marine
24. Microwave
26. Mobile
28. Omni-range
30. Radar reflectors
32. Radio telescopes
34. Radomes
36. Rotators
38. TV broadcast transmitting
40. TV multiple systems
42. TV receiving
44. Towers & supports
46. Tower erection & maintenance
48. Tower lighting equipment
50. UHF-VHF

A.L.A. Industries, Inc., N.Y., 6c, 16c
Ace Coil & Electronics Co., N.J., 16c
Adams Electronics, Inc., Mich., 16c
Adams-Russell Co., Inc., 200 Sixth St., Cambridge 42, Mass., 4sc, 20sc, 24sc, 28sc, 50sc, Tel: 617-UNiversity 8-8040
See ads in classes 59, 66
Adler Electronics, Inc., N.Y., 50s
Admiral Corp., Ill., 4c, 16c, 24c, 50c
Advance Electronics Co., Mich., 20s, 42s, 50s
Advance Gear & Machine Corp., Calif., 36c
Advanced Development Laboratories, Inc., N.H., 4c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 50c
Advancement Devices, Inc., N.Y., 4c, 24c, 30c, 32c, 34c, 48s

ANTENNAS



Missile Beacon Antennas
Missile Telemetering Antennas
Gain Standard Horns
Gain Standard Dipoles
Horns

MICROWAVE INSTRUMENTS

Klystron Supplies
VSWR Amplifiers
Power Meters
Crystal Calibrators

Special Equipment to your specifications. Write or phone for complete catalog or tell us your particular problem.

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48 CUMMINGTON ST., BOSTON, MASS.

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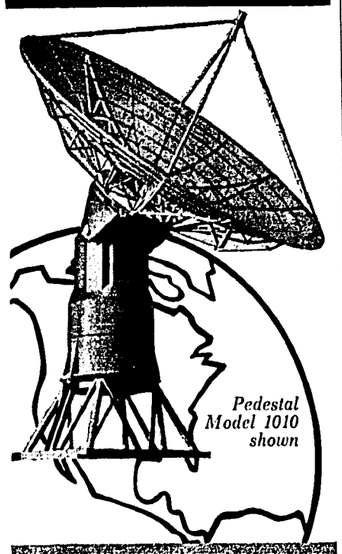
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

ANTENNAS
by
Ainslie
CORPORATION



NOW — available from Ainslie Corporation, a new remote control positioning pedestal capable of handling our antennas up to 18 feet in diameter in frequencies from 100 to 10,000 mc. Modifications available for a variety of tracking applications. Whatever your antenna or reflector requirements may be, contact us at our new facilities.

Ainslie
CORPORATION

531 Pond Street
South Braintree 85, Massachusetts
For details, circle #252 on Reader Service Card

44. Antennas & Accessories.

Aermotor, Inc., Subsid. of Aermotor Div. of Nautec Corp., Ill., 44sc
Aero Geo Astro Corp., Va., 4c, 20c, 22c, 24c, 28c, 30c, 34c, 44c, 50c
Aerocoil, Inc., N.J., 16c
Aeronautical Radio Mfg. Co., Fla., 4s
Aeronutronic, Div. of Ford Motor Co., Calif., 24c
Aerospace Research, Inc., 94 Massachusetts Ave., Cambridge 39, Mass., 16c, Tel: 617-ELiot 4-7780
See ad in class 26
Ainslie Corp., 531 Pond St., South Braintree 85, Mass., 22c, 24sc, 30sc, 36sc, 44c, 50sc, Tel: 617-VIctor 8-0850
See ad in this class
Airborne Instruments Laboratory, Div. of Cutler-Hammer, Inc., N.Y., 24s
Aircom, Inc., 48 Cummington St., Boston 15, Mass., 12sc, 24sc, Tel: 617-COpley 7-9115
See ads in classes 44, 66
Aircraft Armaments, Inc., Md., 4c, 24c
Aircraft Radio Corp., N.J., 4s, 28s
Airtec, Inc., N.J., 24sc
Airtronics, Inc., D.C., 24c, 28c, 34c, 50c
Alford Mfg. Co., 299 Atlantic Ave., Boston 10, Mass., 14s, 24s, 28s, 38s, 50s, Tel: 617-HAncock 6-2150
See ad in class 66
All American Engineering Co., Commercial Products Div., Del., 10s, 16s
All Channel Products Corp., N.Y., 6s, 8s, 22s, 42s, 50s
Alliance Mfg. Co., Inc., Div. of Consolidated Electronic Industries Corp., Ohio, 36s
Allied International Corp., N.Y., 4s
Allied Research & Engineering Co., Calif., 24c
Alpar Mfg. Corp., Calif., 2s, 24c, 30c, 32c, 44s
Amerac, Inc., Mass., 24c
American Communications Corp., N.Y., 6sc, 18sc, 40sc, 42sc, 50sc
American Development Electronics Co., N.J., 26c
American Electronic Laboratories, Inc., Richardson Rd., Colmar, Pa., 26sc, Tel: 215-VAn Dyke 2-0131
See ad adjacent to Index to Advertisers, back of book
American Machine & Foundry Co., Government Products Group, N.Y., 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 44c, 46c, 50c
American Machine & Foundry Co., Greenwich Engineering Div., Conn., 18c, 20c, 22c, 24sc, 26c, 28c, 30sc, 32c, 36sc, 44sc, 50sc
American Systems, Inc., Calif., 24c
American Tower Co., Ohio, 44s, 46s
Amy, Aceves & King, Inc., N.Y., 6s, 22s
Andrew Antenna Corp., Ltd., Canada, 2c, 10s, 14s, 18s, 20s, 22s, 24s, 26s, 28s, 30c, 32c, 34s, 36c, 38s, 50s
Andrew Corp., 363 E. 75th St., P.O. Box 807, Chicago 42, Ill., 14s, 18s, 20s, 24s, 30c, 32c, 34s, 36c, 50s, Tel: 312-FIeldbrook 9-3300
See ad on page 86
Antenna Products Co., Div. of All Products Co., Texas, 2sc, 4c, 6sc, 14c, 18sc, 20s, 26sc, 28c, 32sc, 36sc, 40sc, 42sc, 44sc, 46c, 48sc, 50sc
Antenna & Radome Research Associates, Inc. (ARRA), 27 Bond St., Westbury, L.I., N.Y., 24c, 34c, Tel: 516-EDgewood 4-8770
See ad in class 45
Antenna Specialists Co., Ohio, 4c, 6sc, 8sc, 10sc, 12c, 14c, 18sc, 20sc, 22sc, 24c, 26sc, 28c
Antenna Systems, Inc., 349 Lincoln St., Hingham, Mass., 24s, 30c, 32c, 34c, 36c, 44c, 46c, Tel: 617-RIverview 9-4700
See ad in this class
Antlab, Inc., Ohio, 36sc, 44sc
Apparatus Development Co., Conn., 6 FM s
Applied Electronics Co., Calif., 8c, 18c, 20c, 22c, 26c, 30c
Arde Engineering Div., Arde Associates, N.J., 4c, 30c, 32c, 34c, 38c, 44c, 46c
Artted Co., Inc., Mass., 16c
Astronautics Corp. of America, Wis., 32c, 36c, 44c
Ateliers de Montages Electriques (AME), France, 2c, 20s, 24c, 28s, 42c, 46c, 50c
Atkins & Merrill, Inc., Mass., 34c
Automation Dynamics Corp., N.J., 4c, 18c, 24c
Avco Corp., Nashville Div., Tenn., 4c
Aviel Electronics, Inc., Calif., 12c, 24c
Avien, Inc., N.Y., 4c, 18c, 24sc, 26c, 28c, 36c, 44c, 50sc
Avtron Mfg., Inc., Ohio, 4c
Barbour Stockwell Co., Mass., 36c
Barker Products Co., Mass., 42sc
Barker & Williamson, Inc., Pa., 12sc
Bart Mfg. Corp., N.J., 24c
Barth Engineering & Mfg. Co., Inc., Conn., 24c
Basic & Experimental Physics, Mass., 44c
Baumker Mfg. Co., Ohio, 42s, 44s
Bel-Tronics Corp., Ill., 16c
Belling & Lee, Ltd., Great Cambridge Rd., Enfield, Middlesex, England, 40sc, 42s, 44s, Tel: Enfield 5393
See ad in class 52
Benco Television Associates, Ltd., Canada, 44s
Bendix Corp., Bendix-Pacific Div., Calif., 4c, 22sc, 24c
Bendix Corp., Bendix Radio Div., Avionic Products Dept., Md., 4s
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 4s, 10s, 28s, 50s
Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J., 4c, 24c, Tel: 201-ATlas 8-2000
See ad on pages 46-47
Bendix Corp., M. C. Jones Electronics Co., Inc. (Subsid.), Conn., 12sc
Bendix Corp., York Div., Pa., 24c
Bethlehem Corp., Environmental Engineering Div., 225 W. Second St., Bethlehem, Pa., 44c, Tel: 215-UNiversity 7-4605
See ad in class 36
Bird Electronic Corp., 30303 Aurora Rd., Cleveland 39, Ohio, 12sc, Tel: 216-CHurchill 8-1200
See ad on page 210
Birdair Structures, Inc., N.Y., 30 Air-Supported c, 34 Air-Supported c, 44 Air-Supported c

Directory II. Components

44. Antennas & Accessories.

Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 2s, 6s, 8s, Tel: 212-WOrth 6-5611
See ad in class 91
Bischoff Chemical Corp., Riverside Plastics Div., N.Y., 34c
Blaine Electronetics, Inc., Calif., 24c, 30c, 36c, 44c
Blaw-Knox Co., Pa., 4 Satellite & Space-Probe c, 18c, 20c, 30c, 32c, 46c, 50c
Blonder-Tongue Laboratories, Inc., N.J., 40s, 50s
Boeing Airplane Co., Antenna Dept., Wash., 4c, 18c, 20c, 22c, 24sc, 26c, 28c, 30c, 32c, 34c, 36c, 50c
Bogart Mfg. Corp., 315 Seigel St., Brooklyn 6, N.Y., 12sc, 24sc, Tel: 212-HYacinth 7-4972
See ad in class 66
Brach Mfg. Corp., Div. of General Bronze Corp., N.J., 10sc, 22c, 26c, 42sc, 50sc
Bright Radio Laboratories, Inc., N.Y., 12c, 26c
Brooks & Perkins, Inc., Mich., 20c, 24c, 28c, 30c, 44c, 50c
Budd-Stanley Co., Inc., 175 Eileen Way, Syosset, L.I., N.Y., 24c, Tel: 516-WAlnut 1-7550
See ad on page 92
Bulow Electric Co., Mich., 24c
Burndy Corp., Omaton Div., Richards Ave., Norwalk, Conn., 10s, Tel: 203-TEmple 8-1169
See ad in class 52
Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., 4sc
Caddell-Burns Mfg. Co., Inc., N.Y., 16sc
Calbest Electronics, Calif., 16c
California Technical Industries, Div. of Textron, Inc., Calif., 12sc, 34sc
Canadian Westinghouse Co., Ltd., Canada, 24c
Canoga Electronics Corp., Calif., 24c, 30sc, 34sc, 36sc, 50sc
Capehart Corp., N.Y., 20c, 22c, 24c, 28c, 30c, 50c
Carborundum Co., Refractories Div., N.J., 2c, 8c, 12c
Ceramaseal, Inc., N.Y., 34c
Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., Texas, 4s, 20c, 24c, 28c, 50s
Chu Associates, Mass., 4c, 18sc, 20sc, 22c, 24c, 28sc, 30c, 32c, 34c, 36c, 50sc
Clear Beam Antenna Corp., Calif., 6 FM c, 20sc, 42s, 44s, 50sc
Collins Radio Co., Iowa, 2s, 4s, 18s, 24s, 32c, 48s, 50s
Columbia Products Co., S.C., 4c, 20s, 22s, 26s, 50s
Communications Co., Inc., Fla., 18s, 20s
Community Engineering Corp., Pa., 40sc
Conductorlab, Inc., Main St., Groton, Mass., 24c, Tel: 617-GIlbert 8-5140
See ad in class 50
Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 2c, 12c, Tel: 214-EVergreen 1-1135
See ad on page 120
Continental Electronics & Sound Co., Ohio, 8s, 12sc, 18s, 20sc
Continental Merchandise Co., Transistor Products Div., N.Y., 16sc
Control Electronics Co., Inc., 10 Stepar Place, Huntington Station, L.I., N.Y., 24s, Tel: 516-HAmilton 7-7961
See ad in class 59
Cook Electric Co., Cook Technological Center, Ill., 24c, 30c, 50c
Cooke Engineering Co., Va., 46c
Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 8s, 36s
Cornwell Electronics Corp., N.Y., 46sc
Costelow Co., Inc. (John A.), Kans., 44sc, 46sc, 48s
Craig Systems, Inc., Mass., 44c
Cush Craft, N.H., 8s, 18s, 20s, 26s, 42s, 50s
DBM Research Corp., Fla., 24c, 30sc
Dale Electronics, Inc., Subsid. of Hathaway Instruments, Inc., 1318 28th Ave., P.O. Box 488, Columbus, Nebr., 4sc, 16c, Tel: 402-LOcust 4-3131
See ad in class 74
Dalmo Victor Co., Div. of Textron, Inc., Calif., 24c
Daniels, Inc. (C. R.), Md., 34c
Davis Electronics, Inc., Calif., 8s, 10s, 22s, 26s
Dayton Aircraft Products, Inc., Fla., 4sc
Dayton Aviation Radio & Equipment Corp., Ohio, 4s, 28s, 50s
Dayton Electronic Products Co., Ohio, 24c
Deal Products, Inc., Pa., 44s
Decibel Products, Inc., Texas, 18sc, 20s, 26s, 50s
Defense Electronics, Inc., Md., 50c
DeMornay-Bonardi Corp., 780 S. Arroyo Parkway, Pasadena, Calif., 12s, 24s, Tel: 213-SYcamore 2-4142
See ad on pages 68-69
Developmental Engineering Corp., Va., 2c, 18c, 22c
Diamond Antenna & Microwave Corp., Mass., 4sc, 8sc, 20sc, 24sc, 26sc, 30sc, 34sc, 50sc
Dicon Corp., N.Y., 12c, 22c
Dielectric Products Engineering Co., Inc., Me., 10s, 14c, 18s, 20s, 50c
Dimick Mfg. Co., Ore., 38c, 40s, 42s, 50s
Dittmore-Freimuth Corp., Wis., 4c, 12c, 20c, 22c, 24c, 30c, 34c
Don-Lan Electronics, Inc., Calif., 4sc, 24sc
Dorne & Margolin, Inc., N.Y., 4sc, 22c, 24sc, 26c, 28sc, 36c, 50sc
Douglas Aircraft Co., Inc., Calif., 4sc, 12c, 24c, 28c, 30c, 34c, 50c
Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 4c, 12sc, 24sc, Tel: 914-MOunt Vernon 8-6900
See ad in class 66
Dow-Key Co., Inc., Minn., 8s
Dresser-Ideco Co., Ohio, 2c, 30c, 32c, 44c, 46c, 48c
Dynair Electronics, Inc., Calif., 38s
Dynamics Corp. of America, N.Y., 14sc, 38sc
Dynatronics, Inc., Fla., 4sc, 18c, 24c, 32c
E-Z Way Towers, Inc., Fla., 2s, 8s, 44sc, 46c, 48s
Ecco Electronic Components Corp., N.Y., 12sc
Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 12s, Tel: 415-LYtell 1-1451
See ad on pages 29-32
Electrada Corp., Calif., 4c, 24c, 28c
Electrend Products Corp., Mich., 8s, 10s, 12s
Electro Impulse Laboratory, Inc., 208 River St., Red Bank, N.J., 12sc, Tel: 201-SHadyside 1-0404
See ad in class 37
Electron-Radar Products, Ill., 24sc
Electronetics Corp., Fla., 18c, 26c, 50c
Electronic Communications, Inc., Fla., 4c, 24c, 50c
Electronic Specialty Co., Calif., 4c, 18c, 24c, 26c, 30c, 32c, 36c, 44c, 50c
Electronics Research, Inc., Ind., 4c, 14c
Elliott-Automation, Ltd., England, 20sc, 22sc, 24sc, 26sc, 34sc, 36sc, 44sc, 50sc
Elsco Systems, Inc., Wash., 50c
Emerson Electric Mfg. Co., Mo., 24c, 30c

A·S

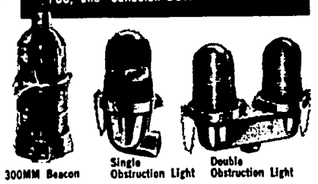
Antenna Systems, Inc., is devoted exclusively to the design, fabrication and installation of antenna systems in the fields of scatter communications, missile tracking, space tracking, radar and surveillance, radio astronomy, and special antenna products.
We invite your inquiry, whatever your antenna problem may be. Write for our folder.
ANTENNA SYSTEMS INC.
HINGHAM, MASS.
For details, circle #253 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

HUGHEY and PHILLIPS, INC.

Specialists in Obstruction Lighting Equipment and Controls

BEACON and OBSTRUCTION LIGHTS, designed to meet specifications of CAA, FCC, and Canadian DOT.



300MM Beacon — Single Obstruction Light — Double Obstruction Light

You'll find Hughey & Phillips have obstruction lights for every job. The engineering of each light offers maximum efficiency and simplified installation and maintenance. Whether you need bottom or side entrance conduit fitting types, there is a model to meet your requirements.

SPECIAL CAST ALUMINUM WATERTIGHT JUNCTION BOXES, offering a wide choice in types of terminals, cable support, and factory installed screw cap receptacles.

Box with terminals, cable support, and receptacle in cover. — Box with factory installed screw cap receptacles. — Box with special terminals and cable support.

Hughey & Phillips have pioneered in the use of adequate junction boxes with proper terminals, and built-in cable support to meet NEC requirements.

SPECIAL CONTROL UNITS, designed for both indoor and outdoor installation.

- Photo-Electric Control Units
- Beacon Flashers
- Combination Photo Control & Beacon Flashers
- Lamp Failure Indicator System
- Controls with Autotransformer system . . . pioneered by Hughey and Phillips for tall towers increases lamp life.

Photo control, flasher and Lamp Failure Alarm

TOWER LIGHTING ISOLATION TRANSFORMER

THREE SIZES . . . 750, 1750, 3500 WATTS

FEATURING:
- HIGHER EFFICIENCY
- IMPROVED REGULATION
- ADDITIONAL TAPS
- FIBER GLASS INSULATION
- EPOXY ENCASED
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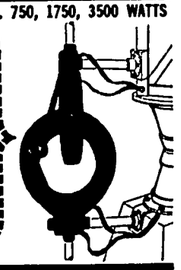

HUGHEY & PHILLIPS, INC.

MANUFACTURERS OF

3200 N San Fernando Blvd Burbank, Calif

For details, circle #254 on Reader Service Card

Emerson Plastics Corp., N.Y., 34c

Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 20s, 24s, Tel: 518-VIctor 2-8400
See ad in class 38

Engelhard Industries, Inc., Amersil Quartz Div., N.J., 34sc

Engelhard Industries, Inc., Makepeace Div., Mass., 24c, 36c

Erco Radio Laboratories, Inc., N.Y., 18sc, 26sc, 50sc

Eugene Engineering Co., Inc., 1217 Hyde Park Ave., Hyde Park 36, Mass., 34c, 44c, Tel: 617-EMpire 1-7000
See ads in classes 96, 105

Ewen Knight Corp., Mass., 32c

FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 24s, Tel: 212-RAvenswood 1-9000
See ad in class 37

Fairchild Stratos Corp., Md., 24sc, 30sc, 34sc

Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 4c, 6c, 16c, 24c, 30c, 34c, 36c, 50c

Fentiman & Sons, Ltd. (F.), Canada, 30c, 32c, 44c

Ferricore, Inc., N.J., 16c

Ferris Instrument Co., N.J., 12c

Ferroxcube Corp. of America, E. Bridge St., Saugerties, N.Y., 16sc, Tel: 914-CHerry 6-2811
See ads in classes 10, 34, 55, 74, 92, 100

Fidelitone Microwave, Inc., Ill., 24sc

Finney Co., Ohio, 8s, 40s, 42s, 50s

Franklin Engineering Design Co., Calif., 36c, 44c

Freeman Co., S.D., 8s, 50s

Frequency Standards, Div. of Harvard Industries, Inc., N.J., 4c, 24c, 30c, 50c

G C Electronics Co., Div. of Textron Electronics, Inc., Ill., 6s, 8s, 10s, 12s, 16s, 18s, 20s, 26s, 28s, 42s, 44s

G-L Electronics Co., Inc., N.J., 34sc

Gabriel Co., Gabriel Electronics Div., Mass., 18sc, 24sc, 28sc, 30sc, 32sc, 34sc, 36sc

Gar Precision Parts, Inc., Conn., 24c

Gates Radio Co., Ill., 2s

General Bronze Corp., G B Electronic Div., N.Y., 6c, 10sc, 24c, 32sc

General Ceramics, Div. of Indiana General Corp., Crows Mill Rd., Keasbey, N.J., 16sc, 201-VAlley 6-5100
See ad in class 64

General Coil Products Corp., N.Y., 12c, 16c

General Communication Co., 677 Beacon St., Boston 15, Mass., 28c, Tel: 617-COpley 7-6030
See ads in class 37

General Crystal Co., Inc., Wis., 8sc

General Dynamics/Electronics, N.Y., 24c, 26c, 34c

General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 14sc, 24sc, 38sc, 40sc, 50sc

General Electric Co., Heavy Military Electronics Dept., N.Y., 30c, 34c

General Electric Co., Ordnance Dept., Mass., 18c, 26c, 30c, 32c

General Instrument Corp., Defense & Engineering Products Group, N.Y., 24c, 50c

General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 12c, Tel: 612-WEst 9-8571
See ad in class 43

General Microwave Corp., N.Y., 24c

General Mills, Inc., Minn., 4c, 24c, 30c

General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 24c

General Precision, Inc., GPL Div., N.Y., 24s

General Precision, Inc., Kearfott Div., Calif., 16c, 24c, 30c, 50c

General Precision, Inc., Kearfott Div., N.J., 24sc

General Radio Co., 22 Baker Ave., West Concord, Mass., 12s, Tel: 617-EMerson 9-4400
See ad on Cover 4

Gilfillan Brothers, Inc., Calif., 24c, 26c, 30c, 36c

Glasply Corp., N.Y., 34c, 44c

Gombos Co., Inc. (John), N.J., 24c

Goodyear Aircraft Corp., Ohio, 30c, 32c, 34c

Goodyear Aircraft Corp., Arizona Div., Ariz., 2c, 4c, 6c, 8c, 14c, 18c, 20c, 22c, 24c, 30c, 32c, 34c, 38c, 40c, 42c, 44c, 50c

Gorham Electronics, Div. of Gorham Corp., R.I., 4c, 12c, 24c

Granger Associates, Calif., 18s, 20s, 24s, 28s, 30s, 36s, 50s

Granite State Machine Co., Inc., N.H., 20c, 24c, 30c, 34c, 50c

Grumman Aircraft Engineering Corp., N.Y., 4c, 24c, 30c, 32c, 34c, 44c

Gulton Industries, Inc., N.J., 4sc, 20sc, 24sc

Gyro Electronics, Inc., N.Y., 40s, 50s

HRB-Singer, Inc., Pa., 6c, 24c

Hallamore Electronics Div., Siegler Corp., Calif., 24c, 30c, 32c

Hazeltine Corp., N.Y., 24c, 30c

Hitachi New York, Ltd., N.Y., 30c, 38c, 40c, 42c

Houdaille Industries, Inc., Buffalo Hydraulics Div., N.Y., 36sc

Houston Fearless Corp., Westwood Div., Calif., 44c

Hughes Research Div. (J. Willis), Miss., 40c, 50c

Hughey & Phillips, Inc., 3200 N. San Fernando Blvd., Burbank, Calif., 48s, Tel: 213-VIctoria 9-1104
See ad in this class

Hy-Gain Antenna Products Corp., Nebr., 4c, 6s, 8s, 10s, 18s, 20s, 22c, 26s, 36sc, 50s

Hycon Mfg. Co., Calif., 24c

Hyletronics Corp., 185 Cambridge St., Burlington, Mass., 16c, Tel: 617-BRowning 2-0670
See ad in class 66

IE Mfg., Ill., 44sc, 50sc

I-T-E Circuit Breaker Co., Special Products Div., Pa., 4c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 44c, 46c

Industrial Control Co., N.Y., 36sc

Instrument Corp. of Florida, Fla., 16s, 20c, 26c

Instrument Resistors Co., N.J., 16c

Instrument Systems Corp., N.Y., 4c, 24c

Directory II. Components

44. Antennas & Accessories.

International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 4c, 20c, 30c, 32c

Irvan Engineering Co., Inc., Calif., 16sc, 24c

Itek Laboratories, Div. of Itek Corp., Mass., 26c, 50c

JFD Electronics Corp., 6101 16th Ave., Brooklyn 4, N.Y., 4c, 8c, 18c, 20c, 22c, 24c, 26c, 40s, 42s, 50s, Tel: 212-DEwey 1-1000
See ad on pages 56-57

J.V.M. Microwave Co., Ill., 24c

Jampro Antenna Co., Calif., 14sc, 38sc, 50sc

Javex Electronics, Calif., 40s, 42s

Jefferson, Inc. (Ray), Pa., 22sc

Jetronic Industries, Inc., Pa., 22sc

Johnson Co. (E. F.), Minn., 8s, 18s, 20s

Jontz Mfg. Co., Inc., Ind., 44s

KTV Tower & Communication Equipment Co., Ill., 44sc

K-W Engineering Works, Wis., 26sc

Kaar Engineering Corp., Calif., 18s, 20s, 22s, 26s

Kaman Aircraft Corp., Conn., 4c, 24c, 30c

Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 4c, 6c, 12c, 24c, 26c, 30c, 32c, 50c, VLF c

Kelsey-Hayes Co., Mich., 30c

Kemlite Laboratories, Inc., Ill., 48c

Kennedy & Co. (D. S.), Mass., 4sc, 6c, 20c, 22sc, 24sc, 26s, 30s, 32sc, 44c, 46c

King Radio Corp., Kans., 4s

Kline Iron & Steel Co., S.C., 44c, 46c, 48c

Kreckman Co. (Herb), Pa., 8s, 18c, 20sc, 24c, 50c

Laminair, Inc., Calif., 30c, 34c

Lamtex Industries, Inc., N.Y., 34sc

Lance Antenna Corp., Calif., 6 FM s, 18s, 28s, 30s, 40s, 42s, 44 Telescoping s, 50s

Land-Air, Inc., Ill., 50c

LaPointe Industries, Inc., Conn., 20c, 24c, 30c, 36c, 38c, 40c, 42c, 50c

Lapp Insulator Co., Inc., Radio Specialties Div., 150 Sumner St., LeRoy, N.Y., 12c, Tel: 385
See ad on pages 52-53

Lattin Radio Laboratories, Ky., 8s

Lavelle Aircraft Corp., Pa., 30c

Leonard Electric Products Co., N.Y., 16c

Lieco, Inc., 130 Eileen Way, Syosset, L.I., N.Y., 12sc, 24c, 50c, Tel: 516-WAlnut 1-6300
See ad in class 66

Lindsay Antenna & Specialty Products, Ltd., Canada, 8c, 42s, 44s

Ling Temco Vought, Inc., Texas, 2sc, 14s, 38s, 40s, 42s, 50s

Ling Temco Vought, Inc., Electron Corp. (Subsid.), Texas, 2s, 14s, 38s, 40s, 42s, 50s

Lingo & Sons, Inc. (John E.), N.J., 44c

Lionel Corp., N.J., 4c, 6c, 22c, 24c, 30c, 34c, 50c

Lionel Corp., Telerad Div., N.J., 4c, 12c, 24s, 30c, 34c, 38c

Lionel Corp., Telerad Div., N.Y., 24c

Litton Industries, Inc., Components Group, Airtron Div., N.J., 4 Radar c, 12sc, 16c

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 4sc, 6c, 18c, 20c, 24c, 26sc, 28c

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 4c, 6c, 16c, 18c, 20c, 22c, 24sc, 26c, 28c, 30c, 34c, 36c, 44c, 50sc

Lockheed Electronics Co., N.J., 4c, 22c, 24c, 30c, 32c, 50c

Lundy Mfg. Corp., N.Y., 22s

Mackay Radio & Telegraph Co., N.J., 22sc

Mandrel Industries, Inc., Electronic Research & Development Co. (Div.), Canada, 18s, 20s, 26s

Marconi's Wireless Telegraph Co., Ltd., N.Y., 2s, 14s, 22s, 24s, 28s, 30s, 34s, 38s, 44s, 46s, 48s, 50s

Mark Products Co., Ill., 4c, 8s, 10s, 18s, 20s, 22s, 24s, 26s, 30s, 32sc, 34s, 50sc

Martin Co. (Martin-Marietta Corp.), Md., 4c, 6c, 24c

Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 32c

Master Mobile Mounts, Inc., Calif., 8sc, 10sc, 18sc, 20sc, 22sc, 24sc, 26sc

Materials for Electronics, Inc., N.Y., 6s, 10sc, 26s, 32sc

Maury & Associates, Calif., 20c, 24c

Maxson Electronics Corp., N.Y., 24c, 28c, 34c

McDonnell Aircraft Corp., Mo., 4c, 30c, 50c

McElroy Electronics Corp., Mass., 2c

McKiernan-Terry Corp., N.J., 12c, 22c, 30c, 44c

McMillan Laboratory, Inc., McMillan Industrial Corp., Mass., 34sc

Measurements, McGraw-Edison Div., N.J., 12c

Melpar, Inc., Va., 4c, 16c, 18c, 24c, 28c, 30c, 38c, 50c

Meridian Metalcraft, Inc., Calif., 24c, 28c, 30c, 50c

Microflect Co., Inc., Ore., 44sc, 46sc

Microwave Associates, Inc., South Ave., Burlington, Mass., 24s, Tel: 617-BRowning 2-3000
See ad on page 178

Microwave Corp. of America, Conn., 4c, 24c, 26c

Microwave Semiconductor & Instruments, Inc., N.Y., 24c

Miller Co. (J. W.), Calif., 16sc

Miller Industries, Inc. (R. A.), Mich., 4sc, 20c, 34c, 50sc

Mosley Electronics, Inc., Mo., 6s, 8s, 14c, 18sc, 20sc, 26sc, 38c, 50sc

Motorola Aviation Electronics, Inc., Calif., 4s, 28s

Motorola, Inc., Military Electronics Div., Ariz., 4c, 50c

Multronics, Inc., Md., 2c, 6c, 12c, 18c

Naniloa Corp., Ohio, 80c

Narda Microwave Corp., Dept. IRED-61-3, 118-160 Herricks Rd., Mineola, L.I., N.Y., 24s, 50s, Tel: 516-PIoneer 6-4650
See ad in class 66

National Beryllia Corp., First & Haskell Aves., Haskell, N.J., 34c, Tel: 201-TEmple 9-1600
See ad in class 92

National Moldite Co., Inc., N.J., 16s

Nevada Antenna Co., Calif., 4c, 28c, 50sc

Norden Div., United Aircraft Corp., Conn., 4c

Norrich Plastics Corp., N.Y., 8c

North American Aviation, Inc., Columbus Div., Ohio, 4c, 24c, 26c, 30c, 32c, 34c

Northwest Industries, Ltd., Canada, 4c

Ohmite Mfg. Co., Ill., 12sc

Oilgear Co., Servocontrol Div., Mass., 30c

Olsen Corp. (Gunnar A.), N.Y., 46sc

Omega Laboratories, Inc., Haverhill St., Rowley, Mass., 24sc, Tel: 617-WHitney 8-7757
See ad in class 66

Oregon Electronic Mfg. Co., Ore., 18s, 22s, 26s

Ostlund Associates (E. M.), N.J., 24c, 50c

Ovitron Corp., Standard Winding Co. (Div.), 44-62 Johnes St., Newburgh, N.Y., 16c, Tel: 914-JOhn 1-1541
See ad in class 51

PICKARD & BURNS, Inc.

Specialists in Antenna Systems

- ULF through SHF
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Complete capability

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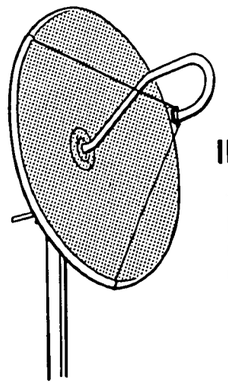
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-726.

TACO

For Antennas and Antenna Equipment

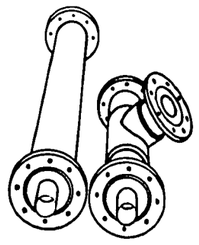


IN MICROWAVE

Taco now offers a complete line of microwave antennas, complete with feeds for all operational frequency ranges in sizes ranging from 4′ to 12′ in diameter. Mounts available for all requirements. Deicing equipment for all sizes.

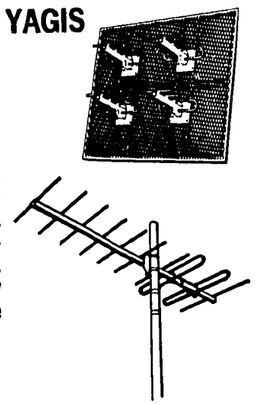
IN RIGID TRANSMISSION LINE

Rigid transmission line in both copper and aluminum. Complete systems including all accessory components for both EIA and Quick-Clamp connections. Sweeps, elbows, adaptors, switches, pressurization fittings, and all other fittings for 7/8", 1⅝", 3⅛" and 6⅛". 50-ohm and 75-ohm lines in appropriate sizes.



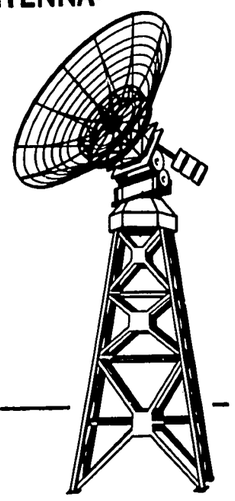
IN RUGGEDIZED YAGIS

All-aluminum, all-welded ruggedized yagis for use in 30 to 500 mc frequency ranges. Coaxial feed. Available in 4, 5, or 10 element designs with single or multiple drives. Also available with screen reflectors and multiple arrays. May be polarized vertically or horizontally. Complete mounting hardware.



IN COMPLETE ANTENNA-TOWER SYSTEMS

Complete antenna-tower systems ready to install. Available in sizes up to 24′ in diameter. With or without remote control mechanized mount. Feeds available upon special order. Systems come complete, requiring minimum installation time in the field.



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Taco maintains the finest test range in the industry, together with an outstanding antenna laboratory staffed with experienced, competent personnel. These facilities are ready to meet with any antenna, or antenna system need of industry or the military.

In addition to the antennas listed, Taco manufactures a complete line of parabolic antennas up to 32′ in diameter, aircraft and submarine antennas, telemetering helical antennas, tracking antennas, and many other types. WRITE FOR COMPLETE TECHNICAL CATALOG...

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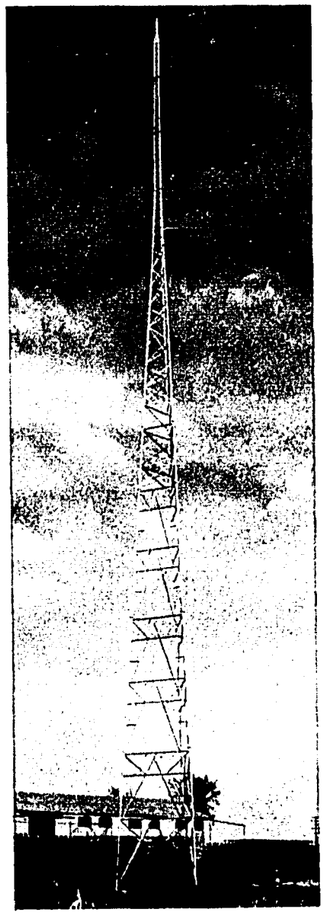

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★ Rated a true HEAVY-DUTY steel tower, suitable for communication purposes, such as radio, telephone, broadcasting, etc.

★ Complete hot-dipped galvanizing after fabrication.

★ Low in cost—does your job with BIG savings—yet has excellent construction and unexcelled design! Easily shipped and quickly installed.

FREE *details gladly sent on request. Representatives coast-to-coast.*

ROHN *Manufacturing Co.*
P.O. Box 2000
Peoria, Illinois

"Pioneer Manufacturers of Towers of All Kinds"

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Directory II. Components

44. Antennas & Accessories.

Pabst Engineering Equipment Co., Inc., N.J., 22c, 24c
Parabam, Inc., Calif., 34sc
Parker Metal Goods Co., Mass., 42sc, 50sc
Peer, Inc., Texas, 2c, 12c, 14c, 38c, 50c
Peerless Products Industries, Ill., 42sc
Pegasus Laboratories, Inc., Mich., 36sc
Permali, Inc., Pa., 44c
Pfaff & Kendall, N.J., 44c
Philco Corp., Pa., 24sc, 32c
Philco Corp., Government & Industrial Group, Pa., 4c, 14c, 24c, 30c, 34c, 44c
Philco Corp., Sierra Electronic Corp. (Div.), Calif., 12sc
Philmore Mfg. Co., Inc., N.Y., 2s, 16s
Pickard & Burns, Inc., Subsid. of Gorham Corp., 103 Fourth Ave., Waltham R & D Park, Waltham 54, Mass., 4c, 18c, 24c, 30c, 32c, 50c, Tel: 617-HIllcrest 4-3345
See ads on page 190 & in classes 31, 44
Pioneer Industries, Inc., Iowa, 44sc
Plectron Corp., Nebr., 50s
Polarad Electronics Corp., 43-20 34th St. Long Island City 1, N.Y., 24s, Tel: 212-EXeter 2-4500
See ads in class 37
Polydoroff & Associates (W. J.), D.C., 4c, 10c, 16c, 22c, 24c
Polytronic Research, Inc., Md., 18c, 20c, 22c
Premax Products Div., Chisholm-Ryder Co., Inc., N.Y., 8s, 20s, 22s, 26s
Premier Microwave Corp., 33 New Broad St., Port Chester, N.Y., 24c, Tel: 914-WEstmore 9-8900
See ad in class 50
Q.L.C. Corp., N.Y., 16c
Q-Line Mfg. Corp., N.Y., 4sc, 8sc, 22sc, 30sc, 34sc, 40sc, 42sc, 44sc, 50sc
Q-max Corp., N.J., 18sc, 20sc, 26sc
RCA Victor Co., Ltd., Canada, 2sc, 14sc, 18sc, 24sc, 50sc
R F Products, Div. of Amphenol-Borg Electronics Corp., 33 E. Franklin St., Danbury, Conn., 26s, Tel: 203-PIoneer 3-9272
See ad in class 80
RLC Electronics, Inc., 805 Mamaroneck Ave., Mamaroneck, N.Y., 12s, 24s, Tel: 914-OWens 8-7440
See ads in classes 45, 59
Rabinow Engineering Co., Inc., D.C., 36c
Radiation Engineering Laboratory, Inc., Mass., 4c, 22c, 24c, 30c, 32c
Radiatronics, Inc., Calif., 4c, 22c, 24sc, 30sc, 34sc, 44c, 50sc
Radio Activities, Inc., N.J., 2c, 4c, 6c, 8c, 14c, 18c, 20c, 24c, 26c, 28c, 50c
Radio Communication Co., Wis., 14c, 24c, 40sc, 42sc, 46c
Radio Corp. of America, Defense Electronic Products, N.J., 2s, 14s, 22s, 24s, 26s, 30c, 38s, 40s, 42s, 50s
Radio Industries, Inc., Kans., 8c, 36c
Radio Television Products Corp., Mich., 16c
Rainier Co., Inc., N.Y., 4c, 22c, 28c
Rantec Corp., Calif., 4c, 18c, 24c, 36c, 50sc
Ratelco, Inc., Wash., 18sc, 20sc
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 22s
Raytheon Co., Communications & Data Processing Operation, Mass., 24sc
Raytheon Co., Government Marketing, Mass., 24sc, 34c
Reed & Reese, Inc., Calif., 12c
Rego Insulated Wire Corp., N.J., 42s, 50s
Remler Co., Calif., 22c
Renco Electronics, Inc., N.Y., 16c
Republic Aviation Corp., N.Y., 30c, 34c
Rich Electronics, Inc., Fla., 22s, 50s
Riemer Co., Inc. (David), N.Y., 6sc, 8sc
Rixon Electronics, Inc., Md., 12sc
Roberts Co., Inc. (R. O.), Calif., 24c, 30c
Rocker Solenoid Co., Calif., 4c
Rohde & Schwarz, P.O. Box 275, 111 Lexington Ave., Passaic, N.J., 12s, Tel: 201-PRescott 3-8010
See ad in class 38
Rohn Mfg. Co., P.O. Box 2000, Peoria, Ill., 2s, 44s, 46c, Tel: 309-637-8416
See ad in this class
Rohr Aircraft Corp., Antenna Systems Div., Calif., 18c, 20c, 22c, 24c, 30c, 32c, 34c, 36c, 44c, 46c

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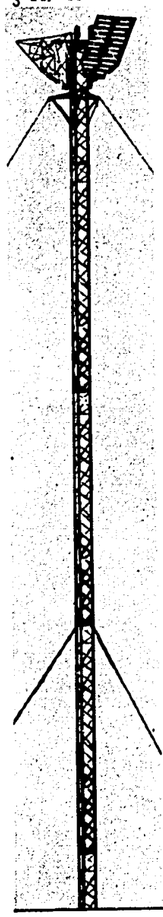

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Complete installations for all communications purposes

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CONSTRUCTION CO.
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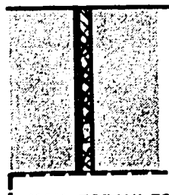

Tower Fabricators and Erectors the World Over!

MAIL TODAY! FOR NEW CATALOG!
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SIOUX CITY, IOWA
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ADDRESS: _____
CITY: _____ ST: _____

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Rollan Electric Co., Ill., 16c
Rosenthal, Myron M., 19 Brookline Dr., North Massapequa, L.I., N.Y., 4c, 6c, 24c, 34c, 50c, Tel: 516-PErshing 5-2501
See ad in class 95
Rostan Corp., N.Y., 44sc
Rowe Industries, Ohio, 22s
Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 6c, 20c, 24sc, 34sc, 50c
Rye Sound Corp., N.Y., 10s
S & A Electronics, Inc., Ohio, 8s, 42s, 50s
Sampson Chemical & Pigment Corp., Ill., 16c
Sanders Associates, Inc., N.H., 4sc, 24sc
Savoy Electronics, Inc., Fla., 8sc, 22s, 26s
Saxton Products, Inc., 4320 Park Ave., New York 57, N.Y., 16c, Tel: 212-WEllington 3-6400
See ad in class 91
Scaico Controls, Inc., N.J., 24c
Scala Radio Co., Calif., 18c, 20c, 22c, 40c, 42c, 50c
Scanwell Laboratories, Inc., 6601 Scanwell Lane, Springfield, Va., 4c, 18c, 20c, 22c, 24c, 50c, Tel: 703-FLeetwood 4-5800
See ad in this class
Scatter Communications, Inc., D.C., 18c
Schaevitz Engineering, N.J., 18c, 20c, 22c, 24c, 28c, 30c, 32c, 36c, 50c
Schutter Microwave Corp., N.Y., 24sc, 30c, 50sc

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Total Capability in Antennas 26 to 220 kmc.

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- Lobe switching
- Omnidirectional
- Solid dielectric lenses
- Electroformed gain standards

TRG INC. ANTENNA AND MICROWAVE DEPARTMENT 9 UNION SQUARE SOMERVILLE, MASSACHUSETTS

For details, circle #260 on Reader Service Card

Scientific-Atlanta, Inc., Ga., 4c, 6c, 24sc, 30c, 34c, 36sc, 44sc
Scope, Inc., Va., 50c
Seco Electronics, Inc., Minn., 12s
Servo Corp. of America, N.Y., 18sc, 20sc, 22sc, 28sc, 50c
Shallcross Mfg. Co., N.C., 12sc
Sheltered Workshops, Inc., Calif., 20c, 26c
Siemens New York, Inc., N.Y., 14s, 16s, 24s, 38s, 40s, 42s, 48s
Sigma Electronics Research Corp., Wash., 4c, 18s, 20c, 24s, 50c
Silicone Insulation, Inc., N.Y., 34c
Simmonds Precision Products, N.Y., 50c
Simplicity Tool Co., Inc., Ore., 14c, 40c, 42c, 50c
Sinclair Radio Laboratories, Inc., N.Y., 14c, 20c, 22c, 24c, 26c, 28c, 38c, 42c, 50c
Smallwood, Ltd. (S. G.), Canada, 16c
Smith Corp. (A. O.), Crowley Div., N.J., 16s
Snyder Mfg. Co., Pa., 10s, 26s, 42s
Sonar Radio Corp., N.Y., 10s, 22s, 26s
South River Metal Products Co., Inc., N.J., 8s, 24c, 30c, 42c, 44c
Space Electronics Corp., Calif., 4sc, 18c, 20c, 22c, 24c, 26c, 50c
Sparton Electronics, Div. of Sparton Corp., Mich., 4c, 20c, 28c
Spaulding Products Co., Inc., Ind., 44s
Specialty Electronics Development Corp., N.Y., 24c, 28c, 34c, 44c, 50c
Specific Electronics, Inc., Calif., 6c
Specific Products, P.O. Box 425, 21051 Costanso St., Woodland Hills, Calif., 6s, Tel: 213-DIamond 0-3131
See ad in class 26
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 24sc
Sperry Rand Corp., Sperry Phoenix Co. (Div.), Ariz., 24c
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 22sc, 24c, 30sc
Sperry Rand Corp., Vickers, Inc. (Div.), Marine & Ordnance Dept., Conn., 36sc
Stainless, Inc., Pa., 2sc, 14sc, 24sc, 30sc, 44sc, 46sc, 48sc
Standard Telephones & Cables, Ltd., England, 4sc, 24sc
Stanwyck Coil Co. (E.), 75 Carson Ave., Newburgh, N.Y., 16c, Tel: 914-JOhn 1-3030
See ad in class 51
States Co., Conn., 12c
Sterling Instrument Div., Designatronics, Inc., N.Y., 24c
Stewart-Warner Corp., Stewart-Warner Electronics Div., Ill., 24c
Stoddart Aircraft Radio Co., Inc., 6644 Santa Monica Blvd., Hollywood 38, Calif., 50s, Tel: 213-HOllywood 4-9292
See ads in classes 38, 45
Strand Engineering Co., Mich., 24c
Superex Electronics Corp., N.Y., 16s
Surface Conduction, Inc., N.Y., 42sc, 50sc
Swift Textile Metalizing & Laminating Corp., 10 Love Lane, Hartford 1, Conn., 20s, 30sc, Tel: 203-JAckson 2-1181
See ad in class 103
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 4c, 6c, 18c, 20c, 22c, 24c, 26c, 30c, 32c, 50c
TMC (Canada), Ltd., Canada, 12s

Directory II. Components

44. Antennas & Accessories.

TRG, Inc. (Technical Research Group), 9 Union Square, Somerville 43, Mass., 24s, 32c, Tel: 617-MOnument 6-8680
See ads in classes 44, 66
TRG, Inc. (Technical Research Group), N.Y., 4c, 16c, 20c, 24c, 30c, 32c, 34c, 36c, 44c
TV Tower Mfg. Co., Pa., 44s
Taffet Electronics, Inc., N.Y., 4c, 20c
Tamar Electronics, Inc., Calif., 4sc, 18c, 20c, 22c, 24sc, 28s, 50sc
Tech Industries, Inc., Mass., 6s, 42sc
Technical Appliance Corp., N. Main St., Sherburne, N.Y., 4s, 14c, 18s, 20s, 22s, 24s, 28s, 30s, 32sc, 34s, 42s, 50s, Tel: 607-ORchard 4-2211
See ad in this class
Technical Materiel Corp., 700 Fenimore Rd., Mamaroneck, N.Y., 48s, Tel: 914-OWens 8-4800
See ads in class 38
Technicraft Div., Electronic Specialty Co., Conn., 24c
Telecomputing Corp., Calif., 20c, 22c, 24c, 34c
Telecomputing Corp., Advanced Structures Div., Calif., 4c, 22c, 30c, 34c, 44c, 46c
Telecomtrol Corp., N.J., 24c
Telkor, Inc., Ohio, 42sc
Telrex Laboratories, N.J., 2c, 6c, 8sc, 14c, 18c, 20sc, 36sc, 38c, 40s, 42sc, 44sc, 50sc
Tenna Mfg. Co., Inc., Ohio, 10c, 12c, 26c, 42c, 50c
Tennalab, Ill., 8s, 18c, 40c, 42s
Therm, Inc., N.Y., 34c
Thomas Mold & Die Co., Ohio, 44sc
Thompson Fibre Glass Co. (H. I.), Calif., 34c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 2s, 4s, 12s, 14s, 16s, 18s, 20s, 22s, 24s, 26s, 28s, 30s, 36s, 38s, 40s, 42s, 44s, 46s, 50s,
Tokyo Shibaura Electric Co., Ltd., Japan, 2c, 16c, 24c, 30c, 32c, 34c, 38c, 40c, 42c
Topping Electronics, Ltd., Canada, 16c, 22sc, 26c
Torngren Co., Inc. (C. W.), Mass., 24c, 30c
Tower Construction Co., 2700 Hawkeye Dr., Sioux City 2, Iowa, 2sc, 14sc, 18sc, 24sc, 34sc, 38sc, 40sc, 42sc, 44sc, 46sc, 48sc, 50sc, Tel: 2-3631
See ad in this class
Transco Products, Inc., Calif., 4c, 24c, 50c
Tri-Ex Corp., Calif., 8s, 20s, 26s, 44s, 48s
Tricraft Products Corp., Ill., 2c, 6c, 10c, 40s, 42s, 50s
Trionics Corp., Div. of Nautec Corp., Wis., 16c
Turbo Machine Co., Pa., 24sc
United Shoe Machinery Co., Mass., 24c
U.S. Dielectric Products, Inc., Mass., 34c
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 28c
United States Steel Corp., Pa., 44c, 46c
Universal Products Engineering Co., Wis., 8s, 44s
Utilities Service Co., Pa., 44c
Vap-Air Div., Vapor Corp., Ill., 24c
Versa-Tronics, Ill., 8sc, 26sc, 50sc
Vesto Co., Inc., Mo., 44c
Vidaire Electronics Mfg. Corp., N.Y., 16sc
Video Industries Co., N.Y., 40c, 42s, 50c
Waber Electronics, Inc., Pa., 42s
WacLine, Inc., Ohio, 12sc
Walsco Electronics Mfg. Co., Div. of GC Textron Electronics, Inc., Ill., 6s, 8s, 10s, 12s, 16s, 18s, 20s, 26s, 28s, 42s, 44s, 50s
Ward Products Corp., N.Y., 10sc, 12sc, 16c, 18sc, 20c, 22c, 26sc, 42sc
Washington Aluminum Co., Inc., Md., 4sc, 18sc, 20sc, 22sc, 24sc, 26sc, 28sc, 30sc, 32sc, 44sc, 46sc, 50sc
Waveguide, Inc., Calif., 24c, 34c
Waveline, Inc., N.J., 24s
Webster Mfg., Div. of Raytheon Co., Calif., 8s, 22s
Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., 12sc, Tel: 301-LOckwood 4-0121
See ad in class 45
Werner Co., Inc. (R. D.), Pa., 44sc, 46sc
Western Coil & Electrical Co., Wis., 8sc, 44sc
Westinghouse Electric Corp., Electronics Div., Md., 24c, 30c
Wheeler Laboratories, Inc., Subsid. of Hazeltine Corp., 122 Cutter Mill Rd., Great Neck, L.I., N.Y., 18c, 20c, 24c, 26c, 32c, 34c, 50c, Tel: 516-HUnter 2-7876
See ad in class 95
Wilcox Electric Co., Inc., Mo., 4sc, 18sc, 20sc, 24s, 28s, 34s, 50s
Wiley Electronic Products Co., Div. of Giannini Scientific Corp., Ariz., 24sc
Wind Turbine Co., E. Market St., West Chester, Pa., 2s, 8c, 12c, 36c, 44s, 46s, 48s, 50c, Tel: 215-OWen 6-3110
See ad adjacent to Index to Advertisers, back of book
Winegard Co., Iowa, 40s, 42s, 50s
Wunderlich Radio Co., N.Y., 14sc, 18sc, 20c, 24sc, 32c, 34sc, 38sc, 44sc, 46sc, 48sc, 50sc
Z & W Mfg. Corp., Ohio, 4c

Arms, phonograph:
See class 68

Assemblies, cable:
See class 91

Assemblies, printed electronic:
See class 50

Assemblies, slip ring:
See class 52

Assemblies, switching:
See class 80

45. Attenuators.

5. Decade
10. IF
15. Impedance matching
20. Microwave
25. Microwave, fixed
30. RF
35. Volume controlling

A C Electronics, Inc., Calif., 10c, 15c, 30c
Ad-Yu Electronics Laboratory, Inc., 249 Terhune Ave., Passaic, N.J., 5sc, 15s, Tel: 201-GRegory 2-5622
See ad in class 57
Advance Components, Ltd., England, 15s, 30s, 35s
Advanced Development Laboratories, Inc., N.H., 20c, 25c, 30c
Advanced Measurement Instruments, Inc., Mass., 5c, 10c, 15c, 30c,
Advancement Devices, Inc., N.Y., 20c
Aerovox Corp., Mass., 30s, 35s
Airborne Instruments Laboratory, Div. of Cutler-Hammer, Inc., N.Y., 10s
Aircom, Inc., 48 Cummington St., Boston 15, Mass., 20sc, 25sc, Tel: 617-COpley 7-9115
See ads in classes 44, 66
Airtec, Inc., N.J., 20sc, 25sc
Airtronics, Inc., D.C., 10c, 15c, 20c, 25c, 30c
Alford Mfg. Co., 299 Atlantic Ave., Boston 10, Mass., 30s, Tel: 617-HAncock 6-2150
See ad in class 66
Allen-Bradley Co., Wis., 15c, 35c
American Communications Corp., N.Y., 15sc, 30sc, 35sc
American Development Electronics Co., N.J., 5c
American Elite, Inc. (Telefunken), N.Y., 35s
Andersen Laboratories, Inc., Conn., 10c
Antenna & Radome Research Associates, Inc. (ARRA), 27 Bond St., Westbury, L.I., N.Y., 20sc, 25sc, Tel: 516-EDgewood 4-8770
See ad in this class
Antenna Systems, Inc., 349 Lincoln St., Hingham, Mass., 20c, 25c, Tel: 617-RIverview 9-4700
See ad in class 44
Applied Research, Inc., 76 S. Bayles Ave., Port Washington, L.I., N.Y., 10s, 15s, 25s, 30s, Tel: 516-POrt Washington 7-8707
See ad in class 43
Ardwin Microlab, Inc., Mass., 20sc, 25sc
Arenberg Ultrasonic Laboratory, Inc., 94 Green St., Jamaica Plain 30, Mass., 10sc, 30s, Tel: 617-JAmaica 2-8640
See ad in class 38
Associated Electrical Industries (Rugby), Ltd., England, 20s, 25s
Automatic Metal Products Corp., 323 Berry St., Brooklyn 11, N.Y., 30sc, Tel: 212-EVergreen 8-6057
See ad in class 52
Aviel Electronics, Inc., Calif., 20c, 25c, 30sc
Bellaire Electronics, Inc., N.J., 20sc, 25sc
Belling & Lee, Ltd., Great Cambridge Rd., Enfield, Middlesex, England, 30s, Tel: Enfield 5393
See ad in class 52
Benco Television Associates, Ltd., Canada, 30s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Merrimac

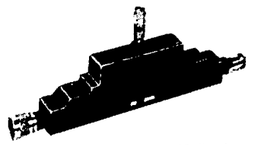
COAXIAL COMPONENTS

ATTENUATORS

A- 4* 5-7.5 KMC range 5 db min only 4" long

A- 7* 2-7 KMC range 10 db min

A-10* 1-7 KMC range 10 db min



AU-10* .5-5 KMC range 10 db min

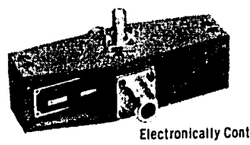
AU-10P* .5-3 KMC up to 125 watts average power

AE- 6* 4-8 KMC range 30 db flat

AF- 6* 8-12.5 KMC range 30 db flat

AB-1 Octive Wide range 15 db flat high power

AUF Fixed high power pads



Electronically Controlled

AAE-1 200-600 MC range 15 db

MAE-1 Modulator 200-600 MC 15 db dynamic range

Slide Screw Tuner ST-10 1-8 KMC tuning range. Less than 0.5 db insertion loss with 10:1 inserted VSWR

ALSO AVAILABLE FROM MERRIMAC

Variable Dielectric Phase Shifter—Broadband

Power Divider—Variable—In phase—Unequal split

Power Divider—High Power—In phase—Unequal split

Magic Tee—High Isolation—U.S. Pat. 2,935,702

Couplers—Ultra broadband—Ultra flat

Coaxial Mixers

Crystal Holders—Low Capacity

DC Block

DC to UHF Variable Attenuators

Coaxial Modulators

WAVE GUIDE COMPONENTS

Power Divider

Unequal Split—In phase—Isolated Outputs—High Power

* U.S. PATENT 2,979,678

WRITE OR CALL

Merrimac

Research and Development, Inc.

517 Lyons Ave., Irvington, New Jersey ESsex 1-1616

For details, circle #261 on Reader Service Card

45. Attenuators.

Bendix Corp., M. C. Jones Electronics Co., Inc. (Subsid.), Conn., 30c

Bendix Corp., Red Bank Div., Electron Tube Products, Highway #35, Eatontown, N.J., 20sc, 25c, Tel: 201-LIberty 2-2000
See ad on pages 48-49

Bendix Corp., York Div., Pa., 20c, 25c

Bird Electronic Corp., 30303 Aurora Rd., Cleveland 39, Ohio, 30c, Tel: 216-CHurchill 8-1200
See ad on page 210

Blonder-Tongue Laboratories, Inc., N.J., 15s, 30s

Bogart Mfg. Corp., 315 Seigel St., Brooklyn 6, N.Y., 20sc, 25sc, Tel: 212-HYacinth 7-4972
See ad in class 66

Bruno-New York Industries Corp., N.Y., 20s, 30s

Budd-Stanley Co., Inc., 175 Eileen Way, Syosset, L.I., N.Y., 20sc, 25sc, Tel: 516-WAlnut 1-7550
See ad on page 92

C.E.S. Electronic Products, Inc., Calif., Logarithmic s

CTS Corp., 1142 W. Beardsley Ave., Elkhart, Ind., 35c, Tel: 219-JAckson 3-0210
See ad on page 12

Canadian Marconi Co., Canada, 15c

Carborundum Co., Refractories Div., N.J., 20c, 30sc

Caswell Electronics Corp., Calif., 20sc

Chemalloy Electronics Corp., Calif., 20s

Clarostat Mfg. Co., Inc., N.H., 35sc

Columbus Electronics, Inc., 1000 Saw Mill River Rd., Yonkers, N.Y., 25c, Tel: 914-YOnkers 8-1221
See ads in classes 48, 71

Control Electronics Co., Inc., 10 Stepar Place, Huntington Station, L.I., N.Y., 20sc, 25sc, Tel: 516-HAmilton 7-7961
See ad in class 59

Cook Electric Co., Ill., 20s

Cook Electric Co., N.R.K. Microwave Div., Ill., 20c, 25s

Custom Components, Inc., N.J., 25sc

Daven Co., Subsid. of General Mills, Inc., N.J., 5s, 10s, 15s, 30s, 35s

DeMornay-Bonardi Corp., 780 S. Arroyo Parkway, Pasadena, Calif., 20s, 25s, Tel: 213-SYcamore 2-4142
See ad on pages 68-69

Dero Research & Development Corp., N.Y., 10sc, 30sc

Developmental Engineering Corp., Va., 15c

Diamond Antenna & Microwave Corp., Mass., 20sc, 25sc, 30sc

Dittmore-Freimuth Corp., Wis., 5c, 10c, 15c, 20c, 25c, 30c, 35c

Don-Lan Electronics, Inc., Calif., 20c, 25c, 30c

Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 15sc, 20sc, 25sc, Tel: 914-MOunt Vernon 8-6900
See ad in class 66

E & M Laboratories, Calif., 20c, 25c

Ecco Electronic Components Corp., N.Y., 30sc

Electric Storage Battery Co., Ray-O-Vac Div., Wis., 35sc

Electro Impulse Laboratory, Inc., 208 River St., Red Bank, N.J., 30sc, Tel: 201-SHadyside 1-0404
See ad in class 37

Electron-Radar Products, Ill., 20sc, 25sc

Elliott-Automation, Ltd., England, 10sc, 15sc, 20sc, 25sc, 30sc

Emerson Electric Mfg. Co., Mo., 20c, 30c

Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 5sc, 10sc, 20sc, 25sc, 30sc, Tel: 518-VIctor 2-8400
See ad in class 38

Epsco, Inc., Mass., 5s, 15s

FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 20s, 25s, 30s, Tel: 212-RAvenswood 1-9000
See ad in class 37

Ferris Instrument Co., N.J., 30s

Ferrotec, Inc., 217 California St., Newton 58, Mass., 20c, Tel: 617-DEcatur 2-7600
See ad in class 66

Fidelitone Microwave, Inc., Ill., 20sc, 25sc, 30sc

Film Resistors, Inc., N.J., 20sc, 25sc

Filmohm Corp., 48 W. 25th St., New York 10, N.Y., 20sc, 25sc, 30sc, Tel: 212-WAtkins 4-6605
See ad in class 74

Frequency Standards, Div. of Harvard Industries, Inc., N.J., 20c, 25c

Gar Precision Parts, Inc., Conn., 20c

General Aniline & Film Corp., Ansco Div., N.Y., 20c, 25c

General Communication Co., 677 Beacon St., Boston 15, Mass., 20s, 25c, Tel: 617-COpley 7-6030
See ads in class 37

General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 15c, 20c, 25c, 30c

General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 15c, Tel: 612-WEst 9-8571
See ad in class 43

General Microwave Corp., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc

General Precision, Inc., Kearfott Div., Calif., 20c, 25c

General Precision, Inc., Kearfott Div., N.J., 20s, 25s

General Radio Co., 22 Baker Ave., West Concord, Mass., 5s, 30s, Tel: 617-EMerson 9-4400
See ad on Cover 4

Gertsch Products, Inc., Calif., 30s

Gilfillan Brothers, Inc., Calif., 20c, 25c

Gombos Co., Inc. (John), N.J., 20sc, 25sc

Goodman's Industries, Ltd., Axiom Works, England, 30s

Goodrich Sponge Products (B. F.), 239 Derby Place, Shelton, Conn., 30sc, Tel: 203-REgent 5-4661
See ad in class 103

Gorham Electronics, Div. of Gorham Corp., R.I., 20c, 25c, 30c

Gotham Audio Corp., N.Y., 35s

Gremar Mfg. Co., Inc., Mass., 30sc

Gyro Electronics, Inc., N.Y., 30s

Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 5s

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 5s, 20s, 25s, 30s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28

Directory II. Components

45. Attenuators.

Hewlett-Packard Co., Dymec Div., Calif., 20sc

Hughes Research Div. (J. Willis), Miss., 30c

Hyletronics Corp., 185 Cambridge St., Burlington, Mass., 20c, 25c, 30c, Tel: 617-BRowning 2-0670
See ad in class 66

I-T-E Circuit Breaker Co., Special Products Div., Pa., 20c, 25c, 30c

Instrument Systems Corp., N.Y., 20c, 25c

Interlab, Inc., N.Y., 35sc

Irvan Engineering Co., Inc., Calif., 20c

J.V.M. Microwave Co., Ill., 20c, 25c, 30c

Javex Electronics, Calif., 35s

Jerrold Electronics Corp., Dept. ITE-104, 15th & Lehigh Ave., Philadelphia 32, Pa., 30s, Tel: 215-BAldwin 6-3456
See ad in class 38

Johnson Co. (E. F.), Minn., 30s

Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 10s, 30s, Tel: 201-CApital 6-4000
See ad on pages 72-73

Kings Electronics Co., Inc., N.Y., 20c, 25c, 30c

Land-Air, Inc., Stepper Motors Div., Calif., 5c

Langevin, Div. of Sonotec, Inc., Calif., 5s, 15s, 35s

LaPointe Industries, Inc., Conn., 20c

Leeds & Northrup Co., Pa., 5s, 15s

Lewis & Kaufman Electronics Corp., Calif., 20sc, 25sc

Lieco, Inc., 130 Eileen Way, Syosset, L.I., N.Y., 20sc, 25sc, Tel: 516-WAlnut 1-6300
See ad in class 66

Lignes Telegraphiques et Telephoniques, France, 20s, 25s

Ling Temco Vought, Inc., Texas, 15sc

Ling Temco Vought, Inc., Micromodular Components Div., Calif., 15sc

Lionel Corp., N.J., 20c, 25c, 30c, 35c

Lionel Corp., Telerad Div., N.J., 20c, 25c

Litton Industries, Inc., Components Group, Airtron Div., N.J., 20sc, 25sc

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 10c, 20c, 25c, 30c

Lumatron Electronics, Inc., 116 County Courthouse Rd., New Hyde Park, L.I., N.Y., 20s, 25s, Tel: 516-PIoneer 7-3200
See ad in class 23

M.C.S. Corp., Calif., 20c, 25c

Mallory Controls Co., Ind., 35sc

Maury & Associates, Calif., 5c, 20sc, 25sc, 30sc

Measurements, McGraw-Edison Div., N.J., 5sc, 15sc, 30sc

Melabs, Calif., 20s, 25s

Meridian Metalcraft, Calif., 20sc, 25c

Merrimac Research & Development, Inc., 517 Lyons Ave., Irvington 11, N.J., 20sc, 30sc, Tel: 201-ESsex 1-1616
See ad in this class

Metavac, Inc., N.Y., 20sc, 25sc, 30sc

Microlab, 570 W. Mount Pleasant Ave., Livingston, N.J., 15sc, 20sc, 25sc, 30sc, Tel: 201-WYman 2-5700
See ad in class 66

Micromega Corp., Calif., 20c

Microphase Corp., Conn., 5sc, 15sc, 20sc, 25sc, 30sc

Microtech, Inc., Conn., 20c, 25c

Microwave Associates, Inc., South Ave., Burlington, Mass., 20s, 25s, 30s, Tel: 617-BRowning 2-3000
See ad on page 178

Microwave Corp. of America, Conn., 20c, 25c

Microwave Development Laboratories, Inc., Mass., 20sc, 25sc

Microwave Dynamics Corp., N.Y., 15s, 20s, 25s

Microwave Semiconductor & Instruments, Inc., N.Y., 20s, 25s, 30s

Missile Systems Corp., California Div., Calif., 20c, 25c

Model Engineering & Mfg. Corp., Ind., 10c, 30c

Muirhead & Co., Ltd., England, 30s, AF s

Muirhead Instruments, Inc., N.Y., 5s, 10s, 30s

Mytron, Inc., Mass., 20c

Narda Microwave Corp., Dept. IRED-61-3, 118-160 Herricks Rd., Mineola, L.I., N.Y., 20s, 25s, Tel: 516-PIoneer 6-4650
See ad in class 66

Neptune Electronics Co., N.Y., 35c

New England Instrument Co., Mass., 20c, 25c, 30c

New London Instrument Co., Conn., 5c, 10c, 30c

North Atlantic Industries, Inc., Terminal Dr., Plainview, L.I., N.Y., 5sc, Tel: 516-OVerbrook 1-8600
See ad in class 35

Ohmite Mfg. Co., Ill., 35s

Omega Laboratories, Inc., Haverhill St., Rowley, Mass., 20sc, 25sc, Tel: 617-WHitney 8-7757
See ad in class 66

Ortho Industries, Inc., 7 Paterson St., Paterson 1, N.J., 5s, 30s, Tel: 201-MUlberry 4-5858
See ad in class 59

Ovitron Corp., Standard Winding Co. (Div.), 44-62 Johnes St., Newburgh, N.Y., 10c, 30c, Tel: 914-JOhn 1-1541
See ad in class 51

PRD Electronics, Inc., 202 Tillary St., Brooklyn 1, N.Y., 20s, 25s, Tel: 212-ULster 2-6800
See ad in class 37

ARRA TT LINE

CONTINUOUSLY VARIABLE ATTENUATORS

ULTRA BROADBAND

New

Exclusive Features:

- Bandwidth: 1.0 to 9.0 KMC with a single unit
- Continuously variable for all values of attenuation
- VSWR: 1.5 max. at all frequencies for all values of attenuation
- Attenuation: 10 db min. at 1 KMC
- Insertion Loss: 0.5 db max.
- Power: 10 w. average, 5 KW peak
- Size: 5" diameter by 1" high
- Drive: micrometer or shaft
- Model 3-6414-10

PRICE $150

In addition, other standard models* available are

Model No.	Freq. KMC	Max. Atten.	Max. VSWR	Unit Price
1414-10	25-.50	10	1.5	$270.
2414-20	.50-1.0	20	1.5	$260.
2-3414-30	.8-2.5	30	1.5	$260.
3414-30	1.0-2.0	30	1.4	$240.
4414-30	2.0-4.0	30	1.3	$220.
4-5414-30	2.0-6.0	30	1.3	$230.
5414-30	4.0-7.0	30	1.3	$220.
6414-30	7.0-11.0	30	1.3	$220.

*Insertion Loss 0.2db Max.

ARRA 27 Bond St. Westbury, N.Y.

For details, circle #262 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

PRECISION MICROWAVE CALIBRATION EQUIPMENT

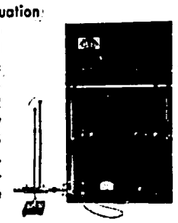
- All attenuators and terminations made with Weinschel Film Resistors for maximum stability
- All attenuators and terminations individually calibrated
- Certificate of calibration supplied with each attenuator
- All instruments 100% tested for all performance specifications

Modulated RF Sources—Models MS-8 to MS-13.

Exceptional amplitude and frequency stability for precision microwave measurements. Six RF Sources plug into common Power Supply-Modulator, cover frequency range of 50 to 10,500 MCS with true single-knob control. Modulator frequency is tuning fork stabilized.

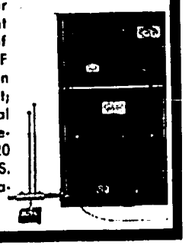
Single Channel Insertion Loss Test Set (Simple, Accurate)

Measure Attenuation directly up to 30 DB. Typical systems error: .1 DB. Resolution: about .02 DB. Frequency Range: 20 MCS to 90,000 MCS. Write for Application Note #1.



Dual Channel Insertion Loss Test Set (High Resolution)

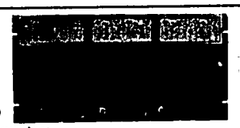
.02 DB precision for 20 DB measurement despite changes of .1 DB in level of RF source. Attenuation range: 20 DB, direct; 40 DB with partial RF substitution. Frequency range: 20 MCS to 90,000 MCS. Write for Application Note #4.



Available as a complete system 100 to 12,400 mc

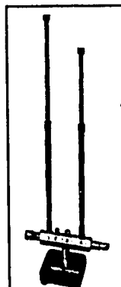
Standard Attenuator Comparator, Model VM-1 (Sensitive to —120 DBM)

For standards laboratories. Calibrates signal generator output attenuators or calibrates attenuators. 105 DB range. Direct reading accuracy between —21 and —81 DBM exceeds .02 DB/10 DB.



Step Attenuators

DC to 2 KMC. RF calibration accuracy: 1 to 10 DB: .02 DB; 20 to 50 DB: .02 DB/10 DB. Model 60: 2 drums, 0-60 DB in 1 DB steps. Model 64: 3 drums, 0-64 DB in .1 DB steps. Model 640: 3 drums, 0-110 DB in 1 DB steps. Switch repeatability: .01 DB.



Double Stub Tuners

Adjustable spacing between stubs for quick matching. Chart on base for optimum stub spacing versus frequency. Collets lock stubs. Adjustable height of connectors. Frequency Ranges: Model DS 109: .75 to 10 KMC; Model DS 109L: .4 to 4 KMC; Model DS 109LL: .2 to 2 KMC.

Coaxial Thermistor Mount, Model 675-A

100-4000 mc. Long thermal time constant of mount eliminates effects of ambient temperature variations. Calibration factor supplied at 400, 1000 and 1500 mc accurate to 2%.

Precision RF Power Bridge, Model PB-1

For standards laboratories requiring the highest possible accuracy in high frequency power measurements . . . capable of accuracies of .1% in the measurement of substituted DC power.

X-Band Power Standard Models 811, 813 and 815

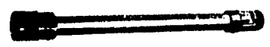
Calibration factor supplied accurate to 1%. Thermostatically controlled constant temperature chamber and thermal isolator eliminate effects of ambient temperature changes. Can be used to measure power or standard power source.

10 Watt Power Pads, Model 10

Frequency: DC to 1.5 KMC. 50 ohms. Attenuation: 1 to 20 DB. Maximum VSWR: 1.30, bilateral. Stainless steel type N connectors. Stable under power.

Coaxial Attenuators, Models 50, 50-C, 50-SC

Frequency: DC to 3 KMC. 50 ohms. Attenuation: 1 to 80 DB. Maximum VSWR: 1.20 bilateral. Finish: Stainless steel (Type N connectors); nickel plated (Type C or SC connectors).



Coaxial Attenuators, 1 to 12.4 KMC—Models 210, 520, 540, 633, 663

Frequency: 1 to 12.4 KMC. 50 ohms. Attenuation: 1 to 20 DB. Finish stainless steel (Type N Connectors); nickel plated (Type C, BNC, TNC, SC connectors). Available also in ruggedized version to meet MIL-A-3933 and MIL-T-945A (Model 530).

Write for complete specifications.

PRECISION MICROWAVE MEASUREMENT COMPONENTS, INSTRUMENTS AND SYSTEMS

WEINSCHEL

ENGINEERING COMPANY KENSINGTON, MARYLAND • Phone: LOckwood 4-0121 • TWX: KENS 446

For details, circle #263 on Reader Service Card

Directory II. Components

45. Attenuators.

Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 15s, 20s, 25s

Photo-Crystals, Inc., Ill., 20c, 25c

Polytronic Research, Inc., Md., 10c, 15c, 30c

Portchester Instrument Corp., Subsid. of Premier Microwave Corp., 114 Wilkins Ave., Port Chester, N.Y., 20c, 25c, Tel: 914-WEstmore 9-4092
See ad in class 66

Precision Microwave Corp., Mass., 20c, 25c

Premier Microwave Corp., 33 New Broad St., Port Chester, N.Y., 20sc, 25c, Tel: 914-WEstmore 9-8900
See ad in class 50

Pylon Electronic Development Co., Ltd., Canada, 25sc

RCA Victor Co., Ltd., Canada, 10s, 20s

R-K Laboratories Co., N.Y., 5c, 10c, 15c, 30c, 35c

RLC Electronics, Inc., 805 Mamaroneck Ave., Mamaroneck, N.Y., 20s, 25s, Tel: 914-OWens 8-7440
See ads in classes 45, 59

RS Electronics Corp., 435 Portage Ave., P.O. Box 11368, Sta. A, Palo Alto, Calif., 10sc, Tel: 415-DAvenport 1-1130
See ad in class 43

Radar Design Corp., N.Y., 20sc, 25sc

Radar Measurements Corp., 190 Duffy Ave., Hicksville, L.I., N.Y., 20sc, 25c, 30c, Tel: 516-OVerbrook 1-5600
See ad in class 37

Rantec Corp., Calif., 20c, 25c

Raytheon Co., Microwave & Power Tube Div., Mass., 20sc, 25sc

Rixon Electronics, Inc., Md., 5c, 10c, 15c, 30c, 35c

Roberts Co., Inc. (R. O.), Calif., 25c

Rohde & Schwarz, P.O. Box 275, 111 Lexington Ave., Passaic, N.J., 5s, 15s, Tel: 201-PRescott 3-8010
See ad in class 38

S-F-D Laboratories, Inc., 20c, 25c

Sage Laboratories, Inc., 3 Huron Dr., East Natick Industrial Park, Natick, Mass., 20c, 25c, Tel: 617-OLympic 3-0844
See ad in class 66

a complete line of

COAXIAL MICROWAVE COMPONENTS

- Attenuators
- Filters
- Terminations
- Mixers
- RF front ends

Write for additional information

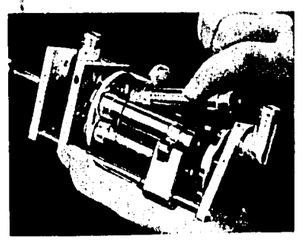
R L C ELECTRONICS, INC.

For details, circle #264 on Reader Service Card

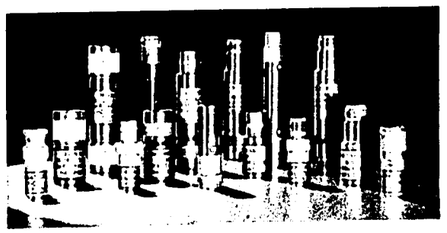
STODDART

WIDE RANGE COAXIAL ATTENUATORS 50 & 70-OHM TERMINATIONS

Manufactured using exclusive Stoddart film resistors for highly accurate and stable operation from dc thru 3000 mc; with special values from dc thru 10 kmc.



2, 6 and 10 position turret attenuators offer quick removal, replacement or rearrangement of single attenuator pads. Small and rugged, the Stoddart turrets operate with a "Pull-Turn-Push" sequence.



Stoddart attenuator pads are available in any value from 0 thru 60 db, including fractional values. Any conceivable combination of male and female, Type N and Type C connectors may be ordered. Pads with flanges for panel mounting can also be supplied.

10, 20, 40 and 60 db attenuators are available for operation from dc thru 10 kmc.

1 watt, 50-Ohm terminations can be selected for use from dc thru 7000 mc, in addition to those in the dc-3000 mc range. All 1 watt terminations can be supplied with either Type N or Type C connectors. ½ watt, 50 or 70-Ohm terminations with BNC or TNC connectors manufactured for use from dc thru 1000 mc.

Common db values available from stock.

Detailed literature upon request.
Immediate delivery from stock.

STODDART
AIRCRAFT RADIO CO., INC.
6644 Santa Monica Blvd., Hollywood 38, Calif.; HOllywood 4-9292
serving 33 countries in Radio Interference control

For details, circle #265 on Reader Service Card

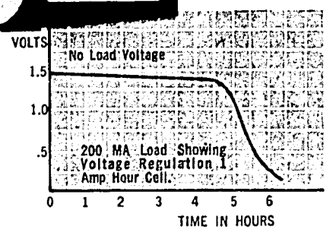
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

SILVER CHLORIDE

CALORI ++−− VOLT

BATTERIES

The newest development in batteries, these miniature units are capable of delivering large peak currents (10 amps/sq. in.). . . . May be recharged at 1 amp per sq. in. . . . Rapid depolarization. . . . Will withstand short circuits for sustained periods, recovering full potential in fraction of a second. Available in 5 sizes from ¼"D x ¼" to 2"D x ½" and from 300 to 6,000 MA hours.



DISCHARGE CURVE

Silver-Chloride, zinc, sea-water activated batteries also available . . . no gassing, no magnesium used.

We invite inquiries on special applications for unusual power source requirements.

For detailed information and literature . . . write

CALORI ++−− VOLT CORP.

24 Woodworth Ave., Yonkers, N.Y. • GReenleaf 6-4440

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BF SERIES

BF Series Transistor Battery Holder accommodates batteries and cells with diameters up to 1⅜" and lengths from 1¹¹⁄₆₄" to 7⅜" making it possible to use different battery combinations to obtain a wide selection of DC voltages. Batteries can be exchanged simply by unscrewing the holder cap. Designed for mounting up to a 1¼" diameter hole and ⅜" thick panel.

Inquiries for special battery holder length and diameters are invited.

300 SERIES: (B SERIES SHOWN) • Accommodates batteries ranging up to ¹¹⁄₁₆" diameter and lengths from 1.300 to 5.850.

400 SERIES: (F SERIES SHOWN) • Accommodates batteries ranging from 1" to 1⅛" diameter and lengths from 1¹¹⁄₁₆" to 6³⁄₁₆".

500 SERIES: (B SERIES SHOWN) • Accommodates batteries ranging from 1³⁄₁₆" to 1⅜" diameter and lengths from 2³⁄₁₆" to 7⅜".

SECURITY DEVICES LABORATORY

ELECTRONICS DIVISION OF SARGENT & GREENLEAF, INC.

ROCHESTER 21, NEW YORK

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45. Attenuators.

Sanders Associates, Inc., N.H., 20s
Sangamo Electric Co., Springfield, Ill., 5c, Tel: 217-KIngswood 4-6411
See ad on page 142
Scaico Controls, Inc., N.J., 20c, 25c
Schutter Microwave Corp., N.Y., 15sc, 20sc, 25sc, 30sc
Seco Electronics, Inc., Minn., 30s
Shallcross Mfg. Co., N.C., 5sc, 10sc, 15sc, 30sc, 35sc
Siemens New York, Inc., N.Y., 5s, 20s, 30s
Sigma Electronics Research Corp., Wash., 20c, 25c
Sivers Laboratory, Sweden, 20s, 25s
Smith Corp. (A. O.), Crowley Div., N.J., 25c, 30c
Somerset Radiation Laboratory, Inc., N.J., 20s, 25s
Specialty Electronics Development Corp., N.Y., 10c, 20c, 25c, 30c
Spencer-Kennedy Laboratories, Inc., Mass., 30s
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 20sc, 25sc
Standard Telephones & Cables, Ltd., England, 5sc, 10sc, 20sc, 25sc, 30sc
Stoddart Aircraft Radio Co., Inc., 6644 Santa Monica Blvd., Hollywood 38, Calif., 10s, 15s, 25s, 30s, Tel: 213-HOllywood 4-9292
See ads in classes 38, 45
Straza Electronics, Div. of Straza Industries, Calif., 35sc
Swift Textile Metalizing & Laminating Corp., 10 Love Lane, Hartford 1, Conn., 30s, Tel: 203-JAckson 2-1181
See ad in class 103
TRG, Inc. (Technical Research Group), 9 Union Square, Somerville 43, Mass., 20s, 25s, Tel: 617-MOnument 6-8680
See ads in classes 44, 66
TRG, Inc. (Technical Research Group), N.Y., 20c, 25c, 30c
Taffet Electronics, Inc., N.Y., 5c, 10c, 30c, 35c
Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 5c, 10c, 15c, 30c, 35sc, Tel: 201-WIndsor 4-2221
See ad in class 80
Technicraft Div., Electronic Specialty Co., Conn., 20c, 25c
Tele Coil Co., N.J., 10c, 15c, 30c
Telonic Engineering Corp., P.O. Box 277, Laguna Beach, Calif., 5c, 30c, Tel: 714-HYatt 4-7581
See ad in class 39
Telonic Industries, Inc., 60 N. First Ave., Beech Grove, Ind., 5sc, 10sc, 30sc, Tel: 317-STate 7-7241
See ad in class 39
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 20c, 25c, Tel: 214-ADams 5-3111
See ad on Cover 3
Therm, Inc., N.Y., 20c, 25c
Transco Products, Inc., Calif., 20c, 25c
Tucor, Inc., Conn., 20c
Turbo Machine Co., Pa., 20sc, 25sc
Ultronix, Inc., Calif., 5c, 15c, 35c
United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 30s, Tel: 212-BEekman 3-8870
See ads in classes 74, 104

Directory II. Components

45. Attenuators.

United Products Co., N.J., 20c
United Shoe Machinery Co., Mass., 20c, 25c
U.S. Dielectric Products, Inc., Mass., 25sc
U.S. Recording Co., D.C., 15c, 35c
Vemaline Products Co., N.J., 5s, 15s, 35s
Waltham Electronics Corp., Mass., 5c, 30c
Washington Aluminum Co., Inc., Md., 20sc, 25sc
Waveguide, Inc., Calif., 20c
Waveline, Inc., N.J., 20s, 25s
Wavetronics, Inc., N.J., 20c, 25c
Wayne Kerr Corp., Pa., 5s
Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., 5c, 10sc, 15c, 20sc, 25sc, 30sc, 35c, Tel: 301-LOckwood 4-0121
See ad in this class, page 400
Winegard Co., Iowa, 30s
Winslow Co., Inc., N.J., 20sc, 25sc, 30s
Wunderlich Radio Co., N.Y., 5c

Audio amplifiers:
See class 43

Backward-wave tubes:
See class 86

Baffles:
See class 79

Ballasts:
See class 86

Bases, tube & semiconductor:
See class 105

46. Batteries.

5. Dry
10. Lead-acid
15. Mercury
20. Nickel-alkali
25. Nickel-cadmium
30. Silver-cadmium
35. Silver-zinc
40. Solar
45. Zinc-carbon

Aga Corp. of America, N.J., 10s
Allied International Corp., N.Y., 5s, 10s, 25s
Bright Star Industries, N.J., 5sc
Burgess Battery Co., Div. of Servel, Inc., Ill., 5s, 15s, 25s, 45s
C & D Batteries, Div. of Electric Autolite Co., Pa., 5sc, 10sc
Catalyst Research Corp., Md., 35c
Chlorivolt Corp., 24 Woodworth Ave., Yonkers, N.Y., 45sc, Water activated silver-magnesium c, Tel: 914-GReenleaf 6-4440
See ad in this class, page 402
Continental Merchandise Co., Transistor Products Div., N.Y., 5s, 45s
DeWitt Development Co., Ill., 10c
Diotron, Inc., Pa., 40sc
Electric Storage Battery Co., Exide Industrial Marketing Div., Pa., 10s, 25s, Nickel-Iron s
Electric Storage Battery Co., Missile Battery Div., N.C., 35sc
Electric Storage Battery Co., Ray-O-Vac Div., Wis., 5sc, 15sc, 45sc
Electric Storage Battery Co., Wisco Div., Wis., 10sc
Electro Powerpacs, Inc., Mass., 25sc
Electronic Batteries, Inc., N.Y., 10sc
Electronic Products Corp., Subsid. of Futura Mfg. Corp., Mo., 5s
Fedtro, Inc., Federal Electronics Sales Div., N.Y., 5s
General Battery & Ceramic Corp., Pa., 10sc
Gould-National Batteries, Inc., Minn., 10s, 25s, 35s
Gould-National Batteries, Inc., Nicad Div., Mass., 5sc, 25sc
Gulton Industries, Inc., N.J., 25sc
Hitachi New York, Ltd., N.Y., 5c
Hoffman Electronics Corp., Calif., 40s
Hughes Research Div. (J. Willis), Miss., 10c
I.H. Mfg. Corp., N.Y., 5s
International Rectifier Corp., 233 Kansas St., El Segundo, Calif., 40sc, Tel: 213-ORegon 8-6281
See ad on pages 74-75
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c
LeClanche S.A., Switzerland, 5sc, 10sc, 20sc, 25sc, 45sc
Mackay Radio & Telegraph Co., N.J., 10sc, 20sc
Mallory & Co., Inc. (P. R.), Ind., 5s, 15sc, 45s, Manganese-Alkaline s
Materials for Electronics, Inc., N.Y., 5sc
Munzig International, Inc., Calif., 5s, 10s
Muter Co., Muter Div., Ill., 35c
Nife, Inc., Nickel Cadmium Battery Div., N.Y., 10s, 25s
Perrott Engineering Laboratories, Inc., Subsid. of Federated Electronics, Inc., Va., 25sc
RCA Victor Co., Ltd., Canada, 5s, 15s, 20s
Radiation Applications, Inc., N.Y., Chemical-Membranes sc
Radio Corp. of America, Defense Electronic Products, N.J., 5s
Radio Corp. of America, RCA Electron Tube Div., N.J., 5s, 15s, 45s, Alkaline s
Sanyo Electric Co., Ltd., Japan, 5s
Security Devices Laboratory, 24 Seneca Ave., Rochester 21, N.Y., 15s, Tel: 716-HOpkins 7-3200
See ads in this class (page 402) & class 73
Solar Systems, Inc., Ill., 40sc
Sonotone Corp., N.Y., 25s, 30c
Sprague Electric Co., Mass., Solid-Electrolyte sc
Telecomputing Corp., Calif., 30c, 35c
Telecomputing Corp., Power Sources Div., Colo., 30c, 35sc
Three Point One Four Corp.: See Chlorivolt Corp.
Union Carbide Corp., Union Carbide Consumer Products Co. (Div.), N.Y., 5s, 15s, 25s, 35s, 45s
Yardney Electric Corp., N.Y., 25c, 30sc, 35sc

Bearings:
See class 97

Blocks & strips, terminal:
See class 81

Blower & fan motors:
See class 67

47. Blowers & Fans.

5. Air wheels & housings
10. Blower assemblies
15. Fan blades
20. Miniature

Air Control Installations, Ltd., England, 10s, 20s
Air-Marine Motors, Inc., 369 Bayview Ave., Amityville, L.I., N.Y., 10sc, 20sc, Tel: 516-AMityville 4-3700
See ad in this class
Amco Engineering Co., 7333 W. Ainslie St., Chicago 31, Ill., 10sc, Tel: 312-UNderhill 7-8500
See ad in class 90
American Agile Corp., Ohio, 10sc
American Electronics, Inc., Calif., 20sc
American Electronics, Inc., Electro-Mechanical Div., Calif., 10sc, 20c
American Electronics, Inc., Fullerton Divs., Calif., 10c, 20c
Argus Mfg. Co.: See Cabtron
Ashland Electric Products, Inc., N.Y., 10c
Astro Dynamics, Inc., Mass., 10sc
Barber-Colman Co., Motors & Components Div., Dept. V, P.O. Drawer 99, 19119 Rock St., Rockford, Ill., 10sc, 15s, Tel: 815-WOodland 8-6833
See ad in class 67
Benson Mfg. Co., Mo., 10sc
Borg-Warner Corp., Pesco Products Div., Ohio, 10s, 20s
Bud Radio, Inc., 2118 E. 55th St., Cleveland 3, Ohio, 5c, 10sc, Tel: 216-HEnderson 1-7166
See ad in class 90
Cabtron, Div. of Argus Mfg. Co., 1218 S. Western Ave., Chicago 8, Ill., 10s, Tel: 312-243-2565
See ad in class 90
Controls Co. of America, Ill., 10sc, 20sc
Corkpak Co., Inc., N.Y., 10s
Cosmodyne Corp., Calif., 5c, 10c, 20sc
Deltron, Inc., Pa., 10s
DeVilbiss Co., Ohio, 5sc, 10sc

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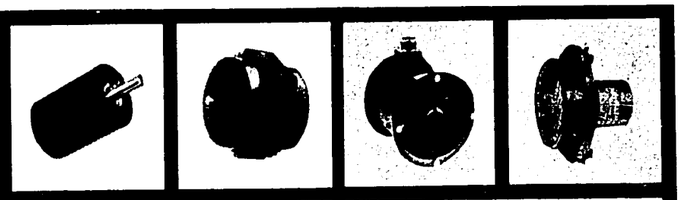
OUR FIELD ENGINEERS WILL GLADLY ASSIST YOU IN YOUR COOLING PROBLEMS



BLOWER AND FAN TYPES OFFERED

Centrifugal and Vane Axial Blowers, Blower Housings, Axial Flow Fans.

TYPES OF SUB-FRACTIONAL MOTORS MANUFACTURED:

Induction, Hysteresis Synchronous, Reluctance Synchronous, Servo, Gear and High Slip Induction.

BLOWERS

C F M	to 750 max.
Types	Single, double, inverted
Housings	2¼" to 11¼", vertical, overall
Mountings	Flange, foot, cone

MOTORS

Horsepower	1/500th to ½ h.p.
Speeds	3600 rpm max. at 60 cps 24,000 rpm max. at 400 cps Dual and Variable Speed Units
Frequency	Fixed . . . 50, 60 or 400 cps Variable . . . 50 to 450 cps, and 320 to 1,000 cps Special . . . as required
Voltage	Standard 115V and 230V Special . . . as required
Phase	1, 2 or 3 phase
Size	1" O.D. to 4¾" O.D.

FANS

C F M	to 1000 max
Types	Axial, vane axial, ALTIMATIC ®
Blades	2" to 12" dia.
Mountings	Venturi, foot.

Air Marine motors and cooling units have been designed and tested to meet the specifications of both the military and industry.

air•marine motors, inc.

369 Bayview Ave.
Amityville, L. I., N. Y.
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air marine

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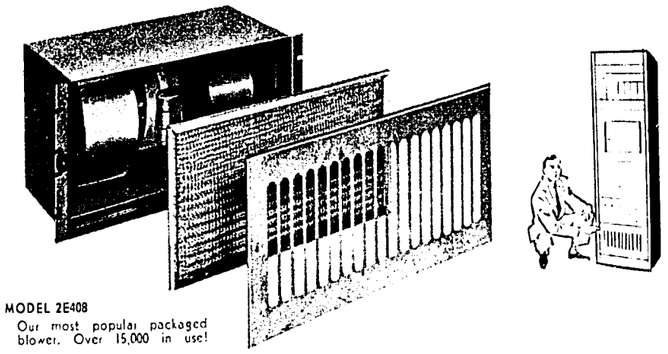
McLEAN

for the World's Finest and Largest Line of Electronic Fans and Blowers



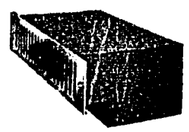
MODEL 2E408
Our most popular packaged blower. Over 15,000 in use!

McLean fans and blowers are compact, packaged units that pressurize the cabinet with cool, filtered air, preventing dust from entering through cracks or joints. The units are complete, and ready for use. No cutting or fitting is necessary . . . standard EIA notching is used. All units contain easily replaceable filters, Smart, stainless steel grilles eliminate the necessity of matching special finishes. All components provide long service-free life, reliability, long-term economy, maximum safety and quiet operation.

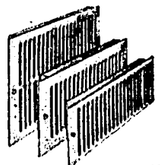
SPECIFICATIONS FOR 19" RACK MODELS

Panel Height	Model	CFM	Remarks	Type
3½"	2E300E	150	Case Height 5½" Recessed	Blower
5¼"	2E300A	150	Basic Model	Blower
5¼"	3E40B	180	For Low Rear Head Room	Propeller
5¼"	2E408E	300	Case Height 7" Recessed	Blower
7"	2E408A	300	Basic Model (Silent Operation)	Blower
7"	2E55B	250	Basic Model	Propeller
7"	M2E55B	300	400 Cycle Mil-Spec	Propeller
7"	2EB508E	500	Case Height 8¾" Recessed	Blower
8¾"	2EB508A	500	Basic Model	Blower
8¾"	2E80B	475	Basic Model	Propeller
8¾"	2EB610E	800	Case Height 10½" Recessed	Blower
10½"	2EB610A	800	Basic Model	Blower
10½"	2EB08S1	500	Basic Model	Propeller
10½"	1EB800	1000	Case Height 12¼" Recessed	Blower

Modifications of Above Models Can be Made to Other Width Racks



RECESSED MODELS
For maximum air delivery where panel space is limited.



FILTER GRILLE ASSEMBLIES
For cabinets lacking sufficient louvre area to permit an adequate air change.

RING AND PANEL FANS
Mount easily and quickly against bottom, top or sides of cabinet with shaft in any position.

SINGLE AND DUAL CENTRIFUGAL BLOWERS
For spot cooling, pressurizing or general purpose use where filtered air is not essential.

HALF PANEL WIDTH FANS AND BLOWERS
For narrow width panels or full width where space is a problem. Same high quality as full width units.

REVERSIBLE FANS
Easy to install, great mounting flexibility. Can be installed as blow or suck.

McLEAN
ENGINEERING LABORATORIES
P. O. BOX 228, PRINCETON, NEW JERSEY
PHONE WAlnut 4-4440 • TWX PRINCETON, N. J. 636

SEND FOR 1962 CATALOG
Ask about our line of Mil-Spec fractional horsepower motors.

For details, circle #269 on Reader Service Card

Directory II. Components

47. Blowers & Fans.

Dominion Electrohome Industries, Ltd., Canada, 15s
Dynamic Air Engineering, Inc., Calif., 5s, 10 Heating s, 15s, 20s
Eastern Air Devices, Inc., N.H., 10sc, 20sc
Edmund Scientific Co., N.J., 10s, 15s, 20s
Electric Indicator Co., Inc., Conn., 10c, 20c
Electro-Rack, Inc., Calif., 10s
Elm Laboratories, N.Y., 10c
Emerson Electric Mfg. Co., Mo., 10s, 15s
Equipto Electronics Corp., Ill., 5s, 10s
Eugene Engineering Co., Inc., 1217 Hyde Park Ave., Hyde Park 36, Mass., 10c, 15c, Tel: 617-EMpire 1-7000
See ads in classes 96, 105
Fasco Industries, Inc., N.Y., 5s, 10s, 15s, 20s
Flexaust Co., Div. of Callahan Mining Corp., N.Y., Flexible-Ducts sc
Garrett Corp., AiResearch Mfg. Co., Calif., 10sc, 20sc
Gaylord-Rives Co., Calif., 10c, 20c
General Precision, Inc., Kearfott Div., N.J., 20s
Globe Industries, Inc., Ohio, 5c, 10s, 15s, 20s
Heinze Electric Co., Mass., 5c, 10c, 20c
Hitachi New York, Ltd., N.Y., 10c
Hoover Co., Ltd., Canada, 10sc, 20sc
Hoover Electric Co., Calif., 10c
IMC Magnetics Corp., Eastern Div., N.Y., 10sc, 20sc
Industrial Plastic Fabricators, Inc., Mass., 10s
Janette Div., National Pneumatic Co., Inc., Mass., 10c
Joy Mfg. Co., Pa., 5c, 10 Aircraft c, 20c
Kooltronic Fan Co., N.J., 5sc, 10sc
Lamson Corp., N.Y., 10s
Lear, Inc., Lear-Romec Div., Ohio, 10sc, 20sc
Lundy Mfg. Corp., N.Y., 10sc
Mamco Corp., Wis., 5sc, 10c, 20c
Manson Laboratories, Inc., Conn., 10c
McLean Engineering Laboratories, 70 Washington Rd., P.O. Box 228, Princeton, N.J., 5sc, 10sc, 15sc, 20sc, Tel: 609-WAlnut 4-4440
See ad in this class
Motordyne, Inc., Subsid. of Air-Marine Motors, Inc., Calif., 10sc, 20sc
Mueller Engineering Co., Inc. (Heinz), Ill., 10sc, 15sc, 20sc
Nevada Air Products Co., Nev., 10c
Pabst Engineering Equipment Co., Inc., N.J., 10c
Pioneer Electric & Research Corp., Ill., 20c
Radio Development & Research Corp., N.J., 5c, 10c
Revcor, Inc., Ill., 5c, 15c
Ripley Co., Inc., Conn., 5s, 10s, 20s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

RCi

Sub-fractional AC MOTORS and ROTATING DEVICES

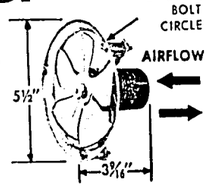
ADAPTABLE TO THE WIDEST VARIETY OF APPLICATIONS TO FIT YOUR REQUIREMENTS

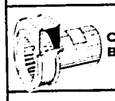
STANDARD AND CUSTOM DESIGNS

- 1/2000 to 1 HP
- Military Specs
- 60-400 CPS and variable frequency
- Size 1" to 3⅞" O.D.
- High ambient temperature
- Totally enclosed or open frame

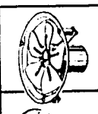
A TYPICAL RCi AXIAL FAN

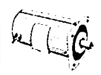
- Air delivery to 300 CFM
- Readily mounted
- Available for 50 thru 1000 CPS operation — no switching
- Quick delivery

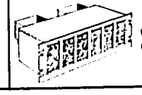


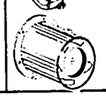

CENTRIFUGAL BLOWERS

SERVO MOTORS


AXIAL FANS


GEAR MOTORS


COOLING CABINETS


VANE-AXIAL BLOWERS

INDUCTION MOTORS • SYNCHRONOUS MOTORS • TORQUE MOTORS
P.M. ALTERNATORS MOTOR GENERATORS

SEND FOR CATALOG R

ROTATING COMPONENTS, inc.

1560 Fifth Ave., Bay Shore, L.I., N.Y.
MOhawk 6-8500 TWX No. BYSH 5670

RCi

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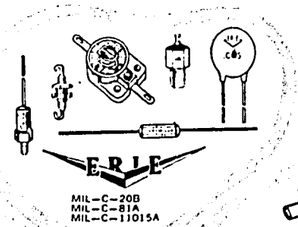

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Leader in

precision

FILM CAPACITORS

ARCO FIRSTS IN PLASTIC FILM CAPACITORS

- 0.05% TOLERANCE
- 0.05% STABILITY
- RELIABLE 100°C POLYSTYRENE
- CONTROLLED LINEAR TEMPERATURE COEFFICIENT
- ZERO TEMPERATURE COEFFICIENT
- 10^{12} OHM INSULATION RESISTANCE POLYSTYRENE
- MINIATURE CAPACITOR STANDARDS
- TEMPERATURE STABLE R-C NETWORKS

These achievements are fully documented and the listed characteristics uniformly reproducible. All Arco specifications are conservative limits which can be expected of each capacitor made. The expressions "typical" and "average" will never apply.

We solicit inquiries on special capacitor design problems and also engage in formulation and construction of stable, precise R-C networks and capacitor assemblies.

ARCO electronics inc.
Community Drive
Great Neck, New York
HUnter 7-0500
PFC Division

For details, circle #272 on Reader Service Card

Directory II. Components

47. Blowers & Fans.

Rotating Components, Inc., 1560 Fifth Ave., Bay Shore, L.I., N.Y., 10sc, 20sc, Tel: 516-MOhawk 6-8500
See ad in this class

Rotron Mfg. Co., Inc., 79 Schoonmaker Pl., Woodstock, N.Y., 5s, 10s, 20s, Tel: 914-ORiole 9-2401
See ad in this class

Sanders Associates, Inc., N.H., 20s

Schaevitz Engineering, N.J., 10c, 20sc

Sealomatic Electronics Corp., N.Y., 10s

Small Motors, Inc., Ill., 10c, 20c

Solartron Electronic Group, Ltd., England, 20s

Standard Electric Mfg. Co., Inc., N.J., 5c, 10c, 15c, 20c

Torrington Mfg. Co., Inc., Specialty Blower Div., Conn., 5sc, 10sc, 15sc, 20sc

Western Design & Electronics, Div. of U.S. Industries, Inc., Calif., 10sc

Western Devices, Inc., Calif., 10s

Western Gear Corp., Electro Products Div., Calif., 10c, 20c

Bobbins:
See class 97

Bobbins, ceramic:
See class 92

Bobbins, plastic:
See class 106

Boosters, television:
See class 43

Brakes, servo:
See class 77

Breadboards:
See class 97

Brushes, motor:
See class 97

Cable & wire:
See class 91

Capacitor testers:
See class 41

Be sure to consult the advertisements in this issue for complete information on products. Directory listings cannot give you all the details you want to know.

48. Capacitors, Fixed.

2. Ceramic
4. Composition
6. Decade
8. Electrolytic
10. Energy storage
12. Feed through
14. Gas filled
16. Glass dielectric
18. High voltage
20. Metallized
22. Mica
24. Mica, silvered
26. Oil filled
28. Paper
30. Plastic
32. Power factor
34. Precision air
36. Printed circuit
38. Pulse forming networks
40. Tantalum
42. Vacuum

AMP, Inc., Pa., 18sc, 20sc, 22sc, 26sc, 28sc, 30sc, 38sc

AMP, Inc., Capitron Div., Pa., 4c, 18c, 26c, 28c, 30c, 38c

Aerovox Corp., Mass., 2s, 8s, 10c, 12s, 18c, 20s, 22s, 24s, 26s, 28s, 30c, 32c, 36s, 38c, 40s

Airborne Accessories Corp., N.J., 12sc, 18sc, 20sc, 22sc

Ajax Condenser Co., Inc., Ill., 8c, 10c, 18c, 28c, 30c, 36c

Allegri-Tech, Inc., N.J., 36c

Allen Avionics, Inc., N.Y., 38c

Allen-Bradley Co., Wis., 2s, 12s

Allison Associates, Mass., 36c

American Capacitor Co., Mass., 2s

American Elite, Inc. (Telefunken), N.Y., 42s

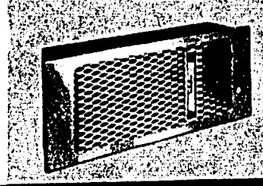
American Geloso Electronics, Inc., N.Y., 8s, 16s, 20s, 22s, 24s, 28s

PROPIMAX
3¼"

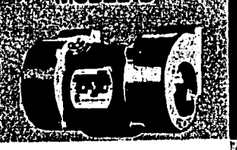
MUFFIN
4 11/16"

CFG SERIES
9⅛"

RF PANEL



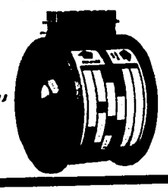
MODEL "D"



COOLING DEVICES for electronic packages

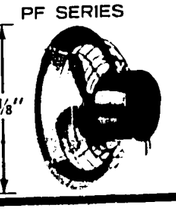
ROTRON

AXIMAX
1¾"



MODEL D201

PF SERIES
8⅛"



SAUCER
7"

ROTRON

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ROTRON mfg. co., inc.
79 Schoonmaker Place
WOODSTOCK, NEW YORK
In Canada: The Hoover Co., Ltd., Hamilton, Ont.

The world's most complete and comprehensive line of precision fans and blowers for cooling electronic devices. Submit your cooling problems to Rotron. Customer engineering services from coast-to-coast.

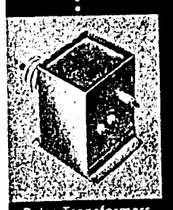
WRITE FOR INFORMATION STATING AREA OF INTEREST...

For details, circle #273 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

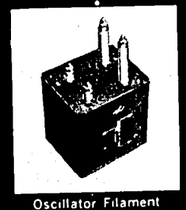
HIGH POWER MATCHED PULSE COMPONENTS

Pulse Forming Networks



Pulse Transformers

Charging Reactors



Oscillator Filament Transformers

FEATURES

- Stable performance at High Temperatures
- Widest Range and combination of Electrical parameters
- Oil filled units hermetically sealed in welded seam cases
- Designed to meet exact system requirements
- Meets and exceeds all Mil requirements

Axel Pulse components are designed for use in Industrial, Military and Research application where electronic equipments demand a specific energy impulse of accurate shape and duration. All Axel Pulse Components have a high reliability and are designed to meet minimum space and weight requirements.

Axel

AXEL ELECTRONICS, INC.
134-20 Jamaica Ave., Jamaica 18, N. Y.

High Voltage Capacitors, Pulse Magnetic Components, Pulse Networks, Pulse Packages, R.F. Suppression Filters.

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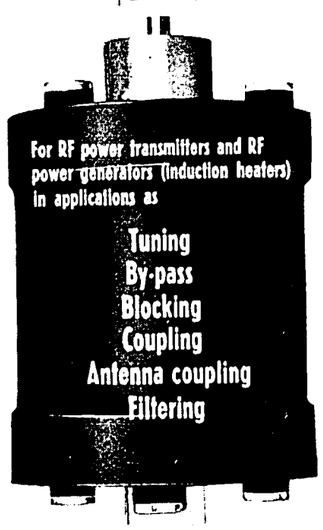
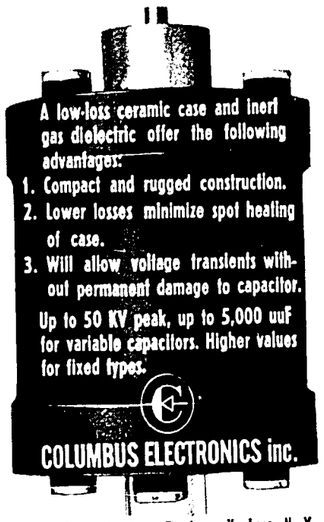
COLUMBUS ELECTRONICS

HIGH VOLTAGE VARIABLE AND FIXED R F CAPACITORS



For RF power transmitters and RF power generators (induction heaters) in applications as

Tuning
By-pass
Blocking
Coupling
Antenna coupling
Filtering



A low-loss ceramic case and inert gas dielectric offer the following advantages:

1. Compact and rugged construction.
2. Lower losses minimize spot heating of case.
3. Will allow voltage transients without permanent damage to capacitor.

Up to 50 KV peak, up to 5,000 uuF for variable capacitors. Higher values for fixed types.

COLUMBUS ELECTRONICS inc.

1000 Saw Mill River Road Yonkers, N. Y.
Tel: YOnkers 8-1221 TWX: Yonkers NY-1369

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NOTED FOR EXCEPTIONAL PERFORMANCE CHARACTERISTICS

- HIGH TEMPERATURE (Teflon & metalized Teflon) to +250° C.
- PRECISION—STANDARD TYPES (Tol. 0.1%, max. Drift < .05%)
- PRECISION—CIRCUIT TYPES (Close Tol. & High Stability)
- HIGH STABILITY TYPES (< 0.1% Retrace)
- SUB-MINIATURE TYPES
- HIGH INSULATION RESISTANCE— (to 10^{14} ohms)
- LOW TEMPERATURE COEFFICIENT (< 100 ppm)
- LOW DISSIPATION FACTOR— (to .02%)
- LOW DIELECTRIC ABSORPTION— (to .02%)

Balco

SPECIALISTS in
HIGH TEMPERATURE and HIGH PRECISION CAPACITORS

Balco's capacitor division offers a variety of quality capacitor types for conventional and HI-TEMPERATURE application, manufactured under the most rigid standards of the industry.

Investigate Our Complete Line of Miniature Capacitors

CAPACITORS Div. of BALCO RESEARCH LABS
DEPT. E 40-53 EDISON PLACE • NEWARK 2, N. J.

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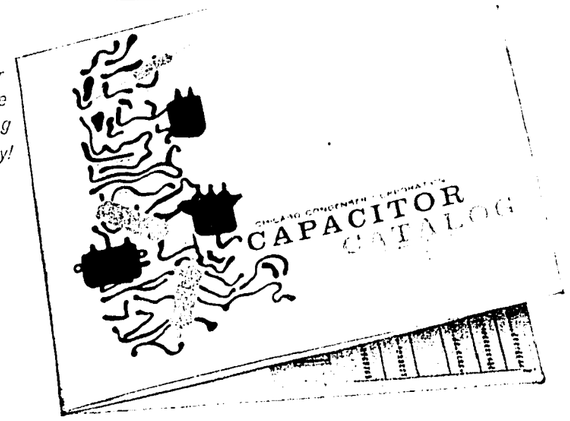
Write for Free Catalog Today!



New Capacitors
New Catalog!

META-CAPS® PERM-A-CAPS® PI-CAPS®

and many more. A complete showing of Chicago Condenser's unmatched line of capacitors. Metallized Mylar, Metallized Paper, Mylar-Paper, Mylar, Polystyrene, Teflon, Kraft Tissue, etc. Styles and characteristics to meet any specification.

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CHICAGO CONDENSER CORP.
3255 West Armitage Avenue, Chicago 47, Illinois

For details, circle #277 on Reader Service Card

Directory II. Components

48. Capacitors, Fixed.

American Lava Corp., Subsid. of Minnesota Mining & Mfg. Co., Cherokee & Manufacturers Rd., Chattanooga 5, Tenn., 2c, 12c, Tel: 615-AMherst 5-5411
See ad on page 98

Arco Electronics, Inc., Community Dr., Great Neck, L.I., N.Y., 4c, 6c, 8sc, 18sc, 22c, 24c, 30sc, Tel: 516-HUnter 7-0500
See ads in classes 31, 48 (page 409)

Arnhold Ceramics, Inc., N.Y., 8s

Arrow Radio Co., Canada, 2c, 3s

Artronic Instrument Co., Md., 8s

Astron Corp., N.J., 2sc, 8sc, 12sc, 18sc, 20sc, 26sc, 28sc, 30sc, 36sc, 38sc, 50s

Atlee Corp., Wesco Div., Mass., 10c, 18s, 20c, 22c, 26s, 28c, 30s

Automation Components, Inc., Pa., 2s, 12s, 18s, 20s, 30s

Axel Electronics, Inc., 134-20 Jamaica Ave., Jamaica 18, N.Y., 10c, 12c, 18c, 26c, 32c, 38c, Tel: 212-AXtel 1-8900
See ad in this class

Balco Capacitors Div., Balco Research Laboratories, Dept. E, 40-53 Edison Place, Newark 2, N.J., 6sc, 18sc, 20sc, 30sc, 36sc, High-Temp. sc, Tel: 201-MItchell 3-5200
See ad in this class

Barco, Inc., Wis., 8s, 30s

Bendix Corp., Cincinnati Div., Ohio, 30s

Bendix Corp., Scintilla Div., Sidney, N.Y., 10c, 18sc, Tel: 607-LOwell 3-9511
See ad on page 90

Boyd & Sons, Ltd., Sydney, N.S., Canada, 34c

British Radio Electronics, Ltd., Dr., 3s

Burmac Electronics Co., Inc., 142 S. Long Beach Rd., Rockville Centre, L.I., N.Y., 38c, Tel: 516-ORiole 5-5070
See ad on page 69

Burroughs Corp., Electro Data Div., Calif., 3s

Collins Industries, Inc., Texas, 8c

Canadian Aviation Electronics, Ltd., Canada, 26s

Capacitor, Inc., N.Y., 8s, 10s, 12s, 18s, 20s, 26s, 28s, 30s, 34s

Cardwell Condenser Corp., N.Y., 34s

Centralab, Electronics Div. of Globe-Union, Inc., 900A E. Keefe Ave., Milwaukee 1, Wis., 2sc, 12sc, 18sc, 30sc, 36c, Tel: 414-WOodruff 2-9200
See ad in class 74

Ceramco, Inc., N.J., 20s, 24s

Chicago Condenser Corp., 3255 W. Armitage Ave., Chicago 47, Ill., 10c, 12c, 18c, 20c, 26c, 28c, 30c, 32c, 34c, 36c, 38c, Tel: 312-CApitol 7-7070
See ad in this class

Cinch Mfg. Co., Graphik Circuits Div., Calif., 36c

Columbus Electronics, Inc., 1000 Saw Mill River Rd., Yonkers, N.Y., 14sc, 18sc, Tel: 914-YOnkers 8-1221
See ads in classes 48, 71

Component Research Co., Inc., Calif., 18c, 20s, 30s

MUCON

SUBminiature CERAMIC CAPACITORS

designed for your SMALL SPACE

THINLINE

Any value, SQUARE or RECTANGULAR, made from any one of the following CERAMIC bodies. As small as .100" square maximum

SUPER-K for MAX. CAPACITANCE

HIGH-K for BETTER TEMP. CURVE

STABLE-K . . . FLAT within ±10%

LOW-VAR . . . FLAT WITHIN ±8%

9 ADDITIONAL CERAMICS for TEMPERATURE COMPENSATION or LOWER CAPACITANCE VALUES

N2400	N450	N150
N1400	N330	N080
N750	N220	NPO

NARROW-CAPS

NARROW DESIGN TO FIT 1/10" MODULAR SPACING Intermediate values quickly obtainable.

19 STOCK VALUES below

Part No.	Capacitance mmf.	Tolerance	Working Volts D. C.
NC-5	5	±15%	50
NC-7.5	7.5	±15%	50
NC-10	10	±15%	50
NC-15	15	±15%	50
NC-22	22	±15%	50
NC-33	33	±15%	50
NC-47	47	±15%	50
NC-68	68	±15%	50
NC-82	82	±15%	50
NC-100	100	±20%	50
NC-250	250	±20%	50
NC-500	500	±20%	50
NC-750	750	±20%	50
NC-1000	1000	±20%	50
NC-1500	1500	±25%	25
NC-2000	2000	±25%	25
NC-3000	3000	±30%	25
NC-4000	4000	±30%	25
NC-01	10000	±30%	10

RIBBON LEADS

FOR HIGHER SELF-RESONANT FREQUENCY and Q

STANDOFFS

EXTREMELY LOW SERIES INDUCTANCE

SPECIALS

RIBBON, WIRE, TAB LEADS POSITIONED AS REQUIRED.

MUCON CORPORATION

9 ST. FRANCIS ST., NEWARK 5, N. J.

For details, circle #278 on Reader Service Card

48. Capacitors, Fixed.

Condenser Products Co., Fla., 10sc, 16sc, 18sc, 30sc, 38sc

Conductorlab, Inc., Main St., Groton, Mass., 36c, Tel: 617-GIlbert 8-5140
See ad in class 50

Connolly & Co., Calif., 30sc

Cook Electric Co., Ill., 36c

Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 2sc, 4sc, 6sc, 8sc, 10sc, 12sc, 16sc, 18sc, 20sc, 22sc, 24sc, 26sc, 28sc, 30sc, 32sc, 36sc, 38sc, 40sc

Corning Glass Works, Corning Electronic Components Div., 750 High St., Bradford, Pa., 10s, 16s, 36s, Tel: 814-FOrest 2-5571
See ads in classes 48, 49, 74

Corson Electric Mfg. Corp., N.J., 10c, 18sc, 22sc, 28sc, 30sc, 32sc, 38c

Cosmic, Inc., D.C., 10s, 18s, 38s

Cosmic Radio Corp., N.Y., 8sc, 28s, 36sc

Culbertson Products, Inc., N.J., 24c

Dale Electronics, Inc., Subsid. of Hathaway Instruments, Inc., 1318 28th Ave., P.O. Box 488, Columbus, Nebr., 2s, Tel: 402-LOcust 4-3131
See ad in class 74

Dearborn Electronic Laboratories, Inc., Fla., 10c, 12sc, 18sc, 20sc, 26sc, 28sc, 30sc, 32c, 38c

Deltex Laboratories, Div. of Delta Exploration Co., Inc., Miss., 30c

Dilectron, Div. of Bestran Corp., Calif., 2sc, 12c, 18c, 36c

Dittmore-Freimuth Corp., Wis., 22c, 38c

Dolinko & Wilkens, Inc., N.J., 18s, 42s

Eastern Jewel Corp., N.Y., 8s

Eclipse Electronics Co., Canada, 12sc, 26sc, 28sc

El-Rad Mfg. Co., Ill., 38c

Electrical Utilities Co., Ill., 10c, 12c, 18c, 20c, 26c, 28c, 30c, 32c, 36c, 38c

Electro Capacitors Co., Calif., 8sc, 10c

Electro Motive Mfg. Co., Inc., S. Park St., Willimantic, Conn., 2sc, 20sc, 22sc, 24sc, 26sc, 28sc, Tel: 203-HArrison 3-4551
See ad on page 136

Electro Radiation, Inc., Calif., 36c, 42c

Electro Scientific Industries, Inc., Ore., 6s

Electron Products, Div. of Marshall Industries, Calif., 12c, 18c, 20sc, 26c, 28sc, 30sc

Electronic Associates, Inc., N.J., 30c

Electronica Industrial S.A., Brazil, 2sc, 18sc

Elpac, Inc., Calif., 6c, 12c, 18c, 20sc, 26sc, 28c, 30c, 32c

Enflo Corp., N.J., 12sc, 30sc, 36c

Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 2sc, 12sc, 18sc, 24sc, 36sc, 40sc, Tel: 814-GLendale 6-8592
See ad on pages 78-79

Erie Resistor Corp., Ceramic Components Div., Pa., 2sc, 10c, 12sc, 18sc

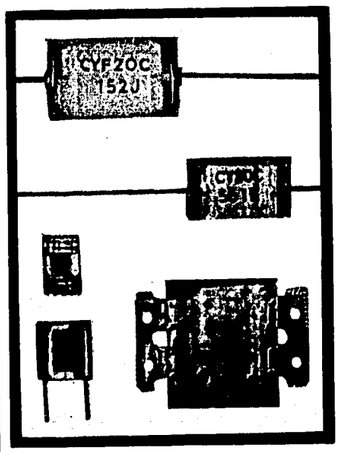
Espey Mfg. & Electronics Corp., N.Y., 10c, 18c, 26c, 30c, 38c

Fansteel Metallurgical Corp., Ill., 40sc

Faradyne Electronics Corp., N.J., 30sc, 40sc

CORNING GLASS CAPACITORS

Most rugged, most compact capacitors you can specify. They're practically indestructible. Made by alternating layers of glass ribbon and aluminum foil and then fusing the mass under heat and pressure. They defy heat, moisture, and other environments.



CY • uuf for uuf, the smallest, most stable axial lead capacitor you can buy. After 2000 hours at 125°C with 150% of full rated voltage, capacitance change is less than 0.5%. MIL-C-11272B.

These range from 1 to 10,000 uuf.

There is also a medium-power style ranging up to 150,000 uuf.

CYF • Fusion-sealed CY capacitors with zero moisture absorption. You can boil these capacitors in salt water for days without affecting their performance. Guaranteed four times better than MIL specs for moisture resistance. From 1 to 5100 uuf.

W, WL • Wafers with or without leads. Smallest high stability capacitors made. Up to 10,000 uuf in 0.061 sq. in. of PCB area. Electrodes sealed to dielectric sheets in such a way that seal cannot be broken without destroying capacitor. Performance of MIL-C-11272A.

Write for data sheets.

CORNING ELECTRONIC COMPONENTS

CORNING GLASS WORKS, BRADFORD, PA.

For details, circle #279 on Reader Service Card

Directory II. Components

48. Capacitors, Fixed

Fast & Co. (John E.), Subsid. of Victoreen Instrument Co., Ill., 4s, 10s, 12s, 16s, 18s, 20s, 26s, 28s, 30s, 32s, 38s, 40s

Fedtro, Inc., Federal Electronics Sales Div., N.Y., 8s

Film Capacitors, Inc., N.Y., 6sc, 10sc, 18sc, 20sc, 26sc, 30sc, 38sc

Filtron Co., Inc., N.Y., 10c, 12c, 18c, 20c, 26c, 28c, 30c, 32c, 38c

Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 6s, Tel: 212-EVergreen 6-1300
See ad in class 84

G C Electronics Co., Div. of Textron Electronics, Inc., Ill., 2s

Gates Electronic Co., 2243 White Plains Rd., New York 67, N.Y., 8s, Tel: 212-TUlip 1-5900
See ad in class 69

General Electric Co., Apparatus Sales Dept., N.Y., 4s, 8sc, 10s, 12s, 18sc, 26sc, 30s, 32s, 38sc, 40s

General Electric Co., Capacitor Dept., N.Y., 4s, 8s, 10c, 18s, 20s, 22c, 26s, 28s, 30s, 32s, 38c, 40s

General Electric Co., Electronic Specialty Capacitor Product Sect., S.C., 8s, 40s

General Instrument Corp., Capacitor Div., S.C., 8sc, 10c, 12c, 18sc, 20sc, 26sc, 28sc, 30sc, 40sc

General Instrument Corp., Defense & Engineering Products Group, N.Y., 2sc, 4sc, 6sc, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 22sc, 24sc, 26sc, 28sc, 30sc, 32sc, 34sc, 36sc, 38sc, 40sc

General Instrument Corp., Efcon, Inc. (Subsid.), N.Y., 18sc, 20sc, 26sc, 30sc

General Instrument Corp., Micamold Div., N.J., 8 Subminiature c, 12c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 36c, 38c, 40c

General Laboratory Associates, Inc., N.Y., 10c, 18c, 22c, 26c, 28c

General Products Corp., N.Y., 28s, 30c

General Radio Co., 22 Baker Ave., West Concord, Mass., 6s, 24s, 30s, 34s, Tel: 617-EMerson 9-4400
See ad on Cover 4

Genistron, Inc., Calif., 12c, 20c, 28c, 30c, 32c

Geotronic Laboratories, Inc., Texas, 6c, 20c, 30c, 36c

Girard-Hopkins, Calif., 4s, 26s, 28s, 32s

Gudeman Co., Ill., 10c, 12sc, 18c, 20sc, 26sc, 28sc, 30sc, 32c

Gudeman Co. of California, Inc., Calif., 20sc, 28sc, 30sc, 32c

Gulton Industries, Inc., N.J., 2sc

Hitachi New York, Ltd., N.Y., 32c

Hopkins Engineering Co., Calif., 6c, 10s, 12s, 18c, 20s, 26s, 28s, 30s, 32s, 36s, 38c

Illinois Condenser Co., 1616 N. Throop St., Chicago 22, Ill., 8sc, 10c, 36sc, Tel: 312-EVerglade 4-1300
See ad in this class

Illinois Tool Works, Paktron Div., Va., 30sc, 40sc

Industrial Condenser Corp., Ill., 8sc, 10c, 20c, 26sc, 28c, 30c, 36c

Industrial Instruments, Inc., N.J., 6s

Interelectronics Corp., 2432 Grand Concourse, New York 58, N.Y., 4sc, 10sc, 16sc, 18sc, 20sc, 30sc, 32sc, Tel: 212-LUdlow 4-6200
See ads in classes 34, 69

International Electronic Industries, Inc., Tenn., 8sc, 40sc

International Telephone & Telegraph Corp., ITT Distributor Products Div., N.J., 10s, 28s, 40s

Irvan Engineering Co., Inc., Calif., 2c

Jennings Radio Mfg. Corp., 970 McLaughlin Ave., San Jose 8, Calif., 18s, 42s, Tel: 408-CYpress 2-4025
See ad in class 49

Johnson Matthey & Mallory, Ltd., Canada, 8sc, 40sc

Kemet Co., Div. of Union Carbide Corp., Ohio, 40s

Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 36c, 38c

Lapp Insulator Co., Inc., Radio Specialties Div., 150 Sumner St., LeRoy, N.Y., 14c, 18c, Tel: 385
See ad on pages 52-53

LeClanche S.A., Switzerland, 6c, 8c, 18c, 26c, 28c, 30c, 32c, 36c, 40c

Leeds & Northrup Co., Pa., 6s, 22s, 34s

Lignes Telegraphiques et Telephoniques, France, 30s, 40s

Lockheed Electronics Co., Avionics & Industrial Products Div., Calif., 36sc

M.E.C., Inc., Tenn., 8c, 10c

Maida Development Co., Va., 2c, 12c, 18c, 36c

Mallory & Co., Inc. (P. R.), Ind., 2sc, 8sc, 26sc, 36sc, 40sc

Marstan Electronics Corp., N.Y., 12s, 18s

Materials for Electronics, Inc., N.Y., 20sc, 40sc

Metaplast Co., Inc., N.Y., 2s, 16s, 18s

Metavac, Inc., N.Y., 24sc

Metropolitan Telecommunications Corp., N.Y., 2c

Micarta Fabricators, Inc., Ill., 36c

Middlesex Paper Tube Co., Mass., 28c

Model Engineering & Mfg. Corp., Ind., 2c

Morey Corp., Ill., 24c

Motson Co. (J. Frank), Pa., 24c

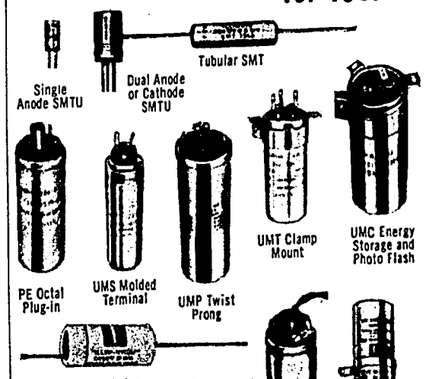
Mucon Corp., 9 Saint Francis St., Newark 5, N.J., 2sc, 36sc, Tel: 201-MItchell 2-1476
See ad in this class

Muirhead & Co., Ltd., England, 6s, 22s, 28s

TYPE SMT Miniature

There is a "Time Tested Quality"

ILLINOIS Electrolytic Capacitor for YOUR APPLICATION!



Need electrolytic capacitors in volume, or a few highly specialized units? It's Illinois . . . your first choice source with more than 25 years of experience in research and development and millions of capacitors of "Time Tested Quality" serving industry throughout the world. Illinois Capacitors do the job better because they feature:

- **Wide range of capacities and voltages —from miniatures to heavy duty power pack and energy discharge types.**
- **Excellent low temperature characteristics**
- **Stable, low leakage, high temperature characteristics**
- **Rugged, excellent under severest operating conditions.**

We invite your inquiry.

ILLINOIS CONDENSER CO
1616 N. Throop Street
Chicago 22, Illinois

Export: 15 Moore St New York 4 New York

For details, circle #280 on Reader Service Card

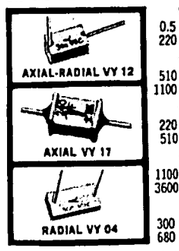
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Vitramon® CAPACITORS
molded • bonded • dual lead configurations
high voltage • humidity resistant
wide temperature range

V T.M. solid state
PORCELAIN CAPACITORS
Conforms with MIL-C-11272B

STANDARD TYPES AND VALUES

All series A, AR and R are available in the following values from factory or distributor stocks in 10%, 5%, 2% and 1% tolerances.



VY 12C or VY 13C
0.5 to 200 mmf at 500 vdc
220 to 300 fmmf at 300 vdc

VY 21C or VY 22C
510 to 1000 mmf at 500 vdc
1100 to 2400 mmf at 300 vdc*

VY 16C or VY 17C
220 to 470 mmf at 500 vdc
510 to 1000 mmf at 300 vdc

VY 31C or VY 32C
1100 to 3300 mmf at 500 vdc
3600 to 6800 mmf at 300 vdc**

VY 05C
300 to 620 mmf at 100 vdc
680 to 1200 mmf at 50 vdc

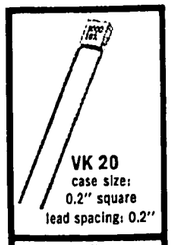
VY 04C
0.5 to 22 mmf at 500 vdc 110 to 220 mmf at 100 vdc
24 to 100 mmf at 300 vdc 240 to 510 mmf at 50 vdc

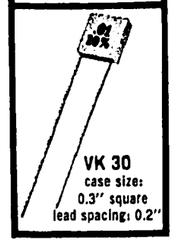
*2200 and 2400 not available in - Axial Series
**6200 and 6800 not available in - Axial-Radial Series

The superior electrical and mechanical characteristics exhibited by Vitramon® capacitors are attributes of their solid state composition — fine silver electrodes molecularly fused within a solid block of high grade porcelain, forming a monolithic unit that requires no case or hermetic seal.

V K® micro-miniature
CERAMIC CAPACITORS
Conforms with MIL-C-11015/18 and /19

10-10,000 mmf
200 vdc without derating
—55°C to 150°C operation





Part Number	Capacity mmf.
VK 20CW100*	10
VK 20CW120*	12
VK 20CW150*	15
VK 20CW180*	18
VK 20CW220*	22
VK 20CW270*	27
VK 20CW330*	33
VK 20CW390*	39
VK 20CW470*	47
VK 20CW560*	56
VK 20CW680*	68
VK 20CW820*	82
VK 20CW101*	100
VK 20CW121*	120
VK 20CW151*	150
VK 20CW181*	180
VK 20CW221*	220
VK 20CW271*	270
VK 20CW331*	330
VK 20CW391*	390
VK 20CW471*	470
VK 20CW561*	560
VK 20CW681*	680
VK 20CW821*	820
VK 20CW102*	1000
VK 30CW122*	1200
VK 30CW152*	1500
VK 30CW182*	1800
VK 30CW222*	2200
VK 30CW272*	2700
VK 30CW332*	3300
VK 30CW392*	3900
VK 30CW472*	4700
VK 30CW562*	5600
VK 30CW682*	6800
VK 30CW822*	8200
VK 30CW103*	10000

*Tolerance code to be added to complete part number. K = 10%, M = 20%

NOTE: When ordering against MIL Specifications, substitute CK 05 for VK 20 and CK 06 for VK 30 in Part Number.

ALSO AVAILABLE IN DIPPED CASE FOR COMPLETE ASSEMBLY ENCAPSULATION

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Muirhead Instruments, Inc., N.Y., 6s, 22s, 28s, 34s
Munzig International, Inc., Calif., 2s, 40s
Murata Mfg. Co., Ltd., Nagaoka-cho, Otokuni-gun, Kyoto, Japan, 2s, 12s, 18s, Tel: Kotari 236
See ad on page 214
Muter Co., Muter Div., Ill., 2sc, 12c, 18c, 36c
Nashville Electronics, Inc., Tenn., 8 Foil c
Neptune Electronics Co., N.Y., 4s, 6c, 8s, 20s, 26s, 28s
New York Coil Co., Inc., Pa., 28c
Ohmite Mfg. Co., Ill., 8sc, 40sc
Philips Electronics Industries, Ltd., Canada, 2s, 4s, 8s, 18s, 36s, 40s
Photocircuits Corp., 31 Sea Cliff Ave., Glen Cove, L.I., N.Y., 36c, Tel: 516-ORiole 6-8000
See ad in class 50
Planet Mfg. Corp., 225 Belleville Ave., Bloomfield, N.J., 8sc, 36sc, Tel: 201-PIlgrim 3-2874
See ad in this class
Plastic Capacitors, Inc., 2620 N. Clybourn Ave., Chicago 14, Ill., 6c, 10sc, 18sc, 20sc, 26sc, 28sc, 30sc, 32sc, 38sc, Tel: 312-DIversey 8-3735
See ad in this class
Potter Co., Ill., 10c, 12c, 18sc, 20sc, 26c, 28sc, 30sc, 36sc
Presin Co., Inc., Calif., 20s, 38 RC c
Pyrocircuits Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 2c, Tel: 516-POrt Washington 7-3949
See ad in class 50
Quality Components, Inc., Pa., 4s
Radio Corp. of America, RCA Electron Tube Div., N.J., 40sc
Radio Corp. of America, Semiconductor & Materials Div., Section J-22-NN, Route #202, Somerville, N.J., 40sc, Tel: 609-RAndolph 2-3200
See ad on pages 54-55
Radio Materials Co., Div. of P. R. Mallory & Co., Inc., Ill., 2sc, 18c, 36c
Resitron Laboratories, Inc., Calif., 42sc
Riemer Co., Inc. (David), N.Y., 8sc, 26s, 28s, 30s, 36sc
Rixon Electronics, Inc., Md., 34c, 38c
Salford Electrical Instruments, Ltd., England, 30s
San Fernando Electric Mfg. Co., Calif., 2sc, 6sc, 8sc, 12sc, 20sc, 28sc, 30sc, 36sc
Sangamo Electric Co., Springfield, Ill., 6c, 8s, 10s, 12s, 18s, 20s, 22s, 24s, 26s, 28s, 30s, 32s, 36s, 38s, Tel: 217-KIngswood 4-6411
See ad on page 142
Servomex Controls, Ltd., England, 6s
Solar Mfg. Corp., Calif., 2sc, 12sc, 18sc, 36sc
Southern Electronics Corp., Calif., 6s, 18c, 20s, 30s, 36c, 38c
Speer Carbon Co., Jeffers Electronics Div., Pa., 4sc
Speer Carbon Co., Onondaga Electronics Div., N.Y., 2c, 36c
Spiron, Inc., Md., 30s, 36s
Sprague Electric Co., Sprague of Wisconsin, Inc., Wis., 2c

Custom PC Engineered at Production Prices!

HIGH VOLTAGE CAPACITORS
• Glass Housed Tubular • Phenolic Case Tubular • Rectangular Metal Containers

METALIZED MYLAR CAPACITORS
• Metal Clad Miniature • Bath Tub Styles • Epoxy Dipped

POLYSTYRENE CAPACITORS
• Metal Clad Miniature • Bath Tub Styles • Rectangular Metal Cased

PAPER CAPACITORS
• Rectangular Metal Cased • Bath Tub Types • Miniaturized Metal Clad

PULSE FORMING NETWORKS

POWER SUPPLIES

We invite your inquiry for customizing to your circuit or physical requirements.

Plastic Capacitors, INC. 2620 North Clybourn, Chicago 14, Illinois

For details, circle #282 on Reader Service Card

Directory II. Components

48. Capacitors, Fixed.

Sprague Electric Co., VecTrol Engineering, Inc. (Subsid.), Conn., 38c
Stackpole Carbon Co., Pa., 4s
Standard Condenser Corp., Ill., 18c, 20c, 26c, 28sc, 30sc, 36c
Standard Pressed Steel Co., Pa., 2sc, 4sc, 6sc, 8sc, 10sc, 12sc, 18sc, 20sc, 22sc, 26sc, 28sc, 30sc, 40sc
Standard Telephones & Cables, Ltd., England, 8sc, 18sc, 20sc, 22sc, 24sc, 26sc, 28sc, 30sc, 32sc, 40sc
Stelon, Inc., N.J., 36c
Stratocon Corp., N.J., 36c
Sun Capacitors, Ill., 2c, 20c, 26c, 28sc, 30sc
Syncro Corp., Ohio, 8c, 26c, 36c
Tansitor Electronics, Inc., Vt., 40sc
Technical Ceramics & Lava Corp., N.J., 2sc
Telecomputing Corp., Calif., 2sc, 12s, 36c
Telecomputing Corp., Electronic Components Div., Calif., 2sc, 12sc, 36sc
Telegraph Condenser Co., England, 2s, 4s, 6s, 8s, 10s, 12s, 18s, 20s, 22s, 24s, 26s, 28s, 30s, 32s, 36s, 38c, 40s
Texas Capacitor Co., Texas, 6c, 8c, 20s, 28s, 30s, 32s, 36sc, 38c
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 6c, 8c, 36s, 40s, Tel: 214-ADams 5-3111
See ad on Cover 3
Thompson Ramo Wooldridge Inc., Good-All Electric Mfg. Co., (Electronic Components Group), Nebr., 2s, 20s, 28s, 30s, 36s
Thompson Ramo Wooldridge Inc., Radio Industries, Inc. (Subsid.), Ill., 2c, 12c, 18c, 36c
Topic Electronics, Inc., Mass., 8s, 10c, 18c, 28s, 30s, 32s, 36s
Transitron Electronic Corp., Mass., 36c
Trionics Corp., Div. of Nautec Corp., Wis., 2c, 18c
Underwood Electric & Mfg. Co., Inc., Ill., 22c, 24c
United Condenser Corp., N.Y., 10c, 18c, 20s, 26c, 28s, 30s
United Electronic Mfg. Corp., N.J., 8sc
United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 2c, 8c, 12c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104
U.S. Semiconductor Products, Inc., Div. of Nuclear Corp. of America, Ariz., 40sc
Vitramon, Inc., P.O. Box 544, Bridgeport 1, Conn., 2s, 12s, 16s, 18c, 36s, Tel: 203-AMherst 8-6261
See ad in this class
Walsco Electronics Mfg. Co., Div. of GC Textron Electronics, Inc., Ill., 2s
Wayne Kerr Corp., Pa., 14s
Wells Co., Inc. (Gary), N.Y., 8sc
Wells Electronics Co., Ind., 6c, 22s, 24s
White Instrument Laboratories, P.O. Box 9006, 5500 Balcones Trail, Austin 17, Texas, 38c, Tel: 512-GLendale 3-8447
See ad in class 59

49. Capacitors, Variable.

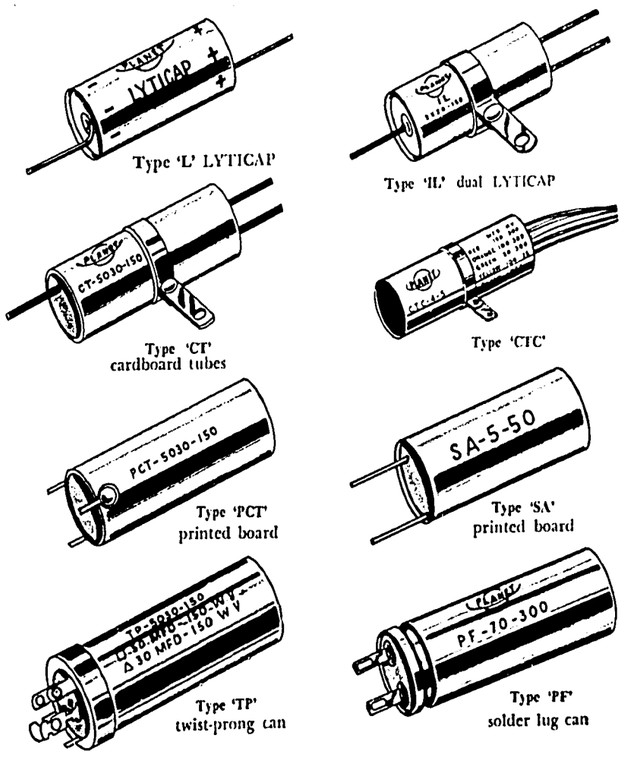
5. Neutralizing
10. Precision variable
15. Temperature compensating
20. Trimmers, air
25. Trimmers, ceramic
30. Trimmers, glass
35. Trimmers, vacuum
40. Tuning

All Star Products, Inc., Ohio, 20c, 40c
Allen Avionics, Inc., N.Y., 15c, 40c
American Feldmuehle Corp., N.Y., 25c
American Geloso Electronics, Inc., N.Y., 5s, 10s, 20s, 25s, 40s
American Lava Corp., Subsid. of Minnesota Mining & Mfg. Co., Cherokee & Manufacturers Rd., Chattanooga 5, Tenn., 25c, Tel: 615-AMherst 5-3411
See ad on page 98
Arco Electronics, Inc., Community Dr., Great Neck, L.I., N.Y., 10c, Tel: 516-HUnter 7-0500
See ads in classes 31, 48

PLANET CAPACITORS ARE

• guaranteed for one year
• engineered for quality

Whether you are a distributor, design engineer or industrial purchasing agent, you will find that our product is good, our service friendly and dependable, and our prices reasonable.



PLANET MANUFACTURING CORP.
BLOOMFIELD, NEW JERSEY
Pilgrim 3-2874

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

NEW CATALOG SUMMARY

presenting...Jennings Vacuum Components, inherently qualified by their unique use of a vacuum dielectric, to help you solve many difficult design problems of high voltage in limited spaces.

A few minutes inspection of the wide range of vacuum components in this new product bulletin will reveal many design possibilities that ordinary electronic components cannot achieve. The bulletin contains valuable data and specifications on the latest types of Jennings Fixed and Variable Capacitors, Power Switches, Coaxial Relays, Triggered Spark Gaps, Transfer Relays and High Voltage Measuring Equipment.

The following examples illustrate some of the unusual capabilities of Jennings vacuum components:

R6G VACUUM SWITCH WITH MODEL E SWITCH MOUNT

Recommended max. load voltages for max. operating recovery voltage at 50 amps-rms	27 kv
Thermal current (for 30° C rise)	250 amps-rms
Max. interrupting current (10 times)	1500 amps-rms at 9 kv
Withstand voltage (60 cycle 1 min. dry)	36 kv-rms

RB1R VACUUM TRANSFER RELAY

Overall length	2¼ in.
Peak test voltage	18 kv
Continuous current	15 amps-rms
High speed	Over 100 cps
Long life	10,000,000 ops min.

UCSL VACUUM VARIABLE CAPACITOR

Capacity range	7-1000 mmfd
Overall length	7-9/16 in.
Peak voltage	5 kv
Continuous current	40 amps-rms

Send for your copy of this informative catalog today. No charge of course.

RELIABILITY MEANS VACUUM / *VACUUM MEANS* Jennings®

JENNINGS RADIO MFG. CORP. 970 McLAUGHLIN AVE. SAN JOSE 8, CALIF. PHONE CYpress 2-4025

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49. Capacitors, Variable.

Atlee Corp., Atlas Div., Mass., 30sc
Barker & Williamson, Inc., Pa., 40s
Bird & Sons, Ltd. (Sydney S.), England, 10c, 20c, 25c
Bright Radio Laboratories, Inc., N.Y., 10c, 20c, 40c
British Radio Electronics, Ltd., D.C., 20s
Bud Radio, Inc., 2118 E. 55th St., Cleveland 3, Ohio, 5s, 20s, 40s, Tel: 216-HEnderson 1-7166
See ad in class 90
Cambridge Thermionic Corp., Mass., 25s, 30s
Cardwell Condenser Corp., N.Y., 5sc, 10sc, 20sc, 40sc
Centralab, Electronics Div. of Globe-Union, Inc., 900A E. Keefe Ave., Milwaukee 1, Wis., 15sc, 25sc, Tel: 414-WOodruff 2-9200
See ad in class 74
Columbus Electronics, Inc., 1000 Saw Mill River Rd., Yonkers, N.Y., 35sc, 40sc, High-Voltage sc, Tel: 914-YOnkers 8-1221
See ads in classes 48, 71
Component Research Co., Inc., Calif., 10c, 15c, 20c, 30c
Conrad-Carson Electronics, Inc., Calif., 15s, 25s
Consolidated Airborne Systems, Inc., N.Y., 10c, 15c
Continental Electronics Corp., N.Y., 40c
Corning Glass Works, Corning Electronic Components Div., 750 High St., Bradford, Pa., 10s, 30s, 40s, Tel: 814-FOrest 2-5571
See ads in classes 48, 49, 74
Culbertson Products, Inc., N.J., 20sc
Du-Co Ceramics Co., Pa., 25c
Electro Motive Mfg. Co., Inc., S. Park St., Willimantic, Conn., 20c, Tel: 203-HArrison 3-4551
See ad on page 136
Electro Scientific Industries, Inc., Ore., 10s
Electronic Associates, Inc., N.J., 10c
Elveco (Etablissements), France, 10c, 20c, 25c, 40c
English Electric Valve Co., Ltd., England, 40s
Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 10sc, 15sc, 25sc, Tel: 814-GLendale 6-8592
See ad on pages 78-79
Erie Resistor Corp., Ceramic Components Div., Pa., 15sc, 25sc
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc
General Instrument Corp., F. W. Sickles Div., 165 Front St., P.O. Box 330, Chicopee, Mass., 20c, Tel: 413-LYceum 4-4781
See ad in class 57
General Radio Co., 22 Baker Ave., West Concord, Mass., 10s, Tel: 617-EMerson 9-4400
See ad on Cover 4
Hammarlund Mfg. Co., Inc., N.Y., 5sc, 10sc, 15sc, 20sc, 40sc
Hammond Mfg. Co., Ltd., Canada, 40sc
Hughes Aircraft Co., Hughes Semiconductor Div., Calif., 40s

Directory II. Components

49. Capacitors, Variable.

JFD Electronics Corp., 6101 16th Ave., Brooklyn 4, N.Y., 5sc, 10sc, 15sc, 25sc, 30sc, 40sc, Tel: 212-DEwey 1-1000
See ad on pages 56-57
Jackson Bros. (London), Ltd., N.Y., 20sc, 25sc, 40sc
Jennings Radio Mfg. Corp., 970 McLaughlin Ave., San Jose 8, Calif., 35s, Tel: 408-CYpress 2-4025
See ad in this class
Johanson Mfg. Corp., N.J., 10sc, 20sc, 40sc
Johnson Co. (E. F.), Minn., 5s, 10s
LaPointe Industries, Inc., Conn., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc
Lapp Insulator Co., Inc., Radio Specialties Div., 150 Sumner St., LeRoy, N.Y., 40c, Tel: 385
See ad on pages 52-53
Leeds & Northrup Co., Pa., 10s
Maida Development Co., Va., 25c
Marsland Engineering, Ltd., Canada, 20c, 30c
Marstan Electronics Corp., N.Y., 5s, 10s, 15s
Measurements, McGraw-Edison Div., N.J., 40sc
Metaplast Co., Inc., N.Y., 5s, 10s, 25s, 30s
Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 5sc, 10c, 20sc, 40sc, Tel: 617-DAvenport 4-4108
See ad in class 51
Mitronics, Inc., 132 Floral Ave., Murray Hill, N.J., 25c, Tel: 201-277-3400
See ad in class 92
Muirhead & Co., Ltd., England, 10s
Muirhead Instruments, Inc., N.Y., 10s
Murata Mfg. Co., Ltd., Nagaoka-cho, Otokuni-gun, Kyoto, Japan, 25s, Tel: Kotari 236
See ad on page 214
Muter Co., Muter Div., Ill., 15c, 25c
National Radio Co., Inc., Mass., 10sc
Nilsen Mfg. Co., Fla., 10sc
Oak Mfg. Co., Ill., 10sc, 40sc
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 10s
Philips Electronics Industries, Ltd., Canada, 25s
Q-Line Mfg. Corp., N.Y., 10sc, 30sc, 35c
Resitron Laboratories, Inc., Calif., 35sc
Riemer Co., Inc. (David), N.Y., 20s
Rixon Electronics, Inc., Md., 10c
Siemens New York, Inc., N.Y., 10s
Solar Mfg. Corp., Calif., 25sc
Southern Electronics Corp., Calif., 10s
Subminiature Instruments Corp., Calif., 10sc, 25sc
Taffet Electronics, Inc., N.Y., 10c, 40c
Telechrome Mfg. Corp., N.Y., 10sc, 20sc, 40sc
Telegraph Condenser Co., England, 5s, 25s
Therm, Inc., N.Y., 5c, 10c
Thompson Ramo Wooldridge Inc., Radio Condenser Co. (Subsid.), N.J., 10c, 20sc, 40c
Toko Radio Coil Laboratories, Ltd., Japan, 25s, 40s
Torotor A/S, N.Y., 20sc, 25sc, 40sc
Transitron Electronic Corp., Mass., 40 Silicon c
Underwood Electric & Mfg. Co., Inc., Ill., 20c
United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 10c, 25c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104
United Products Co., N.J., 10sc, 25sc
Vacap Corp., N.J., 35sc
Wells Co., Inc. (Gary), N.Y., 40sc

Cathode-ray tubes:
See class 86

Cells, fuel:
See class 58

Now... for immediate delivery of CAPACITORS SPRAGUE CDE CORNELL-DUBILIER MALLORY at factory prices DIAL BARCLAY 7-7777

HARRISON ELECTRONICS CORP.
227 GREENWICH ST./NEW YORK 7, N. Y.
(Industrial Sales Division of Harrison Radio Corp.)
Long Island: IVanhoe 6-7660
New Jersey: DElaware 3-8780
Call Collect Order Dept. — BA 7-7785
TWX-NY1-177 / CABLE: "Harrisorad"
CATALOGS UPON REQUEST

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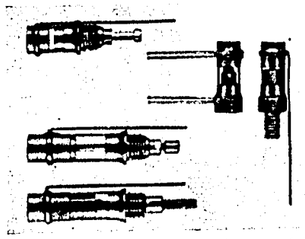
CORNING TRIMMER CAPACITORS AND INDUCTORS



CAPACITORS: Rotary • in three models for high-frequency tuned circuits. Standard: to 12.0 mmfd; split bushing: to 12.0 mmfd; precision: to 4.0 mmfd. Full rating from −55 to +125°C. TC: +50 ±50 ppm/°C. Nonporous silver plating for corrosion resistance available on request.

Direct Traverse • for linear tuning. Full rating from −55°C. to +125°C. TC: +50 ±50 ppm/°C.; 0.5 to 3.0 mmfd; 1.0 to 7.5 mmfd; 1.0 to 8.0 mmfd; 1.0 to 12.0 mmfd.

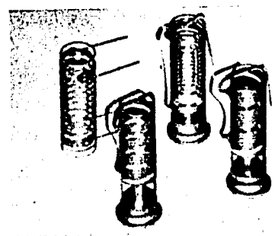
Mini-Trimmers • for ultrafine tuning. .40 uufA/turn. Fixed cavity tuning. Silver-plated hardware for highest Q and corrosion resistance. Zero derating at 125°C. No backlash. Complete circumference thread contact with direct traverse motion. Panel mount or printed board. 1 to 4 mmfd; 1 to 8 mmfd; 1 to 12 mmfd; 1 to 18 mmfd.

Precision Direct Traverse • When back-of-panel space is critical—other specs are same as for MINI-TRIMMERS, except there is a 1-30 mmfd model.

INDUCTORS: Delivered off the Shelf • 27 values ranging from 0.05 uh to 2.0 uh. High Q, 120 to 250. Frequency range from 10 MC to over 250 MC. High reliability under shock and vibration, since conductor is fired into glass; cannot shift. Low TC: 0 to +20 ppm/°C. Operation range from −55°C. to +125°C. No drift even under drastic dT. For panel or printed board mounting. Standard tolerance is ±10%. ±5% also available above 0.25 uh.

Kit for prototype work contains 10 different inductors with four tuning cores.

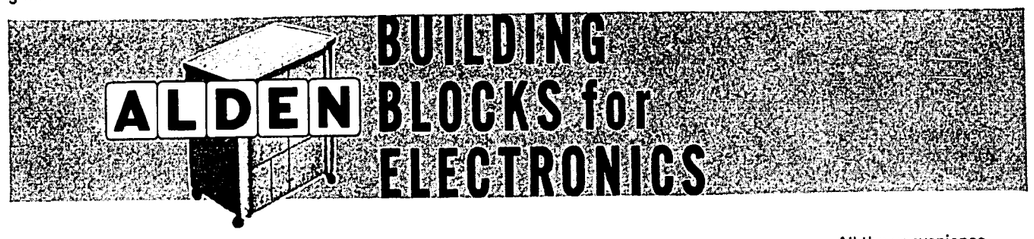
For data sheets write to 750 High Street, Bradford, Pa.



CORNING ELECTRONIC COMPONENTS
CORNING GLASS WORKS, BRADFORD, PA.

For details, circle #286 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.



ALDEN BUILDING BLOCKS for ELECTRONICS

ALDEN plug-in components for electronic systems

From layout to finished equipment in just 3 steps!

All the convenience and ease of modular packaging . . . plus built-in maintainability and reliability

1. Unitize circuitry in compact, vertical planes with unique Alden Terminal Card Mounting System. Your circuitry is assembled in complete units, ready for housing.

Pre-punched terminal cards

Miniature terminals

Jumper strip (eliminates wiring)

Card mounting sockets

Complete circuits ready for plug-in package or chassis

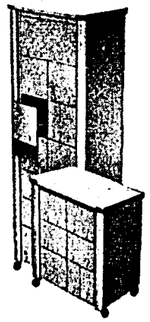
2. Mount cards in Alden Basic Chassis for tremendous flexibility and quick servicing. With spares, units are replaceable in 30 seconds!

Alden Basic Chassis

'Picture Frame Rack Adaptor — for mounting Alden Basic Chassis in any combination. Mounts in standard rack or Alden UniRack.

Alden plug-in packages: 4 sizes — 7, 9, 11, and 20 pin

3. Alden UniRacks for housing subassemblies give you a more compact, serviceable unit. Available in 2 basic heights — mobile or stationary. Easily accessible, front or rear.



ALDEN testing and sensing elements to spot trouble instantly

Miniature test jacks

Miniature indicator lights

Miniature Pan-i-lite switches for momentary contact

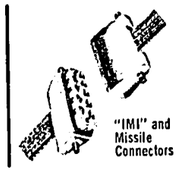
Stacking and patch cords

ALDEN plugs and connectors

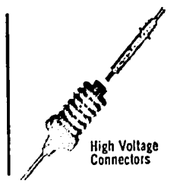
Save time, weight, space in volume production. Leads tailored to your specs, ready for quick assembly

Non Interchangeable Connectors — 2-11 contacts

Tube Cap Connectors



"IMI" and Missile Connectors



High Voltage Connectors

Miniature Signal Connectors

ALDEN electrical components

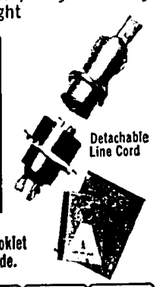
For volume production: combine quick, easy assembly with absolute minimum size and weight

Mini SpACe Convenience Outlets — smallest, most rugged UL-approved convenience outlets available

Mini SpACe Grounding Outlets

440 FH Series Safety Fuseholders

Miniature Indicator Fuseholders



Detachable Line Cord

ALDEN "Get-Started" Kits — For every engineer who wants to save time and money in layout, assembly and packaging. These basic assortments of Alden plug-in components are priced 40% below individual component cost to make it as easy as possible for you to evaluate Alden building block techniques. Individual kits priced from $11.50 to $249.50

Write today for new Alden Booklet and updated Quick-Order Guide.

ALDEN PRODUCTS COMPANY
10140 N. Main St., Brockton, Mass.

For details, circle #287 on Reader Service Card

Directory II. Components

Cells, load:
See class 83

Ceramics:
See class 92

Changers, record:
See class 68

Chassis, prewired:
See class 50

Chassis, racks & slides:
See class 93

Chokes:
See class 51

Choppers:
See class 53

Circuit breakers:
See class 80

Circuit testers:
See class 41

50. Circuits.

5. Chassis, etched or screened prewired
10. Chassis, solder dipped prewired
15. Flexible
20. Logic
25. Micromodules
30. Module
35. Modules, high-density
40. Plug-in
45. Potted type
50. Printed electronic assemblies
55. Solid state
60. Superconductive
65. Thin-film

ACDC Electronics, Inc., 2979 N. Ontario St., Burbank, Calif., 40c, Tel: 213-VIctoria 9-2414
See ad in class 69

A C Electronics, Inc., Calif., 40sc, 45sc

ACF Electronics Div., ACF Industries, Inc., Md., 20sc, 30c, 35c, 40c, 45c, 50c, 55c

A.R.F. Products, Inc., Ill., 5c

Abacus, Inc., Calif., 20sc, 30sc, 35sc, 40sc, 55sc

Accurate Electronics Corp., Ohio, 50c

Acro Electronic Products Co., Pa., 50c

Admiral Corp., Ill., 10c, 50c

Advanced Development Laboratories, Inc., N.H., 5c, 10c, 15c, 20c, 35c, 40c, 45c, 50c, 55c

Advanced Micro-Electronics, Inc., R.I., 55c, 65c

Advanced Vacuum Products, Inc., Subsid. of Glass-Tite Industries, Inc., Conn., 25c

Aero Geo Astro Corp., Va., 20c, 30c, 50c, 55c

Aero Service Corp., Pa., 20c

Aerolite Electronics Corp., N.J., 5c, 45c, 50c

Aerovox Corp., Mass., 25c, 30c

Agard Electronics Corp., N.Y., 5c, 10c, 20c, 30c, 40c, 50c

Aircraft Electronics, Ariz., 5c, 30c, 40c, 45c, 50c

Airflyte Electronics Co., 537 Ave. A, Bayonne, N.J., 45c, Tel: 201-HEmlock 6-2230
See ad in class 80

50. Circuits.

Airtronics, Inc., D.C., 5c, 10c, 40c, 55c

Airtronics International Corp., Fla., 40c, 50sc

Aladdin Electronics Div., Aladdin Industries, Inc., Tenn., 25c, 30c

Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 5s, 10s, 25s, 30s, 35s, 40s, 45s, Tel: 617-FOrest 6-4467
See ad on page 82

Alden Products Co., 10140 N. Main St., Brockton 64, Mass., 35s, Tel: 617-JUniper 3-0160
See ad in this class

All American Engineering Co., Commercial Products Div., Del., 20c, 40c, 50c, 55c

Allison Associates, Mass., 5c

Altron Electronics Co., Pa., 30s, 40s

American Avionics, Inc., Div. of Astro-Science Corp., Calif., 30c, 35c, 40c, 45c, 50c, 55c

American Bosch Arma Corp., N.Y., 25s, 30s, 65c

American Bosch Arma Corp., Tele-Dynamics Div., Pa., 20sc

American Electronics, Inc., Instrument Div., Calif., 20sc

American Geloso Electronics, Inc., N.Y., 5s

American Missile Products Co., Inc., Calif., 30c, 35c, 40c, 45c, 55c

American-Monarch Corp., Minn., 45c

American Printed Circuits Co., N.J., 5c, 50c

American Systems, Inc., Calif., 25c, 65c

Ampco Mfg. Co., N.J., 5c, 10c, 45c, 50c

Anchor Specialty Mfg Co., Inc., N.J., 40c

Ansley Mfg. Co. (Arthur), New Hope, Pa., 5c, 10c, 15c, 30sc, 35c, 40c, 45c, 50c, Tel: AXtel 7-5050
See ad in this class

Applegate & Co. (C. J.), Colo., 40sc, 45sc, 55c

Applied Control Corp., N.J., 30s, 40s, 55s

Applied Magnetics Corp., Calif., 45c

Ardente Acoustic Laboratories, Ltd., England, 45c

Armstrong Whitworth Brush, Falcon Works, England, 20sc, 40c, 45c, 50c

Artronic Instrument Co., Md., 30sc, 35sc, 40sc, 45sc, 50c, 55c

Associated Electrical Industries (Rugby), Ltd., England, 20s

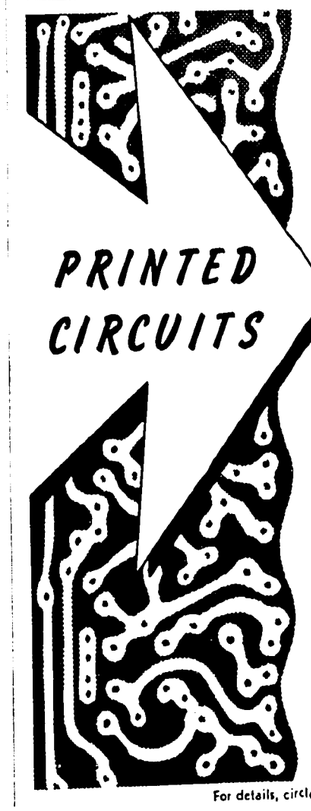
Astro Dynamics, Inc., Mass., 45c

Astronautics Corp. of America, Wis., 30c, 35c, 40c, 45c, 50c, 55c

Auerbach Electronics Corp., Pa., 20c

Austin Craft Co., Ariz., 40s

Automatic Production Research, N.Y., 65c



DESIGN . PRODUCTION . ASSEMBLY

Completely Integrated Service

Printed Circuits for Military and Industrial Electronic Equipment

"Packaging" of circuits, from schematic diagram into Printed Circuit or Modular form.

Production in small or medium quantities — prototypes to a few thousand boards.

Secondary operations: Plating — Fabrication — Assembly — Dip Soldering — Encapsulation.

Rigid Inspection and Quality Control insure the production of High Reliability Printed Circuits to Exacting Specifications.

Ansley | PLUS | Module

Adds a third dimension to printed circuitry. It may answer your design problem. Ask us for details.

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PRINTED CIRCUIT DESIGN and PRODUCTION

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Write for our booklet . . . "Some Suggestions on Printed Circuit Layout and Design."

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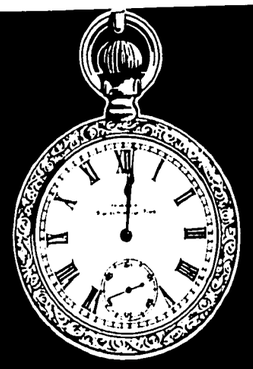

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Because your two basic problems — production time and narrowing profit margins — are our primary considerations in the manufacture of printed circuits.

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EPEC

Printed circuitry by E P E C meets the rigid specifications of use in missiles, guidance systems, computers and quality instruments from *THREE Separate and Complete* facilities: plants in Needham Heights, Natick, Massachusetts and Encinitas, California.

These plants are producing today—

- **PRINTED WIRING & ASSEMBLY**
- **DIELOX—circuits on aluminum base**
- **CU-CON PLATED HOLES**
- **PROTOMAKA, the laboratory unit for 'do-it-yourself' processing of printed wiring boards.**

EPEC

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Needham Heights, Mass.
Telephone: Hillcrest 4-3912
Western Division: Box 548
Encinitas, Calif.
Telephone: PLateau 3-6261

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50. Circuits.

Automation, Inc., Mass., 20c, 30c, 40c, 55c
Autometric Corp., N.Y., 5c, 20c, 40c, 50c
Avionics, Ltd., Canada, 5c, 10c, 30c, 40c, 45c, 50c
Bartlett Mfg. Co., Ill., 5c
Basic & Experimental Physics, Mass., 20c, 55c, 60c, 65c
Beckman Instruments, Inc., Systems Div., Calif., 5sc, 20sc, 40sc, 50sc, 55sc
Beck's, Inc., Minn., 5c, 10c, 15c, 20c, 30c, 35c, 40c, 45c, 50c, 55c
Belelere Co., Ltd., England, 5c, 10c, 25c, 30c, 35c, 40c, 45c, 50c
Bell, Inc. (F.W.), Ohio, 5s, 10s, 25s, 30s, 50s
Bendix Corp., Bendix-Pacific Div., Calif., 20sc, 30sc, 35c, 40sc, 45c, 55sc
Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 20c, 30c, 35c, 40c, 45c, 50c, 55c
Bendix Corp., Friez Instrument Div., Md., 5c, 10c
Bendix Corp., Industrial Controls Section, Mich., 20s, 40s, 50sc, 55sc
Bendix Corp., York Div., Pa., 30c, 35c, 40c, 45c, 50c
Briggs Associates, Inc., Pa., 20c, 30c
Buckbee Mears Co., 245 E. Sixth St., Saint Paul 1, Minn., 5c, 15c, 65c, Tel: 612-CApital 7-7361
See ad in class 105
Bulova Research & Development Laboratories, N.Y., 30c, 45c, 50c
Burroughs Corp., Mich., 65s
Burroughs Corp., Electro Data Div., Calif., 20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 65s
Burroughs Corp., Electronic Components Div., N.J., 20s, 25s, 30s, 35s, 40s, 45s, 55s, 65s
CBC Electronics Co., Inc., Pa., 40c, 45c
CBS Electronics, Div. of Columbia Broadcasting System, Inc., Mass., 65c
C.E.S. Electronic Products, Inc., Calif., 30s, 40s, 50s
C & K Components, Inc., Mass., 20c, 30sc, 35c, 40c, 45sc, 50c
CTS Corp., 1142 W. Beardsley Ave., Elkhart, Ind., 5c, 25c, Tel: 219-JAckson 3-0210
See ad on page 12
Cadre Industries Corp., N.Y., 5c, 10c, 15c, 30c, 40c, 45c, 50c
Calbest Electronics, Calif., 5c, 40c
California Computer Products, Inc., Calif., 20sc, 30sc, 35sc, 55sc
Cambridge Thermionic Corp., Mass., 25s, 30s, 40s, 45s
Canadian Aviation Electronics, Ltd., Canada, 20sc, 50sc, 55sc
Canadian Westinghouse Co., Ltd., Canada, 20c, 30c
Centralab, Electronics Div. of Globe-Union, Inc., 900A E. Keefe Ave., Milwaukee 1, Wis., 40sc, 50sc, Tel: 414-WOodruff 2-9200
See ad in class 74
Centroid Engineering & Mfg. Corp., 126 Jackson St., Cambridge 40, Mass., 5c, 10c, 30c, 45c, 50c, Tel: 617-TRowbridge 6-7250
See ads on page 111 & in class 91
Ceramics International Corp., N.J., 25c
Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., Texas, 5s

Directory II. Components

50. Circuits.

Chem-Ionics Corp., Wash., 40s
Chemprint Corp., Calif., 5sc, 10sc, 15sc, 25c, 30sc, 35sc, 40sc, 45sc, 50c, 55c, 60c, 65c
Cicoil Corp., Calif., 25c, 45c
Cinch Mfg. Co., 1026 S. Homan Ave., Chicago 24, Ill., 5c, 40sc, 50sc, Tel: 312-NEvada 2-2000
See ad on pages 64-65
Cinch Mfg. Co., Graphik-Circuits Div., Calif., 50c
Circon Component Corp., Santa Barbara Municipal Airport, Goleta, Calif., 50s, Tel: 805-WOodland 7-1113
See ad in class 63
Circuitdyne Corp., Calif., 55c
Cleveland Metal Specialties Co., Electronics Div., Ohio, 5sc, 10c, 20c, 25c, 30sc, 35sc, 40c, 45c, 50c, 55c
Coils-Electronics Co., Pa., 5c, 10c, 40c, 45c, 50c
Cole Instrument Co., Calif., 50c, 55c
Colorado Research Corp., Colo., 25c, 50c
Combined Electronics, Inc., Ill., 5c, 10c, 15c
Comco Plastics, Inc., N.Y., 50c
Communication Measurements Laboratory, Inc., N.J., 55c
Comptometer Corp., Radiation Electronics Co. (Div.), Ill., 30c, 50sc
Comptron Corp., Mass., 20c, 40c
CompuDyne Corp., Mass., 55c
Computer Control Co., Inc., Eastern Div., 983 Concord St., Framingham, Mass., 5c, 10c, 20sc, 30sc, 35c, 40sc, 45c, 50c, 55sc, Tel: 617-TRinity 5-6185
See ad in class 8
Computer Control Co., Inc., Western Div., 2251 Barry Ave., Los Angeles 64, Calif., 20sc, 30sc, 35c, 40sc, 45c, 55s, Tel: 213-GRanite 8-0481
See ad in class 8
Computer Devices Corp., 6 W. 18th St., Huntington Station, L.I., N.Y., 30sc, Tel: 516-AR 1-0666
See ad in class 57
Computer Techniques, Inc., N.Y., 20sc, 25sc, 30sc, 35sc, 40sc, 55sc
Conductorlab, Inc., Main St., Groton, Mass., 5c, 10c, 15c, 30c, 40c, 45c, 50c, Tel: 617-GIlbert 8-5140
See ad in this class
Connecticut Technical Corp., Conn., 20c, 30c, 35c, 45c, 50c, 55c
Consolidated Airborne Systems, Inc., N.Y., 40c, 45c, 55c
Consolidated Avionics Corp., N.Y., 20sc, 30sc, 40sc, 50sc
Continental Merchandise Co., Transistor Products Div., N.Y., 65sc
Control Circuits, Inc., Conn., 40c, 45c, 50c
Control Devices, Inc., Mich., 5c, 50c
Control Equipment Corp., Mass., 5s, 20s, 30s, 35s, 40s, 50s, 55s
Controls Co. of America, Ill., 55c
Contronics, Inc., Mass., 20sc, 50c
Cook Electric Co., Ill., 50s, 55s
Cook Electric Co., Cook Technological Center, Ill., 5c, 10c, 30c, 50c
Cooke Engineering Co., Va., 5c, 10c, 55c
Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 25c, 45c
Corning Glass Works, Corning Electronic Components Div., 750 High St., Bradford, Pa., 25sc, 50sc, Tel: 814-FOrest 2-5571
See ads in classes 48, 49, 74
Crane Electronics Co., Calif., 55c
Cromame, Inc., Ill., 5c
Cubic Corp., Calif., 40sc, 50sc
Culbertson Products, Inc., N.J., 50c
Curtiss-Wright Corp., Electronics Div., N.J., 55c
Curtiss-Wright Corp., Electronics Div., N.M., 5sc, 20s, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc
Dale Electronics, Inc., Subsid. of Hathaway Instruments, Inc., 1318 28th Ave., P.O. Box 488, Columbus, Nebr., 5c, 20c, 45c, 50c, Tel: 402-LOcust 4-3131
See ad in class 74
Daven Co., Subsid. of General Mills, Inc. N.J., 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 65c
Davis Electronics, Inc., Calif., 50sc
Dayton Electronic Products Co., Ohio, 5c, 25c, 30c, 40s, 50c
Decker Corp., Pa., 30c, 50c
Defiance Printed Circuit Corp., 144 Commercial St., Malden, Mass., 5c, 20c, 40c, 50c, Tel: 617-DAvenport 4-8250
See ad in this class
Delcon Corp., Calif., 10c, 25c, 50c
Deltex Laboratories, Div. of Delta Exploration Co., Inc., Miss., 40c
Deltron, Inc., Pa., 30s 40s, 55s
Dependable Printed Circuit Corp., 827 Black Oak Ridge Road, Wayne, N.J., 5c, 40c, 45c, 50c, Tel: 201-TEmple 5-2765
See ad in this class
Developmental Electronics Corp., Calif., 5c, 20sc, 30sc, 35c, 40c, 50c, 55sc
Di/An Controls, Inc., Mass., 20sc, 30sc, 40sc, 45sc
Di-Tran Corp., Calif., 20 Flip-Flops & Gates c
Dicon Corp., N.Y., 20c
Dictograph Products, Inc., Conn., 35c, 50c
Digital Equipment Corp., Mass., 10s, 20s, 30s, 40s, 50s, 55s
Dittmore-Freimuth Corp., Wis., 5c, 10c, 50c
Donmar Products, Inc., Colo., 50c
Dorsett Electronics, Inc., Okla., 20sc

conductorlab, inc.

continuity in printed circuitry

products proven by use:
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IPC INSTITUTE OF PRINTED CIRCUITS MEMBER

DEPENDABLE PRINTED CIRCUIT CORP.

827 Black Oak Ridge Rd., Wayne, N.J.

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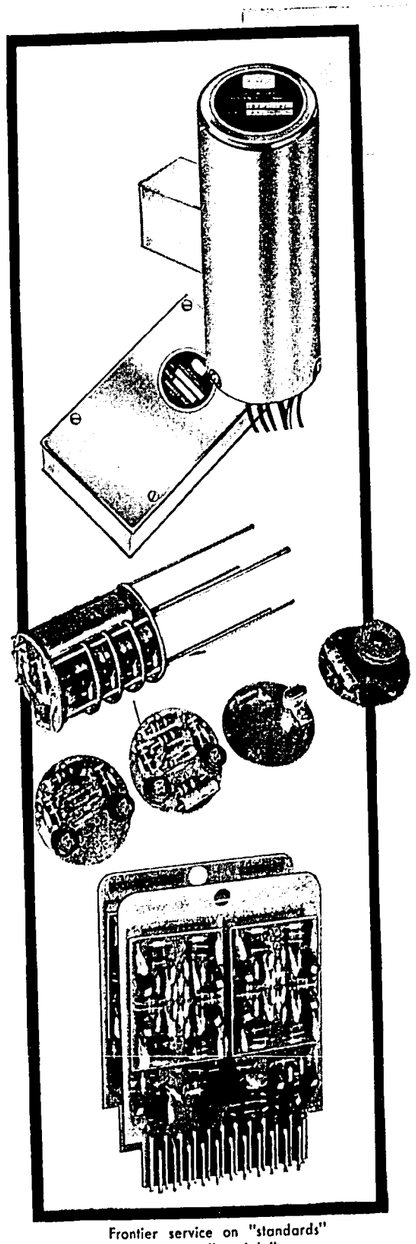
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Frontier

proven on major missile and military systems*

• extreme accuracy
• absolute reliability
• subminiature packaging

on these frequency • time • digital products



■ frequency

oscillators • secondary and portable standards • converters (frequency and subminiature DC-DC voltage) • R. F. oscillators • frequency control systems • precision engineered accuracies to meet any requirements . . . from parts per 10,000 commercial spec. . . . to parts per billion full mil-spec. • special developments

Absolute reliability, "advanced-art" fully solid state packaging

■ time

programmers • intervalometers • timers • digital clocks • on-missile (launch vehicle and payload) command program timers (fixed and variable instruction) • electromechanical and solid state • single and multi-channel • time reference and memory command systems • special developments

Absolute reliability, "advanced-art" packaging

■ telemetry

oscillators • transmitters • C.W.—F.M.—P.C.M. • "specials" • transponders • special developments

Absolute reliability, sub-miniature high density packaging

■ digital modules

• complimentary logic modules that are quickly and specifically "Frontier-Tailored" for your particular system • master clocks • flip-flops • scalers • comparators (parallel and serial) • pre-set counters • amplifiers • drivers • shift registers • redundant output selectors (with or w/o comparison monitors) • binary-decimal decoders • indicator drivers • special developments

Absolute reliability . . . and standard, solid state packaged modules that package... directly from your experimental system, into the final mil-spec. shipment.

*Three years to date with no "in-flight failures."

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Directory II. Components

50. Circuits.

Dorsey & Associates (J. G.), Calif., 30c, 35c, 40c, 45c
Douglas Aircraft Co., Inc., Calif., 20c, 30c, 50c, 55c
Drake Co. (R. L.), Ohio, 10s, 50s
Drexel Dynamics Corp., Pa., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c
Dry Screen Process, Inc., Pa., 15c
Dynage, Inc., Conn., 45sc
Dynatronics, Inc., Fla., 20c, 30sc, 35c
E D P Corp., Fla., 5c, 10c, 50c, 55c
Eburn Industrial Research Corp., Mass., 5c
Electrac, Inc., Calif., 40c
Electrada Corp., Calif., 20c
Electralab Printed Electronics Corp., 175 A St., Needham Heights 94, Mass., 5c, 25c, 30c, 40c, 45c, 50c, 65c, Tel: 617-HIllcrest 4-3912
See ad in this class
Electramatic, Inc., Minn., 50c
Electro-Ceramics, Inc., Utah, 50 Ceramic c, 60c, 65c
Electro Chemical Engraving Co., Inc., N.Y., 5c
Electro Circuits, Inc., 176 Walker St., Lowell, Mass., 5c, 10c, 15c, 25c, 30c, 35c, 40c, 45c, 50c, Tel: 617-GLenview 2-8981
See ad in this class
Electro-Etch Circuits, Inc., Calif., 5c, 45c, 65c
Electro Logic Corp., Calif., 20sc, 40sc, 50c
Electro-Mech Engineering Co., Minn., 5c, 10c, 40c, 45c, 50c
Electro Radiation, Inc., Calif., 25c, 55c, 65c
Electro-Seal Corp., Ill., 45c
Electrodynamic Instrument Corp., Texas, 5c, 10c, 50c
Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 55c, Tel: 617-LYnn 8-2100
See ad in class 69
Electronet Div., Rue Products, Calif., 30s, 40s, 45s, 55c
Electronic Plastics Co., Calif., 5c, 10c, 15c, 20c, 30c, 35c, 40c, 45c, 50c, 55c
Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., 20sc, 30sc, 40sc, 45c, 55sc, Tel: 301-HAmilton 6-1268
See ad in class 73
Electronic Specialty Co., Calif., 50c
Electronics Inc. of Pa., Pa., 50c
Electropac, Inc., N.H., 5c, 10c, 25c, 30c, 35c, 40c, 45c, 50c
Elsco Systems, Inc., Wash., 5c, 10c, 40c, 45c, 50c, 55c
Embree Electronics Corp., 993 Farmington Ave., West Hartford 7, Conn., 40s, Tel: 203-ADams 2-5144
See ad in class 43
Emerson Electric Mfg. Co., Mo., 5c, 10c, 20c, 30c, 35c, 40c, 45c
Engineered Electronics Co., Calif., 20s, 25c, 30s, 35c, 40s, 45s, 55s
Engineering Model Laboratory, Inc., Mass., 50c
Epsco, Inc., Mass., 5c, 10, 15c, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc
Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 30sc, 35sc, 40sc, Tel: 814-GLendale 6-8592
See ad on pages 78-79
Etching Corp. of California, Div. of Allegri-Tech, Inc., Calif., 5c, 10c, 15c, 30c, 35c, 40c, 50c
Fairchild Semiconductor Corp., 545 Whisman Rd., Mountain View, Calif., 20s, 25s, 35s, 55s, Tel: 415-YOrkshire 8-8161
See ad in class 76
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 20c, 45c, 55c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 10c, 15c, 50c, 55c
Federal Scientific Corp., N.Y., 20c, 40c
Ferranti-Packard Electric, Ltd., Electronics Div., Canada, 20c, 35c, 40c, 55c
Ferritronics, Ltd., Canada, 40c, 50c
Ferrotran Electronics Co., Inc., N.Y., 40s, 45s, 50s, 55s
Film Resistors, Inc., N.J., 65sc
Flo-Tronics, Inc., Electronic Controls Div., Minn., 20sc, 30sc, 45sc, 55sc
Forway Industries, Inc., N.J., 50c
Franklin Systems, Inc., 2734 Hillsboro Rd., P.O. Box 3250, West Palm Beach, Fla., 5c, 10c, 30sc, 40sc, 45c, Tel: 305-TEmple 3-4602
See ad in class 22
Friend Engineering (Albert W.), Pa., 55c
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 20sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 65sc, Tel: 216-SHadyside 9-0700
See ad in this class
G-V Controls, Inc., N.J., 30c, 55c
Garlock, Inc., Garlock Electronic Products, N.J., 15c
Gavitt Wire & Cable Co., Div. of Amerace Corp., Mass., 5c, 40c, 45c, 50c
Gemco Electric Co., Mich., 50sc
General Applied Science Laboratories, Inc., Merrick & Stewart Aves., Westbury, L.I., N.Y., 30s, Tel: 516-EDgewood 3-6960
See ad in class 35
General Ceramics, Div. of Indiana General Corp., Crows Mill Rd., Keasbey, N.J., 20sc, Tel: 201-VAlley 6-5100
See ad in class 64
General Circuits, Inc., N.Y., 5c, 15c, 30c, 40c, 50c, 65c

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General Precision Inc.
General Transistor Corp.
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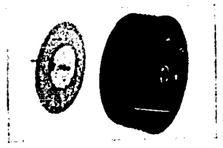
You can have the world's largest and most flexible printed-circuit manufacturer at your service. Whether it's 100 or 1,000,000 boards, IBM punched card scheduling, experienced production people and stringent quality control methods assure you dependable quality and reliability . . . on time.

TUF-PLATE HOLES
reliable thru-hole construction

PC's famous plated-thru holes are substantially more reliable than eyelets under experimental cycling. Will pass MIL-E-5272A without a failure. Plating is dense, ductile and fine grained. Tuf-Plate holes assure reliable dip soldering as a homogenous portion of your circuitry.

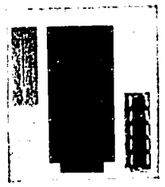


PRINTED DC SERVO MOTORS
provide direct drive

PMI permanent magnet dc motors feature a disc-type armature with no rotating iron. They are ideal for instrument applications requiring unusually low inertia, smooth torque, high pulse torque capability, and minimum inductance. Applications include positioning servos, tape reel drives, numerical positioning devices, and intermittent motion systems.

MINIFY
tested and proven miniaturization

Landless, plated thru-hole construction saves up to 80% of board space. Components are the size limiting factors, not the circuitry. Each board has the same Tuf-Plate reliability—production proven in thousands of military uses.



PHOTOELECTRIC TAPE READERS
whisper-quiet operation

Direct tape drive from the printed motor makes Photocircuits tape readers unusually quiet, reliable and maintenance-free. The absence of brakes, clutches and pinch rollers eliminates the usual difficulties encountered with conventional tape transports. Line-by-line reading at speeds up to 300 characters per second. All models completely transistorized.

Timely tech bulletins written for engineers and designers who wish to keep pace with the newest developments in printed circuitry. Bulletins give specifics on materials, layout, design, assembly, etc. To receive them contact your nearest PC field office.

TECHNICAL BULLETINS
up-to-the-minute literature

Streamlined prototype system puts finished boards in your hands quickly. From quote to shipment, your requirements are handled rapidly . . . in a matter of hours. Complete and separate from general production, the Proto-Circuits Division is staffed by experts to help you with money-saving pre-production boards.

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fast service on prototypes

ENCAPSULAYER: a multiple layer printed sandwich allows high packaging densities through TUF-PLATE plated hole interconnections. Ideal for miniaturized back panel wiring.

CERAMICIRCUITS: provide ceramic-based printed circuits for applications requiring special mechanical and electrical stability.

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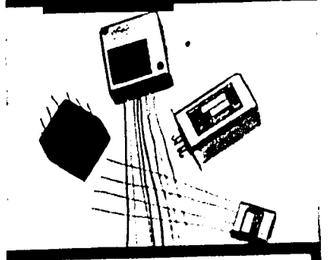
Directory II. Components

50. Circuits.

General Communication Co., 677 Beacon St., Boston 15, Mass., 30c, 40c, 45c, 50c, Tel: 617-COpley 7-6030
See ads in class 37
General Computers, Inc., Calif., 40s
General Devices, Inc., P.O. Box 253, Princeton, N.J., 20s, 30s, 35s, 40s, 45s, 55s, Tel: 609-WAlnut 4-2500
See ad adjacent to Index to Advertisers, back of book
General Dynamics/Electronics, N.Y., 5sc
General Dynamics/Electronics, Information Technology Div., Calif., 20s, 25c, 35c, 45c, 50s
General Instrument Corp., Defense & Engineering Products Group, N.Y., 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c
General Instrument Corp., Semiconductor Div., 65 Gouverneur St., Newark 4, N.J., 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 55sc, Tel: 201-HUmboldt 5-2100
See ad in class 76
General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 20c, 30c, 40c, 45c, 50c, Tel: 612-WEst 9-8571
See ad in class 43
General Motors Corp., Delco Radio Div., Ind., 5c, 20sc, 25c, 30sc, 35sc, 40sc, 45sc, 55sc
General Plastics Corp., N.J., 15c
General Precision Equipment Corp., Kearfott Semiconductor Corp. (Subsid.), Mass., 20c, 30c, 40c, 45c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5sc, 10sc, 15c, 20sc, 25sc, 30c, 35c, 40c, 45c, 50c, 55c, 65sc
General Precision, Inc., Librascope Div., Calif., 20c, 30c, 35c, 40c, 45c, 50c, 55c, 65c
General Precision, Inc., Link Div., N.Y., 5sc, 30sc, 40sc, 45sc, 50sc
General Time Corp., N.Y., 40s, 55c
Genisco, Inc., Calif., 55s
Globe Electrical Mfg. Co., Calif., 5c, 40c
Good Electronic Corp., Fla., 5sc, 10sc, 30sc, 40sc, 50sc
Greene Electronics, Inc., 1844 Cranston St., Cranston 9, R.I., 5c, 10c, 15c, 30c, 40c, 45c, 50c, Tel: 401-WIlliams 2-3800
See ad in this class
Greenray Industries, Pa., 40c, 45c, 55c
Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 20c, 50c, Tel: 516-WElls 8-9500
See ad in class 77
Gulton Industries, Inc., N.J., 50c
Gunnar Laboratories, Inc., Fla., 5c, 10c
HRB-Singer, Inc., Pa., 5c
Halex, Inc., Calif., 25sc, 35c, 55c, 65sc
Harman-Kardon, Inc., N.Y., 25c, 30s, 35s, 40s, 45s
Harristahl Laboratories, N.Y., 5c, 10c, 20c, 30c, 50c, 55c
Harvey-Wells Electronics, Inc., Mass., 20sc, 30sc, 35sc, 50sc, 55sc
Hildebrand Engineering (John G.), Mass., 30c, 40c, 45c, 50c, 55c
Hoffman Electronics Corp., Calif., 55c
Houston Fearless Corp., Westwood Div., Calif., 5c
Howard Instrument Co., N.J., 20s, 25c, 30s, 35c, 40s, 50s
Industrial Plastic Fabricators, Inc., Mass., 50c
Intellux, Inc., Scientific Components Div., Calif., 25c, 65c
International Business Machines Corp., Federal Systems Div., Md., 45c, 50c
International Electronics Mfg. Co., Md., 5c, 30c, 55c
International Telephone & Telegraph Corp., ITT Federal Labs., Ind., 30c, 40c, 45c, 50c, 55c
International Telephone & Telegraph Corp., ITT Federal Labs., N.J., 5c, 20c, 50c
Interstate Electronics Corp., Calif., 20sc, 40sc
Javex Electronics, Calif., 40s
Jordan Electronics, Div. of Victoreen Instrument Co., Calif., 20c, 55c
Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 20c, 35c, 55c, 65c
Keil Engineering Products, Inc., Mo., 5c, 50c
Keuffel & Esser Co., N.J., 5c
Key Resistor Corp., Calif., 25c, 35c, 45c, 65c
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 40c, 50c, 55c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5c, 10c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c
Laboratory For Electronics, Inc., Mass., 20c, 35c, 50c, 65c
Lacey Engineering & Mfg. Co., Ill., 5c, 50c
Langevin, Div. of Sonotec, Inc., Calif., 5s, 10s, 40s, 50s
LaPointe Industries, Inc., Conn., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc, 65sc
Lewis & Kaufman Electronics Corp., Calif., 50c
Ling Temco Vought, Inc., Texas, 20sc, 25c, 30sc, 35c, 40sc, 45sc, 55sc
Ling Temco Vought, Inc., Micromodular Components Div., Calif., 20sc, 25c, 30sc, 35c, 40sc, 45sc, 55sc
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 40c, 50c
Litton Industries, Inc., Components Group, U.S. Engineering Co. Div. (USECO), Calif., 5sc, 15c, 20s, 30c, 35c, 40c, 50c, 60sc
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Calif., 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 65c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 5c, 10c, 15c, 30c, 35c, 40c, 45c, 50c, 55c
Lockheed Electronics Co., N.J., 5c, 10c, 20s, 25c, 30s, 35s, 45c, 50c, 65c
Lockheed Electronics Co., Avionics & Industrial Products Div., Calif., 5sc, 10sc, 20 Ferrite c, 30c, 45c, 50c
Lundy Mfg. Corp., N.Y., 55c
Lytle Corp., N.M., 5c, 30c, 40c, 45c
M F Electronics Corp., 118 E. 25th St., New York 10, N.Y., 25sc, 30sc, 35sc, 45sc, Tel: 212-ORegon 4-5360
See ad in classes 10, 35, 50
MacLaren & Co., Inc. (E.B.), N.Y., 40c, 45c, 55c
MacLeod & Hanopol, Inc., Mass., 50c
Magnavox Co., Magnavox Research Laboratories, Calif., 20s, 30sc, 35c, 40sc, 45c, 55s
Magnetics Research Co., Inc., N.Y., 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc
Manson Laboratories, Inc., Conn., 55sc
Marine View Electronics, Inc., N.Y., 5c
Marstan Electronics Corp., N.Y., 25c, 45s
Martin Co. (Martin-Marietta Corp.), Md., 35c, 40c, 50c, 55c
Martin Co. (Martin-Marietta Corp.), Electronics Div., Md., 50c
Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 20c, 25c, 40c, 45c, 55c, 65c
Maxson Electronics Corp., N.Y., 50c
Mayberry Electronics Co., Calif., 20c, 30c, 35c, 40c, 45c, 50c, 55c
McDonnell Aircraft Corp., Mo., 10c, 25c, 35c, 40c, 45c, 65c

M F TRANSISTORIZED PACKAGES



We have made many types of transistorized packages engineered for the particular application. Examples are flip flops, binary, octal and decade dividers, multivibrators, oscillators and amplifiers.

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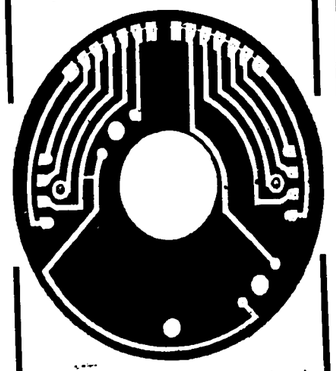

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50. Circuits.

Melcor Electronics Corp., Dept. ID, 48 Toledo St., South Farmingdale, L.I., N.Y., 35sc, 40sc, 45sc, Tel: 516-MYrtle 4-5570
See ad in class 43

Melpar, Inc., Special Products Div., Va., 5c, 50c

Methode Electronics, Inc., 7447 W. Wilson Ave., Chicago 31, Ill., 5sc, 10sc, 15sc, 65sc, Tel: 312-UNderhill 7-9600
See ad adjacent to Index to Advertisers, back of book

Metropolitan Telecommunications Corp., N.Y., 25c, 30c, 40c, 45c

Micarta Fabricators, Inc., Ill., 5c, 10c, 40c, 50c

Micro-Electronics, Inc., R.I., 55c

Microlectron, Inc., 1547 18th St., Santa Monica, Calif., 5c, 25sc, 30sc, 35sc, 45c, 50c, 55sc, 65sc, Tel: 213-EXbrook 3-0356
See ads in classes 50, 60, 74

Microphase Corp., Conn., 55sc

Microsemiconductor Corp., Calif., 25c, 30c, 35c, 45c, 55c

Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 20sc, 40s, 50s, 55sc, Tel: 305-OXford 1-1220
See ad in class 28

Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 30sc, Tel: 617-DAvenport 4-4108
See ad in class 51

Miltronics Co., Wis., 50c

Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 45c, 50c

Minshall Organ & Electronics, Inc., Vt., 5sc, 10sc, 40sc, 45sc, 50sc

Missouri Research Laboratories, Inc., Mo., 30c, 40c, 45c, 55c

Mitronics, Inc., 132 Floral Ave., Murray Hill, N.J., 25c, Tel: 201-277-3400
See ad in class 92

Modern Design, Div. of H.C. Schloer, Inc., N.Y., 30s, 40s, 50c

Montek, Inc., Utah, 20sc, 30sc, 50c

Motorola, Inc., Military Electronics Div., Ariz., 20c, 50c, 55c, 65c

Motson Co. (J. Frank), Pa., Conductive c

Mutron Corp., Mass., 30c, 35c, 45c, 50c

Mycalex Corp. of America, 125A Clifton Boulevard, Clifton, N.J., 5c, Tel: 201-PRescott 9-8866
See ad in class 101

Naniloa Corp., Ohio, 20c, 40c, 50c, 55c

Natel Engineering Co., Calif., 35c, 55s

National Resistance Co., N.Y., 25c, 30c, 35c, 45c, 50c, 65c

National Scientific Laboratories, Inc., D.C., 20c, 30c, 40c, 50c

National Tel-Tronics Corp., 52 Saint Casimir Ave., Yonkers, N.Y., 50c, Tel: 914-YOnkers 8-6400
See ad in class 62

Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 20sc, 30sc, 35sc, 40sc, 50sc, 55sc, Tel: 215-GLendale 2-6531
See ad in class 10

Networks Electronic Corp., Calif., 30c, 40c, 45c, 55c

Nevada Air Products Co., Nev., 5c, 10c

New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy., Somerville 43, Mass., 25c, 30c, 40c, 55sc, Tel: 617-625-6100
See ad in class 84

Nilsen Mfg. Co., Fla., 45c

North America Electronics, Ala., 40c

Oki & Willadsen, Ltd., Canada, 5c, 15c, 30c, 40c, 50c, 65c

Omtronics Mfg., Inc., Nebr., 45sc

Ortronix, Inc., Fla., 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c

Otis Elevator Co., Defense & Industrial Div., N.Y., 5c, 10c, 30c, 35c, 40c, 50c

Ovitron Corp., Standard Winding Co. (Div.), 44-62 Johnes St., Newburgh, N.Y., 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, Tel: 914-JOhn 1-1541
See ad in class 51

Pace Circuits Corp., N.Y., 5c, 10c, 40c, 50c

Pacific Electro Magnetics Co., Inc., Calif., 45sc, 50sc

Packard-Bell Computer Corp., Calif., 20s, 30s, 35s, 40s, 50s, 55s

Packard-Bell Electronics Corp., Calif., 5c, 10c, 20c, 30c, 50c

Park Electrochemical Corp., N.Y., 5c, 65c

Parsons Co. (Ralph M.), Electronics Div., Calif., 30c, 35c, 40c, 45c, 55c

Pastoriza Electronics, Inc., Mass., 20c, 35sc, 40sc, 50c, 55c

Pelley Co., Inc. (E. H.), 37 Hurley St., Cambridge, Mass., 5sc, 50sc, Tel: 617-UNiversity 4-9788
See ad in this class

Penn Keystone Corp., Conn., 55c

Premier's unique skills and facilities
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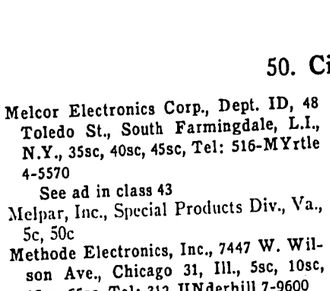
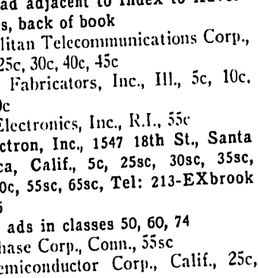
for both engineer and buyer



PRINTED CIRCUIT STRIPLINE FILTER



PRINTED CIRCUIT MIXER

ENGINEERS can depend upon Premier to meet the most exacting microwave component specifications and deliver complete uniformity and operating performance.

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PREMIER MICROWAVE CORPORATION
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Directory II. Components

50. Circuits.

Perfection Electronics, Inc., N.Y., 30c, 40c, 50c

Performance Measurements Co., Mich., 50c

Philbrick Researches, Inc. (George A.), Mass., 40s, 55s

Photo-Color Process Corp., N.Y., 5sc, 10c

Photocircuits Corp., 31 Sea Cliff Ave., Glen Cove, L.I., N.Y., 5c, 10c, 15c, 45c, 50c, Tel: 516-ORiole 6-8000
See ad in this class

Pickard & Burns, Inc., Subsid. of Gorham Corp., 103 Fourth Ave., Waltham R & D Park, Waltham 54, Mass., 20c, 65c, Tel: 617-HIllcrest 4-3345
See ads on page 190 & in classes 31, 44

Plug-In Instruments, Inc., Tenn., 5s, 20s, 30s, 40s, 45s, 50s, 55s

Poly-Kote, Inc., Mass., 65c

Polytronic Research, Inc., Md., 50c

Precision Circuits, Inc., N.Y., 5c, 10c, 15c, 30c, 35c, 40c, 45c, 50c, 65c

Premier Microwave Corp., 33 New Broad St., Port Chester, N.Y., 50c, Printed circuit analogs for coaxial devices, Tel: 914-WEstmore 9-8900
See ad in class 50

Pyrocircuits Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 25sc, 65sc, Tel: 516-PO rt Washington 7-3949
See ad in this class

RMS Associates, Inc., N.Y., 5c, 10c, 20c, 50c

Radiation, Inc., Fla., 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc

Radio Activities, Inc., N.J., 55c

Radio Corp. of America, Defense Electronic Products, N.J., 20c, 25sc, 50sc, 55sc, 60sc

Radio Corp. of America, RCA Electron Tube Div., N.J., 25sc, 35sc, Micromodule Lab-Kits sc

Radio Corp. of America, Semiconductor & Materials Div., Section J-22-NN, Route #202, Somerville, N.J., 25sc, 35sc, Tel: 609-RAndolph 2-3200
See ad on pages 54-55

Radio Development & Research Corp., N.J., 55c

Ransom Research, Inc., Calif., 20sc, 40sc, 55sc

Rawco Instruments, Inc., Texas, 20sc

Raytheon Co., Industrial Components Div., Mass., 20sc, 30sc, 35sc, 45sc

Raytheon Co., Semiconductor Div., Mass., 30sc, 35sc, 45sc, 55sc

Reed & Reese, Inc., Calif., 5c, 30c, 35c, 40c, 45c, 55c

Remington Rand Univac, Div. of Sperry Rand Corp., Minn., 5c, 10c, 20c, 25c, 35c, 50c, 55c, 65c

Rescon Electronics Corp., Mass., 25c, 30c, 35c

Rese Engineering, Inc., Pa., 20s, 40s

Rheem Mfg. Co., Rheem Semiconductor Corp. (Subsid.), Calif., 20c, 25c, 30c, 35c, 40c, 45c, 55c

Rho Engineering Co., Calif., 30c, 45c

Rimak Electronics, Inc., Calif., 5sc

Rixon Electronics, Inc., Md., 20c, 30sc, 40sc, 45sc, 50c, 55c

Rodale Electronics, Inc., N.Y., 5c, 55c

Rogers Corp., Conn., 15c

Rogers Mfg. Co. (Dayton), Minn., 5c, 40c, 50c

Rosemount Engineering Co., Minn., 30c, 40c

Ross Co. (Milton), Pa., 5sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc

Rotary Devices Corp., N.J., 40c, 45c, 50c

Rowe Engravers, Inc., N.J., 5s, 35s, 50s

Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 5c, 10c, 30c, 50c

S-I Electronics, Inc., 103 Park Ave., Nutley 10, N.J., 20sc, Tel: 201-NOrth 7-0055
See ad in class 10

Sampson Chemical & Pigment Corp., Ill., 5c, 15c, 25c, 30c, 45c, 50c, 55c, 65c

Sanders Associates, Inc., N.H., 15sc

Sangamo Electric Co., Springfield, Ill., 50c, Tel: 217-KIngswood 4-6411
See ad on page 142

Santa Barbara Research Center, Subsid. of Hughes Aircraft Co., Calif., 55c

Saturn Electronics Corp., Texas, 5c, 10c, 40c, 50c, 55c

Scope, Inc., Va., 20c, 30c, 40c, 50c, 55c

Sealectro Corp., 139 Hoyt St., Mamaroneck, N.Y., 40sc, Tel: 914-OWens 8-5600
See ad in class 81

Servo Corp. of America, N.Y., 20sc, 30sc

Servonics, Inc., Va., 30c, 40sc, 50c, 55c

Sheltered Workshops, Inc., Calif., 5c, 10c, 15c, 30c, 50c

Sibley Co., Conn., 50 Commutator c

Sippican Corp., Mass., 20c, 30c, 35c, 40c, 45c, 55c

Slater Electric, Inc., N.Y., 55c

Solatron, Inc., Mass., 5c, 10c, 30c, 45c, 50c

Solid State Electronics Co., Dept. I, 15321 Rayen St., Sepulveda, Calif., 45c, 55c, Tel: 213-EMpire 4-2271
See ad on page 44

Sonex, Inc., 20 E. Herman St., Philadelphia 44, Pa., 45c, Tel: 215-VIctor 3-6400
See ad in class 34

Space Electronics Corp., Calif., 50c, 65c

Specific Electronics, Inc., Calif., 5c, 10c, 15c, 50c

Speck Electronics, Inc., Calif., 5c, 10c, 25c, 30c, 35c, 40c, 45c, 50c, 55c

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Miniature and Microminiature Ceramic printed circuits.
Resistor networks and complete microminiature sub-assemblies to military specifications.
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EX | brook 3-0356

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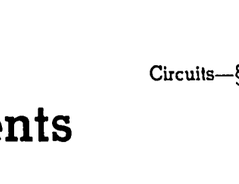

FLUSH TYPE MINIATURE & MICRO-MINIATURE ENGRAVED CIRCUITS
made of hi-temp, stable materials

Unsurpassed for reliability in hi-temp applications, these engraved circuits are available in hard ceramics, quartz, titanates, ferrite, sapphire, steatite, alumina, etc. Send prints for quotation.

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PO 7-3949

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

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in PRINTED CIRCUITRY

Our 11 years of continuous growth in the manufacturing of printed circuits *exclusively* furnishes a background of experience that can be of real service to you. Let us be of help.

Techron Corporation

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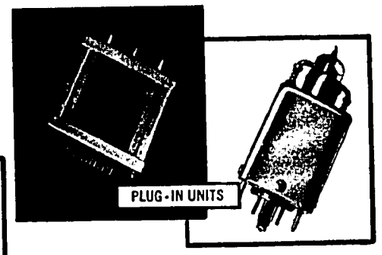
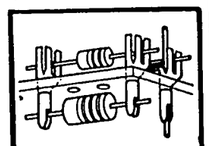
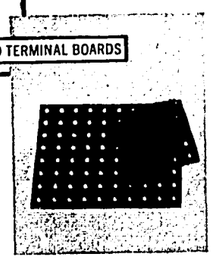
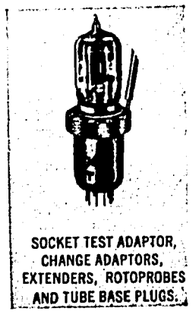
Vector
STRUCTURES FOR CIRCUITRY

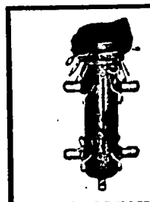
Vector Electronics manufactures a complete line of structures for mounting circuitry easily, compactly and with good accessibility.
Vector experience and facilities guarantee delivery, performance and economical prices.











Write for catalog to:
VECTOR ELECTRONIC COMPANY
1100 FLOWER STREET, GLENDALE 1, CALIFORNIA
TELEPHONE: CHAPMAN 5-1076
For details, circle #303 on Reader Service Card

50. Circuits.

Speed Electronics, N.J., 5c, 10c, 30c, 40c, 50c
Speer Carbon Co., Jeffers Electronics Div., Pa., 40sc
Speer Carbon Co., Onondaga Electronics Div., N.Y., 50c
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 45sc
Sprague Electric Co., Mass., 25c, 30c, 35c, 40c, 45c, 50sc, 55c
Sprague Electric Co., VecTrol Engineering, Inc. (Subsid.), Conn., 55c
Stafford Mfg. Co., Inc., N.Y., 50c
Stelon, Inc., N.J., 50c
Stratocon Corp., N.J., 30c
Straza Electronics, Div. of Straza Industries, Calif., 20c, 55c
SunAir Electronics, Inc., Fla., 50c
Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 5c, 10c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c
Systems Research Corp., Calif., 20c, 40c, 45c, 55c
TRG, Inc. (Technical Research Group), N.Y., 30c, 35c, 40c, 45c, 55c, 60c, 65c
Taffet Electronics, Inc., N.Y., 5c
Tap-A-Line Mfg. Co., Fla., 40s
Taylor Fibre Co., Pa., 5c, 50c
Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 45c, Tel: 201-WIndsor 4-2221
See ad in class 80
Techniques, Inc., N.J., 5c
Technograph Printed Electronics, Inc., N.C., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c
Techron Corp., 20 Simmons St., Boston 20, Mass., 5c, 40c, 50c, Tel: 617-HIghlands 5-2150
See ad in this class
Techtro-Matic Corp., Vt., 5c, 10c, 50c
Telechrome Mfg. Corp., N.Y., 25s, 45s
Telecomputing Corp., Calif., 5c, 10c, 30c, 40c, 50c
Telectro Industries Corp., N.Y., 50sc
Telegraph Condenser Co., England, 5c, 10c, 15c, 40c, 50c, 60c, 65c
Television Associates, Inc., Div. of Melpar, Inc., Ind., 5c, 50c
Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 30c, 35c, 40c, 45c, 55c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80
Teltronics, Inc., 23-27 Main St., Nashua, N.H., 50c, 55c, Tel: 603-TUxedo 2-6264
See ad in class 38
Tempo Instrument, Inc., N.Y., 55c
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 20sc, 25sc, 30c, 40c, 50c, 55sc, Tel: 214-ADams 5-3111
See ad on Cover 3
Thompson Ramo Wooldridge Inc., Dage Div., Ind., 20c
Thompson Ramo Wooldridge Inc., Radio Industries, Inc. (Subsid.), Ill., 40c, 50c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 25c, 50sc
Toko Radio Coil Laboratories, Ltd., Japan, 30s
Topper Mfg. Co., Inc., N.Y., 25c, 40c, 45c, 55c

Directory II. Components

50. Circuits.

Transistor Applications, Inc., Mass., 25c, 30c, 40c, 55sc
Transitron Electronic Corp., Mass., 20c, 25c, 30c, 45c, 55c, 65c
Transval Electronics Corp., Calif., 5c, 10c, 40c, 50c, 55c
Trepac Corp. of America, N.J., 30c, 40c, 50c, 55c
Trionics Corp., Div. of Nautec Corp., Wis., 25c, 30c, 35c, 55c
Trott Electronics, Inc., N.Y., 5c, 10c, 40c
Tung-Sol Electric, Inc., East Orange Plant, N.J., 30c, 40c
Tyco Semiconductor Corp., Mass., 45c, 55c
Ultronix, Inc., Calif., 30c, 35c, 40c, 45c, 50c
Uni-Tel, Inc., N.Y., 25c
United States Instrument Corp., Va., 40c
Vanguard Electronics Co., Calif., 45c
Vap-Air Div., Vapor Corp., Ill., 20c, 30c, 55c
Varo, Inc., Texas, 55c, 65sc
Vector Associates, Inc., N.Y., 40c, 45c, 50c
Vector Electronic Co., Inc., 1100 Flower St., Glendale 1, Calif., 40sc, 45c, Tel: 213-CHapman 5-1076
See ad in this class
Venner Electronics, Ltd., England, 40s, 45s
Virginia Electronics Co., Inc., D.C., 40c, 45c, 50c
Walkirt Co., Calif., 20s, 25s, 30s, 35s, 40s, 45s, 55s
Wang Laboratories, Inc., Mass., 20s, 40s, 50s, 55s
Warren Mfg. Co., Inc., Mass., 10c
Wells Electronics Co., Ind., 30c, 35c, 45c
Western Devices, Inc., Calif., 50c
Westinghouse Electric Corp., Air Arm Div., Md., 50c, 55c
Westinghouse Electric Corp., Semiconductor Dept., Pa., 55sc, Molecular Functional-Blocks sc
Whitehall Electronics Corp., Minn., 20c, 25c, 35c, 55c
Wiley Electronic Products Co., Div. of Giannini Scientific Corp., Ariz., 30sc, 40sc
Wintronics, Calif., 50c
Xerox Corp., N.Y., 65c
Zenith Optical Laboratory, N.Y., 25 Wafers c, 65c
Zimney Corp., Calif., 30c

Clips:
See class 97

Clips, diode:
See class 78

Clips, test:
See class 62

Clips, transistor:
See class 78

Clutches, magnetic:
See class 77

Coil testers:
See class 41

Coil-winding machinery:
See class 99

51. Coils.

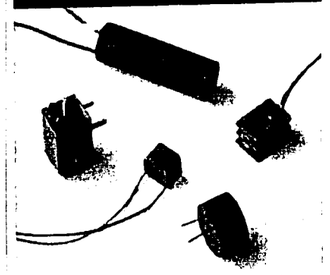
5. Chokes, AF
10. Chokes, IF
15. Chokes, power
20. Chokes, RF
25. Filter
30. Flyback
35. Focusing
40. Magnet
45. Relay
50. Saturable reactor
55. Solenoid
60. Toroidal
65. Tuning
70. Yokes, deflection

ACDC Electronics, Inc., 2979 N. Ontario St., Burbank, Calif., 5c, 10c, 15c, 20sc, 25c, 50c, 60c, Tel: 213-VIctoria 9-2414
See ad in class 69
A C Electronics, Inc., Calif., 5sc, 10sc, 15sc, 20sc, 25sc, 50sc, 60sc, 65sc
ADC Products, Div. of Magnetic Controls Co., 2863 13th Ave. S., Minneapolis 7, Minn., 5sc, 15sc, 50c, 60sc, Tel: 612-PArkway 1-5551
See ad in class 84
AMP, Inc., Pa., 60s
A.P.W. Co., N.J., 25c, 35c, 40c, 55sc, 60c
A.R.F. Products, Inc., Ill., 50c
A R & T Electronics, Inc., Subsid. of Baldwin Piano Co., 1101 McAlmont St., P.O. Box 627, Little Rock, Ark., 5c, Tel: 501-FRanklin 5-6441
See ads in classes 9, 10, 11, 83
Ace Coil & Electronics Co., N.J., 10c, 20c, 40c
Acme Electric Corp., 44 Water St., Cuba, N.Y., 50c, Tel: Cuba 4
See ad in class 69
Acro Electronic Products Co., Pa., 5sc, 15sc, 25sc, 50c
Acromag, Inc., Mich., 20c, 60c
Ad-Yu Electronics Laboratory, Inc., 249 Terhune Ave., Passaic, N.J., 25sc, Tel: 201-GRegory 2-5622
See ad in class 57
Adams Electronics, Inc., Mich., 5c, 10c, 20c, 25c, 35c, 55c
Advance Electronics Co., Mich., 25s
Advance Ross Electronics Corp., Ill., 30sc, 70sc
Advanced Electronics, Inc., Conn., 55c
Advancement Devices, Inc., N.Y., 5s, 15s, 20s, 25s, 50s
Aerocoil, Inc., N.J., 20sc, 50sc, 60sc
Airdesign Corp., Pa., 15sc, 25sc, 45sc, 55c
Aladdin Electronics Div., Aladdin Industries, Inc., Tenn., 5sc, 10sc, 20sc, 60c, 65c
All-Tronics, Inc., 45 Bond St., Westbury, L.I., N.Y., 20c, Tel: 516-EDgewood 3-3090
See ad in class 59
Allen Electric & Equipment Co., Mich., 40s, 45s
Allen Avionics, Inc., N.Y., 10c, 15c, 20c, 25c, 55c, 60c, 65c

51. Coils.

Allied Control Co., Inc., 2 East End Ave., New York 21, N.Y., 40c, 45c, 55c, Tel: 212-BUtterfield 8-7403
See ad in class 73
American Geloso Electronics, Inc., N.Y., 5s, 10s, 15s, 20s
American Machine & Foundry Co., Greenwich Engineering Div., Conn., 55c, Foil c
American Magnetics Corp., Ill., 5c, 25sc, 50c
American-Monarch Corp., Minn., 15c, 50c, 55c
American Research & Mfg. Corp., Md., 50sc, 60sc
Anderson Controls, Inc., Ill., 15c, 25c, 40c, 45c, 55c
Applied Control Corp., N.J., 55c, 60c
Ardente Acoustic Laboratories, Ltd., England, 5sc
Ariel Davis Mfg. Co., Utah, 15c
Armstrong Whitworth/Brush, Falcon Works, England, 5c, 10c, 15c, 20c
Arnold Magnetics Corp., Calif., 15sc, 25sc, 50sc
Artted Co., Inc., Mass., 5c, 10c, 20c, 25c, 60c, 65c
Atlantic Transformer Corp., Conn., 5c, 15c, 25c, 50c, 55c, 60c

COILS



Designed and Produced by Forbes and Wagner
The F & W specially designed coils shown above have solved specific problems. We will be glad to put our coil experience to work for you.
Typical F & W Coils
Relay • R. F. Transformers and Chokes • Saturable Reactors • Variable Inductors • Toroidal
Available in open construction, encapsulated and hermetically sealed. F & W encapsulated units meet the requirements of MIL-C-15305.

The coil shown here was developed to supply a 2500 V pulse for triggering a flash lamp from a 30 V source. This unit is subject to 10 KV test.

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350 Central Avenue
Silver Creek, N.Y. • Phone YE 4-2691
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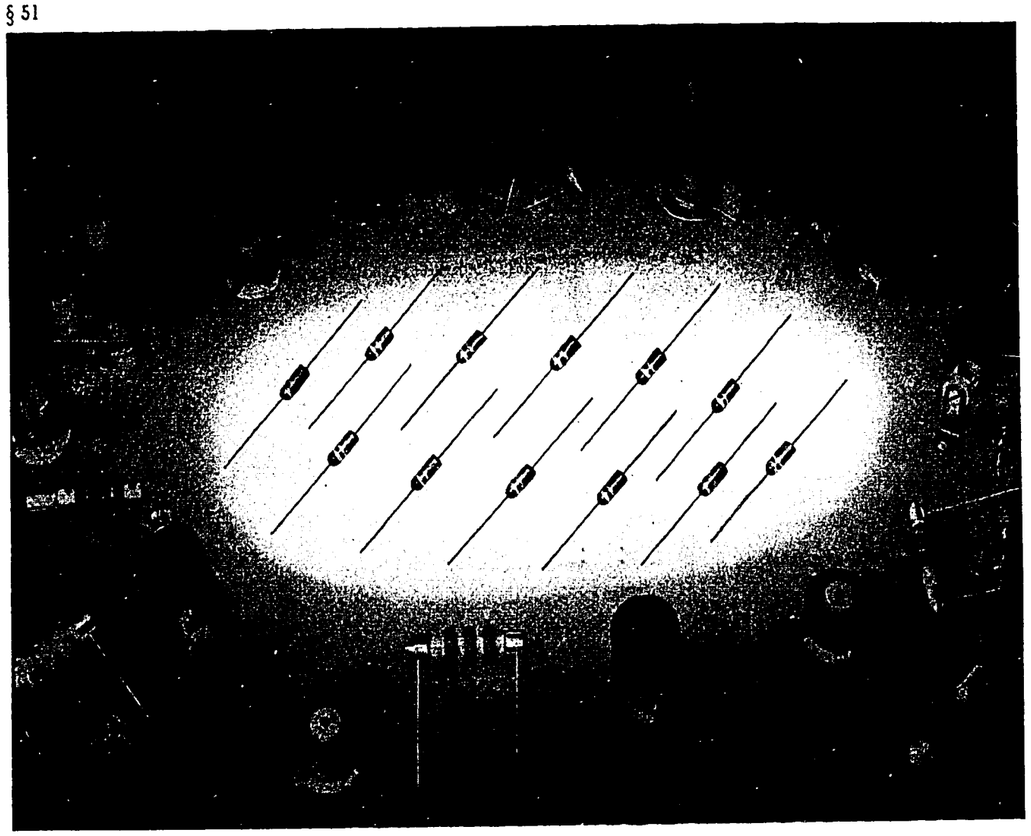

Encapsulated Inductances

Millen DESIGNED for APPLICATION encapsulated coils provide another advance in the r-f inductor field. Modern application requires miniature, heat and cold resistant, hermetically sealed, and abrasion resistant r-f inductor assemblies. The James Millen Manufacturing Company has pioneered many advances in the r-f inductor field, including the now standard 4 pi r-f choke, the axial lead r-f choke, and the miniature r-f choke. Developments have now made possible another advance, the No. 34301 and No. J301 encapsulated inductors—hermetically sealed—miniature size. Ambient temperature minus 55 degrees to plus 100 degrees C.

NO. J301 MINIATURE ENCAPSULATED INDUCTANCES

DESIGNED for APPLICATION miniature inductances are: extremely small (see table at right)—hermetically sealed—wound on axial lead Carbonyl cores—color coded. Coils are available in EIA standard values plus 25, 50, 150, 250, 350, 500, and 2500 microhenries. Current rating 100 to 1450 milliamperes depending on coil size.

NO. 34301 STANDARD ENCAPSULATED INDUCTANCES

Encapsulated DESIGNED for APPLICATION axial lead phenolic form r-f inductances. Hermetically sealed—heat resistant—abrasion proof—color coded. 0.15 to 2500 microhenries available in EIA standard values plus 25, 50, 150, 250, and 350 microhenries. Inductance ± 5%. Values available in same progression as J301 coils listed in the table at the right. Current rating 250 to 2800 milliamperes, depending on coil size. Ambient temperature range—minus 55 degrees to plus 100 degrees Centigrade. Size 3/16 inches diameter × 9/16 inches long to 3/8" × 7/8".

COIL NUMBER	INDUCTANCE MICROHENRIES	DIAMETER INCHES	LENGTH INCHES
J301-25	25	3/16	9/16
J301-33	33	3/16	9/16
J301-47	47	3/16	9/16
J301-50	50	3/16	9/16
J301-82	82	3/16	9/16
J301-100	100	3/16	9/16
J301-120	120	3/16	9/16
J301-150	150	3/16	9/16
J301-200	200	3/16	9/16
J301-220	220	3/16	9/16
J301-250	250	3/16	9/16
J301-300	300	3/16	9/16
J301-330	330	3/16	9/16
J301-350	350	3/16	9/16
J301-360	360	7/32	5/8
J301-390	390	7/32	5/8
J301-430	430	7/32	5/8
J301-470	470	1/4	11/16
J301-500	500	1/4	11/16
J301-510	510	1/4	11/16
J301-560	560	1/4	11/16
J301-620	620	1/4	11/16
J301-680	680	9/32	3/4
J301-750	750	9/32	3/4
J301-820	820	9/32	3/4
J301-910	910	9/32	3/4
J301-1000	1000	9/32	3/4
J301-1200	1200	5/16	13/16
J301-1300	1300	5/16	13/16
J301-1500	1500	5/16	13/16
J301-1800	1800	5/16	13/16
J301-2000	2000	3/8	7/8
J301-2200	2200	3/8	7/8
J301-2400	2400	3/8	7/8
J301-2500	2500	3/8	7/8

JAMES MILLEN MFG. CO., INC.
MAIN OFFICE AND FACTORY
MALDEN, MASSACHUSETTS, U.S.A.

For details, circle #305 on Reader Service Card

Directory II. Components

51. Coils.

Atlas Coil, Inc., Conn., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c

Atlas Engineering Co., Inc., Mass., 15c, 25c, 50c, 60c

Atlas Transformer Co., Calif., 5c, 15s, 20c, 25c, 55c, 60c

Automatic Coil Co., Inc., N.Y., 5c, 10sc, 20sc, 25c, 60c, 65c

Automatic Metal Products Corp., 323 Berry St., Brooklyn 11, N.Y., 20c, 25c, Tel: 212-EVergreen 8-6057
See ad in class 52

Barker & Williamson, Inc., Pa., 10c, 20sc, 60c, 65sc

Barrett Coil Co., Inc., Fla., 5c, 10c, 15c, 20c, 25c, 40c, 45c, 50c, 55c, 60c, 65c

Barwood Electronics, Inc., Calif., 5c, 15c, 25c, 55c, 60c

Basic & Experimental Physics, Mass., 60c

Basler Electric Co., Magnetic Components Dept., Ill., 5c, 15c, 40c, 55c, 60c

Bel-Tronics Corp., Ill., 5c, 10c, 15c, 20c, 55c, 65c

Belelere Co., Ltd., England, 5c, 15c, 25c, 45c, 50c, 55c

Bellaire Electronics, Inc., N.J., 10c, 20c

Bendix Corp., Montrose Div., Pa., 70c

Best Mfg. Co., Inc., N.C., 5c

Bird & Sons, Ltd. (Sydney S.), England, 70c

Bittermann Electric Co., Inc., Conn., 5c, 10c, 15c, 20c, 25c, 40c, 45c, 55c, 60c, 65c

Blackburn Electronic Corp., Pa., 10c, 20c, 25c, 35c, 50c, 60c, 70c

Bradford Components, Inc., N.Y., 5c, 15c, 25c, 55c

Broadway Coil Co., Ill., 5c, 10c, 20c, 25c, 55c, 65c

Brys Instrument Co., N.Y., 55c, 60c

Bud Radio, Inc., 2118 E. 55th St., Cleveland 3, Ohio, 20s, Tel: 216-HEnderson 1-7166
See ad in class 90

Bulova Watch Co., Inc., Electronics Div., Dept. A-1376, 61-10 Woodside Ave., Woodside 77, N.Y., 25c, 60c, Tel: 212-NEwtown 9-5700
See ad in class 56

Bundy Electronics Corp., N.J., 60sc

Burnell & Co., Inc., Dept. IR-2, 10 Pelham Pkwy., Pelham Manor, N.Y., 5sc, 25sc, 60sc, Variable sc, Tel: 914-PElham 8-5000
See ad on page 106

Bush Transformer Corp., N.Y., 5c, 10c, 15c, 25c, 50c, 60c

CTS Corp., 1142 W. Beardsley Ave., Elkhart, Ind., 40c, 45c, 55c, Tel: 219-JAckson 3-0210
See ad on page 12

Caddell-Burns Mfg. Co., Inc., N.Y., 10sc, 20sc, 25sc, 40sc, 45sc, 55sc

Calbest Electronics, Calif., 10c, 15c, 20c, 45c, 55c, 65c

California Magnetic Control Corp., Calif., 25c, 60c

Cambridge Thermionic Corp., Mass., 10s, 20s, 25s, 55s, 60s

Canadian Marconi Co., Canada, 5c, 10c, 15c, 20c, 25c, 60c

Carad Corp., Calif., 5c, 10c, 15c, 20c, 25c, 55c, 60c

Carma Mfg. Co., Calif., 20c, 40c, 45c, 55c

Carson Mfg. Co., Inc., Ind., 15c

Carter Co. (J. C.), Calif., 40c, 55c

Celco Constantine Engineering Laboratories Co., 70 Constantine Dr., Mahwah, N.J., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc, 65sc, 70sc, Tel: 201-DAvis 7-1123
See ad on page 130

Central Coil Co., Inc., Ind., 5c, 10c, 15c, 20c, 25c, 40c, 45c, 50c, 55c, 60c, 65c

Central Transformer Co., Ill., 5c, 15c, 25c, 50c

Century Coil Corp., Ill., 15c, 35c, 40c, 45c, 50c, 55c

Chemprint Corp., Calif., 60sc

Chicago Telephone of California, Inc., Calif., 5c, 10c, 15c, 20c, 25c, 40c, 45c, 55c

Cinaudagraph, Inc., Ill., 5c, 15c, 25c, 30c, 35c 40c, 50c, 55c

Circuitdyne Corp., Calif., 5c, 15c, 25c, 50c, 60c

Cleveland Electronics, Inc., Ohio, 35c, 70c

Clippard Instrument Laboratory, Inc., Ohio, 10c, 20c, 65c

Coast Coil Co., Calif., 5c, 15c, 25c, 50c, 60c

Coil Engineering & Mfg. Co., Ind., 15c, 25c, 40c, 55c

Coilcraft, Inc., Ill., 10c, 20c, 25c, 50c, 55c, 60c, 65c

Coils-Electronics Co., Pa., 10c, 15c, 20c

Colber Corp., N.J., 65c

Columbus Process Co., Inc., Ind., 5c, 15c, 55c

Comar Electric Co., 3349 Addison St., Chicago 18, Ill., 40c, 45c, 55c, Tel: 312-JUniper 8-2410
See ad on page 132

Communication Accessories Co., U.S. Highway 50 & 71 By-Pass, Lee's Summit, Mo., 5c, 15c, 50c, 60c, Tel: 816-LAclede 4-3500
See ad on page 112

Components Corp., Ill., 25c, 60c

Components for Research, Inc., Calif., 35c, 55c

Computer Components, Inc., N.Y., 40c, 45sc, 55c

Continental Electronics Corp., N.Y., 5c, 20c, 45c

Control Circuits, Inc., Conn., 60c

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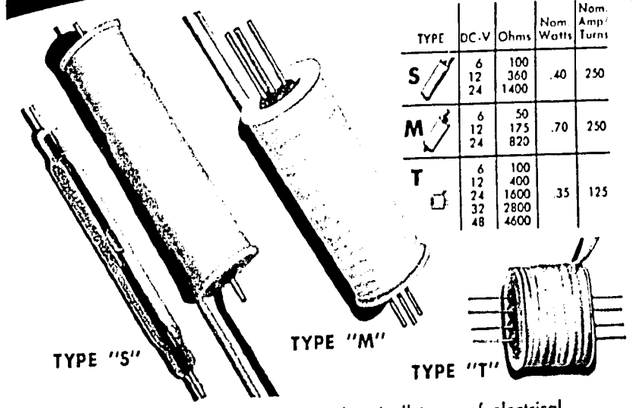
Write for Bulletin and Prices



TYPE	DC-V	Ohms	Nom Watts	Nom. Amp. Turns
S	6	100	.40	250
	12	360		
	24	1400		
M	6	50	.70	250
	12	175		
	24	820		
T	6	100	.35	125
	12	400		
	24	1600		
	32	2800		
	48	4600		

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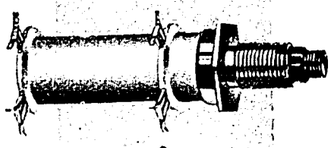
NEW



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TAPER-LOCK has a small taper nut, positively locking the insert core.

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Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 5c, 40c, 45sc, 50c, 55c, 60c

Corning Glass Works, Corning Electronic Components Div., 750 High St., Bradford, Pa., 65sc, Tel: 814-FOrest 2-5571
See ads in classes 48, 49, 74

Cornwell Electronics Corp., N.Y., 50sc, 60sc

Coto-Coil Co., Inc., 74 Pavilion Ave., Providence 5, R.I., 10c, 20c, 35c, 40c, 45c, 55c, 60c, Tel: 401-WIlliams 1-3355
See ad in this class

Crest Transformer Corp., Ill., 5sc, 15sc, 20sc, 25sc, 50sc

Crown Engineering, N.M., 25c

Crucible Steel Co. of America, Pa., 40sc

Daco Instrument Co., N.Y., 55s

Dale Electronics, Inc., Subsid. of Hathaway Instruments, Inc., 1318 28th Ave., P.O. Box 488, Columbus, Nebr., 5c, 10c, 20c, 25c, 35c, 40c, 45c, 60c, 65c, Tel: 402-LOcust 4-3131
See ad in class 74

Daltronics, Inc., R.I., 25sc, 60sc

Dano Electric Co., Conn., 15c, 30c, 40c, 45c, 55c, 70c

Darco Industries, Inc., Calif., 55sc

DeCoursey Engineering Laboratory, Calif., 5sc, 25sc, 50c, 60sc

Deeco Instruments, Inc., Calif., 5c, 25c, 50c, 60c

Del Electronics Corp., 521 Homestead Ave., Mount Vernon, N.Y., 15sc, 25sc, 50sc, Tel: 914-OWens 9-2000
See ad in class 69

Delevan Electronics Corp., 7719 Olean Rd., East Aurora, N.Y., 20sc, 65sc, Tel: 716-NL 2-3600
See ad in this class

Delta Coils, Inc., N.J., 5c, 10sc, 15c, 20sc, 25c, 45c, 55sc, 60c

Delta Radio Co., N.Y., 10c, 20c, 25c

Deltex Laboratories, Miss., 60c

Deltron Co., Calif., 50c, 60c

Deluxe Coils, Inc.: See Wabash Magnetics, Inc.

DeWitt Development Co., Ill., 5c, 20c, 40c, 55c

Diamond Coils, Inc., N.J., 5c, 10c, 15c, 20c, 25c, 55c, 65c

Dietz Design, Inc., Mo., 5c, 10c, 15c, 20c, 25c, 50c, 60c

Digitrols, Inc., Md., 5s

Direct T/V Windings, Ltd., England, 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 45sc, 50sc, 65c, 70sc

Dittmore-Freimuth Corp., Wis., 5c, 10c, 20c, 25c, 50c, 60c

Djeco, Div. of Djordjevic Engineering Co., Ill., 50c

Dormeyer Industries, Ill., 40c, 45c, 55c

Drake Co. (R. L.), Ohio, 10s, 65s

Dresser Electronics/HST Div., Texas, 5sc, 15sc, 25sc, 50sc, 60sc

Duro-Matic Products Co., Calif., 40c, 55c

E.M.I.-Cossor Electronics, Canada, 70c

EMP Electronics Research Laboratories, Inc., Ariz., 5c, 15c, 25c, 50c, 60c

E.P. Electric Products Co., Ltd., Canada, 50c, 60c

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Directory II. Components

51. Coils.

Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 40c, 55c, Tel: 415-LYtell 1-1451
See ad on pages 29-32

El-Rad Mfg. Co., Ill., 5c, 10c, 20c, 25c, 30c, 40c, 60c, 65c

Electran Mfg. Co., 1901 N. Clybourn Ave., Chicago 14, Ill., 15c, 50c, Tel: 312-BIttersweet 8-4596
See ad in class 84

Electric Wave Filters, Inc., Puerto Rico, 20c, 60c

Electrical Windings, Inc., Ill., 5c, 15c, 25c, 40c, 45c, 50c, 55c

Electro Assemblies, Inc., Ill., 10c, 20sc, 25c

Electro-Craft Corp., Minn., 50c, 55c, 60c

Electro Development Corp., Wash., 5c, 10c, 15c, 50c

Electro Engineering Works, Calif., 15c, 25c, 35c, 40c, 50c

Electro Networks, Inc., & Caledonia Electronics & Transformer Corp., N.Y., 5c, 15c, 25c, 60c

Electro Winders Co., Inc., Calif., 5c, 10c, 15c, 20c, 25c, 35c, 40c, 45c, 50c, 55c, 60c, 65c

Electrodynamic Instrument Corp., Texas, 5c, 10c, 15c, 55c, 60c

Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 5c, 20c, 25sc, 50c, 55c, Tel: 617-LYnn 8-2100
See ad in class 69

Electronic Coils, Inc., Mass., 10c, 20c, 40c, 45c, 50c, 55c, 60c

Electronic Components Corp., Ill., 15c

Electronic Production & Development, Inc., Calif., 60c

Electronic Research Associates, Inc., N.J., 5sc, 15sc, 25sc, 40sc, 50sc, 55sc, 60sc

Endicott Coil Co., Inc., 24 Charlotte St., Binghamton, N.Y., 40c, 45c, 55c, Tel: 607-SWarthmore 7-1263
See ad in this class

Engineering Specialties, Ohio, 60c

Ensign Coil Co., Ill., 5c, 25c, 45c, 55c

Epco Products, Inc., N.Y., 5c, 15c, 25c, 60c

Epsco, Inc., Mass., 50c

Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 60sc, Tel: 814-GLendale 6-8592
See ad on pages 78-79

Espey Mfg. & Electronics Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 40c, 45c, 50c, 55c, 60c

Fairfield Controls, Inc., Conn., 5c, 15c, 25c, 50c, 60c

Ferricore, Inc., N.J., 60c

Ferritronics, Ltd., Canada, 25sc, 65c

Ferro Magnetics Co., Calif., 5c, 10c, 15c, 20c, 25c, 30c, 60c

Ferrotran Electronics Co., Inc., N.Y., 5s, 10s, 15s, 20s

Fisher Engineering, Inc., Ind., 5c, 10c, 15c, 20c, 25c, 40c, 45c, 50c, 55c, 60c

Five Star Co., Inc., Conn., 40c, 45c, 55c

Forbes & Wagner, Inc., 350 Central Ave., Silver Creek, N.Y., 25c, 50c, 60c, Tel: 716-YEllowstone 4-2691
See ads in classes 33, 51, 57, 84

Forest Electric Co., Ill., 5c, 15c, 25c, 40c

Fortiphone, Ltd., Components & Transformer Divs., England, 5sc, 20c, 25c, 45c, 60c

Foster Transformer Co., Ohio, 5c, 15c, 25c

Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 5sc, 15sc, 25sc, 50sc, 60sc, Tel: 212-EVergreen 6-1300
See ad in class 84

Friend Engineering (Albert W.), Pa., 35c, 40c, 55c, 60c

Fugle-Miller Laboratories, Inc., N.J., 10c, 15c, 20c, 25c, 40c, 45c, 50c, 55c, 60c, 65c

Fuji Communication Apparatus Mfg. Co., Ltd., N.Y., 70c

G C Electronics Co., Div. of Textron Electronics, Inc., Ill., 30s

Galbraith-Pilot Marine Corp., Div. of Marine Electric Corp., N.Y., 5c, 15c, 25sc

Gates Electronic Co., 2243 White Plains Rd., New York 67, N.Y., 15s, Tel: 212-TUlip 1-5900
See ad in class 69

Gates Radio Co., Ill., 5s, 10s, 15s, 20s, 65s

Gemco Electric Co., Mich., 50sc, 60sc

General Coil Products Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 40c, 45c, 55c, 65c

General Dynamics/Electronics, N.Y., 45sc

General Electric Co., Apparatus Sales Dept., N.Y., 55s

General Instrument Corp., Automatic Mfg. Div., N.J., 10c, 20c

General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 60c, 65c, 70c

General Instrument Corp., F.W. Sickles Div., 165 Front St., P.O. Box 330, Chicopee, Mass., 10c, 20c, 25c, 30c, 50c, 55c, 60c, 70c, Tel: 413-LYceum 4-4781
See ad in class 57

General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 5c, 10c, 15c, 20c, 25sc, 50c, 55sc, 60c, Tel: 612-WEst 9-8571
See ad in class 43

General Motors Corp., Delco Radio Div., Ind., 5c, 10c, 20c, 25c

General Radio Co., 22 Baker Ave., West Concord, Mass., 15s, Tel: 617-EMerson 9-4400
See ad on Cover 4

General Time Corp., N.Y., 60c

General Winding Co., Inc., N.Y., 35c, 70c

Genistron, Inc., Calif., 20c, 25c

Geotronic Laboratories, Inc., Texas, 5c, 15c, 25c, 40c, 50c, 60c

Gilfillan Brothers, Inc., Calif., 20c, 25c, 30c, 60c

Gorman Machine Corp., 480 S. Main St., Randolph, Mass., 60c, Tel: 617-WOodlawn 3-7333
See ad in class 99

Gramer Halldorson, Ill., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 50sc, 60sc, 70sc

Grand Coil Winders, Mich., 5c, 15c, 25c, 55c

Grand Tran, Inc., Mich., 5c, 15c, 25c, 40c, 45c, 55c

Grand Transformers, Inc., Mich., 5c, 15c, 25c, 40c, 45c, 50c, 55c

Green Rectifier Co., N.J., 15sc

Gresham Transformers, Ltd., England, 5sc, 15c, 50c, 60c

Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 40c, 45c, Tel: 312-CHesapeake 3-1100
See ad in class 73

Gudeman Co., Ill., 60c

Gudeman Co. of California, Inc., Calif., 60c

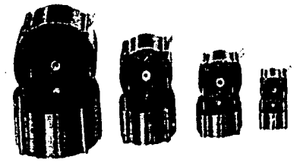
Gulow Transformer Co., Inc., N.J., 5s, 10s, 15s, 20s, 25s, 40s, 50s, 60s

Gulton Industries, Inc., N.J., 60sc

Hadley Co., Inc. (Robert M.), Calif., 5c, 15c, 25c, 50c, 55c, 60c, 65c

Hamilton Hall Resistor Corp., Wis., 20c

TOROIDUCTORS



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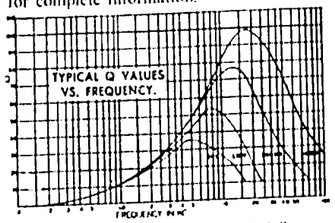

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Hamilton Watch Co., Industrial Products Div., Pa., 60c
Hammond Mfg. Co., Ltd., Canada, 5sc, 15sc, 20c, 25c, 50c, 55c, 60c
Harder Co. (Donald C.), Calif., 5c, 15c, 50c, 55c, 60c
Harmon Electronics Co., Mo., 25c
Harvey-Wells Corp., Mass., 40sc, 55sc
Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 60c
Hewlett-Packard Co., Palo Alto Engineering Co. (Subsid.), Calif., 5c, 15c, 25c, 50c, 60c
Highland Design, Inc., N.Y., 5c, 15c, 25c
Hindle Transformer Co., Inc., N.J., 15c, 25c, 40c, 45c, 50c
Hisonic, Inc., Kans., 60sc
Hydraulic Research Div. of Textron-Bell, Hyres Electrical Div., Calif., 55c
I.H. Mfg. Corp., N.Y., 25s, 55s
Inductor Engineering, Inc., Del., 25c, 50c, 60c
Industrial Timer Corp., N.J., 45sc, 55sc
Industrial Transformer Corp., N.J., 5c, 15c, 25c, 60c
Industrial Winding Machinery Corp., N.Y., 55c
Instrument Resistors Co., N.J., 20c, 40c, 45c
Instrument Systems Corp., N.Y., 40c, 50sc
Intercontinental Electronics Corp., N.Y., 5sc, 15sc, 40sc, 50sc, 55sc, 60sc
International Ultrasonics, Inc., N.J., 60c
Irvan Engineering Co., Inc., Calif., 25c, 30c, 35c, 40c, 45c, 55c, 60c, 65c, 70c
JFD Electronics Corp., 6101 16th Ave., Brooklyn 4, N.Y., 25c, 55c, 60c, 65c, Tel: 212-DEwey 1-1000
See ad on pages 56-57
Jack & Heintz, Div. of Siegler Corp., Ohio, 55c, 60c
James Electronics, Inc., 4050 N. Rockwell St., Chicago 18, Ill., 5c, 15c, 40c, 45c, 50c, Tel: 312-COrnelia 7-6333
See ad in class 53
Janitrol Aircraft Div., Midland Div., Midland-Ross Corp., Ohio, 55c
Jet Electronics Corp., Calif., 30sc, 35sc, 70sc
Jetronic Industries, Inc., Pa., 5sc, 10sc, 20sc, 25sc
Johnson Co. (E. F.), Minn., 20s
Johnson Electronics, Inc., Fla., 5c, 10c, 20c, 25c, 50c, 60sc
K.G.S. Electronics, Calif., 5c, 15c, 50c, 55c, 60c
K.V. Transformer Corp., Conn., 15c, 40c, 50c, 55c, 60c
Kenyon Transformer Co., Inc., N.J., 15sc, 25sc, 50c, 60c
Keystone Products Co., N.J., 15c, 20c, 60c
Knopp, Inc., Calif., 5c, 15c, 25c, 40c, 50c, 55c
Ledex, Inc., Ohio, 55sc
Lee Electric, Inc., N.J., 40c, 55c
Leonard Electric Products Co., N.Y., 10c, 20c, 25c, 30c, 45c, 55c, 65c
Life Instrument Co., Inc., Mass., 40c, 45sc
Light Electric Corp., N.J., 15c, 25c, 50c
Lignes Telegraphiques et Telephoniques, France, 20s
Line Electric Co., N.J., 40sc, 45sc, 55sc
Linell Engineering Corp. (Charles S.), Ill., 20sc
Ling Temco Vought, Inc., Texas, 5sc, 15sc, 20sc, 25c, 40c, 60c, 65c
Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid.), Calif., 5sc, 15s, 60c
Ling Temco Vought, Inc., Peerless Electrical Products Div., Calif., 5c, 15sc, 25c, 60c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c, 40c
Lionel Corp., N.J., 5c, 10c, 15c, 20c, 25c
Lisk Co., Inc. (G. W.), N.Y., 40sc, 45sc, 55sc
Litton Industries, Inc., Components Group, Triad Transformer Corp., Calif., 5sc, 10sc, 15sc, 25sc, 30sc, 50sc, 60sc, 70sc
Litton Industries, Inc., Electron Tube Div., 960 Industrial Rd., San Carlos, Calif., 35sc, 40sc, 55sc, Tel: 415-LYtell 1-8411
See ad in class 86
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 25c, 40c, 45c, 60c, 65c
Lynch Communication Systems, Inc., Calif., 25s
MacLeod & Hanopol, Inc., Mass., 20c
Magnalectric Corp., 2635 N. Iroquois, P.O. Box 6008, Tulsa 6, Okla., 5c, 15c, 25c, 60c, Tel: 918-FIlmore 5-7278
See ad in class 84
Magnetic Circuit Elements, Inc., Calif., 5sc, 15sc, 25sc, 50c, 60c
Magnetic Corp., Calif., 40sc, 55sc
Magnetico, Inc., N.Y., 5sc, 25sc, 50sc, 60sc
Magnetics, Inc., Pa., 50s
Magnetics Research Co., Inc., N.Y., 60c
Malaker Laboratories, N.J., 40c
Master Mobile Mounts, Inc., Calif., 65sc
May Engineering Co., Calif., 5c, 10c, 15c, 20c, 25c
Melco Products, Inc., Minn., 45c, 55c
Merit Coil & Transformer Corp., Fla., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 55sc, 60sc, 65sc, 70sc
Metropolitan Telecommunications Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c
Microsecond Electronics, Inc., Ariz., 5c, 10c, 20c, 25c, 40c, 50c, 55c, 60c, 65c
Microtran Co., Inc., 145 E. Mineola Ave., Valley Stream, L.I., N.Y., 60sc, Tel: 516-LOcust 1-6050
See ad in class 84
Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 10sc, 20sc, Tel: 617-DAvenport 4-4108
See ad in this class
Miller Co. (J. W.), Calif., 10sc, 20sc, 25sc, 65sc
Milro Controls Co., Inc., N.J., 5c, 10c, 15c, 25c, 40c, 50c, 60c
Milwaukee Transformer Co., Wis., 5c, 15c, 50c, 60c
Miniature Electronic Components Corp., Mass., 10c, 20c, 45sc, 55sc
Mitchell Electronics Corp., N.Y., 5c, 15c, 25c, 40c, 45c, 50c, 55c
Modelectric Products Corp., N.J., 5c, 10c, 15c, 20c, 40sc, 45c, 55sc

Directory II. Components

51. Coils.

Morey Corp., Ill., 10c, 20c, 25c, 30c, 35c, 55c, 60c
Multronics, Inc., Md., 20s, 65s
Mystic Transformers, Inc., Mass., 5c, 15c, 25c, 40c
Natel Engineering Co., Calif., 60s
National Coil Co., Wyo., 5c, 10c, 20sc, 25c, 55c
National Co., Inc., Mass., 5s, 10s, 20s, 25s
National Radio Co., Inc., Mass., 5c, 10c, 15c, 20c
Neshaminy Electronic Corp., Pa., 5c, 15c, 25c, 50c, 55c
Networks Electronic Corp., Calif., 50c
New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy., Somerville 43, Mass., 20c, 60s, Tel: 617-625-6100
See ad in class 84
New York Coil Co., Inc., Pa., 5c, 10c, 15c, 20c, 25c, 50c, 55c
New York Transformer Co., Inc., N.J., 15c, 25c, 50c, 60c
Norbatrol Electronics Corp., Pa., 50sc, 60sc
North Hills Electronics, Inc., Alexander Place, Glen Cove, L.I., N.Y., 10s, 20s, 60s, 65s, Tel: 516-ORiole 1-5700
See ads in classes 69, 84
Northern Electronic & Vacuum Industries, Canada, 60s
Nytronics, Inc., Essex Electronics Div., N.J., 10sc, 20sc, 25c, 60c
Oaktron Electric Co., Ill., 5c, 25c, 50c
Ohmite Mfg. Co., Ill., 20s, 55c
Ortho Magnetics, Inc., Pa., 5c, 15c, 25c, 50c, 60c
Osborne Electronics Corp., Ore., 5c, 10c, 15c, 25c, 40c, 45c, 50c, 55c, 60c
Osborne Transformer Corp., Mich., 15c, 40c, 60c
Otis Radio & Electric Corp., Iowa, 5c, 10c, 20c, 25c, 65c
Ovitron Corp., Power Controls Div., Conn., 15c, 25c, 50c, 60c
Ovitron Corp., Standard Winding Co. (Div.), 44-62 Johnes St., Newburgh, N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, Tel: 914-JOhn 1-1541
See ad in this class
PCA Electronics, Inc., 16799 Schoenborn St., Sepulveda, Calif., 5c, 10c, 25c, 55c, 60sc, Tel: 213-EMpire 2-0761
See ad in class 57
Pacific Electro Magnetics Co., Inc., Calif., 60c
Pacific Instrument Co., Calif., 5c, 15c, 25c, 50c, 55c, 60c
Pacific Magnetic Corp., Calif., 5c, 15c, 25c, 50c, 60c
Partridge Transformers, Ltd., England, 15s, 55c
Penn Transformer Corp., Pa., 30c, 45c, 70c
Pennon Electronics, Inc., Calif., 15c, 25c, 50c, 60c
Permaluster, Inc., Calif., 40sc, 45sc, 55sc
Philips Electronics Industries, Ltd., Canada, 20s
Phoenix Transformer Co., Ariz., 5c, 15c, 25c, 50c, 55c
Pickering & Co., Inc., N.Y., 55sc
Polydoroff & Associates (W. J.), D.C., 50c, 55c, 60c, 65c
Polyphase Instrument Co., Pa., 10c, 15c, 20c, 25c, 40c, 50c, 60c
Power Equipment Co., Ohio, 15c, 25c, 50c
Power Industries, Inc., Ill., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c
Precision Electronics, Inc., N.Y., 5c, 15c, 40c, 45c, 50c, 55c
Preferred Coils, Inc., Mass., 5c, 10c, 15c, 20c, 25c, 40c, 45c, 60c, 65c
Profile Electronics, Inc., 6 Bridge St., Concord, N.H., 20c, 40c, 45c, 55c, 65c, Tel: 603-CApital 4-1232
See ad in this class
Prototype Transformer Corp., N.J., 5c, 15c, 50c
Pulse Engineering, Inc., Calif., 25sc, 60sc
Q.L.C. Corp., N.Y., 10c, 65c
RCA Victor Co., Ltd., Canada, 25sc, 55sc
Radiation at Stanford, Calif., 15c
Radiatronics, Inc., Calif., 10c, 20c, 45c, 65c
Radio Development & Research Corp., N.J., 50c
Radio Engineering Laboratories, Inc., N.Y., 15c
Radio Television Products Corp., Mich., 10c, 20c, 25c, 60c
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 60c
Railway Communications, Inc., Mo., 60c
Ram Electronics, Inc., N.J., 5sc, 10sc, 15sc, 20sc, 25c, 30sc, 40sc, 70sc
Ram Meter, Inc., Mich., 50c
Raypar, Inc., Ill., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c
Raytheon Co., Microwave & Power Tube Div., Mass., 5sc, 15sc, 25sc, 50sc, 60sc
Redman Electronics Corp., Conn., 10c, 20c, 60c, 65c
Reed & Reese, Inc., Calif., 5c, 10c, 15c, 20c, 25c, 40c, 45c, 55c, 60c, 65c
Reeves Instrument Corp., Farmingdale Div., N.J., 15c, 25c, 50c, 55c, 60c
Renco Electronics, Inc., N.Y., 10c, 20c, 25c, 40c, 55c, 60c, 65c
Rimak Electronics, Inc., Calif., 60c
Rixon Electronics, Inc., Md., 5c, 10c, 20c, 25c, 50c, 60c, 65c
Rocker Solenoid Co., Calif., 55c
Rogers Electronic Corp., N.Y., 5s, 10s, 15s, 20s, 25s, 30s, 70s
Rola Co., Div. of Muter Co., Ohio, 30c, 35c, 70c
Rollan Electric Co., Ill., 10c, 45c, 55c
Rypinski Co. (C. A.), Calif., 60c
Rytron Co., Inc., Calif., 5c, 10c, 15c, 20c, 25c, 50c, 60c
SNC Mfg. Co., Inc., Wis., 15sc, 25sc, 40sc, 50sc, 55c, 60c
Sag Harbor Industries, Inc., N.Y., 15c, 40c, 45c, 55c
Sangamo Electric Co., Springfield, Ill., 5c, 15c, 20c, 25c, 50c, 60c, Tel: 217-KIngswood 4-6411
See ad on page 142
Sartron, Inc., Ore., 25c, 40c, 45c, 50c, 55c, 60c
Saturn Electronics Corp., Texas, 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c
Savoy Electronics, Inc., Fla., 65s
Schaevitz Engineering, N.J., 35c, 45c, 55c, 65c
Seg Electronics Co., Inc., 12 Hinsdale St., Brooklyn 7, N.Y., 25sc, 60sc, Tel: 212-DI 5-6262
See ad in class 59
Servo-Tek Products Co., Inc., N.J., 50c, 60sc, 70c
Servomechanisms/Inc., Calif., 15c, 25c, 60c
Sheltered Workshops, Inc., Calif., 5c, 10c, 15c, 20c, 55c
Siemens New York, Inc., N.Y., 25s
Signal Transformer Co., Inc., N.Y., 5c, 15c, 25c, 50c
Smallwood, Ltd. (S. G.), Canada, 5c, 10c, 20c, 25c, 30c, 55c
South Haven Coil, Inc., Mich., 5sc, 10sc, 20sc, 40c, 45c, 55c, 65sc

Profile Electronics
Incorporated
CONCORD, NEW HAMPSHIRE
custom coil winding

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Sparton Electronics, Div. of Sparton Corp., Mich., 5c, 10c, 15c, 20c, 25c, 40c, 45c, 50c, 55c, 60c

Specific Electronics, Inc., Calif., 5c, 10c, 20c, 25c

Speer Carbon Co., Jeffers Electronics Div., Pa., 20sc, 55sc

Sperry Rand Corp., Sperry Gyroscope Co. of Canada, Ltd. (Subsid.), Canada, 60c

Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 15s, 50s, 55s

Sperry Rand Corp., Wheeler Electronic Corp. (Subsid.), Conn., 60c

Sprague Electric Co., Mass., 25c, 60c

Stancor Electronics, Inc., 3501 W. Addison St., Chicago 18, Ill., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 50sc, 60sc, 70s, Tel: 312-INdependence 3-7400
See ad in class 84

Stancor Electronics, Inc., Pa., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 50sc, 60sc, 70s

Standard Electronics, Div. of Dynamics Corp. of America, N.J., 5c, 10c, 15c, 20c, 50c, 60c

Standard Television Products, Ltd., Canada, 5sc, 15sc, 25sc, 40sc, 45c, 50c, 55c, 60c

Stanwyck Coil Co. (E.), 75 Carson Ave., Newburgh, N.Y., 10c, 15c, 20c, 25c, 40c, 50c, 55c, 60c, 65c, Tel: 914-JOhn 1-3030
See ad in this class

Stator Electric Corp., N.Y., 5c, 10c, 15c, 20c, 40c

Stearns Electric Corp., Wis., 40c, 55c

Sterling Instrument Div., Designatronics, Inc., N.Y., 5c, 10c, 20sc, 25c, 55c, 60c, 65c

Sterling Transformer Corp., N.Y., 5c, 15c

Stonite Coil Corp., N.J., 5c, 15c, 20c, 30c, 35c, 40c, 45c, 50c, 55c, 65c

Stratocon Corp., N.J., 55c

Sturrup, Inc., Conn., 20c, 45c, 55c

Summit Coil Co., N.J., 10c, 20c, 65c

Superex Electronics Corp., N.Y., 5sc, 20sc, 65sc

Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 70s

Sylvania Electric Products Inc., Lighting Products Div., Special Products Operations, Mass., 5c, 15c, 25c, 40c, 50c, 55c, 60c

Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 65c, 70c

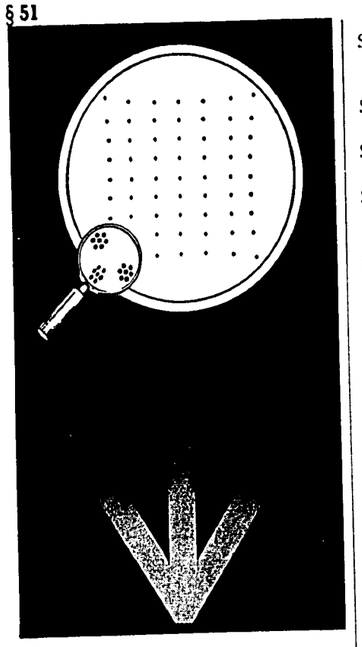
Syntronic Instruments, Inc., 100 Industrial Rd., Addison, Ill., 35s, 70s, Tel: 312-KIngswood 3-6444
See ad in this class

Systems Research Corp., Calif., 5c, 10c, 25c, 60c

T T Electronics, Inc., Calif., 25c

Tele Coil Co., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 50c, 55c, 60c, 65c, 70c

Telecomputing Corp., Calif., 45s, 55c



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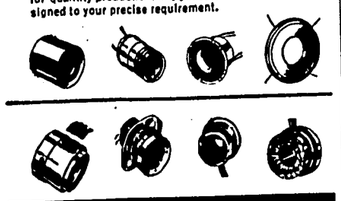

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Directory II. Components

51. Coils.

Telecomputing Corp., Electronic Components Div., Calif., 50c, 60c

Telectron Div., Elliott & Evans, Fla., 70sc

Television Laboratories, Inc., Ill., 35c, 55c, 60c, 70c

Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 15c, 25c, 40c, 50c, 55c, 60c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80

Tenco Electronics, Inc., Mass., 5c, 10c, 15c, 20c, 25c, 40c, 50c, 55c, 60c

Tensor Electric Development Co., Inc., N.Y., 5c, 10c, 20c, 25c, 35c, 50c, 60c, 65c, 70c

Thompson Ramo Wooldridge Inc., Radio Industries, Inc. (Subsid.), Ill., 10c

Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s

Thordarson-Meissner, Ill., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 50sc, 60sc, 70sc

Toko Radio Coil Laboratories, Ltd., Japan, 65c

Topper Mfg. Co., Inc., N.Y., 30c, 45c, 60c

Torocoil Co., Ill., 5c, 10c, 20c, 25c, 50c, 60sc

Toroidal Components Co., Calif., 50c, 60c

Toroids Unlimited, Inc., Pa., 5c, 10c, 20c, 25c, 50c, 60c

Torotel, Inc., 5512 E. 110th St., Kansas City 34, Mo., 5sc, 15sc, 25sc, 50sc, 60sc, Tel: 816-SOuth 1-6314
See ad in this class

Torotor A/S, N.Y., 65sc, 70sc

Torotron Corp., Dept. D, 256 E. Third St., Mount Vernon, N.Y., 25s, 50c, 60s, Tel: 914-MOunt Vernon 8-6900
See ad in this class

Torwico Electronics, Inc., N.J., 5c, 15c, 25c, 50c, 60c

Transformer Design, Inc. of Milwaukee, Wis., 5c, 15c, 25c, 50c, 55c, 60c

Transformer-Electronics Co., Colo., 15c, 25c, 50c, 55c, 60c

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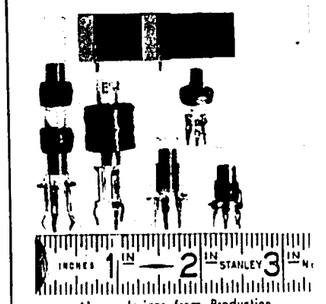
75 Carson Ave. Newburgh, N.Y. **John-1-3030**

Mfg. of R.F. Coils for Radio—T.V.—Citizen band—Stereo—Missiles and Radar



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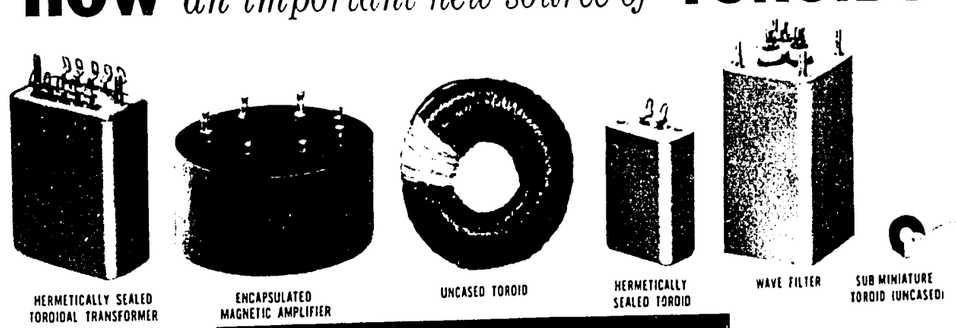

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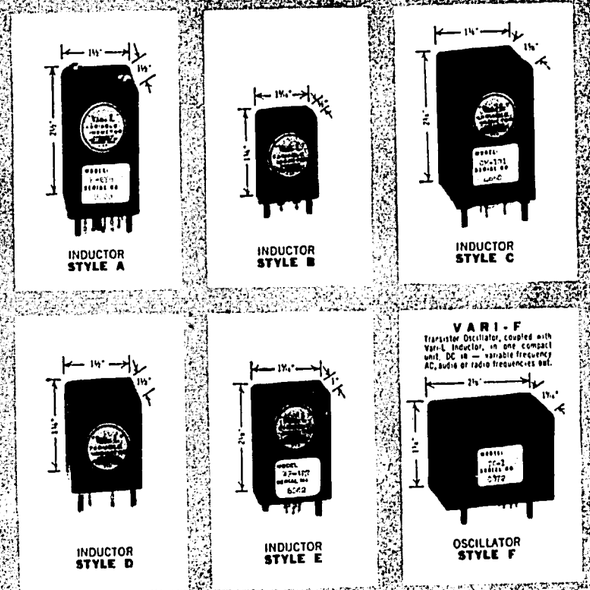

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(203) DAvis 3-2176

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EL-215	130 Henries	.58 Henries	200 Cycles	3000 Cycles	50 MA	2.5 Henries	20 Ohms	D	$52.50	EL-215
PA-28	4 Henries	63 MH	1000 Cycles	8000 Cycles	50 MA	7.2 Henries	450 Ohms	A	52.50	PA-28
TF-2X10	1 Henry	10 MH	5000 Cycles	50 KC	50 MA	5 Henries	450 Ohms	D	47.50	TF-2X10
PA-3Y6	500 MH	14 MH	7500 Cycles	45 KC	50 MA	4.3 Henries	450 Ohms	A	39.50	PA-3Y6
PA-4U6	100 MH	3 MH	15 KC	90 KC	50 MA	4.3 Henries	450 Ohms	A	39.50	PA-4U6
TF-49	50 MH	.6 MH	25 KC	225 KC	50 MA	5 Henries	450 Ohms	D	45.00	TF-49
PA-47	5 MH	.1 MH	50 KC	350 KC	40 MA	7 Henries	450 Ohms	A	47.50	PA-47
TF-59	5 MH	.06 MH	100 KC	900 KC	50 MA	5 Henries	450 Ohms	D	45.00	TF-59
PA-56	.8 MH	.02 MH	400 KC	2.4 MC	40 MA	5 Henries	450 Ohms	A	47.50	PA-56
PA-6Y3	320 μh	3.5 μh	750 KC	2.25 MC	50 MA	3 Henries	450 Ohms	A	45.00	PA-6Y3
PA-63	45 μh	5 μh	2 MC	6 MC	50 MA	3 Henries	450 Ohms	A	45.00	PA-63
PA-6T3	16 μh	2.05 μh	4 MC	11.2 MC	50 MA	3 Henries	450 Ohms	A	45.00	PA-6T3
PA-7X2	4.5 μh	1.1 μh	8 MC	16 MC	40 MA	1.25 Henries	775 Ohms	A	45.00	PA-7X2
MF-58	320 μh	5 μh	750 KC	6 MC	25 MA	1.3 Henries	400 Ohms	B	32.50	MF-58
MF-68	50 μh	.75 μh	1.5 MC	12 MC	25 MA	1.3 Henries	400 Ohms	B	32.50	MF-68
MF-62	7 μh	1 μh	8 MC	20 MC	50 MA	1.6 Henries	400 Ohms	B	32.50	MF-62
MF-7R2	1.6 μh	.4 μh	20 MC	40 MC	50 MA	1.3 Henries	400 Ohms	B	32.50	MF-7R2
MF-7W2	.5 μh	.15 μh	60 MC	108 MC	50 MA	1.3 Henries	400 Ohms	B	32.50	MF-7W2
MF-82	.2 μh	.09	100 MC	150 MC	50 MA	1.3 Henries	400 Ohms	B	32.50	MF-82
MF-811C	.1 μh	.065 μh	165 MC	206 MC	50 MA	1.3 Henries	400 Ohms	B	32.50	MF-811C
SPECIAL-PURPOSE TYPES										
OM-101	1.6 μh	.4 μh	20 MC	Ovenized MF-7R2. Heater specs. to order				C	60.00	OM-101
OM-102	.5 μh	.15 μh	60 MC	Ovenized MF-7W2. Heater specs. to order				C	60.00	OM-102
OM-103	.2 μh	.09 μh	100 MC	Ovenized MF-82. Heater specs. to order				C	60.00	OM-103
MF-52	.25 MH	.05 MH	500 KC	Low temp. drift, low hysteresis. Ideal for FM				B	38.00	MF-52
E-4Y8	40 MH	.65	25 KC	Delayed response for max. usable range				A	47.50	E-4Y8
TF-4X1	7 MH	3.1 MH	50 KC	Very low drift, low hysteresis — for telemetering				A	47.50	TF-4X1
WF-4R7	25 MH	.5 MH	50 KC	To sweep 100 KC region without dimensional resonances				E	45.00	WF-4R7
MF-7K2	.6 μh	.2 μh	60 MC	Temperature-stabilized. Similar to MF-7W2 but less range				B	32.50	MF-7K2

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Directory II. Components

51. Coils.

Transformer Engineers, Calif., 5c, 15c, 25c, 35c, 50c, 60c, 70c
Transformer Manufacturers, Inc., Ill., 5c, 15c, 25c
Transformers, Inc., N.Y., 5c, 15c, 25c, 50c, 60c
Transistor Applications, Inc., Mass., 20c, 60s
Translite Electronics Corp., Ill., 30c
Transonic, Inc., Calif., 5c, 15c, 25c, 50c, 60c
Transport Products Corp., Ky., 45c, 55c
Tresco, Inc., Pa., 5c, 10c, 15c, 20c, 25c, 50c, 55c, 60c
Tri-Dex Co., Calif., 25c, 40c, 45c, 55c
Tronic Coil Winding Co., Inc., Conn., 15c, 25c, 50c, 60c
Tur-Bo Jet Products Co., Inc., Calif., 40c, 45c, 55c

United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 20c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104

U.S. Electronics Corp., N.J., 5c, 10c, 15c, 20c, 25c, 40c, 45c, 55c, 65c

United Transformer Corp., 150 Varick St., New York 13, N.Y., 5sc, 15sc, 25sc, 50sc, 60sc, Tel: 212-ALgonquin 5-3500
See ad on Cover 2

Universal Toroid Coil Winding, Inc., N.J., 5sc, 10sc, 15sc, 20sc, 25sc, 50sc, 60sc
Universal Transformer Co., Texas, 5c, 15c, 25c, 55c
Valcor Engineering Corp., N.J., 55sc
Valor Instruments, Inc., Calif., 10c, 15c, 20c, 25c, 40c, 50c, 60c
Vanguard Electronics Co., Calif., 10sc, 20sc, 25sc, 30sc, 60c

Vari-L Co., Inc., 207 Greenwich Ave., Stamford, Conn., 50s, 60s, Tel: 203-DAvis 3-2176
See ad in this class

Varo, Inc., Texas, 5c, 10c, 15c, 25c, 40c, 45c, 50c, 55c, 60c, 65c
Virginia Electronics Co., Inc., D.C., 5c, 10c, 15c, 20c, 25c, 60c, 65c
Vitro Electronics, Div. of Vitro Corp. of America, Md., 5c, 10c, 20c, 50c, 60c

Wabash Magnetics, Inc., Miniature Products Div., 812 Manchester Ave., Wabash, Ind., 25c, 40c, 45c, 50c, 55c, Tel: 219-563-2191
See ad in this class

Warren Mfg. Co., Inc., Mass., 25c, 50c
Warsaw Coil Co., Ind., 5c, 10c, 20c, 25c, 35c, 40c, 45c, 55c, 65c
Waugh Engineering Co., Calif., 40s
Webster Electronics Co., Inc., N.Y., 65c
Wells Electronics Co., Ind., 10sc, 20sc, 25sc, 60c
West Coast Electrical Mfg. Co., Calif., 55c
Whitewater Electronics, Inc., Wis., 5c, 10c, 20c, 25c, 45c, 55c, 65c
Wiegand Mfg. Co., N.Y., 20c
Wilco Corp., Ind., 20sc
Wilcox Electric Co., Inc., Mo., 5sc, 10sc, 15sc, 20sc, 25sc, 50sc, 60sc
Wiley Electronic Products Co., Div. of Giannini Scientific Corp., Ariz., 70sc
Winatic Corp., N.Y., 40c, 45c, 55c, 65c
Wirco Electronics, Inc., Calif., 5c, 10c, 15c, 20c, 25c, 40c, 45c, 55c, 65c
Woodward-Schumacher Electric Corp., Ill., 5c, 15c, 25c, 55c
Workman TV Products, Inc., Fla., 20s
Wright-Zimmerman, Inc., Minn., 10c, 20c, 30c, 65c
Z & W Mfg. Corp., Ohio, 40c, 45c, 55c

Commutator switches:
See class 80

Computer circuits:
See class 50

Condensers:
See class 48

Cones:
See class 79

52. Connectors.

5. AN & MIL standard type
10. Anode
15. Cable
20. Coaxial
25. Hermetically sealed
30. Interlock
35. Microphone
40. Multiple circuit
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50. Power
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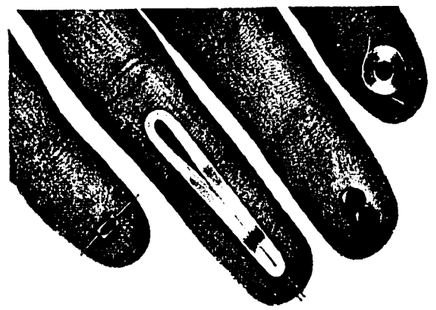
70. Subminiature
75. Waterproof

AMP, Inc., Pa., 15s, 20sc, 55s, 60s, 70c

A.P.M. Corp., 41 Honeck St., Englewood, N.J., 5s, 50s, Tel: 201-LOwell 9-5700
See ads in classes 75, 97

Accurate Electronics Corp., Ohio, 10c, 15c, 20c, 25c, 30sc, 35c, 40sc, 45s, 50sc, 55c, 60c, 70sc, 75c
Acor, Inc., Calif., 40c, 55sc, 70sc, 75c
Advanced Development Laboratories, Inc., N.H., 55c, 60c
Advanced Vacuum Products, Inc., Subsid. of Glass-Tite Industries, Inc., Conn., 25c
Aerolite Electronics Corp., N.J., 10sc, 30s, 45sc
Aeronautical Radio Mfg. Co., Fla., 5s
Aeroquip Corp., Mich., 5sc, 20sc
Aerospeel, Inc., N.J., 25sc
Air Born Connectors, Inc., Texas, 5s, 15s, 25c, 30s, 40s, 50s, 55c, 70s, 75s
Aircraft & Missile Consultants, Calif., 25c

Airflyte Electronics Co., 537 Ave. A, Bayonne, N.J., 65sc, Tel: 201-HEmlock 6-2230
See ad in class 80



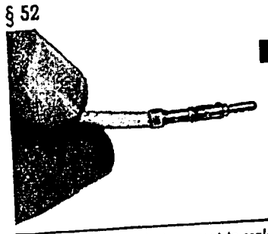
COILS | *in Miniature*
in Quantity
. . . and in Quality

Bobbin wound miniature coils . . .
LUXOLENE® molded fine wire coils
. . . self-supported coil assemblies . . .
plain or encapsulated complete assemblies . . . molded inductors . . . etc.
Using as fine as 56 gauge ultra-fine wire. Complete engineering assistance.

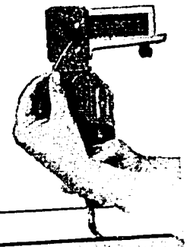
MINIATURE PRODUCTS DIV.
WABASH MAGNETICS, INC.
812 MANCHESTER AVENUE
WABASH, INDIANA
PHONE: 563-2191

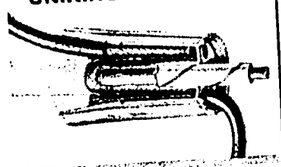
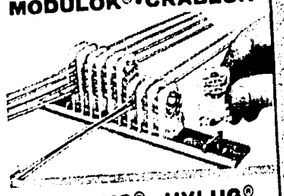
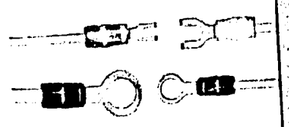
WABASH MAGNETICS DIVISIONS | DELUXE COILS, HI-VOLTAGE, MINIATURE PRODUCTS
For details, circle #317 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.



BURNDY READY REFERENCE CONNECTION SELECTOR CHART



Photographs of products are not to scale.	DEFINITIONS	TYPES	FEATURES
HYFEN®	Plug and receptacle connectors with crimp-type, snap-locked contacts.	Miniature rectangular, rack and panel, general purpose, modular, plug-in relay base, printed circuit—pin and edge type, coaxial—miniature and standard, BANTAM, round.	Tool-installed crimped contacts are individually or gang connected and disconnected. Extremely versatile and reliable. Quality materials used for inserts and contacts which are normally gold plated. Modular concepts.
STAPIN®	Solid shank, solid barrel taper pins for wire terminations in variety of receptacles.	Sealed, terminal blocks, modular frames and inserts, coaxial, console mount, bussed, stacking strips.	Rugged solid construction provides protection against repeated and rough handling. Tool-installed STAPIN quality-controlled by tooling.
UNIRING® • HYRING® 	Compression sheath connector for terminating and grounding shielded or coaxial cable.	one-piece UNIRING, two-piece HYRING, both in complete size ranges.	Tool-installed, eliminates possible heat damage to conductors, dielectric, and insulation. Both available preinsulated or uninsulated. Conforms to MS25311 and MS25312 (AER).
MODULOK® • CRABLOK® 	Quick-disconnect or permanently-connected terminal blocks.	2- or 4-tier MODULOK, 5- or 15-bay CRABLOK.	Extremely versatile modular design. Reliable electrical contact in both quick-disconnect or permanent connection position. Tool-installed crimp-type contact tips.
INSULUG® • HYLUG® 	Compression terminals, splices.	Round, fork, right angle, flag, high temperature insulated and uninsulated.	Hand, semi-automatic, and fully automatic tooling—with removable dies—provide up to 1000 quality-controlled connections per hour.
WIRING SPECIALTIES	Cable hangers, pigtail splices, strip terminals.	NYLOCLIP® BURCAP® FINGRIP®	Compression connections, tool controlled. NYLOCLIP strong, light, environmentally resistant.

Catalogs available covering these and other product lines . . .

OMATON DIVISION

BURNDY

60-13

NORWALK, CONNECT. • BICC—BURNDY Ltd., Prescot, Lancs., England • In Continental Europe: Antwerp, Belgium • TORONTO, CANADA

For details, circle #318 on Reader Service Card

Directory II. Components

52. Connectors.

Alden Products Co., 10140 N. Main St., Brockton 64, Mass., 15sc, 25sc, 40sc, 45sc, 50sc, 70sc, Tel: 617-JUniper 3-0160
See ad in class 50

Allison Associates, Mass., 55c

Alpine Electronic Components, Conn., 5c, 30c, 35c

Amatom Electronic Hardware Co., Inc., N.Y., 45sc

American Communications Corp., N.Y., 15sc, 20sc, 60sc

American Development Electronics Co., N.J., 25c, 75c

American Geloso Electronics, Inc., N.Y., 35s

American Research & Mfg. Corp., Md., 15sc

Ampco Mfg. Co., N.J., 5c, 10c, 15c, 30c, 35c, 40c, 50c, 70c, 75c

Amphenol-Borg Electronics Corp., Amphenol Connector Div., 1830 S. 54th Ave., Chicago 50, Ill., 5s, 15s, 20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 65s, 70s, 75s, Tel: 312-BIshop 2-1000
See ad on page 114

Andrew Corp., 363 E. 75th St., P.O. Box 807, Chicago 42, Ill., 5s, 15s, 20s, 60s, Tel: 312-FIeldbrook 9-3300
See ad on page 86

Anelex Corp., Mass., 55c

Antenna Products Co., Div. of All Products Co., Texas, 20sc, 60sc

Arkay Products Mfg. Co., Calif., 15sc

Armel Electronics, Inc., N.J., 40sc, 50sc, 55sc, 70sc

Astral Electronics, Inc., Calif., 55s

Atlas Connectors Corp., N.J., 5sc, 20c, 25sc, 50s, 55s, 70s

Audiosears Corp., N.Y., 5s, 35s

Audiotex Mfg. Co., Div. of GC Textron Electronics, Ill., 15s, 35s, 45s

Augat Brothers, Inc., 33 Perry Ave., Attleboro, Mass., 70s, Tel: 617-CAstle 2-2202
See ad in class 105

Auto-Swage Products, Inc., Conn., 45c, 55c

Automatic Metal Products Corp., 323 Berry St., Brooklyn 11, N.Y., 20sc, 55sc, 60sc, 70sc, 75sc, Tel: 212-EVergreen 8-6057
See ad in this class

Automation Electronics, Inc., Subsid. of Arnoux Corp., Calif., 25sc, 40c, 55sc, 70c

Autotron, Inc., Calif., 40c

Aviel Electronics, Inc., Calif., 5c, 20sc, 25sc, 60sc

Barker Products Co., Mass., 15sc, 35sc, 45sc, 55sc

Barnes Development Co., 213 W. Baltimore Pike, Lansdowne, Pa., 40sc, Tel: 215-MAdison 2-1525
See ad in class 41

Bead Chain Mfg. Co., 11 Mountain Grove St., Bridgeport 5, Conn., 70s, Tel: 203-EDison 4-4124
See ad in class 97

Beauchaine & Sons, Inc., N.H., 15sc, 40sc

Beck's, Inc., Minn., 65c

Belling & Lee, Ltd., Great Cambridge Rd., Enfield, Middlesex, England, 15s, 20s, 45s, 50s, 55s, 60s, 70s, 75s, Tel: Enfield 5393
See ad in this class

Benco Television Associates, Ltd., Canada, 20s, 75s

Bendix Corp., Scintilla Div., Sidney, N.Y., 5s, 15s, 20s, 25s, 40s, 50s, 60s, 70s, 75s, Tel: 607-LOwell 3-9511
See ad on page 90

Bently Scientific Co., Calif., 20sc, 60sc, 70sc

Bird Electronic Corp., 30303 Aurora Rd., Cleveland 39, Ohio, 20s, Tel: 216-CHurchill 8-1200
See ad on page 210

Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 10s, 15s, 30s, 35s, 45s, 55s, 70s, Tel: 212-WOrth 6-5611
See ad in class 91

Blonder-Tongue Laboratories, Inc., N.J., 20s, 60s

Braun Tool & Instrument Co., Inc., 143 Fifth Ave., Hawthorne, N.J., 55c, 65c, Tel: 201-HAwthorne 7-1773
See ad in class 78

Breeze Corporations, Inc., N.J., 65s

Brilhart Electronics Corp., N.Y., 65c

Buchanan Electrical Products Corp., N.J., Pressure sc

Burndy Corp., Omaton Div., Richards Ave., Norwalk, Conn., 5sc, 15sc, 20sc, 25c, 30sc, 40sc, 50sc, 55sc, 60c, 70sc, 75c, Tel: 203-TEmple 8-1169
See ad in this class

Burndy-Escon Div., Burndy Corp & Glass-Tite Industries, Inc., R.I., 5s, 15c, 20c, 25s, 35c, 40c, 45c, 50c, 55c, 70s, 75c

CFI Corp., Dept. IRE, Cottage Place, Mineola, L.I., N.Y., 25c, Tel: 516-PIoneer 6-0571
See ad in class 92

Cable Designs, Inc., N.Y., 15c, 75c

Camblock Corp., Div. of Waltham Precision Instrument Co., Inc., Mass., 15c, 30s, 35s, 40s, 45s, 55s, 60s, 70s, 75s

Cannon Electric Co., 3208 Humboldt St., Los Angeles 31, Calif., 5s, 15s, 20s, 25s, 35s, 40s, 45s, 50s, 55s, 60s, 70s, 75s, Tel: 213-CApitol 5-1251
See ad in this class

Carborundum Co., Refractories Div., N.J., 25sc

Ceramaseal, Inc., N.Y., 15c, 20c, 25sc

Ceramatronics, Inc., N.J., 25c

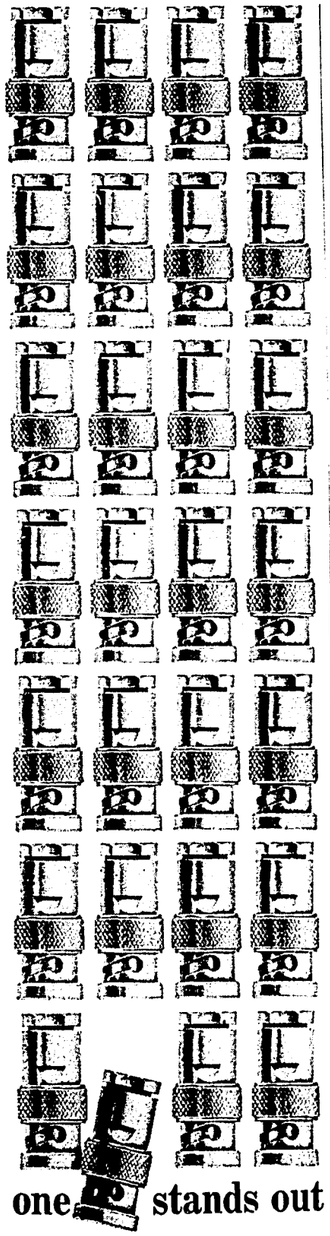
Ceramco, Inc., N.J., 25c, 75c

Ceramics International Corp., N.J., 25c

Chester-Morton Electronics Corp., Pa., 15sc, 50sc, 75sc

Cinch Mfg. Co., 1026 S. Homan Ave., Chicago 24, Ill., 5s, 10sc, 15s, 20sc, 25sc, 30s, 35sc, 40sc, 45sc, 50sc, 55sc, 70sc, Tel: 312-NEvada 2-2000
See ad on pages 64-65

Cinch Mfg. Co., Graphik-Circuits Div., Calif., 20c, 55c



one stands out

Superiority of design, manufacture and performance are never an accident. Quality must be planned!

When you next specify **Coaxial Connectors**, specify . . .

Automatic

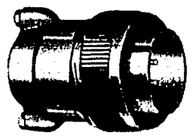
METAL PRODUCTS CORPORATION

323 Berry St., B'klyn 11, N. Y. • EVergreen 8-6057

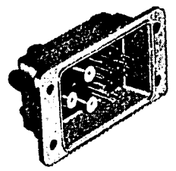
For details, circle #319 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

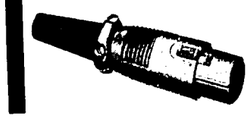
GENERAL CIRCUITRY AND QUICK DISCONNECT MS Series, MS Types, K Series. MS plugs meet MIL-C-5015; include environmental resistant types, and feature low cost, uniform quality, interchangeability, and wide variety of contact arrangements. A wide variety of shell sizes and types are available to meet all general-purpose applications. The K Series are lightweight, rugged, all-purpose plugs—have many of the features of the MS Series. The K line features a special Acme threaded coupling. Crimp snap-in contacts are available in some MS types.



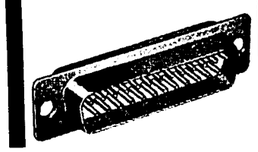
RACK/PANEL Dual panel rectangular plugs have a wide variety of contact arrangements and shell sizes. Rectangular shape increases insert area utilization, simplifies assembly, provides maximum flexibility for module or unit plug-in applications. Available in environmental resistant types; coaxial and high voltage contacts, solder or crimp snap-in.



AUDIO AND LOW LEVEL CIRCUITS P, XLR, XK, O, UA Series for all low level sound requirements. Full line of plugs for all requirements of microphone, radio, television, tape recorders, computers, control devices, and many other applications. In many shell sizes and contact layouts, coaxials. Latch-lock types, wall mounting, panel, locknut mounting, and adapter receptacles. Line includes the deluxe streamlined XLR Series.

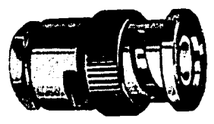


MINIATURE SERIES KQ/KR, KM, K-Miniature, DPA, DPX, Golden-D. *Circular Miniature Plugs* designed for aircraft, missile and other applications where space and weight are critical. Include environmental resisting, crimp snap-in contacts, quick-coupling devices, monobloc construction, hermetically sealed versions. *Miniature Rectangular Plugs* meet weight and space limitations in rack/panel installations. Range from lightweight sub-miniatures to small plugs of great strength. Coaxial layouts, hermetically sealed versions, crimp snap-in contacts.



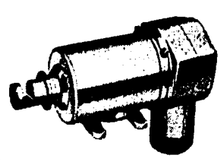
CANNON PLUGS FOR ANY APPLICATION OR ENVIRONMENT

HERMETICALLY SEALED Available in most popular plug lines. Includes the first Series approved to MIL-C-25955, which requires leakage rates of less than .001 micron cubic foot per hour (1.5×10^{-8} cc/sec.). Plugs for all hermetic applications—standard or custom designs, with some series designed to withstand extreme thermal shocks, temperatures from —100°F to 1000°F, pressures above 2000 psi.



COAXIAL RF SERIES Available in a wide variety of types from subminiatures to large cable applications. For use in thousands of military, industrial, and commercial applications. Meet extreme environmental conditions. Hermetically sealed versions, weight-saving aluminum versions available. Full line of RF plugs meets all requirements from ground based equipment through outer space.

UMBILICAL PLUGS AND PLUG/HARNESS SYSTEMS Designed for the specialized demands of missile launching; provides the utmost reliability in connections between complex electronic systems within a missile and a master control point or other ground systems. Compatible with any method of launching, any method of engagement or release. Plug/Harness systems are designed, manufactured, and tested as a unit under rigid, quality-controlled conditions in a separate, highly specialized facility. The ability to combine specified plugs and cables into one complete unit provides a single responsibility for performance of the complete plug/harness system—assures the highest reliability.



MAGNETIC DEVICES A wide range of magnetic actuating devices for military, industrial, and commercial applications. AC and DC solenoids; linear, rotary and reciprocating actuators for computers, business machines, environmental, and special design. Push, pull, Push-Pull; high temperature, potted, hermetically sealed. Broad power ranges, input voltages in 6, 12, 24, 36, 115, and 230 dc and ac.

For more than four decades Cannon has been solving critical plug problems for every conceivable military and industrial application. Our wide variety of plugs—more than 27,000 designs—are available to meet such problems of modern technology as *shock, vibration, acceleration, temperature, altitude, moisture,* and *miniaturization*...Cannon plugs are the standard of the industry for use in aircraft, missiles, ground support equipment, computers, data processing devices, business machines, radio, television, and many other standard and special applications. For additional information on the typical designs illustrated, or other types to meet your individual requirements, write to:

CANNON ELECTRIC COMPANY, 3208 Humboldt Street, Los Angeles 31, California

CANNON ELECTRIC PLUGS

For details, circle #320 on Reader Service Card

Directory II. Components

52. Connectors.

Cinch Mfg. Co., Howard B. Jones Div., 1026 S. Homan Ave., Chicago 24, Ill., 10s, 15s, 35s, 40s, 45s, 50s, Tel: 312-NEvada 2-2000
See ad on pages 64-65

Circon Component Corp., Santa Barbara Municipal Airport, Goleta, Calif., 40s, 55s, 70s, Tel: 805-WOodland 7-1113
See ad in class 63

Co-Operative Industries, Inc., N.J., 25c, 75c

Coaxial Components Co., Inc., Conn., 5sc, 15c, 20sc, 30sc, 35sc, 65sc

Cole Electric Co., Calif., 15sc, 20c, 25c, 30c, 40c, 50c, 60c, 75c

Collectron Corp. 304 E. 45th St., New York 17, N.Y., 65c, Tel: 212-MUrray Hill 9-7120
See ad in class 80

Component Mfg. Service, Inc., Mass., 15c, 20c, 35c, 40c, 45c, 70c, 75c

Components for Research, Inc., Calif., 15sc, 20sc

Connect-Tron, Inc., N.Y., 5s, 40c

Connecticut Telephone & Electric Corp of Meriden, Conn., 50c, 75c

Connector Corp., Ill., 45sc

Connector Seals Corp., Calif. 25sc, 30sc, 40sc, 50sc, 55sc, 70sc

Consolidated Electrodynamics Corp., Calif., 5s

Continental Connector Corp., N.Y., 5c, 15c, 20c, 25c, 40sc, 50c, 55sc, 70sc

Crouse Hinds Co., N.Y., 5s, 50s, 75s

Cryogenerators, Inc., R.I., 15sc, 55c, 70c

Culver-Stearns Mfg. Co., Mass., 30c

Dage Electric Co., Inc., 67 N. Second St., Beech Grove, Ind., 20s, 25s, 60s, Tel: 317-STate 7-5305
See ads in classes 52, 75

Dante Electric Mfg. Co., Conn., 15s, 50s

DeJur-Amsco Corp., Electronics Div., N.Y., 5c, 15c, 20c, 25c, 40c, 50c, 55c, 70c

DeMornay-Bonardi Corp., 780 S. Arroyo Parkway, Pasadena, Calif., 5s, Tel: 213-SYcamore 2-4142
See ad on pages 68-69

Deutsch Co., Electronic Components Div., Calif., 5s, 20s, 25s, 40s, 50s, 60s, 70s, 75s, Environmental s

Device Seals, Inc., Calif., 5c, 20c, 25c, 70c

Dialight Corp., 60 Stewart Ave., Brooklyn 37, N.Y., 5sc, 15sc, 35s, 70sc, Tel: 212-HYacinth 7-7600
See ad in class 63

Dielectric Products Engineering Co., Inc., Me., 20sc, 60sc

Dittmore-Freimuth Corp., Wis., 5c, 15c, 20c, 40c, 65c, 75c

Dow-Key Co., Inc., Minn., 20sc

Eagle Electric Mfg. Co., Inc., N.Y., 30s, 50s

Ecco Electronic Components Corp., N.Y., 60sc

Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 10s, 60sc, Tel: 415-LYtell 1-1451
See ad on pages 29-32

Elco Corp., Pa., 15sc, 30s, 40sc, 50s, 55sc, 70sc, 75s

Electric Terminal Corp., R.I., 30s, 35s, 45s

Electrical Industries, Div. of Philips Electronics & Pharmaceutical Industries Corp., 691 Central Ave., Murray Hill, N.J., 25sc, Tel: 201-CRestview 7-4300
See ad on page 108

Electro Development Co., Calif., 65s

Electro-Miniatures Corp., N.J., 65c

Electro-Products, Inc., Mich., 20 Adapter s

Electro Switch Corp., Slip-Ring Div., Osterville, Mass., 65c, Assemblies c, Tel: 617-GArden 8-6986
See ad in class 80

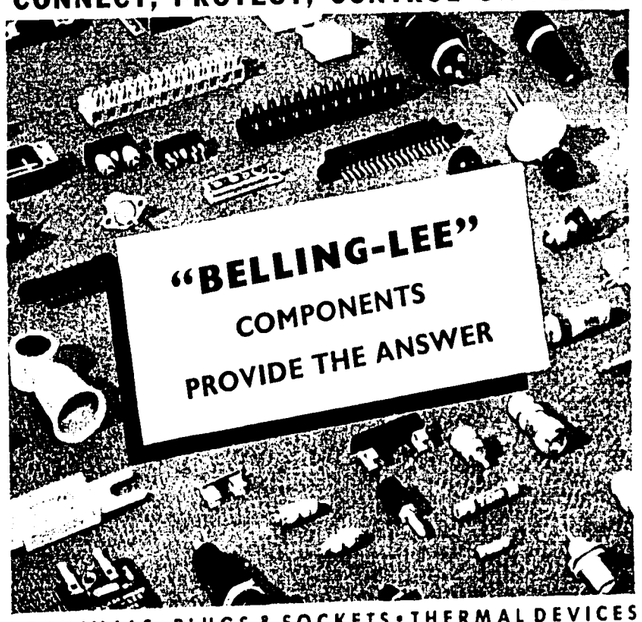
Electro-Tec Corp., N.J., 65c, 70c

Electronic Parts Mfg. Co., Inc., N.J., 25c

Now...
for immediate delivery of
CONNECTORS
MICRODOT
WINCHESTER ELECTRONICS
CINCH-JONES AMPHENOL
at factory prices
DIAL BARCLAY
7-7777

HARRISON
ELECTRONICS CORP.
227 GREENWICH ST./NEW YORK 7, N. Y.
(Industrial Sales Division of Harrison Radio Corp.)
Long Island: IVanhoe 6-7660
New Jersey: DElaware 3-8780
Call Collect Order Dept. — BA 7-7785
TWX-NY1-177 / CABLE: "Harrisorad"
CATALOGS UPON REQUEST
For details, circle #321 on Reader Service Card

CONNECT, PROTECT, CONTROL OR FILTER



TERMINALS • PLUGS & SOCKETS • THERMAL DEVICES
FUSES • INTERFERENCE FILTERS • GLASS SEALS
ERCONA CORPORATION
(Electronic Division)
Dept. P-8, 16 West 46th Street, New York 36, New York
For details, circle #322 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

DAGE

COAXIAL CABLE CONNECTORS

67 NORTH SECOND STREET BEECH GROVE, INDIANA

BNC SERIES

CABLE PLUG

DAGE NO.	AN NO.	CABLE RG ( )/U
056-1	UG-88/U	55,58
073-1	UG-260/U	59,62,71
359-1	UG-88B/U	55,58
416-1	UG-260A/U	59,62,71
813-1	UG-88C/U	55,58
815-1	UG-260B/U	59,62,71
2030-1	UG-88A/U	55,58
3421-1	UG-260C/U	59,62,71

CABLE JACK

124-1	UG-261/U	59,62,71
130-1	UG-89/U	55, 58
415-1	UG-89B/U	55, 58
417-1	UG-261A/U	59,62,71
814-1	UG-89A/U	55, 58
816-1	UG-261B/U	59,62,71
3420-1	UG-89C/U	55, 58
3422-1	UG-261C/U	59,62,71

SINGLE HOLE MOUNT CABLE JACK

2225-1	UG-910/U	59,62,71
2230-1	UG-909/U	55,58
2461-1	UG-624/U	59,62,71
3441-1	UG-909A/U	55,58
3442-1	UG-910A/U	59,62,71

FLANGE MOUNT CABLE JACK

121-1	UG-262/U	59,62,71
122-1	UG-291/U	55,58
371-1	UG-262A/U	59,62,71
413-1	UG-291A/U	55,58
817-1	UG-291B/U	55,58
1-110-1	UG262B/U	59,62,71
3423-1	UG-262C/U	59,62,71
3425-1	UG-291C/U	55,58

SINGLE HOLE MOUNT JACK RECEPTACLE

DAGE NO.	AN NO.
081-1	UG-625/U
667-1	UG-625A/U
667-2	UG-1094/U
1-400-1	UG-911/U
1-408-1	UG-625B/U

FLANGE MOUNT JACK RECEPTACLE

055-1	UG-290/U
671-1	UG-290A/U

ADAPTER STRAIGHT SINGLE HOLE BULKHEAD FEED THRU (JACK-JACK)

547-1	UG-492/U
1-190-1	UG-492A/U
2201-1	UG-492B/U

PLUG RECEPTACLE RIGHT ANGLE SINGLE HOLE MOUNT

818-1	UG-535A/U
818-2	UG-1098/U
2556-1	UG-1174/U

ADAPTER TEE (2 JACK, 1 PLUG ENDS)

134-1	UG-274/U
1-040-1	UG-274A/U
3424-1	UG-274B/U

BINDING POST

501-1	UG-924/U

C SERIES

CABLE PLUG

DAGE NO.	AN NO.	CABLE RG ( )/U
288-1	UG-573A/U	8,9
1-121-1	UG-709A/U	58
1-200-1	UG-943A/U	10,12
1-262-1	UG-626A/U	5,6
3433-1	UG-573B/U	8,9
3434-1	UG-626B/U	5,6

CABLE JACK

DAGE NO.	AN NO.	CABLE
310-1	UG-572/U	8,9
1-604-1	UG-633/U	5,6
3432-1	UG-572A/U	8,9
3439-1	UG-633A/U	5,6

SINGLE HOLE MOUNT CABLE JACK

308-1	UG-570/U	8,9
585-1	UG-939/U	8,9
1-605-1	UG-704/U	55,58
3430-1	UG-570A/U	8,9

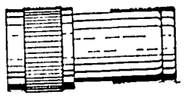
FLANGE MOUNT CABLE JACK

804-1	UG-629/U	5,6
3431-1	UG-571A/U	8,9

SINGLE HOLE MOUNT JACK RECEPTACLE

DAGE NO.	AN NO.
2377-1	UG-634/U
3429-1	UG-569A/U

N SERIES



PLUG

DAGE NO.	AN NO.	CABLE RG ( )/U
037-1	UG-21B/U	8,9
131-1	UG-18B/U	5,6,21
400-1	UG-21C/U	8,9
1-111-1	UG-21D/U	8,9
1-243-1	UG-18A/U	5,6,21
1-244-1	UG-21A/U	8,9
1-624-1	UG-18C/U	5,6,21
2799-1	UG-204C/U	14

JACK

062-1	UG-23B/U	8,9
140-1	UG-20B/U	5,6,21
1-242-1	UG-20A/U	5,6,21
1-246-1	UG-23A/U	8,9
1-247-1	UG-23D/U	8,9
1-490-1	UG-23C/U	8,9
1-527-1	UG-20C/U	5,6,21

FLANGE MOUNT CABLE JACK

047-1	UG-22B/U	8,9
132-1	UG-19B/U	5,6,21
345-1	UG-1052/U	58
1-258-1	UG-22D/U	8,9
1-480-1	UG-22C/U	8,9
1-526-1	UG-19C/U	5,6,21
2328-1	UG-1187/U	8,9
3195-1	UG-1187A/U	8,9
3456-1	UG-1095A/U	55,58
3457-1	UG-1095B/U	55,58

SINGLE HOLE MOUNT CABLE JACK

DAGE NO.	AN NO.	CABLE RG ( )/U
2146-1	UG-160C/U	8,9
2413-1	UG-936A/U	10,12
3039-1	UG-160B/U	8,9

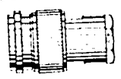
RIGHT ANGLE FLANGE MOUNT JACK RECEPTACLE

DAGE NO.	AN NO.
2466-1	UG-997A/U

FLANGE MOUNT JACK RECEPTACLE

019-1	UG-58A/U

TNC SERIES



CABLE PLUG

DAGE NO.	CABLE RG ( )/U
8000-1	55,58
8004-1	59,62,71

CABLE JACK

8005-1	55,58
8006-1	59,62,71

SINGLE HOLE MOUNT CABLE JACK

8009-1	55,58
8010-1	59,62,71

FLANGE MOUNT CABLE JACK

8007-1	55,58
8008-1	59,62,71

SINGLE HOLE MOUNT JACK RECEPTACLE

DAGE NO.	DATA
8001-1	Herm. Seal
8012-1	

FLANGE MOUNT JACK RECEPTACLE

8011-1	

RIGHT ANGLE SINGLE HOLE MOUNT JACK RECEPTACLE

8016-1	Solder pot

RIGHT ANGLE FLANGE MOUNT JACK RECEPTACLE

8015-1	Solder pot

TPS SERIES

CABLE PLUG

DAGE NO.	AN NO.	CABLE RG ( )/U
7015-1	UG-1366 ()/U	58 C/U

SINGLE HOLE MOUNT CABLE JACK

7016-1	UG-1364 ()/U	58 C/U

SINGLE HOLE MOUNT JACK RECEPTACLE

7034-1	UG-1365 ()/U	

DAGE

ADAPTER STRAIGHT SINGLE HOLE MOUNT BULKHEAD FEED THRU (JACK-JACK)

DAGE NO.	AN NO.
7033-1	UG-1367 ()/U

ADAPTER BETWEEN SERIES, TPS TO BNC ADAPTER STRAIGHT SINGLE HOLE MOUNT BULKHEAD FEED THRU (JACK-JACK)

7035-1	UG-1368 ()/U

DM SERIES

CABLE PLUG

DAGE NO.	POLARITY	DAGE JACKET DIA. MAX. MIN.
1-300-1	A	.135 .115
1-317-1	B	.135 .115
1-818-1	E	.135 .115
1-940-1	J	.135 .115
1-941-1	L	.135 .115
5149-1	F	.135 .115
5152-1	M	.135 .115
5312-1	K	.135 .115

CABLE JACK

DAGE NO.	POLARITY	OUTER JACKET DIA MAX. MIN.
1-350-1	A	.135 .115
1-352-1	B	.135 .115
5165-1	E	.135 .115
5166-1	F	.135 .115
5167-1	J	.135 .115
5168-1	K	.135 .115
5169-1	L	.135 .115
5170-1	M	.135 .115

SINGLE HOLE MOUNT JACK RECEPTACLE

DAGE NO.	POLARITY	MT. DIM. Hole DIM.	MT. DIM. Panel TH'K.
1-310-1	B	1	1/8
1-311-1	A	1	1/8
1-707-1	E	2	1/8
1-875-1	F	1	1/8
1-945-1	J	1	1/8
1-946-1	K	1	1/8
5231-1	L	1	1/8
5232-1	M	1	1/8

SOLDER MOUNTED JACK RECEPTACLE

DAGE NO.	POLARITY	HERM. SEAL
1-771-1	B	Yes
1-772-1	F	Yes
1-774-1	A	Yes
1-778-1	E	Yes
1-956-1	J	Yes
1-955-1	L	Yes
5061-1	K	Yes
5062-1	M	Yes

JACK BULK HEAD FEED THRU'S

1-699-1	E	Yes
1-957-1	K	Yes
5059-1	L	Yes
5060-1	M	Yes
5208-1	F	Yes
5209-1	J	Yes
5210-1	A	Yes
5211-1	B	Yes

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KEnmore 6-2290

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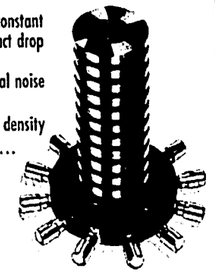

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CONTACTS
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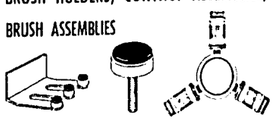
& Slip Ring Assemblies

BRUSH HOLDERS, CONTACT ASSEMBLIES, BRUSH ASSEMBLIES



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☐ Send data on BUSHINGS.

NAME & TITLE

COMPANY

STREET

CITY ZONE STATE

For details, circle #325 on Reader Service Card

Directory II. Components

52. Connectors.

Electronic Products, Inc., Mass., 25sc
Electronic Specialty Co., Calif., 20c
Empire Precision Metal Parts, N.Y., 40c, 55c, 70c

Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 65c, Tel: 201-BIgelow 2-2700
See ad on page 140

Engelhard Industries, Inc., Makepeace Div., Mass., 65 Assemblies c
Entron, Inc., Md., 20s, 60s, 75s
First Electronics Corp., Mass., 15c, 25c, 50c, 75c
Fortiphone, Ltd., Components & Transformer Divs., England, 70s
Forway Industries, Inc., N.J., 20c
G C Electronics Co., Electrocraft Components Div., Ill., 5s, 10s, 15s, 20s, 35s, 40s, 45s, 70s
Garde Mfg. Co., R.I., 5sc, 40sc, 55sc, 70sc
Gates Radio Co., Ill., 20s
General Circuits, Inc., N.Y., 55c
General Coil Products Corp., N.Y., 5c, 70c
General Findings, Inc., Industrial Div., Mass., 65c, 70c
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 25c
General Motors Corp., Packard Electric Div., Ohio, 15sc, 25c, 30sc, 40sc, 55sc, 75sc
General Products Corp., N.Y., 5s, 65c

General RF Fittings, Inc., 702 Beacon St., Boston 15, Mass., 15sc, 20sc, 25sc, 55sc, 60sc, 70sc, 75sc, Tel: 617-KEnmore 6-2290
See ad in this class

General Radio Co., 22 Baker Ave., West Concord, Mass., 15s, 20s, 35s, 60s, Tel: 617-EMerson 9-4400
See ad on Cover 4

Glass-Solder Engineering, Calif., 5sc, 25sc, 70sc
Glasseal Products Co., Inc., N.J., 25sc
Glenair, Inc., Calif., 15c
Gorn Electric Co., Inc., Gorn Electronics Div., Conn., 5s, 20s, 25s, 30s, 40s, 50s, 55s, 60s, 70s

Graphite Metallizing Corp., 1057 Nepperhan Ave., Yonkers, N.Y., 65sc, Assemblies sc, Tel: 914-YOnkers 8-8400
See ad in this class

Gremar Mfg. Co., Inc., Mass., 15sc, 20sc, 25sc, 55sc, 60sc, 70sc, 75sc
Gries Reproducer Corp., 168 Beechwood Ave., New Rochelle, N.Y., 70c, Tel: 914-NEw Rochelle 3-8600
See ad in class 97

Gulton Industries, Inc., N.J., 70s
Hadlock & Temte, Inc., Ill., 15c
Hall-Barkan Instruments, Inc., N.Y., 25c, 70c
Heldor Electronics Mfg. Co., N.J., 25sc
Hellermann Canada, Ltd., Canada, 5s, 75s
Hermaseal Co., Inc., Ind., 25c
Hermetic Pacific Corp., Calif., 25sc

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

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(Formerly Anton Electronic Laboratories)
1226 Flushing Ave.
Brooklyn 37, N.Y.

For details, circle #326 on Reader Service Card

52. Connectors.

Hermetic Seal Corp., N.J., 25sc
Hermetite Corp., 100 Ladge Dr., Avon, Mass., 5c, 25c, Tel: 617-JUniper 3-7000
See ad in class 75
Highland Electric Co., Calif., 15s, 20s
Hobson Bros., Inc., Ill., 10sc
Industrial Electronic Hardware Corp., N.Y., 10c, 30s, 55c
Infrared Industries, Inc., West Coast Div., Calif., 30s
Interlab, Inc., N.Y., 15s, 40s, 55s
International Electric Industries, Inc., N.Y., 15s, 45s, 50s
Isotronics, Inc., N.J., 5c
Jack Scientific Instrument Co. (Bill), Calif., 20s, 70s
Javex Electronics, Calif., 15s, 20s, 40s, 45s, 50s
Jefferson Electronic Products, Div. of Jefferson Electric Co., Calif., 75c
Jerrold Electronics Corp., Dept. ITE-104, 15th & Lehigh Ave., Philadelphia 32, Pa., 20s, Tel: 215-BAldwin 6-3456
See ad in class 38
Jettron Products, Inc., N.J., 10sc, 15sc, 70sc
Johnson Co. (E.F.), Minn., 55s, 70s
Jones Electronics (Hiram), Calif., 70s
Joy Mfg. Co., Pa., 5s, 15s, 20s, 25s, 30s, 50s, 75s
Joy Mfg. Co., Electrical Products Div., Mo., 5sc, 15sc, 25sc, 30sc, 40sc, 50sc, 75sc
Ken-Tron Corp., Mass., 5s, 15s, 20s, 25s, 35s, 60s, 70s, 75s
Kennedy Industries, Calif., 55s
Kings Electronics Co., Inc., N.Y., 20sc, 25sc, 30c, 35sc, 45sc, 50sc, 55c, 60s, 70s, 75sc
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5sc, 10sc, 25sc, 30sc, 45sc, 50sc, 55sc, 70sc, 75sc
Kuhn & Jacob Molding & Tool Co., N.J., 5c, 20c
Kulka Electric Corp., 633-643 S. Fulton Ave., Mount Vernon, N.Y., 30s, 45s, 50s, 55s, 70s, Tel: 914-MOunt Vernon 4-4024
See ads in classes 80, 81
Lab-Tronics, Inc., 3656 N. Lincoln Ave., Chicago 13, Ill., 15sc, 20sc, 35sc, 40sc, 45sc, Tel: 312-GRaceland 7-7900
See ad in class 62
Leviton Mfg. Co., Inc., N.Y., 50s
Lionel Corp., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c
Lionel Corp., Lionel Electronic Laboratories (formerly Anton Electronic Laboratories), Dept. X-2, 1226 Flushing Ave., Brooklyn 37, N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc, 65sc, 70sc, 75sc, Tel: 212-EVergreen 6-5715
See ad in this class
Lionel Corp., Telerad Div., N.J., 15c, 20s
Liquidometer Corp., N.Y., 20sc, 60sc, 75sc
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 20c, 60c, 65c
Magnetic Devices, Ltd., England, 10s, 15s, 20s, 25s, 40s, 55s, 70s
Malco Mfg. Co., Ill., 5sc, 30s, 40sc, 45s, 55sc, 70sc
Mallory Controls Co., Div. of P. R. Mallory & Co., Inc., Ind., 45c
Mandex Mfg. Co., Inc., Ill., 10sc, 30sc, 45sc
Marconi's Wireless Telegraph Co., Ltd., N.Y., 20s
Marine View Electronics, Inc., N.Y., 5c, 20c
Mark Products Co., Ill., 20sc
Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 70c
Massey, Inc. (A.H.), Conn., 50s
McNally Bros. Machine & Gear Co., Inc., Wis., 5c
Mectron Co., N.J., 20s
Metalcraft, Inc., N.Y., 20c, 60c
Methode Electronics, Inc., 7447 W. Wilson Ave., Chicago 31, Ill., 5sc, 25sc, 40sc, 55sc, 70sc, Tel: 312-UNderhill 7-9600
See ad adjacent to Index to Advertisers, back of book
Micarta Fabricators, Inc., Ill., 30c, 55c
Micon Electronics, Inc., Roosevelt Field, Garden City, L.I., N.Y., 20sc, 70sc, Tel: 516-PIoneer 1-4480
See ad in this class
Micro-Lectric, Inc., N.Y., 5c
Microdot, Inc., Calif., 20s, 25s, 50s, 70s, 75s
Microlab, 570 W. Mount Pleasant Ave., Livingston, N.J., 20c, 25c, 55c, 60c, Tel: 201-WYman 2-5700
See ad in class 66
Microwave Associates, Inc., South Ave., Burlington, Mass., 60s, Tel: 617-BRowning 2-3000
See ad on page 178

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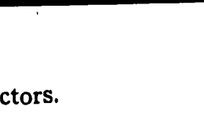

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Directory II. Components

52. Connectors.

Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 10s, 50s, Tel: 617-DAvenport 4-4108
See ad in class 51
Minneapolis-Honeywell Regulator Co., Fall River Div., Mass., 15s
Missile Systems Corp., California Div., Calif., 15c, 20c
Model Engineering & Mfg. Corp., Ind., 65 Assemblies c
Modern Mfg. Co., Inc., Pa., 50c, 70c
Molex Products Co., Ill., 30c, 40c
Monadnock Mills, Calif., 10s
Morse Co. (Frank W.), Mass., 15sc
Motorola, Inc., Military Electronics Div., Ariz., 55c
National Connector Corp., Minn., 5c, 10c, 15c, 20c, 25sc, 40sc, 50sc, 55sc, 60sc, 70sc, 75c
Neptune Electronics Co., N.Y., 5s, 30s
Networks Electronic Corp., Calif., 25c, 70c
Ney Co. (J. M.), Maplewood Ave., Bloomfield, Conn., 65 Assemblies c, Tel: 203-CHapel 2-2281 (Hartford)
See ad in class 104
Nichols Products Co., N.J., 20c, 60c
Norrich Plastics Corp., N.Y., 5c, 15c, 35c, 45c, 65c, 70c
North Electric Co., Ohio, 15s, 40s, 55s
Northwest Industries, Ltd., Canada, 25c, 75c
Nu-Line Industries, Inc., Minn., 5c, 15c, 20c, 25c, 30c, 40c, 55c, 70c
Nugent Electronics Co., Inc., Ind., 15sc, 20sc, 25c, 55sc, 60sc, 70sc, 75sc
Oki & Willadsen, Ltd., Canada, 30s, 45s, 55s
On Mark Couplings, Inc., Calif., 20c
Pacific Scientific Co., Calif., 65sc
Penn-Union Electric Corp., Pa., 5sc, 15sc, 30sc, 50sc
Permonite Mfg. Co., Ill., 10sc, 15c, 30s, 45s
Perrott Engineering Laboratories, Inc., Subsid. of Federated Electronics, Inc., Va., 70c
Phelps Dodge Copper Products Corp., 300 Park Ave., New York 22, N.Y., 15s, 20s, 60s, Tel: 212-PLaza 1-3200
See ad in class 91
Philips Electronics Industries, Ltd., Canada, 55s
Physical Sciences Corp., Affil. of Packard-Bell Electronics, Calif., 5c, 25sc, 40sc, 70sc, 75sc
Poly-Scientific Corp., Va., 65sc
Pomona Electronics Co., Inc., Calif., 15s
Precision Connectors, Inc., N.Y., 5sc, 15sc, 20sc, 40sc, 55sc, 70sc
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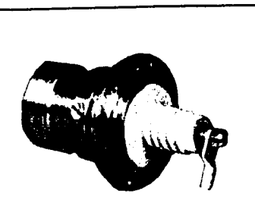
Pylon Co., Inc., Mass., 55c, 70c
Q-max Corp., N.J., 20s, 60s
Quality Hermetics, Ltd., Canada, 25c
R F Products, Div. of Amphenol-Borg Electronics Corp., 33 E. Franklin St., Danbury, Conn., 5sc, 15sc, 20sc, 25sc, 55sc, 60sc, 70sc, 75c, Tel: 203-PIoneer 3-9272
See ad in class 80
Rego Insulated Wire Corp., N.J., 20s
Remler Co., Calif., 75s
Reuter-Stokes Electronic Components, Inc., Ohio, 15sc, 20sc, 25sc, 75c
Reynolds Industries, Inc., Calif., 20c, 55c, 70c
Riemer Co., Inc. (David), N.Y., 15s, 35s, 45s
Rimak Electronics, Inc., Calif., 55c
Robins Industries Corp., N.Y., 15s, 35s, 45s
Robinson Machine Works, Inc., Ind., 20sc, 55sc, 70sc
Rodale Mfg. Co., Inc., Pa., 30s, 75s
Ross Co. (Milton), Pa., 5sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc, 70sc, 75sc
Rotary Devices Corp., N.J., 65c
Russell & Stoll Co., Inc., N.Y., 15s, 30s, 50s, 75s
Rye Sound Corp., N.Y., 15s, 20s, 35s, 45s, 50s, 70s
Schutter Microwave Corp., N.Y., 20sc
Scientific Electronic Laboratories, Inc., N.J., 25s
Sealectro Corp., 139 Hoyt St., Mamaroneck, N.Y., 15sc, 20sc, 40sc, 55sc, 70sc, Tel: 914-OWens 8-5600
See ad in class 81
Sealtron Corp., Ohio, 5sc, 25sc
Servonic Instruments, Inc., Calif., 65c
Servotronics, Inc., N.Y., 5c
Shaw Instrument Corp., Pa., 25c
Sheltered Workshops, Inc., Calif., 25c, 55c
Sherman Mfg. Co. (H.B.), Mich., 5s
Siemens New York, Inc., N.Y., 15s, 20s
Signal Indicator Corp., N.Y., 5sc, 15sc, 35s, 70sc
Sjoberg & Son (C.), R.I., 15s, 70s
Slip Ring Co. of America, Calif., 65 Assemblies sc
Smith, Inc. (Herman H.), Dept. 12, 2326 Nostrand Ave., Brooklyn 10, N.Y., 15s, 20s, 35s, Tel: 212-CLoverdale 3-7900
See ad in class 62
Space Instrumentation Corp., Calif., 25sc
Space Products, Calif., 55sc
Specialty Electronics Development Corp., N.Y., 15sc, 40sc, 50sc
Speed Electronics, N.J., 55c
Stark Electronic Instruments, Ltd., Canada, 70s
Stelon, Inc., N.J., 55c, 65c
Sunbank Electronics, Inc., Calif., 5c, 15c, 20c, 30c, 40c, 50c, 60c, 65c, 70c, 75c
Sunshine Scientific Instrument, Pa., 5sc
Supa Insulations, Inc., N.C., 15c, 20c
Superior Electric Co., 100 Ames Ave., Bristol, Conn., 50s, Tel: 203-LUdlow 2-9561
See ad on pages 2-11
Superior Switchboard & Devices Co., Ohio, 5 Antenna sc
Switchcraft, Inc., 5561 N. Elston Ave., Chicago 30, Ill., 5sc, 35sc, 45sc, 60sc, 70sc, Tel: 312-SPring 4-1515
See ad in class 62
Taffet Electronics, Inc., N.Y., 15c, 25c, 50c, 55c
Tamar Electronics, Inc., Calif., 20sc, 25sc
Telechrome Mfg. Corp., N.Y., 30s
Tenna Mfg. Co., Inc., Ohio, 20c
Therm, Inc., N.Y., 20c, 60c, 65c
Thermo Electric Co., Inc., N.J., 15s
Thomas & Betts Co., Inc., N.J., 15 Flat sc, 20 c
Thompson Ramo Wooldridge Inc., Good-All Electric Mfg. Co. (Electronic Components Group), Nebr., 60s
Thor Ceramics, Inc., N.J., 25c
Tower Mfg. Corp., R.I., 30sc
Trimm, Inc., Ill., 20sc, 35s
Tru-Connector Corp., 416 Union St., Lynn, Mass., 15sc, 20sc, 25sc, 60sc, 70sc, 75sc, Tel: 617-LYnn 8-9379
See ad in this class
Uni-Seal, Inc., N.J., 25c
Unison Products, Inc., Mich., 65sc
United-Carr Fastener Corp., Ucinite Co. (Div.), Mass., 10sc, 15sc, 20sc, 55sc
U.S. Components, Inc., N.Y., 5sc, 15sc, 25sc, 30sc, 50sc, 55sc, 70sc
U.S. Dielectric Products, Inc., Mass., 15c, 55c
Vacuum Ceramics, Inc., Ill., 25c
Vector Electronic Co., Inc., 1100 Flower St., Glendale 1, Calif., 5s, 50s, 55s, Tel: 213-CHapman 5-1076
See ad in class 50



For a truly complete line of
R. F. COAXIAL CONNECTORS
and Associated Components
—specify and buy

TRU

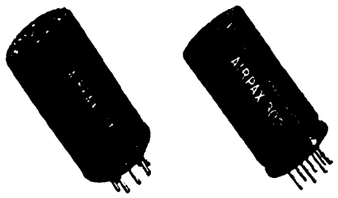
TRU-CONNECTOR Corp.
416 Union Street, Lynn, Mass.
Ly 8-9379, Ly 8-5528
See us at IRE & WESCON!

For details, circle #328 on Reader Service Card

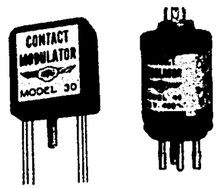
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

AIRPAX

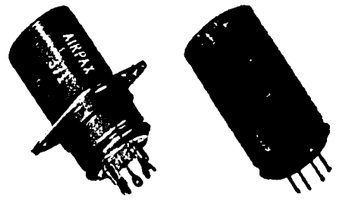
CHOPPERS
CIRCUIT BREAKERS
TELEMETRY SYSTEMS
MAGNETIC COMPONENTS



Miniature hermetically sealed electromechanical CHOPPERS for stabilized DC amplifiers used in computers, servos, bridges and control systems. TYPE 175 has 60 CPS drive; TYPE 300 uses 400 CPS drive.

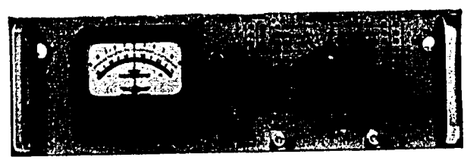


These tiny CHOPPERS have the same long-life reliability characteristics as their larger counterparts. MODEL 30 is for 60 CPS operation; MODEL 46 uses a 400 CPS drive.

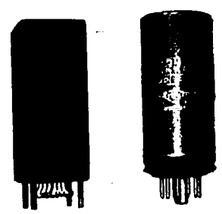


TYPE 371 uses center pivoted armature construction to permit operation under conditions of severe shock and vibration. TYPE 6025 is a transistor chopper with self contained drive transformer. Drive, 50 to 5000 CPS.

The MAGMETER® frequency detector delivers an output current directly proportional to input frequency with an accuracy of 0.1%.

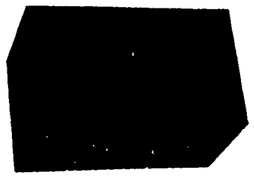


The CALIBRATOR series of frequency discriminators utilizes solid state components for long trouble-free life. Available in single and multi-channel units.

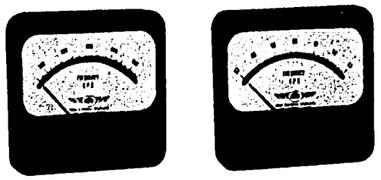


PREAC magnetic amplifiers are high sensitivity DC units with an extremely stable null. FERRAC instrument push-pull magnetic amplifiers have exceptional stability and linearity.

Miniature CIRCUIT BREAKERS of the magnetic type are available in ratings from 50 ma. to 15 amps.



Custom TRANSFORMERS are produced to exacting requirements. Rigid QC procedures assure highest reliability.



Expanded scale FREQUENCY METERS with an accuracy of 0.1% are completely self contained.

Illustrations are representative of the devices which Airpax produces. A complete line of choppers, both electromechanical and transistor types, cover every conceivable condition of use.

Telemetry equipment, employing solid state components, uses a single front panel switch in the multi-channel type to select each of the 23 IRIG information channels. The Airpax MAGMETER® frequency detector is the "heart" of these devices.

The circuit breaker line features both military and commercial types with or without isolated indicating circuits. Breakers are available in series, shunt and relay types and in ganged assemblies for 2 and 3 phase circuit protection.

AIRPAX ELECTRONICS

AC11

AIRPAX
ELECTRONICS
INCORPORATED
CAMBRIDGE DIVISION • CAMBRIDGE MARYLAND
SEMINOLE DIVISION • FORT LAUDERDALE, FLA.

For details, circle #329 on Reader Service Card

ATR PRODUCTS FOR MODERN LIVING

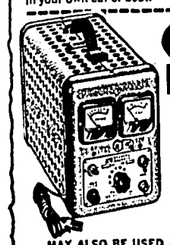
ATR PLUG-IN TYPE PORTABLE INVERTERS*

A.C. HOUSEHOLD ELECTRICITY Anywhere . . . in your own car!

Operates Standard A.C.
- Record Players
- Dictating Machines
- Small Radios
- Electric Shavers
- Heating Pads, etc.

In your own car or boat!

MODELS
6-RMF (6 volts) 60 to 80 watts. Shipping weight 12 lbs. DEALER NET PRICE $33.00
12T-RME (12 volts) 90 to 125 watts. Shipping weight 12 lbs. DEALER NET PRICE $33.00
*Additional Models Available



ATR "A" Battery ELIMINATOR

For Demonstrating and Testing Auto Radios—TRANSISTOR or VIBRATOR OPERATED!

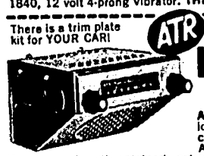
Designed for testing D.C. Electrical Apparatus on Regular A.C. Lines—Equipped with Full-Wave Dry Disc-Type Rectifier, assuring noiseless, interference-free operation and extreme long life and reliability.

MAY ALSO BE USED AS A BATTERY CHARGER
MODEL 610C-ELIF . . . 6 volts at 10 amps. or 12 volts at 6 amps. Shipping weight 22 lbs.
DEALER NET PRICE $49.95
MODEL 620C-ELIT . . . 6 volts at 20 amps. or 12 volts at 10 amps. Shipping weight 33 lbs.
DEALER NET PRICE $66.95

AUTO-RADIO VIBRATORS

By every test ATR Auto-Radio Vibrators are best! . . . and feature Ceramic Stack Spacers, Instant Starting, Large Oversized Tungsten Contacts, Perforated Reed, plus Highest Precision Construction and Workmanship and Quiet Operation!
There is an ATR VIBRATOR for every make of car!
Ask your distributor for ATR's Low Priced type 1400, 6 volt 4-prong Vibrator; and 1843, 12 volt 3-prong; or 1840, 12 volt 4-prong Vibrator. THE WORLD'S FINEST!

There is a trim plate kit for YOUR CAR!



ATR CUSTOMIZED KARADIO

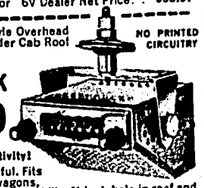
Vibrator-Operated with Tone Control

ATR KARADIO . . . is ideal for small import cars or compact American cars! Unit is completely self-contained—extremely compact! Powerful 8-tube performance provides remarkable freedom from engine, static, and road noises. The ATR Customized Karadio comes complete with speaker and ready to install. Can be mounted in-dash or under-dash—wherever space permits! No polarity problem. Neutral Gray-Tan, baked enamel finish. Overall size, 7" deep, 4" high, and 6½" wide. Shipping weight, radio set, 7 lbs.
Model K-1279—12 for 12V Dealer Net Price . $33.57
Model K-1279— 6 for 6V Dealer Net Price. . $33.57

Airplane Style Overhead Mounting under Cab Roof

NO PRINTED CIRCUITRY

ATR TRUCK KARADIO



Excellent Tone, Volume, and Sensitivity!

Compact, yet powerful. Fits all trucks, station wagons, most cars and boats. Just drill a ⅜ inch hole in roof and suspend the one-piece unit (aerial, chassis and speaker) in minutes. Watertight mounting assembly holds antenna upright. Yoke-type bracket lets you tilt radio to any angle.
Extra-sensitive radio has 6 tubes (2 double-purpose), over-size Alnico 5 PM speaker for full, rich tone. Big, easy-to-read illuminated dial. Fingertip tuning control. Volume and tone controls. 33-in. stainless steel antenna. Neutral gray-tan enamelled metal cabinet, 7 x 6½ x 4 in. high over-all. Shipping weight 10½ lbs.
Model TR-1279—12A for 12V Dealer Net Price $41.96
Model TR-1279— 6A for 6V Dealer Net Price $41.96

See Your Electronic Parts Distributor
Write Factory For Free Literature

ATR ELECTRONICS, INC.

For details, circle #330 on Reader Service Card

Directory II. Components

52. Connectors.

Viking Industries, Inc., Calif., 5s, 20c, 25s, 40s, 55s, 70s, 75s
Wade Electric Products Co., Mich., 15s
Waldom Electronics, Inc., Ill., 10s, 30s, 45s
Webster Electronics Co., Inc., N.Y., 10c, 15c, 20c, 35c, 45c, 55c
Wiggins Oil Tool Co., Inc. (E.B.), Calif., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 40sc, 50sc, 65sc, 70sc, 75sc
Winchester Electronics, Inc., Conn., 5s, 20s, 25s, 30s, 50s, 55s, 60s, 70s
Winegard Co., Iowa, 20s
Wood Electric Corp., Mass., 20s, 60s
Worthington Products Co., Ohio, 20sc

Contacts:
See class 80

Controls, servo:
See class 77

Converters, computer:
See class 9

Converters, frequency shift:
See class 33

Converters, thermionic:
See class 58

53. Converters.

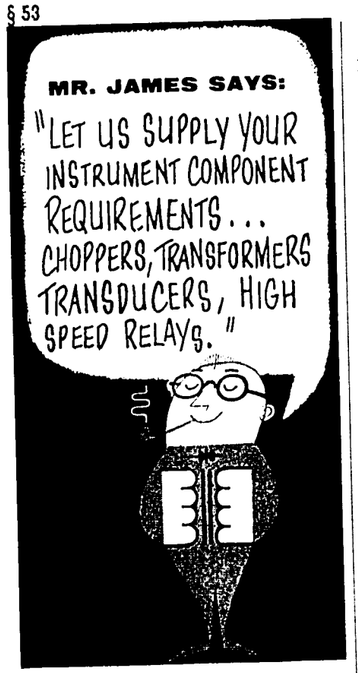
5. AC to DC
10. Choppers
15. DC to AC
20. Frequency
25. Inverters
30. Rotary
35. Vibrators
40. Voltage

A C Electronics, Inc., Calif., 5sc, 15sc, 25c, 40c
AMP, Inc., Capitron Div., Pa., 5c, 15c, 40c
ATR Electronics, Inc., 300 E. Fourth St., Saint Paul 1, Minn., 5s, 15s, 25s, 35s, 40s, Tel: 612-CApital 2-3791
See ad in this class
Accurate Instrument Co., 2414 W. Alabama St., P.O. Box 66373, Houston 6, Texas, 15sc, 20sc, 25 Static sc, Tel: 713-JAckson 6-4947
See ads in classes 31, 59
Acme Electric Corp., 44 Water St., Cuba, N.Y., 5c, 15c, 40c, Tel: Cuba 4
See ad in class 69
Acromag, Inc., Mich., 20sc
Ad-Yu Electronics Laboratory, Inc., 249 Terhune Ave., Passaic, N.J., 20sc, Tel: 201-GRegory 2-5622
See ad in class 57
Adage, Inc., Mass., 5sc, 40sc
Admiral Corp., Ill., 5c, 15c, 25c
Advanced Electronics Corp., N.Y., 5sc, 15s, 25s
Advanced Measurement Instruments, Inc., Mass., 20c
Aero Geo Astro Corp., Va., 25c, 40c
Aeroflex Laboratories, Inc., N.Y., 15sc
Airborne Accessories Corp., N.J., 15sc, 25sc

53. Converters.

Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 5s, 10s, 15c, 20s, 25s, 35s, Tel: 301-ACademy 8-4600
See ad in this class
Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 5s, 10s, 15s, 20s, 25s, 35s, Tel: 305-LUdlow 3-6160
See ad in this class
Airtronics, Inc., D.C., 5c, 15c, 20c, 25c
Alto Scientific Co., Inc., Calif., 40sc
Altron Electronics Co., Pa., 5s
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 5c, 10c, 15c, 20c, 25c, 40c
American Bosch Arma Corp., N.Y., 5c, 15c
American Communications Corp., N.Y., 20c
American Electronics Co., N.Y., 20sc
American Electronics, Inc., Calif., 5c, 10c, 15c, 20c, 25c, 30c
American Electronics, Inc., Electro-Mechanical Div., Calif., 5sc, 15c, 20sc, 25c, 30sc
American Electronics, Inc., Fullerton Divs., Calif., 5c, 15c, 20sc, 25c, 30sc
American Geloso Electronics, Inc., N.Y., 25s, 30s
American Machine & Foundry Co., N.Y., 25c
American Machine & Foundry Co., Leland Airborne Products Div., Ohio, 15sc, 20sc, 25sc, 30sc
American Missile Products Co., Inc., Calif., 5c, 15c
American-Monarch Corp., Minn., 5sc, 15sc
American Optical Co., J.W. Fecker Div., Pa., 20sc
American Rectifier Corp., N.Y., 5sc
American Research & Mfg. Corp., Md., 5sc, 15sc, 20sc, 25c
Anadex Instruments, Inc., Calif., 20s
Applied Control Corp., N.J., 5c, 10c, 15c, 25c, 40c
Arkay International, Inc., N.Y., 15c
Armstrong Whitworth/Brush, Falcon Works, England, 5sc, 15sc
Arnold Magnetics Corp., Calif., 15sc, 25sc, 40sc
Arnoux Corp., Calif., 25sc
Ascop, Div. of Electro-Mechanical Research, Inc., N.J., 5sc, 15sc
Associated Electrical Industries (Rugby), Ltd., England, 25s
Astro Dynamics, Inc., Mass., 5c, 15c
Astro-Space Laboratories, Inc., Ala., 25c
Ateliers de Montages Electriques, (AME), France, 5s, 15s, 25s
Atlas Controls, Inc., Mass., 5c, 10c, 15c, 20c, 25c
Atlas Transformer Co., Calif., 5c, 15c, 25c, 40c
Automation Research & Design Associates, N.J., 5c, 10c, 15c, 25c, 40c
Avtron Mfg., Inc., Ohio, 5c, 15c, 25c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.



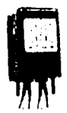
INSTRUMENT CHOPPERS

A component for every industrial and military application . . . mechanical, photo and solid state.

MICRO-SCAN RELAYS

Micro second switching of microvolt signals for data handling, transducer sampling and analogue computation.

INSTRUMENT TRANSFORMERS



A complete line of unique input and low power transformers designed for instrumentation circuits where accuracy, balance, precision with both electromagnetic and electrostatic shielding are required.

MINIATURE TRANSFORMER

Miniature and microminiature designs for all applications, industrial and military. Use the unique James transformer kits for design . . . the economical and convenient way to production models by James.

• TRANSFORMERS • CHOPPERS
• RELAYS • TRANSDUCERS

JAMES
ELECTRONICS INC.
4050 N Rockwell Chicago 18 Illinois
CO 7 6333

For details, circle #331 on Reader Service Card

53. Converters.

Ballantine Laboratories, Inc., Boonton, N.J., 5s, 15s, 25s, Tel: 201-DEerfield 4-1432
See ad in class 40

Barker & Williamson, Inc., Pa., 15s, 25s
Beckman Instruments, Inc., Berkeley Div., Calif., 10s, 20s
Behlman Engineering Co., Calif., 5sc, 20sc, 25sc
Bendix Corp., Bendix-Pacific Div., Calif., 25sc, 30c
Bendix Corp., Montrose Div., Pa., 30c

Bendix Corp., Red Bank Div., Electron Tube Products, Highway #34, Eatontown, N.J., 5c, 10c, 15sc, 20sc, 25sc, 30sc, Tel: 201-LIberty 2-2000
See ad on pages 48-49

Benrus Watch Co., Inc., Conn., 5c, 15c
Bergen Laboratories, Inc., N.J., 5c, 15c, 25s
Blonder-Tongue Laboratories, Inc., N.J., 20s

Bogart Mfg. Corp., 315 Seigel St., Brooklyn 6, N.Y., 20c, Tel: 212-HYacinth 7-4972
See ad in class 66

Bogue Electric Mfg. Co., N.J., 5c, 15c, 20c, 25c, 30c, 40c

Boonton Radio Corp., Subsidiary of Hewlett-Packard Co., 50 Intervale Rd., Boonton, N.J., 20s, Tel: 201-DEerfield 4-3200
See ad in class 38

Borg-Warner Corp., Pesco Products Div., Ohio, 5c, 15c, 20c, 25c, 30c
Boulevard Electronics, Inc., Ill., 20s
Brach Mfg. Corp., Div. of General Bronze Corp., N.J., 5c, 10c, 15c, 20c, 25c, 40c

Bradley Semiconductor Corp., 275M Welton St., New Haven 11, Conn., 5c, 10c, 15c, 40c, Tel: 203-STate 7-7181
See ad in class 71

Bright Radio Laboratories, Inc., N.Y., 35c
Bristol Co., Conn., 10sc, 15c
Bucknell Engineering Co., Inc., Calif., 5c, 15c, 20c, 25c, 30c
Bulova Research & Development Laboratories, N.Y., 25c
Burroughs Corp., Electronic Components Div., N.J., 40s
C & D Batteries, Div. of Electric Autolite Co., Pa., 5sc
CTS of Canada, Ltd., Industrial Electronics Div., Canada, 5c, 15c, 20c, 30c
Cambridge Electronics Corp., Mass., 10sc

Camera Equipment Co., Inc., Dept. RE-2, 315 W. 43rd St., New York 36, N.Y., 5s, 15s, Tel: 212-JUdson 6-1420
See ad in class 32

Cameraflex Corp., N.Y., 5sc, 10sc, 15sc, 25sc, 40sc
Canadian Aviation Electronics, Ltd., Canada, 5sc, 15c, 25c
Canadian Marconi Co., Canada, 15c, 25c
Canadian Westinghouse Co., Ltd., Canada, 15c, 25c
Carter Motor Co., Ill., 15sc, 20sc, 25sc, 30sc

Centroid Engineering & Mfg. Corp., 126 Jackson St., Cambridge 40, Mass., 5c, 15c, Tel: 617-TRowbridge 6-7250
See ads on page 111 & in class 91

Century Coil Corp., Ill., 20c

Christie Electric Corp., 3412J W. 67th St., Los Angeles 43, Calif., 5sc, Tel: 213-PLeasant 0-1151
See ad in class 69

Circuitdyne Corp., Calif., 5c, 15c, 20c, 25c, 40c
Clegg Laboratories, Div. of Clegg, Inc., N.J., 15s
Co Engineering Co., N.J., 10c
Collins Electronics, Inc., Md., 10sc, 15sc, 35sc
Communication Measurements Laboratory, Inc., N.J., 5c, 15c, 20sc, 25sc, 40c
Community Engineering Corp., Pa., 20c
Comptron Corp., Mass., 20sc
Computer Sciences, Inc., N.Y., 5s, 10s, 15s
Consolidated Airborne Systems, Inc., N.Y, 5c, 15c, 25c
Consolidated Avionics Corp., N.Y., 5sc, 15c, 20c, 25c, 40c
Consolidated Controls Corp., N.M., 5c, 15c
Consolidated Diesel Electric Corp., Conn., 5c, 15c, 20c, 25c, 30c, 40c
Control Circuits, Inc., Conn., 5c, 15c
Controls Co. of America, Ill., 5sc, 10c, 15sc, 20c, 25sc, 30sc, 40c
Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 5sc, 15sc, 25sc, 35sc, 40sc
Cosmic, Inc., D.C., 5c
Cox Instruments Div., George L. Nankervis Co., Mich., 20s
Cubic Corp., Calif., 5c, 15c
Data Products Co., Inc., Md., 5c, 15c, 25c, 40c
Daven Co., Subsid. of General Mills, Inc., N.J., 5s, 15s, 20s, 25s, 40s
Deeco Instruments, Inc., Calif., 15c

Del Electronics Corp., 521 Homestead Ave., Mount Vernon, N.Y., 5c, 25c, Tel: 914-OWens 9-2000
See ad in class 69

Delcon Corp., Calif., 15c
Deltex Laboratories, Div. of Delta Exploration Co., Inc., Miss., 5c, 15c
Developmental Electronics Corp., Calif., 10c, 25c
Di-Tran Corp., Calif., 10c
Dicon Corp., N.Y., 5c, 15c, 25c, 40c
Dietz Design, Inc., Mo., 15c
Digitrols, Inc., Md., 15s, 20s, 25s
Djeco, Div. of Djordjevic Engineering Co., Ill., 5c, 10c, 15c, 20c, 25c, 40c
Dresser Electric Co., Mich., 5c
Dresser Electronics/HST Div., Texas, 5c, 15c, 20c, 25c, 40c
Duncan Electric Co., Inc., Davenport Mfg. Div., Ill., 5sc, 15sc, 25c, 40c
Dynage, Inc., Conn., 15sc, 25sc
EMP Electronics Research Laboratories, Inc., Ariz., 5sc, 15sc, 25sc
E.P. Electric Products Co., Ltd., Canada, 5c, 15c, 25c
Elasco, Inc., Mass., 5sc, 40sc
Electramatic, Inc., Minn., 5c, 15s
Electric Machinery Mfg. Co., Minn., 20s, 25s, 30sc
Electric Motors & Specialties, Inc., Ind., 20s
Electro-Craft Corp., Minn., 25c
Electro Development Corp., Wash., 5c, 10c, 15c, 20c, 25c
Electro Logic Corp., Calif., 5sc

Directory II. Components

53. Converters.

Electro-Mec Div., Waltham Precision Instrument Co., Inc., 47-51 33rd St., Long Island City 1, N.Y., 30sc, Tel: 212-STillwell 6-3402
See ad in class 80

Electro-Mech Engineering Co., Minn., 5c, 15c
Electro-Mechanical Research, Inc., Fla., 30s
Electro Networks, Inc., & Caledonia Electronics & Transformer Corp., N.Y., 5c
Electro Powerpacs, Inc., Mass., 15sc, 25sc, 40c
Electro Radiation, Inc., Calif., 15c
Electro-Seal Corp., Ill., 15s, 25s
Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., Minn., 15c, 20c, 25c
Electrodynamic Instrument Corp., Texas, 5sc, 15c, 25c

Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 5c, 15c, 20c, Tel: 617-LYnn 8-2100
See ad in class 69

Electronic Associates, Inc., N.J., 5c
Electronic Communications, Inc., Fla., 20c
Electronic Plastics Co., Calif., 15c
Electronic Research Associates, Inc., N.J., 5sc, 15sc, 20sc, 25sc, 40sc
Electronic Specialty Co., Calif., 5c, 10c, 15c, 20c, 25c, 30c, 40c
Electrosolids Corp., Calif., 5c, 15c, 20c, 25c
Epsco, Inc., Mass., 5sc, 10sc, 15c, 25c, 40sc
Espey Mfg. & Electronics Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 40c
Etelco, Ltd., England, 5s, 10s, 15s, 20s, 35s
Ewen Knight Corp., Mass., 20c
Federal Scientific Corp., N.Y., 20c
Ferrotran Electronics Co., Inc., N.Y., 5s, 15s, 25s, 40s
Fidelity Amplifier Co., Ill., 20c
Flite-Tronics, Inc., Calif., 5sc, 15sc, 40sc
Flo-Tronics, Inc., Electronic Controls Div., Minn., 5c, 15c, 40sc
Ford Instrument Co., N.Y., 15c, 25c
Fox Products Co., Pa., 5sc

Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 5sc, 15sc, Tel: 212-EVergreen 6-1300
See ad in class 84

Friend Engineering (Albert W.), Pa., 5c, 15c, 40c

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 10sc, 15sc, 20sc, 25sc, 40sc, Tel: 216-SHadyside 9-0700
See ad in class 50

Gates Electronic Co., 2243 White Plains Rd., New York 67, N.Y., 5s, Tel: 212-TUlip 1-5900
See ad in class 69

General Devices, Inc., P.O. Box 253, Princeton, N.J., 40s, Tel: 609-WAlnut 4-2500
See ad adjacent to Index to Advertisers, back of book

General Dynamics/Electronics, N.Y., 5c, 15c, 20c
General Electric Co., Pa., 5sc, 15c, 25c
General Electric Co., Apparatus Sales Dept., N.Y., 5sc, 15sc, 25sc, 30sc
General Electric Co., Specialty Control Dept., Va., 5c, 15sc, 20c, 25c, 40c
General Electric Co. Ltd. of England, Telecommunications Group, England, 5c, 15c, 20c, 25c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 15c, 25c

General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 15sc, Tel: 612-WEst 9-8571
See ad in class 43

General Magnetics, Inc., 135 Bloomfield Ave., Bloomfield, N.J., 15s, Tel: 201-PIlgrim 8-2400
See ad on pages 42-43

General Motors Corp., Delco Radio Div., Ind., 5c, 15c, 20c, 25c, 40c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5c, 15c, 25c, 30sc
General Precision, Inc., Kearfott Div., N.J., 5s, 10s, 20s, 30s, 40s
General Precision, Inc., Librascope Div., Calif., 5c, 10c, 15c, 25c
Georator Corp., Va., 5c, 15c, 20c, 25c, 30c
Geotechnical Corp., Texas, 15sc
Geotronic Laboratories, Inc., Texas, 5c, 15c, 20c, 25c
Gerst & Co. (Paul E.), Ill., 5c, 15c, 20c, 25c, 30c
Gibbs Mfg. & Research Corp., Wis., 20c
Glentronics, Inc., Calif., 5c, 40sc

Graphite Metallizing Corp., 1057 Nepperhan Ave., Yonkers, N.Y., 10c, Tel: 914-YOnkers 8-8400
See ad in class 52

Great Lakes Electric Mfg. Co., Ill., 5c, 15c, 20c, 25sc, 30sc
Green Rectifier Co., N.J., 5sc, 35sc, 40sc

Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 5c, 15c, 25c, 40c, Tel: 312-CHesapeake 3-1100
See ad in class 73

Guildline Instruments, Ltd., Canada, 10
Low-Thermal c
Gulton Industries, Inc., N.J., 5sc, 20sc, 25sc, 40sc
Halex, Inc., Calif., 15c, 20c
Hallamore Electronics Div., Siegler Corp., Calif., 25 Static c
Hamilton Standard Electronics, Div. of United Aircraft Corp., Conn., 5sc, 15sc, 20sc, 25sc, 40sc
Hammond Mfg. Co., Ltd., Canada, 15sc
Harman-Kardon, Inc., N.Y., 15c
Harrel, Inc., N.Y., 15c, 25c
Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 5c, 15c, 25c, 40c
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 15s, 20s, 35s

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 5s, 20s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28

Hewlett-Packard Co., Palo Alto Engineering Co. (Subsid.), Calif., 5c, 10c, 15c, 20c, 25c
Hitachi New York, Ltd., N.Y., 30c
Holt Instrument Laboratories, Wis., 40s
Holtzer-Cabot Div., National Pneumatic Co., Inc., Mass., 5c, 15c, 30c
Hoover Co., Electronics Div., Md., 5c, 15c, 25c, 40c
Hoover Co., Ltd., Canada, 15c, 25c, 30c
Horlick Co., Inc. (William J.), Mass., 5s, 15s, 20s, 25s, 30s, 40s

Houston Instrument Corp., P.O. Box 22234E, Houston 27, Texas, 5s, 20s, Tel: 713-MOhawk 7-7405
See ad in class 28

Howell Instruments, Inc., Texas, 20s
Hydro-Aire Co., Div. of Crane Co., Calif., 5c, 15c, 20c, 25c, 40c

Industrial Test Equipment Co., 55 E. 11th St., New York 3, N.Y., 20s, 25s, Tel: 212-GRamercy 3-4684
See ad in class 69

Inland Motor Corp. of Virginia, Va., 25c, 30c
Instrument Systems Corp., N.Y., 5sc, 10sc, 15sc
Intercontinental Electronics Corp., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 40sc

Interelectronics Corp., 2432 Grand Concourse, New York 58, N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 40sc, Tel: 212-LUdlow 4-6200
See ads in classes 34, 69

International Electronics Mfg. Co., Md., 5c, 15c, 25c
International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 5s, 15c, 20c, 25c
Invar Electronics Corp., Calif., 5s, 15c, 40s
Jack & Heintz, Div. of Siegler Corp., Ohio, 5c, 15sc, 20c, 25sc, 30sc
Jack Scientific Instrument Co. (Bill), Calif., 25c, 30c

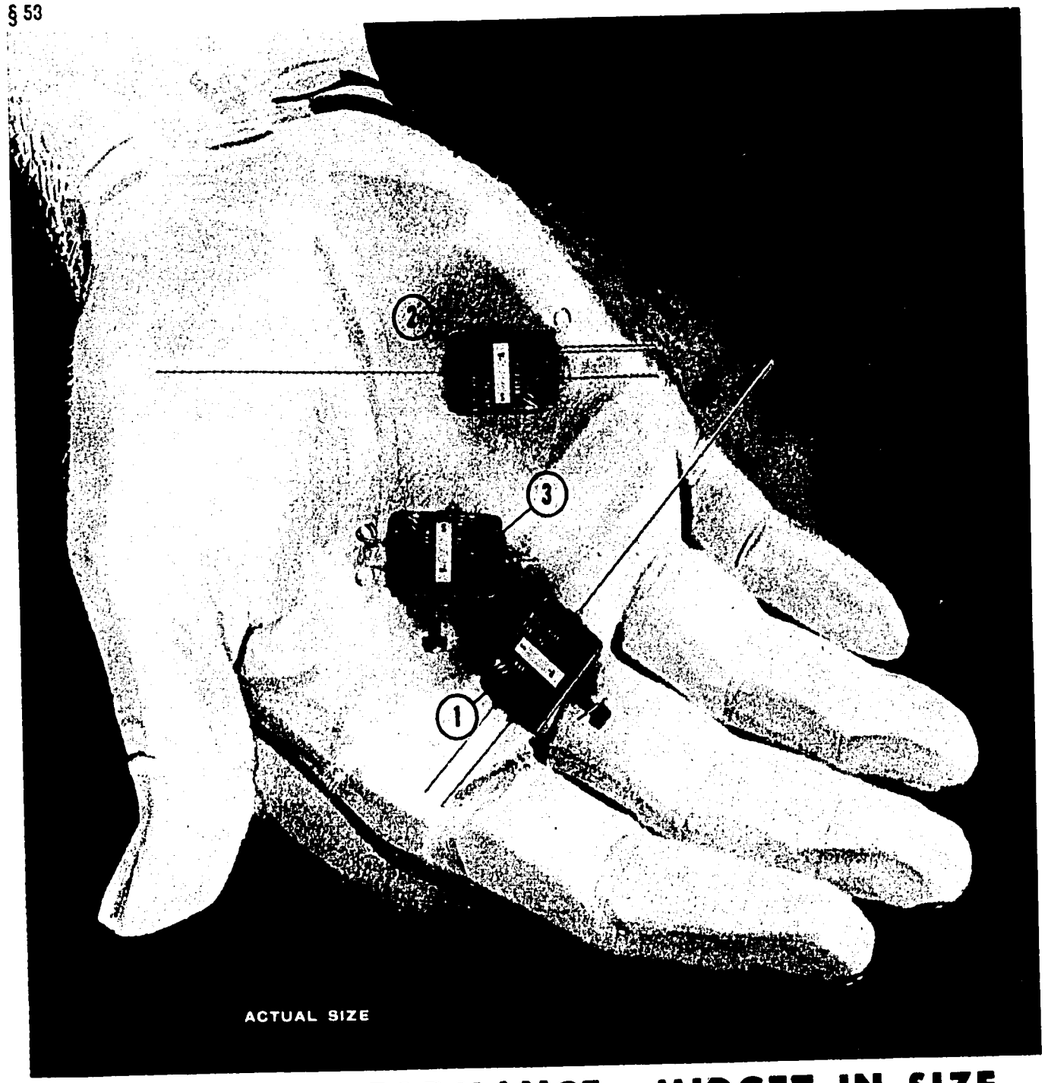
James Electronics, Inc., 4050 N. Rockwell St., Chicago 18, Ill., 5s, 10s, 15s, 35s, Tel: 312-COrnelia 7-6333
See ad in this class

Janette Div., National Pneumatic Co., Inc., Mass., 5c, 15c, 25c, 30c
Johnson Electronics, Inc., Fla., 5c, 15c
Jordan Electronics, Div. of Victoreen Instrument Co., Calif., 5sc, 10sc, 15sc, 25sc, 40sc
Kaiser Electronics, Inc., N.J., 5c, 15c, 20c, 25c, 40c

Kato Engineering Co., 1420 First Ave., Mankato, Minn., 5c, 15c, 20c, 30c, 40c, Tel: 8-2941
See ad in class 67

Kenyon Transformer Co., Inc., N.J., 15sc, 25c, 40c
Kidde Electronics Laboratories, Walter Kidde & Co., Inc., N.J., 5c, 15c, 20c, 25c, 40c
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 5s, 10s, 40s
Kinetics Corp., Calif., 5s, 15s, 25s
Kinn Electronics Corp., Md., 5c, 15c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.



ACTUAL SIZE

GIANT IN PERFORMANCE – MIDGET IN SIZE

PERFORMANCE PROVED UNDER PEAK OPERATING CONDITIONS

Designed to meet modern high performance standards of the most sophisticated electronic systems — the highly versatile Spacetronics components* have these important features —

- hermetically sealed
- perfectly balanced
- wiping action on contacts
- low thermal EMF's
- good shock and vibration characteristics
- low noise
- sub miniature size

*Manufactured and sold under license from Rawco Instruments, Inc.

1. Type D - SPDT, 60 and 400 CPS Spacetronics Chopper—Noise less than 5μv or less than 1μv selected. Contact arrangement is BBM.
2. Type E - DPDT, 60 and 400 CPS Spacetronics Chopper—Same high standards of performance as Type D, as a DPDT unit in a grounded swinger operation.
3. Spacetronics Polar Relay—This unique computer device has a reaction time of approximately 500 microseconds closing and opening. There are no electrical connections for current to flow when it is in its de-energized position. Current may be passed in either direction.

FOR COMPLETE SPECIFICATIONS CONTACT: SPACETRONICS INC. • P. O. BOX 12325 • FORT WORTH 16, TEXAS

Spacetronics
INCORPORATED

6000 CAMP BOWIE BOULEVARD – FORT WORTH, TEXAS

For details, circle #332 on Reader Service Card

Directory II. Components

53. Converters.

Kupfrian Mfg. Div., Robinson Technical Products, Inc., 157 Prospect Ave., Binghamton, N.Y., 5sc, 15sc, 20sc, 25sc, 40sc, Tel: 607-RAymond 3-9561
See ad in class 69

LEL, Inc., 77 Akron St., Copiague, L.I., N.Y., 20c, Tel: 516-AMityville 4-2200
See ad in class 43

LaMarche Mfg. Co., Ill., 5s

Ling Temco Vought, Inc., Texas, 10sc, 25 Static sc

Ling Temco Vought, Inc., Micromodular Components Div., Calif., 10sc

Ling Temco Vought, Inc., Temco Electronics Div., Texas, 25 Static c

Lionel Corp., N.J., 5c, 10c, 15c, 20c, 25c, 35c, 40c

Litton Industries, Inc., Components Group, Triad Transformer Corp., Calif., 5sc, 15sc, 25sc

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 5c, 15c, 20c, 25c, 40c

Lockheed Electronics Co., N.J., 5c, 15c, 25c

Magnalectric Corp., 2635 N. Iroquois, P.O. Box 6008, Tulsa 6, Okla., 15c, 25c, Tel: 918-FIllmore 5-7278
See ad in class 84

Magnavox Co., Magnavox Research Laboratories, Calif., 5c, 10c, 20c

Magnetic Instruments Co., Inc., 637 Commerce St., Thornwood, N.Y., 20c, 25c, Tel: 914-ROdgers 9-5312
See ad in class 43

Magnetico, Inc., N.Y., 15sc

Mallory & Co., Inc. (P. R.), Ind., 5c, 10c, 15c, 20c, 25c, 35sc, 40c

Mandrel Industries, Inc., Calif., 25sc

Marathon Electric Mfg. Corp., Wis., 5c, 10c, 15c, 20c, 25c, 30c

Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 20c, 25c

Maurer, Inc. (J. A.), N.Y., 5c, 15c

Maxwell Electronics Corp., Texas, 15sc, 25c

Mayberry Electronics Co., Calif., 5c, 10s, 15c, 25c

McLean Syntorque Corp., N.Y., 20c

Melcor Electronics Corp., Dept. ID, 48 Toledo St., South Farmingdale, L.I., N.Y., 5sc, 10sc, 15sc, Tel: 516-MYrtle 4-5570
See ad in class 43

Mergenthaler Linotype Co., N.Y., 15sc

Metropolitan Telecommunications Corp., N.Y., 5c, 15c, 20c

Microdot, Inc., Calif., 5s, 20s

Microphase Corp., Conn., 20sc

Mid-Eastern Electronics, Inc., N.J., 5sc

Millivac Instruments, Inc., P.O. Box 997, Schenectady, N.Y., 10s, Tel: 518-FRanklin 2-4781
See ad in class 40

Milro Controls Co., Inc., N.J., 5c, 15c, 20c, 25c, 40c

Minneapolis-Honeywell Regulator Co., Fall River Div., Mass., 10s

Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 5sc, 15sc, 20sc, 35s

Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 15c

Mite Corp., Engineering Laboratories, N.J., 15c

Model Engineering & Mfg. Corp., Ind., 25 Static c

Model Rectifier Corp., N.Y., 5sc

Montek, Inc., Utah, 5sc, 15sc

Moore Associates, Inc., Calif., 5s, 15s, 25s

Moseley Co. (F. L.), Div. of Hewlett-Packard Co., Calif., 5s

Motor Generator Corp., Ohio, 5s, 15s, 20s, 25s, 30s

Mueller Engineering Co., Inc. (Heinz), Ill., 5c, 15c, 30c

Muirhead & Co., Ltd., England, 20s

Muirhead Instruments, Inc., N.Y., 5s

Multi Products Co., Inc., Mich., 5s

Mutron Corp., Mass., 5c, 15c, 40c

NJE Corp., 20 Boright Ave., Kenilworth, N.J., 5sc, 15sc, 20sc, 25sc, 40sc, Tel: 201-BRidge 2-6000
See ad in class 69

Natel Engineering Co., Calif., 10s, 15c, 20c

Networks Electronic Corp., Calif., 5c, 15c, 20c, 25c, 40c

Nichols, Ltd. (R. H.), Canada, 15c, 25c

Non-Linear Systems, Inc., P.O. Box 728, Del Mar, Calif., 5sc, Tel: 213-SKyline 5-1134
See ad on pages 76-77

Norbatrol Electronics Corp., Pa., 15c

North Atlantic Industries, Inc., Terminal Dr., Plainview, L.I., N.Y., 5 Phase-Sensitive sc, Tel: 516-OVerbrook 1-8600
See ad in class 35

Oak Mfg. Co., Ill., 10sc, 35sc

Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 5sc, Tel: 914-DEerfield 7-6132
See ad in class 43

Ortho Magnetics, Inc., Pa., 15c, 25c

Ortronix, Inc., Fla., 5c, 10c, 15c

Ovitron Corp., Power Controls Div., Conn., 5c, 15c, 20c, 25c, 40c

PRI. Electronics, Inc., N.J., 5sc, 15sc, 25sc, 40sc

Pacific Electro Magnetics Co., Inc., Calif., 5c, 25c

Pacific Instrument Co., Calif., 15c

Pacific Magnetic Corp., Calif., 5c, 15c

Palmer Electric Mfg. Co., Calif., 20c

Parametrics, Calif., 5sc, 10sc, 15sc, 20sc, 25sc, 40sc

Parks Co., Inc. (Robert M.), Calif., 5s, 15s, 25s

Penn Keystone Corp., Conn., 15c, 25c

Pennon Electronics, Inc., Calif., 5c, 15c, 20c, 25c, 40c

Perkin Electronics Corp., Calif., 5s, 10s, 15s, 20s, 25c, 30s, 35s, 40s

Permoflux Products Co., Div. of Linlar, Inc., Calif., 5c, 15c, 20c, 25c, 40c

Philco Corp., Lansdale Div., Pa., 10s, 15s, 20s, 25s

Photochron Instruments, Inc., N.Y., 10 Photoelectric sc

Pioneer Magnetics, Inc., Calif., 5c, 15c, 20c, 25c

Plug-In Instruments, Inc., Tenn., 5s, 10s

Polyphase Instrument Co., Pa., 5c, 10c, 15c

Potter Aeronautical Corp., N.J., 5s, 20s

Power Designs, Inc., 1700 Shames Dr., Westbury, L.I., N.Y., 5c, 15c, 25c, 40c, Tel: 516-EDgewood 3-6200
See ad in class 69

Power Industries, Inc., Ill., 5c, 15c, 20c, 25c, 35c, 40c

Power Instruments Corp., Inc., Calif., 5sc, 15sc, 20sc, 25sc, 35sc

Power Sources, Inc., Mass., 5sc, 15sc, 20sc, 25sc, 40sc

Power-Tronic Systems, Inc., N.Y., 5sc, 15sc, 25sc, 40sc

Pylon Electronic Development Co., Ltd., Canada, 5sc, 15sc, 20sc, 25sc, 40sc

RS Electronics Corp., 435 Portage Ave., P.O. Box 11368, Sta. A, Palo Alto, Calif., 5sc, 25sc, Tel: 415-DAvenport 1-1130
See ad in class 43

Radio Development & Research Corp., N.J., 5sc, 15c, 20c, 25c, 30c, 40c

Radio Frequency Laboratories, Inc., N.J., 20s, 40s

Railroad Electronic Laboratories of Omaha, Inc., Nebr., 5c, 15c

Rainier Co., Inc., N.Y., 5c, 20c, 25c, 40c

Ramapo Instrument Co., Inc., N.J., 5s

Rangertone, Inc., N.J., 25s

Ratelco, Inc., Wash., 5sc

Rawco Instruments, Inc., Texas, 10s

Raypar, Inc., Ill., 5sc, 15c, 25c

Raytheon Co., Commercial Apparatus & Systems Div., Mass., 5s, 20s

Reed & Reese, Inc., Calif., 5c, 15c, 20c, 25c

Reliance Electric & Engineering Co., Ohio, 5s, 15s

Resdel Engineering Corp., Calif., 20c

Rho Engineering Co., Calif., 5c, 15c, 40c

Richardson-Allen Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5c, 15c, 25c

Riverbank Laboratories, Dept. of Engineering, Ill., 15c, 20sc

Rixon Electronics, Inc., Md., 5sc, 15sc, 20sc, 25sc, 40sc

Roband Electronics, Ltd., Beulah Works, England, 5sc, 15sc, 20sc, 25sc

Rogers Electronic Corp., N.Y., 5c, 40c

Rosemount Engineering Co., Minn., 5c

Sangamo Electric Co., Springfield, Ill., 5s, 10s, 25s, 30s, Tel: 217-KIngswood 4-6411
See ad on page 142

Saturn Electronics Corp., Texas, 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c

Schaevitz Engineering, N.J., 5c, 10c, 15c, 20c

Schauer Mfg. Corp., Ohio, 5sc

Seco Electronics, Inc., Minn., 5s

Sel-Rex Corp., N.J., 5s

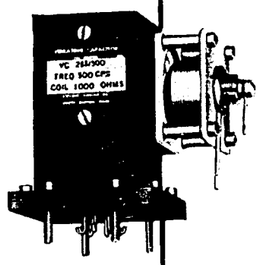
Sensitive Research Instrument Corp., 310-316 Main St., New Rochelle, N.Y., 10s, Tel: 914-BEverly 5-2300
See ad in class 31

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

VIBRATING CAPACITORS

A vibrating-reed type capacitance modulator used to measure currents as low as 10^{-14} amperes. Drift never exceeds ±0.2 millivolts per day, noncumulative. Thus it is ideal where stable performance without recalibration is required for periods of a month or more.

Please write for Catalog 523.



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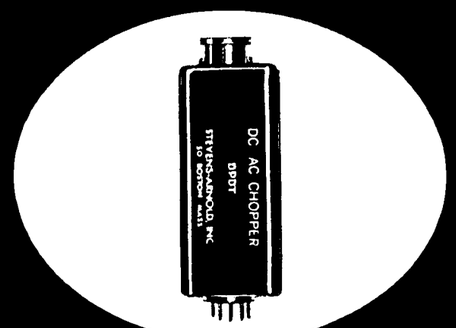
QUALITY SINCE 1943

7 ELKINS ST., SO. BOSTON 27, MASS.



DC-AC CHOPPERS
For 50/60/94/120 C.P.S.

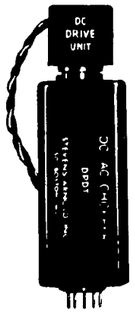
These miniature Choppers are outstanding. Long life and flawless performance are assured by the exclusive Stevens-Arnold twin contact feature. Noise level is less than 1 microvolt into 100,000 ohms. There are twenty-two types, both single and double pole, all built to meet rigid commercial specifications.

Please write for Catalog 515.

DC DRIVEN CHOPPERS

For portable and transistorized instruments. A modification of our service proven AC driven type, these have a 94 cycle chopping rate to eliminate offsets in DC amplifiers and null-seeking equipment. Drive Unit operates from 12 volts DC.

Please write for Catalog 554.



MILLISEC RELAYS

Amazingly fast, from 200 microseconds to 1 millisecond. Available in both commercial and military models, single-pole and double-pole, with shielded or unshielded coils. They are factory sealed and may be mounted in any position.

Please write for Catalog 337

OSCILLATOR STABILIZERS

TUNING FORK Oscillator Stabilizers afford precise and economical frequency stabilization of vacuum tube or transistorized oscillators to provide accurate control tones for the operation of Resonant Relays. Available in the range of 50 to 1000 cps.

Please write for catalog 563.

RESONANT RELAYS

For low cost selective calling or remote control, use Stevens-Arnold TUNING FORK Resonant Relays. They operate only when energized at rated frequency and permit individual control of thousands of functions at the end of a cable pair or radio channel. Now miniaturized, they can be furnished in any frequency from 50 to 1000 cps.

Please write for catalog 563.

S/A-29-1

For details, circle #333 on Reader Service Card

Directory II. Components

53. Converters.

Servo-Tek Products Co., Inc., N.J., 5sc, 15sc
Servomechanisms/Inc., Calif., 5c, 15c, 25c, 40c
Servomex Controls, Ltd., England, 5s
Sheltered Workshops, Inc., Calif., 5c, 15c, 20c
Slater Electric, Inc., N.Y., 5c
Sola Electric Co., Div. of Basic Products Corp., Ill., 5sc, 15c, 40sc
Solatron, Inc., Mass., 5c, 15c
Solid State Electronics Co., Dept. I, 15321 Rayen St., Sepulveda, Calif., 10s, 15s, 20s, Tel: 213-EMpire 4-2271
See ad on page 44
Sonotone Corp., N.Y., 5c, 15c, 25c
Sorensen & Co., Inc., Subsid. of Raytheon Co., Conn., 5sc, 15sc, 20sc, 25sc
Space Instrumentation Corp., Calif., 5sc, 20sc
Spacetronics, Inc., P.O. Box 12325, 6000 Camp Bowie Blvd., Fort Worth 16, Texas, 10 Subminiature s, 15s, Tel: 817-PErshing 8-1271
See ad in this class
Sparton Electronics, Div. of Sparton Corp., Mich., 5c, 15c
Specific Electronics, Inc., Calif., 5c, 15c, 20c
Speck Electronics, Inc., Calif., 10c, 15c
Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 5sc, 15sc, 20c, 25sc, 45sc
Spellman High Voltage Co., Inc., 1930 Adee Ave., New York 69, N.Y., 5c, 15sc, Tel: 212-KIngsbridge 7-0306
See ad in class 69
Spencer-Kennedy Laboratories, Inc., Mass., 20s
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 15c
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 5s, 15s, 40s
Sprague Electric Co., VecTrol Engineering, Inc. (Subsid.), Conn., 5c, 15c, 25c
Sprague Engineering Corp., Calif., 5c, 20c, 30c
Stancor Electronics, Inc., 3501 W. Addison St., Chicago 18, Ill., 5s, 10s, 15s, 20s, 25s, 30s, Tel: 312-INdependence 3-7400
See ad in class 84
Standard Electrical Products Co., Ohio, 5c, 15c, 25c, 40c
Stevens-Arnold, Inc., 7 Elkins St., South Boston 27, Mass., 10sc, 35sc, Tel: 617-ANdrew 8-1170
See ad in this class
Stevens-Evans, Inc., Calif., 40c
Straza Electronics, Div. of Straza Industries, Calif., 5c, 15c
Studebaker-Packard Corp., Onan Div., Minn., 15s, 25s
SunAir Electronics, Inc., Fla., 15s
Superior Electric Co., 100 Ames Ave., Bristol, Conn., 5s, Tel: 203-LUdlow 2-9561
See ad on pages 2-11
Systems Research Corp., Calif., 5s, 15s, 20s, 25s
Systron-Donner Corp., Calif., 5s, 15s, 40s
TKM Electric Corp., N.Y., 5c, 15c, 20c, 30c
Tapetone, Inc., Mass., 20sc
Tel Instrument Electronics Corp., N.J., 20s
Telechrome Mfg. Corp., N.Y., 5s, 15s, 20s, 25s
Telecomputing Corp., Calif., 30sc
Telectro Industries Corp., N.Y., 5c, 15c
Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 5c, 15c, 20c, 25c, 35c, 40c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80
Telkor, Inc., Ohio, 5sc, 15sc, 20sc, 25sc, 35sc
Tenco Electronics, Inc., Mass., 5c, 15c
Terado Co., Minn., 15sc, 25sc, 35sc
Thompson, Ltd. (J. Langham), England, 5s
Thompson Ramo Wooldridge Inc., Tapco Div., Ohio, 5c, 15c, 20c, 25c, 30c, 40c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s, 20s, 25s, 40s
Time & Frequency, Ill., 15c, 25c
Topping Electronics, Ltd., Canada, 20c
Torotron Corp., Dept. D, 256 E. Third St., Mount Vernon, N.Y., 15c, Tel: 914-MOunt Vernon 8-6900
See ad in class 51
Torwico Electronics, Inc., N.J., 5c, 15c, 20c, 25c, 40c
Trans Electronics, Inc., Calif., 5c, 15c, 40c
Transformer-Electronics Co., Colo., 5c, 15c, 25c, 40c
Transformer Manufacturers, Inc., Ill., 5c, 15c
Transformers, Inc., N.Y., 5c, 15c
Transistor Devices, Inc., N.J., 5sc, 15sc, 20sc, 25sc
Transmagnetics, Inc., N.Y., 15sc
Transonic, Inc., Calif., 5c, 15c, 40c
Tronic Coil Winding Co., Inc., Conn., 5c, 10c, 15c
Trott Electronics, Inc., N.Y., 5c
Tung-Sol Electric, Inc., 1 Summer Ave., Newark 4, N.J., 5sc, 15sc, 25c, Tel: 201-HUmboldt 4-8500
See ad on pages 62-63
Universal Toroid Coil Winding, Inc., N.J., 5c, 15c, 25c
Universal Transistor Products Corp., N.Y., 5sc, 15sc, 20sc, 25sc, 40sc
Valor Instruments, Inc., Calif., 5sc, 15c, 25c, 40sc
Vap-Air Div., Vapor Corp., Ill., 5c, 15c, 25sc
Varo, Inc., Texas, 5sc, 15sc, 20sc, 25sc, 30sc, 40sc
Victory Electronics, Inc., 50 Bond St., Westbury, L.I., N.Y., 5sc, 15sc, 20sc, 25sc, Tel: 516-EDgewood 4-8892
See ad in class 69
Victory Engineering Corp., 118 Springfield Ave., Springfield, N.J., 5s, 10s, 15s, Tel: 201-MUrdock 8-7150
See ad in class 74
Vidar Corp., Calif., 20s, 40s
Vokar Products, Inc., Mich., 35s
Warren Mfg. Co., Inc., Mass., 5c, 15sc, 20c, 25c
Waugh Engineering Co., Calif., 20sc
Webster Electric Co., Wis., 5s, 15s
Westamp, Inc., Calif., 15s, 25s
Western Design & Electronics, Div. of U.S. Industries, Inc., Calif., 5c, 15c, 25c, 30sc
Westinghouse Electric Corp., Small Motor Div. of Aircraft Equipment Dept., Ohio, 5c, 15c, 20c, 25c
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 10s, 15s, Tel: 212-JUdson 2-3030
See ad on page 224
White Avionics Corp., N.Y., 5c
Wickes Engineering & Construction Co., N.J., 5c, 15c, 20c, 40c
Wilcox Electric Co., Inc., Mo., 15s, 20c
Zenith Radio Corp., Wincharger Corp. (Subsid.), Iowa, 5c, 15c, 25c, 30c

54. Cooling Devices.

5. Cryogenic
10. Exchangers, heat
15. Infrared
20. Liquid
25. Refrigeration
30. Thermoelectric

Advanced Micro-Electronics, Inc., R.I., 30c
Aerodyne Controls Corp., N.Y., 5s, 25s
Aerolab Development Co., Calif., 5c, 10c
Aeronutronic, Div. of Ford Motor Co., Calif., 15c
Aeroquip Corp., Mich., 20c
Air Reduction Co., Inc., Pure Carbonic Co. (Div.), N.Y., 25 CO_2 c
Airflow Co., Md., 5c, 10c, 20c, 25c, 30c
Astro Dynamics, Inc., Mass., 10sc, 20c, 30c
Atwood Engineering (Wilfrid L.), Ohio, 10c
Bar-Ray Products, Inc., N.Y., 25sc
Barnes Engineering Co., Conn., 15sc
Basic & Experimental Physics, Mass., 5c
Bendix Corp., Pioneer-Central Div., Iowa, 5sc, 10sc, 20sc
Bendix Corp., Red Bank Div., Electron Tube Products, Highway #35, Eatontown, N.J., 30c, Tel: 201-LIberty 2-2000
See ad on pages 48-49
Birtcher Corp., Industrial Div., Calif., 30c
Blue M Electric Co., Ill., 20s
Bon-De Electronic Laboratories, Inc., Mass., 20s

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GENERAL THERMOELECTRIC CORPORATION

GTC

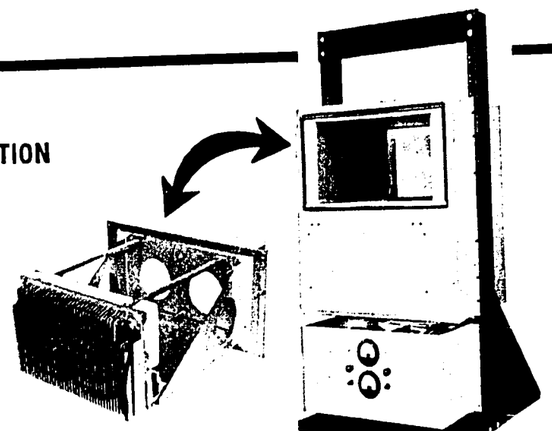
THE *BEST KNOWN* NAME IN

THERMOELECTRIC COOLING

• For Military Electronics • Industrial Systems

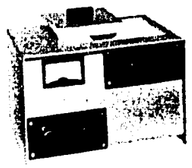
• Scientific Instrumentation and Specialized Commercial Use

TEMPERATURE STABILIZATION CHAMBERS



An original GTC development that's filling the bill for special electronic applications where a stabilized temperature must be maintained over prolonged periods even though the outside temperature is considerably above or below the control point. Standard Frigistors are incorporated as required. Ideal for use with temperature-sensitive high-frequency devices. Critical components can be held to temperature variations of 1°C or less.

CONSTANT TEMPERATURE CONTAINERS



A wide range of temperature-stabilized enclosures employing Frigistors which afford temperature ranges from 125°C to −30°C within a 2° accuracy. Suitable for control of the temperature of liquids and air in medical, industrial and military electronics.

THERMO-ELECTRIC BAFFLES

Completely solid state baffles employing GTC Frigistors. Available for use with existing vacuum systems. Eliminate the need for conventional mechanical refrigeration equipment. Noiseless . . . no moving parts . . . no major maintenance. Power consumption small compared with freon types. Sizes range from 2 inches to 32 inches in diameter. Lower cost than most conventional cooling systems.

WATER-COOLED HEAT SINKS

GTC water-cooled heat sinks provide efficiencies greatly superior to heat sinks rejecting heat to air. They are ideal for microtome freezers, industrial instrumentation and general laboratory use.

For details, circle #334 on Reader Service Card

FRIGISTORS

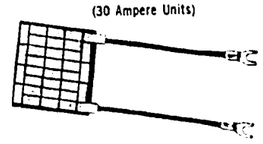
Frigistors are special TE modules developed by GTC engineers for the cooling of heat-sensitive electronic components. They are mechanically rigid, compact, lightweight, fully integrated units and are designed for rugged environmental applications. For less rugged requirements, special foamed Frigistors are available which provide somewhat higher operating characteristics than shown in the adjoining table.

GTC FRIGISTORS (15 Ampere Units) Minimum Ratings Shown Throughout

	F1	F4	F8	F32
COUPLES	1	4	8	32
△ T in air (no load)	56°C	55°C	55°C	50°C
Heat Pumping Capacity in Watts at 0△T	0.75	2.5	5	20

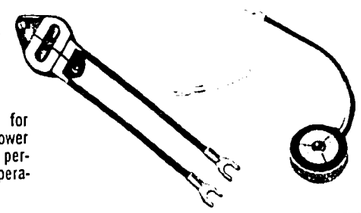
HIGH POWER FRIGISTORS

(30 Ampere Units)



GTC also has available 30 ampere units with a △ T in the air (no load) of 64°C or better. Various combinations of couples are available and are nominally rated at 2 watts per couple at 0 △ T.

SPOT COOLERS FOR TRANSISTORS AND DIODES

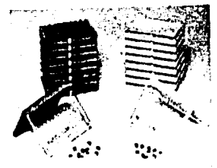


These special Frigistors are used for cooling stud-mounted diodes and power transistors. They add reliability and performance capability by extending temperature ranges by a wide margin.

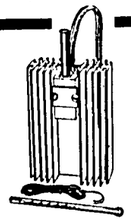
GTC SPOT COOLERS Minimum Ratings Shown Throughout

	F3 TC Transistor Cooler	F3 DC Diode Cooler
COUPLES	3	3
△ T in air (no load)	60°C	60°C
Heat Pumping Capacity in Watts at 0 △ T	4.25	4.25

NEELIUM/S



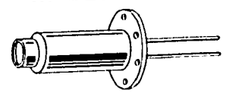
A unique GTC semiconductor material for TE cooling and heating. P and N types available from stock in 4 x 4 x 4 mm sizes and 6 x 6 x 7 mm sizes. Also available in a variety of sizes and shapes to specification and in cut or plate form. GTC P type material is sintered for rugged construction and easy handling. It can be machined and cut with ease. N type material is supplied in both zone-leveled and sintered forms. For maximum effective Z, a hybrid couple using sintered P and zone-leveled N material, is recommended. For rugged use where maximum Z is not critical, all sintered couples are available.



DEMONSTRATION UNITS

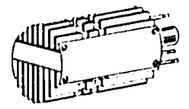
A basic scientific and educational tool for experimenters and students. Accelerates the understanding of semiconductor thermoelectric heating, cooling and power generation. A low-cost way to learn TE fundamentals. Completely self-contained! Power source — a 1½ volt battery! TE Demonstration Units for advanced experiments also available.

IR DETECTORS



Cool-down time approaches microseconds in these highly sensitive detectors. They're tiny, but rugged; withstand tremendous forces of acceleration; and require little power. Large quantity production available.

CRYSTAL COOLERS



These TE Crystal Coolers maintain a constant crystal temperature low enough to insure frequency stability and increased life. Extreme flexibility of design permits meeting any specification, and easy interchange of components makes the units ideal for field maintenance. Coolers for multiple crystals also available.

LARGEST LINE

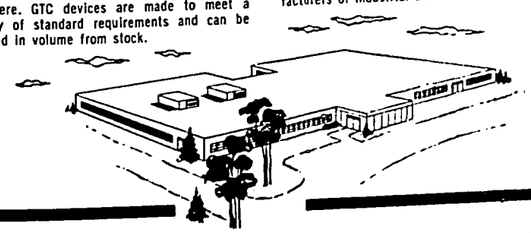
GTC's early start in the field has resulted in the largest and most diversified line of practical and efficient TE cooling units available anywhere. GTC devices are made to meet a variety of standard requirements and can be ordered in volume from stock.

MOST EXPERIENCE

GTC has pioneered thermoelectric cooling devices that are time-proven and currently in use by large military contractors and well-known manufacturers of industrial and commercial systems.

BEST ENGINEERING SKILL

GTC can custom-design thermoelectric cooling systems and devices that achieve the ultimate in performance. And you can ask for, and receive, sound engineering help . . . fast . . . free . . . accurate . . . with no strings attached.



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GTC occupies a large new plant in Princeton, equipped with R & D facilities . . . fast, modern manufacturing equipment and methods . . . highest quality control standards . . . and a large staff of TE engineers and technicians.

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Needco of America, Inc., N.J., 25c, 30c
Northern Research & Engineering Corp., Mass., 5c, 10c, 15c, 20c, 25c
Ohio Semiconductors, Div. of Tecumseh Products Co., 1205 Chesapeake Ave., Columbus 12, Ohio, 30s, Tel: 614-HUdson 6-9561
See ad on page 45
On Mark Couplings, Inc., Calif., 5c, 20c, 25c
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Union Diesel Engine Co., Calif., 10sc
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Vap-Air Div., Vapor Corp., Ill., 10c
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55. Cores.

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Ampex Computer Products Co., Calif., 5sc, 10sc, 20sc, 30sc
Ampex Computer Products Co., Calif., 5c, 10sc, 20sc
Arnold Engineering Co., P.O. Box G, Marengo, Ill., 15s, 20s, 25s, 30s, 35s, Tel: 815-JOrdan 8-7251
See ad on page 88
Barker Sales Co., N.J., 30c
Basic & Experimental Physics, Mass., 35c
Burroughs Corp., Mich., 10sc, 30sc, 35sc
Burroughs Corp., Electronic Instruments Div., Pa., 20sc, 30sc, 35sc
CFI Corp., Dept. IRE, Cottage Place, Mineola, L.I., N.Y., 5c, Tel: 516-PIoneer 6-0571
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Carborundum Co., Refractories Div., N.J., 5sc
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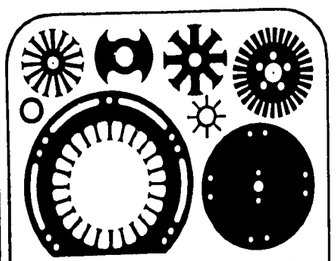
See ad in class 64
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5sc, 10sc, 15c, 20sc, 35sc
General Magnetic Corp., Mich., 10c, 20c



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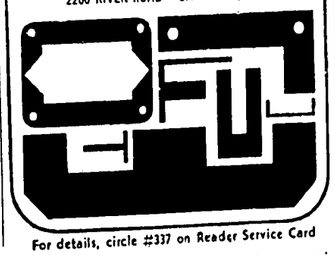

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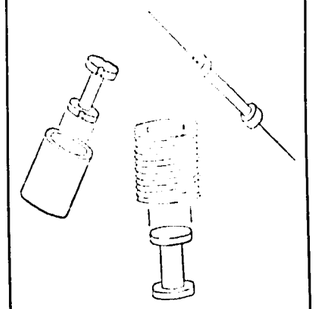
FERRITE BOBBINS



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55. Cores.

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General Precision, Inc., Kearfott Div., N.J., 10sc
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Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5sc, 10sc, 15c, 20sc, 25c, 30sc, 35c

Krystinel Corp., P.O. Box 6, Fox Island Rd., Port Chester, N.Y., 10sc, 20sc, 35sc, Tel: 914-WEstmore 7-5252
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Kupfrian Mfg. Div., Robinson Technical Products, Inc., 157 Prospect Ave., Binghamton, N.Y., 10c, 35c, Tel: 607-RAymond 3-9561
See ad in class 69

Laboratory For Electronics, Inc., Mass., 20c, 35c
Litton Industries, Inc., Components Group, Airtron Div., N.J., 10c
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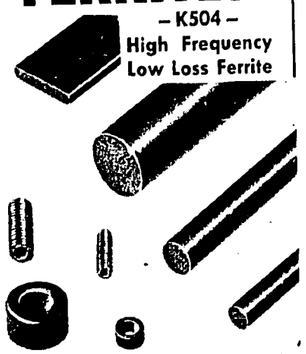

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Directory II. Components

55. Cores.

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Magnetic Core Corp., John & Lawrence Sts., New Windsor, Newburgh, N.Y., 20c, 25c, 35sc, Tel: 914-JOhn 1-5116
See ad in this class

Magnetic Metals Co., 2200 River Rd., Camden 1, N.J., 15sc, 20sc, 25sc, 30sc, 35sc, Tel: 609-WOodlawn 4-7842
See ads in this class

Magnetics, Inc., Pa., 20s, 25s, 30s, 35s
Materials for Electronics, Inc., N.Y., 10sc
Melody Master Mfg. Co., Ill., 15c, 30c, 35c

Mitronics, Inc., 132 Floral Ave., Murray Hill, N.J., 5c, Tel: 201-277-3400
See ad in class 92

Moloney Electric Co., Mo., 30sc, 35sc
Motorola, Inc., Military Electronics Div., Ariz., 10c, 20c
Mueller Brass Co., Mich., 25c

Murata Mfg. Co., Ltd., Nagaoka-cho, Otokuni-gun, Kyoto, Japan, 5c, Tel: Kotari 236
See ad on page 214

National Beryllia Corp., First & Haskell Aves., Haskell, N.J., 5c, Tel: 201-TEmple 9-1600
See ad in class 92

National Ceramic Co., N.J., 5c
National Co., Inc., Mass., 5c, 10c
Norrich Plastics Corp., N.Y., 5c, 15c
Norton Co., Mass., 5s
Pabst Engineering Equipment Co., Inc., N.J., 20c
Philips Electronics Industries, Ltd., Canada, 5s, 10s, 35s
Polydoroff & Associates (W. J.), D.C., 10c, 20c, 25c, 35c
Polymer Corp., Pa., 20sc, 25sc, 35sc

Pyrocircuits Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 35sc, Tel: 516-POrt Washington 7-3949
See ad in class 50

Quality Components, Inc., Pa., 25c, 35c

Quartzite Processing, Inc., 6 Holyoke St., Malden 48, Mass., 10c, Tel: 617-DAvenport 2-1380
See ad in class 109

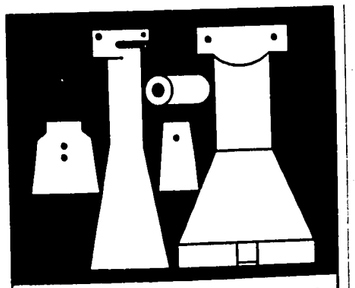
R.E.C., Inc., Calif., 15s, 30s

Radio Cores, Inc., 9540 S. Tulley Ave., Oak Lawn, Ill., 20sc, 25sc, 35sc, Tel: 312-GArden 2-3353
See ad in this class

Radio Corp. of America, Defense Electronic Products, N.J., 10c, 20c
Radio Corp. of America, RCA Electron Tube Div., N.J., 10sc, 35sc

Radio Corp. of America, Semiconductor & Materials Div., Section J-22-NN, Route 202, Somerville, N.J., 10sc, 35sc, Tel: 609-RAndolph 2-3200
See ad on pages 54-55

Raytheon Co., Microwave & Power Tube Div., Mass., 5c, 10c
Rimak Electronics, Inc., Calif., 35c
Salford Electrical Instruments, Ltd., England, 20s, 35s,
Siemens New York, Inc., N.Y., 10s
Smith Corp. (A. O.), Crowley Div., N.J., 10sc, 20sc, 25sc, 35sc
Solar Mfg. Corp., Calif., 5c
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 10sc
Sprague Electric Co., Dynacor, Inc. (Subsid.), Md., 20sc, 30sc, 35sc
Stackpole Carbon Co., Pa., 10sc
Standard Electronics, Div. of Dynamics Corp. of America, N.J., 35sc
Star Porcelain Co., N.J., 5c
Steward Mfg. Co. (D. M.), Tenn., 5c, 10c, 35c
Superex Electronics Corp., N.Y., 10sc



Drawn or Formed MAGNETIC SHIELDS

Provide efficient protection of sensitive electrical equipment against stray magnetic fields, and effect a high ratio of field strength reduction. A wide range of single and multiple shield structures is available from existing tools.

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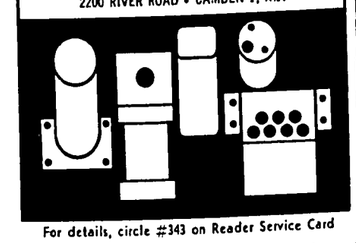
Phone WOodlawn 4-7842
ELECTROMAGNETIC CORES AND SHIELDS
2200 RIVER ROAD • CAMDEN 1, N.J.



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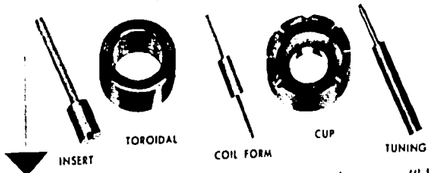
CUSTOM IRON CORES *to your specifications*



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Never a problem in meeting Mil. Specs., when your "blue print" specifies Iron Cores from Permacor*.
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The Original **Engineered Economy Iron Cores** *for Commercial and Military Applications*

Ours alone . . . ENGINEERED ECONOMY® IRON CORES at low cost from stock. Over 14 types for most threaded and insert applications.
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We welcome your inquiries.

*Trade Mark

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

BULOVA

SYNONYM FOR QUALITY, RELIABILITY AND STABILITY!

Frequency control SYSTEMS AND OSCILLATORS .3 cps to 100 mc

Bulova frequency control systems and oscillators are custom-engineered for the most exacting military and industrial applications.

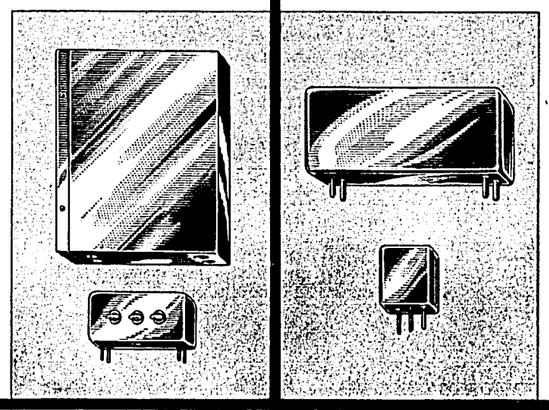
Bulova systems and oscillators span the frequency range from .3 cps to 100 mc and in stability ± 15 pp million without oven to ± 1 pp 10⁹ with proportional oven control ...are available in either tube type or transistor construction.

They graduate in size from the MB-100 (1" x 1" x 2") to complete systems. The MB-100 compensated crystal oscillator assures single frequency output with a stability of ± 15 pp million from −50° C. to +90° C. without oven control. Complete systems may include power supply, oscillator, gated and resetting circuitry, binary stage, voltage regulator and pulse or power amplifiers

Crystal FILTERS 7 kc to 20 mc

Bulova crystal filters are designed to solve filtering problems at center frequencies with bandwidths of 0.01% to 8% and slope factors of 60/6 db as steep as 1.4 to 1.

Bulova filters shave the frequency range from 7 kc to 20 mc, inclusive ...are available as bandpass, reject and single side band. They graduate in size from the 2E2 SM (1⅞" x 1⁵⁄₁₆" x 1⅛") for frequencies of 175 kc through 20 mc to the OE6 (5½" x 3¼" x 3⅝"), a single side band for frequencies of 7 kc through 500 kc.

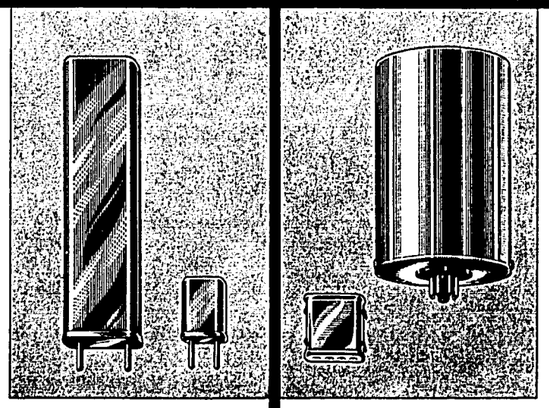


CRYSTALS 2 kc to 100 mc

Bulova crystals are designed and produced for use wherever reliable, close-frequency control is essential.

Bulova crystals assure exacting control from 2 kc through 100 mc with 100 g shock resistance and 30 g to 2000 cps vibration resistance in most frequencies. They graduate in size from the HC-13/U (1½" x ²⁵⁄₃₂" x 3") for 2 kc to the HC-18/U (.50" x .400" x .510") for 100 mc. The HC-18/U is now available to cover 450 kc through 1100 kc and 2 mc through 100 mc.

The majority of Bulova MIL Type crystals may be obtained in miniature holders.



OVENS

Bulova ovens are engineered to maintain ±.1° C. of operating temperatures so as to assure superior results in electrical stability of crystals, components and circuitry.

Bulova ovens graduate from the AM-100ED (external measurements: 3" diameter with a 7" maximum height; internal: 1.96" diameter with a 6" height) to the BHC-18-1 (external: 1³⁵⁄₆₄" x 1³¹⁄₃₂" x 1¼"; internal 1³¹⁄₃₂" x ½" x ³¹⁄₃₂"). The AM-100 maintains a temperature stability of ± .1° C. and is used for Bulova Type 74 glass crystal holders (Military Type HC-15/U), or complete systems. The BHC-18-1 holds temperature to ± 2° C. (−55° to +90° C. ambient) and has a capacity for a single HC-18/U plug-in type crystal holder or four crystal diodes, such as the IN658.

Complete information on all Bulova components and systems is available from your nearest Sales Representative, or by writing — *Department A-1376, Electronics Division, Bulova, 61-10 Woodside Ave., Woodside 77, New York.*

For details, circle #345 on Reader Service Card

Directory II. Components

55. Cores.

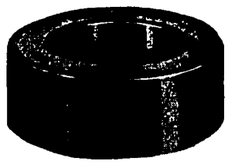
Superior Steatite & Ceramic Corp., 89 W. Forest Ave., Englewood, N.J., 5c, Tel: 201-LOwell 8-4555
See ad in class 92

TRG, Inc. (Technical Research Group), N.Y., 10c, 25c
Technical Ceramics & Lava Corp., N.J., 5sc
Telegraph Condenser Co., England, 5s
Thomas & Skinner, Inc., Ind., 15sc, 20sc, 30sc, 35sc
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s
Thor Ceramics, Inc., N.J., 5sc
Tokyo Shibaura Electric Co., Ltd., Japan, 10s
Trans-Tech, Inc., Md., 10sc
Transonic, Inc., Calif., 5c, 10c, 20c, 25c, 35c
Trionics Corp., Div. of Nautec Corp., Wis., 5c, 10c

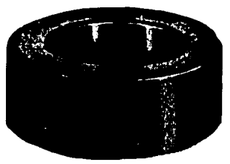
United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 5c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104

United Products Co., N.J., 5c, 10c, 20c, 25sc

THE ULTIMATE IN



TAPE WOUND CORES



CENTRICORES

Precision manufacturing methods are used to obtain closely matched magnetic characteristics, including high thermal stability. Centricores matched at room temperature will remain matched over wide temperature ranges.

MAGNETIC METALS

Phone WOodlawn 4-7842
ELECTROMAGNETIC CORES AND SHIELDS
2200 RIVER ROAD • CAMDEN 1, N.J.

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Westinghouse Electric Corp., Specialty Transformer Dept., Pa., 20sc, 30sc, 35sc
Wiegand Mfg. Co., N.Y., 20c
Wisconsin Porcelain Co., Wis., 5c
Zirconium Corp. of America, Ohio, 5c

Counters:
See class 11

Couplings:
See class 97

Couplings & couplers, waveguide:
See class 66

Couplings, servo:
See class 77

Cryogenic devices:
See classes 10, 50 & 54

Crystal mixers & mounts:
See class 66

Crystal ovens:
See class 56

Crystal testers:
See class 41

Crystals, ferrimagnetic:
See class 100

Crystals, nuclear:
See class 22

56. Crystals & Accessories.

5. Crystal holders
10. Crystal ovens
15. Gallium
20. Germanium
25. Iron garnet
30. Quartz
35. Raw
40. Sapphire
45. Silicon

Accurate Specialties Co., Inc., N.J., 15c, 20c
Advanced Measurement Instruments, Inc., Mass., 10c
Advanced Micro-Electronics, Inc., R.I., 45c
Aga Corp. of America, N.J., 5c, 10c, 30c
Airtronics, Inc., D.C., 10c
Allen-Jones, Inc., Calif., 30c
Alloys Unlimited, Inc., N.Y., 15c
American Electronics Co., N.Y., 5s
Anchor Metal Co., Inc., N.Y., 15s, 20s
Anderson Electronics, Inc., Pa., 5s, 10s, 30c

Augat Brothers, Inc., 33 Perry Ave., Attleboro, Mass., 5s, Tel: 617-CAstle 2-2202
See ad in class 105

Bendix Corp., M. C. Jones Electronics Co., Inc. (Subsid.), Conn., 5sc

Bliley Electric Co., Union Station Bldg., Erie, Pa., 10sc, 30sc, Tel: 814-GLendale 6-7561
See ad in this class

Bomac Laboratories, Inc., Mass., 45sc
Bram Metallurgical-Chemical Co., Pa., 20sc, 30sc, 45sc
Breon Laboratories, Pa., 5s, 10c, 30c, 35s
Bulova Research & Development Laboratories, N.Y., 5s, 10s, 30s

Bulova Watch Co., Inc., Electronics Div., Dept. A-1376, 61-10 Woodside Ave., Woodside 77, N.Y., 10sc, 30sc, Tel: 212-NEWtown 9-5700
See ad in this class, page 460

Burnett Radio Laboratory (Wm. W. L.), Calif., 5c, 10c, 30c
Cambridge Thermionic Corp., Mass., 30sc
City Chemical Corp., N.Y., 15c, 20c
Clark Co., Inc. (David), Mass., 5c
Clark Crystal Co., Inc., Mass., 10c, 30c
Close Associates, Inc., N.Y., 30s
Connector Corp., Ill., 5sc
Cox & Co., Inc., N.Y., 10c
Croven, Ltd., Canada, 10sc, 30sc

Delta-F, Inc., 113 E. State St., Geneva, Ill., 10sc, Tel: 312-CEnter 2-7600
See ad in class 31

DeMornay-Bonardi Corp., 780 S. Arroyo Pkwy., Pasadena, Calif., 5s, Tel: 213-SYcamore 2-4142
See ad on pages 68-69

Diamond Antenna & Microwave Corp., Mass., 5sc
Diamond Drill Carbon Co., N.Y., 30s, 35s
Diotron, Inc., Pa., 15 Arsenide sc
Dittmore-Freimuth Corp., Wis., 5c, 10c

Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 5sc, Tel: 914-MOunt Vernon 8-6900
See ad in class 66

Dow Corning Corp., Mich., 45sc
Duramic Products, Inc., N.J., 5c
Dynamics Corp. of America, N.Y., 5sc, 10sc, 30sc
Edmund Scientific Co., N.J., 30s
Ednalite Optical Co., Inc., N.Y., 20c, 30c, 35c, 40c, 45c
Eidson Electronic Co., Texas, 30sc
Electro-Ceramics, Inc., Utah, 35sc
Electro-Flex Heat, Inc., Conn., 10c
Electro Powerpacs, Inc., Mass., 40sc
Electronic Research Co., Div. of Textron Electronics, Inc., Mo., 10sc, 30sc
Elm Laboratories, N.Y., 5sc, 10c

Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 5sc, Tel: 518-VIctor 2-8400
See ad in class 38

Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 30c, Tel: 201-BIgelow 2-2700
See ad on page 140

FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 5s, Tel: 212-RAvenswood 1-9000
See ad in class 37

Federated Electronics, Inc., N.Y., 10sc, 20c, 30c, 45c

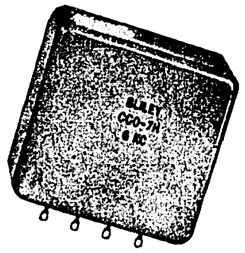
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Bliley THE STANDARD OF QUALITY FOR OVER 30 YEARS

Packaged Crystal Oscillators

Bliley CCO units are crystal controlled packages, complete with transistorized oscillator circuit and constant temperature oven. These compact plug-in units provide a high precision reference for use in counters, signal generators, lab standards and master oscillator systems. Standard models at 100 kc, 1000 kc, and 5000 kc as shown.

CCO-7M



CCO-7H

Type	Frequency Range	Stability – 24 hrs. Room Temp. 25°C.	Stability – 24 hrs. Ambient	Output Volts Rms	Output Load Ohms	Oscillator Volts DC	Oven Heater Volts	Oven Heater Watts	Oven Temp.	Crystal Holder	Dimensions Height (Excluding Pins), Width and Depth	Bulletin No.
CCO-7	1000KC	0.2 ppm	0.4 ppm –30°C.-+80°C.	2	470K	+27	27AC or 27DC	30 warm-up 15 control	85°C.	BG6 series	3 13/16"x2"x 1 9/16"	516
CCO-7B	1000KC	0.2 ppm	0.4 ppm –30°C.-+80°C.	2	470K	+27	115AC or 115DC	30 warm-up 15 control	85°C.	BG6 series	3 13/16"x2"x 1 9/16"	516X
CCO-7R	100KC	0.2 ppm	0.4 ppm 0°-60°C.	3.0	1500	+27	27AC	6	68°C.	BG6 series	4 7/16"x2"x2"	520A
CCO-7RA	100KC	0.2 ppm	0.4 ppm 0°-60°C.	3.0	1500	+27	115AC	6	68°C.	BG6 series	4 7/16"x2"x2"	520A
CCO-7R CCO-7RA	60-175KC	0.2 ppm	0.4 ppm 0°-60°C.	3.0	1500	+27	27AC 115AC	6	68°C.	BG6 series	4 7/16"x2"x2"	520AX
CCO-7L	5000KC	0.01 ppm	0.03 ppm 0°-60°C.	.5	1500	+27	27AC	6	68°C.	BG6 series	4 7/16"x2"x2"	522
CCO-7LA	5000KC	0.01 ppm	0.03 ppm 0°-60°C.	.5	1500	+27	115AC	6	68°C.	BG6 series	4 7/16"x2"x2"	522
CCO-7M	1000KC	0.01 ppm	0.03 ppm 0°-60°C.	1.0	1500	+27	27AC	6	68°C.	BG6 series	4 7/16"x2"x2"	522
CCO-7MA	1000KC	0.01 ppm	0.03 ppm 0°-60°C.	1.0	1500	+27	115AC	6	68°C.	BG6 series	4 7/16"x2"x2"	522
CCO-7N	10000KC	0.01 ppm	0.03 ppm 0°-60°C.	3.0	1500	–27	27AC	6	68°C.	BG6 series	4 7/16"x2"x2"	523
CCO-7NA	10000KC	0.01 ppm	0.03 ppm 0°-60°C.	3.0	1500	–27	115AC	6	68°C.	BG6 series	4 7/16"x2"x2"	523

High Stability Crystal and Oven Combinations

For use in frequency counters, laboratory reference standards, and master oscillator systems.

BG61AH-5

BG11AH-5

BG9A

BG12

BPCO-1

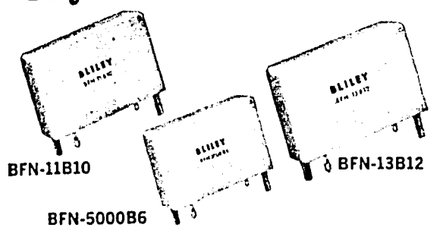
TCO-11RA

BCR-1

CRYSTAL OVEN TYPE	CRYSTAL UNIT SERIES	STABILITY WITH FIXED AMBIENT 100 kc	1000 kc	5000 kc	HEATER SUPPLY VOLTAGE	STANDARD OPERATING TEMP.
TCO-11RA	BG6	4×10^{7}	1×10^{8}	1×10^{8}	115 VAC	68
TCO-11RB	BG6	4×10^{7}	1×10^{8}	1×10^{8}	27 VAC	68
TCO-11T	BG6	4×10^{7}	1×10^{8}	1×10^{8}	27 VAC	68
BCR-1	BG6	2×10^{7}	1×10^{8}	1×10^{8}	115 VAC	68
BST-1	BG6	2×10^{7}	1×10^{8}	1×10^{8}	27 VAC	68
BCR-2	BG9	4×10^{8}	5×10^{9}		115 VAC	68
BST-2	BG9	4×10^{8}	5×10^{9}		27 VAC	68
BPCO-1	BG61A-5 BG61AH-5			1×10^{9}	27 VAC	70

Bliley THE STANDARD OF QUALITY FOR OVER 30 YEARS

Crystal Filters 100 KC to 30 MC



BFN-11B10

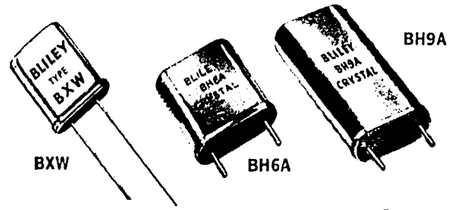
BFN-5000B6

BFN-13B12

Bliley crystal filters are custom engineered components that may be designed for a wide range of frequency and selectivity characteristics. Dependent upon shape factor and frequency range, bandwidths are obtainable from .01% to 8% of center frequency. Call upon Bliley for a qualified analysis and quotation on your crystal filter requirements. Some typical Bliley designs are shown in the following table.

TYPE	FREQ.	BANDWIDTH 6 db.	BANDWIDTH 60 db.	INSERTION Loss (Max)
BFN-0455B2	455 kc	4.4 kc	16 kc	5 db
BFN-2215B3	2215 kc	300 cycles	1100 cycles	3 db
BFN-2215B4	2215 kc	3 kc	12 kc	3 db
BFN-5000B6	5 mc	3.5 kc	12 kc	6 db
BFN-8998B7	8.998 mc	3.0 kc	7 kc	6 db
BFN-11B8	10.7 mc	4.2 kc	10 kc	8 db
BFN-11B9	10.7 mc	15 kc	30 kc	5 db
BFN-11B10	10.7 mc	30 kc	55 kc	6 db
BFN-13B11	13 mc	15 kc	27 kc	6 db
BFN-13B12	13 mc	30 kc	55 kc	6 db

General Communications Crystal Units



BXW

BH6A

BH9A

Bliley offers a complete selection of MIL type crystal units. Commercial equivalents and variations are available from 2kc to 150mc.

MIL HOLDER	BLILEY HOLDER	FREQUENCY RANGE
HC-6/U	BH6A	200kc-150mc
HC-13/U	BH9A	2kc-200kc
HC-18/U	BXW	3mc-150mc

Ultrasonic Delay Lines .75 to 4500 Microseconds

Bliley Ultrasonic Delay Lines for the range from .75 microseconds to 4500 microseconds are custom engineered for most applications. Exceptional performance characteristics such as low loss, low temperature coefficient, attenuation of spurious, and integral temperature control are factors resolved in the final design. Design parameters shown in the following tables are intended for general guidance:

DOUBLE ENDED RINGING LINE

TWO MATCHED DELAY LINE

SHORT DELAY LINES

Group	Freq. Range (mc)	Delay Time Range (Microseconds) Ringing Single Ended	Delay Time Range (Microseconds) Absorber Double Ended	Max. Temp. Coeff. (ppm/°C.)	Bandwidth as percent of carrier (with 93 ohm termination)	Loss level (db) with different termination 50 ohm	93 ohm	1000 ohm
A	5-60	.75-60	.75-30	–100	30		45	28
	60-100	.75-60	.75-30	–100	15		50	33
B	5-60	.75-40	.75-20	+85	35		43	27
	60-100	.75-40	.75-20	+85	15		48	31
C	5-60	.75-40	.75-20	+20	35		43	27
	60-100	.75-40	.75-20	+20	15		48	31
D	5-30	1.00-60	1.00-30	–100	40 (50 ohm term.)	12		
E	5-30	1.00-40	1.00-20	+20	40 (50 ohm term.)	12		

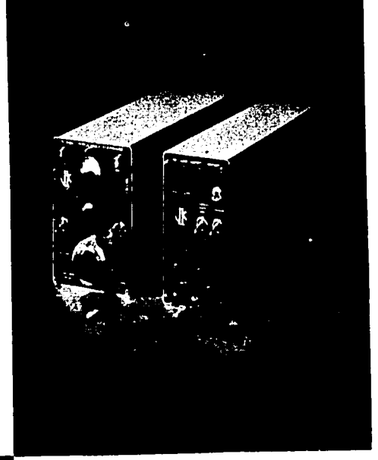
LONG DELAY LINES

Long Delay Lines may be specified with carrier frequencies in the range from 10 mc to 40 mc. Spurious signal attenuation shown in the following table applies only to frequency range 25-40 mc. *See footnote.*

GROUP	DELAY TIME RANGE (microseconds)	UNWANTED SIGNALS (db DOWN) Spurious	UNWANTED SIGNALS (db DOWN) 3rd Time	GROUP	DELAY TIME RANGE (microseconds)	UNWANTED SIGNALS (db DOWN)
A	30-400	50	40	D	500-1600	55
B	200-700	55	45	E	600-2000	55
C	300-1400	60	55	F	1000-2700	50
				G	600-3300	45
				H	1300-4500	45

Note: Best attenuation of spurious signals is achieved in medium delay time ranges and at higher carrier frequencies. Dependent upon loss level requirements, bandwidth may be estimated from 35% to 40% of carrier frequency. Loss and bandwidth characteristics are interdependent and are controlled by choice of terminations, carrier frequency and transducer capacity.

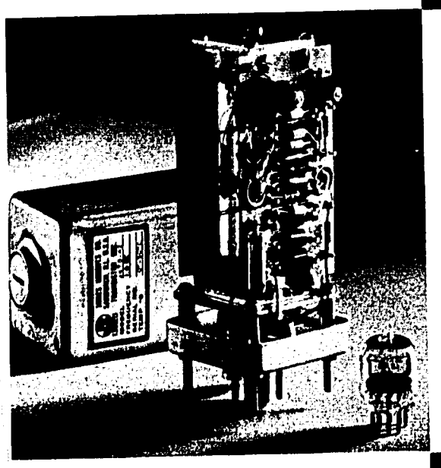
JK SULZER FREQUENCY STANDARDS



Fully-transistorized FS-1100T Frequency Standard: Normal output is 1.0 mc. and 100 kc. simultaneously with 1 volt available to 50 ohm loads. Provides minimum stability of 5 x 10^{-10} per day after initial aging. Features double proportional control oven.

Companion FS-1100TP Power Supply: Operates on 115 V. AC. Features internal nickel-cadmium battery for stand-by power up to 12 hours. Permits transport of operating unit.

Supplemental FS-1100TD Frequency Divider: All sub-harmonics, including the commonly used 1000 cycles, 400 cycles, 60 cycles, and down to as low as .01 pulse per second, have the same order of stability: 5 x 10^{-10}/Day or better.



JK OSCILLATORS

Compact, precision plug-in signal sources. 60 cps through 75 mc. Sine and square wave outputs. Stabilities 1 x 10^{-6}/Day to 5 x 10^{-9}/Day. Silicon transistors. A wide range of models including the following:

JKTO-43: For frequency stability of 5 x 10^{-9}/Day, under normal conditions. Transistorized proportional control oven, hermetically-sealed, shock and vibration resistant. 100 kc. to 50 mc.

JKTO-23: Meets applicable aircraft equipment specifications with maximum frequency deviation of 2-5 x 10^{-8}. Long-life oven. Hermetically-sealed. 800 kc. to 75 mc.

JKTO-9: Popular, compact, general-use, wide-range oscillator. 1 x 10^{-6}/Day class. 20 kc. to 10 mc.

JK CRYSTAL FILTERS

Compact, rugged, hermetically-sealed and stable: Frequency Range 1 kc. to 40 mc., available to 150 mc. Band widths as narrow as .01%, and up to as high as 10%, for certain frequencies.

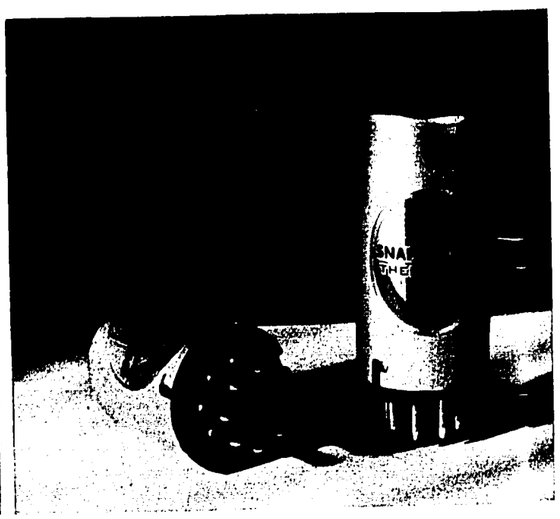
JK CRYSTALS

Precision Glasline Crystals: From 1 kc. to 150 mc. Designs for frequency standards available at 1 mc. to 5 mc. (with stabilities of 1 x 10^{9}) and at 100 kc. (with stability of 1 x 10^{8}).

Military Crystals: Meet all requirements outlined in specifications—MIL-C-3098B, MIL-C-16C, MIL-C-17167, etc.

Standard Crystals: Manufactured to a variety of specifications. Used as replacement crystals and as original equipment components.

Amateur and Citizens' Band Crystals: For transmitters, receivers, calibrators, etc.



JK THERMYSTALS

Precision-matched crystal-and-oven combinations featuring maximum stability, accurate calibration and high "Q". Types JK023T and JK026T available from 35 KC through 75 MC. Typical frequency tolerance in 25°C ambient:

At 100 KC = 0.25PPM
at 1000 KC = 0.10PPM

Write for Technical Literature

For details, circle #349 on Reader Service Card

JK CRYSTAL AND COMPONENT OVENS

Versatile, precise, compact: Available with snap-action or glass-sealed thermostats, or proportional control, depending on application. Wide range of sizes and shapes, for virtually any requirement.

JK PRODUCTS

FREQUENCY MANAGEMENT

PRODUCTS OF THE JAMES KNIGHTS COMPANY SANDWICH, ILLINOIS

Directory II. Components

56. Crystals & Accessories.

Fidelitone Microwave, Inc., Ill., 5sc

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 10c, Tel: 216-SHadyside 9-0700
See ad in class 50

General Crystal Co., Inc., Wis., 30sc

General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 45c

General Microwave Corp., N.Y., 5c

General Precision Equipment Corp., Kearfott Semiconductor Corp. (Subsid.), Mass., 20c, 45c

General Precision, Inc., Subsid of General Precision Equipment Corp., N.Y., 20sc

Geoscience Instruments Corp., N.Y., 20c, 25c, 40c, 45c

Glass-Tite Industries, Inc., R.I., 5sc, 30sc

Greenray Industries, Pa., 10c

Harshaw Chemical Co., Crystal Div., Ohio, 20c, 45c

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 5s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28

High Vacuum Equipment Corp., Mass., 10c

Hill Electronics, Inc., 300 N. Chestnut St., Mechanicsburg, Pa., 10s, 30s, Tel: 717-POplar 6-7611
See ad in class 59

Hoffman Co. (P. R.), 321 Cherry St., Carslisle, Pa., 20c, 30s, 35s, 45c, Tel: 717-CHapel 3-2011
See ad in class 99

Howard Crystal Holders, Inc., Mo., 5s

Hunt Corp., 453 Lincoln St., Carlisle, Pa., 10sc, 30sc, Tel: 717-CHapel 9-2232
See ad in this class

International Crystal Mfg. Co., Inc., Okla., 10s, 30c

International Rectifier Corp., Dallons Laboratories, Inc. (Subsid.), Calif., 30sc

Irvan Engineering Co., Inc., Calif., 40c

Itek Electro-Products Co., Div. of Itek Corp., 75 Cambridge Pkwy., Cambridge 42, Mass., 10c, 30c, Tel: 617-UNiversity 4-7200
See ad in class 59

J.V.M. Microwave Co., Ill., 5c

Javex Electronics, Calif., 5s

Jefferson, Inc. (Ray), Pa., 5sc, 30sc

Kahle Engineering Co., 3319 Hudson Ave., Union City, N.J., 10c, Tel: 201-UNion 7-6500
See ad in class 99

Keystone Electronics Co., N.J., 5s, 10s, 30s

Knapic Electro-Physics, Inc., Calif., 20c, 45c

Knights Co. (James), 101 E. Church St., Sandwich, Ill., 5sc, 10sc, 30sc, Tel: 2141
See ad in this class

Kost Products Co., Inc., Ill., 5sc

Lavoie Laboratories, Inc., Matawan-Freehold Rd., Morganville, N.J., 10sc, Tel: 201-LOwell 6-2600
See ad in class 37

Le-Hi Electrical Co., N.J., 20s, 45s

Lewis Co., Inc. (E. B.), Conn., 5c, 10c, 30sc

Litton Industries, Inc., Components Group, Airtron Div., N.J., Yttrium-Garnet c, 25c

Manson Laboratories, Inc., Conn., 10sc

Marconi's Wireless Telegraph Co., Ltd., N.Y., 10s, 30s

Marine View Electronics, Inc., N.Y., 5c

Materials for Electronics, Inc., N.Y., 15s

Materials Research Corp., N.Y., 10s

McCoy Electronics Co., Dept. IRE-10, Chestnut & Watts Sts., Mount Holly Springs, Pa., 30c, Tel: 717-HUnter 6-3411
See ad in this class

Meller Co. (Adolf), R.I., 40sc

Micarta Fabricators, Inc., Ill., 5c

Microlab, 570 W. Mount Pleasant Ave., Livingston, N.J., 5sc, Tel: 201-WY-man 2-5700
See ad in class 66

Microphase Corp., Conn., 5sc

Microwave Associates, Inc., South Ave., Burlington, Mass., 5s, 45s, Tel: 617-BRowning 2-3000
See ad on page 178

Microwave Chemicals Laboratory, Inc., N.Y., 25sc, 35sc

Midland Mfg. Co., Kans., 30sc

Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 20c, 30c

Monitor Products Co., Inc., Calif., 10c, 30c

Monsanto Chemical Co., Plastics Div., Mass., 45sc

Mytron, Inc., Mass., 5sc

NRC Equipment Corp., Mass., 5sc, 10sc

National Radiac, Inc., N.J., 5s

National Radio Co., Inc., Mass., 5s

Nebel Laboratory (R. E.), N.Y., 5c, 30sc

Northern Engineering Laboratories, Inc., 845 Beloit St., Burlington, Wis., 10sc, 30sc, Tel: 414-ROckwell 3-3591
See ad in this class

Ovenaire, Inc., Va., 10sc

Palmer Instruments, Calif., 10c, 30c

Perrott Engineering Laboratories, Inc., Subsid. of Federated Electronics, Inc., Va., 5c, 10sc, 15c, 20sc, 30c, 40c, 45sc

Petersen Radio Co., Inc., Iowa, 30sc

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Pacemaker in Stability

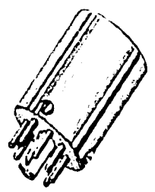
QUARTZ CRYSTALS

High Stability-Close Tolerance

Wherever Exacting Frequency Control Is Necessary

Temperature Controlled OVENS

Flexible In Design Superior Stability



THE Hunt CORPORATION
PRECISION CRYSTALS
CARLISLE, PA.

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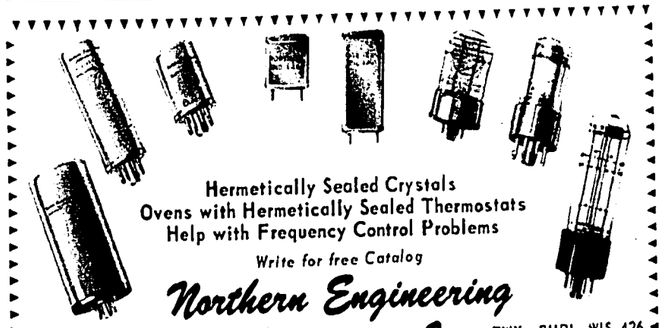

Hermetically Sealed Crystals
Ovens with Hermetically Sealed Thermostats
Help with Frequency Control Problems

Write for free Catalog

Northern Engineering Laboratories, Inc.

ROckwell 3-3591
845 Beloit St.

TWX: BURL WIS 426
Burlington, Wis.

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

mCoy

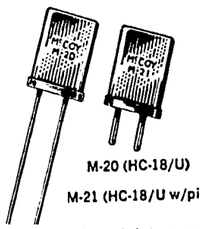
CRYSTALS & CRYSTAL FILTERS

Regardless of its size, type, or frequency any crystal bearing the name mCoy can be relied upon to deliver the ultimate in frequency control despite wide temperature variations and extreme conditions of shock and vibration.

M-1 (HC-6/U)

METAL ENCASED STANDARD SIZE AND MINIATURE CRYSTAL UNITS

shown actual size



M-20 (HC-18/U)

M-21 (HC-18/U w/pins)

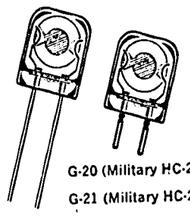
The crystals that made the name of McCoy a synonym for quality. Metal encased, HC-6/U size is available in frequencies from 500.0 kc to 200.00 mc.

Fills the need for miniature crystals in frequencies from 2.5 mc to 200.0 mc. Meets specs MIL-C-3098B and ARINC No. 401.

G-1 (Military HC-27/U)

ALL GLASS STANDARD SIZE AND MINIATURE CRYSTAL UNITS

shown actual size

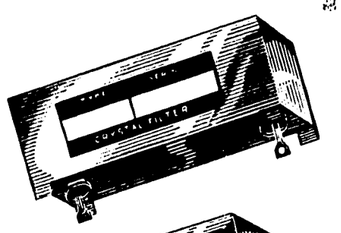


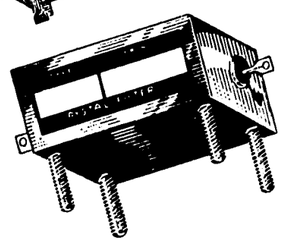
G-20 (Military HC-26/U)

G-21 (Military HC-29/U)

This vacuum sealed, hard glass crystal unit possesses all of the quality features for which the McCoy M-1 is so famous. It has long term frequency stability five times better than the conventional metal types. Available in frequencies from 500 kc to 200 mc.

This vacuum sealed, hard glass crystal unit meets the new CR-73/U and CR-74/U specifications. It has long term frequency stability five times better than the conventional metal type. Available in frequencies from 5000 kc to 200 mc.



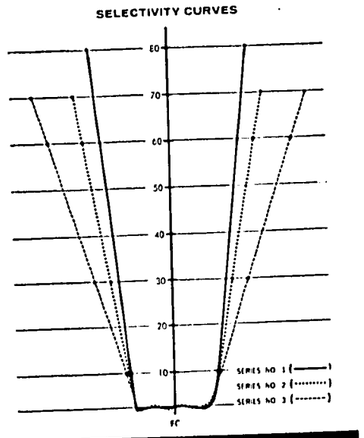


CRYSTAL FILTERS

Our many years experience in designing and producing top quality oscillator crystals have enabled us to develop and produce filters of equal desirability. Current production includes filters in the 1.0 mc to 30 mc range, with bandwidths of .01% to 4.0% of center frequency. A number are available without costly design and prototype charges.

Actual Size for Series 3 Types

SELECTIVITY CURVES



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MICRO MODULE CRYSTALS—GLASS

.28" square x .110" thick
frequency range: 7000 kc to 200 mc
Now available in limited quantities

Write today for our free illustrated catalogs which include complete listing of military specifications. For specific needs, write, wire or phone us. Our research section is anxious to assist you.

mCoy

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Phone: HUnter 6-3411

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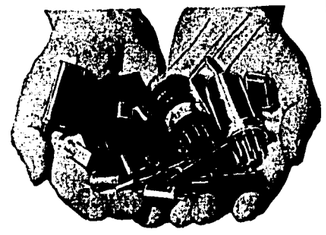
Directory II. Components

56. Crystals & Accessories.

Philco Corp., Lansdale Div., Pa., 20s, 45s
Philips Electronics Industries, Ltd., Canada, 30s
Piezo Crystal Co., Pa., 5sc, 10sc, 30sc, 40c
Precision Crystal Laboratory, Calif., 10c, 30s
Precision Piezo Service, La., 30c
Premier Research Laboratories, Inc., N.Y., 5s, 10sc, 30sc
Pyrocircuits Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 40c, Tel: 516-POrt Washington 7-3949
See ad in class 50
R F Products, Div. of Amphenol-Borg Electronics Corp., 33 E. Franklin St., Danbury, Conn., 5sc, Tel: 203-PIoneer 3-9272
See ad in class 80
Radiation Counter Labs., Inc., Ill., 5s
Reeves-Hoffman, Div. of Dynamics Corp. of America, 145 Cherry St., Carlisle, Pa., 10c, 30c, Tel: 717-CHapel 3-5929
See ad in this class, page 468
Republic Lens Co., Inc., 31 E. 169th St., New York 52, N.Y., 20c, 30c, Tel: 212-CYpress 3-2790
See ad in class 17
Sage Laboratories, Inc., 3 Huron Dr., East Natick Industrial Park, Natick, Mass., 5sc, Tel: 617-OLympic 3-0844
See ad in class 66
Salford Electrical Instruments, Ltd., England, 10s, 30s
Sanders Associates, Inc., N.H., 5s
Savoy Electronics, Inc., Fla., 30sc
Savoy Electronics, Inc., Ga., 30c
Schutter Microwave Corp., N.Y., 5sc
Scientific Radio Products, Inc., Colo., 30c
Scientific Radio Service, Md., 30c
Semi-Elements, Inc., Pa., 15s, 20s, 25s, 30c, 35s, 40s, 45s
Sherold Crystals, Inc., Truman Rd. & McGee Trafficway, Kansas City 8, Mo., 5c, 10c, 30c, 35c, Tel: 816-VIctor 2-9792
See ad in this class
Sigma Electronics Research Corp., Wash., 5s
Smith, Inc. (Herman H.), Dept. 12, 2326 Nostrand Ave., Brooklyn 10, N.Y., 5s, Tel: 212-CLoverdale 3-7900
See ad in class 62
Snelgrove Co., Ltd. (C. R.), Canada, 10sc, 30sc
Solid State Materials Corp., Mass., 15sc, 20sc, 25c, 40sc, 45sc
Solitron Devices, Inc., N.J., 45sc
Standard Telephones & Cables, Ltd., England, 30sc, 45sc
Staver Co., Inc., N.Y., 5c
Stokes Corp. (F. J.), Pa., 45 Refining s
Stratocon Corp., N.J., 10c
Swiss Jewel Co., Pa., 40c
Sylvania Electric Products Inc., Chemical & Metallurgical Div., Pa., 15s, 20s, 45s
Syncor Products Co., 30 Eastern Ave., P.O. Box 51, Malden 48, Mass., 30c, 40c, Tel: 617-DAvenport 2-1364
See ad in this class
TRG, Inc. (Technical Research Group), 9 Union Square, Somerville 43, Mass., 5s, Tel: 617-MOnument 6-8680
See ads in classes 44, 66
TRG, Inc. (Technical Research Group), N.Y., 5c, 40c, 45c
Tang Industries, Inc., Mass., 10c, 20sc, 35sc, 45sc
Texas Crystals, Fla., 5s, 30s
Thermalic Electronics Corp., Calif., 10sc
Thermel, Inc., R.I., 10c
Thermolloy Co., Texas, 5sc
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s, 20s, 30s, 45s



LET **SHEROLD** SOLVE YOUR CRYSTAL PROBLEMS

Complete, advanced engineering laboratory is at your disposal.

Whether your need is for one special frequency crystal—or thousands, you can be assured of quality manufacture and unexcelled performance when you specify Sherold . . . now one of the country's largest, exclusive producers of crystals for military and commercial requirements.

Write for complete data on your requirements.

Sherold Crystals inc.

Phone Victor 2-9792
Truman Road & McGee Trafficway
Kansas City, Mo.

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ONE STOP COMPLETE SERVICE for Precision Fabrication

Special Apparatus Manufactured for the Semi-Conductor Field

- FUSED QUARTZ • LABORATORY WEAR
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- GRADED SEALS • BOATS & CRUCIBLES

(of highest quality fused quartz for use in manufacture of Germanium and Silicon)

PLUS

Hard Material Fabrication to Extremely Close Tolerance

- *FUSED QUARTZ • SAPPHIRE • OPTICAL PARTS*
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Any materials drilled, machined, and shaped, and/or may be coated with silver to specifications.

PRECISION

ACCURATE SYNCOR PRODUCTS COMPANY

SYNCOR PRODUCTS CO.

Box 51, Malden 48, Mass Plant at 30 Eastern Ave

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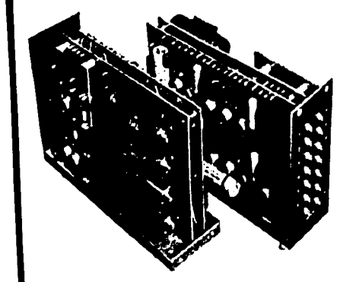
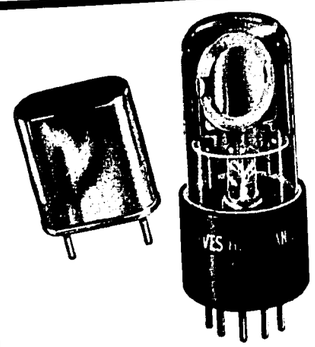
REEVES-HOFFMAN
FREQUENCY SOURCES, CRYSTALS, OVENS, FILTERS



PACKAGED OSCILLATORS

TRANSISTORIZED AND HARD TUBE TYPES of Reeves-Hoffman packaged oscillators are available in a frequency range from 100 cps to 100 mc. Stability is up to 1 part in 10^9. Packaged to your specifications.

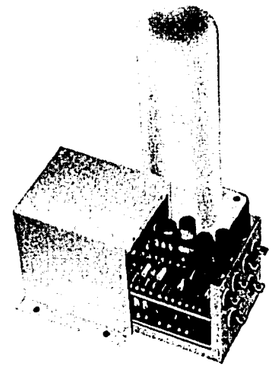
PRECISION FREQUENCY STANDARDS have a basic frequency of 5 mc and are available with auxiliary circuitry for division to 100 kc, 1 mc and 10 mc. Stability is up to 1 part in 10^9 per day. Packaged to your specifications.



CRYSTALS

STANDARD TYPES of Reeves-Hoffman crystals, for all commercial and military applications, are available in a frequency range from 1 kc to 100 mc. Hermetically sealed in metal holders.

PRECISION TYPES of Reeves-Hoffman crystals, for use in high precision oscillators and secondary frequency standards, are available in a frequency range from 1 kc to 5 mc. Hermetically sealed in glass holders with standard radio tube bases.



OVENS

OVENS for precise temperature control are available in three types:

PROPORTIONAL CONTROLLED, for precise frequency standards, hold within 1/100th of 1° C at any fixed ambient.

THERMOSTATICALLY CONTROLLED, for high reliability requirements, hold within 1/10 of 1° C at any fixed ambient.

SNAP-ACTION CONTROLLED, for rugged military requirements, hold within 1° C at any fixed ambient.

FILTERS CRYSTAL FILTERS are available in a frequency range from audio to 30 mc.

Compact, rugged and highly reliable Reeves-Hoffman components are available in standard types or will be designed and manufactured to your specifications.

Most units can be designed to withstand up to 10 g at 5 to 2000 cps. Write for complete details.

REEVES-HOFFMAN

DIVISION OF DYNAMICS CORPORATION OF AMERICA • CARLISLE, PENNSYLVANIA

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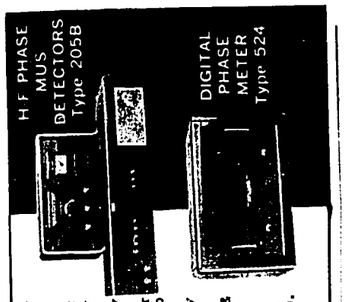
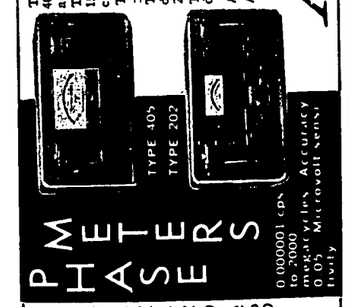


Type 405H: 8 cps to 500 kc. Type 405: 8 cps to 100 kc. Type 405L: 1 cps to 20 kc. No amplitude adjustment; 0.25° relative accuracy.
Type 205A1-A2: 100 kc to 15 mc: Accuracy 0.05°. Type 205B1: 15 mc to 400 mc. Type 205B2-3: 15 mc up to 2000 mc. Accuracy ±0.05°.
Type 202: 20 cps to 40 kc. 1° full scale sensitivity. Accuracy ±0.02° or 2%.
Type 524 Digital Phase Meter: Digital readout in four digits. No amplitude or frequency adjustment. 20 cps to 20 kc.
Type 1002 Phase Angle Counter: Digital readout; frequency down to 0.0001 cps. Accuracy ±0.5°.

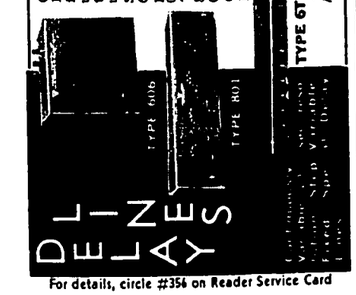
Miniature Pre-Amplifiers, Variable Bandpass Filters, & Magnetic Amplifier Relays available.

AD-YU ELECTRONICS LAB, INC.
249 Terhune Avenue, Passaic, New Jersey



CONTINUOUSLY VARIABLE DELAY LINES 500 Series: Rise time 4%; impedance 50 to 1500 ohms; total delay up to 30 us. 801 Series: Impedance 500 to 2500 ohms; total delay up to 200,000 us.
STEP VARIABLE DELAY LINES 602-3 Series: Equal input and output impedance 75 to 500 ohms. 11 different steps; total delay 0.2 to 2.5 us; impedance 75 to 500 ohms. TAPPED DELAY LINES 5T, 6T, 7T, 8T, 9T, 10T & 11T Series: Total delay 0.1 to 224,000 us; impedance 50 to 15,800 ohms.
MINIATURE DELAY LINES 6C, 7C Series: Total delay 0.082 to 1,284 us; impedance 75 to 4000 ohms.

Special delay lines built to meet MIL specifications.



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Directory II. Components

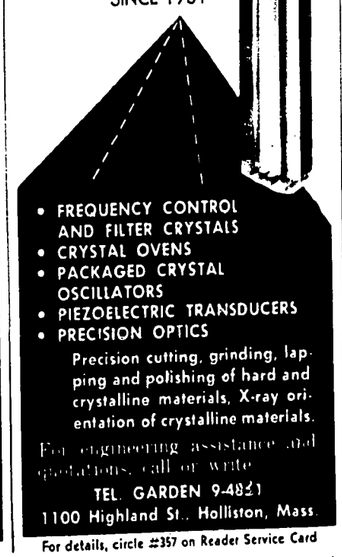
56. Crystals & Accessories.

Tinsley Laboratories, Inc., Calif., 20c, 30c, 40c, 45c
Trans-Tech, Inc., Md., 25sc
Transitron Electronic Corp., Mass., 45sc
Trionics Corp., Div. of Nautec Corp., Wis., 25c
Uni-Seal, Inc., N.J., 5c
Union Carbide Corp., Linde Co. (Div.), N.Y., 40sc
Valpey Crystal Corp., 1100 Highland St., Holliston, Mass., 5sc, 10sc, 20c, 30sc, 35c, 40c, 45c, Ruby sc, Tel: 617-GArden 9-4851
See ads on page 219 & in this class
Vap-Air Div., Vapor Corp., Ill., 10c
Var-Lac-Oid Chemical Co., N.Y., 15c, 20c, 25c, 35c, 45c
Waldom Electronics, Inc., Ill., 5s
Waltham Electronics Corp., Mass., 10sc
Warren Components Div., El-Tronics, Inc., Pa., 5c
Waveline, Inc., N.J., 5s
Wright Electronics, Div. of Pacific Industries, Inc., Mo., 10s, 30sc

Current governors:
See class 72

VALPEY CRYSTAL CORP.

CRAFTSMANSHIP IN CRYSTALS SINCE 1931



- FREQUENCY CONTROL AND FILTER CRYSTALS
- CRYSTAL OVENS
- PACKAGED CRYSTAL OSCILLATORS
- PIEZOELECTRIC TRANSDUCERS
- PRECISION OPTICS

Precision cutting, grinding, lapping and polishing of hard and crystalline materials, X-ray orientation of crystalline materials.

For engineering assistance and quotations, call or write

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1100 Highland St., Holliston, Mass.

For details, circle #357 on Reader Service Card

Decoders:
See class 10

57. Delay Lines.

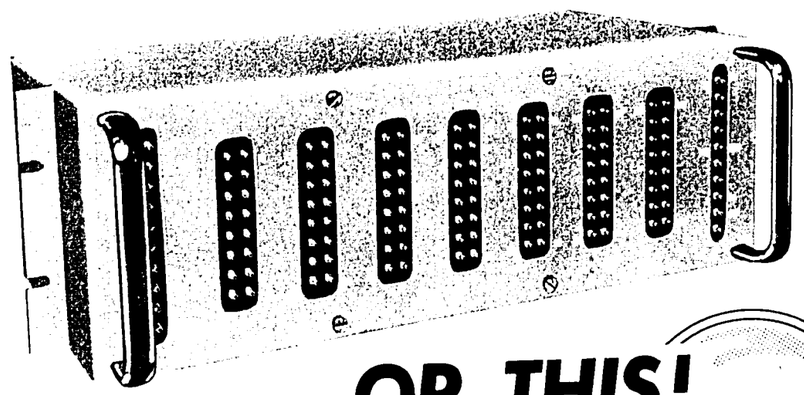
5. Decade
10. Digital
15. Distributed constant, fixed
20. Distributed constant, variable
25. Magnetostrictive
30. Lumped constant, fixed
35. Lumped constant, variable
40. Ultrasonic

ACDC Electronics, Inc., 2979 N. Ontario St., Burbank, Calif., 15c, 30c, Tel: 213-VIctoria 9-2414
See ad in class 69
A C Electronics, Inc., Calif., 15c, 20c, 30c, 35c
AMP, Inc., Pa., 15s, 20s, 30s, 35s
AMP, Inc., Capitron Div., Pa., 15c, 30c
A-T Electronics, Inc., 15 Lawrence St., New Haven 8, Conn., 15c, Cable c, Tel: 203-STate 7-2131
See ad in class 91
Ad-Yu Electronics Laboratory, Inc., 249 Terhune Ave., Passaic, N.J., 5sc, 15sc, 20sc, 30sc, 35sc, Tel: 201-GRegory 2-5622
See ad in this class
Admiral Corp., Ill., 30c, 35c
Advanced Development Laboratories, Inc., N.H., 15c
Aerocoil, Inc., N.J., 5c, 10c, 30c
Aga Corp. of America, N.J., 20c
Allen Avionics, Inc., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c
Andersen Laboratories, Inc., Conn., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Arenberg Ultrasonic Laboratory, Inc., 94 Green St., Jamaica Plain 30, Mass., 40sc, Tel: 617-JAmaica 2-8640
See ad in class 38
Artronic Instrument Co., Md., 5c, 10c, 15c, 20c, 30sc, 35c
Automatic Coil Co., Inc., N.Y., 15c, 20c, 30c, 35c
Automation Research & Design Associates, N.J., 25c
Basic & Experimental Physics, Mass., 10c, 25c, 40c
Beckman Instruments, Inc., Helipot Div., Calif., 20sc
Bel Fuse, Inc., 198 Van Vorst St. at Morris St., Jersey City 2, N.J., 15sc, Tel: 201-HEnderson 2-0463
See ad in this class
Bendix Corp., Industrial Controls Section, Mich., 25s
Bendix Corp., York Div., Pa., 15c, 20c, 25c, 30c
Bliley Electric Co., Union Station Bldg., Erie, Pa., 40c, Tel: 814-GLendale 6-7561
See ad in class 56
Bowitz Electronics, Calif., 20c, 35c
Brewland Co., Inc. (Richard D.), N.H., 5c, 10c, 15c, 20c, 30c, 35c, 40c
Bulova Watch Co., Inc., Electronics Div., Dept. A-1376, 61-10 Woodside Ave., Woodside 77, N.Y., 30c, 35c, Tel: 212-NEwtown 9-5700
See ad in class 56

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

DELAY LINES

CAN LOOK LIKE THIS...



5000 μsec delay
Standard EIA Rack Mounted
19" x 5.25" x 10"

OR THIS!

.005 μsec delay
P. C. Mounted
.35" x .35" x 3.00"

...SICKLES makes both!

We also make what seem to be infinite variations in-between. We make thousands of some units daily; only a few each week of others; and there are still others of which we may make only one piece altogether.

As world largest mass producer of delay lines our prices reflect custom manufacture at mass production costs.

Let us solve your delay line problems involving . . .

✓ DESIGN
✓ PRICE
✓ QUALITY
✓ SERVICE . . .

DELAY LINES by

GENERAL INSTRUMENT CORPORATION **F. W. SICKLES DIVISION**

World's Largest Mass Producer of DELAY LINES

165 FRONT STREET (P.O. Box 330) CHICOPEE, MASSACHUSETTS • LYceum 4-4781

Other Plants at Joliet, Illinois and Waterloo, Ontario, Canada

For details, circle #358 on Reader Service Card

Directory II. Components

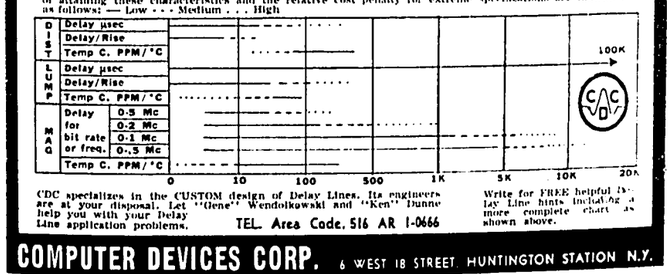
57. Delay Lines.

Burnell & Co., Inc., Dept. IR-2, 10 Pelham Parkway, Pelham Manor, N.Y., 15sc, 20sc, 30sc, Tel: 914-PElham 8-5000
See ad on page 106
C & K Components, Inc., Mass., 30c
California Computer Products, Inc., Calif., 10c
Canadian Marconi Co., Canada, 30c
Capehart Corp., N.Y., 5c, 15c, 20c, 30c, 35c
Coilcraft, Inc., Ill., 5c, 15c, 30c
Columbia Technical Corp., N.Y., 5c, 10c, 15s, 20c, 25c, 30sc, 35c
Com-Tronics, Inc., Calif., 5c, 10c, 15c, 20c, 30sc, 35c
Communication Accessories Co., U.S. Highway 50 & 71 By-Pass, Lee's Summit, Mo., 30c, Tel: 816-LAclede 4-3500
See ad on page 112
Computer Control Co., Inc., Eastern Div., 983 Concord St., Framingham, Mass., 10sc, 25sc, 30s, Tel: 617-TRinity 5-6185
See ad in class 8
Computer Control Co., Inc., Western Div., 2251 Barry Ave., Los Angeles 64, Calif., 10sc, 25sc, 30s, Tel: 213-GRanite 8-0481
See ad in class 8
Computer Devices Corp., 6 W. 18th St., Huntington Station, L.I., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, Tel: 516-AR 1-0666
See ad in this class
Computer Equipment Corp., Calif., 10c
Consolidated Avionics Corp., N.Y., 10c, 25c
Control Electronics Co., Inc., 10 Stepar Place, Huntington Station, L.I., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, Tel: 516-HAmilton 7-7961
See ad in class 59
Cook Electric Co., Cook Technological Center, Ill., 25c
Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 30sc
Corning Glass Works, Corning Electronic Components Div., 750 High St., Bradford, Pa., 10c, 40sc, Tel: 814-FOrest 2-5571
See ads in classes 48, 49, 74
Curtiss-Wright Corp., Electronics Div., N.J., 25sc, 40sc
Daven Co., Subsid. of General Mills, Inc., N.J., 10c, 15c, 30c
Deeco Instruments, Inc., Calif., 30c
Deltex Laboratories, Div. of Delta Exploration Co., Inc., Miss., 30c, 35c
Deltime, Inc., N.Y., 15c, 20c, 25sc, 30sc, 35sc, 40c
Developmental Electronics Corp., Calif., 5sc, 10c, 15sc, 20sc, 30sc, 35sc
Di/An Controls, Inc., Mass., 10sc
Dietz Design, Inc., Mo., 15c, 30c
Digital Equipment Corp., Mass., 10s
Dresser Electronics/HST Div., Texas, 30c, 35c
ESC Electronics Corp., N.J., 5sc, 10sc, 15sc, 20sc, 25c, 30sc, 35sc
El-Rad Mfg. Co., Ill., 5c, 10sc, 15c, 20c, 30c
Electric Wave Filters, Inc., Puerto Rico, 30c
Electro-Ceramics, Inc., Utah, 40c
Electro Winders Co., Inc., Calif., 15c, 30c
Engelhard Industries, Inc., Amersil Quartz Div., N.J., 40c
Epsco, Inc., Mass., 10c, 15c, 20c, 25c, 30c, 35c
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 35c, 40c
Ferranti Electric, Inc., N.Y., 25s
Filtron Co., Inc., N.Y., 5c, 10c, 15c, 20c, 30c, 35c
Forbes & Wagner, Inc., 350 Central Ave., Silver Creek, N.Y., 15c, 30c, Tel: 716-YEllowstone 4-2691
See ads in classes 33, 51, 57, 84
Friend Engineering (Albert W.), Pa., 30c, 35c
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 5c, 10c, Tel: 216-SHadyside 9-0700
See ad in class 50
General Electric Co., Heavy Military Electronics Dept., N.Y., 10c, 15c, 20c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
General Instrument Corp., Micamold Div., N.J., 30c
General Instrument Corp., F. W. Sickles Div., 165 Front St., P.O. Box 330, Chicopee, Mass., 15c, 20c, 30c, 35c, Tel: 413-LYceum 4-4781
See ad in this class
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 10c
General Precision, Inc., Librascope Div., Calif., 25c
General Radio Co., 22 Baker Ave., West Concord, Mass., 20s, Tel: 617-EMerson 9-4400
See ad on Cover 4
Geotronic Laboratories, Inc., Texas, 30s, 35s
Gudeman Co., Ill., 15sc, 30c, 35c
Gudeman Co. of California, Inc., Calif., 15sc, 30c, 35c
Gulow Transformer Co., Inc., N.J., 15s, 20s, 25s, 30s, 35s, 40s
Harman-Kardon, Inc., N.Y., 10c
Hewlett-Packard Co., 1030D Page Mill Rd., Palo Alto, Calif., 10s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28
Hewlett-Packard Co., Boonton Electronics Engineering Co. (Subsid.), N.J., 25c, 30c

DELAY LINES

DISTRIBUTED CONSTANT
LUMPED-CONSTANT
MAGNETOSTRICTIVE
FIXED / VARIABLE / TAPPED

This chart shows the range of Delay Line characteristics offered by CDC. The relative complexity of attaining these characteristics and the relative cost penalty for extreme specifications are indicated as follows: — Low . . . Medium . . . High



CDC specializes in the CUSTOM design of Delay Lines. Its engineers are at your disposal. Let "Gene" Wendolkowski and "Ken" Dunne help you with your Delay Line application problems.

TEL. Area Code. 516 AR 1-0666

Write for FREE helpful Delay Line hints including a more complete chart as shown above.

COMPUTER DEVICES CORP. 6 WEST 18 STREET, HUNTINGTON STATION N.Y.

For details, circle #359 on Reader Service Card

A LEADER IN THE MANUFACTURE OF DISTRIBUTED CONSTANT DELAY LINES

NANALINES

a new delay line concept for computer applications

FEATURING

- Multi-tapped Delays
- Extremely fast rise times
- Excellent pulse fidelity
- Dramatic cost savings over comparable "lumped" circuitry

FOR INFORMATION, CONTACT

BEL FUSE INC.

Van Vorst & Morris Streets
Jersey City 2, N.J.
HEnderson 2-0463 TWX JCY 963

For details, circle #360 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226

PCA

MAGNETIC COMPONENTS

-designed for reliability

-built for reliability

-tested for reliability

Designed to meet the industry's most critical requirements for reliability, PCA's wide varieties of Delay Lines, Pulse Transformers and Filters are available from stock or may be obtained on special order, with a minimum of lead time, to meet the most stringent military or commercial applications.

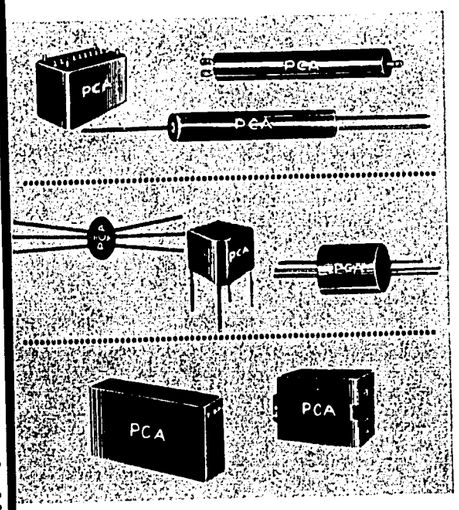
Our staff of engineers, embracing some of the country's foremost experts in the field of pulse techniques, is at your disposal for the custom manufacturing of: distributed constant delay lines, lumped constant delay lines, pulse transformers, transistor transformers, toroids and filters.

Write us direct or see your nearest PCA representative.

DELAY LINES

PULSE TRANSFORMERS

FILTERS



Our 11th Year as America's Foremost Manufacturer of Magnetic Components

ELECTRONICS, INC.

16799 SCHOENBORN STREET, SEPULVEDA, CALIFORNIA,

EMpire 2-0761

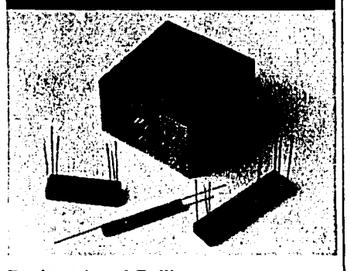
For details, circle #361 on Reader Service Card

Directory II. Components

57. Delay Lines.

Hisonic, Inc., Kans., 30c
International Rectifier Corp., Dallons Laboratories, Inc. (Subsid.), Calif., Mercury-Pulse sc
International Telephone & Telegraph Corp., ITT Federal Laboratories, Ind., 30c, 35c
International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 30c, 35c
Itek Laboratories, Div. of Itek Corp., Mass., 20c, 25c
JFD Electronics Corp., 6101 16th Ave., Brooklyn 4, N.Y., 5c, 10c, 15sc, 20sc, 30sc, 35sc, Tel: 212-DEwey 1-1000
See ad on pages 56-57
Jacobs Instrument Co., Md., 5c, 10c, 30c, 35c
Jet Electronics Corp., Calif., 15c, 30sc
Johnson Electronics, Inc., Fla., 30c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 10sc, 15sc, 20sc, 25sc, 30sc, 35sc
Laboratory For Electronics, Inc., Mass., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Lewis Co., Inc. (E.B.), Conn., 40c
Lignes Telegraphiques et Telephoniques, France, 15s, 20s
Ling Temco Vought, Inc., Texas, 40c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 25c, 40c
Lockheed Electronics Co., N.J., 10sc
Lumatron Electronics, Inc., 116 County Courthouse Rd., New Hyde Park, L.I., N.Y., 15s, 20s, Tel: 516-PIoneer 7-3200
See ad in class 23
Marconi's Wireless Telegraph Co., Ltd., N.Y., 40s
May Engineering Co., Calif., 5c, 30c, 35c
Microsecond Electronics, Inc., Ariz., 5c, 10c, 15c, 30c, 35c
Microsonics, Inc., Hingham Industrial Center, Hingham, Mass., 25sc, 40sc, Tel: 617-RIverview 9-3100
See ad in this class
Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 15sc, 30c, Tel: 617-DAvenport 4-4108
See ad in class 51
Morey Corp., Ill., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
National Ultrasonic Corp., N.J., 25sc, 40sc
New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy., Somerville 43, Mass., 40c, Tel: 617-625-6100
See ad in class 84
Nytronics, Inc., Essex Electronics Div., N.J., 15sc, 30sc
Ortho Magnetics, Inc., Pa., 30c, 35c
Osborne Electronics Corp., Ore., 5c, 30c
PCA Electronics, Inc., 16799 Schoenborn St., Sepulveda, Calif., 15sc, 20sc, 30sc, 35c, Tel: 213-EMpire 2-0761
See ad in this class
Packard-Bell Electronics Corp., Calif., 15c, 20c, 30c, 35c
Pastoriza Electronics, Inc., Mass., 10c, 30c, 35c
Pennwood Numechron Co., 7249 Frankstown Ave., Pittsburgh 8, Pa., 10c, Tel: 412-FRemont 1-4200
See ad in class 11
Philco Corp., Government & Industrial Group, Pa., 10c
Plug-In Instruments, Inc., Tenn., 10s
Polyphase Instrument Co., Pa., 30c
Power Industries, Inc., Ill., 30c, 35c, 40c
Power-Tronic Systems, Inc., N.Y., 25sc
Premier Microwave Corp., 33 New Broad St., Port Chester, N.Y., 15c, Tel: 914-WEstmore 9-8900
See ad in class 50
Ram Electronics, Inc., N.J., 5c, 10c, 30c, 35c
Raytheon Co., Industrial Components Div., Mass., 25c

DELAY LINES



Designed and Built *by* Forbes and Wagner

Stock Distributed Constant Lines with a delay to rise time ratio of up to 10 to 1.

Stock Lumped Constant Lines with a delay to rise time ratio of up to 50 to 1.

Custom designed units with a delay to rise time ratio of up to 150 to 1.

Stock Delay Lines range from 10 nanoseconds to 5 milliseconds delay.

Fixed and Variable Delay Networks to customers specifications.

Catalog of stock units available approximately September 15.

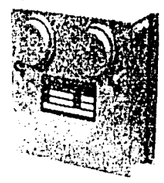
forbes and wagner, inc.

350 Central Avenue

Silver Creek, N.Y. • Phone VE 4-2691

For details, circle #362 on Reader Service Card

ULTRASONIC DELAY LINES



MICROSONICS Inc.

GENERAL—Delay .4 to 10,000 μsec at frequencies from 10 to 400 mc Wide bandwidth and low spurious response for excellent pulse reproduction and dynamic range.

SPECIAL DESIGN—Designs available for minimum size and weight using folded construction. Dual channel lines operating at different frequencies with separate input and output transducers. Tapped delay lines to provide trigger channels which precede the signal channel.

TEMPERATURE CONTROL—Various designs are available for temperature control to provide multiple delay lines matched to nanoseconds in accuracy.

MAGNETO-STRICTIVE—Featuring compact and reliable designs with delays from 5 to 10,000 μsec, for information storage up to 1 mc.

SYSTEMS USING MICROSONICS DELAY LINES:
ASR-2, 3, 4, 5; UPS-1; FPS-30; SPS-38; SPS-6; ARSR; CPN-18; HAWK; APQ-72; MPS-23 etc.

MICROSONICS Inc.

Hingham Industrial Center
Hingham, Massachusetts
Riverview 9-3100

For details, circle #363 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

57. Delay Lines.

Redman Electronics Corp., Conn., 30c
Reed & Reese, Inc., Calif., 30c, 35c
Rixon Electronics, Inc., Md., 5c, 10c, 15c, 20c, 30c, 35c
Rytron Co., Inc., Calif., 30c
Sangamo Electric Co., Springfield, Ill., 15c, 25c, 30c, 40c, Tel: 217-KIngswood 4-6411
See ad on page 142
Scanwell Laboratories, Inc., 6601 Scanwell Lane, Springfield, Va., 20c, 35c, Tel: 703-FLeetwood 4-5800
See ad in class 44
Shallcross Mfg. Co., N.C., 5sc, 15sc, 20sc, 30sc, 35sc
Solar Mfg. Corp., Calif., 40c
Sparton Electronics, Div. of Sparton Corp., Mich., 15c, 20c, 30c, 35c
Sperry Rand Corp., Wheeler Electronic Corp. (Subsid.), Conn., 30c
Sprague Electric Co., Mass., 30c
Stelma, Inc., Conn., 10c
Stewart-Warner Corp., Ill., 15c, 30c
Straza Electronics, Calif., 10sc
Sturrup, Inc., Conn., 40sc
Technitrol, Inc., Pa., 15s, 30s, 35c
Technology Instrument Corp., Mass., 30sc, 35sc
Technology Instrument Corp. of California, Calif., 30c
Telegraph Condenser Co., England, 5c
Thompson Ramo Wooldridge Inc., STL Products Div., Calif., 20sc
Time & Frequency, Ill., 25c, 40c
Toko Radio Coil Laboratories, Ltd., Japan, 15c
Transco Products, Inc., Calif., Microwave c
Transistor Applications, Inc., Mass., 40c
Turbo Machine Co., Pa., 40 Microwave c
U.S. Sonics Corp., Mass., 40sc
United Transformer Corp., 150 Varick St., New York 13, N.Y., 30c, Tel: 212-ALgonquin 5-3500
See ad on Cover 2
Valor Instruments, Inc., Calif., 10sc, 15sc, 20sc, 30sc, 35sc
Vanguard Electronics Co., Calif., 15sc, 30sc
Whitewater Electronics, Inc., Wis., 15c, 30c, 35c
Wilcox Electric Co., Inc., Mo., 5c, 10c, 30sc, 35c
Wunderlich Radio Co., N.Y., 15sc, 20sc, 25sc, 30sc, 35sc

Dials & dial assemblies:
See class 97

Digital delay lines:
See class 57

Diode clips:
See class 78

Diode testers:
See class 41

Diodes:
See class 76

Diodes, selenium:
See class 71

Disks, recording:
See class 70

Display & readout devices:
See class 9

Displays, artificial & video:
See class 2

Displays, indicator:
See class 63

Dissipators, heat:
See class 105

Dividers, power:
See class 66

Drum storage devices:
See class 10

Dummy antennas:
See class 44

Dummy loads:
See class 66

Dynamotors:
See class 67

Electromagnets:
See class 64

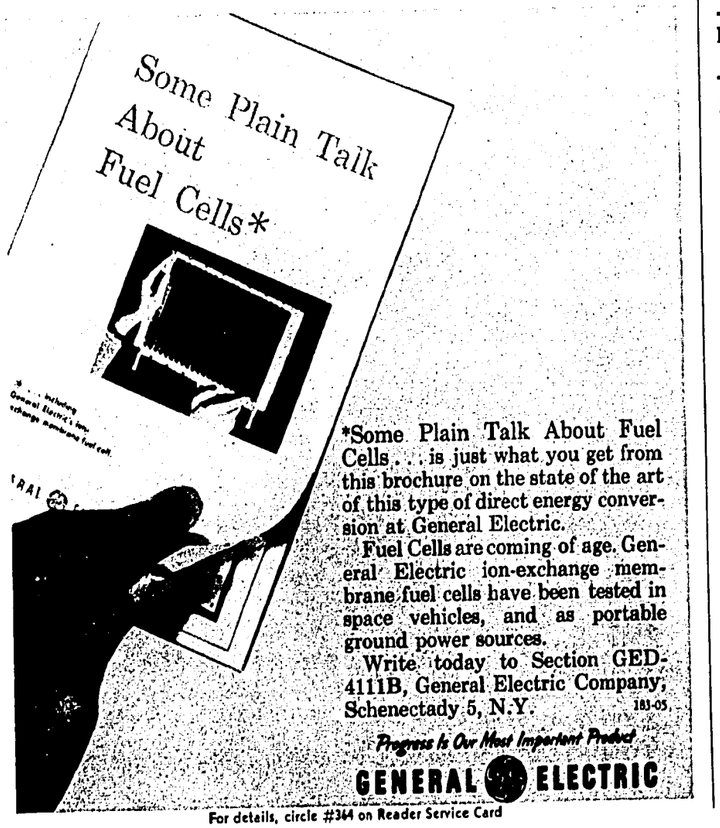
Elements, heating:
See class 98

Encoders:
See class 10

58. Energy Conversion Devices.

5. Converters, thermionic
10. Fuel cells
15. Generators, magnetohydrodynamic
20. Generators, solar
25. Generators, thermoelectric

Advanced Micro-Electronics, Inc., R.I., 20c, 25c
Altron Electronics Co., Pa., 5s
Astro Dynamics, Inc., Mass., 25c
Avco Research & Advanced Development Div., Mass., 15sc
Bendix Corp., Red Bank Div., Electron Tube Products, Highway #35, Eatontown, N.J., 5c, 25c, Tel: 201-LIberty 2-2000
See ad on pages 48-49
Borg-Warner Corp., Pesco Products Div., Ohio, 5c, 25c
Ceramco, Inc., N.J., 25c
Consolidated Contr. Corp., Conn., 5c, 25c
Diotron, Inc., Pa., 20sc
Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 10c, Tel: 617-LYnn 8-2100
See ad in class 69
Fairchild Stratos Corp., Md., 20c
Garrett Corp., AiResearch Mfg. Co., Calif., 10c, 20c
General Electric Co., Direct Energy Conversion Project, 950 Western Ave., Lynn 3, Mass., 5c, 10c, 25c, Tel: 617-LYnn 8-6000, Ext. 2288
See ad in this class



For details, circle #364 on Reader Service Card

Directory II. Components

58. Energy Conversion Devices.

General Instrument Corp., Defense & Eng. Products Group, N.Y., 20c, 25c
General Thermoelectric Corp., P.O. Box 253, Princeton, N.J., 20c, 25c, Tel: 609-DAvis 9-4545
See ad in class 54
Grumman Aircraft Eng. Corp., N.Y., 20c
Hitachi New York, Ltd., N.Y., 10c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 5c
Kennedy & Co. (D.S.), Mass., 20c
Leesona Corp., Leesona Moos Laboratories Div., N.Y., 10c, 25sc
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 15c
Malaker Laboratories, N.J., 15c, 25c
Mar-Cone Corp., Mass., 25c
Martin Co., Md., 25sc
Materials Electronic Products Corp., 990 Spruce St., Trenton 8, N.J., 25sc, Tel: 609-EXport 3-4178
See ad in class 54
McCormick Selph Associates, Inc., Calif., 10c
Minnesota Mining & Mfg. Co., Electrical Products Div., Minn., 25c
Monsanto Chemical Co., Plastics Div., Mass., 25c
Needco Cooling Semiconductors, Ltd., Canada, 25sc
Needco of America, Inc., N.J., 25c
North American Aviation, Inc., Atomics International Div., Calif., 5c, 25c
Semicon of California, Inc., Calif., 5c
Servomechanisms/Inc., Calif., 25c
Solar Systems, Inc., Ill., 20sc
Studebaker-Packard Corp., Minn., 10c
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 25sc, Tel: 214-ADams 5-3111
See ad on Cover 3
Therm, Inc., N.Y., 15c
Thermo Electron Engineering Corp., 85 First Ave., Waltham 54, Mass., 5sc, Tel: 617-TWinbrook 4-8700
See ad in this class
Thompson Ramo Wooldridge Inc., Tapco Div., Ohio, 5c, 10c, 15c, 20c, 25c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 25s
Transitron Electronic Corp., Mass., 5c, 25c
Tyco Semiconductor Corp., Mass., 25c
U.S. Sonics Corp., Mass., 5c, 25c
Varo, Inc., Texas, 20c
Westinghouse Electric Corp., Semiconductor Dept., Pa., 25sc

Entertainment-type tubes:
See class 85

Envelopes:
See class 105

Equalizers:
See class 59

Exchangers, heat:
See class 54

Fans:
See class 47

Feed-through capacitors:
See class 48

Feeds, antenna:
See class 66

Ferrimagnetic materials:
See class 100

Ferrite cores:
See class 55

Ferrites:
See class 92

Ferromagnetic memories:
See class 10

Fields, jack:
See class 62

Filters, air:
See class 90

Filters, optical:
See class 17

59. Filters.

5. Antenna
10. Bandpass & band-rejection
15. Crystal
20. Equalizer, AF
25. Equalizer, phase
30. High-pass
35. Low-pass
40. Mechanical
45. Microwave
50. Networks
55. Noise-reduction
60. SSB
65. UHF-VHF
70. Variable

A C Electronics, Inc., Calif., 5c, 10c, 20c, 25c, 30c, 35c, 50c, 55c, 65c
ACF Electronics Div., Md., 45sc
ADC Products, Div. of Magnetic Controls Co., 2863 13th Ave. S., Minneapolis 7, Minn., 10c, 20c, 30c, 35c, 50c, 60c, Tel: 612-PArkway 1-5551
See ad in class 84
Accurate Instrument Co., 2414 W. Alabama St., P.O. Box 66373, Houston 6, Texas, Tuning Fork Resonators, Tel: 713-JAckson 6-4947
See ads in classes 31, 59

ADVANCED POWER SOURCES

THERMO ELECTRON, first in thermionic direct energy conversion has achieved noteworthy breakthroughs in this field. Typical of the thermionic generators in the development stage are:

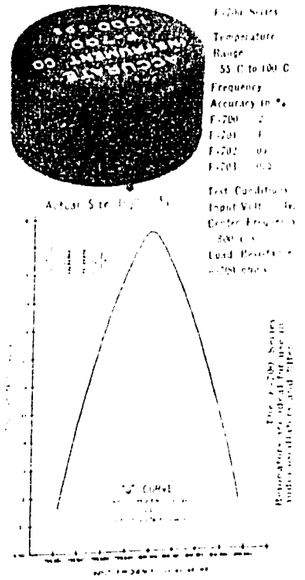
- A 200-watt solar unit
- A 200-watt gas-heated unit
- An isotopic fueled unit
- A 45-watt gasoline heated unit

For further information regarding THERMO ELECTRON'S capability in research, development and manufacture of direct energy conversion systems contact Mr. Lawrence T. Sullivan, Business Manager.

THERMO ELECTRON
ENGINEERING CORPORATION
85 FIRST AVENUE • WALTHAM 54 • MASS.
LEADERS IN THERMIONIC ENERGY CONVERSION

For details, circle #365 on Reader Service Card

High Precision Tuning Fork Resonators for FILTERS



Accurate Instrument Company
P.O. Box 66373
Houston 6, Texas
JA 6-4947

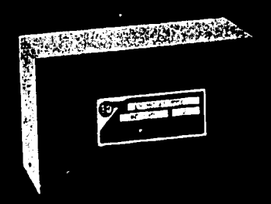
For details, circle #366 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

CONTROL ELECTRONICS' BUYERS' GUIDE

C.E.C. has for years been engaged in the design and production of quality components and systems for both military and industry. A member of our engineering group will be happy to meet with you on any problems you now face.

FILTERS & TOROIDS



BF-139

45 mc band pass filter—3 db bandwidth ≅ 2.5% center freq—40 db rejection at $2F_0$ and $0.5F_0$—Input and output impedance 1500Ω—Hermetically sealed in accordance with applicable MIL specifications—Dimensions 4½" x 2" x 2½"

LF-197

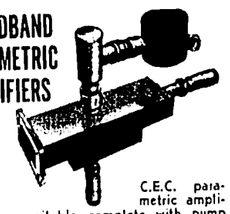
3000 cps low pass filter—3 db @ 3000 cps—40 db @ 4000 cps—Attenuation at other frequencies specified—Input and output impedance 10,000Ω—Dimensions 1¾" x 1¾" x 2¾"

BF-128

15 kc resonant circuit. Max 1 db bandwidth 45 cps. Extra package required. ... 3 db ... has Universal ... Input ... Output impedance 3 ... Ω Dimensions ...

MICROWAVE COMPONENTS AND INSTRUMENTS

BROADBAND PARAMETRIC AMPLIFIERS



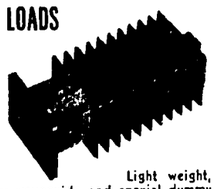
C.E.C. parametric amplifiers are available complete with pump A.F.C. and A.L.C. for application to your system at frequencies from U.H.F. to K_u Band.

Your particular requirements can be satisfied merely by minor modifications of our existing designs.

WAVEGUIDE AND COAXIAL LINE BANDPASS FILTERS

C.E.C. offers a large selection of standard waveguide and coaxial bandpass, low pass, and high pass filters. Frequencies range from 100 mc to 60,000 mc. Higher frequencies on special order. Custom designs can be made to your specifications.

DUMMY LOADS



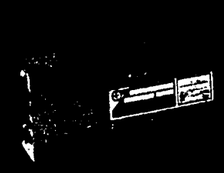
Light weight, high-power waveguide and coaxial dummy loads. Complete line available covering all waveguide and coaxial line sizes

C.E.C. also has available—

Rotary Vane Fixed Attenuators, Tunnel Diode Amplifiers, Mixers, Thermistor Mounts, Power Meters and Microwave Duplexers and Multiplexers.

A representative of our Microwave Division will be glad to discuss your specific requirements.

DELAY LINES



ILLUSTRATED: CODING TYPE 20 3..sec

LUMPED CONSTANT
FIXED & VARIABLE

5 millimicro sec to .1 secs
Impedance to 20,000
Bandwidth to 250 mc

DISTRIBUTED CONSTANT
FIXED & VARIABLE

Delays to 30 μ sec
Impedance to 10,000
Bandwidth to 20 mc

MAGNETOSTRICTIVE
FIXED & VARIABLE

2 10,000 sec

Also available are driver & output circuits for the reshaping of pulses

Numerous versions of the above models as well as a capability to meet all specifications enables C E C to consistently supply the needs of industry. Our engineering staff is always at your service. Write today for complete literature on our product line.

CONTROL *Electronics* CO., INC.
Ten Stepar Place, Huntington Station, N. Y. HA 7-7961

For details, circle #367 on Reader Service Card

Directory II. Components

59. Filters.

Ace Engineering & Machine Co., Inc., Pa., 45s

Ad-Yu Electronics Laboratory, Inc., 249 Terhune Ave., Passaic, N.J., 10sc, 70sc, Tel: 201-GRegory 2-5622
See ad in this class

Adams-Russell Co., Inc., 200 Sixth St., Cambridge 42, Mass., 5sc, 10sc, 30c, 35sc, 45sc, 65sc, 70sc, Tel: 617-UNiversity 8-8040
See ads in classes 59, 66

Adler Electronics, Inc., N.Y., 10c, 45c, 65c

Advanced Development Laboratories, Inc., N.H., 5c, 10c, 30c, 35c, 45c, 65c, 70c

Advanced Electronics Corp., N.Y., 55s

Advanced Measurement Instruments, Inc., Mass., 10c, 30c, 35c

Advancement Devices, Inc., N.Y., 5c, 10c, 45c

Aero Geo Astro Corp., Va., 45c

Aerocoil, Inc., N.J., 10c, 30c, 35c

Aeronautical Communications Equipment, Inc., Fla., 5s

Aerospace Research, Inc., 94 Massachusetts Ave., Cambridge 39, Mass., 35c, Tel: 617-ELiot 4-7780
See ad in class 26

Aerovox Corp., Mass., 35c, 55c

Aircom, Inc., 48 Cummington St., Boston 15, Mass., 45sc, Tel: 617-COpley 7-9115
See ads in classes 44, 66

Aircraft Armaments, Inc., Md., 10c, 45c

Airdesign Corp., Pa., 30c, 35c

Airtec, Inc., N.J., 45c

Airtronics, Inc., D.C., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45sc, 50c, 55c, 60c, 65c, 70c

Airtronics International Corp., Fla., 45sc

Aladdin Electronics Div., Aladdin Industries, Inc., Tenn., 10c, 30c, 35c

Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 10c, Tel: 617-FOrest 6-4467
See ad on page 82

Alford Mfg. Co., 299 Atlantic Ave., Boston 10, Mass., 35s, Tel: 617-HAncock 6-2150
See ad in class 66

All-Tronics, Inc., 45 Bond St., Westbury, L.I., N.Y., 35c, 50c, 55sc, Tel: 516-EDgewood 3-3090
See ad in this class

Allen Avionics, Inc., N.Y., 35c

Allen-Bradley Co., Wis., 5c, 35s, 65s

Allison Laboratories, Inc., Calif., 10sc, 20s, 30sc, 35sc, 70s

Alto Scientific Co., Inc., Calif., 10c

American Communications Corp., N.Y., 5sc, 10sc, 30sc, 35sc

American Electronics Co., N.Y., 5s, 10s, 30s, 35s, 65s

American Missile Products Co., Inc., Calif., 10c

Anderson Electronics, Inc., Pa., 15c

Andrew Antenna Corp., Ltd., Canada, 5c

Antenna Products Co., Div. of All Products Co., Texas, 5sc

Antenna Systems, Inc., 349 Lincoln St., Hingham, Mass., 5c, 45c, Tel: 617-RIverview 9-4700
See ad in class 44

Applied Control Corp., N.J., 10c

Applied Research, Inc., 76 S. Bayles Ave., Port Washington, L.I., N.Y., 5sc, 10s, 45s, 65sc, Tel: 516-POrt Washington 7-8707
See ad in class 43

Applied Technology, Inc., Calif., 10c, 65c

Ark Electronics Corp., 624-26 Davisville Rd., Willow Grove, Pa., 5c, 10c, 30c, 35c, 55c, 65c, Tel: 215-OLdfield 9-4121
See ad in class 109

Artronic Instrument Co., Md., 25c, 35c, 50c

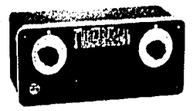
Artted Co., Inc., Mass., 10c, 5...

Astron Corp., N.J., 10c, 30c, 35c, 70c, 75c

ALLISON LABORATORIES

Audio Frequency Test Instrumentation

Series 2 Filters Usable as low-cutoff, high-cutoff or band-pass units. Continuously adjustable bandwidth. 1 cycle to 672 KC.



Unique, continuously-variable passive filters of every type. Noise generators, Octave Band analyzers and equalizers, Band-Elimination Filter Sets. Extremely high rejection, smooth, flat-topped characteristics.

FOR PROMPT, INFORMED SERVICE IN THE NORTHEAST ..... CALL

BURLINGAME ASSOCIATES

MOUNT VERNON, N.Y. • MOunt Vernon 4-7530
WALTHAM .....TWinbrook 4-1955
SYRACUSE .....GRanite 4-7409
PHILADELPHIA .....SHerwood 7-9080
WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400

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SPECIALISTS

Designers and Manufacturers of Proven VHF, UHF, MICROWAVE:
- Low & High Pass Filters
- Band Pass & Band Reject Filters, Fixed & Tunable
- Multiplexers, Fixed & Tunable
- Power Dividers

We can help you with your RFI problems.
Please write or call for additional information or literature.

ADAMS-RUSSELL CO., INC.
200 Sixth Street Cambridge, Mass. UNiversity 8-8040

For details, circle #369 on Reader Service Card

RF FILTER SPECIALISTS

FREE TO DESIGN ENGINEERS
Comprehensive stock catalog listing of over 22,000 RF Filters ready for off-the-shelf delivery.

PRODUCTS
- Radio Frequency Interference Filters
- Coils—RF Chokes
- Line Stabilization Networks
- Screen Booth Filters

For immediate engineering consultation, call Mr. Harold P. Westman, Jr.

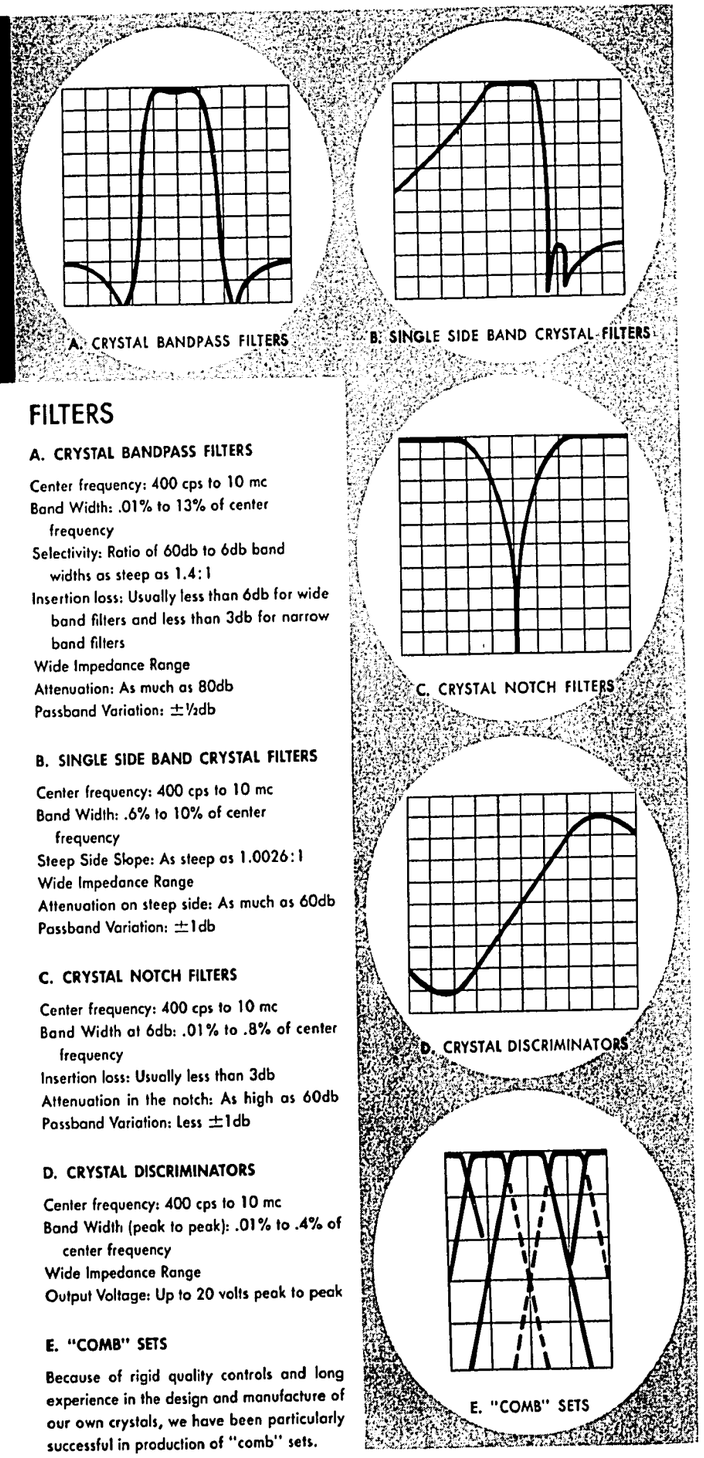
Engineering Facilities for
- Radio Frequency Interference Testing
- Suppression of Radio Frequency Interference
- RF Field Engineering Service
- Attenuation Measurements
- Design of RF Filters

ALL-TRONICS, INC. 45 BOND ST., WESTBURY, N. Y. ED 3-3090

For details, circle #370 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226

FROM CRYSTALS TO "BLACK BOXES" HEEMCO OFFERS 3-SIGMA RELIABILITY



The 3-sigma reliability for which Heemco products have long been recognized is available not only in crystals, but in filters and frequency sources as well as all types of associated circuitry and "black boxes".

CRYSTALS

Heemco crystal units, both standard and high vibration types, are available from 400 cps up, to fill a wide variety of commercial and military requirements.

FREQUENCY SOURCES

From standard designs, Hill Electronics custom designs and manufactures frequency sources to your particular requirements. Frequencies range from less than 1 cps to above 100 mc. Sizes range from ¾"x¾"x1½".

Specifications for a typical standard unit are:

FREQUENCY: from 150 cps up
OPERATING TEMPERATURE: −65 to +125°C
FREQUENCY ACCURACY: ±.001%
VIBRATION: 5 to 2000 cps at 20g
SHOCK: 100g
SIZE: 2"x2"x4"

ONE OF HILL ELECTRONIC'S RECENT DEVELOPMENTS IS A 3-PHASE FREQUENCY SOURCE, SPECIFICATIONS FOR WHICH ARE AVAILABLE UPON REQUEST.

FILTERS

A. CRYSTAL BANDPASS FILTERS

Center frequency: 400 cps to 10 mc
Band Width: .01% to 13% of center frequency
Selectivity: Ratio of 60db to 6db band widths as steep as 1.4:1
Insertion loss: Usually less than 6db for wide band filters and less than 3db for narrow band filters
Wide Impedance Range
Attenuation: As much as 80db
Passband Variation: ±½db

B. SINGLE SIDE BAND CRYSTAL FILTERS

Center frequency: 400 cps to 10 mc
Band Width: .6% to 10% of center frequency
Steep Side Slope: As steep as 1.0026:1
Wide Impedance Range
Attenuation on steep side: As much as 60db
Passband Variation: ±1db

C. CRYSTAL NOTCH FILTERS

Center frequency: 400 cps to 10 mc
Band Width at 6db: .01% to .8% of center frequency
Insertion loss: Usually less than 3db
Attenuation in the notch: As high as 60db
Passband Variation: Less ±1db

D. CRYSTAL DISCRIMINATORS

Center frequency: 400 cps to 10 mc
Band Width (peak to peak): .01% to .4% of center frequency
Wide Impedance Range
Output Voltage: Up to 20 volts peak to peak

E. "COMB" SETS

Because of rigid quality controls and long experience in the design and manufacture of our own crystals, we have been particularly successful in production of "comb" sets.

Hill Electronics specializes in the design and manufacture of "black boxes" which utilize frequency sources and/or filters.

HILL ELECTRONICS, INC.

300 north chestnut street • mechanicsburg • pennsylvania

For details, circle #371 on Reader Service Card

Directory II. Components

59. Filters.

Atlas Coil, Inc., Conn., 5c, 10c, 20c, 25c, 30c, 35c, 50c, 55c
Atlas Engineering Co., Inc., Mass., 10c, 30c, 35c
Atlas Transformer Co., Calif., 10c, 30c, 35c
Automatic Coil Co., Inc., N.Y., 10c, 30c, 35c, 55c
Automatic Metal Products Corp., 323 Berry St., Brooklyn 11, N.Y., 5c, 10c, 30c, 35c, 40c, 65c, Tel: 212-EVergreen 8-6057
See ad in class 52
Automation Research & Design Associates, N.J., 10c, 30c, 35c, 65c
Aviel Electronics, Inc., Calif., 5c, 30c, 35c, 45c
Axel Electronics, Inc., 134-20 Jamaica Ave., Jamaica 18, N.Y., 55c, Tel: 212-AXtel 1-3900
See ad in class 48
Barker & Williamson, Inc., Pa., 10c, 30c, 35sc, 50c
Barrett Coil Co., Inc., Fla., 10c, 30c, 35c, 50c
Belling & Lee, Ltd., Great Cambridge Rd., Enfield, Middlesex, England, 5s, 10s, Tel: Enfield 5393
See ad in class 52
Benco Television Associates, Ltd., Canada, 5s, 10s, 30s, 35s
Bendix Corp., Red Bank Div., Electron Tube Products, Highway #35, Eatontown, N.J., 45c, Tel: 201-LIberty 2-2000
See ad on pages 48-49
Biddle Co. (James G.), Pa., 10sc
Bird Electronic Corp., 30303 Aurora Rd., Cleveland 39, Ohio, 5c, 10c, 30c, 35c, Tel: 216-CHurchill 8-1200
See ad on page 210
Blackburn Electronic Corp., Pa., 50c
Blackhawk Engineering Co., Inc., Wis., 15sc
Bliley Electric Co., Union Station Bldg., Erie, Pa., 15sc, Tel: 814-GLendale 6-7561
See ad in class 56
Blonder-Tongue Laboratories, Inc., N.J., 5s, 10s
Boeing Co., Antenna Dept., Wash., 5c, 45c, 65c
Bogart Mfg. Corp., 315 Seigel St., Brooklyn 6, N.Y., 45c, Tel: 212-HYacinth 7-4972
See ad in class 66
Bruel & Kjaer (A/S), Denmark, 10s, 70s
Buckbee Mears Co., 245 E. Sixth St., Saint Paul 1, Minn., 40c, Tel: 612-CApital 7-7361
See ad in class 105
Bud Radio, Inc., 2118 E. 55th St., Cleveland 3, Ohio, 30s, 35s, Tel: 216-HEnderson 1-7166
See ad in class 90
Budd-Stanley Co., Inc., 175 Eileen Way, Syosset, L.I., N.Y., 5c, 45c, Tel: 516-WAlnut 1-7550
See ad on page 92
Bulova Research & Development Laboratories, N.Y., 15s
Bulova Watch Co., Inc., Electronics Div., Dept. A-1376, 61-10 Woodside Ave., Woodside 77, N.Y., 10sc, 15sc, 30sc, 35sc, 60c, Tel: 212-NEwtown 9-5700
See ad in class 56
Bundy Electronics Corp., N.J., 10sc, 30sc, 35sc, 50c
Burnell & Co., Inc., Dept. IR-2, 10 Pelham Parkway, Pelham Manor, N.Y., 5sc, 10sc, 15sc, 20c, 25c, 30sc, 35sc, 50c, 60c, Tel: 914-PElham 8-5000
See ad on page 106
Bush Transformer Corp., N.Y., 10c, 30c, 35c
C.E.S. Electronic Products, Inc., Calif., 10s, 50s
Canadian Marconi Co., Canada, 5c, 10c, 20c, 25c, 30c, 35c, 50c
Capcon, Inc., N.Y., 5c, 30c, 35s, 50c, 55s
Capehart Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c
Carad Corp., Calif., 10c, 20c, 30c, 35c, 50c
Caswell Electronics Corp., Calif., 45c
Central Coil Co., Inc., Ind., 10c
Centroid Engineering & Mfg. Corp., 126 Jackson St., Cambridge 40, Mass., 30c, 35c, Tel: 617-TRowbridge 6-7250
See ads on page 111 & in class 91
Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., Texas, 5c
Chicago Magnetic Control Div., Ill., 10c, 30c, 35c
Chu Associates, Mass., 5sc, 10c, 45c
Circuitdyne Corp., Calif., 10c, 20c, 25c, 30c, 35c, 50c, 60c
Clear Beam Antenna Corp., Calif., 5s, 65s
Clevite Corp., Clevite Electronic Components Div., Ohio, 10sc, 60sc, 65sc
Collins Radio Co., Iowa, 5s, 10s, 15s, 40s, 60s, 65s
Collins Radio Co., Western Div., Calif., 15sc, 40sc
Columbia Technical Corp., N.Y., 5c, 10s, 20c, 25c, 30c, 35c, 50c, 60c
Columbus Electronics, Inc., 1000 Saw Mill River Rd., Yonkers, N.Y., 5c, 10c, 30c, 35c, 50c, 65c, Tel: 914-YOnkers 8-1221
See ads in classes 48, 71
Communication Accessories Co., U.S. Highway 50 & 71 By-Pass, Lee's Summit, Mo., 10c, 20c, 30c, 35c, Tel: 816-LAclede 4-3500
See ad on page 112
Communication Electronics, Inc., Md., 10c, 30c, 35c, 65c
Components Corp., Ill., 10c, 20c, 25c, 30c, 35c, 50c
CompuDyne Corp., Pa., 10c, 30c, 35c, 40c, 70c
Continental Electronics Corp., N.Y., 10c
Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 5c, 50c, Tel: 214-EVergreen 1-1135
See ad on page 120
Continental Electronics & Sound Co., Ohio, 55s
Control Circuits, Inc., Conn., 50c
Control Electronics Co., Inc., 10 Stepar Place, Huntington Station, L.I., N.Y., 10sc, 25sc, 30sc, 35sc, 45sc, 50sc, Tel: 516-HAmilton 7-7961
See ad in this class
Cook Electric Co., N.R.K. Microwave Div., Ill., 45c
Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 10sc, 35sc, 50sc, 55sc, 65sc, 70sc
Daltronics, Inc., R.I., 10sc, 15c, 30sc, 35sc, 50c
Daven Co., Subsid. of General Mills, Inc., N.J., 10c, 20c, 25c, 30c, 35c, 50c, 60c, 65c
Dawe Instruments, Ltd., England, 70s
Dayton Electronic Products Co., Ohio, 10c, 30c, 35c
Dearborn Electronic Laboratories, Inc., Fla., 55c
DeCoursey Engineering Laboratory, Calif., 10c, 20c, 30c, 35c
Deeco Instruments, Inc., Calif., 10c, 20c, 25c, 30c, 35c, 50c
Delcon Corp., Calif., 20c, 35c
Delta Coils, Inc., N.J., 5c, 10c, 30c, 35c, 60c
Deltex Laboratories, Div. of Delta Exploration Co., Inc., Mesquite, Tex., 35c, VLF sc
Deltime, Inc., N.Y., Jr.
Deltron Co., Calif., 35c, 45c
DeMornay-Bonardi Corp., 780 S. Arroyo Parkway, Pasadena, Calif., 10s, 45s, Tel: 213-SYcamore 2-4142
See ad on pages 68-69
Diamond Antenna & Microwave Corp., Mass., 5sc, 10sc, 15sc, 30sc, 35sc, 45sc
Dielectric Products Engineering Co., Inc., Stoughton, Mass., 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 50sc
Digital Control Systems, Inc., Calif., 10c, 20c, 30c, 35c, 45c, 50c, 60c
Digital Devices, Div. of Data Technology Corp., Calif., 45c, 50c, 55c
Digital Measurements, Inc., N.Y., 10c, 30c, 35c, 45c, 50c, 60c, 70c
Dimensional Products, Inc., Ohio, 10sc, 15c, 30sc, 35sc
Douglas Aircraft Co., Inc., Calif., 10c, 30c, 35c, 45c, 50c
Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 5sc, 10sc, 30sc, 35sc, 45sc, 60sc, 65sc, Tel: 914-MOunt Vernon 8-6980
See ad in class 66
Drake Co. (R.L.), Ohio, Inc., 30c, 35c, 60c, 70s
Dresser Electronics HST Div., Texas, 10sc, 20c, 25c, 30sc, 35sc, 50sc
Dynamics Corp. of America, N.Y., 15sc, 30c, 35c, 60c, 65sc
Dynamics Instrumentation Co., Calif., 30sc, 35sc, 70sc
Dytronics Co., Ohio, 10s, 30s, 35s, 70s
E & M Laboratories, Calif., 45c

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SELECT FROM THE LARGEST AND MOST COMPLETE LINE OF CRYSTAL FILTERS IN THE INDUSTRY

ITEK CRYSTAL FILTERS AND DISCRIMINATORS

SYMMETRICAL BANDPASS

MODEL NO.	CENTER FREQUENCY	BANDWIDTH 6 DB	BANDWIDTH 60 DB
100KPA	100Kc	50cps	200cps
2215KA	2215Kc	2.8Kc	12Kc
2215KB	2215Kc	250cps	1000cps
9MA	9Mc	3Kc	13Kc
10MA	10.7Mc	30Kc	60Kc
10MB	10.7Mc	15Kc	30Kc
10ME	10.7Mc	6Kc	15Kc
10MF	10.7Mc	3.5Kc	10Kc
13MA	13Mc	30Kc	54Kc
13MB	13Mc	15Kc	27Kc
30MJ	30Mc	40Kc	125Kc
30MK	30Mc	25Kc	62Kc
30MP	30Mc	5Kc	15Kc

Itek Bandpass Crystal Filters are widely used in commercial and military mobile FM receivers, spectrum analyzers, doppler radar, FSK systems, TRF receivers and other equipment requiring high selectivity and stability.

SINGLE SIDEBAND

MODEL NO.	CENTER FREQ.	SIDEBAND	PASSBAND	MINIMUM ATTENUATION
100KUC	100Kc	upper	300 to 6000cps (2db)	60db
100KLC	100Kc	lower	300 to 6000cps (2db)	60db
3MUA	3.3Mc	upper	300 to 3000cps (2db)	40db
2MUA	2Mc	upper	300 to 6000cps (2db)	60db
2MLA	2Mc	lower	300 to 6000cps (2db)	60db

Itek Single Sideband Filters are recognized for their rapid carrier and adjacent sideband cut-off characteristics. These Crystal Filters simplify SSB generation by reducing the number of frequency conversions.

CRYSTAL DISCRIMINATORS

MODEL NO.	BANDWIDTH	CENTER FREQ.	IMPEDANCE OHMS
13M-DM	50Kc peak to peak	13Mc	Input 10K Output 500K
10M-DC	50Kc peak to peak	10.7Mc	Input 10K Output 500K

Itek Crystal Discriminators are used in the construction of high-frequency, low distortion FM detectors at the first IF. The extreme stability of crystal discriminators makes them ideal for use in high-frequency AFC circuits.

ITEK CUSTOM FILTERS

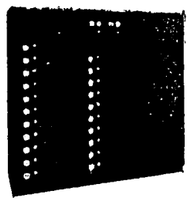
More Itek Crystal Filters of different models have been designed and produced than any other make. The experience acquired in producing tens of thousands of crystal filters can be used to your advantage. If your requirements differ from those met by Itek Stock Filters, send us your specifications for center frequency, bandwidth, selectivity, and impedance level. Our proposal will be submitted promptly.

ITEK NEWLY DEVELOPED CRYSTAL DEVICES

VOLTAGE CONTROLLED CRYSTAL OSCILLATORS

Itek "VCXO" Voltage Controlled Crystal Oscillator (Model 10MWA shown with cover off) provides greater stability, percentage deviation and linearity than similar devices offered in the past. These characteristics make VCXO especially suitable for FM generation and frequency control circuits.

SPECTRUM ANALYZERS



Itek Spectrum Analyzers with as many as 300 channels or more have been designed and produced. Operating in real time, these Analyzers can be used for precise audio analysis, missile tracking, and frequency monitoring. Built-in programmers control the rate and deviation of scan. Solid-state circuitry and parallel output channels insure maximum reliability.

OTHER ITEK ELECTRO-PRODUCTS

V.T. and Solid State **ULTRA STABLE OSCILLATORS** with guaranteed stability of 5 parts in 10^{10} per day, and V.T. and Solid State **FREQUENCY MULTIPLIERS** and **DIVIDERS.**

Custom Designed **FREQUENCY SYNTHESIZERS** for Transmitters and Receivers from 10KC to 50MC.

Ground, Airborne and IRIG **TIME CODE GENERATORS** for binary coded decimal timing signals.

Universal **MAGNETIC TAPE SEARCH UNIT** for automatic tape search on basis of time indices previously recorded.

Write for Technical Data

Itek Electro-Products Company
75 CAMBRIDGE PARKWAY, CAMBRIDGE 42, MASS. A DIVISION OF Itek

Directory II. Components

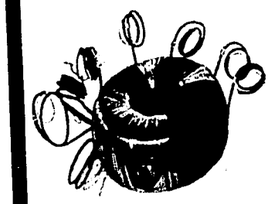
59. Filters.

ESC Electronics Corp., N.J., 10c, 30c, 35c, 50c
Eastern Precision Resistor Co., Div. of Dynacron Electronic Corp., N.Y., 30c, 35c, 50c
Eclipse Electronics Co., Canada, 55sc
Ednalite Optical Co., Inc., N.Y., 15c, 70c
Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 10c, 25c, 35c, 45c, 55c, 65c, Tel: 415-LYtell 1-1451
See ad on pages 29-32
El-Rad Mfg. Co., Ill., 5c, 20c, 30c, 35c, 50c
Electrac, Inc., Calif., 10c, 15c, 20c, 25c, 30c, 35c, 50c, 55c, 70c
Electric Wave Filters, Inc., Puerto Rico, 30c, 35c, 50c, 60c
Electro Assemblies, Inc., Ill., 10c, 30c, 35c
Electro Networks, Inc., & Caledonia Electronics & Transformer Corp., N.Y., 10sc, 15c, 25c, 30c, 35c, 45c, 50c, 65c, 70c
Electro Winders Co., Inc., Calif., 10c, 30c, 35c, 50c
Electromagnetic Technology Corp., Calif., 45c
Electron Products, Div. of Marshall Industries, Calif., 55c
Electronic Research Co., Div. of Textron Electronics, Inc., Mo., 15c
Electronic Specialty Co., Calif., 5c, 10c, 30c, 35c, 45c, 50c, 65c
Elliott-Automation, Ltd., England, 5sc, 10sc, 15sc
Emerson Electric Mfg. Co., Mo., 10c, 30c, 35c, 50c, 60c
Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 10s, 30s, 35s, 45s, Tel: 518-VIctor 2-8400
See ad in class 38
Entron, Inc., Md., 10s, 65s
Epsco, Inc., Mass., 10s, 30s, 35s
Espey Mfg. & Electronics Corp., N.Y., 10c, 20c, 25c, 30c, 35c, 50c
FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 10c, 45c, Tel: 212-RAvenswood 1-9000
See ad in class 37
Farinon Electric, Calif., 5s
Fedtro, Inc., Federal Electronics Sales Div., N.Y., 5s, 30s, 55s
Ferritronics, Ltd., Canada, 10c, 15c, 20c, 30c, 35c, 50c, 60c
Ferro Magnetics Co., Calif., 10c, 30c, 35c, 50c, 55c
Ferrotran Electronics Co., Inc., N.Y., 30s, 35s
Fidelitone Microwave, Inc., Ill., 45sc
Filtron Co., Inc., N.Y., 35c, 55c
Forbes & Wagner, Inc., 350 Central Ave., Silver Creek, N.Y., 10c, 30c, 35c, Tel: 716-YEllowstone 4-2691
See ads in classes 33, 51, 57, 84
Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 10sc, 20sc, 30sc, 35sc, 50sc, Tel: 212-EVergreen 6-1300
See ad in class 84
Frequency Standards, Div. of Harvard Industries, Inc., N.J., 5sc, 10sc, 30c, 35sc, 45sc, 65sc, 70sc
Friend Engineering (Albert W.), Pa., 30c, 35c, 50c, 70c
Fugle-Miller Laboratories, Inc., N.J., 5c, 10c
Gar Precision Parts, Inc., Conn., 45c
Garrett Corp., AiResearch Mfg. Co., Calif., 55c
Gates Radio Co., Ill., 20s, 25s, 30s, 35s, 70s
General Aniline & Film Corp., Ansco Div., N.Y., 45c
General Bronze Corp., G B Electronics Div., N.Y., 5c, 35sc, 40sc, 45c
General Communication Co., 677 Beacon St., Boston 15, Mass., 45c, Tel: 617-COpley 7-6030
See ads in class 37
General Dynamics/Electronics, N.Y., 60c
General Electric Co., Power Tube Dept., N.Y., 45sc
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 35c, 55c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c
General Instrument Corp., Micamold Div., N.J., 10c, 35c, 55c
General Instrument Corp., F. W. Sickles Div., 165 Front St., P.O. Box 330, Chicopee, Mass., 10c, 30c, 35c, Tel: 413-LYceum 4-4781
See ad in class 57
General Laboratory Associates, Inc., N.Y., 55c
General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 5c, 10c, 50c, Tel: 612-WEst 9-8571
See ad in class 43
General Microwave Corp., N.Y., 10c, 30c, 35c, 45c, 65c, 70c
General Precision, Inc., Kearfott Div., Calif., 10c, 30c, 35c, 45c
General Precision, Inc., Kearfott Div., N.J., 45sc
General Radio Co., 22 Baker Ave., West Concord, Mass., 10s, 30s, 35s, Tel: 617-EMerson 9-4400
See ad on Cover 4
Genisco, Inc., Calif., 10sc, 30sc, 35sc, 55sc, 70sc
Genistron, Inc., Calif., 30c, 35c, 55c
Geotronic Laboratories, Inc., Texas, 10c, 20c, 25c, 30c, 35c, 50c
Gertsch Products, Inc., Calif., 10s, 70s
Gilfillan Brothers, Inc., Calif., 45c
Gombos Co., Inc. (John), N.J., 45sc
Gorham Electronics, Div. of Gorham Corp., R.I., 45c
Gramer Halldorson, Ill., 5sc, 10sc, 30sc, 35sc, 55sc
Green Rectifier Co., N.J., 35sc
Gudeman Co., Ill., 35sc, 55sc
Gulow Transformer Co., Inc., N.J., 30s, 35s, 50s
Gulton Industries, Inc., N.J., 10sc
Hallett Mfg. Co., Calif., 55s
Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 10c, 50c
Hazeltine Corp., N.Y., 10c
Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 35s, 45s, 65s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28
Hewlett-Packard Co., Palo Alto Engineering Co. (Subsid.), Calif., 10c, 30c, 35c, 65c
Highland Design, Inc., N.Y., 10c, 20c, 30c, 35c
Hill Electronics, Inc., 300 N. Chestnut St., Mechanicsburg, Pa., 10c, 15c, 30c, 35c, 60c, Tel: 717-POplar 6-7611
See ad in this class
Hisonic, Inc., Kans., 10c, 20c, 25c, 30c, 35c, 50c, 60c
Hopkins Engineering Co., Calif., 50c, 55sc
Hughes Aircraft Co., Industrial Systems Div., Calif., 15c
Hughes Research Div. (J. Willis), Miss., 10c, 20c, 30c, 35c
Hyletronics Corp., 185 Cambridge St., Burlington, Mass., 25c, 45c, 60c, 70c, Tel: 617-BRowning 2-0670
See ad in class 66
I.D.E.A., Inc., Ind., 30s
I-T-E Circuit Breaker Co., Special Products Div., Pa., 5c, 45c
Inductor Engineering, Inc., Del., 30c, 35c, 55c
Industrial Condenser Corp., Ill., 5c
Industrial Transformer Corp., N.J., 5c, 20c, 25c, 30c, 35c, 50c, 55c
Instrument Corp. of Florida, Fla., Inc., 60c
Instrument Systems Corp., N.Y., Inc.
Instruments For Industry, Inc., 201 New South Rd., Hicksville, L.I., N.Y., 5c, 10sc, 30sc, 45sc, 65sc, Tel: 516-OVerbrook 1-7100
See ads in classes 45, 74
Intercontinental Electronics Corp., N.Y., 10sc, 70sc
Interference Measurement Labs., Inc., N.Y., 55c
International Electronics Mfg. Corp., 5c, 10c, 30c, 35c, 50c, 60c, 65c, 70c
International Telephone & Telegraph Corp., 111 Federal Laboratories, N.J., 10c, 30c, 35c
Interstate Electronics Corp., Calif., 5c, 10 Doppler sc, 35c, 55sc, 65c, 70c
Itek Electro-Products Co., Div. of Itek Corp., 75 Cambridge Parkway, Cambridge 42, Mass., 10sc, 15sc, 30sc, 35sc, 50sc, 60sc, 65sc, Tel: 617-UNiversity 4-7200
See ad in this class
Itek Laboratories, Div. of Itek Corp., Mass., 15sc
JFD Electronics Corp., 6101 16th Ave., Brooklyn 4, N.Y., 5sc, 10c, 30c, 35c, 50c, 60c, 65c, 70c, Tel: 212-DEwey 1-1000
See ad on pages 56-57
J.V.M. Microwave Co., Ill., 30c, 35c, 40c, 45c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

ORTHO COMPONENTS FOR DEFENSE AND INDUSTRY!

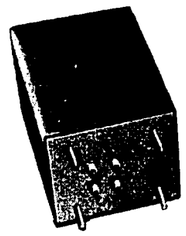
of Ortho Filter Corporation

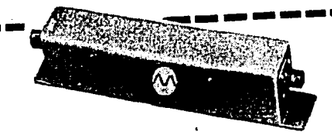


TOROIDS—In addition to standard toroid features, O.F.C. units have: • Winding to minimize distributed capacity. Coil may be used at higher frequencies with higher "Q" factors. • Winding to inductance value on self-calibrating winding equipment yielding 1% units as standard tolerance at no cost premium for core calibrating, etc. • Availability of waxed, encapsulated, encased or taped units • Complete line of stock core sizes. Fast delivery on special orders • Facilities for winding from #6 to #50 AWG wire.

VARIABLE RF ATTENUATORS—These rotary adjustable variable attenuators are extremely accurate over wide frequency range. Available as individual unmounted units or in various combinations on rack-mounted panels, featuring: • Gold contacts • Resistive networks that function from DC to 250 MC • Each resistor mounted in cavity. This eliminates reactive components over the unit's useful frequency range • Conservatively rated. Guaranteed for full year under normal conditions.
SWR at 100 MC 1.01 max. Available .01, .1, 1.0 and 10.0 db/step.

MAGNETIC AMPLIFIERS—Built to customer specifications, Ortho Filter's high voltage and high temperature units feature: • Use from microwatt to kilowatt ratings • Special test procedures to insure excellent balance and minimum null voltages • Tape wound toroids and cut cores stacked to facilitate low cost prototypes promptly • Controlled winding techniques that guarantee uniformity with respect to distributed capacity and leakage inductances.





ANTENNA FILTERS • Cutoff frequency range up to 450 MC • Attenuation of 40 to 90 db over stop band • Insertion loss less than 1.0 db over entire pass band • VSWR less than 1.5 over entire pass band • Designed to your size, weight, termination, power and impedance specifications • Slope of cutoff 60 db at 1.2 of cutoff frequency.

FILTERS AND NETWORKS — Complete line of passive and active filters for use from DC to 1000 MC. LC and crystal types manufactured to customer requirements. Advanced design methods permit rapid delivery of prototypes using minimum circuit elements. Construction in accordance with MIL-F-18327A.

om Ortho Magnetics Inc.

Transformers

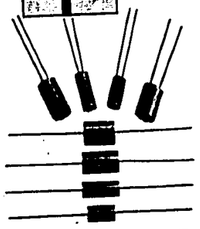
Complete facilities for all types of power and communication transformers. Ortho Magnetics specializes in balanced, hybrid, modulation and bridge transformers. Open frame, encapsulated and metal encased construction to all grades of MIL-T-27A. Provisions for in-plant testing.

orel Ortho Reliability Environmental Laboratories Inc. Test Facilities

Environmental test facilities for high and low temperature, shock, vibration and humidity. Life testing racks for resistors, capacitors and iron core components. Tests conducted in accordance with applicable military specifications.

opr Ortho Precision Resistors Inc.

Wire Wound Resistors



Specializing in the production of stable, reliable, precision wire wound resistors. Resistance change of only a few parts per million per year. High reliability with accuracies from 0.001% to 1.00% are available. Stock resistors are available with either axial or radial leads. Special terminals upon request.

RESISTANCE RANGE——0.1 ohm to 5 megohms
WATTAGE RANGE——0.1 watt to 2 watts
STANDARD T. C.——±5 PPM above 100 ohms
SPECIAL T. C.——upon request

Matched sets, dividers, networks and AC resistors available.

oc Ortho Crystal Inc.

Complete range of crystal filters from 1 KC to above 30 MC. Single sideband, band pass and band elimination crystal filters.

Write for complete technical data.

oi ortho industries inc.

7 PATERSON ST., PATERSON 1, N. J. • MULBERRY 4-5858

For details, circle #373 on Reader Service Card

Directory II. Components

59. Filters.

Jetronic Industries, Inc., Pa., 10sc
Johnson Co. (E. F.), Minn., 35s
Johnson Electronics, Inc., Fla., 10c, 30c, 35c, 50c
Kaar Engineering Corp., Calif., 35c
Kane Engineering Laboratories, Calif., 45sc
Kauke & Co., Inc., Calif., Data sc
Key Resistor Corp., Calif., 10c, 30c, 35c, 50c
Keystone Electronics Co., N.J., 10s, 15s, 30s, 35s, 60s
Keystone Products Co., N.J., 10c, 30c, 35c, 70c
Kings Electronics Co., Inc., N.Y., 10c
Knights Co. (James), 101 E. Church St., Sandwich, Ill., 10sc, 15sc, 50sc, 60sc, Tel: 2141
See ad in class 56
Knopp, Inc., Calif., 10c, 30c, 35c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 40sc
Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 10c, 30c, 35c, Tel: 516-RAvenswood 9-7580
See ad in class 89
Krohn-Hite Corp., Mass., 10s, 30s, 35s, 70s
Langevin, Div. of Sonotec, Inc., Calif., 10s, 20s, 30s, 35s, 50s, 70s
LaPointe Industries, Inc., Conn., 5sc, 10sc, 30c, 35c, 45c, 65c, 70c
Lewis Co., Inc. (E. B.), Conn., 15c
Lieco, Inc., 130 Eileen Way, Syosset, L.I., N.Y., 10c, 45c, Tel: 516-WAlnut 1-6300
See ad in class 66
Ling Temco Vought, Inc., Texas, 5c, 10c, 20c, 30c, 35c, 50sc
Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid.), Calif., 20c, 50s
Ling Temco Vought, Inc., Peerless Electrical Products Div., Calif., 10c, 30c, 35c, 50c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 20c, 25c, 30sc, 35sc, 50sc
Lionel Corp., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 65c
Lionel Corp., Telerad Div., N.J., 5c, 45s
Litton Industries, Inc., Components Group, Airtron Div., N.J., 5c, 10c, 30c, 35c, 45c
Litton Industries, Inc., Components Group, Triad Transformer Corp., Calif., 10sc, 20sc, 30sc, 35sc, 40sc, 65sc
Litton Industries, Inc., Electron Tube Div., 960 Industrial Rd., San Carlos, Calif., 10sc, 45sc, Tel: 415-LYtell 1-8411
See ad in class 86
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 5c, 25c, 40c, 45c, 65c
Lynch Communication Systems, Inc., Calif., 10s, 30s, 35s, 50s, 55s, 60s
Magnalectric Corp., 2635 N. Iroquois, P.O. Box 6008, Tulsa 6, Okla., 10c, 20c, 30c, 35c, 50c, 60c, Tel: 918-FIllmore 5-7278
See ad in class 84
Magnetic Circuit Elements, Inc., Calif., 30c, 35c
Maury & Associates, Calif., 5c, 10sc, 30sc, 35sc, 45sc, 70sc
May Engineering Co., Calif., 30c, 35c, 50c
McCoy Electronics Co., Dept. IRE-10, Chestnut & Watts Sts., Mount Holly Springs, Pa., 15c, 30c, 35c, 60c, Tel: 717-HUnter 6-3411
See ad in class 56
McMillan Laboratory, Inc., McMillan Industrial Corp., Mass., 10sc, 35sc, 55sc, 65sc
Melabs, Calif., 5c, 10sc, 45sc
Melpar, Inc., Va., 5c, 10c, 15c, 30c, 35c, 45c
Meridian Metalcraft, Inc., Calif., 45c, 65c
Merrimac Research & Development, Inc., 517 Lyons Ave., Irvington 11, N.J., 10c, 25c, 30c, 35c, 45c, 50c, Tel: 201-ESsex 1-1616
See ad in class 45
Metaplast Co., Inc., N.Y., 10sc
Metropolitan Telecommunications Corp., N.Y., 5c, 10c, 20c, 25c, 30c, 35c, 50c
Microlab, 570 W. Mount Pleasant Ave., Livingston, N.J., 10sc, 30sc, 35sc, 45sc, 65sc, 70sc, Tel: 201-WYman 2-5700
See ad in class 66
Micromega Corp., Calif., 45c
Microphase Corp., Conn., 5sc, 10sc, 30sc, 35sc, 45sc, 50sc, 55sc, 60sc, 65sc, 70sc
Microsecond Electronics, Inc., Ariz., 10c, 30c, 35c, 50c
Microwave Associates, Inc., South Ave., Burlington, Mass., 15s, 45s, Tel: 617-BRowning 2-3000
See ad on page 178
Microwave Corp. of America, Conn., 5c, 45c
Microwave Development Laboratories, Inc., Mass., 5sc, 10sc, 30sc, 35sc, 45sc, 50sc, 60sc
Microwave Dynamics Corp., N.Y., 30c, 35c, 45c
Microwave Electronics Corp., Calif., 45c, 70c
Microwave Semiconductor & Instruments, Inc., N.Y., 30c, 35c, 45c
Midland Mfg. Co., Kans., 10sc, 15sc, 60sc
Midwest Foam Products Co., Ill., 55c
Miller Co. (J. W.), Calif., 5sc, 10sc, 30sc, 35sc, 70sc
Miller Industries, Inc. (R. A.), Mich., 5c, 30c, 35c, 65c
Missouri Research Laboratories, Inc., Mo., 10c, 30c, 35c, 50c
Model Engineering & Mfg. Corp., Ind., 50c, 60c
Mohawk Business Machines Corp., N.Y., 10c, 20c, 30c, 35c
Moloney Electric Co., Mo., 30c, 35c
Morey Corp., Ill., 10c, 30c, 35c, 50c, 55c
Motorola, Inc., Military Electronics Div., Ariz., 15c, 40c, 45c, 60c
Muirhead Instruments, Inc., N.Y., 70s
Multronics, Inc., Md., 5c
Munzig International, Inc., Calif., 10s, 60s
Murata Mfg. Co., Ltd., Nagaoka-cho, Otokuni-gun, Kyoto, Japan, 40s, Ceramic s, Tel: Kotari 236
See ad on page 214
Narda Microwave Corp., Dept. IRED-61-3, 118-160 Herricks Road, Mineola, L.I., N.Y., 30c, 35c, Tel: 516-Ploneer 6-4650
See ad in class 66
National Coil Co., Wyo., 5c, 10c, 30c, 35c, 50c, 60c, 70c
National Co., Inc., Mass., 10c
National Radio Co., Inc., Mass., 10c, 60sc
National Scientific Laboratories, Inc., D.C., 55c
Networks Electronic Corp., Calif., 30c, 35c, 50c
North Electric Co., Ohio, 10c
Nytronics, Inc., Essex Electronics Div., N.J., 35c
Omega Laboratories, Inc., Haverhill St., Rowley, Mass., 45c, Tel: 617-WHatney 8-7757
See ad in class 66
Optical Coating Laboratory, Inc., [illegible] 10c, 30c, 35c
Ortho Industries, Inc., 7 Paterson St., Paterson 1, N.J., 5s, 20s, 35s, 50s, 55s, 30c, 35c, 50c, 55c, 65c, Tel: 201-MULberry 4-5858
See ad in this class
Orthonic Electronics Corp., [illegible] 30c, 35c, 40c, 50c
Ovation Corp., Standard Winding Co. (Div.), 44-02 Johnes St., Newburgh, N.Y., 5c, 10c, 20c, 25c, 30c, 35c, 45c, 50c, 55c, 60c, 65c, 70c, Tel: 914 JOhn 1-3543
See ad in class 84
PCA Electronics, Inc., 16799 Schoenborn St., Sepulveda, Calif., 10c, 20c, 25c, 30c, 35c, 50 Pulse Width s, Tel: 213-EMpire 2-0761
See ad in class 57
PRD Electronics, Inc., 202 Tillary St., Brooklyn 1, N.Y., 45s, Tel: 212-UL 5-6200
See ad in class 57
Pabst Engineering Equipment Co., Inc., N.J., 45c
Pacific Electro Magnetics Corp., Inc., Calif., 20c, 35c
Pacific Instrument Co., Calif., Inc., 30c, 35c
Parsons Co. (Ralph M.), Electronics Div., Calif., 10sc
Peer, Inc., Texas, 5c, 10c, 50c
Perrott Engineering Laboratories, Inc., Subsid. of Federated Electronics, Inc., Va., 15c
Philco Corp., Sierra Electronic Corp. (Div.), Calif., 5s, 10s, 35s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

a complete line of

COAXIAL MICROWAVE COMPONENTS

- Filters
- Attenuators
- Terminations
- Mixers
- RF front ends

Write for additional information

RLC ELECTRONICS, INC.

805 MAMARONECK AVENUE
MAMARONECK, NEW YORK
OWens 8-7440

For details, circle #374 on Reader Service Card

59. Filters.

Phoenix Transformer Co., Ariz., 10c, 20c, 30c, 35c

Pickard & Burns, Inc., Subsid. of Gorham Corp., 103 Fourth Ave., Waltham R & D Park, Waltham 54, Mass., 5c, 45c, Tel: 617-HIllcrest 4-3345
See ads on page 190 & in classes 31, 44

Piezo Crystal Co., Pa., 15sc

Polyphase Instrument Co., Pa., 10c, 30c, 35c, 50c

Portchester Instrument Corp., Subsid. of Premier Microwave Corp., 114 Wilkins Ave., Port Chester, N.Y., 45c, Tel: 914-WEstmore 9-4092
See ad in class 66

Potter Co., Ill., 30c, 35c, 55sc

Power Industries, Inc., Ill., 10c, 30c, 35c, 55c, 70c

Precision Crystal Laboratory, Calif., 15c

Precision Microwave Corp., Mass., 45c

Premier Microwave Corp., 33 New Broad St., Port Chester, N.Y., 5sc, 10sc, 30sc, 35sc, 45sc, Tel: 914-WEstmore 9-8900
See ad in class 50

Pulse Engineering, Inc., Calif., 10c, 30c, 35c

Pulse Techniques, Inc., N.J., 20s

Q-Line Mfg. Corp., N.Y., 5sc

RCA Victor Co., Ltd., Canada, 10sc, 15sc, 25sc, 30sc, 35sc, 45sc, 50c

R F Products, Div. of Amphenol-Borg Electronics Corp., 33 E. Franklin St., Danbury, Conn., 10c, 15sc, Tel: 203-PIoneer 3-9272
See ad in class 80

RLC Electronics, Inc., 805 Mamaroneck Ave., Mamaroneck, N.Y., 10sc, 30s, 35s, 45s, 65s, Tel: 914-OWens 8-7440
See ads in classes 45, 59

Radar Design Corp., N.Y., 45sc

Radio Activities, Inc., N.J., 5c, 65c

Radio Engineering Laboratories, Inc., N.Y., 10c, 30c, 35c, 45c, 65c, 70c

Railroad Electronic Laboratories of Omaha, Inc., Nebr., 10c, 30c, 35c, 45c, 50c

Railway Communications, Inc., Mo., 10sc, 30sc, 35sc

Ram Electronics, Inc., N.J., 35c, 50c, 55c

Rantec Corp., Calif., 5c, 10c, 30c, 35c, 45sc, 65c

Raytheon Co., Industrial Components Div., Mass., 10sc, 40sc

Raytheon Co., Special Microwave Devices Operation, Mass., 45sc

Reed & Reese, Inc., Calif., 10c

Reeves-Hoffman, Div. of Dynamics Corp. of America, 145 Cherry St., Carlisle, Pa., 10c, 15c, 30c, 35c, 50c, 60s, Tel: 717-CHapel 3-5929
See ad in class 56

Reeves Instrument Corp., Farmingdale Div., N.J., 60c

Riverbank Laboratories, Dept. of Engineering, Ill., 10c, 40c

Rixon Electronics, Inc., Md., 5c, 10c, 20sc, 25sc, 30sc, 35sc, 45c, 50c, 55c, 60sc, 70c

Roberts Co., Inc. (R. O.), Calif., 5c, 10c, 30c, 35c, 45c

Rogers Electronic Corp., N.Y., 10c

Rohr Aircraft Corp., Antenna Systems Dept., Calif., 5c, 10c, 45c

Rypinski Co. (C. A.), Calif., 5c, 10c, 30c, 35c, 65c

Rytron Co., Inc., Calif., 10sc, 20c, 30sc, 35sc

Sage Laboratories, Inc., 3 Huron Drive, East Natick Industrial Park, Natick, Mass., 10sc, 30sc, 45sc, Tel: 617-OLympic 3-0844
See ad in class 66

Salford Electrical Instruments, Ltd., England, 10s

San Fernando Electric Mfg. Co., Calif., 55sc

Sanders Associates, Inc., N.H., 45sc

Sangamo Electric Co., Springfield, Ill., 10sc, 20c, 25c, 30c, 35sc, 50c, 55c, 60c, Tel: 217-KIngswood 4-6411
See ad on page 142

Sartron, Inc., Ore., 10c, 30c, 35c

Saturn Electronics Corp., Texas, 10c, 30c, 35c, 45c

Savoy Electronics, Inc., Fla., 55sc

Scaico Controls, Inc., N.J., 45c

Scanwell Laboratories, Inc., 6601 Scanwell Lane, Springfield, Va., 5c, 10c, 30c, 35sc, 45c, 65sc, 70sc, Tel: 703-FLeetwood 4-5800
See ad in class 44

Schaevitz Engineering, N.J., 5c, 10c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c

Schutter Microwave Corp., N.Y., 45sc

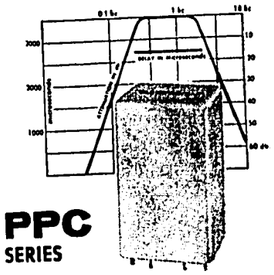
Scope, Inc., Va., 10c, 30c, 35c, 45c

Secode Corp., Calif., 5s, 10s, 30s, 35s, 45c, 60c, 65c

Security Devices Laboratory, 24 Seneca Ave., Rochester 21, N.Y., 40s, Tel: 716-HOpkins 7-3200
See ads in classes 46, 73

DELAY DISTORTIONLESS

WIDEBAND FILTERS



PPC SERIES

In the all-new SEG PPC Series, we have developed new techniques for eliminating phase and delay distortion in low, high or band-pass filters.

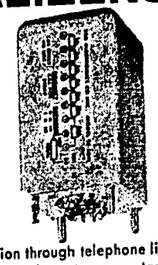
Here are typical specifications

Band width (3 db pts.)	270 to 2000 cps.
Ripple	±0.2 db
Insertion Loss	2 db Max.
Input impedance	600 ohms
Output impedance	600 ohms
Delay variation in passband	±2%
Size	3" x 3½" x 5"
Weight	5 lbs.

Hermetically sealed
Application: Data transmission

LINE EQUALIZERS

TEM SERIES



Data transmission through telephone lines has been increasing in importance constantly. The inherent reliability and freedom from interference of this transmission medium makes its use almost mandatory despite the amplitude and delay distortion inherent in telephone lines.

The SEG TEM Series of line equalizers uses new techniques for equalizing for both amplitude and delay in a single unit.

Extremely compact (a few cubic inches) the TEM Series is adjustable for any desired length of transmission line up to 25 miles.

Specify the transmission line characteristics and the nature and frequency spectrum of the transmitted signals or write for the TEM work sheet.

SEG ELECTRONICS
BROOKLYN 7, N.Y.

For details, circle #375 on Reader Service Card

Directory II. Components

59. Filters.

Seg Electronics Co., Inc., 12 Hinsdale St., Brooklyn 7, N.Y., 10sc, 20sc, 25sc, 30sc, 35sc, 50sc, 60sc, Tel: 212-DI 5-6262
See ad in this class

Sheltered Workshops, Inc., Calif., 5c, 10c, 15c, 60c, 70c

Siemens New York, Inc., N.Y., 10s, 20s, 30s, 35s, 45s, 70s

Sigma Electronics Research Corp., Wash., 5c, 10s, 35s, 45s

Sinclair Radio Laboratories, Inc., N.Y., 5c, 10c, 30c, 35c, 45c, 65c, 70c

Snelgrove Co., Ltd. (C. R.), Canada, 10sc, 15sc, 60sc

Solatron, Inc., Mass., 30c, 35c

Solitron Devices, Inc., N.J., 55s

Specific Electronics, Inc., Calif., 5c, 30c, 35c

Spectrum Instruments, Inc., N.Y., 10sc, 30sc, 35sc, 70sc

Spencer-Kennedy Laboratories, Inc., Mass., 5s, 10s, 15s, 30s, 35s, 70s

Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 45sc

Sprague Electric Co., Mass., 20c, 30c, 35c, 55sc

Stancor Electronics, Inc., 3501 W. Addison St., Chicago 18, Ill., 5s, 10s, 15s, 20s, 25s, 30s, Tel: 312-INdependence 3-7400
See ad in class 84

Stancor Electronics, Inc., Pa., 5s, 10sc, 30sc, 35sc

Standard Electronics Co., Ill., 55sc

Standard Telephones & Cables, Ltd., England, 15sc, 45sc, 60sc, 65sc

Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 5c, 10c, 15c, 45c, 50c, 65c, 70c

Systems, Inc., Fla., 10sc, 15sc, 30c, 35c, 45c, 60sc

Systems Research Corp., Calif., 10c, 30c, 35c

TMC (Canada), Ltd., Canada, 10s, 20s, 30s, 35s

TRG, Inc. (Technical Research Group), 9 Union Square, Somerville 43, Mass., 45c, Tel: 617-MOnument 6-8680
See ads in classes 44, 66

T T Electronics, Inc., Calif., 10sc, 20c, 25c, 30sc, 35sc, 50sc, 55sc, 60c

Tamar Electronics, Inc., Calif., 5sc, 10sc, 45sc, 65sc

Technicraft Div., Electronic Specialty Co., Conn., 45c

Tele Coil Co., N.J., 5c, 10c, 30c, 35c, 65c

Telechrome Mfg. Corp., N.Y., 10c, 30s, 35s

Telecomputing Corp., Calif., 30c, 35c

Telecomputing Corp., Electronic Components Div., Calif., 10c, 30c, 35c

Telecomtrol Corp., N.J., 5c, 45c, 50c, 55c, 70c

Televiso Corp., Ill., 55c

Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 10c, 20c, 30c, 35c, 50c, 55c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80

Telex, Inc., Ballastran Div., Ind., 10c, 30c, 35c, 50c

Telonic Engineering Corp., P.O. Box 277, Laguna Beach, Calif., 10c, 30c, 35c, 45c, 65c, 70c, Tel: 714-HYatt 4-7581
See ad in class 39

Telonic Industries, Inc., 60 N. First Ave., Beech Grove, Ind., 10sc, 35sc, 65sc, 70sc, Tel: 317-STate 7-7241
See ad in class 39

Tenco Electronics, Inc., Mass., 10c, 30c, 35c

Tensor Electric Development Co., Inc., N.Y., 10c, 30c, 35c, 70c

Therm, Inc., N.Y., 45c, 60c

Thompson Ramo Wooldridge Inc., Radio Condenser Co. (Subsid.), N.J., 10c, 30c, 35c

Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s, 20s, 25s, 45s, 50s, 55s, 60s, 65s, 70s

Thordarson-Meissner, Ill., 5sc, 10sc, 30sc, 35sc, 55sc

Time & Frequency, Ill., 40c

Toko Radio Coil Laboratories, Ltd., Japan, 40s

Tokyo Shibaura Electric Co., Ltd., Japan, 5c, 20c, 25c, 30c, 35c

Topping Electronics, Ltd., Canada, 5c, 10c, 30c, 35c

Torotel, Inc., 5512 E. 110th St., Kansas City 34, Mo., 5c, 10sc, 20c, 25c, 30sc, 35sc, 50sc, 60s, Tel: 816-SOuth 1-6314
See ad in class 51

Torotron Corp., Dept. D, 256 E. Third St., Mount Vernon, N.Y., 10s, 20c, 25c, 30s, 35s, Tel: 914-MOunt Vernon 8-6900
See ad in class 51

Torwico Electronics, Inc., N.J., 10c, 30c, 35c

Transco Products, Inc., Calif., 5c

Transformer Design, Inc. of Milwaukee, Wis., 10c, 30c, 35c

Transformer Engineers, Calif., 30c, 35c

Transformer Technicians, Inc., Ill., 30c, 35c

Transformers, Inc., N.Y., 10c, 20c, 30c, 35c, 50c

Transonic, Inc., Calif., 10c, 15c, 20c, 25c, 30c, 35c, 50c, 55c

Tresco, Inc., Pa., 10c

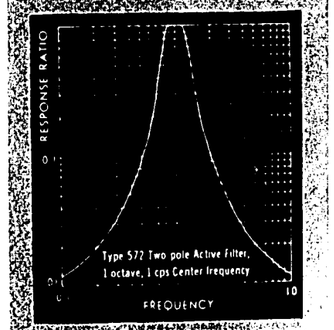
United Control Corp., Wash., 50c, 55c

United Shoe Machinery Co., Mass., 20c, 30c, 35c, 45c

U. S. Electronics Corp., N.J., 5c, 30c, 35c

U.S. Sonics Corp., Mass., 30c, 35c

ULTRA-LOW-FREQUENCY BAND PASS ACTIVE FILTERS



All filtering and networks hermetically sealed in metal cases. Special encapsulations available. Size and mounting to meet individual problems promptly considered by our complete engineering facilities. Prompt delivery — Moderate prices

White

PLANT AT 8500 BALCONES TRAIL

WHITE INSTRUMENT LABORATORIES INCORPORATED
BOX 9066 AUSTIN 17, TEXAS

TUBES

Plug-in amplifier, impedance, network parts for use as filters or band-pass amplifiers. Widely used where LC filter sections are impractical. Available with tuned circuit or band pass response with center frequency .02 to 500 cps.

TRANSISTORS

Integral transistor-network units with tuned circuit response from 1 cps to 5 kc with Q values to 20, requiring no external components.

Write for comprehensive literature on filter, amplifier, and network performance and application

- Active Filters (above), bulletins 242, 252, 272.
- Twin-T Networks for harmonic rejection, low-pass filtering, feedback circuits. Null frequencies .02 cps to 50 kc, wide range of impedance levels. Bulletin 500.
- Toroidal Wave Filters, LC filters with stable toroidal inductors. Low, high, band-pass models available over wide impedance and frequency ranges. Ask for LC Bulletins.
- Network Notes contain articles on use, performance, and problems of networks and filters.

For details, circle #376 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

THE COMPLETE LINE OF FUSES OF UNQUESTIONED HIGH QUALITY!

BUSS and FUSETRON *Small Dimension* FUSES and FUSEHOLDERS

for the protection of all types of electric and electronic devices

FUSETRON

TRUSTWORTHY NAMES IN ELECTRICAL PROTECTION

BUSS

TO ASSURE SAFE, TROUBLE - FREE PROTECTION... each and every BUSS or FUSETRON fuse is individually tested in a sensitive electronic device that rejects any fuse not correctly calibrated, properly constructed and right in all dimensions.

Write for Bulletin SFB

BUSSMANN MFG. DIVISION
McGraw-Edison Co.
2536 W University, St. Louis 7, Mo.

Directory II. Components

59. Filters.

United Transformer Corp., 150 Varick St., New York 13, N.Y., 10sc, 20c, 30sc, 35sc, 50sc, Tel: 212-ALgonquin 5-3500
See ad on Cover 2
Valor Instruments, Inc., Calif., 35c, 50c
Vanguard Electronics Co., Calif., 5c, 10c, 30c, 35c, 55c
Varo, Inc., Texas, 10c, 30c, 35c
Vidaire Electronics Mfg. Corp., N.Y., 30s, 35s
Vitro Electronics, Div. of Vitro Corp. of America, Md., 5s, 10s, 30sc, 35sc, 65c, 70c
Waber Electronics, Inc., Pa., 5s
Washington Aluminum Co., Inc., Md., 5sc, 10sc, 30sc, 35sc, 45sc, 65sc, 70sc
Watkins-Johnson Co., Calif., 45c
Waveguide, Inc., Calif., 10c, 45c
Waveline, Inc., N.J., 10s, 45s
Wavetronics, Inc., N.J., 45c
Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., 45c, Tel: 301-LOckwood 4-0121
See ad in class 45
Wells Electronics Co., Ind., 10sc, 30sc, 35sc, 50c, 55c, 60c
Western Electro-Acoustic Laboratory, Inc., Calif., 10sc, 20sc, 30sc, 35sc
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 60c, Tel: 212-JUdson 2-3030
See ad on page 224
Wheeler Laboratories, Inc., Subsid. of Hazeltine Corp., 122 Cutter Mill Rd., Great Neck, L.I., N.Y., 45c, Tel: 516-HUnter 2-7876
See ad in class 95
White Instrument Laboratories, P.O. Box 9006, 5500 Balcones Trail, Austin 17, Texas, 10c, 30c, 35c, 50c, Tel: 512-GLendale 3-8447
See ad in this class
Whitewater Electronics, Inc., Wis., 10c, 40c, 60c, 65c
Wilcox Electric Co., Inc., Mo., 5c, 10c, 20c, 25c, 30c, 35c, 50c
Winegard Co., Iowa, 5s, 10s, 65s, 70s
Wright Electronics, Div. of Pacific Industries, Inc., Mo., 15sc

Fixed capacitors:
See class 48

Fuel cells:
See class 58

60. Fuses.

5. Fuses **10. Fuse holders**

Accurate Electronics Corp., Ohio, 10sc
Aircraft & Electronic Specialties, Ind., 10c
Alden Products Co., 10140 N. Main St., Brockton 64, Mass., 10s, Tel: 617-JUniper 3-0160
See ad in class 50
Amatom Electronic Hardware Co., Inc., N.Y., 10sc
Apahouser Corp. of N.E., Mass., 5s, 10s
Ariel Davis Mfg. Co., Utah, 5c
Atlas Chemical Industries, Inc., Ordnance Materiel Dept., Del., Explosive Devices sc
Atlee Corp., Atlas Div., Mass., 10sc
Auto Products Mfg. Co., Mo., 5s
Bel Fuse, Inc., 198 Van Vorst St. at Morris St., Jersey City 2, N.J., 5sc, 10sc, Tel: 201-HEnderson 2-0463
See ad in class 57
Bellaire Electronics, Inc., N.J., 5sc
Belling & Lee, Ltd., Great Cambridge Rd., Enfield, Middlesex, England, 5s, 10s, Tel: Enfield 5393
See ad in class 52
Braun Tool & Instrument Co., Inc., 143 Fifth Ave., Hawthorne, N.J., 10sc, Tel: 201-HAwthorne 7-1773
See ad in class 78
Burndy Corp., Omaton Div., Richards Ave., Norwalk, Conn., 5sc, 10sc, Tel: 203-TEmple 8-1169
See ad in class 52
Bussmann Mfg. Div., McGraw-Edison Co., 2536 W. University at Jefferson, Saint Louis 7, Mo., 5sc, 10sc, Tel: 314-GArfield 1-1740
See ad in this class, page 486
Carma Mfg. Co., Calif., 10c
Carvil Technical Ceramics, Inc., N.J., 10s
Cinch Mfg. Co., 1026 S. Homan Ave., Chicago 24, Ill., 10c, Tel: 312-NEvada 2-2000
See ad on pages 64-65
Cinch Mfg. Co., Howard B. Jones Div., 1026 S. Homan Ave., Chicago 24, Ill., 10s, Tel: 312-NEvada 2-2000
See ad on pages 64-65
Cole Instrument Co., Calif., 10c
Connector Corp., Ill., 10sc
Culver-Stearns Mfg. Co., Mass., 10sc
Dante Electric Mfg. Co., Conn., 10c
Dittmore-Freimuth Corp., Wis., 5c, 10c
Eagle Electric Mfg. Co., Inc., N.Y., 5s, 10s
Eastern Jewel Corp., N.Y., 5sc
Electro-Products, Inc., Mich., 10s
Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 5c, 10c, Tel: 201-BIgelow 2-2700
See ad on page 140
Franklin Engineering Design Co., Calif., 5 DC s, 10s
General Electric Co., Pa., 5s
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c
Hermetic Seal Corp., N.J., 5sc
Hi-Lo Mfg. Corp., Ill., 10s
IE Mfg., Ill., 10s
International Telephone & Telegraph Corp., ITT Kellogg, Ill., 10s
International Telephone & Telegraph Corp., Royal Electric Corp. (Div.), R.I., 5s
Jamieson Laboratories, Inc., Thermocal Div., Calif., 5c
Janco Corp., Calif., 10s
Kolton Electric Mfg. Co., N.J., 10s
Kost Products Co., Inc., Ill., 10s
Kulka Electric Corp., 633-643 S. Fulton Ave., Mount Vernon, N.Y., 10s, Tel: 914-MOunt Vernon 4-4024
See ads in classes 80, 81
Langevin, Div. of Sonotec, Inc., Calif., 5s, 10s
Leviton Mfg. Co., Inc., N.Y., 5s, 10s
Littelfuse, Inc., Ill., 5sc, 10sc
Materials for Electronics, Inc., N.J., 5s
Micarta Fabricators, [illegible]
Microlectron, Inc., 1547 18th St., Santa Monica, Calif., 5s, 10s, Tel: 213 EXbrook 3-0356
See ads in classes 50, 60, 74
Mo[illegible] Electronics, Inc., Ill., Ind., Iowa, 5s, 10s
N[illegible] Mo[illegible] Inc.
National Tel Electronics Corp., 37 South Casimir Ave., Yonkers, N.Y., 5sc, 10sc, Tel: 914-YOnkers 5-9400
See ad in class 62
N[illegible] Electronics Co., [illegible]
Pa[illegible] Mfg. Co., [illegible]

MICROLECTRON FUSES

Ultra fast types for protection of semi-conductor devices.
Standard ¼" x 1" and ¼" x 1¼".
Miniature type for printed circuit use.
Built for extreme environmental capability.

MICROLECTRON, Inc. | 1547 18th Street, Santa Monica, California
EXbrook 3 | 0356

For details, circle #378 on Reader Service Card

METERS

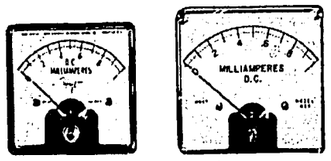
You can SEE and READ

by Hoyt

New Series 1025-1026 Interchangeable with Round Bakelite Case Types

Brilliantly new in their high visibility polystyrene cases are these modern type Meters by HOYT which give a true reading at a glance! Here longer scale length and the elimination of shadows plus clean design add up to a topnotch combination to incorporate in any panel.

The famous HOYT high torque movement with precise and rugged craftsmanship gives you what you've been looking for in Meters. These models are directly interchangeable with all round Bakelite meters, and are available in all AC and DC ranges as Ammeters, Milliammeters, Microammeters, Voltmeters and Millivoltmeters. Similar styles #1037 3½" and #1060 6" meters are also available for any modern panel meter application.



The HOYT square plastic case series (#649 and #653 shown) is available in 2½", 3½" and 4½" types. Just right for use where equipment needs to be revised to meet modern design requirements. These instruments are interchangeable with square Bakelite meters and can be supplied with a frosted or colored band on the case front in any AC and DC range. Extra long scales in shadow free cases give you the most value and quality for your money.

Write us for the NEW HOYT PANEL METER Brochure showing a complete line of plastic and Bakelite models.

Hoyt SINCE 1904 ELECTRICAL INSTRUMENTS

BURTON-ROGERS COMPANY

Sales Division, Dept. I.R.E.

42 Carleton Street, Cambridge 42, Mass.

For details, circle #379 on Reader Service Card

60. Fuses.

Raytheon Co., Industrial Components Div., Mass., 10s
Riemer Co., Inc. (David), N.Y., 10s
Rodale Mfg. Co., Inc., Pa., 5s, 10s
Sightmaster Corp., R.I., 5s
Smith, Inc. (Herman H.), Dept. 12, 2326 Nostrand Ave., Brooklyn 10, N.Y., 10s, Tel: 212-CLoverdale 3-7900
See ad in class 62
Speed Electronics, N.J., 10c
Staver Co., Inc., N.Y., 10c
Stelon, Inc., N.J., 10c
Telegraph Condenser Co., Ltd., United Insulator Div., England, 5s
Thermal Controls, Inc., N.J., 5s

Galvanometers:
See classes 16 & 40

Galvanometers, indicating:
See class 61

Gas tubes:
See class 87

Gears, gear-trains, etc.:
See class 77

Generators, magnetohydrodynamic:
See class 58

Generators, motor:
See class 67

Generators, power:
See class 69

Generators, solar:
See class 58

Generators, test:
See classes 35, 37, 38, 39 & 40

Generators, thermoelectric:
See class 58

Getters:
See class 105

Governors, current:
See class 72

Grids & grid-wire:
See class 105

Guns & gun-parts:
See class 105

Hall-effect devices:
See class 76

Hardware:
See class 97

Harnesses, wire:
See class 91

Headers:
See class 75

Headphones:
See class 79

Heads, recording:
See class 70

Hearing aids:
See class 43

Heat exchangers:
See class 54

Heat sinks & dissipators:
See class 105

Hermetic seals:
See class 75

Humidity indicators:
See class 61

Humidity testers:
See class 41

Ignitrons:
See class 86

Image tubes:
See class 86

Indicator lights & displays:
See class 63

Indicators, null:
See class 40

61. Indicating Instruments (Panel Meters & Timers).

5. Air-speed indicators
10. Ammeters
15. Frequency indicators
20. Galvanometers
25. Humidity indicators
30. Liquid level indicators
35. Microammeters
40. Milliammeters
45. Positioning indicators
50. Pressure indicators
55. Strain indicators
60. Temperature indicators
65. Timers, automatic-cycle
70. Timers, automatic-reset
75. Timers, elapsed
80. Voltmeters
85. Volume-level indicators—(DB & VU)
90. Wattmeters & watt-hour meters

ACF Electronics Div., ACF Industries, Inc., Md., 45c
A & M Instrument Service, Inc., N.Y., 80c
Abbeon, Inc., N.Y., 25sc, 60sc
Abrams Instrument Corp., Mich., 65sc, 70sc
Adage, Inc., Mass., 80sc
Adcole Corp., Mass., 65c, 70c, 75c
Aero Mechanism, Inc., Calif., 5c, 50c
Aerodyne Controls Corp., N.Y., 30sc
Aircraft Instruments Co., Pa., 30c, 45c, 50c, 75c
Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 10s, 15s, 35s, 40s, 80s, Tel: 301-ACademy 8-4600
See ad in class 53
Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 10s, 15s, 35s, 40s, 80s, Tel: 305-LUdlow 3-6160
See ad in class 53
Ameresco, Inc., N.J., 60s, 75s
American Development Electronics Co., N.J., 15c
American Instrument Co., Inc., Md., 25s
American Machine & Foundry Co., N.Y., 65s, 70s, 75s

Directory II. Components

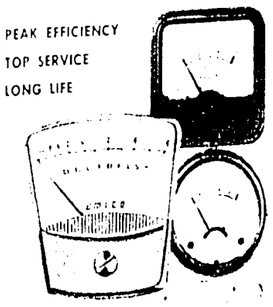
61. Indicating Instruments (Panel Meters & Timers).

American Machine & Foundry Co., Government Products Group, N.Y., 15s, 80s
American Machine & Foundry Co., Leland Airborne Products Div., Ohio, 75s
American Measurement & Control, Inc., Mass., 45sc, 50sc, 55sc
American Optical Co., J. W. Fecker Div., Pa., 45sc
Anadex Instruments, Inc., Calif., 15s
Anchor Specialty Mfg. Co., Inc., N.J., 45c, 65c, 70c
Antlab, Inc., Ohio, 45sc
Assembly Products, Inc., 75 Wilson Mills Rd., Chesterland 33, Ohio, 10s, 35s, 40s, 60s, 80s, 85s, 90s, Maximum-Reading s, Tel: 216-HAmilton 3-3131
See ad in class 73
Associated Electrical Industries (Rugby), Ltd., England, 15s, 45c, 60s, 65s, 70s, 75s
Astromics, Div. of Mitchell Camera Corp., Calif., 5c, 50sc
Astronautics Corp. of America, Wis., 45sc, 50sc, 60sc
Atkins Technical, Inc., Ohio, 25s, 60s, 90s
Atomic Accessories, Inc., Subsid. of Baird-Atomic, Inc., 817 W. Merrick Rd., Valley Stream, L.I., N.Y., 75s, Tel: 516-CUrtiss 5-9300
See ad in class 22
Auto-Test, Inc., Ill., 10s, 50s, 80sc
Automatic Timing & Controls, Pa., 30s, 45s, 50s, 65s, 70s, 75s, 85s
Automation Products, Inc., Texas, 30s
Autometric Corp., N.Y., 45c
Avien, Inc., N.Y., 30sc, 50sc, 55c, 60sc, 70sc
Avtron Mfg., Inc., Ohio, 15sc
B & F Instruments, Inc., Pa., 55sc, 60sc
Bach-Simpson, Ltd., Canada, 10s, 15s, 20s, 35s, 40s, 60s, 75s, 80s, 85s, 90s
Bailey Meter Co., Ohio, 30s, 45s, 50s, 60s, 65s
Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 65s, Tel: 617-UNiversity 4-7420
See ad in class 86
Ballantine Laboratories, Inc., Boonton, N.J., 80sc, Tel: 201-DEerfield 4-1432
See ad in class 40
Basic & Experimental Physics, Mass., 30c, 55c, 60c
Beckman Instruments, Inc., Berkeley Div., Calif., 15s, 80s, 90s
Beckman Instruments, Inc., Helipot Div., Calif., 10sc, 15sc, 35sc, 40sc, 60c, 80sc, 85c
Beckman & Whitley, Inc., Calif., 5sc, 60s
Beede Electrical Instrument Co., Inc., N.H., 10s, 15s, 20s, 35s, 40s, 60c, 80s, 85s
Behlman Engineering Co., Calif., 90c
Bendix Corp., Friez Instrument Div., Md., 5s, 25s, 45c, 60s, 65c
Bendix Corp., Montrose Div., Pa., 30c, 45sc, 50s, 60s
Bendix Corp., Pioneer-Central Div., Iowa, 5sc, 30sc, 45c, 50c
Bendix Corp., Sheffield Corp. (Subsid.), Ohio, 45s, 65s
Bendix Corp., Utica Div., N.Y., 65sc, 70sc
Bergen Laboratories, Inc., N.J., 60s, 75s
Bethlehem Instrument Co., Inc., Pa., 10c, 20c, 35c, 40c, 60c, 75c, 80c
Biddle Co. (James G.), Pa., 15s
Blue M Electric Co., Ill., 30s, 60s
Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 75sc
Bowmar Instrument Corp., 8000 Bluffton Rd., Fort Wayne, Ind., 15c, 45c, 65c, 70c, 75c, Tel: SHerwood 3121
See ad in class 77
Bright Radio Laboratories, Inc., N.Y., 60sc
Bristol Co., Conn., 10c, 20c, 25c, 30c, 40c, 50c, 60c, 80c
Bruel & Kjaer (A/S), Denmark, 85s
Bu ova Research & Development Laboratories, N.Y., 5c, 15c, 50c, 60c, 75c
Burr-Brown Research Corp., Ariz., 80s
Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., 5c
Burton-Rogers Co. (Hoyt Electrical Instruments), Dept. I.R.E., 42 Carleton St., Cambridge 42, Mass., 10s, 35s, 40s, 80s, 85s, Tel: 617-ELiot 4-1643
See ad in this class, page 488
Bytrex Corp., Mass., 55s
Cambridge Instrument Co., N.Y., 20c
Cinematic Developments, Ark., 5c, 60c
Co Engineering Co., N.J., 5c
Cole Instrument Co., Calif., 65c, 70c, 75c
Columbia Electric Mfg. Co., Ohio, 10sc, 80sc, Volt-Ammeters sc
CompuDyne Corp., Mass., 30s, 45s, 50s, 55s
Computer Instruments Corp., 92 Madison Ave., Hempstead, L.I., N.Y., 45sc, 80c, Tel: 516-IVanhoe 3-8200
See ad in class 74
Conrad-Carson Electronics, Inc., Calif., 25s, 60s
Consolidated Airborne Systems, Inc., N.Y., 30sc, 60sc, 85sc
Consolidated Controls Corp., Conn., 15c
Consolidated Electrodynamics Corp., Calif., 20s, 25s, 50s, 55s
Control Devices, Inc., Mich., 80 Peak-Reading c
Control Indicating Corp., Conn., 60c
Controlomag Laboratories, Pa., 30c, 65sc
Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 10sc, 40sc, 80sc, 90sc
Curtis Instruments, Inc., N.Y., 75sc, 90sc
Curtiss-Wright Corp., Electronics Div., N.M., 70c
Daco Instrument Co., N.Y., 75c
Dawe Instruments, Ltd., England, 5s, 80s
Daystrom, Inc., Weston Instruments Div., N.J., 10s, 15s, 20s, 25s, 35s, 40s, 60s, 75s, 80s, 85s, 90s
Daytronic Corp., Ohio, 45s, 55s
Defender Instrument & Regulator Co., Ill., 50s
DeJur-Amsco Corp., Electronics Div., N.Y., 10sc, 35sc, 40sc, 60c, 75c, 80sc, 85c
Delta Design, Inc., Calif., 65s
Destron Co., Calif., 65c, 70c
Dicon Corp., N.Y., 45c
Dimco-Gray Co., 212 E. Sixth St., Dayton 2, Ohio, 75s, Tel: 513-BAldwin 2-6703
See ad in class 97
Dittmore-Freimuth Corp., Wis., 10 Large c, 80c
Douglas Aircraft Co., Inc., Calif., 55c
Duncan Electric Co., Inc., Davenport Mfg. Div., Ill., 15c
Dynamics Instrumentation Co., Calif., 80sc
Dynatran Electronics Corp., N.Y., 35s
Eagle Signal Co., Div. of Gamewell Co., Ill., 65sc, 70sc
Ealing Corp., Mass., 10s, 20s, 25s, 35s, 40s, 80s

emico

PRECISION-PLUS METERS

- PEAK EFFICIENCY
- TOP SERVICE
- LONG LIFE



DESIGN - EMICO meters are designed to give satisfactory service under the most severe conditions. They are styled to add to the prestige and appearance of electrical equipment.

Write or call for full details and prices.

ELECTRO-MECHANICAL INSTRUMENT COMPANY
PERKASIE, PENNA.

For details, circle #380 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

MINIATURIZATION HEADQUARTERS FOR

SUB-MINIATURE
PANEL METERS
1" Round—1½" Round & Square
MILITARY • COMMERCIAL
1½" Ruggedized Meters

HIGH-TORQUE
AND FLAG-TYPE
AIRCRAFT MECHANISMS

SIDE-INDICATOR
PANEL METERS

The VOM-20
MINIATURE MULTITESTER

ELECTRONIC
CONTROL METERS

REPRESENTATIVES
IN PRINCIPAL CITIES

Write for detailed engineering data sheets

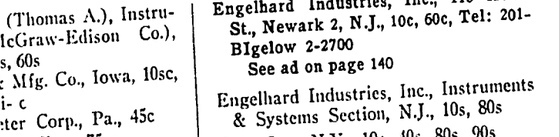
ii international instruments inc.

For details, circle #381 on Reader Service Card

61. Indicating Instruments (Panel Meters & Timers).

Edison Industries (Thomas A.), Instrument Div. (McGraw-Edison Co.), N.J., 5sc, 15s, 50s, 60s
Electric Design & Mfg. Co., Iowa, 10sc, 35c, 40c, 80 Milli- c
Electric Tachometer Corp., Pa., 45c
Electro-Craft Corp., Minn., 75sc
Electro-Mechanical Instrument Co., Eighth & Chestnut Sts., Perkasie, Pa., 10sc, 40sc, 45c, 80sc, 85c, Tel: 215-ALpine 7-6561
See ad in this class
Electro Radiation, Inc., Calif., 45c
Electro-Seal Corp., Ill., 65s, 70s
Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., Minn., 45c
Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 65c, 70c, 75c, Tel: 617-LYnn 8-2100
See ad in class 69
Electronic Instruments, Ltd., England, 10s, 75s, 80s
Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., Interval-Timers sc, Tel: 301-HAmilton 6-1268
See ad in class 73
Electronic Specialty Co., Calif., 65c, 70c
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 45c, 55c, 60c, 65sc, 70c, 75sc
Elliott-Automation, Ltd., England, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 80sc, 90sc
Ellison Draft Gage Co., Inc., Ill., 5s, 40s, 50s
Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 10c, 60c, Tel: 201-BIgelow 2-2700
See ad on page 140
Engelhard Industries, Inc., Instruments & Systems Section, N.J., 10s, 80s
Epic, Inc., N.Y., 10s, 40s, 80s, 90s
Epsco, Inc., Mass., 80sc
Epsco Medical, Mass., 20s
Exactel Instrument Co., Calif., 50s
Ferranti Electric, Inc., N.Y., 80c
Fischer & Porter Co., Pa., 25s, 30s, 50s, 60s, 75s, 85s
Flo-Tronics, Inc., Electronic Controls Div., Minn., 30sc, 65sc
Fluke Mfg. Co., Inc. (John), Wash., 80 Differential s, 90s
Foxboro Co., Mass., 50c, 60c
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 15c, 65sc, 70sc, 75sc, Tel: 216-SHadyside 9-0700
See ad in class 50
Gelman Instrument Co., 106 N. Main St., P.O. Box 118-R, Chelsea, Mich., 5c, 35s, Tel: 313-GReenwood 9-4821
See ads in classes 22, 40
Gemco Electric Co., Mich., 5c, 30sc, 45c, 65s, 70sc, 75c
General Electric Co., Apparatus Sales Dept., N.Y., 10s, 15s, 20s, 30s, 35s, 40s, 45sc, 60sc, 65s, 70s, 75s, 80s, 85s, 90s
General Electric Co., Clock & Timer Dept., Mass., Clock-Radio Timers s

BIG LOOK panel meters



Ratings of D-c Panel Meters

D-C VOLTMETERS (Self-contained) 1.5, 3, 5, 8, 10, 15, 30, 50, 80, 100, 150, 200, 250, 300, 500 or 600 volts
D-C VOLTMETERS (For use with external resistors) 500, 600 or 750 volts
D-C AMMETERS (Self-contained) 1, 1.5, 2, 3, 5, 10, 15, 20, 30 to 50 amperes
D-C AMMETERS (For use with 50 millivolt external shunts) 50, 75, 100, 150, 200, 250, 300, 400, 500, 600 or 800 amperes; 1, 1.2, 1.5 or 2 KA
D-C AMMETERS (For use with 100-mv external shunts) 20, 40, 50, 75, 100, 150, 200, 250, 300, 400, 500, 600 or 800 amperes; 1 or 2 KA
D-C MICROAMMETERS 20, 50, 100, 200 or 500 microammeters
D-C MILLIAMMETERS 1, 1.5, 3, 5, 10, 20, 25, 30, 50, 80, 100, 150, 200, 250, 300, 500 or 800 milliammeters

Ratings of A-c Panel Meters

A-C VOLTMETERS (Self-contained) 3, 5, 10, 15, 30, 50, 150, 300, 500 or 600 volts
A-C VOLTMETERS (Transformer rated) 600 or 750 volts; 3 KV
400-CYCLE A-C VOLTMETERS (Self-contained—for use at 400 cycles) 150 or 300 volts
A-C AMMETERS (Self-contained) 1, 3, 5, 8, 10, 15, 20, 30 or 50 amperes
A-C AMMETERS (Transformer rated) 10, 15, 20, 30, 40, 50, 75, 80, 100, 150, 200, 300, 400, 500, 600 or 800 amperes; 1, 1.2, 1.5, 2 or 3 KA
A-C LOAD INDICATORS—Rated 0-5A. Can be applied to any 60-cycle a-c motor when used with the variable-ratio Type JCH-O current transformer
A-C MILLIAMMETERS 10, 25, 50, 100, 200 or 500 milliammeters

Ratings of Rectifier-type Panel Meters

VOLTMETERS 10, 15, 20, 25, 30, 50, 80, 100, 150, 200, 250 or 300 volts
MICROAMMETERS 500 or 800 microammeters
MILLIAMMETERS 1, 1.5, 2, 3, 5, 10 or 20 milliammeters

Available in 2½-, 3½-, and 4½-inch a-c, d-c, and rectifier types, General Electric BIG LOOK panel meters are particularly suitable for use in radio and communication equipment where accuracy and quality are required and space is at a premium. Features include distinctive appearance, excellent readability, and improved reliability. 2% accuracy class except for rectifier types.

Completely Sealed Cases on 2½- and 3½-inch Designs

General Electric quality is built in to stay. Gasketed construction on 2½- and 3½-inch models protects internal parts from dirt, dust, and water, and helps assure extra long, reliable life.

Snap-on, Snap-off Covers on 4½-inch Designs

Snap-on, snap-off covers are supplied on all 4½-inch BIG LOOK panel meters. The covers can be easily removed and replaced while the meter remains in its normal mounted position.

	SIZE		
	2½-inch	3½-inch	4½-inch
Scale length	2.1 in.	2.9 in.	3.93 in.
Approx net weight	7 oz	7 oz	9 oz

For more information call your nearby G-E Apparatus Sales Office or Distributor, or write to Sect. 998-46, General Electric Company, 1 River Road, Schenectady 5, N. Y.

GENERAL ELECTRIC

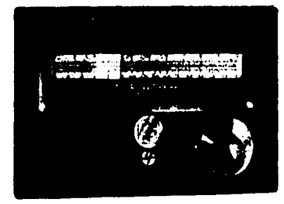
For details, circle #382 on Reader Service Card

Directory II. Components

61. Indicating Instruments (Panel Meters & Timers).

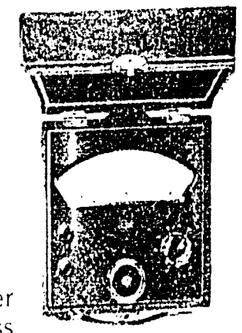
General Electric Co., Instrument Dept., 40 Federal St., Lynn, Mass., 10s, 15s, 35s, 40s, 50s, 55s, 60s, 65s, 70s, 75s, 80s, 90s, Tel: 617-LYnn 3-3400
See ad in this class
General Meters, Inc., Colo., 10c, 15c, 20c, 35c, 40c, 60c, 80c, 85c
General Precision Equipment Corp., GPE Controls, Inc. (Subsid.), Ill., 15s, 30s, 45s, 50s
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5sc, 30sc, 45sc, 50sc
General Precision, Inc., Kearfott Div., N.J., 45sc
Genisco, Inc., Calif., 80s
Giannini Controls Corp., Cramer Controls Corp., Conn., 65sc, 70sc, 75sc
Gilfillan Brothers, Inc., Calif., 45c
Gilford Instrument Laboratories, Inc., Ohio, Bio-Medical sc
Gilmore Industries, Inc., Ohio, 30c, 45c, 50c, 55c, 60c
Globe Industries, Inc., Ohio, 65c, 70c, 75c
Good Electronic Corp., Fla., 5c
Goodrich Co. (B. F.), B. F. Goodrich Aviation Products Div., Ohio, 50sc
Green Instruments, Inc. (Henry J.), N.Y., 25sc, 50sc, 60sc
Green Rectifier Co., N.J., 65s, 70s
Greibach Instruments Corp., 329 North Ave., New Rochelle, N.Y., 10sc, 20sc, 35sc, 40sc, 80sc, Tel: 914-NEw Rochelle 3-7900
See ad in this class
Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 30c, 45c, 50c, 55c, Tel: 516-WElls 8-9500
See ad in class 77
Guildline Instruments, Ltd., Canada, 20s
H-B Instrument Co., Pa., 25sc, 60sc
Hadlock & Temte, Inc., Ill., 75c
Hagan Chemicals & Controls, Inc., Pa., 30c, 45c, 50c, 55c, 60c, 65c
Hamilton Watch Co., Industrial Products Div., Pa., 65c, 70c, 75c
Hastings-Raydist, Inc., Va., 5s, 30s, 45s, 50s
Haydon Co. (A. W.), Calif., 65c, 70c
Haydon Co. (A. W.), Conn., 45c, 65c, 70c, 75c
Hays Corp., Ind., 30sc, 50sc, 60sc
Hickok Electrical Instrument Co., Ohio, 5c, 10c, 15c, 20c, 30c, 35c, 40c, 60c, 80c, 90c
High Vacuum Equipment Corp., Mass., 50s
Hitachi New York, Ltd., N.Y., 10c, 15c, 30c, 80c, 90c
Hoffman Electronics Corp., Calif., Thrust-Indicators c
Houston Fearless Corp., Westwood Div., Calif., 75c
Howell Instruments, Inc., Texas, 5s, 10s, 15s, 20s, 30s, 40s, 45s, 50s, 55s, 60s, 80s
Hoyt Electrical Instrument Works, Inc. See Burton-Rogers Co.
Hudson Bay Co., Div. of Labline, Inc., Ill., 25s, 75s
Huppert Co. (K. H.), Ill., 60s
Huyck Systems Co., N.Y., 5c, 45s
I.D. Precision Components Corp., N.Y., 75c
Ideal Precision Meter Co., Inc., N.Y., 10sc, 35sc, 40sc, 80sc, 85sc
Industrial Control Co., N.Y., 45sc
Industrial Devices, Inc., N.J., 80c
Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif., 65c, Tel: 213-TRiangle 7-1144
See ads on page 162 & in class 63
Industrial Nucleonics Corp., Ohio, 30s
Industrial Timer Corp., N.J., 65sc, 70sc, 75sc
Inertia Switch, Inc., 311 W. 43rd St., New York 36, N.Y., 55 Shock c, Tel: 212-JUdson 6-5880
See ad in class 80

PANEL MODEL



PANEL MODEL

PORTABLE MODEL



GREIBACH PRECISION METERS

nearest to the theoretical ideal of the perfect electrical meter —for direct measuring with the highest accuracy and negligible loss

for TRANSISTORS, DIODES, TUBES, AMPLIFIERS, IONIZATION, HYPERCRITICAL MEASURING, CONTROL BY LIGHT BEAM & PHOTOCELL

D.C. ULTRA SENSITIVE METER TO .0002 MA
6.3 inch scale—Microamps to Amps with high overload capacity. Precise, stable, rugged, up to 23 ranges in a single meter.

SELECTIVE EXPANSION .025%
.025% accuracy on effective 1,000 division 5 ft. scale, electrically folded into 10 sections. No hunting for readings.

NEW AC/DC NON-THERMAL TRUE RMS MICROAMMETER
Now voltmeters and ammeters with lowest energy consumption of any non-amplifier type. Low millivolt drop. 20-30MV, high overload capacity. Response DC to megacycles.

BIFILAR SUSPENSION IN ALL METERS
Frictionless, pivotless. No jewel bearings. Unique bifilar suspension—this basic element in all Greibach meters—assures permanent calibration.

Write for Complete Catalog and Price List.

GREIBACH INSTRUMENTS CORP. 329 North Avenue, New Rochelle, New York Phone—NEw Rochelle 3-7900

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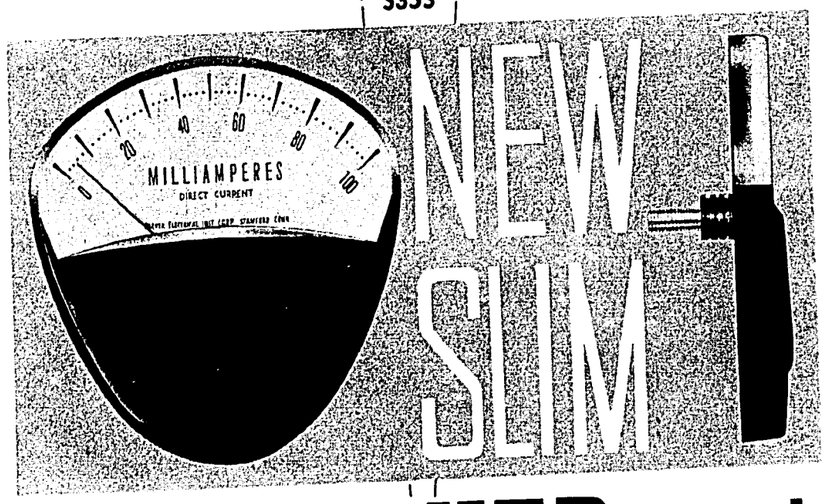
SERIES S35 • S35S



PARKER panel meters

STANDARD (S35) AND SEALED (S35S) FOR SURFACE MOUNTING

FEATURING...

- **Two 3/8" holes for mounting**
- **Accuracy—1½% full scale**
- **Movement withstands 100 times full scale current continuously**
- **Printed circuit coil**
- **Ceramic disk magnet**
- **Distinctive styling for minimum space**
- **Self shielding**

The Parker Surface Mounting Panel Meter embodies a revolutionary approach to movement design using a printed circuit coil in conjunction with a thin ceramic disk magnet.

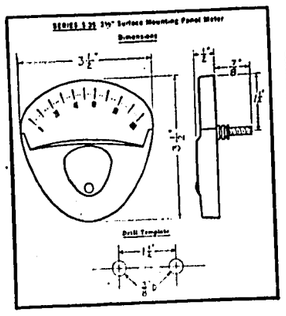
The most striking advantage of this technique is a great reduction in size so that the entire meter is contained in the scale housing and nothing projects from the rear except the terminals – which also serve as mounting screws.

STABILITY – Ceramic magnets used in Parker meters supersede all other known types of magnets for stability.

POINTERS – All meters have nylon pointers which are unaffected by overload shock contact with limit stops.

BEARINGS – Synthetic sapphire in silicone rubber shock-mounts. Pivots are made from "Niva Point"

SCALE LENGTH – Extra long 3 3/16" scale for maximum readability.



PRICES/LIST (S35)

DC MILLIVOLTMETERS	$12.72	25 MV 50 MV 100 MV	
DC VOLTMETERS	$13.92	1.5 VDC 3.0 VDC 5.0 VDC 10 VDC 15 VDC 25 VDC 30 VDC 50 VDC 100 VDC 150 VDC 200 VDC	500 ohms volt*
	$15.12	250 VDC 300 VDC 500 VDC	1,000 ohms volt
DC MILLIAMMETERS	$14.40	1 MADC	
	$13.20	2 MADC DC	
	$12.00	5 MADC 10 MADC 20 MADC 25 MADC 30 MADC	
	$12.84	50 MADC 100 MADC 150 MADC 200 MADC 300 MADC 500 MADC	
DC MADC AMMETERS	$12.84	1 Ampere 2 Amperes 5 Amperes 10 Amperes	
AC VOLTMETERS	$18.00	10 VAC 15 VAC 25 VAC 50 VAC 100 VAC 150 VAC 200 VAC	500 ohms volt*
	$19.20	300 VAC 500 VAC	1,000 ohms volt
AC MILLIAMMETERS	$18.84	100 MAAC 500 MAAC	
AC AMMETERS	$18.84	1 AMP AC	

*Also available in 200 and 1000 ohms volt.

SPECIFICATIONS SERIES S35 - S35S

STANDARD ACCURACY 1.5% of full scale value at 70°F Ambient.

INSULATION All meters are checked for calibration at all cardinal points.

5000 Volts DC between terminals (mounting screws), and panel.

We welcome inquiries for non-standard units to customers' specifications.

Add $1.20 to above list prices for S35S sealed model

PARKER ELECTRICAL INSTRUMENT Corp.

375 FAIRFIELD AVENUE • STAMFORD, CONN.
DAvis 5-3841

For details, circle #384 on Reader Service Card

Directory II. Components

61. Indicating Instruments (Panel Meters & Timers).

Information Systems, Inc., Calif., 30c, 50c, 60c, 85c
Ingraham Co., Conn., 65c
Instrument Laboratories, Ill., 85s
Instrument Systems Corp., N.Y., 20sc, 45c
International Instruments, Inc., 88 Marsh Hill Rd., Orange, Conn., 10s, 35s, 40s, 45c, 60c, 80s, 85s, Tel: 203-SYcamore 5-4711
See ad in this class
International Register Co., Ill., 65sc, 70sc
International Research & Development Corp., Ohio, 15s
Isotope Developments, Ltd., England, 30s
J-B-T Instruments, Inc., 133 Hamilton St., New Haven 8, Conn., 15s, 60s, 70s, 75s, Tel: 203-STate 7-5825
See ads in classes 61, 80
Jamieson Laboratories, Inc., Thermocal Div., Calif., 55 Shock c
Jennings Radio Mfg. Corp., 970 McLaughlin Ave., San Jose 8, Calif., 80s, Tel: 408-CYpress 2-4025
See ad in class 49
Johnson Service Co., Wis., 25s, 45s, 60s
Jordan Electronics, Calif., 65c, 70c
Kahl Scientific Instrument Corp., Calif., 25sc, 60sc
Kahn & Co., Inc., Conn., 15c, 25c, 60c
Keithley Instruments, Inc., Ohio, 35c, 80 Micro- c
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 20s, 35s, 80sc
Kinn Electronics Corp., Md., 25c
Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc, 65sc, 70sc, 75sc, 80sc, 85sc, 90sc
Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 50c, 55c, Tel: 516-RAvenswood 9-7580
See ad in class 89
Labline, Inc., Ill., 25s, 75s
Lake City, Inc., Ill., 65c, 75c
Lakeshore Industries Div., Aitken-Reed, Inc., Wis., 65c, 70c
Larson Instrument Co., 21 Greenbush Rd., Orangeburg, N.Y., Contact Meters, Tel: 914-ELmwood 9-2310
See ad in this class
Lear, Inc., Calif., 5sc, 45sc, 50sc, 60sc
Lektra Laboratories, Inc., N.Y., 65s, 75s
Leupold & Stevens Instruments, Inc., Ore., 30s, 65c, 70c, 75c
Lewis Engineering Co., Conn., 60sc
Lewis Instruments, Inc., N.Y., 60s
Liebel Flarsheim Co., Ohio, 70sc, 75sc
Liquidometer Corp., N.Y., 30c, 45sc
Lockheed Electronics Co., N.J., 65s, 70s, 75s
MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 50c, Tel: 305-LOgan 4-8518
See ad in class 4
Magnetic Instruments Co., Inc., 637 Commerce St., Thornwood, N.Y., 60s, Tel: 914-ROdgers 9-5312
See ad in class 43
Malaker Laboratories, N.J., 60sc
Manson Laboratories, Inc., Conn., 15sc
Markal Co., Ill., 60sc
Marstan Electronics Corp., N.Y., 15c, 65c, 70c, 75c
Martindale Electric Co., Ohio, 10s
Mast Development Co., Iowa, 65c, 70c, 75c
Maurer, Inc. (J. A.), N.Y., 20sc
McDowell Electronics, Inc., N.J., 10sc
McElroy Electronics Corp., Mass., 65s, 70c, 75c
Measurements Research Co., Pa., 35s
Meters, Inc., Ind., 10c, 20c, 35c, [illegible], 80c, 85c
Metrologie, Compagnie [illegible], France, 10sc, 35sc, 80sc
Miller-Harris Instrument Co., [illegible], 75c

VIBRATING REED FREQUENCY METERS

J-B-T

Used wherever constant or known frequency is important to efficient operation of equipment.

Model 30-F

- *Permanently Accurate* within ±0.3% or better at reference temperature, depending on the model. This accuracy is not affected by poor wave form, external magnetic disturbances, or voltage fluctuations.
- *Size and Type for Every Service.* Made in many portable and panel styles and reed groupings; 12-650 cycles and above.
- *Rugged Construction* simplified, patented.
- *Suitable for Electronic Circuits.* Power consumption is comparatively low, and J-B-T reeds have high Q with prompt, sharp response.

ELAPSED TIME METERS

J-B-T elapsed time (or running time) meters provide a convenient means for timing reliability or other tests, checking tube or machine life, and scheduling maintenance. To be compatible with other panel indicators, they are made in many case types: round, square, clear-plastic, glass-to-metal seal, or special. Standard models for 60 cycles, 100-130 volts register in 1/10 hour steps to 9,999.9 hours (or 99,999.9 hours in new Model 31-EXW illustrated) then automatically reset. Others such as 50 cycles, 230 volts, or 0-9,999.9 minutes are also available.

Purchase of standard items through authorized electronic distributors is strongly recommended.

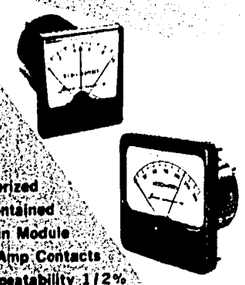
ASK FOR CATALOG 558-G

J B T INSTRUMENTS INC
NEW HAVEN 8 CONN

For details, circle #385 on Reader Service Card

Larson

CONTACT METERS



- Transistorized
- Self-Contained
- Plug-In Module
- 10 Amp Contacts
- Repeatability 1/2%
- Meter Accuracy to 1%
- Expanded Scale
- Automatic Reset
- No Locking Coils
- No Magnetic Contacts
- Single or Dual Limit

Accurate Monitoring and Control of Any Variable

Write for Catalog!

Larson INSTRUMENT CO.

21 Greenbush Road • Orangeburg, N. Y.

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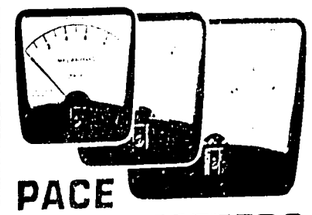


PACE PANEL METERS

FOR INDUSTRY - LABORATORY - COMMUNICATION

PACE [illegible] is ready to assist [illegible] meters, built [illegible] your specifications or stock meters [illegible] many industrial electronic parts distributors.

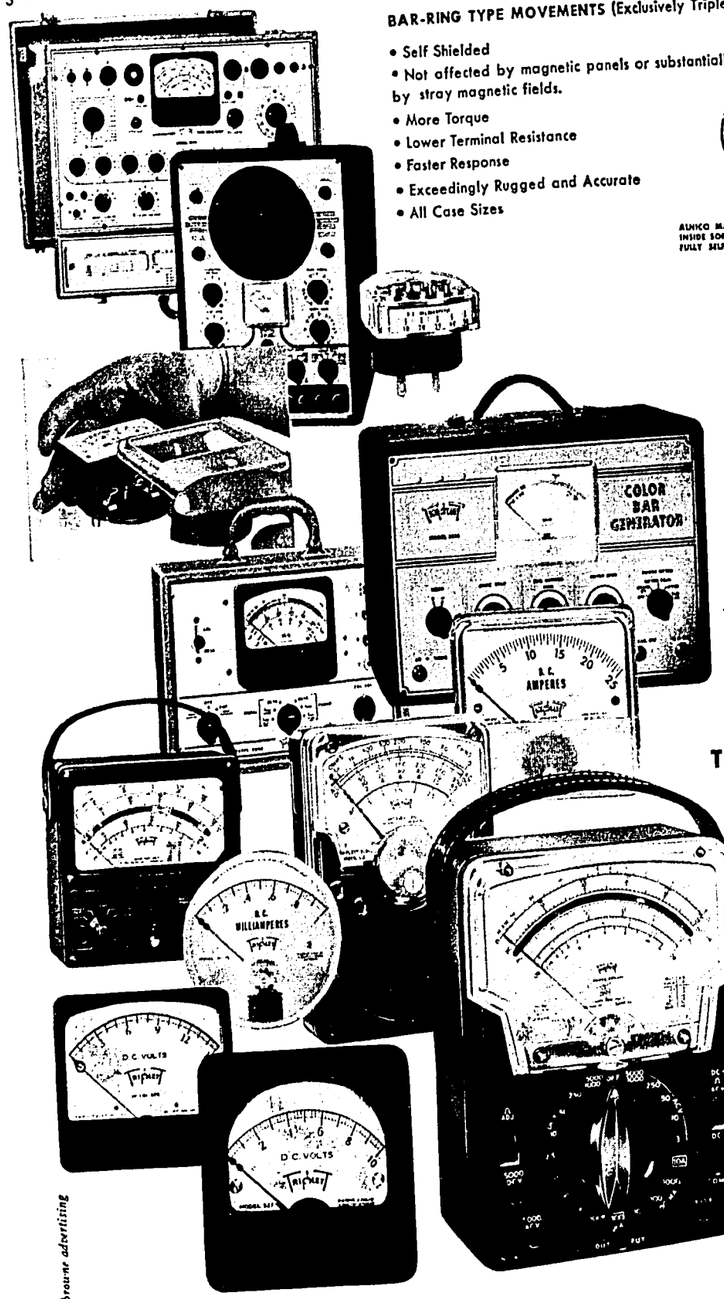
Prompt attention and quotation [illegible] to all inquiries

Write for new complete catalog P-6

PACE

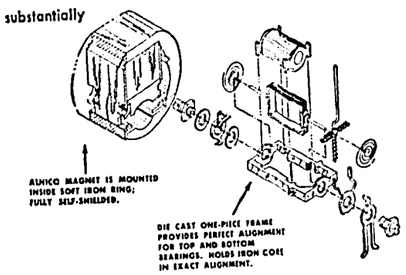
PACE ELECTRICAL INSTRUMENTS CO., INC.
A subsidiary of Pacetronics Inc
70-31 84th St., Glendale 27, N.Y.
For details, circle #387 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.



BAR-RING TYPE MOVEMENTS (Exclusively Triplett)

- Self Shielded
- Not affected by magnetic panels or substantially by stray magnetic fields.
- More Torque
- Lower Terminal Resistance
- Faster Response
- Exceedingly Rugged and Accurate
- All Case Sizes



TRIPLETT
Quality... First to last

TRIPLETT—For over 56 years, a leader in the field of meter and test equipment design and manufacture.

TRIPLETT offers a complete line of:

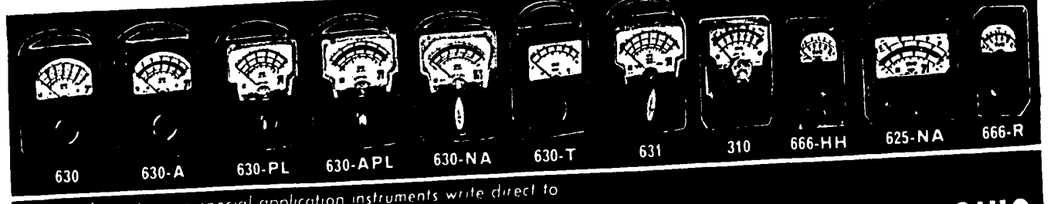
- Panel Instruments
- Portable Instruments
- Test Equipment: Radio, TV, Electrical and Electronic

For a complete description of all products, see the **TRIPLETT** listing in the Radio Electronic Master catalog.

All standard Triplett products available nationally through authorized Triplett Distributors.

Burton-browne advertising

The World's Most Complete Line of VOMS for Every Purpose.



For information on special application instruments write direct to

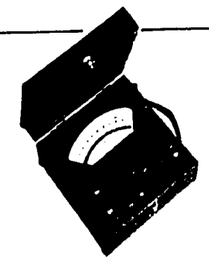
TRIPLETT ELECTRICAL INSTRUMENT COMPANY, BLUFFTON, OHIO

For details, circle #388 on Reader Service Card

Directory II. Components

61. Indicating Instruments (Panel Meters & Timers).

Minco Products, Inc., Minn., 60s
Minicord Corp. of America, N.J., 10s, 35s, 40s, 80s, 85s
Minneapolis-Honeywell Regulator Co., Fall River Div., Mass., 30c, 50c, 60c
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 25s, 30s, 60s
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 25c, 30c, 75c
Minneapolis-Honeywell Regulator Co., Precision Meter Div., N.H., 10sc, 25c, 35sc, 40sc, 45c, 60c, 75sc, 80sc, 85sc
Model Engineering & Mfg. Corp., Ind., 45c, 50c, 80c, 85c
Muirhead & Co., Ltd., England, 45s
Munzig International, Inc., Calif., 80s, 85s, 90s
Natel Engineering Co., Calif., 15s
National Electronics, Wyo., 10c, 15c, 20c, 30c, 35c, 40c, 50c, 60c, 80c, 90c
Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 65c, 70c, 75c, Tel: 215-GLendale 2-6531
See ad in class 10
Noel Mfg. Co., Inc., N.Y., 65c
Non-Linear Systems, Inc., P.O. Box 728, Del Mar, Calif., 80sc, Tel: 213-SKyline 5-1134
See ad on pages 76-77
Ohio Semiconductors, Div. of Tecumseh Products Co., 1205 Chesapeake Ave., Columbus 12, Ohio, 10 Clamp-on c, Tel: 614-HUdson 6-9561
See ad on page 45
Omega Dynamics Corp., Calif., 50sc
Omtronics Mfg., Inc., Nebr., 60sc
Orbit Instrument Corp., N.Y., 45c
Pace Electrical Instruments Co., Inc., Subsid. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 10sc, 20sc, 35sc, 40sc, 80sc, 85sc, Tel: 212-TWining 4-4290
See ad in this class
Pacific Electrical Instrument Laboratory, Calif., 10c, 35c, 40c, 80c
Palomar Scientific Corp., Calif., 30c, 50c
Parker Electrical Instrument Corp., 375 Fairfield Ave., Stamford, Conn., 40sc, Tel: DAvis 5-3841
See ad in this class
Penn Keystone Corp., Conn., 45sc
Pennwood Numechron Co., 7249 Frankstown Ave., Pittsburgh 8, Pa., 75s, Tel: 412-FRemont 1-4200
See ad in class 11
Phaostron Instrument & Electronic Co., Calif., 10sc, 15sc, 20sc, 35sc, 40sc, 45sc, 80sc, 85sc
Philco Corp., Pa., 25c, 90s
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 65s, 70s, 75s
Philips Electronics Industries, Ltd., Canada, 20s, 30s, 50s, 55s
Photographic Analysis, Inc., Calif., 45c
Photomation, Inc., N.J., 45s
Photron Instrument Co., Ohio, 20s
Physical Sciences Corp., Affil. of Packard-Bell Electronics, Calif., 40c, 60c
Physics Research Laboratories, Inc., Dept. SA-1, P.O. Box 555, Hempstead, L.I., N.Y., 10s, 20s, 35s, 40s, 80s, 90s, Tel: 516-IVanhoe 3-8299
See ad in class 40
Piezo Products Co., Mass., 60c
Pioneer Electric & Research Corp., Ill., 65sc, 70sc
Polytronic Research, Inc., Md., 15c
Potter Aeronautical Corp., N.J., 5s, Fuel-Flow s
Precise Electronics & Development Corp., Subsid. of Designatronics, Inc., N.Y., 35s, 40s, 80s
Precision Scientific Co., Ill., 75s
Pyrometer Instrument Co., Inc., N.J., 10s, 60s
QVS, Inc., N.J., 10c, 20c, 35c, 40c, 60c, 80c, 85c
Quan-Tech Laboratories, Inc., N.J., 35sc
RDF Corp., N.H., 60c
Rainier Co., Inc., N.Y., 5c, 45c, 50c
Ramapo Instrument Co., Inc., N.J., 55s
Rawson Electrical Instrument Co., Inc., 113 Potter St., Cambridge 42, Mass., 35c, 40c, 80c, 90c, Tel: 617-KIrkland 7-4041
See ad in this class
Red Point Corp., Calif., 60s
Rheem Mfg. Co., Rheem Electronics Div., Calif., 45sc
Richards Co., Inc. (Arklay S.), Mass., 60sc
Riemer Co., Inc (David), N.Y., 35s, 40s, 80s, 85s
Robins Industries Corp., N.Y., 85s
Rodale Electronics, Inc., N.Y., 35c, 40c, 80c
Rotiform Co., Calif., 45s
Rowan Controller Co., Md., 10sc, 15sc, 20sc, 35sc, 40sc, 80sc
Roy Co. (Milton), Pa., 30sc
Royal Industries, Inc., Vard Div., Calif., 45 Nuclear-Reactor-Control Rod sc
Royco Instruments, Inc., Calif., 60sc
Safe Flight Instrument Corp., N.Y., 5s
Salford Electrical Instruments, Ltd., England, 10s, 15s, 30s, 35s, 40s, 45s, 50s, 80s, 85s, 90s
Sangamo Electric Co., Springfield, Ill., 10s, 50c, 80s, 90s, Tel: 217-KIngswood 4-6411
See ad on page 142
Schaevitz Engineering, N.J., 15s, 25s, 30sc, 45sc, 50sc, 55sc, 60s, 70s, 75s
Scientific-Atlanta, Inc., Ga., 5s
Seco Electronics, Inc., Minn., 5s



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MULTIMETERS® and REGULAR METERS
AC and DC types, multiple ranges, accuracy ½ of 1%. 2 microamperes to 1 ampere DC. 2 milliamperes to 3 amperes AC.

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Ranges 100 V to 35,000 V, AC or DC. Resistance exceeds million megohms. Can measure static electricity.

R. F. VOLTMETERS
DC to 100 megacycles s. Thermocouple type Ideal for laboratory standards. New bulletin.

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Laboratory and production measurements on magnets and magnetic circuits. Single push button return-to-zero.

ROTATING COIL GAUSSMETERS
Our most recent development for measuring magnetic field strengths. Measures from a few gausses to 120 kilogausses.

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ELECTRICAL INSTRUMENT CO.
fine instruments since 1918
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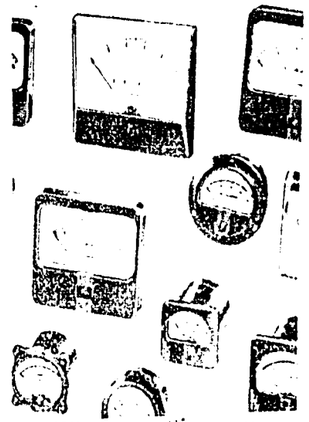

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INSTRUMENTS THAT STAY ACCURATE

SIMPSON ELECTRIC CO.
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Phone: ESterbrook 9-1121
In Canada: BACH-SIMPSON LTD., LONDON, ONT.
For details, circle #390 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Sensitive Research Instrument Corp., 310-316 Main St., New Rochelle, N.Y., 10sc, 15sc, 20s, 35sc, 40sc, 80sc, 90sc, Tel: 914-BEverly 5-2300
See ad in class 31

Serdex, Inc., Mass., 25s

Servo Development Corp., 2 Willis Court, Hicksville, L.I., N.Y., 45c, 60c, 65c, 70c, 75c, Tel: 516-OVerbrook 1-4343
See ad in class 77

Servo-Tek Products Co., Inc., N.J., 5s, 15s, 45sc, 80s

Servomechanisms/Inc., Calif., 5c, 30c, 45c, 50c, 60c

Servonic Instruments, Inc., Calif., 45c, 50c

Shallcross Mfg. Co., N.C., 20sc

Shaw Instrument Corp., Pa., 60sc

Shurite Meters, Conn., 10s, 40s, 80s, 85s

Siemens New York, Inc., N.Y., 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s, 50s, 60s, 65s, 70s, 80s, 85s, 90s

Simmonds Precision Products, N.Y., 25c, 30c, 45c, 50c, 60c

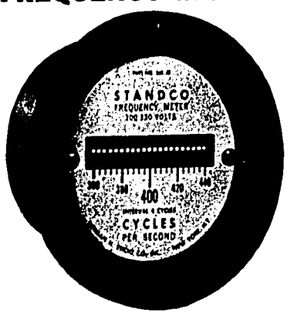
Simpson Electric Co., 5218 W. Kinzie St., Chicago 44, Ill., 10sc, 20sc, 35sc, 40sc, 60sc, 65s, 75s, 80sc, 85sc, 90sc, Tel: 312-EStebrook 9-1121
See ad in this class

Slip Ring Co. of America, Calif., 75c

Space Instrumentation Corp., Calif., 15sc

Specialty Electronics Development Corp., N.Y., 80s

"STANDCO"
VIBRATING REED
FREQUENCY METERS



HERMETICALLY SEALED
and Ruggedized
3½" and 2½" Sizes
Meeting all MIL Specs

Normal Frequencies
25, 50, 60 or 400 Cycles
Special Ranges
from 15-1500 cycles

ALSO IN OTHER TYPES

PANEL MOUNTING: 3½" Flush Bakelite.
SWITCHBOARD MOUNTING: 7¼" round surface, or 4½" square semi-flush cases.
PORTABLES: In large or small cases.

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27 PARK PLACE. NEW YORK 7, N Y

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Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 45c, 50c, 65c, 70c, 80c

Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 80sc

Standard Electric Time Co., Mass., 70sc, 75sc

Standard Instrument Corp., N.Y., 60c, 75s

Stark Electronic Instruments, Ltd., Canada, 10s, 35s, 40s, 80s, 85s

Sterling Mfg. Co., Ohio, 10sc, 35sc, 40sc, 80sc

Stewart-Warner Corp., John W. Hobbs Corp. (Div.), Ill., 75sc

Sticht Co., Inc. (Herman H.), 27 Park Place, New York 7, N.Y., 15s, 75s, Tel: 212-REctor 2-8163
See ad in this class

Strandberg Eng. Labs., Inc., N.C., 25c

Streeter-Amet Co., Ill., 30c, 55c, 60c, 65c, 70c, 75c

Sun Electric Corp., Instrumentronics Div., Ill., 10sc, 15sc, 20c, 35sc, 40sc, 60c, 75sc, 80sc, 85sc

Sunshine Scientific Instrument, Pa., 10sc, 15sc, 20sc, 35sc, 40sc, 45c, 50c, 55c, 60sc, 65sc, 70sc, 75sc, 80sc, 85sc

Superior Instruments Co., N.Y., 10s, 40s, 80s, 85s

Taber Instrument Corp., N.Y., 50s

Taylor Instrument Companies, N.Y., 25c, 40c, 45c, 50c, 55c, 60c, 65c, 70c, 75c

Technique Associates, Ind., 10s

Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 15c, 90c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80

Tempil Corp., N.Y., 60s

Ten Bosch, Inc. (M.), N.Y., 5s, Servo-Indicators s

Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 30s, Tel: 214-ADams 5-3111
See ad on Cover 3

Therm, Inc., N.Y., 5c, 55c, 60sc

Thermalic Electronics Corp., Calif., 60sc

Thermo Electric Co., Inc., N.J., 25s, 50s, 60s

Thermo Products Co., Inc., Wis., 60sc

Thermovolt Instruments, Ltd., Canada, 5c, 10c, 20c, 25c, 30c, 40c, 50c, 60c, 80c, 85c, 90c

Theta Instrument Corp., 520 Victor St., Saddle Brook, N.J., 45s, 80s, Tel: 201-HUbbard 7-3508
See ad in class 97

Thompson, Ltd. (J. Langham), England, 50s

Time-O-Matic, Div. of E-S Industries, Inc., Ill., 60s, 65s, 70s

Tipptronic, Inc., Ohio, 5s, 10s, 35s, 40s, 50s, 60s, 80s

Tork Time Controls, Inc., N.Y., 65sc

Tradewinds Mfg. Co., Nebr., 5s

Trio Laboratories, Inc., DuPont Dr., Plainview, L.I., N.Y., 80sc, Tel: 516-OVerbrook 1-0400
See ad in class 40

Triplett Electrical Instrument Co., 286 Harmon Rd., Bluffton, Ohio, 10s, 20s, 35s, 40s, 80s, 85s, 90s, Tel: Bluffton 3231
See ad in this class

Union Switch & Signal, Div. of Westinghouse Air Brake Co., Braddock Ave., Pittsburgh 18, Pa., 45s, Tel: 412-CHurchill 2-5000
See ad in class 73

United Control Corp., Wash., 30c

United Electric Controls Co., Mass., 60sc

United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 10s, 35s, 40s, 85s, Tel: 212-BEekman 3-8870
See ads in classes 74, 104

United States Gauge Div., American Machine & Metals, Inc., Pa., 5sc, 30sc, 45sc, 50sc, 60sc, 80sc

U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 45c

U.S. Sonics Corp., Mass., 30c, 50c, 85sc

Vap-Air Div., Vapor Corp., Ill., 60c

Vapor Recovery Systems Co., Calif., 30sc, 60sc

Vemaline Products Co., N.J., 70sc

Victoreen Instrument Co., 5806 Hough Ave., Cleveland 3, Ohio, 35s, 75s, Tel: 216-ENdicott 1-6200
See ads in classes 74, 86

Victory Engineering Corp., 118 Springfield Ave., Springfield, N.J., 30c, 50c, 60c, Tel: 201-MUrdock 8-7150
See ad in class 74

Vidar Corp., Calif., 15s

Vinson Mfg. Co., Inc., Calif., 30c, 45sc, 50c

Vocaline Co. of America, Conn. 65c, 70c, 75c

Voltron Products, Inc., Calif., 10s, 15s, 35s, 40s, 60s, 80 Expanded-Scale s, 90s

Waber Electronics, Inc., Pa., 5sc

WacLine, Inc., Ohio, 10sc, 15sc, 20sc, 35sc, 40sc, 75sc, 80sc, 85sc, 90c

Wallace & Tiernan, Inc., N.J., 30s, 50s

Waltham Precision Instrument Co., Mass., 75sc

Warren Components Div., El-Tronics, Inc., Pa., 25sc

Waugh Engineering Co., Calif., 15s

Webcor, Inc., Electronics Div., Ill., 65c, 70c, 75c

Welch Scientific Co., Ill., 10s, 20s, 35s, 40s, 80s, 90s

Wells Industries Corp., Calif., 25sc, 30sc, 45sc

Westberg Mfg. Co., Calif., 5s, 15s

Western Electro-Acoustic Laboratory, Inc., Calif., 80sc

Westgate Laboratory, Inc., Ohio, 30c, 45c, 50c

Westinghouse Electric Corp., Pa., 10sc, 15sc, 35c, 40sc, 45sc, 60sc, 75sc, 80sc, 90sc

Westronics, Inc., 3605 McCart St., Fort Worth 10, Texas, 50c, 55c, 60c, Tel: 817-WA 3-8211
See ads on page 223 & in class 28

Wheaton Engineering Div., Hurletron, Inc., Ill., 60c, 65c, 70c

Whitehall Electronics Corp., Minn., 15c, 50c, 60c, 70c, 75c, 80c

Winslow Co., Inc., N.J., 20s, 90s

Wintronics, Calif., 45c

Woodwelding, Inc., Calif., 15s

Yellow Springs Instrument Co., Inc., Ohio, 60sc

Directory II. Components

61. Indicating Instruments (Panel Meters & Timers).

Yokogawa Electric Works, Inc., 40 Worth St., New York 13, N.Y., 10s, 15c, 35s, 40s, 80s, Tel: 212-BEekman 3-6720
See ad in class 40

Zenith Electric Co., Ill., 65sc, 70sc, 75sc

Zimney Corp., Calif., 60c

Indicator lights & displays:
See class 63

Indicators, null:
See class 40

Industrial-type tubes:
See class 86

Infrared cooling devices:
See class 54

Insulators, ceramic:
See class 92

Insulators, plastic:
See class 106

Insulators, tube & semiconductor:
See class 105

Inverters:
See class 53

62. Jacks & Plugs.

5. Jacks
10. Jack fields
15. Patch cords
20. Plugs
25. Test clips
30. Test jacks
35. Test leads

ADC Products, Div. of Magnetic Controls Co., 2863 13th Ave. S., Minneapolis 7, Minn., 5sc, 10sc, 15sc, 20sc, Tel: 612-PArkway 1-5551
See ad in class 84

A K Mfg. Co., Inc., Ill., 15c, 35c

AMP, Inc., Pa., 15s

Accurate Electronics Corp., Ohio, 5c, 10c, 20c

Aerolite Electronics Corp., N.J., 5s, 15c, 35sc

Air-O-Tronics Engineering Co., N.Y., 15sc, 20s, 25s, 30s, 35sc

Alden Products Co., 10140 N. Main St., Brockton 64, Mass., 15s, 20s, 30s, Tel: 617-JUniper 3-0160
See ad in class 50

Amatom Electronic Hardware Co., Inc., N.Y., 20sc, 30sc, 35sc

American Communications Corp., N.Y., 5sc, 10sc, 15sc, 20sc

American Microphone Mfg. Co., Ill., 5s, 20s

Ampco Mfg. Co., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c

Amphenol-Borg Electronics Corp., Amphenol Connector Div., 1830 S. 54th Ave., Chicago 50, Ill., 5s, 15s, 20s, Tel: 312-BIshop 2-1000
See ad on page 114

Anchor Specialty Mfg. Co., Inc., N.J., 25c, 30c, 35c

Angler Industries, Inc., N.J., 20sc, 25sc

Associated Engineering Corp., Mass., 15sc, 35c

Audiosears Corp., N.Y., 5s, 20s

Audiotex Mfg. Co., Div. of G-C Textron Electronics, Ill., 5s, 20s

Augat Brothers, Inc., 33 Perry Ave., Attleboro, Mass., 30s, Tel: 617-CAstle 2-2202
See ad in class 105

Autotron, Inc., Calif., 35c

Aviel Electronics, Inc., Calif., 5c, 20c

Barker Products Co., Mass., 20 Audio sc

Barnes Development Co., 213 W. Baltimore Pike, Lansdowne, Pa., 25sc, 30sc, 35sc, Tel: 215-MAdison 2-1525
See ad in class 41

Bead Chain Mfg. Co., 11 Mountain Grove St., Bridgeport 5, Conn., 5s, 20s, Tel: 203-EDison 4-4124
See ad in class 97

Beauchaine & Sons, Inc., N.H., 20s

Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 5sc, 15sc, 20sc, 25s, 30s, 35sc, Tel: 212-WOrth 6-5611
See ad in class 91

Buchanan Electrical Products Corp., N.J., 20c

Bud Radio, Inc., 2118 E. 55th St., Cleveland 3, Ohio, 35s, Tel: 216-HEnderson 1-7166
See ad in class 90

CBC Electronics Co., Inc., Pa., 15c, 35c

Cable Electric Products, Inc., R.I., 5c, 15c, 20c, 35c

Cable Specialists of Conn., Conn., 35c

Cadre Industries Corp., N.Y., 35c

Cambridge Thermionic Corp., Mass., 5s, 15s, 20s

Cannon Electric Co., 3208 Humboldt St., Los Angeles 31, Calif., 5s, 15s, 20s, 30s, Tel: 213-CApitol 5-1251
See ad in class 52

Carter Parts Co., Ill., 5sc, 20sc

Chester-Morton Electronics Corp., Pa., 15sc, 25sc, 35sc

Cinaudagraph, Inc., Ill., 5c, 20c

Cinch Mfg. Co., 1026 S. Homan Ave., Chicago 24, Ill., 5s, 20s, 30c, Tel: 312-NEvada 2-2000
See ad on pages 64-65

Cinch Mfg. Co., Howard B. Jones Div., 1026 S. Homan Ave., Chicago 24, Ill., 5s, 20s, 30c, Tel: 312-NEvada 2-2000
See ad on pages 64-65

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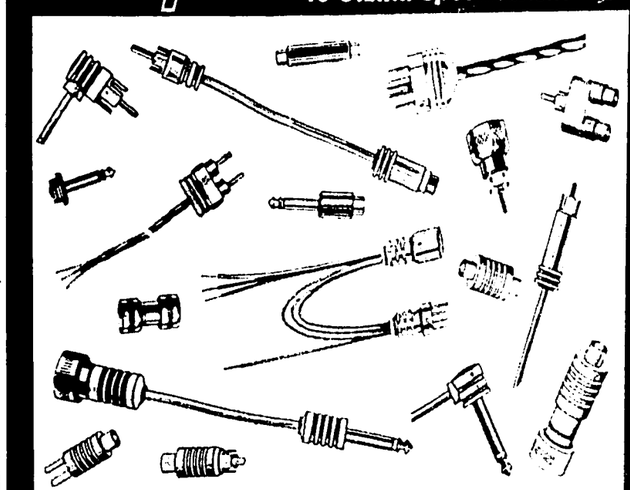

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Send for your new LAB-TRONICS ENGINEERING DATA HAND BOOK — complete with drawings, specifications and design suggestions.

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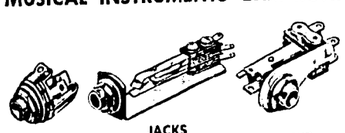
SWITCHCRAFT INC.

"SETS the STANDARD" in electronic components

FOR RADIO—TELEVISION—HI-FI—STEREO—TAPE RECORDERS MUSICAL INSTRUMENTS—ELECTRONIC CONTROLS AND COMPUTERS



JACKS

FOR MILITARY AND INDUSTRIAL EQUIPMENT—MOST COMPLETE LINE

Available in all common and many special circuits.
"LITTEL-JAX"—require minimum panel space.
"TINI-JAX"—Similar to "Littel-Jax"—subminiature in design.
"SF-JAX"—short frame design—innumerable circuits.
"LF-JAX"—long frame design—all circuits.
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"SHIELDED JAX"—shield assembled into and made a part of Jack.
"LAMP JAX"—Switchboard panel type. Ideal for mounting on Jack Panel.

TELEPHONE & MILITARY JACKS

"T-JAX"—a conventional telephone switchboard design—all standard circuits and military specifications.
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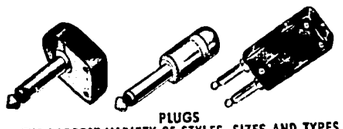
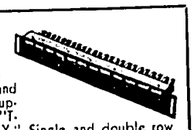


PLUGS

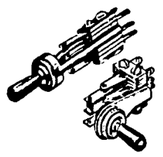
THE LARGEST VARIETY OF STYLES, SIZES AND TYPES

"LITTEL-PLUG"—small—fits standard Jacks—(also MIL type).
"TINI-PLUGS"—sub-miniature 2 conductor Phone Plug for use with "Tini-Jax".
"LUG-PLUG"—small—low cost.
"STANDARD"—conventional size, heavy terminals—rugged design. 2 and 3 conductor types.
"FLAT-PLUG"—removable cover permits use with screw or solder lug terminals. 2 or 3 conductor types.
"TWIN-PLUG"—two electrically independent 2-conductor plugs on ⅝" C.C. MILITARY TYPE



JACK PANELS

Black phenolic and aluminum types. Support Switchcraft "T-JAX" and "MT-JAX." Single and double row panels. Accommodate up to 52 Jacks.



"LEV-R SWITCHES"

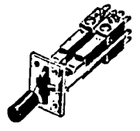
Unusually compact. Many circuits. Locking and non-locking. Series 3000 and 13000—single hole mounting. Series 12000 requires only about ¼ of depth behind panel of conventional "Key" switches.

"FF-SWITCH"

Flat frame support spring "pile-up" in various circuits and contact combinations. "Easy" action of colored push buttons.

"HOOK SWITCH"

Switch actuated by hanging accessory on hook. 2 different methods of mounting. Standard circuits. Soft easy action. Require minimum of depth behind panel.

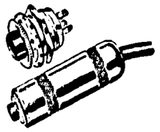


"TELEVER SWITCHES"

Rugged telephone type. Locking and non-locking types. Series 6000 mounts by screws or to escutcheon plate. Series 16000 features single hole mounting.

"LITTEL & TINY-SWITCHES"

"Littel-Switch" — rugged yet small, a Push Button switch available in simple circuits; contacts to suit. Various colors of Buttons.
"Tiny-Switch" — similar to "Littel-Switch", except sub-miniature design.

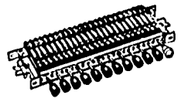


BUTTON AND CORD SWITCHES

"Button-Switches"—unusually small push button switch, completely enclosed.
"Cord-Switches" — cord mounted or pendant switch. Ideal for "hold" in hand operation.

"RS-SWITCH"

Rotary switch, rugged frame supports spring "pile-ups"; minimum panel depth. 2 or 3 position; locking or nonlocking action.



"MULTI-SWITCH"

Features choice of switching functions. 1 to 37 stations possible. Single frame or ganged assemblies. Illuminated or non-illuminated buttons. Available in 6 and 28 volt.

MOLDED CABLE ASSEMBLIES

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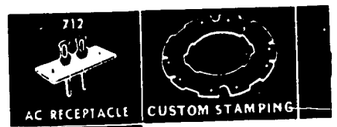

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Directory II. Components

62. Jacks & Plugs.

Cole Electric Co., Calif., 20c
Component Mfg. Service, Inc., Mass., 15c, 20c, 35c
Connecticut Telephone & Electric Corp. of Meriden, Conn., 5c, 15c, 20c
Connector Corp., Ill., 5sc, 20sc
Continental Electronics Corp., N.Y., 10c, 15c
Crouse Hinds Co., N.Y., 20s
Culver-Stearns Mfg. Co., Mass., 20c
Desco Mfg. Co., Calif., 30s, 35s
Deutsch Co., Electronic Components Div., Calif., 20s
Dialight Corp., 60 Stewart Ave., Brooklyn 37, N.Y., 5sc, Tel: 212-HYacinth 7-7600
See ad in class 63
Dittmore-Freimuth Corp., Wis., 5c, 15c, 20c, 30c, 35c
Donmar Products, Inc., Colo., 5s, 15s, 20s, 25s, 30s, 35s
E-Z-Hook Test Products, 1536 Woodburn Ave., Covington, Ky., 25s, Tel: 513-COlonial 1-1495
See ad in class 97
Eagle Electric Mfg. Co., Inc., N.Y., 20c
Ealing Corp., Mass., 5s, 20s
Electri-Cord Mfg. Co., Inc., N.Y., 35c
Enflo Corp., N.J., 5c
Etelco, Ltd., England, 5sc, 10sc, 20sc, 30sc
Excel Specialty Corp., Ill., 15c, 35c
First Electronics Corp., Mass., 15c, 35c
G C Electronics Co., Electrocraft Components Div., Ill., 5s, 20s, 25s, 30s, 35s
Garlock, Inc., Garlock Electronic Products, N.J., 30s
General Dynamics/Electronics, N.Y., 5s, 15sc, 20s
General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 5s, 10sc, 15s, 20s
General Radio Co., 22 Baker Ave., West Concord, Mass., 5s, 20s, Tel: 617-EMerson 9-4400
See ad on Cover 4
Grayhill, Inc., Ill., 25s, 30s
Gries Reproducer Corp., 168 Beechwood Ave., New Rochelle, N.Y., 15c, 20c, Tel: 914-NEw Rochelle 3-8600
See ad in class 97
Hadlock & Temte, Inc., Ill., 5c
IE Mfg., Ill., 5s, 20s, 25s, 30s, 35s
Industrial Devices, Inc., N.J., 25s, 35c
International Electric Industries, Inc., N.Y., 15s, 35s
International Telephone & Telegraph Corp., ITT Kellogg, Ill., 5s, 15s, 20s, 25s, 30s, 35s
International Telephone & Telegraph Corp., Royal Electric Corp. (Div.), R.I., 20s
Jan Hardware Mfg. Co., Inc., N.Y., 5s, 20s
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Johnson Co. (E. F.), Minn., 5s, 20s
Jones Electronics (Hiram), Calif., 5s, 10s, 20s, 25s, 30s
Joy Mfg. Co., Pa., 5s, 20s
Joy Mfg. Co., Electrical Products Div., Mo., 20sc
Kaddis Mfg. Corp., N.Y., 5c, 20c
Ken-Tron Corp., Mass., 5s, 10sc, 15sc, 20s
Kibbey Instrument Co., Calif., 35s
Kickhaefer Mfg. Co., Wis., 20c
Kings Electronics Co., Inc., N.Y., 5s, 15c, 20s
Kurtston Electronics, N.Y., 25sc, 35sc
Lab-Tronics, Inc., 3656 N. Lincoln Ave., Chicago 13, Ill., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, Tel: 312-GRaceland 7-7900
See ad in this class
Langevin, Div. of Sonotec, Inc., Calif., 5s, 10s, 15s, 20s
Lenkurt Electric Co., Inc., Calif., 10s, 15s
Lionel Corp., N.J., 5c, 20c, 30c
Lionel Corp., Lionel Electronic Laboratories (formerly Anton Electronic Laboratories), Dept. X-2, 1226 Flushing Ave., Brooklyn 37, N.Y., 20sc, 30sc, Tel: 212-EVergreen 6-5715
See ad in class 52
M & M Metal Products Corp., N.Y., 5s
Mallery & Co., Inc. (P. R.), Ind., 5sc, 20sc
Mallory Controls Co., Div. of P. R. Mallory & Co., Inc., Ind., 5sc, 20sc
Mandex Mfg. Co., Inc., Ill., 5sc, 20sc, 30sc
Marine View Electronics, Inc., N.Y., 15c, 25c, 30c, 35c
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Micarta Fabricators, Inc., Ill., 5c
Minneapolis-Honeywell Regulator Co., Fall River Div., Mass., 5s, 20s
Modelectric Products Corp., N.J., 35c
Morse Co. (Frank W.), Mass., 5sc, 20sc
National Co., Inc., Mass., 5sc, 15s, 20s
National Multi-Products Co., Ill., 15sc, 35sc
National Radio Co., Inc., Mass., 5s, 20s
National Tel-Tronics Corp., 52 Saint Casimir Ave., Yonkers, N.Y., 5s, 20s, 30s, Tel: 914-YOnkers 8-6400
See ad in this class
Neptune Electronics Co., N.Y., 5c, 15c, 20c, 25c, 30c, 35c
Noel Mfg. Co., Inc., N.Y., 15c
Norrich Plastics Corp., N.Y., 5c, 10c, 15c, 20c, 30c
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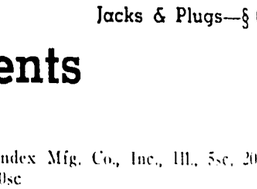

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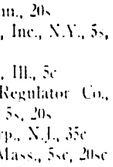

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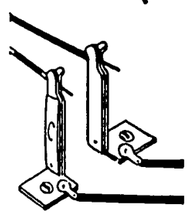

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62. Jacks & Plugs.

Phelps Dodge Copper Products Corp., 300 Park Ave., New York 22, N.Y., 5s, 20s, Tel: 212-PLaza 1-3200
See ad in class 91

Plastic Mold & Engineering Co., R.I., 5c, 20c

Plastic Wire & Cable Corp., Conn., 15sc, 35sc

Pomona Electronics Co., Inc., Calif., 15s, 20s, 25s, 35s

R F Products, Div. of Amphenol-Borg Electronics Corp., 33 E. Franklin St., Danbury, Conn., 5sc, 15c, 20sc, 30sc, Tel: 203-PIoneer 3-9272
See ad in class 80

Radio Engineering Products, Ltd., Canada, 5s, 10s

Rapid Specialties Co., 327 W. Huron St., Chicago 10, Ill., 25s, Tel: 312-DElaware 7-1440
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Raypar, Inc., Ill., 15c

Raytheon Co., Industrial Components Div., Mass., 5s, 30s

Reed & Reese, Inc., Calif., 30c

Riemer Co., Inc. (David), N.Y., 5s, 15s, 20s, 25s, 30s, 35sc

Robins Industries Corp., N.Y., 5s, 15s, 20s

Ross Co. (Milton), Pa., 5sc, 20sc, 25sc, 30sc

Russell & Stoll Co., Inc., N.Y., 20s

Rye Sound Corp., N.Y., 5s, 10s, 15s, 20s, 25s, 30s, 35s

Sealectro Corp., 139 Hoyt St., Mamaroneck, N.Y., 5sc, 15sc, 20sc, 30sc, Tel: 914-OWens 8-5600
See ad in class 81

Sensitive Research Instrument Corp., 310-316 Main St., New Rochelle, N.Y., 35s, Tel: 914-BEverly 5-2300
See ad in class 31

Signal Indicator Corp., N.Y., 5c

Simpson Electric Co., 5218 W. Kinzie St., Chicago 44, Ill., 35sc, Tel: 312-EStebrook 9-1121
See ad in class 61

Sittler Corp., Ill., 35c

Smith, Inc. (Herman H.), Dept. 12, 2326 Nostrand Ave., Brooklyn 10, N.Y., 5s, 15s, 20s, 25s, 30s, 35s, Tel: 212-CLoverdale 3-7900
See ad in this class

Speed Electronics, N.J., 15c, 35c

Standard Electric Time Co., Mass., 5s, 15s, 20s, 25s, 35s

Standard Telephones & Cables, Ltd., England, 5sc, 20sc

Superex Electronics Corp., N.Y., 5s, 20s

Superior Electric Co., 100 Ames Ave., Bristol, Conn., 20s, Tel: 203-LUdlow 2-9561
See ad on pages 2-11

Superior Mfg. & Instrument Corp., N.Y., 5c

Switchcraft, Inc., 5561 N. Elston Ave., Chicago 30, Ill., 5sc, 15sc, 20sc, Tel: 312-SPring 4-1515
See ad in this class

TMC (Canada), Ltd., Canada, 5s, 15s, 20s

Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 5s, 20s, Tel: 612-MIdway 6-7211
See ads in classes 79, 80

Thermovolt Instruments, Ltd., Canada, 5c, 20c

Trimm, Inc., Ill., 5sc, 10sc, 15sc, 20sc

United-Carr Fastener Corp., Ucinite Co. (Div.), Mass., 5sc, 15sc, 20sc, 30sc

Vector Associates, Inc., N.Y., 15c

Vector Electronic Co., Inc., 1100 Flower St., Glendale 1, Calif., 15sc, 20s, Tel: 213-CHapman 5-1076
See ad in class 50

Virginia Electronics Co., Inc., D.C., 10c, 15sc

Vitro Electronics, Div. of Vitro Corp. of America, Md., 5sc, 10sc, 15sc, 20sc

Walden Electronics Co., Mass., 25sc, 35sc

Webster Electronics Co., Inc., N.Y., 35c

Westwood Cable Corp., Calif., 15sc

Klystrons:
See class 86

Lead wires:
See class 91

Leads, test:
See class 62

Leads, wire:
See class 105

Lenses:
See classes 17 & 32

63. Lights & Displays (Indicator).

5. Brackets, jewels, mounts
10. Displays, annunciator
15. Displays, numerical
20. Electroluminescent panels
25. Lamps & lights, incandescent
30. Lamps & lights, miniature
35. Lamps & lights, neon

ACF Electronics Div., ACF Industries, Inc., Md., 15c

Ackerman Engravers, Inc., N.Y., Edge-Lighted Panels sc

Admiral Corp., Ill., 10c, 15c

Advancement Devices, Inc., N.Y., 25s, 30c, 35s

Aerolite Electronics Corp., N.J., 5sc, 30sc, 35sc

Aerolux Light Corp., N.Y., 35sc

63. Lights & Displays (Indicator).

Aeronautical Electric Co., 5656 Northwest Hwy., Chicago 46, Ill., 5sc, Tel: 312-SPring 4-5200
See ad in this class

Aircraft Instruments Co., Pa., Aircraft-Flashers c

Alden Products Co., 10140 N. Main St., Brockton 64, Mass., 25s, 30s, 35s, Tel: 617-JUniper 3-0160
See ad in class 50

Alden Systems Co., Mass., 30s, 35s

Allied Decals, Inc., Ohio, 15c

Amatom Electronic Hardware Co., Inc., N.Y., 5sc

American Communications Corp., N.Y., 10sc, 15sc, 20sc

American Cystoscope Makers, Inc., N.Y., 30sc

American Development Electronics Co., N.J., 10c

American Machine & Foundry Co., Government Products Group, N.Y., 10s

Amglo Corp., 4337 N. Ravenswood Ave., Chicago 13, Ill., 35s, Tel: 312-BUckingham 1-2727
See ads in classes 67, 86

Art Specialty Co., Ill., 25sc

Astronautics Corp. of America, Wis. 10c, 15c, 20c

Autometric Corp., N.Y., 10c, 15c

Avien, Inc., N.Y., 15c, 20c

Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 15sc, 20sc, Tel: 617-UNiversity 4-7420
See ad in class 86

Bendix Corp., Industrial Controls Section, Mich., 15s

Bird & Co., Inc. (Richard H.), Mass., 5sc

Black Light Products, Ill., 20c

Blackburn Electronic Corp., Pa., 30c

Bodnar Products Corp., 238 Huguenot St., New Rochelle 7, N.Y., 10c, 15c, 20c, Edge-Lighted Panels c, Tel: 914-NEw Rochelle 6-4664
See ad in class 90

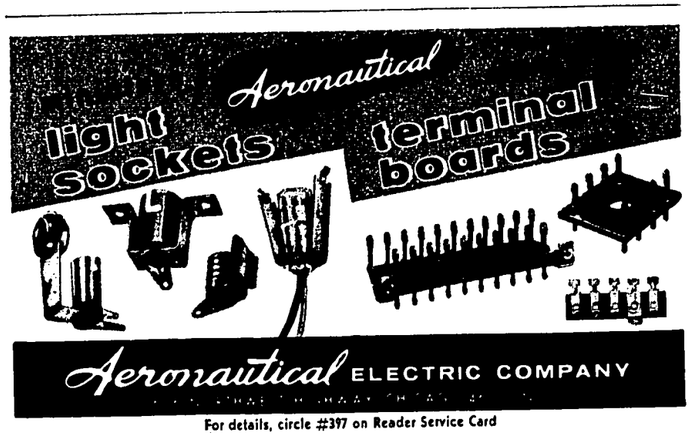
Bolsey Corp. of America, N.Y., 25c, 30c, 35c

Brunswick Instruments, N.J., 35s

Burroughs Corp., Mich., 15s

Burroughs Corp., Electro Data Div., Calif., 15s

Burroughs Corp., Electronic Components Div., N.J., 15s



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Directory II. Components

63. Lights & Displays (Indicator).

C & K Components, Inc., Mass., 25sc, 30sc, 35sc

Cable Electric Products, Inc., R.I., 25sc, 30sc

Canrad Precision Industries, Inc., N.Y., 15c, 20c

Carling Electric, Inc., Conn., 25sc, 30sc, 35sc

Carma Mfg. Co., Calif., 10c, 15c, 25c, 30c

Cerberus AG, Werk fur Elektronentechnik, Switzerland, 35sc

Chicago Miniature Lamp Works, Ill., 10c, 15c, 25sc, 30sc, 35sc

Circon Component Corp., Santa Barbara Municipal Airport, Goleta, Calif., 5s, 10s, 15s, 25s, 30s, 35s, Tel: 805-WOodland 7-1113
See ad in this class

Cole Instrument Co., Calif., 20c

CompuDyne Corp., Pa., 15sc

Computer Techniques, Inc., N.Y., 10c

Controls Co. of America, Ill., 5sc, 10c, 15sc, 20sc

Controls Co. of America, Control Switch Div., Ill., 20c

Culver-Stearns Mfg. Co., Mass., 5sc, 25sc, 30sc

Di-Tran Corp., Calif., 35c

Dialight Corp., 60 Stewart Ave., Brooklyn 37, N.Y., 5sc, 10c, 15c, 25sc, 30sc, 35sc, Tel: 212-HYacinth 7-7600
See ad in this class

Drake Mfg. Co., 4622 N. Olcott Ave., Chicago 31, Ill., 5s, 25s, 30s, 35s, Tel: 312-UNderhill 7-7227
See ad in this class, page 502

Eagle Electric Mfg. Co., Inc., N.Y., 25s, 30s

Eastern Foilcal Nameplate Corp., N.J., 20c

Eder Instrument Co., Inc., Ill., 30s

Eldema Corp., Calif., 5sc, 15sc, 25sc, 30sc, 35sc

Electric Indicator Co., Inc., Conn., 15c

Electro Radiation, Inc., Calif., 15c, 20c

Electronic Lights, Inc., Ill., 35s

Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., 15c, Tel: 301-HAmilton 6-1268
See ad in class 73

Elotec Corp., Calif., 25s, 30s, 35s

Engineered Electronics Co., Calif., 25s, 30s, 35s

Etelco, Ltd., England, 20sc

Farwest Mfg. Div., Inc., Wash., Edge-Lighted Panels c

Fedtro, Inc., Federal Electronics Sales Div., N.Y., 5s, 35s

Ferranti-Packard Electric, Ltd., Electronics Div., Canada, 15c

Fidelity Amplifier Co., Ill., 25s

Flexo International Corp., Ill., 25s

Fostoria Corp., Ohio, 25sc

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 15sc, Tel: 216-SHadyside 9-0700
See ad in class 50

General Dynamics/Electronics, Information Technology Div., Calif., 15sc, 20sc

General Electric Co., Miniature Lamp Dept., Ohio, 20sc, 25s, 30s, 35s

General Precision, Inc., Librascope Div., Calif., 20c

General Railway Signal Co., N.Y., 15c

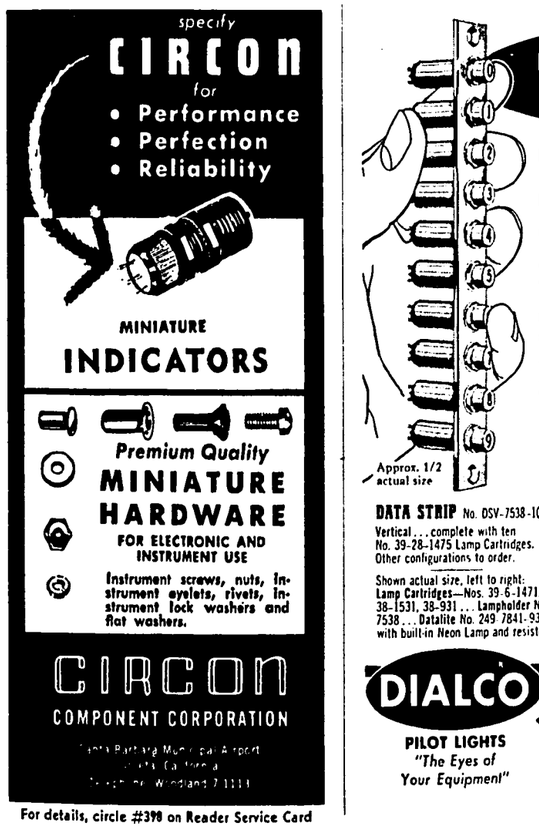
Genisco, Inc., Calif., 5s, 10c, 15sc, 25sc, 30sc, 35sc

Gilfillan Brothers, Inc., Calif., 10c

Griffiths Electronics, Inc., N.J., 30sc, 35sc

Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 15c, Tel: 516-WElls 8-0500
See ad in class 77

Hadlock & Temte, Inc., Ill., 5c



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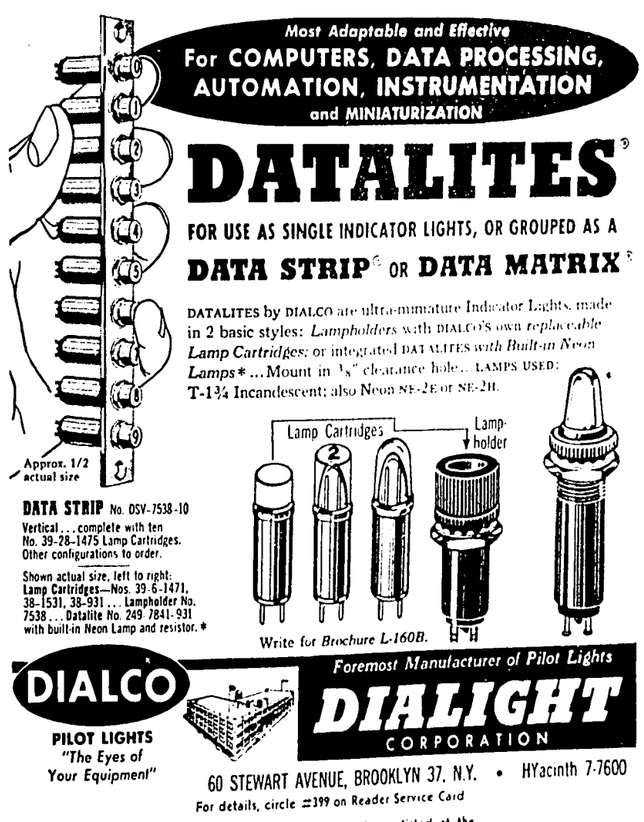

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63. Lights & Displays (Indicator).

Harwood Electronics Co., Ill., 15c, 25s
Herzog Miniature Lamp Works, Inc., N.Y., 30sc
Houston Fearless Corp., Westwood Div., Calif., 15c
Hudson Lamp Co., N.J., 25sc, 30sc, 35sc
IE Mfg., Ill., 5s, 10s, 15s
Illinois Tool Works, Licon Div., 6615 W. Irving Park Rd., Chicago 34, Ill., 30sc, Tel: 312-AVenue 2-4040
See ad in class 80
Industrial Devices, Inc., N.J., 25sc, 30sc, 35sc
Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif., 10s, 15s, Tel: 213-TRiangle 7-1144
See ads on page 162 & in this class
Information Systems, Inc., Affiliate of Ling Temco Vought, Inc., Calif., 15sc
Instrument Systems Corp., N.Y., 15c
International Telephone & Telegraph Corp., ITT Kellogg, Ill., 5s, 10s, 25s, 30s, 35s
Jasco Aluminum Products, 31 Nassau Terminal Rd., New Hyde Park, L.I., N.Y., 20c, Tel: FLoral Park 4-8607
See ads in class 105
Johnson Co. (E. F.), Minn., 5s
Justrite Mfg. Co., Ill., 30s
Kasson Die & Motor Corp., N.Y., 35sc
Kemlite Laboratories, Inc., Ill., 35sc
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 15sc
Kirkland Co. (H. R.), N.J., 5s, 10s

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MINIATURE LIGHTING SPECIALISTS

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Directory II. Components

63. Lights & Displays (Indicator).

Kollsman Instrument Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc
Korry Mfg. Co., Wash., 5sc, 10sc, 15sc, 25sc, 30sc, 35sc
Leecraft Mfg. Co., Inc., N.Y., 5sc, 25sc, 30sc, 35sc
Leupold & Stevens Instruments, Inc., Ore., 15c
Luxo Lamp Corp., N.Y., 25sc, 30sc
Marco Industries Co., Calif., 10sc, 25sc, 30sc, 35sc
Maryland Etching Co., Inc., Md., Edge-Lighted Panels c
Master Specialties Co., Calif., 10s, 25s
Mechanical Engraving Co., Inc., N.Y., 15c, 20c
Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 15sc, Tel: 305-OXford 1-1220
See ad in class 28
Miller Dial & Name Plate Co., Calif., 20c
National Union Electric Corp., Electronics Div., Ill., 15sc
Natural Lighting Corp., Calif., 25sc
Naybor Labs., Inc. (E. V.), N.Y., 10c
Nichols, Ltd. (R. H.), Canada, 10c
Non-Linear Systems, Inc., P.O. Box 728, Del Mar, Calif., 15sc, Tel: 213-SKyline 5-1134
See ad on pages 76-77
Norden Div., United Aircraft Corp., Data Systems Dept., Calif., 15sc
O & S Research, Inc., N.J., 10s
Oki & Willadsen, Ltd., Canada, Edge-Lighted Panels c
Ortronix, Inc., Fla., 15c
Oxford Components, Ill., 30c, 35c
Patent Button Co., Patwin Div., Conn., 15s
Pendar, Inc., Calif., 25s, 30s, 35s
Penn Keystone Corp., Conn., 10sc, 15sc, 20c, 30c
Philips Electronics Industries, Ltd., Canada, 25s, 30s
Plasteck, Inc., Okla., Edge-Lighted Panels c
Protection Equip. Co., Inc., Minn., 15sc
Quartz Radiation Corp., N.J., Mercury-Vapor c
Radiant Lamp Corp., N.J., 25s
Radio Corp. of America, RCA Electron Tube Div., N.J., 20sc
Rheem Mfg. Co., Rheem Electronics Div., Calif., 15sc
Robotomics Enterprises, Inc., Ariz., 15c
Rochester Instrument Systems, Inc., N.Y., 10c
Russell & Stoll Co., Inc., N.Y., 10s
Sampson Chemical & Pigment Corp., Ill., 20c
Scientific Electronic Labs., Inc., N.J., 35s
Siemens New York, Inc., N.Y., 15s
Sierra Electric Corp., Calif., 5s
Signal Indicator Corp., N.Y., 5sc, 10sc, 15sc, 25s, 30s, 35s
Signalite, Inc., N.J., 30sc, 35sc
Skiatron Electronics & Television Corp., N.Y., 15s
Sloan Co., Color-Lite Div., Calif., 25sc, 30sc, 35sc
Smith, Inc. (Herman H.), Dept. 12, 2326 Nostrand Ave., Brooklyn 10, N.Y., 5s, 30s, 35s, Tel: 212-CLoverdale 3-7900
See ad in class 62
Spectronics Corp., N.Y., 25c, 30c
Stocker & Yale, Inc., Mass., 30sc
Straza Electronics, Div. of Straza Industries, Calif., 20c
Sun Dial Corp., N.J., 10c, 15c, 20c
Supreme Process Corp., N.Y., 10c, 15c, Edge-Lighted Panels c
Swing-O-Lite, Inc., N.J., 25sc
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 20s
Sylvania Electric Products Inc., Electroluminescent Display Devices, N.Y., 20sc
Sylvania Electric Products Inc., Electronic Tubes Div., N.Y., 20sc
Sylvania Electric Products Inc., Lighting Products Div., Mass., 5s, 10c, 15c, 20s, 25s, 30s, 35s

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IN-LINE DIGITAL READOUT
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Features:
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- **Quick disconnect at rear for easy lamp replacement.**

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NORTH HOLLYWOOD, CALIF.
IEE

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Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 20c
TRG, Inc. (Technical Research Group), N.Y., 30c
Teleregister Corp., Conn., 15c
Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 30sc, 35sc, Tel: 612-MIdway 6-7211
See ads in classes 79, 80
Time-O-Matic, Ill., 15s, 25s, 30s, 35s
Tracerlab Keleket, Mass., 15s
Transistor Electronics Corp., Minn., 15sc, 25sc, 30sc, 35sc
Union Carbide Corp., Union Carbide Consumer Products Co. (Div.), N.Y., 30s
United Control Corp., Wash., 10sc
United States Radium Corp., N.J., 20c
Vemaline Products Co., N.J., 10sc, 15sc, 25sc, 30sc, 35sc
Voltarc Tubes, Inc., Conn., 35c
Webster Electronics Co., Inc., N.Y., 5c, 30c
Westinghouse Electric Corp., Electronics Div., Md., 15c, 20c
Whitehall Electronics Corp., Minn., 15c, 20c

Load cells:
See class 83

Loads, dummy:
See class 66

Logic circuits:
See class 50

Loudspeakers:
See class 79

Magnetic recording storage devices:
See class 10

Magnetostrictive delay lines:
See class 57

Magnetrons:
See class 86

64. Magnets.

5. Electro 10. Permanent

Advanced Acoustics Corp., N.J., 5sc, 10sc
Aircraft Electronics, Ariz., 5c
Allen-Bradley Co., Wis., 10s
Allied Control Co., Inc., 2 East End Ave., New York 21, N.Y., 5c, Tel: 212-BUtterfield 8-7403
See ad in class 73
American Geloso Electronics, Inc., N.Y., 5s, 10s
Annis Co. (R. B.), Ind., 5c
Arnold Engineering Co., P.O. Box G, Marengo, Ill., 10sc, Tel: 815-JOrdan 8-7251
See ad on page 88
Avionics Research Products Corp., Calif., 5sc

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

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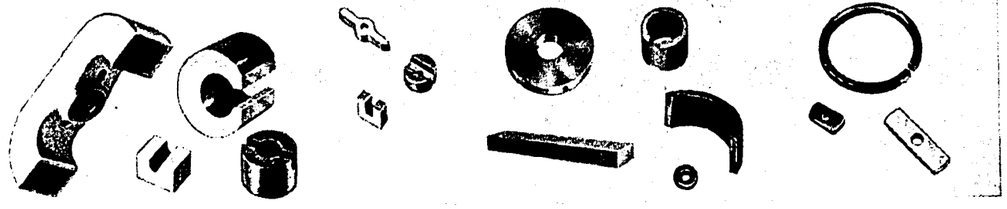

General Ceramics Division — FERRAMIC® CORE MATERIALS

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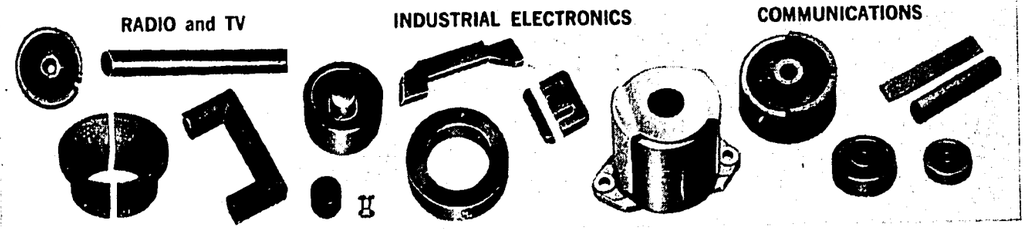
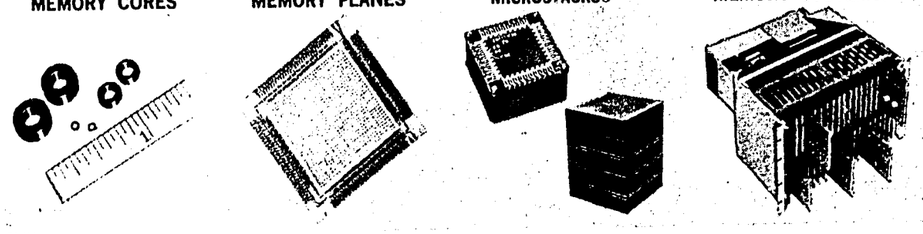


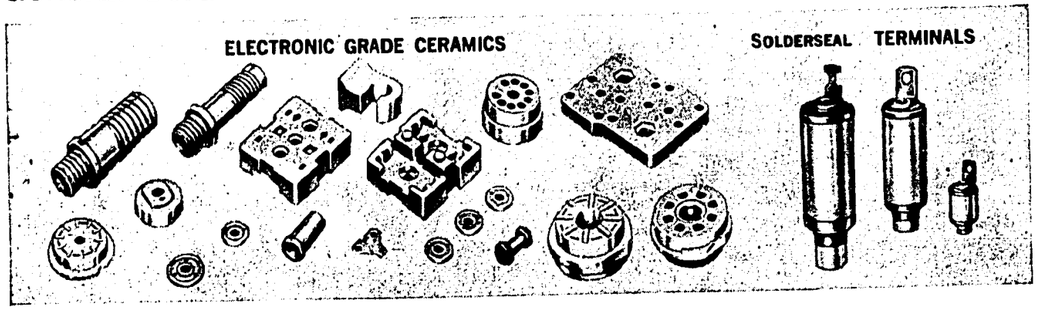
General Ceramics Division — MEMORY PRODUCTS

MEMORY CORES | MEMORY PLANES | MICROSTACKS® | MEMORY SYSTEMS



General Ceramics Division — TECHNICAL CERAMICS

ELECTRONIC GRADE CERAMICS | SOLDERSEAL TERMINALS



Indiana General offers a complete stock of off-the-shelf components in a wide variety of shapes and materials. In addition, IGC engineers are always available to help you solve special design problems.

For Ferrites, Memory Products and Technical Ceramics write to:
General Ceramics Division, Keasbey, New Jersey

For ALNICO, INDOX and CUNIFE Permanent Magnets write to:
Indiana Steel Products Division, Valparaiso, Indiana

INDIANA GENERAL CORPORATION VALPARAISO, INDIANA

Directory II. Components

64. Magnets.

Barker Sales Co., N.J., 10c
Bell, Inc. (F. W.), Ohio, 10 Reference s
Bram Metallurgical-Chemical Co., Pa., 10c
Carma Mfg. Co., Calif., 5c
Carter Co. (J. C.), Calif., 5sc
Cinaudagraph, Inc., Ill., 5sc, 10sc
Crucible Steel Co. of America, Pa., 10sc
Device Delevopment Corp., Mass., 5c
E.M.I.-Cossor Electronics, Ltd., Canada, 10s
Electronic Research Associates, Inc., N.J., 5sc
Elna Ferrite Laboratory, Inc., N.Y., 10sc
Ferricore, Inc., N.J., 10c
General Electric Co., Magnetic Materials Section, Mich., 10sc
General Hardware Mfg. Co., Inc., N.Y., 10s
General Magnetic Corp., Mich., 10sc
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 10c
Geotronic Laboratories, Inc., Texas, 5sc
Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 5c, Tel: 312-CHesapeake 3-1100
See ad in class 73
Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 5c, Tel: 516-WElls 8-9500
See ad in class 77
Harvey-Wells Corp., Mass., 5sc
Hitachi New York, Ltd., N.Y., 10c
Indiana Steel Products, Div. of Indiana General Corp., 405 Elm St., Valparaiso, Ind., 10sc, Tel: 219-HOward 2-3131
See ad in this class
Instrument Systems Corp., N.Y., 5c
Knopp, Inc., Calif., 5c
Leyman Corp., Magnetics Div., Ohio, 10sc
Ling Temco Vought, Inc., Texas, 5c, 10c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c, 10c
Litton Industries, Inc., Electron Tube Div., 960 Industrial Rd., San Carlos, Calif., 5c, Tel: 415-LYtell 1-8411
See ad in class 86
Lundy Mfg. Corp., N.Y., 5s
Magnalectric Corp., 2635 N. Iroquois, P.O. Box 6008, Tulsa 6, Okla., 5c, Tel: 918-FIllmore 5-7278
See ad in class 84
Malaker Laboratories, N.J., 5c
Marsland Engineering, Ltd., Canada, 10sc
National Moldite Co., Inc., N.J., 10c
Neshaminy Electronic Corp., Pa., 10sc
Oxford Components, Div. of Oxford Electric Corp., Ill., 10c
Pabst Engineering Equipment Co., Inc., N.J., 10c
Permag Corp., 88-06 Van Wyck Expressway, Jamaica 18, N.Y., 10s, Tel: 212-OLympia 7-1818
See ad in this class
Philips Electronics Industries, Ltd., Canada, 10s
Process & Instruments Corp., N.Y., 5s
Renco Electronics, Inc., N.Y., 5c
Simonds Saw & Steel Co., N.Y., 10c
Smith Corp. (A. O.), Crowley Div., N.J., 10sc
South River Metal Products Co., Inc., N.J., 10c
Stackpole Carbon Co., Pa., 10sc
Steward Mfg. Co. (D. M.), Tenn., 10c
Sunshine Scientific Instrument, Pa., 5s
Thomas & Skinner, Inc., Ind., 10sc
Tokyo Shibaura Electric Co., Ltd., Japan, 5s, 10s
U. S. Magnet & Alloy Corp., Dept. 62, 266 Glenwood Ave., Bloomfield, N.J., 10sc, Tel: 201-PIlgrim 3-1222
See ad in this class, page 502
Varian Associates, Instrument Div., Calif., 5s
Varian Associates, Tube Div., Calif., 5s
Westinghouse Electric Corp., Materials Mfg. Dept., Pa., 10sc
Wilcox Electric Co., Inc., Mo., 5c

Masers & optical masers:
See class 43

Memories:
See class 10

Meters, indicating & panel:
See class 61

Microammeters:
See class 61

Micromodules:
See class 50

Microphones, geophysical:
See class 16

65. Microphones.

5. Aircraft
10. Carbon
15. Ceramic
20. Condenser
25. Crystal
30. Dynamic
35. Magnetic
40. Stands & accessories
45. Velocity

Aeronautical Radio Mfg. Co., Fla., 5s
Aircraft Radio Corp., N.J., 5s, 10s
American Communications Corp., N.Y., 40sc
American Development Electronics Co., N.J., 10c
American Elite, Inc. (Telefunken), N.Y., 20s, 30s
American Geloso Electronics, Inc., N.Y., 25s, 30s, 35s, 40s
American Microphone Mfg. Co., Div. of GC-Textron Electronics, Inc., Ill., 5s, 10s, 15s, 25s, 30s, 35s, 40s
Amplivox Experts, Ltd., England, 5sc, 10s, 35sc
Applied Electronics Co., Calif., 10c
Astatic Corp., Ohio, 5sc, 10sc, 15sc, 25sc, 30sc, 40sc
Atlas Sound Corp., N.Y., 40sc
Audioscats Corp., N.Y., 5s, 10s, 30s, 35s, 40s
B & K Instruments, Inc. of Bruel & Kjaer, Ohio, 20s
Beckman Instruments, Inc., Spinco Div., Calif., 20s
Bell, Inc. (F. W.), Ohio, 35s
Bright Radio Laboratories, Inc., N.Y., 10c, 35sc
Bruel & Kjaer (A/S), Denmark, 20s, 30s
CBS Electronics, Div. of Columbia Broadcasting System, Inc., Mass., 15sc
Capps & Co., Inc., N.Y., 20s
Carpenter Co., Ill., 30s
Cinaudagraph, Inc., Ill., 10c, 30c
Collins Radio Co., Iowa, 30s
Continental Electronics Corp., N.Y., 30s
Continental Merchandise Co., Transistor Products Div., N.Y., 10s, 15s, 25s, 30s, 35s
Dazor Mfg. Corp., Mo., 40sc
Dyna-Empire, Inc., 1075 Stewart Ave., Garden City, L.I., N.Y., 35sc, Tel: 516-PIoneer 1-2700
See ad in class 40
Dyna Magnetic Devices, Inc., N.Y., 5sc, 35sc, 45sc
Dynaco, Inc., Pa., 45s
Electro-Sonic Laboratories, Inc., N.Y., 5s, 30s, 35s
Electro-Voice, Inc., Mich., 5sc, 10sc, 15sc, 25sc, 30sc, 40s
Electronic Products Corp., Subsid. of Futura Mfg. Corp., Mo., 10sc

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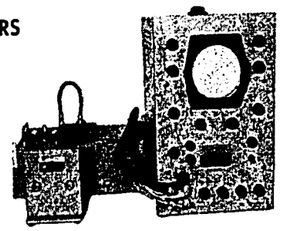
AMCI

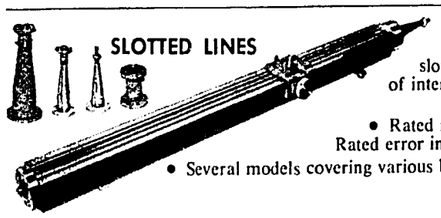
rf instruments and coaxial components

AUTOMATIC IMPEDANCE PLOTTERS

- Measure and plot rf impedance or transfer characteristic as a continuous function of frequency from 0.1 to 1700 mc.
- Impedance versus frequency curve is automatically plotted as it would be seen at any point desired.
- Entirely self-contained, except for use of an external oscillator.

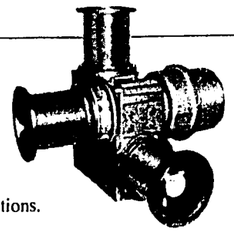


SLOTTED LINES

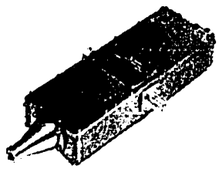


- High-precision universal slotted lines with a wide variety of interchangeable tapered reducers and tunable probes.
- Rated residual SWR is under 1.010. Rated error in detected signal under 1.005.
- Several models covering various bands from 37.5 to 4,000 mc.

COAXIAL SWITCHES



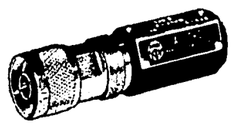
- For use in rigid 3⅛" and 6⅛" coaxial transmission line.
- Low SWR.
- Motor-driven or manually operated.
- Very high peak power models for radar applications.



INSTRUMENT HYBRIDS

- Inherent high isolation independent of frequency. Rated residual unbalance from 40 to 60 db.
- Wide range of frequency bands from 45 mc to 3600 mc for use with all transmission line sizes from Type N to 6⅛".
- Constant coupling in both magnitude and phase over the frequency range, with equal loads.

INSTRUMENT LOADS



- Excellent stability and low reflection. Suitable as secondary standards.
- SWR of Type N termination under 1.02, 0-1100 mc.
- Available in nearly all rigid and flexible coaxial transmission line sizes.
- Models for use at liquid nitrogen temperatures.

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Tapered Reducers
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65. Microphones.

Electronic Research Associates, Inc., N.J., 30sc
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 5c, 25c, 30c, 35c
Erwood, Inc., Ill., 40c
Etelco, Ltd., England, 10sc
Fen-Tone Corp., N.Y., 25s, 30s, 35s, 40s, 45s
Flexo International Corp., Ill., 40s
Fortiphone, Ltd., Components & Transformer Divs., England, 35s
General Coil Products Corp., N.Y., 30c, 35c
General Dynamics/Electronics, N.Y., 10sc, 15s, 25s, 30s, 35sc, 40s
General Instrument Corp., Defense & Engineering Products Group, N.Y., 35c

General Radio Co., 22 Baker Ave., West Concord, Mass., 15s, 20s, 30s, Tel: 617-EMerson 9-4400
See ad on Cover 4

Gotham Audio Corp., N.Y., 20s, 30s, 40s, 45s
Gulton Industries, Inc., N.J., Bio-Medical sc, Ultrasonic sc
I. H. Mfg. Corp., N.Y., 15s, 25s
International Telephone & Telegraph Corp., ITT Kellogg, Ill., 10s, 20s
Iwasaki Communication Apparatus Co., Ltd., Japan, 5c, 10c, 20c, 30c, 35c
Kalart Co., Inc., Conn., 15s, 25s
Knowles Electronics, Inc., Ill., 35sc
Lesa Costruzioni Elettromeccaniche S.P.A., Italy, 25s
Ling Temco Vought, Inc., Texas, 5c, 20sc, 30sc, 35c, 40s, 45c
Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid.), Calif., 20s, 30s, 40s
Ling Temco Vought, Inc., Electron Corp. (Subsid.), Texas, 40s
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c, 10c, 20c, 30sc, 35c, 40sc, 45c
Lionel Corp., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 45c
Marconi's Wireless Telegraph Co., Ltd., N.Y., 10s, 30s
Massa Div., Cohu Electronics, Inc., Mass., 25s
Matsushita Communication Industrial Co., Ltd., Japan, 20s, 30s, 40s, 45s
Melody Master Mfg. Co., Ill., 30c
Miles Reproducer Co., Inc., N.Y., 15s, 30s, 35s
Motorola Communications & Electronics, Inc., Ill., 30s
Omega Dynamics Corp., Calif., 20sc
Permoflux Products Co., Div. of Linlar, Inc., Calif., 30sc
Philips Electronics Industries, Ltd., Canada, 20s, 30s, 40s
Port-O-Vox Corp., N.Y., Wireless s
Radio Corp. of America, Defense Electronic Products, N.J., 5sc, 10s, 15s, 25s, 30s, 35s, 40s
Remler Co., Calif., 5s, 35s
Riemer Co., Inc. (David), N.Y., 10s, 25sc, 30sc
Roanwell Corp., N.Y., 5c, 10c, 30sc
Roflan Co., Mass., 5c, 10c, 30c, 35c
Rowe Industries, Ohio, 35s
Rye Sound Corp., N.Y., 5s, 35s
Schaevitz Engineering, N.J., 45c
Shure Brothers, Inc., Ill., 5s, 10s, 15s, 25s, 30s, 35s, 40s, 45s

Directory II. Components

65. Microphones.

Siemens New York, Inc., N.Y., 20s
Solar Research Corp., Fla., Wireless c
Sonotone Corp., N.Y., 15s, 30c, 35sc, 40s
Sony Corp., N.Y., 20s, 30s, 35c
Speed Electronics, N.J., 40c
Standard Systems Corp., N.Y., 30s
Standard Telephones & Cables, Ltd., England, 10sc, 20sc, 25sc, 30sc, 35sc, 40sc
Stephens Trusonic, Inc., Calif., 20sc, 30c, Wireless sc
Tannoy (America), Ltd., N.Y., 10s, 30s, 35s, 40s, 45s
Telephone Dynamics Corp., N.Y., 5sc, 10sc, 15sc, 25sc, 30sc, 35sc, 40sc
Telephonics Corp., N.Y., 5s, 30s
Tibbetts Industries, Inc., Me., 35s
Tokyo Shibaura Electric Co., Ltd., Japan, 40s, 45s
Transonic, Inc., Calif., Hydrophones c
Turner Co., Iowa, 5s, 10s, 15s, 25s, 30s, 40s
U.S. Sonics Corp., Mass., 15sc
Vari Corp., Minn., 5s, 10s
Western Electro-Acoustic Laboratory, Inc., Calif., 20c, 40sc
Wilcox Electric Co., Inc., Mo., 5s
Winslow Co., Inc., N.J., 5s
Wright-Zimmerman, Inc., Minn., 30c

Microwave diodes:
See class 76

Microwave power supplies:
See class 69

Microwave tubes:
See class 86

Microwave tuners:
See class 88

66. Microwave Components & Waveguides.

2. Adapters, coaxial
4. Cavities
6. Circulators
8. Couplers, directional
10. Couplings
12. Detectors
14. Dividers, power
16. Duplexers
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24. Joints, rotary
26. Junctions, hybrid
28. Loads & terminations
30. Mixers, crystal
32. Modulators
34. Mounts, crystal
36. Multipliers
38. Probes
40. Reflectors, sampling lines, etc.
42. Shifters, phase
44. Switches
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52. Waveguides, rigid
54. Windows

ACF Electronics Div., ACF Industries, Inc., Md., 4sc, 6c, 8c, 14sc, 16sc, 30c, 36c

A-T Electronics, Inc., 15 Lawrence St., New Haven 8, Conn., 18c, 46c, Tel: 203-STate 7-2131
See ad in class 91

Adams-Russell Co., Inc., 200 Sixth St., Cambridge 42, Mass., 4sc, 14s, 24c, 42c, 44c, Tel: 617-UNiversity 8-8040
See ads in classes 59, 66

Adler Electronics, Inc., N.Y., 4c

Advanced Development Laboratories, Inc., N.H., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 42c, 44c, 46c

Advanced Vacuum Products, Inc., Subsid. of Glass-Tite Industries, Inc., Conn., 54c

Advancement Devices, Inc., N.Y., 2c, 4c, 8c, 14c, 18s, 20s, 24sc, 26c, 28c, 34c, 42c, 44c

Aero Geo Astro Corp., Va., 4c, 8c, 12c, 16c, 18c, 20c, 30c, 34c, 44c

Aerolab Development Co., Calif., 52c

Ainslie Corp., 531 Pond St., South Braintree 85, Mass., 2c, 16c, 18sc, 20sc, 22c, 24c, 26c, 28c, 52sc, Tel: 617-VIctor 8-0850
See ad in class 44

Aircom, Inc., 48 Cummington St., Boston 15, Mass., 2sc, 4sc, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 24sc, 26sc, 28sc, 30sc, 32sc, 34sc, 36sc, 38sc, 40sc, 46sc, 50sc, 52sc, 54sc, Tel: 617-COpley 7-9115
See ads in classes 44, 66

Aircraft Armaments, Inc., Md., 4c, 10s

Airtec, Inc., N.J., 2sc, 4sc, 6sc, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 22sc, 24c, 26c, 28sc, 30sc, 32c, 34sc, 36c, 38c, 40c, 42c, 44sc, 46sc, 50sc, 52sc, 54c

Airtronics, Inc., D.C., 2c, 4c, 8c, 10c, 12c, 14c, 20c, 26c, 28c, 30c, 32c, 34c, 42c, 46c

Airtronics International Corp., Fla., 16sc

Alford Mfg. Co., 299 Atlantic Ave., Boston 10, Mass., 2s, 14s, 16c, 26s, 28s, 38s, 44s, Matching-Networks s, Tel: 617-HAncock 6-2150
See ad in this class, page 506

Alfred Electronics, Calif., 8c

Allied Research & Engineering Co., Calif., 52c

Amerac, Inc., Mass., 4sc, 30sc, 36sc

American Electronic Laboratories, Inc., Richardson Rd., Colmar, Pa., 12sc, 20s, 34s, 44s, Tel: 215-VAn Dyke 2-0131
See ad adjacent to Index to Advertisers, back of book

American Feldmuehle Corp., N.Y., 54c

American Machine & Foundry Co., Government Products Group, N.Y., 2c, 8c, 10c, 14c, 16c, 18c, 20c, 24c, 42c, 44sc, 46c, 48c, 52c

American Machine & Foundry Co., Greenwich Engineering Div., Conn., 4c, 6c, 16c, 18sc, 20c, 24sc, 32c, 40sc, 42c, 52c

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2400-3600 Mc.

Model 3160
Horizontally Polarized
High Power S Band
Frequency Range
2700-3600 Mc.

Model 3000
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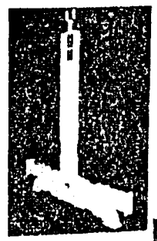
MICROWAVE COMPONENTS AND TEST EQUIPMENT



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Loads—Variable Couplers—Tuners—
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48 CUMMINGTON ST., BOSTON, MASS.

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for the larger sizes

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for the smaller sizes

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for maximum mechanical performance

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TWX — Oyster Bay 4184
Western Union — JVC FAX

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American Radar Components, Inc., N.J., Flanges sc

American Radio Co., Inc., N.Y., 8s, 10s, 16s, 20s, 24s

Ampco Mfg. Co., N.J., 38c

Amtron Corp., 17 Felton St., Waltham 54, Mass., 8s, Tel: 617-TWinbrook 4-5020
See ad in this class

Andrew Antenna Corp., Ltd., Canada, 16c, 18c, 20c, 46sc, 52sc

Andrew Corp., 363 E. 75th St., P.O. Box 807, Chicago 42, Ill., 18s, 20s, 40s, 44c, 46s, 50s, 52s, Tel: 312-Fieldbrook 9-3300
See ad on page 86

Antenna Products Co., Div. of All Products Co., Texas, 24sc

Antenna & Radome Research Associates, Inc. (ARRA), 27 Bond St., Westbury, L.I., N.Y., 2s, 8s, 12s, 14s, 20c, 24s, 26s, 28s, 42c, 46s, 52s, Tel: 516-EDgewood 4-8770
See ad in class 45

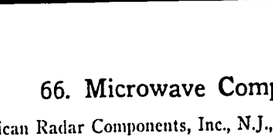
Antenna Systems, Inc., 349 Lincoln St., Hingham, Mass., 8c, 16s, 18c, 20c, 22c, 24c, 26c, 28c, 40c, 42c, 44c, 46c, 52c, 54c, Tel: 617-RIverview 9-4700
See ad in class 44

Antlab, Inc., Ohio, 32s

Anton Machine Works, N.Y., 4c

Apparatus Development Co., Conn., Bahns c

Applied Research, Inc., 76 S. Bayles Ave., Port Washington, L.I., N.Y., 36c, Tel: 516-POrt Washington 7-8707
See ad in class 43



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Armstrong Whitworth/Brush, Falcon Works, England, 8sc

Arwood Corp., N.Y., 48c

Arwood Corp., Mercast Div., Calif., 48c

Asheville-Schoonmaker Mica Co., Va., 54c

Associated Electrical Industries (Rugby), Ltd., England, 2c, 4sc, 8sc, 10s, 12s, 16c, 24c, 30s, 32c, 34s, 42c, 44s, 52c, 54s

Automatic Metal Products Corp., 323 Berry St., Brooklyn 11, N.Y., 2sc, 8sc, 10sc, 14c, 16c, 24sc, 28sc, 44c, 50c, Tel: 212-EVergreen 8-6057
See ad in class 52

Aveo Corp., Nashville Div., Tenn., 20c

Aviel Electronics, Inc., Calif., 2sc, 4c, 8c, 10c, 28sc, 34c

Avionics, Ltd., Canada, 2s, 8s, 10s, 14s, 18s, 20s, 22s, 24s, 26c, 38s, 40c, 50s, 52s, 54s

Bart Mfg. Corp., N.J., 4c, 20c, 40c, 52c

Bean & Co. (Morris), Ohio, 8c, 10c, 16c, 18c, 20c, 24c, 48c, 52c, 54c

Beauchainé & Sons, Inc., N.H., 4c, 54c

Belz Industries, Inc., N.Y., 2s, 8c, 16c, 18c, 20c, 30c, 46c, 52c, Flanges c

Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 16c, 18c, 32c

Bendix Corp., M. C. Jones Electronics Co., Inc. (Subsid.), Conn., 2sc, 8sc, 28sc, 34sc, 40c

Bendix Corp., Red Bank Div., Electron Tube Products, Highway #35, Eatontown, N.J., 6sc, 42sc, Tel: 201-LIberty 2-2000
See ad on pages 48-49

Bendix Corp., York Div., Pa., 8c, 10c, 14c, 18c, 30c, 32c, 34c, 42c, 44c, 52c

Bird Electronic Corp., 30303 Aurora Rd., Cleveland 39, Ohio, 28c, Tel: 216-CHurchill 8-1200
See ad on page 210

Bischoff Chemical Corp., Riverside Plastics Div., N.Y., 52c

Boeing Co., Antenna Dept., Wash., 14c, 16c, 18c, 20c, 42c, 44c

Bogart Mfg. Corp., 315 Seigel St., Brooklyn 6, N.Y., 2sc, 4c, 8sc, 10c, 14sc, 16c, 18sc, 20c, 24c, 26sc, 28sc, 30c, 32c, 34c, 36c, 42c, 44sc, Tel: 212-HYacinth 7-4972
See ad in this class

Bomac Laboratories, Inc., Mass., 2sc, 4sc, 6sc, 8sc, 10sc, 14sc, 16sc, 22sc, 26sc, 28sc, 32sc, 42sc, 52sc, 54sc

Bright Radio Laboratories, Inc., N.Y., 42c

Brooks & Perkins, Inc., Mich., 20c

Budd-Stanley Co., Inc., 175 Eileen Way, Syosset, L.I., N.Y., 2sc, 8sc, 10sc, 12sc, 14c, 16c, 18c, 20sc, 24c, 26c, 28sc, 30c, 34sc, 38s, 40s, 42s, 44c, 46sc, 50sc, 52sc, Tel: 516-WAlnut 1-7550
See ad on page 92

Burmac Electronics Co., Inc., 142 S. Long Beach Rd., Rockville Centre, L.I., N.Y., 32c, Tel: 516-ORiole 8-3070
See ad in class 69

CWS Waveguide Corp., N.Y., 16sc

Directory II. Components

Canoga Electronics Corp., Calif., 2sc, 4c, 6c, 8c, 12c, 16c, 18sc, 20sc, 22c, 24sc, 28sc, 40sc, 42sc, 46sc, 50c, 52c

Capehart Corp., N.Y., 16c, 30c, 38c, 54c

Carborundum Co., Refractories Div., N.J., 28sc, 32c, 54sc

Caswell Electronics Corp., Calif., 6sc, 14c, 22sc, 24c, 28sc, 34c, 42sc, 44sc, 54sc

Cavitron Electron Oscillator Co., Calif., 4c

Ceramaseal, Inc., N.Y., 54c

Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., Texas, 2c, 8c, 16c, 18c, 20c

Chase Brass & Copper Co., Conn., 52s

Chemalloy Electronics Corp., Calif., 28c

Chu Associates, Mass., 14c, 18sc, 20c, 22c, 24c

Co-Operative Industries, Inc., N.J., 50 Air-Dielectric sc, 52c

Components for Research, Inc., Calif., 28c

Connector Corp. of America, Calif., Flanges sc

Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 28sc, 44sc, 54c, Tel: 214-EVergreen 1-1135
See ad on page 120

Continental Electronics & Sound Co., Ohio, 40c

Control Electronics Co., Inc., 10 Stepar Place, Huntington Station, L.I., N.Y., 2sc, 4c, 12c, 14c, 16sc, 30c, 34sc, 42c, Tel: 516-HAmilton 7-7961
See ad in class 59

Cook Electric Co., Ill., 8s, 12s, 14s, 24s, 30s, 34s, 42s, 44s, 50s, 52s

Cook Electric Co., N.R.K. Microwave Div., Ill., 2c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 24c, 26c, 28c, 30c, 34c, 42c, 44c, 46c, 52c, 54c

Curtis Universal Joint Co., Inc., Mass., 24sc

Datalog Corp., Metrolog Div., 2415 Amsler St., Torrance, Calif., 36c, Tel: 213-SPruce 5-6621
See ad in class 40

Decibel Products, Inc., Texas, 4c, 16c

Defense Electronics, Inc., Md., 4sc, 8c

DeMornay-Bonardi Corp., 780 S. Arroyo Pkwy., Pasadena, Calif., 2s, 4s, 8s, 12s, 14s, 20s, 22s, 24s, 26s, 28s, 30s, 34s, 36s, 38s, 42s, 44s, 46s, 52s, 54s, Tel: 213-SYcamore 2-4142
See ad on pages 68-69

Diamond Antenna & Microwave Corp., Mass., 2sc, 4sc, 8sc, 10sc, 14sc, 16sc, 18sc, 20sc, 24sc, 26c, 28sc, 30sc, 34sc, 38c, 40c, 42sc, 44sc, 46c, 52sc

Dielectric Products Engineering Co., Inc., Me., 2s, 4sc, 6c, 8sc, 12c, 14c, 16c, 22c, 24c, 42c, 46s, 52c

Dittmore-Freimuth Corp., Wis., 2c, 4c, 8c, 10c, 18c, 20c, 24c, 38c, 44c, 46c, 48c, 50c, 52c, 54c

Djeco, Div. of Djordjevic Engineering Co., Ill., 46c

Don-Lan Electronics, Inc., Calif., 2c, 8c, 14c, 24c, 26c, 28c, 44c

Dorne & Margolin, Inc., N.Y., 6c, 8c, 14c, 16c, 18c, 20c, 22c, 24c, 34c, 42c, 44c

Douglas Aircraft Co., Inc., Calif., 8c, 10c, 18c, 20c, 38c, 42c, 54c

Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 2sc, 4sc, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 24sc, 26sc, 28sc, 30sc, 32sc, 34sc, 36sc, 38sc, 40sc, 42sc, 44sc, 46sc, 50sc, 52sc, 54c, Tel: 914-MOunt Vernon 8-6900
See ad in this class

Dynatronics, Inc., Fla., 14c, 16c, 18c, 20c

E & M Laboratories, Calif., 6sc, 14c, 16c, 22sc, 30c, 32c, 42c, 44c

EMI/U.S., Ltd., Calif., 4sc, 12sc, 28sc, 30sc, 34sc, 40sc, 46sc, 52sc

EMT Corp., Syosset Industrial Park, 210 Michael Dr., Syosset, L.I., N.Y., 2sc, 4sc, 6sc, 8sc, 12sc, 14sc, 16sc, 22sc, 26sc, 30sc, 32sc, 34sc, 36sc, 42sc, 46sc, 50sc, 52sc, Tel: 516-WAlnut 1-7171
See ad in this class

Ecco Electronic Components Corp., N.Y., 28c

Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 28s, 38c, 42c, 54c, Tel: 415-LYtell 1-1451
See ad on pages 29-32

Electro-Ceramics, Inc., Utah, 54c

Electro Powerpacs, Inc., Mass., 32c

Electromagnetic Technology Corp., Calif., 4c, 36c

Electronic Communications, Inc., Fla., 6c, 22c, 42c

Electronic Specialty Co., Calif., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 38c, 44c, 46c, 50c, 52c

Elsco Systems, Inc., Wash., 8c, 28c

Emerson & Cuming, Inc., Mass., 28s, 50s, 52s

Emerson Electric Mfg. Co., Mo., 18c, 20c, 24c, 32c, 42c, 46c, 54c

Emerson Plastics Corp., N.Y., 22c, 54c

Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 4sc, 14sc, 28sc, 30sc, 34sc, 36s, Tel: 518-VIctor 2-8400
See ad in class 38

Entlo Corp., N.J., 50c

Engelhard Industries, Inc., Ameral Quartz Div., N.J., 4c

Engelhard Industries, Inc., Matheson Div., Mass., 2c, 4c, 10c, 16c, 18c, 20c, 24c, 26c, 34c, 36c, 38c, 40c, 42c, 46c, 52c

Espey Mfg. & Electronics Corp., N.Y., 26c, 40c

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

If it's "MICROWAVE" DOUGLAS has it!

Partial List of Standard Items

EQUIPMENT		P N J H F E D L M S C A B X G K T V W Z
	MODEL	
	.440 - .490 KMC (WR 2300)	
	.320 - .530 KMC (WR 2100)	
	.410 - .625 KMC (WR 1800)	
	.600 - .750 KMC (WR 1500)	
	.640 - .960 KMC (WR 1150)	
	.750 - 1.12 KMC (WR 975)	
	.350 - 1.5 KMC (WR 77)	
	1.12 - 1.70 KMC	
	1.7 - 2.31 KMC	
	2.6 - 3.95 KMC	
	3.95 - 5.85 KMC	
	5.85 - 8.20 KMC	
	7.05 - 10 KMC	
	8.2 - 12.4 KMC	
	12.4 - 18 KMC	
	18 - 26.5 KMC	
	26.5 - 40 KMC	
	33 - 50 KMC	
	50 - 75 KMC	
	60 - 90 KMC	
ADAPTER—COAX. TO W.G.	101	P N J H F E D L M S C A B X
Choke to Choke	102 ()*CC	P N J H F E D L M S C A B X G K T
Cover to Cover	102 ()*FF	P N J H F E D L M S C A B X G K T
Cover to Choke	102 ()*FC	P N J H F E D L M S C A B X G K T V W Z
⅞" to RG 48/U	104	L S
Flexible	105	B X
ANTENNA—Horn	110	P N J H F E D L M S C A B X G K T V W Z
ATTENUATOR—WAVEGUIDE Fixed - High Power	119	L M S C A B X G K T V W Z
Fixed - Low Power	120	P N J H F E D L M S C A B X G K T V W Z
Flap	121	L M S C A B X G K T V W Z
Semi-Prec.	122	P N J H F E D L M S C A B X G K T V W Z
Precision	123	L M S C A B X G K T
Var. Coax. Hi-Power	124	(Continuous 100 - 10,000 mcs.)
Fixed - Coaxial	125 A	- Low Power C-Hi-Power (1000 - 10,000 mcs.)
Fixed - Coaxial	126 A	- Low Power C-Hi-Power (0 - 4000 mcs.)
Variable Coaxial	127	(Continuous) (500 - 10,000 mcs.)
Fixed Coax.—Very Hi-Power	128 A	- Type N - B - ⅞" coax. (1000 - 3000 mcs.)
Variable Coax. Pad	129	(Continuous 1,000 - 4,000 mcs.)
BEND—E Plane	130	P N J H F E D L M S C A B X G K T V W Z
H Plane	131	P N J H F E D L M S C A B X G K T V W Z
Coaxial (⅞") Right Angle	135 LS	- (0 - 3600 mcs.)
CAVITY—Filter	140	F L M S C
LHT Transmitter	141	L S
Reference	142	L M S C
COUPLER—Signal Sampler Coaxial	148	(100 - 6,000 mcs.)
Waveguide	149	P N J H F E D L M S C A B X
CRYSTAL DETECTOR MTS. COAXIAL Broadband	150	- (900 - 12,400 mcs.) Video Output
	150 BNC	- (900 - 12,400 mcs.) BNC Output
	150 N	- (900 - 12,400 mcs.) Type N Output
Tunable	151	(900 - 12,400 mcs.)
Matched	152	(500 - 3,000 mcs.)
CRYSTAL DETECTOR MTS. W.G. Broadband	160	P N J H F E D S C A B X G K
Tunable	161	S C A B X G K T V W Z
DIRECT'L CPLERS. Coax. ⅜"	165	(100 - 3,500 mcs.) HIGH DIRECTIVITY
Coax. Hi-Power	166	(100 - 10,000 mcs.) HIGH DIRECTIVITY
Coax. - ⅞"	167	(100 - 3,000 mcs.) HIGH DIRECTIVITY
Coax. - 1⅝"	168	(100 - 1,500 mcs.) HIGH DIRECTIVITY
Coax. - 3⅛"	169	(100 - 1,000 mcs.) HIGH DIRECTIVITY
Waveguide Uni-Directional	170	P N J H F E D L M S C A B X G K T V W Z
Bi-Directional	171	P N J H F E D L M S C A B X G K T V W Z
Uni-Reflectometer	172	P N J H F E D L M S C A B X G K T V W Z
Bi-Reflectometer	173	P N J H F E D L M S C A B X G K T V W Z
Broadband	174	P N J H F E D L M S C A B X G K T V W Z
FILTER—LOW PASS Coax.	175	Cut off frequency 100 to 3,000 mcs.
LINE STRETCHER—Coax. - ⅜"	180	- (900 - 12,400 mcs.) VSWR dependent on length
	180 P	- (900 - 12,400 mcs.) VSWR independent of length
LOAD—COAX. High Power	189 A	- (1000 - 10,000 mcs.) 100 watts - Type N
	189 B	- (1000 - 10,000 mcs.) 350 watts - Type N
LOAD—COAX. Low Power	190 A	- Type N, 190 B - ⅞" line (0 - 4000 mcs.)
Medium Power ⅞" Line	191	L S
Medium Power 1⅝" Line	192	L
High Power ⅞" Line	193	L S
High Power 1⅝" Line	194	L
LOADS—W.G. Low Power	200	P N J H F E D L M S C A B X G K T V W Z
Medium Power	201	P N J H F E D L M S C A B X G K T V W Z
High Power	202	P N J H F E D L M S C A B X G K T V W Z
Water	210	P N J H F E D L M S C A B X
MIXER—CRYSTAL Coaxial	220	L M S C
Waveguide	230	S C A B X G K T
Balanced Waveguide	235	S X K
NUT & BOLT	240	L S C A B X G K T
POWER DIVIDER—Coax.-Fixed	245	L S
Adjustable	246	L S

EQUIPMENT		P N J H F E D L M S C A B X G K T V W Z
MULTIPLIER—(FREQ.) Waveguide - Coax. Input	248	Any input or output freq. 1 - 90 kmc.
Waveguide Input	249	Any input or output freq. from 1 - 90 kmc.
PROBE—Tunable	250	(900 - 12,400 mcs.)
REFLECTION—Stand. W.G.	256	S C A B X G K T
ROTARY JOINT—COAXIAL Med. Speed ⅞"	260	(2,700 - 2,900 mcs.)
High Speed ⅞"	261	(2,700 - 2,900 mcs.)
Inline L.T.	262	(10 - 3,000 mcs.)
ROTARY JOINT W.G. Doorknob Transition	270	S X
Circular Transition	271	B X K T
Crossbar Transition	272	B X
SHIFTER—PHASE W.G.	275	P N J H F E D L M S C A B X G K T
SHORT—MOVABLE Waveguide - (Unhoused)	283	L M S C A B X G K T V W
SHORTS—MOVABLE ⅞" Coax. (Housed)	290	L M S C A B X
⅝" Coaxial	291	L S C
⅞" Coaxial	292	L S
Waveguide	293	P N J H F E D L M S C A B X G K T V W Z
Waveguide Precision	294	L M S C A B X G K T V W Z
SLOTTED LINE—COAXIAL Waveguide	300	L M S
STAND	310	P N J H F E D L M S C A B X G K T V W Z
SWITCH—Coax.	330	L M S C A B X G K T
	334 LT - (0 - 4000 mcs.) LT connection	
	334 LA - (0 - 4000 mcs.) ⅞" line	
W.G. Rotary Type	335	P N J H F E D L M S C A B X G K T V W Z
W.G. Multiple Type	336	S X K
TEE—Coaxial ⅞" Line	340	L S
W.G. Series TEE	350	P N J H F E D L M S C A B X G K T V W Z
W.G. Shunt	351	P N J H F E D L M S C A B X G K T V W Z
W.G. E/H (Hybrid)	352	P N J H F E D L M S C A B X *G K T V W Z
TRANSITIONS—COAXIAL ⅜" - ⅞" Line	370	(0 - 4,000 mcs.)
⅞" to 1⅝"	371	(0 - 4,000 mcs.)
W.G. Taper	380	Any Combination of waveguide, sizes P to T inclusive.
W.G. Step	381	B X
W.G. Elbow	382	B X
TUBE MOUNT—KLYS.	390	C A B X
TUNER—Coaxial ⅜" Single Stub	400	L S C A B X
⅞" Single Stub	401	L S
⅜" Double Stub	402	L S (1,000 - 10,000 mcs.)
⅞" Double Stub	403	L S
⅜" Triple Stub	404	L S (1,000 - 10,000 mcs.)
⅞" Triple Stub	405	L S
⅞" Slug	407	L S
TUNER—WAVEGUIDE Single Stub	409	P N J H F E D L M S C A B X G K T V W Z
Double Stub	410	P N J H F E D L M S C A B X G K T V W Z
Triple Stub	411	P N J H F E D L M S C A B X G K T V W Z
E/H	412	P N J H F E D L M S C A B X G K T V W Z
Glide Screw	413	P N J H F E D L M S C A B X G K T V W Z
Double Slug	414	S C A B X G K T V W Z
TWISTS Standard	420	S C A B X G K T V W Z
Step	421	P N J H F E D
WAVEMETER—COAXIAL Micrometer	430	L M S C
In Case	440	L M S C
Waveguide MICROMETER Absorption	450	C A B X G K T
Transmission	451	C A B X G K T
Direct Reading	460	B X

*Parenthesis indicates insert letter for Waveguide size

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DOUGLAS MICROWAVE CO., Inc.

DOUGLAS MICROWAVE

252 East Third Street, Mt. Vernon, N.Y.

For details, circle #411 on Reader Service Card

Directory II. Components

66. Microwave Components & Waveguides.

FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 2s, 4s, 8s, 12s, 14s, 16s, 18c, 20s, 22s, 24c, 26c, 28s, 30c, 32c, 34s, 38c, 42s, 44s, 46s, 52s, Tel: 212-RAvenswood 1-9000
See ad in class 37

Farinon Electric, Calif., 16s

Ferrotec, Inc., 217 California St., Newton 58, Mass., 6sc, 16sc, 22sc, 32c, 42c, 44c, Tel: 617-DEcatur 2-7600
See ad in this class

Fidelitone Microwave, Inc., Ill., 4sc, 16sc, 20sc, 30sc, 36sc

Film Resistors, Inc., N.J., 28sc, 54c

Filmohm Corp., 48 W. 25th St., New York 10, N.Y., 12c, 54c, Tel: 212-WAtkins 4-6605
See ad in class 74

Formcraft Tool Co., Ill., Flanges s

Formsprag Co., Mich., 10s

Forway Industries, Inc., N.J., 2c, 4c, 46c

Frequency Standards, Div. of Harvard Industries, Inc., N.J., 4sc, 6sc, 8c, 12sc, 16sc, 18sc, 20sc, 22sc, 32sc, 36sc

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 36sc, Tel: 216-SHadyside 9-0700
See ad in class 50

Gabriel Co., Gabriel Electronics Div., Mass., 8sc, 16sc, 18sc, 20sc, 24sc

Gar Precision Parts, Inc., Conn., 4c, 14c, 18c, 20c, 52c

Garlock, Inc., Garlock Electronic Products, N.J., 28c

General Aniline & Film Corp., Ansco Div., N.Y., 4c, 8c, 10c, 16c, 18c, 20c, 22c, 24c, 26c, 30c, 32c, 34c, 36c, 52c

General Bronze Corp., G B Electronics Div., N.Y., 2sc, 8sc, 12c, 18c, 20sc, 24sc, 44sc, 46sc, 50sc, 52sc

General Communication Co., 677 Beacon St., Boston 15, Mass., 2s, 4c, 12c, 14c, 16s, 20s, 28s, Tel: 617-COpley 7-6030
See ads in class 37

General Electric Co., Heavy Military Electronics Dept., N.Y., 18c, 20c

General Electric Co., Power Tube Dept., N.Y., 16c

General Instrument Corp., Defense & Engineering Products Group, N.Y., 4c, 8c, 10c, 12c, 16c, 30c, 32c, 36c

General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 8c, 16c

General Microwave Corp., N.Y., 2sc, 4c, 8sc, 12sc, 14sc, 16c, 20sc, 22c, 24sc, 26c, 28c, 30c, 32c, 34c, 36c, 38s, 40c, 42c, 44c

General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 2c, 10c, 14c, 16c, 24c, 26c, 52c

General Precision, Inc., Kearfott Div., Calif., 2sc, 4c, 6sc, 8sc, 10c, 12c, 14c, 16sc, 18c, 20c, 22sc, 24c, 26c, 28c, 30sc, 32c, 34c, 36c, 42sc, 44sc, 46c

General Precision, Inc., Kearfott Div., N.J., 2s, 4s, 6s, 8s, 12s, 14s, 16s, 18s, 20s, 22s, 24s, 26s, 32s, 36s, 38s, 42s, 44s

General RF Fittings, Inc., 702 Beacon St., Boston 15, Mass., 2sc, Tel: 617-KEnmore 6-2290
See ad in class 52

General Radio Co., 22 Baker Ave., West Concord, Mass., 2s, 12s, 24s, 28s, 30s, Tel: 617-EMerson 9-4400
See ad on Cover 4

Gertsch Products, Inc., Calif., 36s

Gilfillan Brothers, Inc., Calif., 4c, 8c, 16c, 18c, 20c, 22c, 24c, 30c, 40c, 42c, 44c, 52c

Gombos Co., Inc. (John), N.J., 2c, 4sc, 6c, 8c, 10c, 12sc, 14c, 16sc, 18c, 20c, 22sc, 24c, 26c, 28c, 30c, 34sc, 36c, 38c, 42c, 52c

Goodrich Sponge Products (B. F.), 239 Derby Place, Shelton, Conn., 28sc, Tel: 203-REgent 5-4661
See ad in class 103

Gorham Electronics, Div. of Gorham Corp., R.I., 2c, 4c, 8c, 14c, 16c, 18c, 20c, 24c, 26c, 28c, 30c, 36c, 42c, 46c, 52c

Granger Associates, Calif., 18s

Granite State Machine Co., Inc., N.H., 2c, 18c, 20c, 46c, 52c

Graphite Metallizing Corp., 1057 Nepperhan Ave., Yonkers, N.Y., 24c, Tel: 914-YOnkers 8-8400
See ad in class 52

Gremar Mfg. Co., Inc., Mass., 2sc

Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 44c, Tel: 312-CHesapeake 3-1100
See ad in class 73

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 2s, 8s, 12s, 14s, 28s, 30s, 34s, 38s, 40s, 42s, 44s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28

Hollywood Mfg. & Supply Corp., Calif., 4c, 28c, 52c

Hoover Co., Electronics Div., Md., 30c, 32c

Horton-Angell Co., Mass., 52sc

Hughes Industries, N.J., 2sc, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 24sc, 26sc, 28sc, 30sc, 32c, 34sc, 38sc, 42sc, 46s, 52sc, 54c

Hycon Mfg. Co., Calif., 6c, 8c, 16c, 22c, 26c, 30c, 42c

Hyletronics Corp., 185 Cambridge St., Burlington, Mass., 6c, 14c, 22c, 32c, 36c, 42c, 44c, Tel: 617-BRowning 2-0670
See ad in this class

I-T-E Circuit Breaker Co., Special Products Div., Pa., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 40c, 50c, 52c, 54c

FERRITE MICROWAVE COMPONENTS

(To commercial and MIL specs)

● ISOLATORS

▸ **WAVEGUIDE:** From L Band to V Band [illegible] equipment isolators covering full waveguid[illegible] Isolators, and special designs featuring [illegible]

▸ **COAXIAL:** Compact coaxial isolators cover [illegible] Other coaxial ferrite devices can be used [illegible] ators, modulators, and phase shifters.

● CIRCULATORS

▸ **FARADAY ROTATORS:** These circulators [illegible] 20% bandwidths. Narrow band units are [illegible] high power designs are available.

▸ **DIFFERENTIAL TYPES:** L Band to Ka Band [illegible] are: high isolation, low loss, and [illegible] is ideal for parametric amplifier use.

▸ **JUNCTION TYPE:** These 3-port circulators [illegible] guide types. WYE type coaxial units are also [illegible] complete coverage from UHF to V Band. [illegible] applications.

● SWITCH

▸ **ROTATIONAL TYPES:** Ferrite devices offer [illegible] fast switching time to less than 1 μsec, [illegible] power applications. Applications [illegible] and one transmitter.

● VARIABLE ATTENUATORS & MODULATORS

Numerous ferrite configurations are [illegible] attenuator applications.

● SPECIAL DESIGNS

A thoroughly experienced engineering staff is available for consultation on [illegible] applications. Our chemical laboratory supplies special formulations of ferrites [illegible] enable our engineering department to meet even most difficult component requirements.

● **FERROTEC** has complete sales representation in all principal cities in the U.S., Canada, and in foreign countries.

FERROTEC INC.

217 CALIFORNIA ST. • NEWTON 58 • MASS.

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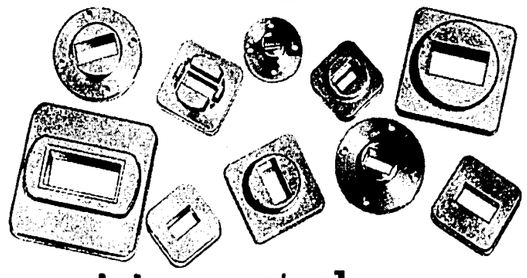
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

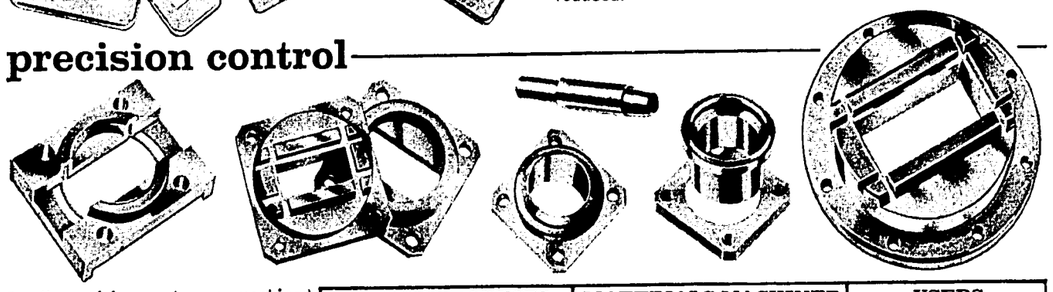
NEW—small precision forgings



To facilitate processing of orders for fast delivery of small Microwave flanges used in commercial and government projects, Leonard's Precision Manufacturing Co., Inc., now offers precision forgings of these flanges.

The U6-210, 596A and 600A flanges have precision-held sockets which eliminate milling of the hub. By maintaining one size throughout the socket area, assembly of parts is made easier and more efficient. Adjustment of jigs and fixtures due to size variations of slot milled parts is thus reduced.

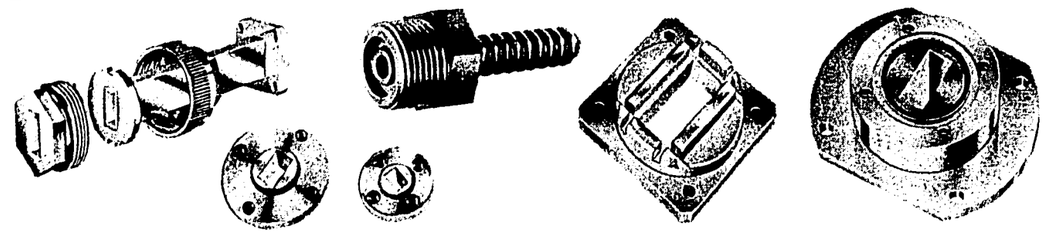
precision control



Small precision parts are machined from specified metals and the most close tolerances are held—.0005 if necessary. Original specifications are maintained on production orders. In the case of pilot models, specifications are not only held, but to further control the project, all jigs and fixtures are made by skilled mechanics.

TYPICAL PRODUCTS	MATERIALS MACHINED		USERS
adapters connectors couplings for rigid co-axial lines insular parts screw machine parts wave guide flanges specializing in microwave flanges	bar stock, forgings, or castings aluminum brass bronze copper plastic nylon lucite	teflon polyethylene OFHC copper tellurium silver stainless steel steel	Component Parts for Radio, T. V., Radar, Electronics, Automotive, Communication, Aircraft Industries.

precision machining



At Leonard's Precision Manufacturing Company, Inc., the function of Quality Control is not delegated to an Inspection Department as such; it is an integral part of every mechanic's job. Precision can only be maintained if everyone is constantly measuring and improving the quality of his work.

INSPECTION TOOLS. To properly measure specified tolerances, Leonard's Precision Manufacturing Company, Inc., maintains a complete set of inspection instruments:

Gage-Plug, round ground, thread, height. **Micrometers**-Depth, calipers, thread. **Indicators**-Dial. **Blocks**-Granite. **Verniers. Parallels.**

WORK-IN-PROCESS INSPECTION is part of every major operation. As an example, one out of every five pieces is checked in both the grooving and drilling operations.

FINAL INSPECTION, as a rule, is made by a journeyman. His job is made easy because of the series of previous inspections a product run goes through before completion. Short run orders receive 100% inspection and production runs are checked every 25 pieces. This continuous quality control program is an assurance of a precision product.

consumer service

DEPENDABILITY

Every request for quotation is thoroughly analyzed for workability of specified metals, for general feasibility of production—for maintenance of tolerances. Delivery dates once promised are maintained. It is a company policy to "refuse" orders if delivery schedules cannot be met.

ADVISORY SERVICE

Based on a "decade" of intricate machining, Leonard's Precision Manufacturing Company, Inc., offers its "technical know-how" to industry in a continual effort to make a better product. Changes are suggested only if they will improve the end product—tolerances are never changed.

LEONARD'S PRECISION MANUFACTURING CO., INC.

750 BOUND BROOK ROAD • DUNELLEN, NEW JERSEY • PHONE PLYMOUTH 2-4929

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LIECO FOR MICROWAVE

In addition to an extensive product line, LIECO can supply microwave components and system assemblies for small and large quantity production to customer's specifications. LIECO's capabilities in Research, Development, Design and Reliability Assurance are available for meeting requirements in the following fields:

ANTENNAS: Airborne, Marine, U.H.F. Microwave, Arrays, Slotted Arrays, R F Heads.

ANTENNAS Accessories: Feed Systems, Tuning Units, Rotary joints, Filters, Sector Scanners.

ATTENUATORS: Variable, Flap, Precision, Fixed.

ADAPTERS: Waveguide Flange to Flange, Waveguide to Coax, Waveguide tapered, Rigid Coax to Coax.

BENDS & TWISTS: Waveguide: Bends E & H Plane 0°-180°, Twists 0°-90°

BOLOMETERS: Waveguide: Bolometer (millimeter).

COUPLERS: Directional Antenna: 7/8" Coax line. Crossguide, Multi-hole, Branch Guide Rotary.

DETECTORS: Crystal, Bolometer, Single, Dual, Tunable, Fixed Tuned.

DIVIDERS: Waveguide: Power Divider.

DUMMY LOADS: Waveguide: High Power, Water Cooled; Coaxial.

FILTERS: R F, Waveguide, Coaxial.

FLANGES: Waveguide, Coaxial, Standard & Special.

GASKETS: RF Spring Finger.

HORNS: Microwave Horns, Gain Standard.

JOINTS: Microwave Rotary Joints, Continuous & Sector Scan.

MIXERS: Microwave Crystal, Crystal Coaxial & Waveguide.

MOUNTS: Microwave Bolometer, Crystal.

PHASE SHIFTER: Microwave Phase, Dielectric, Line Stretchers.

SHORTS: Waveguide & Coax, Adjustable, Fixed.

SWITCHES: Waveguide Switches. Manual, Motor Driven SPDT, DPDT, SP-Multi-Throw.

SCANNERS: Microwave Sector.

TEES: Coaxial, Waveguide, Series, Shunt, Hybrid.

TERMINATIONS: Microwave Low Power, High Power, Waveguide, Coaxial.

TRANSITIONS: Microwave Waveguide to Waveguide, Coax to Coax, Waveguide to Coax, tapered.

TUBING: Waveguide: Rigid Waveguide, Flexible.

TUNER: Waveguide. E-H, Slide Screw, Micrometer Driven.

WAVEGUIDE: Rigid, Flexible.

LIECO
SYOSSET INDUSTRIAL PARK
130 EILEEN WAY
SYOSSET, L. I., N. Y.

For details, circle #414 on Reader Service Card

Directory II. Components

66. Microwave Components & Waveguides.

Industrial Electronic Rubber Co., Ohio, Seals sc

Instrument Corp. of Florida, Fla., 42c

Instrument Systems Corp., N.Y., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 22c, 24c, 26c, 32c, 34c, 36c, 40c, 44c, 52c

Intaspace Corp., N.J., 52c

International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 12c, 20c, 42c, 44c

Irvan Engineering Co., Inc., Calif., 6c, 22c, 28c, 42c, 44c

J.V.M. Microwave Co., Ill., 4sc, 16sc, 20c, 30c, 36c, 44c

Jones Optical Works (A. D.), Mass., 54c

Kahl Scientific Instrument Corp., Calif., 28s

Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 18c, 20c, 42c

Kane Engineering Laboratories, Calif., 8sc, 16sc, 24sc, 26sc, 28sc, 42sc, 44sc, 54sc

Kennedy & Co. (D. S.), Mass., 10c, 14sc, 16sc, 18sc, 20sc, 24sc, 46c, 52sc

Kert Corp. (F. C.), Div. of Bart Mfg. Corp., N.J., 4c, 20c, 40c, 52c

Kings Electronics Co., Inc., N.Y., 2s, 8c, 12c

Kirchberger & Co., Inc. (M.), N.J., 22c

Kost Products Co., Inc., Ill., 34c

LEL, Inc., 77 Akron St., Copiague, L.I., N.Y., 30sc, Tel: 516-AMityville 4-2200
See ad in class 43

Laboratory For Electronics, Inc., Mass., 8sc, 14sc, 16sc

Lamtex Industries, Inc., N.Y., 50sc, 52sc

Lawrence Laboratory, Calif., 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 30c, 42c, 52c

Leach & Garner Co., Industrial Div., Mass., 52c

Leonard's Precision Mfg. Co., Inc., 750 Bound Brook Rd., Dunellen, N.J., Flanges c, Tel: 201-PLymouth 2-4929
See ad in this class

Lewis & Kaufman Electronics Corp., Calif., 6sc, 14c, 18c, 20c, 22sc, 32sc, 42sc, 44sc

Lieco, Inc., 130 Eileen Way, Syosset, L.I., N.Y., 2sc, 4c, 6c, 8sc, 10sc, 12sc, 14c, 16c, 18c, 20c, 24sc, 26sc, 28sc, 30sc, 34sc, 42sc, 44sc, 50sc, 52sc, Tel: 516-WAlnut 1-6300
See ad in this class

Lignes Telegraphiques et Telephoniques, France, 2s, 4s, 6s, 8s, 12s, 16s, 20s, 22s, 26s, 28s, 30s, 32s, 34s, 38s, 42s, 54s

Ling Temco Vought, Inc., Texas, 28sc, 44sc, 52c, 54c

Lionel Corp., N.J., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 38c, 40c, 42c, 44c, 46c, 48c, 50c, 52c, 54c

Lionel Corp., Telerad Div., N.J., 2s, 4s, 6c, 8c, 14sc, 16c, 18sc, 20c, 24sc, 28c, 30c, 36c, 38c, 42c, 44c, 46s, 50s, 52s

Litton Industries, Inc., Components Group, Airtron Div., N.J., 2sc, 4sc, 6sc, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 22sc, 24sc, 26c, 28sc, 30sc, 32sc, 34sc, 36sc, 38c, 42sc, 44sc, 46sc, 48c, 50sc, 52sc, 54sc

Litton Industries, Inc., Electron Tube Div., 960 Industrial Rd., San Carlos, Calif., 16c, 44sc, Tel: 415-LYtell 1-8411
See ad in class 86

Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 2c, 4c, 8c, 12c, 14c, 16c, 18c, 20c, 24c, 32c, 38c, 40c, 42c, 44c, 46c, 52c, 54c

M.C.S. Corp., Calif., 2c, 4c, 6c, 10c, 12c, 14c, 18c, 20c, 22c, 26c, 28c, 32c, 42c, 44c, 46c, 52c

Mallory Controls Co., Div. of P. R. Mallory & Co., Inc., Ind., 18c

Manson Laboratories, Inc., Conn., 32sc, 36sc

Marconi Wireless Telegraph Co., Ltd., N.Y., 6c, 22s

Mark Products Co., Ill., 4c, 8c, 20c, 40c

Marsland Engineering, Ltd., Canada, 4c

Marti & Associates, Calif., 2sc, 4sc, 8sc, 10sc, 12sc, 14sc, 16c, 24c, 26c, 28sc, 30c, 34c, 38c, 42c, 44c

Marsson Electronics Corp., N.Y., 8c, 18c, 32c, 36c, 38c, 42c

HYLETRONICS CORPORATION

Burlington, Massachusetts

SOLID STATE MICROWAVE DEVICES
Switches, Phase Shifters, Attenuators, Oscillators, Harmonic Generators, Parametric Amplifiers, Masers, Isolators, Circulators, Limiters

MICROWAVE NETWORKS & SUBSYSTEMS
applying
Ferromagnetic & Semiconductor Devices

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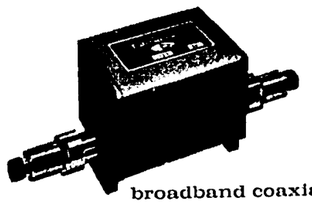
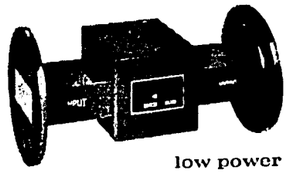
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

new! NARDA
ferrite isolators:



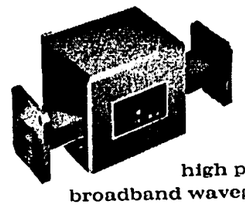
broadband coaxial

Excellent electrical characteristics with extreme versatility! ⅞" coaxial line construction allows higher power operation with ⅞" connectors, up to 20 kw peak, 400 watts average. (Normally supplied with Type N, ⅜" connectors; 10 kw peak, 10 watts average.) Features 15 db isolation and 1 db max. insertion loss. VSWR is 1.25 max. based on 2:1 load mismatch; 1.15 max. into matched load. Model 1233: 2.0-4.0 kmc; model 1233-1: 3.0-5.5 kmc; $450. each.



low power broadband waveguide

Provide maximum load isolation and minimum insertion loss over full standard waveguide frequency ranges. Extremely useful for maintaining signal source stability and eliminating long line and frequency pulling effects. Front-to-back ratios are the highest available on the market today: C Band—26:1, $250; XN Band—25:1, $225; XB Band—30:1, $235; X Band—30:1, $220.



high power broadband waveguide

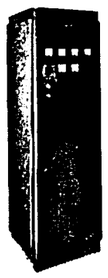
The only line of high power isolators that covers all of X Band with just two models (8.2-10.0 kmc and 10.0-12.4 kmc), each with front/back ratio of 40:1. Input power rating: 250 kw peak, 300 watts average, achieved through use of special high Curie temperature ferrite materials. VSWR is 1.05 max. with matched load; 1.10 max. with 3:1 mismatch. Only $175 each. Model with same VSWR, 28:1 front/back ratio, 300 kw peak, and 300 watts average, 7.05-10.0 kmc, $195.

consult NARDA for: Circulators • Phase Shifters • Modulators • Attenuators • Special Isolators

bolometers & thermistors:

The complete line of Bolometers (barretters) and Thermistors for all frequency ranges, including cylindrical, crystal, disc, and miniature configurations.

modulators & test instruments:



A line of Microwave Modulators, designed to operate a maximum number of existing magnetrons, without any alterations to the modulator. Provision has also been made for quickly converting these units to handle any new or uncommon pulse microwave tubes. All units feature silicon rectifiers and diodes for increased life and more reliable operation. Complete information on request.

Narda Microwave test instruments are designed to offer you something *more* than competition. Whether you require Power Meters, Klystron Power Supplies, and Radar Performance Checkers, VSWR Amplifiers, Impedance Meters, or any other Narda instruments, you'll be pleased with their precision workmanship, close adherence to specifications, excellent reliability, and exclusive features.

waveguide & coaxial equipment:

Narda's full catalog includes a complete line of UHF and microwave hardware, all of the highest quality. Most of our products are available for immediate delivery; flexible production schedules permit prompt shipment of even those items not regularly on the shelf.

free catalog:

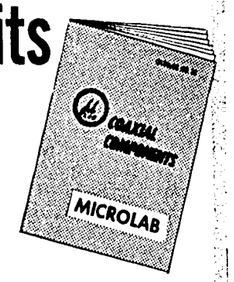
We'll be glad to send you Narda's newest catalog. Just drop us a line, indicating the microwave areas in which you are most interested. Address: Department **IRED-61-3.**

the narda microwave corporation

118 160 HERRICKS ROAD MINEOLA L I N Y · PIONEER 6 4650

For details, circle #416 on Reader Service Card

New Microwave Component Catalog Lists 7317 Stock Units



You'll want a copy of the new Microlab 72 page Microwave Component Catalog which includes newly designed **TERMINATIONS, FIXED** and **TURRET ATTENUATORS** (miniaturized, up to 12,000 mc; and high power, up to 15w; precision units with improved VSWR and attenuation values); **HIGH** and **LOW PASS FILTERS; COAXIAL TUNERS; RESISTIVE** and **REACTIVE POWER DIVIDERS; COAXIAL CONNECTORS; CRYSTAL MOUNTS; MONITOR TEES; DC BLOCKS; DC SHORTS; SIGNAL SAMPLERS.**

Catalog also includes **Design Section** for each product and a special article on the **Application of Matrix Algebra to the Design of Microwave Networks.**

WRITE FOR YOUR CATALOG NOW.

MICROLAB

570 W. MT. PLEASANT AVE.
LIVINGSTON, N. J.
WYman 2-5700

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Directory II. Components

66. Microwave Components & Waveguides.

McKiernan-Terry Corp., N.J., 10c, 18c, 20c, 24c, 28c, 46c, 52c

Mechanical Engraving Co., Inc., N.Y., 54c

Melabs, Calif., 4c, 6sc, 8sc, 14sc, 16c, 22sc, 30c, 42c

Meller Co. (Adolf), R.I., 54sc

Melpar, Inc., Va., 8c, 18c, 20c

Meridian Metalcraft, Inc., Calif., 2sc, 4c, 8sc, 10c, 12sc, 14c, 18c, 20c, 24c, 26c, 28sc, 30sc, 32c, 34c, 36c, 38c, 40c, 42c, 44c, 46sc, 52sc

Merrimac Research & Development, Inc., 517 Lyons Ave., Irvington 11, N.J., 8c, 12c, 14c, 26c, 28c, 30c, 34c, 36c, 42c, Tel: 201-ESsex 1-1616
See ad in class 45

Metavac, Inc., N.Y., 28sc

Micacraft Products, Inc., N.J., 54c

Micarta Fabricators, Inc., Ill., 54c

Microflect Co., Inc., Ore., 40sc

Microlab, 570 W. Mount Pleasant Ave., Livingston, N.J., 2c, 4c, 8sc, 14sc, 16c, 26sc, 28sc, 30sc, 34sc, 40sc, 42sc, Tel: 201-WYman 2-5700
See ad in this class

Micromega Corp., Calif., 6c, 16c, 22c, 32c, 36c, 42c, 44c

Microphase Corp., Conn., 2sc, 4sc, 6sc, 8sc, 10sc, 12sc, 14sc, 16sc, 26sc, 28sc, 30sc, 32sc, 34sc, 36sc, 38sc, 42sc, 44sc, 50c, 52c

Microtech, Inc., Conn., 2c, 4c, 8c, 12c, 14c, 16c, 18c, 20c, 24c, 26c, 28c, 30c, 34c, 38c, 42c, 44c, 46c, 50sc, 52sc, 54c

Microwave Associates, Inc., South Ave., Burlington, Mass., 2s, 4s, 6s, 8s, 10s, 12s, 14s, 16s, 18s, 20s, 22s, 24s, 26s, 28s, 30s, 32s, 34s, 36s, 42s, 44s, 46s, 50s, 52s, 54s, Tel: 617-BRowning 2-3000
See ad on page 178

Microwave Corp. of America, Conn., 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 38c, 40c, 42c, 44c, 50c, 52c, 54c

Microwave Development Laboratories, Inc., Mass., 2sc, 4sc, 6s, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 24sc, 26sc, 28sc, 30sc, 42sc, 44sc, 52sc, 54sc

Microwave Dynamics Corp., N.Y., 2s, 4c, 8s, 10s, 12s, 14s, 20s, 24c, 26c, 28s, 32s, 34s, 36s, 38s, 42c, 44c, 50c, 52c

Microwave Electronics Corp., Calif., 36c

Microwave Semiconductor & Instruments, Inc., N.Y., 2s, 8s, 14s, 28s, 34s, 54c

Minerals & Insulation Co., N.J., 54s

Mitronics, Inc., 132 Floral Ave., Murray Hill, N.J., 54c, Tel: 201-277-3400
See ad in class 92

Model Engineering & Mfg. Corp., Ind., 2c, 4c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 46c, 52c, 54c

Motorola, Inc., Military Electronics Div., Ariz., 4c, 6c, 8c, 16c, 22c, 44c

Mytron, Inc., Mass., 4c, 10c, 16c, 20c, 24c, 30c, 46c, 52c

Narda Microwave Corp., Dept IRED-61-3, 118-160 Herricks Rd., Mineola, L.I., N.Y., 2s, 6c, 8s, 12s, 16s, 20s, 22s, 26s, 28s, 30s, 32sc, 34s, 36c, 38s, 46s, Tel: 516-PIoneer 6-4650
See ad in this class

Natel Engineering Co., Calif., 32s

National Beryllia Corp., First & Haskell Aves., Haskell, N.J., 54c, Tel: 201-TEmple 9-1600
See ad in class 92

National Radio Co., Inc., Mass., 10sc, 36sc

Network Industries, Inc., N.J., 44s

New England Instrument Co., Mass., 2c, 8c, 10c, 18c, 20c, 24c, 30c, 34c, 38c, 44c, 52c

Nichols Products Co., N.J., 2c, 20c, 38sc, 52c

North American Aviation, Inc., Columbus Div., Ohio, 18c, 54c

Northwest Industries, Ltd., Canada, 32c

Nuclear Corp. of America, Central Electronic Mfrs. Div., N.J., 54s

Omega Laboratories, Inc., Haverhill St., Rowley, Mass., 2s, 4c, 8sc, 12sc, 14c, 16c, 18c, 20sc, 26sc, 28sc, 30sc, 34sc, 36sc, 38sc, 46sc, 50c, 52sc, Waveguide Covers sc, Tel: 617-WHitney 8-7757
See ad in this class

MICROWAVE COMPONENTS

coaxial and waveguide

50 MC to 90 KMC

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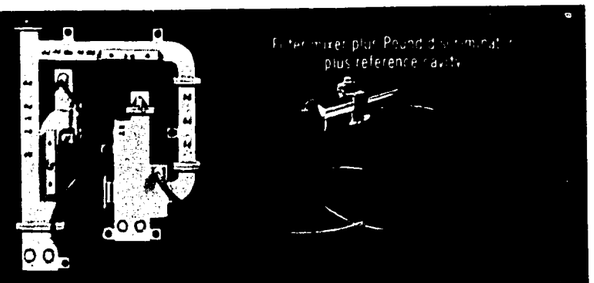
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.



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THE SPECIALIST IN THE FIELD

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PORTCHESTER INSTRUMENT CORPORATION

Wholly-Owned Subsidiary of Premier Microwave Corp.

114 Wilkins Avenue, Port Chester, N. Y.

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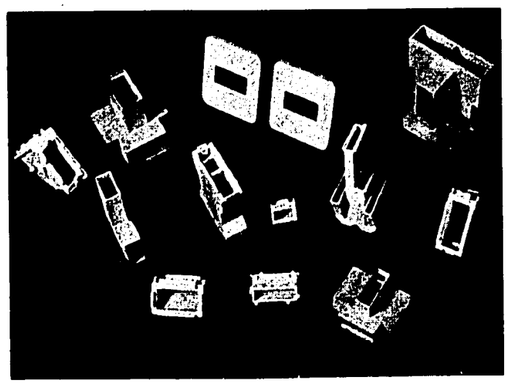
RODÉ

WAVEGUIDES



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QUALITY INTRICATE WAVEGUIDE CAST TO CLOSE TOLERANCE with FINE FINISH

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66. Microwave Components & Waveguides.

On Mark Couplings, Inc., Calif., 8c, 10c, 52c

Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 12sc, 30sc, 32sc, Tel: 914-DEerfield 7-6132
See ad in class 43

Ostlund Associates (E. M.), N.J., 4c, 18c, 32c

PRD Electronics, Inc., 202 Tillary St., Brooklyn 1, N.Y., 2s, 4s, 8s, 12s, 22s, 28s, 30s, 34s, 38s, Tel: 212-ULster 2-6800
See ad in class 37

Pabst Engineering Equipment Co., Inc., N.J., 4c, 8c, 10c, 48c, 52c

Pacific Universal Products Corp., Calif., 54c

Parker-Hannifin Corp., Parker Seal Co. (Div.), 10567 Jefferson Blvd., Culver City, Calif., 54c, Waveguide Seals sc, Tel: 213-VErmont 9-1161
See ad in class 97

Pearson Electronics, Inc., 707 Urban Lane, Palo Alto, Calif., 32c, Tel: 415-DAvenport 6-7285
See ad in class 84

Phelps Dodge Copper Products Corp., 300 Park Ave., New York 22, N.Y., 2s, 10s, 46s, 52s, Tel: 212-PLaza 1-3200
See ad in class 91

Philadelphia Scientific Glass Co., Pa., 46sc

Philco Corp., Government & Industrial Group, Pa., 4c, 16c, 18c, 46c, 50c

Philco Corp., Lansdale Div., Pa., 12s, 30s, 44s, 52s

Philco Corp., Sierra Electronic Corp. (Div.), Calif., 8s, 12s, 28s

Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 52s

Pickard & Burns, Inc., Subsid. of Gorham Corp., 103 Fourth Ave., Waltham R & D Park, Waltham 54, Mass., 2c, 4c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 24c, 26c, 28c, 30c, 32c, 34c, 38c, 40c, 42c, 44c, 46c, 48c, 52c, Tel: 617-HIllcrest 4-3345
See ads on page 190 & in classes 31, 44

Polymica & Insulation Co., Inc., Conn., 54sc

Portchester Instrument Corp., Subsid. of Premier Microwave Corp., 114 Wilkins Ave., Port Chester, N.Y., 2c, 4sc, 6c, 8c, 10c, 12c, 16c, 28c, 30c, 52c, 54c, Tel: 914-WEstmore 9-4092
See ad in this class

Precision Microwave Corp., Mass., 2c, 4c, 8c, 14c, 16c, 18c, 20c, 24c, 28c, 30c, 34c, 40c, 42c, 44c, 50c, 52c, 54c

Premier Microwave Corp., 33 New Broad St., Port Chester, N.Y., 2sc, 4sc, 6c, 8sc, 10sc, 12sc, 14c, 16c, 18c, 20c, 22c, 24sc, 26sc, 28sc, 30sc, 34sc, 42c, 44sc, 46c, 50c, 52c, Tel: 914-WEstmore 9-8900
See ad in class 50

Prodelin, Inc., N.J., 2s, 10s, 18s, 20s, 28s, 52s

Pyrofilm Resistor Co., Inc., N.J., 28sc

R F Products, Div. of Amphenol-Borg Electronics Corp., 33 E. Franklin St., Danbury, Conn., 2sc, 8c, 12c, 14c, 24c, 26c, 30c, 32c, 44c, 52c, Tel: 203-PIoneer 3-9272
See ad in class 80

Directory II. Components

66. Microwave Components & Waveguides.

RLC Electronics, Inc., 805 Mamaroneck Ave., Mamaroneck, N.Y., 4c, 8s, 12s, 14s, 16c, 28s, 30s, 34s, 42s, Tel: 914-OWens 8-7440
See ads in classes 45, 59

Radar Design Corp., N.Y., 2sc, 4c, 8sc, 12sc, 14sc, 20c, 28sc, 34sc, 42c

Radar Measurements Corp., 190 Duffy Ave., Hicksville, L.I., N.Y., 2sc, 8sc, 12c, 14c, 16c, 18c, 20c, 24c, 26c, 28sc, 42sc, 44sc, Tel: 516-OVerbrook 1-5600
See ad in class 37

Radiation Engineering Laboratory, Inc., Mass., 18c, 20c

Radiatronics, Inc., Calif., 2sc, 8sc, 10c, 14c, 16sc, 18sc, 20sc, 24sc, 30c, 46sc, 50c, 52sc

Radio Engineering Laboratories, Inc., N.Y., 4c, 32c

Rantec Corp., Calif., 6sc, 8c, 12c, 14c, 16sc, 18c, 20c, 22sc, 24c, 26c, 28sc, 32sc, 34c, 42sc, 44sc

Raytheon Co., Communications & Data Processing Operation, Mass., 16sc

Raytheon Co., Microwave & Power Tube Div., Mass., 6sc, 22sc, 28sc, 32sc, 42sc, 44sc

Raytheon Co., Special Microwave Devices Operation, Mass., 6sc, 14sc, 22sc, 32sc, 42sc, 44sc

Reed & Reese, Inc., Calif., 4c, 32c

Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, N.Y., 24s

Republic Aviation Corp., N.Y., 18c, 20c, 40c, 54c

Republic Lens Co., Inc., 31 E. 169th St., New York 52, N.Y., 54c, Tel: 212-CYpress 3-2790
See ad in class 17

Resdel Engineering Corp., Calif., 4s, 36sc

Reuter-Stokes Electronic Components, Inc., Ohio, 54c

Roberts Co., Inc. (R. O.), Calif., 2sc, 8sc, 12sc, 14c, 16c, 18c, 20c, 24c, 26c, 28sc, 30c, 32c, 34c, 42c, 48c, 50c, 52c

Rodé, Inc., 5 Green St., Woburn, Mass., 52c, Tel: 617-WEIls 3-3580
See ad in this class

Rohde & Schwarz, P.O. Box 275, 111 Lexington Ave., Passaic, N.J., 8c, Tel: 201-PRescott 3-8010
See ad in class 38

Rohr Aircraft Corp., Antenna Systems Div., Calif., 16c, 18c, 20c

Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 16c, 18c, 20c, 22c, 52sc

Sage Laboratories, Inc., 3 Huron Dr., East Natick Industrial Park, Natick, Mass., 2sc, 8sc, 12sc, 14c, 18c, 20c, 24sc, 26sc, 28sc, 30sc, 34sc, 38c, 42c, Tel: 617-OLympic 3-0844
See ad in this class

Sanders Associates, Inc., N.H., 2s, 8s, 14s, 30s, 34s, 46sc

Scaico Controls, Inc., N.J., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 38c, 40c, 42c, 44c, 46c, 48c, 50c, 52c, 54c

Scanwell Laboratories, Inc., 6601 Scanwell Lane, Springfield, Va., 18c, 20c, 24c, 42c, 44c, Tel: 703-FLeetwood 4-5800
See ad in class 44

Schaevitz Engineering, N.J., 2c, 6c, 8c, 10c, 12c, 14c, 18c, 24c, 38c, 40c, 42c, 44c

Schutter Microwave Corp., N.Y., 2sc, 4sc, 6sc, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 22sc, 24sc, 26sc, 28sc, 30sc, 32sc, 34sc, 36sc, 38sc, 40sc, 42sc, 44sc, 46sc, 48sc, 50sc, Baluns sc

Schuyler Mfg. Corp., N.J., Flanges sc

Scientific-Atlanta, Inc., Ga., 2s, 4c, 12sc, 18sc, 20sc, 24sc, 30sc, 34sc

Semi-Elements, Inc., Pa., 54c

Siemens New York, Inc., N.Y., 2s, 8s, 18s, 20s, 46s

Sigma Electronics Research Corp., Wash., 2c, 4s, 6c, 8c, 10c, 14c, 16c, 18c, 20s, 28s, 34s, 44c, 46s, 52c

Silicone Insulation, Inc., N.Y., 22c, 54c

Sivers Laboratory, Sweden, 2s, 12s, 14s, 20s, 24sc, 28s, 30s, 34s, 42s, 44sc

Smith Corp. (A. O.), Crowley Div., N.J., 12s

Somerset Radiation Laboratory, Inc., N.J., 2s, 10s, 14s, 16s, 32s, 34s, 42s, 44s, 52s

Space Instrumentation Corp., Calif., 14c

Specialty Automatic Machine Corp., 80 Cambridge St., Burlington, Mass., 52c, Tel: 617-BRowning 2-0800
See ad in this class

Specialty Electronics Development Corp., N.Y., 4sc, 8sc, 16sc

Speed Electronics, N.J., 28c

Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 2sc, 4sc, 6sc, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 22sc, 26sc, 28sc, 30sc, 34sc, 38sc, 42c

Standard Metals Corp., 262 Broad St., North Attleboro, Mass., 52c, Tel: 617-MYrtle 5-9395
See ad in class 104

Standard Telephones & Cables, Ltd., England, 4sc

Stelon, Inc., N.J., 38c

Stewart-Warner Corp., Stewart-Warner Electronics Div., Ill., 4c

Strand Engineering Co., Mich., 18c, 20c, 24c

Sunbank Electronics, Inc., Calif., 2c, 10c

Surface Conduction, Inc., N.Y., 18sc, 46sc

Swift Textile Metalizing & Laminating Corp., 10 Love Lane, Hartford 1, Conn., 40s, Tel: 203-JAckson 2-1181
See ad in class 103

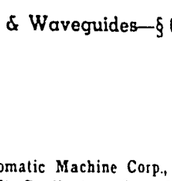
MICROWAVE COAXIAL COMPONENTS

The complete Sage catalogue includes twenty-three lines of coaxial and waveguide components, covering the frequency range from DC through Q-Band. The tables below highlight three of the coaxial lines.

TEMLINE HYBRIDS

Model No.	Frequency Range	Minimum Directivity	Max. VSWR	Body Dim.	Price
748	60-125 mc	30db	1.20	22" x	$225.00
749	125-250 mc	20db	1.20	11" x	175.00
750	250-500 mc	20db	1.20	6" x	175.00
751	500-1000mc	20db	1.25	3" x	175.00
752	1000-2000mc	20db	1.25	2" x	175.00
753	2000-4000mc	20db	1.25	1" x	175.00

Coupling: 3db ± 0.5db



COAXIAL BALANCED MIXERS

Model No.	Frequency Range	Output	Body Dim.	Crystals Supplied	Price
2491	125-250 mc	Dual	11" x	(2) 1N416E	$400.00
2493		Single			350.00
2501	250-500 mc	Dual	6" x	(2) 1N416E	300.00
2503		Single			350.00
2511	500-1000mc	Dual	3" x	(2) 1N416E	300.00
2513		Single			350.00
2521	1000-2000mc	Dual	2" x	(2) 1N416E	300.00
2523		Single			350.00
2531	2000-4000mc	Dual	2" x	(2) 1N416E	300.00
2533		Single			350.00
2541	4000-8000mc	Dual	2" x	(2) 1N415E	300.00
2543		Single			350.00

30 or 60mc IF

COAXIAL ROTARY JOINTS

Model No.	Frequency Range	Maximum VSWR	Maximum Insertion Loss	Price
305*	DC-12,400mc	1.15 DC-5000mc	Less than 0 1db	$100.00
305W*		1.30 5000-12 400mc		110.00
320**	800-12,000mc	1.10 800-6000mc	0 3db 800-1200mc	125.00
320W**		1.20 6000-8000mc	0 2db 1200 3000mc	135.00
		1.30 8000-12,000mc	0 1db 3000-12 000mc	

*Contacting junction **Capacitively coupled

NOTE: Models 305W and 320W are weatherized versions of Models 305 and 320, respectively.

Engineering inquiries concerning special requirements are invited.

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

TRG INC.

Total capability in millimeter test bench and system components 26 to 220 kmc.

FERRITE DEVICES
- Complete ferrite duplexers
- Four port circulators
- Three port reciprocal switches
- Variable attenuations
- Modulators
- On-off switches
- Isolators

LOW LOSS CIRCULAR WAVEGUIDE COMPONENTS
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- Corrugated bends
- Rectangular to circular mode transitions
- Rectangular to TE_{01} transitions
- Dual mode transducers
- Rotary joints

TEST BENCH
- Slotted lines
- Directional couplers
- Wavemeters
- Variable attenuators
- Precision attenuators
- Phase shifters
- Detector mounts
- E/H tuners
- Slide screw tuners
- Sliding short circuits
- Transitions
- Tees
- Twists
- Bends
- Terminations
- Drill Jigs

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- Triple hybrid rings
- Balanced mixers
- Waveguide switches
- Ferrite switches
- Antennas
- Rotary joints
- Flexible waveguide
- Receiver front ends

BOLOMETERS .....26 to 220 kmc
HARMONIC MIXERS AND GENERATOR .....26 to 220 kmc
CALORIMETERS .....26 to 220 kmc

TRG INC. ANTENNA AND MICROWAVE DEPARTMENT 9 UNION SQUARE SOMERVILLE, MASSACHUSETTS

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66. Microwave Components & Waveguides.

Sylvania Electric Products Inc., Electronic Tubes Div., N.Y., 2c, 6sc, 8c, 12c, 14c, 16c, 22sc, 34c, 42c, 44sc, 54s

Sylvania Electric Products Inc., Lighting Products Div., Mass., 44s

Sylvania Electric Products Inc., Microwave Device Operations, Calif. & Pa., 22sc

Sylvania Electric Products Inc., Sylvania Electronic Systems (Div.), Mass., 14c, 18c, 22c, 24c, 30c, 32c, 36c, 38c, 42c, 44c, 46c

TRG, Inc. (Technical Research Group), 9 Union Square, Somerville 43, Mass., 4s, 6s, 8s, 12s, 14s, 16s, 18s, 20s, 22s, 24s, 28s, 30s, 34s, 38s, 40s, 42s, 44s, 46s, 52s, 54s, Tel: 617-MOnument 6-8680
See ads in classes 44, 66

Tamar Electronics, Inc., Calif., 2sc, 8sc, 10sc, 14sc, 18sc, 20c, 22sc, 46sc

Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 44c, Tel: 201-WIndsor 4-2221
See ad in class 80

Technical Appliance Corp., N. Main St., Sherburne, N.Y., 2s, 4s, 14s, 18s, 20sc, 26s, 40s, 50sc, 52s, Tel: 607-ORchard 4-2211
See ad in class 44

Technicraft Div., Electronic Specialty Co., Conn., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 42c, 44c, 46c, 50c, 52c, 54c

Telecomputing Corp., Advanced Structures Div., Calif., 52c

Telecomtrol Corp., N.J., 2c, 4c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 42c

Telonic Engineering Corp., P.O. Box 277, Laguna Beach, Calif., 16c, Tel: 714-HYatt 4-7581
See ad in class 39

Texas Instruments Incorporated, Semiconductor Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 16c, 24c, 30c, 50c, 52c, Tel: 214-ADams 5-3111
See ad on Cover 3

Therm, Inc., N.Y., 2c, 4sc, 6c, 8c, 10sc, 12c, 14c, 16c, 18c, 20c, 24c, 26c, 28sc, 30sc, 40c, 44c, 46sc, 52c, 54c

Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 2s, 4s, 6sc, 8sc, 10c, 12s, 14c, 16s, 18s, 20s, 22c, 24sc, 26sc, 28sc, 30sc, 32sc, 34s, 36s, 38s, 40s, 42s, 44s, 46s, 50s, 52s, 54s

Tokyo Shibaura Electric Co., Ltd., Japan, 6s, 8s, 22s, 24s, 52s

Trak Microwave Corp., Fla., 4sc, 36sc

Transco Products, Inc., Calif., 8c, 14c, 28c, 44sc

Tucor, Inc., Conn., 16c, 42c, 44c

Turbo Machine Co., Pa., 2c, 8sc, 14sc, 18c, 20c, 26s, 28sc, 30c, 34c, 40sc, 42c, 44c, 46c, 52sc

Twin Coach Co., Aircraft & Missiles Div., N.Y., 50c, 52c

Unison Products, Inc., Mich., 38c

United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 54c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104

United Products Co., N.J., 28sc

United Shoe Machinery Co., Mass., 2c, 4c, 8c, 10c, 12c, 14c, 18c, 20c, 28c, 30c, 32c, 34c, 42c, 44c, 46c

U.S. Dielectric Products, Inc., Mass., 28sc, 54c

Vap-Air Div., Vapor Corp., Ill., 14c, 48c, 52c

Varian Associates, Tube Div., Calif., 4s, 8s, 14s, 16s, 30s, 32s

Victor-Bernard Industries, Inc., Pa., 22s

WacLine, Inc., Ohio, 28sc, 38c, 52c

Warren Components Div., El-Tronics, Inc., Pa., 34c

Washington Aluminum Co., Inc., Md., 2sc, 4sc, 6sc, 8sc, 14sc, 16sc, 18sc, 20sc, 24sc, 26sc, 28sc, 40sc, 42sc, 46sc, 48sc, 52sc, 54sc

Waveguide, Inc., Calif., 14c, 16c, 18c, 20c, 24c, 44sc, 46sc

Waveline, Inc., N.J., 2s, 4s, 8s, 10s, 12s, 14s, 16c, 18c, 20s, 24c, 26s, 28s, 30c, 32c, 34s, 36c, 38s, 40s, 42s, 44s, 46s, 52s

Wavetronics, Inc., N.J., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 38c, 40c, 42c, 44c, 46c, 48c, 50c, 52c, 54c

Weinschel Engineering Co., Inc., 10503 Metropoolitan Ave., Kensington, Md., 2c, 4c, 8c, 12c, 14sc, 28sc, 34sc, Tel: 301-LOckwood 4-0121
See ad in class 45

Western Semiconductors, Inc., Calif., 30c

Wheeler Laboratories, Inc., Subsid. of Hazeltine Corp., 122 Cutter Mill Rd., Great Neck, L.I., N.Y., 8c, 18c, 20c, 24c, 26c, Tel: 516-HUnter 2-7876
See ad in class 95

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TO YOUR SPECIFICATIONS

Bends, Twists, Offsets, Coils, Transitions, Fabrications and complete assemblies to your prints.

Specialty AUTOMATIC MACHINE CORPORATION

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Directory II. Components

66. Microwave Components & Waveguides.

Wiggins Oil Tool Co., Inc. (E. B.), Calif., 10c

Wiley Electronic Products Co., Div. of Giannini Scientific Corp., Ariz., 18sc, 20sc, 24sc, 44sc

Winslow Co., Inc., N.J., 4c

Wood Electric Corp., Mass., 2s

Zenith Optical Laboratory, N.Y., 54c

Milliammeters:
See class 61

Mirrors:
See class 97

Mixers:
See classes 37 & 66

Modules:
See class 50

Monoscopes:
See class 86

Motor-generators:
See class 67

Motor-generators, servo:
See class 77

67. Motors & Synchros.

5. Dynamotors
10. Motor-generators
15. Motors, blower & fan
20. Motors, clock
25. Motors, fractional HP
30. Motors, hysteresis & stepping
35. Motors, phonograph
40. Motors, servo
45. Motors, speed-regulated
50. Motors, subfractional HP
55. Motors, synchronous
60. Motors, timing
65. Synchros

Aeroflex Laboratories, Inc., N.Y., Torque sc

Air-Marine Motors, Inc., 369 Bayview Ave., Amityville, L.I., N.Y., 15sc, 25sc, 30sc, 50sc, 55sc, Tel: 516-AMityville 4-3700
See ad in class 47

Airborne Accessories Corp., N.J., 25sc, 45sc, 50sc, 55sc

Alliance Mfg. Co., Inc., Div. of Consolidated Electronics Industries Corp., Ohio, 15sc, 25sc, 35sc, 50sc, 55sc

Alliance Motor Div., General Steel Wares, Ltd., Canada, 15sc, 35sc, 50sc

American Bosch Arma Corp., N.Y., 25c

American Electronics, Inc., Calif., 10sc, 15sc, 30sc, 40sc, 50sc, 55sc, 60c, 65sc

American Electronics, Inc., Electro-Mechanical Div., Calif., 10sc, 15sc, 25sc, 50sc, 55sc

American Electronics, Inc., Fullerton Divs., Calif., 10sc, 15sc, 25sc, 55c, 60c

American Electronics, Inc., Instrument Div., Calif., 30sc, 40sc, 65sc

American Machine & Foundry Co., N.Y., 20s

American Machine & Foundry Co., Leland Airborne Products Div., Ohio, 10sc, 15c

Amglo Corp., 4337 N. Ravenswood Ave., Chicago 13, Ill., 45sc, 50sc, 55sc, 60sc, Tel: 312-BUckingham 1-2727
See ads in classes 67, 86

Ashland Electric Products, Inc., N.Y., 15c, 25c, 30c, 50c, 55c

Associated Electrical Industries (Rugby), Ltd., England, 10sc, 15sc, 25sc, 40sc, 45sc, 55sc

Astro Dynamics, Inc., Mass., 15s, 25sc, 40sc, 45c, 50c, 55c

Astronautics Corp. of America, Wis., 30sc, 40c, 55c

Atlas Coil, Inc., Conn., 25c, 30c, 40c, 45c, 50c, 55c, 65c

Bach-Simpson, Ltd., Canada, 10s

Barber-Colman Co., Motors & Components Div., Dept. V, P.O. Drawer 99, 19119 Rock St., Rockford, Ill., 10c, 15sc, 35c, 40sc, 45sc, 50sc, 55sc, Tel: 815-WOodland 8-6833
See ad in this class

Beau Electronics, Inc., Conn., 10c, 30s, 35s, 40s, 50c, 55s, 60c

Beckman Instruments, Inc., Helipot Div., Calif., 30sc, 40sc

Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J., 10c, 30c, 40c, 50c, 65c, Tel: 201-ATlas 8-2000
See ad on pages 46-47

Bendix Corp., Montrose Div., Pa., 5sc, 15c, 25c, 45c, 50c, 65sc

Bendix Corp., Red Bank Div., Electron Tube Products, Highway #35, Eatontown, N.J., 10c, Tel: 201-LIberty 2-2000
See ad on pages 48-49

Bludworth Marine Div., States Electronics Corp., N.Y., 10c

Bodine Electric Co., Ill., 20sc, 25sc, 30sc, 35sc, 40sc, 50sc, 55sc, 60sc

Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 50s, 55s, 60s

Bogue Electric Mfg. Co., N.J., 10c, 45c

Bolsey Corp. of America, N.Y., 45sc, 50sc

Borg Equipment Div., Amphenol-Borg Electronics Corp., 120 S. Main St., Janesville, Wis., 40sc, 50sc, 55sc, 60sc, Tel: 608-PLeasant 4-6616
See ad in class 74

Borg-Warner Corp., Pesco Products Div., Ohio, 10c, 15c, 25c, 50c

Brevel Products Corp., N.Y., 15c, 25c, 35c, 50c, Gearmotors c, Shaded Pole Motors c

Speed Cannot Vary!

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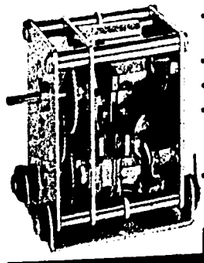
--for critical Industrial, Military and Space Applications



- Speed is a function of reed frequency.
- Speed is independent of voltage and load variation.
- Low power input—0.5 to 2 watts.
- Operating Voltage—3 to 110 V. DC.
- Output shaft speed as required—(1500 RPM to 1 Rev. in 24, or more hours).
- Torque—up to 400 inch ounces at 1 RPM.

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A Quarter Century of Electronic Research and Manufacture

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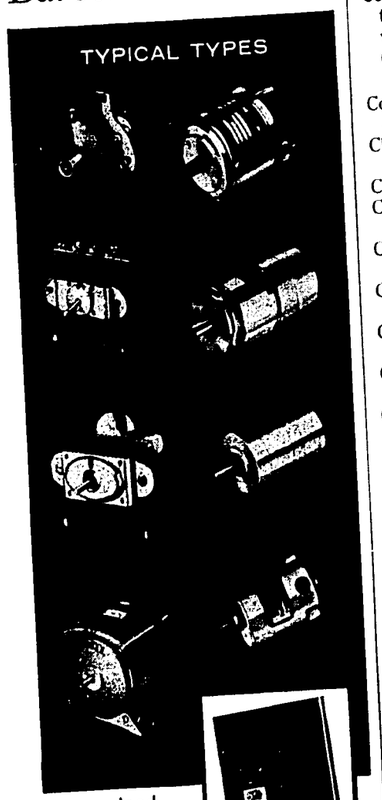
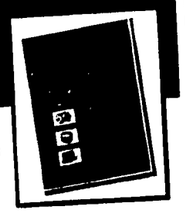
Select the exact a-c or d-c small motor you need... from the wide Barber-Colman line





new revised quick reference file on the complete line

. . . this helpful guide illustrates and gives typical specifications on Barber-Colman subfractional horsepower motors. Ask for *Quick Reference File F-9765* . . . it covers the following:

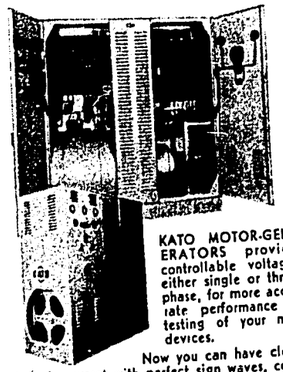
A-C SHADED-POLE MOTORS
unidirectional • reversible
synchronous • geared
A-C AND D-C TACH GENERATORS
D-C PRECISION MOTORS
BATTERY-OPERATED MOTORS
A-C 400-CYCLE MOTORS
BLOWERS, GEARHEADS
ULTRA-SENSITIVE RELAYS

BARBER-COLMAN COMPANY
DEPT. V, 1911 9 ROCK ST., ROCKFORD, ILLINOIS
For details, circle #425 on Reader Service Card

67. Motors & Synchros.

Bristol Motors, Div. of Vocaline Co. of America, Inc., Conn., 55s, 60s
Bucknell Engineering Co., Inc., Calif., 10c, 55c
Burroughs Corp., Control Instrument Co., Inc. (Subsid.), N.Y., 40c, 65c
CTS of Canada, Ltd., Industrial Electronics Div., Canada, 10c
Carter Motor Co., Ill., 5sc, 15sc, 25sc, 45sc, 50sc, 60sc
Celco Constantine Engineering Laboratories Co., 70 Constantine Dr., Mahwah, N.J., 5c, 10c, 15c, 25c, 40c, 50c, 65c, Rotors c, Tel: 201-DAvis 7-1123
See ad on page 130
Century Electric Co., Mo., 10s, 15s, 25s, 45s, 55s
Chicago Pneumatic Tool Co., N.Y., 25c, 50c, 55c
Clary Corp., Calif., 30c
Clifton Precision Products Co., Inc., Pa., 10c, 30c, 40c, 50c, 65c
Columbia Electric Mfg. Co., Ohio, 10sc, 55sc
Consolidated Airborne Systems, Inc., N.Y., 65c
Consolidated Diesel Electric Corp., Conn., 10c
Control Data Corp., Cedar Engineering Div., Minn., 10sc, 30sc, 40sc, 55sc, 65c
Controls Co. of America, Ill., 5sc, 10sc, 15sc, 20sc, 25sc, 30c, 35sc, 45sc, 50sc, 55sc, 60sc
Controls Co. of America, Redman Co. (Subsid.), Mich., 5c, 15c, 25sc, 35sc
Curtiss-Wright Corp., Electronics Div., N.J., 30sc
Dale Electronics, Inc., Subsid. of Hathaway Instruments, Inc., 1318 28th Ave., P.O. Box 488, Columbus, Nebr., 30s, 35s, 50s, 55s, Tel: 402-LOcust 4-3131
See ad in class 74
Del Electronics Corp., 521 Homestead Ave., Mount Vernon, N.Y., 65c, Tel: 914-OWens 9-2000
See ad in class 69
Diehl Mfg. Co., N.J., 40sc, 50c
Dominion Electrohome Industries, Ltd., Canada, 10s, 15s, 25s, 50s
Dumore Co., Wis., 25sc
Dynamic Air Engineering, Inc., Calif., 15s, 25s, 50s
Dynamics Corp of America, N.Y., 10sc, 25sc, 40sc, 65sc
Eastern Air Devices, Inc., N.H., 10sc, 15sc, 25sc, 30sc, 40sc, 50sc, 55sc
Edison Industries (Thomas A.), Instrument Div. (McGraw-Edison Co.), N.J., 10sc, 40sc, 50sc, 55sc
Electric Indicator Co., Inc., Conn., 10c, 15c, 25c, 30c, 40c, 45c, 50c, 55c, 65c
Electric Machinery Mfg. Co., Minn., 10sc, 55sc
Electric Motors & Specialties, Inc., Ind., 10 AC s, 55 AC s
Electro Engineering Products Co., Inc., Ill., 20s, 30s, 55s, 65s
Electro-Mechanical Specialties Co., Inc., Calif., 30sc
Electronic Controls, Inc., Conn., 45sc
Electronic Specialty Co., Calif., 5c, 10c, 15c, 25c, 30c, 40c, 45c, 55c, 60c
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 50sc, 55sc, 60sc
Emerson Electric Mfg. Co., Mo., 15s, 25s, 50s
Exactel Instrument Co., Calif., 40s, 65s
Farrand Controls, Inc., N.Y., 65sc, Rotors & Stators sc
Fasco Industries, Inc., N.Y., 15sc, 25sc, 35sc, 45sc, 50sc, 55c
Fidelity Instrument Corp., Pa., 45sc
Ford Electronics Corp., Calif., 15s, 25c, 35c, 40c, 50c
Ford Instrument Co., N.Y., 40c, 55c, 65c
Gap Instrument Corp., Conn., 30c
Garrett Corp., AiResearch Mfg. Co., Calif., 10sc, 15sc, 25sc
Gaylord-Rives Co., Calif., 10sc, 15sc, 25sc, 30sc, 40sc, 50sc, 55sc, 60sc
General Controls Co., Calif., 25s
General Electric Co., Apparatus Sales Dept., N.Y., 5c, 10sc, 25s, 40c, 45s, 55s
General Electric Co., Clock & Timer Dept., Mass., 20s
General Industries Co., Ohio, 15sc, 25sc, 35sc, 50sc, 60c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 10sc, 15c, 25sc, 40sc, 45sc, 50sc, 55sc, 65sc
General Precision, Inc., Kearfott Div., N.J., 10s, 15s, 25s, 30s, 40s, 45s, 50s, 55s, 65s
General Railway Signal Co., N.Y., 50s
General Time Corp., N.Y., 20s, 30s, 40s, 45s, 50s, 55s, 60s, 65s
Genisco, Inc., Calif., 40c, 55c
Georator Corp., Va., 10c
Gerst & Co. (Paul E.), Ill., 5c, 10c, 15c, 25c, 30c, 45c, 50c, 55c, 60c, 65c

CLEAN POWER!



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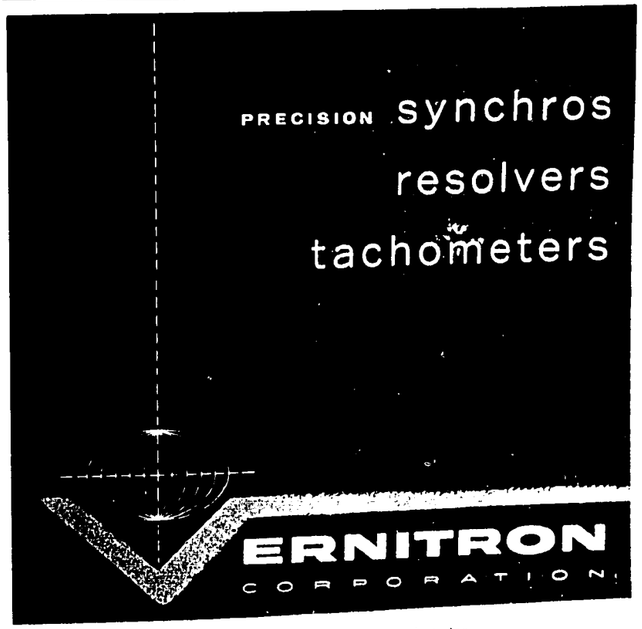
Directory II. Components

67. Motors & Synchros.

Giannini Controls Corp., Calif., 25c, 30c, 40c, 55c, 65c
Giannini Controls Corp., Cramer Controls Corp., Conn., 20sc, 50sc, 55sc, 60sc
Gleason-Avery, Inc., N.Y., 35c, 50c, 55c, 60c
Globe Industries, Inc., Ohio, 10s, 15s, 20c, 25s, 30sc, 40c, 45s, 50s, 55s, 60s
Great Lakes Electric Mfg. Co., Ill., 5c, 10c
Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 45c, Tel: 516-WElls 8-9500
See ad in class 77
Hamilton Watch Co., Industrial Products Div., Pa., 20sc, 60sc
Hansen Mfg. Co., Inc., Ind., 55sc, 60sc
Harowe Precision, Inc., Pa., 10sc, 30sc, 40sc, 55sc, 65sc
Haydon Co. (A. W.), Conn., 20c, 25c, 30c, 45c, 50c, 55c, 60c
Haydon Instrument Co., Conn., 15sc, 25sc, 45sc, 50sc, Printed-Circuit Motors sc
Heinze Electric Co., Mass., 15c, 35c, 50c
Henschel Corp., Mass., 65sc
Hitachi New York, Ltd., N.Y., 55c
Holtzer-Cabot Div., National Pneumatic Co., Inc., Mass., 5c, 10c, 15c, 25c, 30c, 40c, 50c, 55sc
Hoover Co., Ltd., Canada, 5c, 15c, 40c
Hoover Electric Co., Calif., 5c, 10c, 15c, 25c, 40c, 45c, 50c
Howard Industries, Inc., Wis., 15c, 25c, 30c, 35c, 45c, 50c, 55c, 60c
Hurst Mfg. Corp., Ind., 55sc
Huyck Systems Co., N.Y., 40c, 65c
IMC Magnetics Corp., Eastern Div., N.Y., 5c, 10c, 15sc, 25sc, 30c, 40c, 45c, 50c, 55c, 65c
IMC Magnetics Corp., Western Div., Calif., 30c, 65c
Ideal Electric & Mfg. Co., Ohio, 10 High-Frequency sc, 55sc
Ingraham Co., Conn., 20s, 50s, 55s, 60s
Inland Motor Corp. of Virginia, Va., 10sc, 15c, 55c
Instrument Components of New Jersey, Inc., N.J., 10c, 25c, 30c, 40c, 50c, 55c
Jack & Heintz, Div. of Siegler Corp., Ohio, 5c, 10c, 25sc, 40c, 45c, 50c, 55c
Jack Scientific Instrument Co. (Bill), Calif., 10c
Janette Div., National Pneumatic Co., Inc., Mass., 5c, 10c, 15c, 25c, 30c, 40c, 50c, 55sc
Japan Servo Co., Ltd., N.Y., 10s, 30s, 40s, 50s, 55s, 60s, 65s
Jefferson Electronic Products, Div. of Jefferson Electric Co., Calif., 10c, 15c, 60c, 65c
Kasson Die & Motor Corp., N.Y., 25sc, 60c
Kato Engineering Co., 1420 First Ave., Mankato, Minn., 10c, 55c, Tel: 8-2941
See ad in this class
Kinetic Instrument Corp., N.Y., 10sc, 30sc, 40sc, 45sc, 50sc, 55sc, 60sc
Kollsman Motor Corp., Pa., 10sc, 30sc, 40sc, 55sc, 65sc
L & R Mfg. Co., N.J., 25s
Lake City, Inc., Ill., 55c, 60c
Lamb Electric Co., Div. of American Machine & Metals, Inc., Ohio, 15sc, 25c, 40c, 45c, 50c, 55c, 65c
Land-Air, Inc., Stepper Motors Div., Calif., 30sc
Leach Corp., 18435 Susana Rd., Compton, Calif., 10sc, Tel: 213-NEvada 6-1061
See ad in class 73
Lear, Inc., Calif., 25sc, 40sc, 50sc, 65sc
Lear, Inc., Lear-Romec Div., Ohio, 15sc, 25sc
Ledex, Inc., Ohio, 30sc
Lesa Costruzioni Elettromeccaniche S.P.A., Italy, 25s, 35s
Lionel Corp., N.J., 20c, 25c, 30c
Lundy Mfg. Corp., N.Y., 15c, 25sc, 30c, 40c, 45c, 55c, 60c, 65c
Lytle Corp., N.M., 60c
Mamco Corp., Wis., 15c, 25c, 35c, 45c, 50c
Mandrel Industries, Inc., Greenleaf Mfg. Div., Mo., 40c
Marathon Electric Mfg. Corp., Wis., 10c, 15s, 25s, 45s, 55s
McLean Syntorque Corp., N.Y., 10c, 25c, 30c, 40c, 50c, 55c
Merkle-Korff Gear Co., Ill., 25c, 50c, 55c
Midwestern Instruments, Inc., Okla., 40s
Minicord Corp. of America, N.J., 50s
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 40s, 55s
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 40c
Model Engineering & Mfg. Corp., Ind., 65c
Mobon Motor & Coil Corp., Ill., 15c, 25c, 35c, 50c, 60c
Motor Generator Corp., Ohio, 10s
Motordyne, Inc., Subsid. of Air-Marine Motors, Inc., Calif., 10c, 15sc, 25c, 30c, 40c, 45c, 50c, 55c
Mueller Engineering Co., Inc. (Henze), Ill., 5sc, 10sc, 15sc, 25sc, 45c, 50c
Muirhead & Co., Ltd., England, 10s, 30s, 40s, 55s, 65s
Muirhead Instruments, Inc., N.Y., 25s, 30s, 40s, 50s, 55s, 60s, 65s
National Co., Inc., Mass., 10s, 40s
Nevada Air Products Co., Nev., 15c
Norden Div., United Aircraft Corp., Conn., 65sc
Norden Div., United Aircraft Corp., Ketay Dept., N.Y., 10c, 40c, 55c
Oster Mfg. Co. (John), Atomic Div., Wis., 10s, 15s, 30s, 40s, 50s, 55s, 65s
Ovitron Corp., Hodge Controls Div., Conn., 50sc



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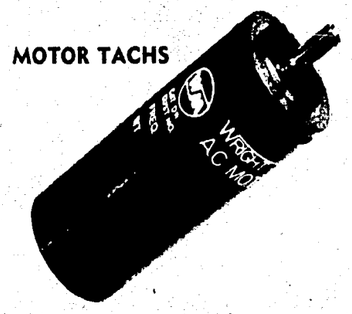
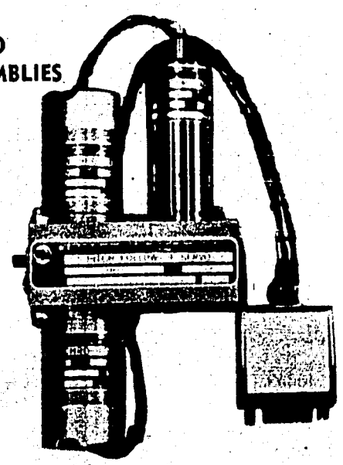
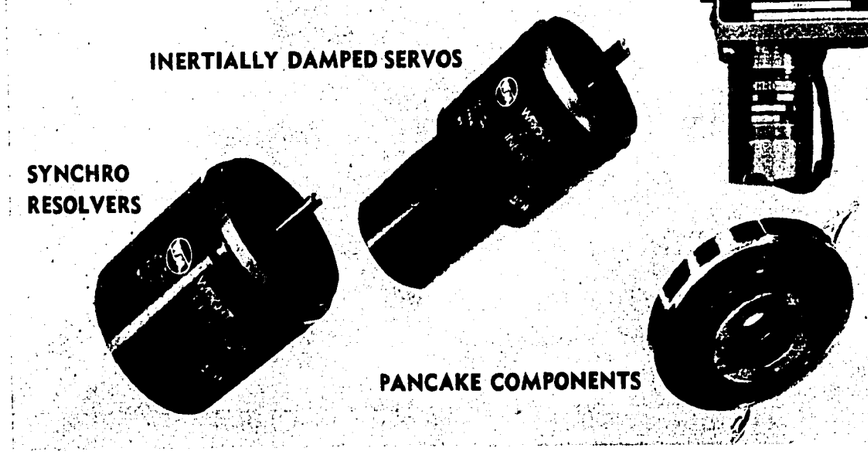
A catalog containing data on our complete line is available upon request. You are also invited to write for the name and address of your nearest Wright Motors representative.







WRIGHT / *DIVISION OF SPERRY RAND*
Durham, North Carolina
Tel. 682-8161

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Directory II. Components

67. Motors & Synchros.

Pace Controls Corp., Mass., 30s
Palmer Electric Mfg. Co., Calif., 10sc
Pennwood Numechron Co., 7249 Frankstown Ave., Pittsburgh 8, Pa., 55s, 60s, Tel: 412-FRemont 1-4200
See ad in class 11
Philips Electronics Industries, Ltd., Canada, 55s, 60s
Photocircuits Corp., 31 Sea Cliff Ave., Glen Cove, L.I., N.Y., 25sc, 30sc, 40sc, Tel: 516-ORiole 6-8000
See ad in class 50
Pioneer Electric & Research Corp., Ill., 50c
Pittman Electrical Developments Co., Pa., 50sc
Printed Motors, Inc., N.Y., 10c, 25c, 30sc, 40sc
Radio Development & Research Corp., N.J., 5c, 10sc, 15sc, 40c, 45c, 55c
Rae Motor Corp., Ill., 25c, 45c, 50c
Redmond-Fairchild, Inc., Calif., 30c, 55c
Reed & Reese, Inc., Calif., 30c, 55c, 65c
Reeves-Hoffman, Div. of Dynamics Corp. of America, 145 Cherry St., Carlisle, Pa., 25c, 50c, Tel: 717-CHapel 3-5929
See ad in class 56
Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, N.Y., 65sc
Reflectone Electronics, Inc., Subsid. of Universal Match Corp., Conn., 45sc, 50sc
Robertshaw-Fulton Controls Co., Aero Div., Ohio, 15sc, 25sc, 50sc, 60sc
Rotating Components, Inc., 1560 Fifth Ave., Bay Shore, L.I., N.Y., 10sc, 15sc, 25sc, 30sc, 40sc, 50sc, 55sc, Tel: 516-MOhawk 6-8500
See ad in class 47
Rotax, Inc., Calif., 30sc, 55sc
Rotron Mfg. Co., Inc., 79 Schoonmaker Pl., Woodstock, N.Y., 5s, 10s, 25s, Tel: 914-ORiole 9-2401
See ad in class 47
Rowe Industries, Inc., N.Y., 50sc
Safety Electrical Equipment Corp., Conn., 10c
Sangamo Electric Co., Springfield, Ill., 5s, 10s, 20s, 25s, 30s, 40s, 55s, 60s, 65s, Tel: 217-KIngswood 4-6411
See ad on page 142
Schaevitz Engineering, N.J., 5c, 10sc, 15sc, 20c, 25sc, 30sc, 35c, 40sc, 45sc, 50sc, 55sc, 60sc, 65sc
Seneca Falls Machine Co., N.Y., 40s
Servo-Tek Products Co., Inc., N.J., 10s, 25s, 40s, 45s, 50s, 55s, 60s, 65s
Servomechanisms/Inc., Calif., 10c, 15c, 20c, 25c, 30c, 40c, 45c, 50c, 55c
Servomechanisms/Inc., Mechatrol Div., N.Y., 30sc, 40sc, 50sc, 55sc
Siemens New York, Inc., N.Y., 10c, 15s, 25s, 45s, 65s
Sigma Instruments, Inc., Mass., 30c
Small Motors, Inc., Ill., 5c, 10c, 15c, 25c, 40c, 45c, 50c, 55c
Smith Corp. (A. O.), Ohio, 15sc, 25sc
Sperry Rand Corp., Sperry Gyroscope Co. (Div.), N.Y., 25c, 40c, 50c
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 10c, 40sc, 45c
Stator Electric Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, Rotors & Stators c
Superior Electric Co., 100 Ames Ave., Bristol, Conn., 30s, 40s, 55s, Tel: 203-LUdlow 2-9561
See ad on pages 2-11
Telecomputing Corp., Calif., 25c
Telkor, Inc., Ohio, 15sc, 25sc, 50sc
Tenney Engineering, Inc., N.J., 10c, 45c
Transco Products, Inc., Calif., 25sc
United States Gauge Div., American Machine & Metals, Inc., Pa., 55sc, 65sc
Universal Electric Co., Mich., 15c, 35c, 50c
Uppco, Inc., Ill., 15c, 25c, 35c, 50c
Vactric (Control Equipment), Ltd., England, 10s, 15s, 40s, 45s, 55s
Varo, Inc., Texas, 5c, 10sc, 40c, 45c, 55c
Vernitron Corp., 131 Old Country Rd., Carle Place, L.I., N.Y., 10sc, 30sc, 40sc, 55sc, 65sc, Tel: 516-PIoneer 1-4130
See ad in this class
Victor-Bernard Industries, Inc., Pa., 5c
Vocaline Co. of America, Conn., 30sc, 55sc, 60sc
WacLine, Inc., Ohio, 45sc
Waltham Precision Instrument Co., Mass., 55s
Western Design & Electronics, Div. of U.S. Industries, Inc., Calif., 15sc, 25sc, 45c, 55c
Western Gear Corp., Electro Products Div., Calif., 10c, 15c, 25c, 30c, 40c, 45c, 50c, 55c
Westinghouse Electric Corp., Small Motor Div. of Aircraft Equipment Dept., Ohio, 10c, 15sc, 25sc, 30c
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 55s, Tel: 212-JUdson 2-3030
See ad on page 224
Wright Div. of Sperry Rand Corp., Calvin & Holloway Sts., Durham, N.C., 10sc, 15c, 25c, 30c, 40sc, 50sc, 55sc, 65c, Pancake Components sc, Tel: 919-682-8161
See ad in this class
Wunderlich Radio Co., N.Y., 10sc
Yuba Dalmotor Div., Yuba Consolidated Industries, Inc., Calif., 10sc, 15c, 25sc, 30sc, 35c, 40c, 45sc, 50sc, 55sc
Zenith Radio Corp., Wincharger Corp. (Subsid.), Iowa, 5c, 10c
Zero-Max Co., Minn., 25c

Mounts, vibration & shock:
See class 89

Multiplex & stereo equipment:
See classes 26, 33, 42 & 88

Multipliers, computer:
See class 10

Multipliers, microwave:
See class 66

Multipliers, servo
See class 77

Networks, filter:
See class 59

Networks, pulse-forming:
See class 48

Networks, resistance:
See class 74

Oscillators:
See classes 34, 35, 37 & 38

Ovens, crystal:
See class 56

Panel meters:
See class 61

Panels, electroluminescent:
See class 63

Parts, tube & semiconductor:
See class 105

Patch cords:
See class 62

68. Phonographs, Pickups, etc.

5. Arms
10. Pickups, ceramic
15. Pickups, crystal
20. Pickups, magnetic
25. Pickups, stereo
30. Record changers
35. Record players
40. Servo playback
45. Tape phonographs & playback equipment

Allen Electronics Corp., N.Y., 25c
American Electronic Laboratories, Inc., Pa., 25c, 30c
Arvin Industries, Inc., Electronics Div., Ind., 15c, 25c, 35c, 45c
Astatic Corp. (Subsid. Mfg. Div. of G-L Electronics Products, Inc.), Pa., 15c, 20c, 25c
Avnet Electronics Corp., 35c
Avnet Corp. (Subsid. Inc.), N.Y., 30s
Avnet Corp., Ohio, 30s
Audionetics Laboratories, Inc., 35c
Audiotex Mfg. Co., Div. of Electronics, Ill., 45c
Autocrat Electronics Corp., 35c
Bear Electronics, Inc., 35c
Bogen Presto, Div. of [illegible], N.J., 5s, 35s, 40s
Bolsey Corp. of America, N.Y., 35c
British Industries Corp., N.Y., 35s
CBS Electronics, Div. of Columbia Broadcasting System Inc., Mass., 5s, 10s, 15s, 25s, 30s
Capps & Co., Inc., N.Y., 40c
Co Engineering Co., N.J., 45sc
Collaro, Ltd., England, 15sc, 25sc, 30sc
Cousino Electronics Corp., Ohio, 45sc

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

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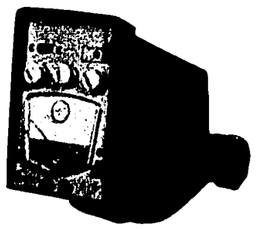

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ON

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Turn to Pages 33-38 In This Directory

FOR COMPLETE DATA

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New England Regional Office: 275 Boston Post Road, Marlboro, Massachusetts • Phone: Code 617, HUntley 5-7122

Middle Atlantic District Office: 515 Broad Hollow Road, Huntington, L. I., New York • Phone: Code 516, MYrtle 4-4200

For details, circle #430 on Reader Service Card

68. Phonographs, Pickups, etc.

Diamond Tool Engineering Co., Mass., 40c
Dominion Electrohome Industries, Ltd., Canada, 35s
Duotone Co., Inc., N.J., 40s
Dyna-Empire, Inc., 1075 Stewart Ave., Garden City, L.I., N.Y., 5s, 25s, 35s, 40s, Tel: 516-PIoneer 1-2700
See ad in class 40
Dynaco, Inc., Pa., 5s, 20s, 25s
E.M.I.-Cossor Electronics, Ltd., Canada, 5s, 20s, 45s
Educational Electronics Co., Ill., 35sc
Ekco Electronics, Ltd., Ekco Works, England, 35s
Electro-Sonic Laboratories, Inc., N.Y., 5sc, 10s, 20s, 25s, 35s
Electro-Voice, Inc., Mich., 10s, 15s, 25s, 40s
Electron Enterprises, Inc., Ill., 30sc, 35sc
Electronic Products Corp., Subsid. of Futura Mfg. Corp., Mo., 35s
Electronic Reproducers (Components), Ltd., England, 5sc, 10sc, 15sc, 25sc, 40sc
Electrophono & Parts Corp., N.Y., 15s, 25s, 30s, 35s, 40s, 45s
Fairchild Recording Equipment Corp., N.Y., 5s, 20s, 25s, 35s
Fanon Transistor Corp., 439 Frelinghuysen Ave., Newark 12, N.J., 35s, Tel: 201-BIgelow 3-1020
See ad in class 76
Fen-Tone Corp., N.Y., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s
Fidelitone Microwave, Inc., Ill., 40sc, 45sc
Gates Radio Co., Ill., 5s, 45s
General Dynamics/Electronics, N.Y., 5s, 35s
Glaser-Steers Corp., N.J., 30sc
Gotham Audio Corp., N.Y., 25s, 35s
Gray Mfg. Co., Conn., 5sc, 35sc
Gregory Research Engineering Group, N.Y., Magnetic-Tape Converters c
Gulton Industries, Inc., N.J., 10sc
Hamilton Electronics Corp., Ill., 35s
Hughes Research Div. (J. Willis), Miss., 45c
Injection Plastic Corp., Ill., 5c
International Audio Stylus Corp., N.Y., 15c, 25c, 40sc
James Electronics, Inc., 4050 N. Rockwell St., Chicago 18, Ill., 20c, Tel: 312-COrnelia 7-6333
See ad in class 53
Jensen Industries, Inc., Ill., 10sc, 15sc, 25sc, 40sc
Keller Engineering (Hugo P., Jr.), N.Y., 40sc
Langevin, Div. of Sonotec, Inc., Calif., 20s, 25s, 40s, 45s
Lesa Costruzioni Elettromeccaniche S.P.A., Italy, 10s, 15s, 25s, 30s, 35s
MP Engineering Co., Conn., 35s, 45sc
Minnesota Mining & Mfg. Co., Magnetic Products Div., Minn., 45s
Munzig International, Inc., Calif., 10s, 15s, 35s
Newcomb Audio Products Co., Calif., 35s
Pacific Transducer Corp., Calif., 5s, 20s
Permoflux Products Co., Div. of Linlar, Inc., Calif., 25c, 35c
Perrott Engineering Laboratories, Inc., Va., 15c

Directory II. Components

68. Phonographs, Pickups, etc.

Philco Corp., Pa., 35s
Philips Electronics Industries, Ltd., Canada, 30s, 35s, 45s
Pickering & Co., Inc., N.Y., 20sc, 25sc, 40sc
Product & Industrial Engineering Corp., Va., 45s
Protection Equipment Co., Inc., Minn., 45sc
Radio Corp. of America, Defense Electronic Products, N.J., 5s, 15s, 20s, 25s, 30s, 35s, 40s, 45s
Recoton Corp., N.Y., 20s, 40s
Rek-O-Kut Co., Inc., N.Y., 5s, 35s, 45s
Rheem Mfg. Co., Rheem Califone Corp. (Subsid.), Calif., 35s
Riemer Co., Inc. (David), N.Y., 5sc, 15sc, 25sc, 40s
Rowe Industries, Ohio, 20s
Sanyo Electric Co., Ltd., Japan, 5s, 15s, 35s
Scott, Inc. (H. H.), Mass., 5s, 25s
Servodyne Corp., Mass., 15c
Setchell-Carlson, Inc., Minn., 35 Stereo s
Shure Brothers, Inc., Ill., 5s, 10s, 15s, 20s, 25s, 40s
Sonograf Electric Co., N.Y., 5sc, 30c, 35sc
Sonotone Corp., N.Y., 5s, 10s, 15s, 25s, 40s, 45s
Soundpac Electronics Corp., Mich., 45s
SoundScriber Corp., Conn., 45sc
Swedgal Electronics (M.), N.Y., 45s
Tannoy (America), Ltd., N.Y., 20s
Telectro Industries Corp., N.Y., 45sc
Tokyo Shibaura Electric Co., Ltd., Japan, 10s, 15s, 20s, 25s, 30s, 35s, 45s
U.S. Recording Co., D.C., 35sc, 45s
U.S. Sonics Corp., Mass., 10c
V-M Corp., Mich., 30sc, 35s
Vanity Fair Electronics Corp., N.Y., 35sc
Waters Conley Co., Inc., Minn., 45s
Weathers Industries, N.J., 5c, 10c, 25c, 35c
Westinghouse Electric Corp., Television-Radio Div., N.J., 25s, 45s
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 45s, Tel: 212-JUdson 2-3030
See ad on page 224

Photocells:
See class 76

Photoelectric transducers:
See class 83

Phototubes:
See class 86

Pickups:
See class 68

Playback equipment:
See classes 9 & 68

Players, record:
See class 68

Plugs:
See class 62

Potentiometers—all types:
See class 74

Power supplies, infrared:
See class 17

69. Power Supplies.

5. AC type
10. DC type
15. High-voltage (kilovolt)
20. Low-voltage
25. Magnetic
30. Medium-voltage
35. Microwave
40. Mobile
45. Regulated
50. Standby or primary
55. Transistor
60. Variable

ACDC Electronics, Inc., 2979 N. Ontario St., Burbank, Calif., 10sc, 20sc, 30sc, 45sc, Tel: 213-VIctoria 9-2414
See ad in this class
A C Electronics, Inc., Calif., 5sc, 10sc, 20sc, 25c, 30c, 45c, 55c, 60c
ACF Electronics Div., ACF Industries, Inc., Md., 5c, 10c, 15c, 55c
ADC Products, Div. of Magnetic Controls Co., 2863 13th Ave. S., Minneapolis 7, Minn., 5c, 10c, 15c, 20c, 30c, 40c, 45c, 55c, 60c, Tel: 612-PArkway 1-5551
See ad in class 84
AMP, Inc., Pa., 10sc, 15sc
AMP, Inc., Capitron Div., Pa., 5c, 10c, 15c, 20c, 30c, 45c, 60c
ATR Electronics, Inc., 300 E. Fourth St., Saint Paul 1, Minn., 5s, 10s, 20s, 50s, 55c, Tel: 612-CApital 2-3791
See ad in class 53
Accurate Instrument Co., 2414 W. Alabama St., P.O. Box 66373, Houston 6, Texas, 5sc, 45sc, 55sc, Tel: 713-JAckson 6-4947
See ads in classes 31, 59
Acme Electric Corp., 44 Water St., Cuba, N.Y., 5c, 10sc, 20c, 25c, 30c, 35c, 45c, 55c, 60c, Tel: Cuba 4
See ad in this class, page 528
Acopian Technical Co., Pa., 5sc, 10sc, 20sc, 45sc, 55sc, 60sc
Admiral Corp., Ill., 10c, 15c, 20c, 30c, 45c, 55c
Advance Components, Ltd., England, 10s, 45s, 55s
Advanced Electronics Corp., N.Y., 5s, 10s, 20s, 45s, 55s
Advanced Measurement Instruments, Inc., Mass., 5c, 10c, 20c, 30c, 45c
Advancement Devices, Inc., N.Y., 10s, 30s, 45s
Aero Geo Astro Corp., Va., 5c
Aeroflex Laboratories, Inc., N.Y., 5c, 10c, 55c
Aerospace Research, Inc., 94 Massachusetts Ave., Cambridge 39, Mass., 5c, 45c, 55c, Tel: 617-ELiot 4-7789
See ad in class 26
Aga Corp. of America, N.J., 5c, 40c, 45c
Airborne Accessories Corp., N.J., 5sc, 10sc

69. Power Supplies.

Aircraft Armaments, Inc., Md., 55c
Aircraft Electronics, Ariz., 5c, 10c, 15c, 20c, 40c, 45c, 50c, 55c, 60c
Airdesign Corp., Pa., 10c, 15c, 20c, 30c, 45c
Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 5c, 10c, 15c, 20c, 30c, 60c, Tel: 301-ACademy 8-4600
See ad in class 53
Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 5c, 10c, 15c, 20c, 30c, 60c, Tel: 305-LUdlow 3-6160
See ad in class 53
Airtronics, Inc., D.C., 5c, 10c, 15c, 20c, 30c, 35c, 45c, 55c, 60c
Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 5c, 10c, Tel: 617-FOrest 6-4467
See ad on page 82
Alfred Electronics, Calif., 15s, 35s
All American Engineering Co., Commercial Products Div., Del., 10c, 15c, 20c, 30c, 45c, 60c
Allen-Jones, Inc., Calif., 5c, 20c, 40c
Allied International Corp., N.Y., 10c, 55c
Alto Scientific Co., Inc., Calif., 55c

To improve performance of POWER SUPPLIES

specify

Inductrol* Induction Voltage Regulators

Voltage fluctuations can cause electronic tube failure, make equipment operate erratically, increase replacement parts costs. Inductrol regulators operate on the induction principle. This means precise voltage control and high reliability because **no brushes or tubes** are used. G-E Inductrol regulators are virtually maintenance free.

More information appears opposite General Electric "Voltage Regulator" listing in Directory II, Class 72.

*Registered trade-mark of General Electric Co.

VOLTAGE REGULATOR PRODUCTS SECTION

GENERAL ELECTRIC

PITTSFIELD, MASS.

For details, circle #431 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

REGULATED POWER MODULES ??

R|P|M*

*REGULATED POWER MODULE PATENT APPLIED FOR

FOR MILITARY (MIL-E-16400-B) INDUSTRIAL APPLICATIONS

HIGHER RELIABILITY FOR MILITARY APPLICATIONS higher environmental immunity to shock, vibration and humidity 5 year life expectancy in continuous use extended operating temperature 20 C to 65 C wide choice of D C Voltages

HIGHER RELIABILITY FOR INDUSTRIAL APPLICATIONS super rugged construction and MIL hardware all tubes clamped Wide choice of voltage and current ranges, 125-425 volts 50 to 400 milliamps 6 3VAC OUTPUTS at ample capacities RPM units are custom designed for compactness and most efficient use of space

SPECIFICATIONS — ALL MODELS

input 105-125 V A C 50-60-400 cycles

outputs Voltage ranges as shown in the table, continuously variable Current zero to full load as shown Outputs floating - either positive or negative may be grounded

6 3 V A C centertapped at Currents shown in table

regulation 0 05 regulation for NL to FL or line changes of 10 under any conditions of load current or line voltage within limits stated

ripple 1 mV RMS maximum under any conditions of load current or line voltage within limits stated

transient response Output voltage returns to within regulation limits within 25 microseconds in response to 50% step change in the load

stability Maximum long term stability is assured by the use of 20 ppm error sensing resistors and by pre aging every RPM unit

output impedance Maximum values as shown in the table

remote sensing Terminals for remote sensing are brought out on the terminal board

multiple operation RPM s may be paired off in series or parallel to achieve additional voltage or current capacities

ambient temperature Industrial units 0 50C operating

ambient temperature Industrial units 50 C operating Military units 20 to 65 C operating All units 55 to 85 C storage

construction One piece cast aluminum housing, baked enamel finish Input and output terminals compactly grouped for access through single round access hole in chassis Mounting by four 10-32 screws in any position

		MODEL	DC RANGE	OUTPUT IMPEDANCE DC	IMPEDANCE @ 100KC	6.3V CENTERTAPPED AMPS	PRICE
Dimensions Overall — 4½"x6¼"x6" High Mounting — 3½"x6 1/4" Approximate Weight — 9 lbs	**50ma SERIES**	INDUSTRIAL RPM 50-150	125-175	1.5	1.5	5	$87.00
		RPM 50-200	175-225	2.0	2.0	5	
		RPM 50-250	225-275	2.5	2.5	5	
		RPM 50-300	275-325	3.0	3.0	5	
		MILITARY RPM 51-150	145-155	1.5	1.5	5	$215.00
		RPM 51-200	175-225	2.0	2.0	5	
		RPM 51-250	225-275	2.5	2.5	5	
		RPM 51-300	275-325	3.0	3.0	5	
Dimensions Overall — 5"x7½"x6" High Mounting — 4⅜"x7" Approximate Weight — 12 lbs	**100ma SERIES**	INDUSTRIAL RPM 100-150	125-175	0.7	0.7	6	$94.00
		RPM 100-200	175-225	1.0	1.0	6	
		RPM 100-250	225-275	1.2	1.2	6	
		RPM 100-300	275-325	1.5	1.5	6	
		MILITARY RPM 101-150	145-155	0.7	0.7	6	$230.00
		RPM 101-200	175-225	1.0	1.0	6	
		RPM 101-250	225-275	1.2	1.2	6	
		RPM 101-300	275-325	1.5	1.5	6	
Dimensions Overall — 5½"x9 x6½" High Mounting — 4⅜"x8⅛" Approximate Weight — 20 lbs	**200ma SERIES**	INDUSTRIAL RPM 200-150	145-155	0.3	0.6	10	$119.00
		RPM 200-200	175-225	0.5	1.0	10	
		RPM 200-250	225-275	0.6	1.2	10	
		RPM 200-300	275-325	0.7	1.4	10	
		RPM 200-350	325-375	0.8	1.6	10	
		RPM 200-400	375-425	1.0	2.0	10	
		MILITARY RPM 201-150	145-155	0.3	0.6	10	$275.00
		RPM 201-200	175-225	0.5	1.0	10	
		RPM 201-250	225-275	0.6	1.2	10	
		RPM 201-300	275-325	0.7	1.4	10	
Dimensions Overall — 6½"x9¾"x7" High Mounting — 5⅞"x8⅛" Approximate Weight — 28 lbs	**400ma SERIES**	INDUSTRIAL RPM 400-150	145-155	0.2	0.6	10	$175.00
		RPM 400-200	175-225	0.2	1.0	10	
		RPM 400-250	225-275	0.3	1.2	10	
		RPM 400-300	275-325	0.3	1.4	10	
		RPM 400-350	325-375	0.4	1.6	10	
		RPM 400-400	375-425	0.5	2.0	10	
		MILITARY RPM 401-150	145-155	0.2	0.6	10	$385.00
		RPM 401-200	175-225	0.2	1.0	10	
		RPM 401-250	225-275	0.3	1.2	10	
		RPM 401-300	275-325	0.3	1.4	10	

Every RPM is serialized, and complete test report and schematic are furnished with each unit. Special modules or complete power supplies custom designed to your requirements. Prices subject to change without notice. Phone or write for new ACDC Technical Bulletin #500 containing complete specifications on both the Military and Industrial RPMs.

ACDC ELECTRONICS, INC.

2979 North Ontario Street • Burbank, California

Telephone Victoria 9-2414

Directory II. Components

69. Power Supplies.

Amerac, Inc., Mass., 35sc

American Avionics, Inc., Div. of Astro-Science Corp., Calif., 5c, 10s, 15c, 20c, 25c, 45c, 55c, 60c

American Communications Corp., N.Y., 5sc, 10sc, 20sc, 30c

American Development Electronics Co., N.J., 5c, 10c

American Electronics, Inc., Calif., 5c, 10c, 40c, 45c

American Electronics, Inc., Electro-Mechanical Div., Calif., 5c, 10c, 45c

American Geloso Electronics, Inc., N.Y., 5s, 20s, 25s, 30s, 55s, 60s

American Machine & Foundry Co., Greenwich Engineering Div., Conn., 35c

American Machine & Foundry Co., Leland Airborne Products Div., Ohio, 60c

American Missile Products Co., Inc., Calif., 5c, 10c, 20c, 45c, 55c

American-Monarch Corp., Minn., 10sc, 15c, 20sc, 25sc, 40sc, 45sc, 55sc

American Rectifier Corp., N.Y., 10sc, 20sc, 40sc, 45sc, 50sc, 60sc

American Research & Mfg. Corp., Md., 5sc, 10sc, 15sc, 20c, 25c, 45sc, 55sc

Amglo Corp., 4337 N. Ravenswood Ave., Chicago 13, Ill., 10s, 20s, 55s, Tel: 312-BUckingham 1-2727
See ads in classes 67, 86

Amplifier Corp. of America, N.Y., 5c, 20c, 45sc, 55c

Anchor Specialty Mfg. Co., Inc., N.J., 10c, 20c, 45c, 50c, 55c

Anders Electronics, Inc., 30 Brook Rd., Needham Heights 94, Mass., 5c, 10s, 15c, 20s, 30c, 45s, 55s, 60s, Tel: 617-HIllcrest 4-6990
See ad in this class, page 524

Anderton Electronic Laboratory, Utah, 5c, 10c, 40c, 45c

Applegate & Co. (C. J.), Colo., 10s, 15s, 20s, 30s, 45s, 60s

Applied Control Corp., N.J., 5c, 10c, 20c, 30c, 45c, 55c

Ariel Davis Mfg. Co., Utah, 5c, 10c, 60sc

Arnold Magnetics Corp., Calif., 10sc, 20sc, 45sc, 55sc

Associated Research, Inc., 3792 W. Belmont Ave., Chicago 18, Ill., 5sc, 10sc, 15sc, Tel: 312-COrnelia 7-4040
See ad in class 41

Associated Specialties Co., 1751 Main St., Orefield, Pa., 10s, 45s, Tel: 215-EXpress 5-1275
See ad in this class

Astral Electronics, Inc., Calif., 5c, 10c, 15c, 45c, 55c, 60c

Astronautics Corp. of America, Wis., 55sc

Atlas Coil, Inc., Conn., 5c, 10c, 15c, 20c, 25c, 45c, 60c

Atlas Controls, Inc., Mass., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c

Atlas Engineering Co., Inc., Mass., 5c, 10c, 15c, 20c, 45c

Atlas Transformer Co., Calif., 5c, 10c, 15c, 20c, 30c, 40c, 45c, 55c

Atlee Corp., Wesco Div., Mass., 10s, 15s, 45s, 60s

Automation Research & Design Associates, N.J., 5c, 10c, 15c, 20c, 25c, 45c, 55c, 60c

Avtron Mfg., Inc., Ohio, 5c, 10c

B & F Instruments, Inc., Pa., 10sc, 15c, 20sc, 45sc, 55sc

Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 15s, 45s, Tel: 617-UNiversity 4-7420
See ad in class 86

Barker Sales Co., N.J., 50c

Barker & Williamson, Inc., Pa., 5sc

Barwood Electronics, Inc., Calif., 5c, 10c, 20c, 45c

Basic & Experimental Physics, Mass., 25c, 40c, 45c, 55c

Bay-Tronic Co., N.J., 5c, 10c, 15c, 20c, 40c, 45c, 60c

Beckman Instruments, Inc., Systems Div., Calif., 5sc, 10sc, 20sc

Behlman Engineering Co., Calif., 5sc, 15c, 20sc, 30sc, 40sc, 45sc, 50sc, 55c, 60sc

Belclere Co., Ltd., England, 5c, 10c, 20c, 55c

Bendix Corp., Red Bank Div., Electron Tube Products, Highway #35, Eatontown, N.J., 5sc, 10sc, 55sc, Tel: 201-LIberty 2-2000
See ad on pages 48-49

Bendix Corp., York Div., Pa., 35c

Benrus Watch Co., Inc., Conn., 10c, 20c, 25c

Bently Scientific Co., Calif., 5sc, 40sc, 55sc

Bergen Laboratories, Inc., N.J., 35c, 55c

Beva Laboratory, Inc., N.J., 5c, 15c, 45c

Block Associates, Inc., Mass., 15c, 25c, 55c

Bludworth Marine Div., Statham Instruments Corp., N.Y., 5c, 10c

Bogue Electric Mfg. Co., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c

Booth Co. (Arthur B.), Calif., 5c, 10c, 60sc

Borg Equipment Div., Amphenol-Borg Electronics Corp., 120 S. Main St., Janesville, Wis., 10sc, 20sc, 40sc, 55sc
Tel: 608-PLeasant 4-0610
See ad in class 74

Boulevard Electronics, Inc., Ill., 5c, 55c

Brach Mfg. Corp., Div. of Electronic Bronze Corp., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 45c, 55c, 60c

Buck Engineering Co., Inc., N.J., 5c, 10c, 20c, 60c

Building Block Laboratories, Inc., Calif., 10sc, 20sc, 30sc

NJE CORPORATION

"Custom is Standard at NJE"

Electronic Power Supplies

Custom designed units to your specifications

Complete power supply systems are our specialty

FOR PROMPT, INFORMED SERVICE IN THE NORTHEAST CALL

BURLINGAME ASSOCIATES

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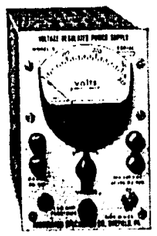
WASHINGTON, D.C. Tel: EXecutive 3-6600

BALTIMORE, MD. Tel: PLaza 2-6600

For details, circle #433 on Reader Service Card



ELECTRONICALLY REGULATED D. C. CONSTANT VOLTAGE POWER SUPPLIES

The output voltage is continuously variable from 200 to 325 volts D.C. for load currents of 0 to 100 M.A. with an input voltage of 105 to 125 volts 60 cycle. Regulation is better than 1%. An isolated A.C. voltage of 6.3 volts at 3 amperes is available at the output terminal connections.

MODEL 3 ILLUSTRATED

MODEL 3 CAB. MTG., VOLTMETER	$69.50
MODEL 1 RELAY RACK MTG.	$52.50
MODEL 2 SUB-CHASSIS MTG.	$49.50
DUAL RACK MOUNT FOR MODEL 2 Mounts Two Model 2 Units In 8¾"	$9.00

ASSOCIATED SPECIALTIES CO.
1751 MAIN STREET
OREFIELD, PENNSYLVANIA

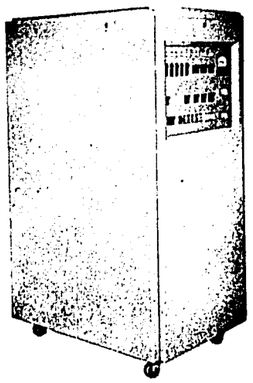
For details, circle #433 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226

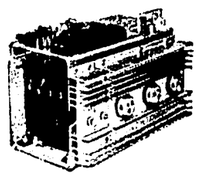
ENGINEERED AND BUILT BY ACME ELECTRIC *Means* DEPENDABILITY

When dependable performance is the major factor, your best source of supply is Acme Electric. We offer the cooperation of an engineering staff well qualified by experience to assist in your design problems. These engineers have at their command all the modern facilities essential to manufacturing magnetic components. We invite your inspection of these facilities.

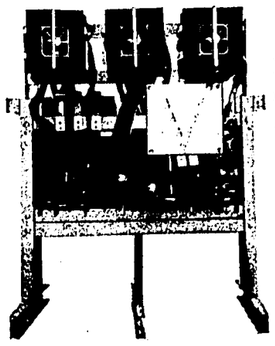
DC REGULATED POWER SUPPLIES



Individually designed to the specific power requirements of the application. Acme Electric designed units are used with electronic business machines, industrial, research and military systems.



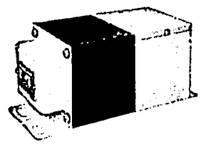
A typical production design incorporating transistorized panel, transformer, saturable reactor, rectifier and components into a compact dependable power supply.

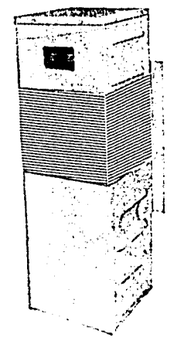


Magnet power supply module designed for an Alternating Gradient Synchrotron research project. Output power rating 175 KW dc. Also available in ratings to 1000 KW dc.

CONSTANT VOLTAGE STABILIZERS

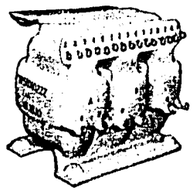
All designs are for continuous duty service with regulation ±1% of normal regardless of variations of input voltage. Current limiting design protects unit against overloads. Available in standard stock models from 15 va thru 2 kva. Primary voltage 95-130; 190-260. Secondary voltage: 6.3; 120; 240. Write for catalog.

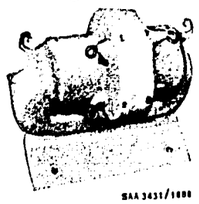




MINIATURE AND HIGH TEMPERATURE TRANSFORMERS

Our experience in designing and producing transformers for high temperature operation is of definite value if you need a supply source for such components. Several hundred designs have been produced successfully. Write for catalog.





SAA 3431/1000

Acme Electric
TRANSFORMERS

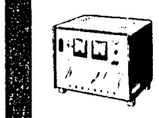
ACME ELECTRIC CORPORATION
44 Water St. Cuba, N. Y.
In Canada: Acme Electric Corp., Ltd.,
50 Northline Rd., Toronto, Ont.

For details, circle #435 on Reader Service Card

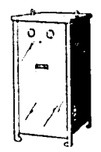
D-C POWER

Up to 1500 Amperes

Over 200 Rectifier Power Supplies
Automatic Battery Chargers
in these 6 Types



SILICON CONTROLLED RECTIFIER



TRANSISTOR-MAGNETIC AMPLIFIER

MAGNETIC AMPLIFIER (STAVOLT)

UNREGULATED AND SEMI-REGULATED (RECTODYNE)

ALL TRANSISTOR

AUTOMATIC BATTERY CHARGERS FOR EVERY TYPE OF BATTERY

CHRISTIE

Write for Complete Information

CHRISTIE ELECTRIC CORP.
3412J West 67th Street
Los Angeles 43, California

For details, circle #436 on Reader Service Card

Directory II. Components

69. Power Supplies.

Bundy Electronics Corp., N.J., 5c, 10c, 20c

Burmac Electronics Co., Inc., 142 S. Long Beach Rd., Rockville Centre, L.I., N.Y., 10c, 15c, 20c, 30c, 45c, Tel: 516-ORiole 8-3070
See ad in this class

Burr-Brown Research Corp., Ariz., 10s, 45s, 55s

Bush Transformer Corp., N.Y., 5c, 10c, 15c, 45c

CBS Electronics, Div. of Columbia Broadcasting System, Inc., Mass., 10c, 15c, 30c, 45c, 55c, 60c

C & D Batteries, Div. of Electric Autolite Co., Pa., 10sc, 20sc, 45sc

C.E.S. Electronic Products, Inc., Calif., 10s, 20s, 45s, 55s

CTS of Canada, Ltd., Industrial Electronics Div., Canada, 5c, 10c, 45c, 60c

Cable Specialists of Conn., Conn., 5c, 10c, 45c, 55c, 60c

Calbest Electronics, Calif., 5c, 15c, 20c, 40c, 45c

California Computer Products, Inc., Calif., 55c

California Magnetic Control Corp., Calif., 5c, 10sc, 15sc, 45sc, 55sc, 60sc

BURMAC
FOR THE FINEST IN ELECTRONICS

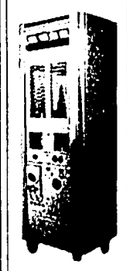
Serving the radar and microwave industry as a prime source of

- POWER SUPPLIES
- PULSE MODULATORS
- PULSE COMPONENTS

through its integrated laboratory, test and production facilities under the supervision of most competent and creative senior engineers

Technical data and illustrated literature describing Burmac equipment now reliably operating in universities, government installations and major corporate areas throughout the country is available.

Special attention particularly given to unique application problems. Contact our representative in your area or our Development Staff direct.



BURMAC ELECTRONICS CO., INC.
"reliability through creative design"
142 South Long Beach Road, Rockville Centre, N.Y.
For details, circle #437 on Reader Service Card

California Technical Industries, Inc., see Textron, Inc., Calif., 35c

Cameradex Corp., N.Y., 5c, 10c, 20c, 25c, 30s, 35s, 40s, 45s, 50s, 55s, 60s

Campbell Co., Inc. (Colo.), Colo., 10c, 20c, 30c, 45c

Canadian Aviation Electronics, Ltd., Canada, 5c, 10c, 15c, 20c, 30c, 35c, 45c, 55c, 60c

Capehart Corp., N.Y., 10c, 15c, 45c, 55c, 60c

Canal Corp., Calif., 15c, 45c, 60c

Carol Electronics Corp., W.Va., 30c, 55c

Carter Co. (L.C.), Calif., 45c, 55c, 60c

Caterpillar Tractor Co., Ill., 5c, 10c, 15c, 20s, 30s, 40s, 50s

Celco Constantine Engineering Laboratories Co., 70 Constantine Dr., Mahwah, N.J., 5sc, 10sc, 15sc, 20sc, 55sc, 60sc, Tel: 201-DAvis 7-1123
See ad on page 130

Central Dynamics, Ltd., Canada, 15c, 55c

Central Electronics Co., Mass., 15c, 55c

Central Transformer Co., Ill., 15c

Centroid Engineering & Mfg. Corp., 179 Jackson St., Cambridge 39, Mass., 5c, 10c, 30c, 45c, 50c, 55c, Tel: 617 TRowbridge 6-7250
See ads on page 212 & in Class 6

Century Coil Corp., see [illegible]

Chicago Condenser Corp., 3730 W. Armitage Ave., Chicago 47, Ill., 10c, 15c, Tel: [illegible] CAp[illegible]
See ad [illegible]

Chicago Electronic [illegible] W. 69th St., Chicago [illegible] Tel: [illegible]
See ad [illegible]

[illegible] Rd., Yonkers, N.Y., Tel: [illegible] YOnkers [illegible]
See ad [illegible]

[illegible]

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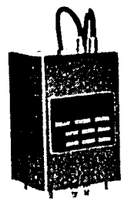
[

HIGH VOLTAGE EQUIPMENT by DEL

All Del products represent the ultimate in quality. Their design and manufacture incorporate only the finest materials and workmanship to assure thoroughly dependable operation in industrial and research applications.

Standard Power Supplies and Transformers are available from stock. Others can be built to your specific requirements with output up to 250 KV and 50 KW.

POWER SUPPLIES



COMPACT HIGH VOLTAGE POWER SERIES

Model No.	Output Voltage	Rated Current	Dimensions	Wt.
2.5—2—1	0—2.5KV	2MA	3" x 2½" x 4½"	3⅜
5—2—1	0—5KV	2MA	3" x 3½" x 4½"	4¼
10—1—1	0—10KV	1.25MA	3" x 3½" x 4⅜"	5½
15—1—1	0—15KV	1.25MA	4¼" x 5⅛" x 5¾"	11¾
20—1—1	0—20KV	1.25MA	4¼" x 5⅛" x 6¾"	14¾
25—1—2	0—25KV	1.25MA	4¾" x 6" x 7¼"	20
30—1—2	0—30KV	1.25MA	5" x 6½" x 7¼"	24¼
40—2—1	0—40KV	2MA	8¼" x 6¼" x 7"	32

These supplies feature reversible polarity, low ripple, shielded polyethylene output cables, selenium rectifiers in an epoxy filled hermetically sealed can. Extremely compact design for mounting on chassis. Input: 115 V— 60-400 cycles. High current units also available.

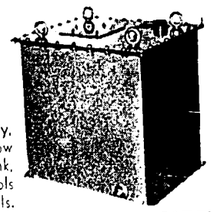
METER MULTIPLIERS

Del Electronic's line of multipliers are designed and built to provide high voltage DC measurements with safety and minimum corona at reasonable cost. Each unit consists of resistors immersed in high grade insulating oil and hermetically sealed grounded case. A neon lamp is permanently connected across the meter terminals for safety. All units are designed for use with 100 ua full scale meter. Can be furnished with panel type 4½" rectangular 100 ua meter (2% accuracy), with KV scale to match.

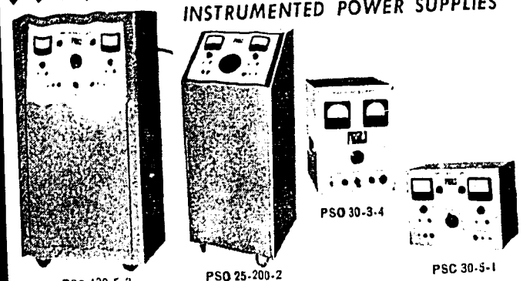
Type	Maximum Voltage in Kilovolts	Case Dimensions (Max.) W	D	H	Insulator Height
M—5	5	2—5/16"	2—1/16"	2—1/2"	1"
M—10	10	2—5/16"	2—1/16"	2—1/2"	1—3/4"
M—15	15	2—5/16"	2—1/16"	3—1/8"	1—3/4"
M—20	20	2—3/4"	2—1/2"	4"	2—1/2"
M—30	30	4—1/4'	3—1/4"	5—1/2"	3"
M—50	50	4—3/4"	4'	8"	7"
M—100	100	9—1/2"	9—1/2"	9—1/2"	12"
M—150	150	11"	11"	12"	20"
M—250	250	16—1/2"	16—1/2"	22"	28—3/4"

SERIES "O" OIL INSULATED TANK UNITS

These supplies feature reversible polarity, shielded polyethylene output cables, low corona, sealed oil tight, dust free tank, quiet long life operation. Various controls are available. Write for complete details.



INSTRUMENTED POWER SUPPLIES



Model No.	Output	RMS Ripple	Dimensions
PSC 20—5—2	20KV— 5MA	0.5%/MA	9½x11x12"
PSC 20—5—3	20KV— 5MA	0.5%/MA	20x14x12"
PSC 25—200—2	25KV— 200MA	4% RMS	24x20½x54"
PSC 30—3—4	30KV— 3MA	0.5%/MA	9½x11x12"
PSC 30—5—1	30KV— 5MA	0.5%/MA	20x14x12"
PSC 30—200—1	30KV—200MA	4%RMS	24x20½x54"
PSC 50—30—1	50KV— 30MA	0.1%/MA	24x20½x54"
PSC 80—10—1	80KV— 10MA	0.2%/MA	33x22x59"
PSC 100—5—1	100KV— 5MA	0.4%/MA	33x22x59"
PSC 100—200—1	100KV—200MA	0.1%	tank 44½x29x51" cabinet 27x27x70"
PSC 120—5—1	120KV— 5MA	0.4%/MA	33x22x59"
PSC 120—10—1	120KV— 10MA	0.4%/MA	33x22x59"
PSC 150—5—1	150KV— 5MA	0.45%/MA	33x22x59"
PSC 150—10—1	150KV— 10MA	0.45%/MA	33x22x59"
PSC 250—1—1	250KV— 1MA	0.6%/MA	tank 40x55x71" cabinet 20x14x12"
PSC 250—3—1	250KV— 3MA	0.6%/MA	tank 40x55x71" cabinet 20x14x12"

These fully instrumented D.C. Power supplies feature unexposed high voltage components immersed in tank filled with high grade insulating oil and large, easy-to-read KV and MA meters mounted on front panel, and many other control features.

REGULATED POWER SUPPLIES

HIGH VOLTAGE

TRANSISTORIZED SERIES TRHV

INPUT: 115 V 60 CYCLES

The TRHV line is the result of a new approach to an old problem. These power supplies are all solid state. Reference and regulating circuitry is accomplished at low voltage. Units are completely self-contained and require only 115V A.C. excitation to be operative. Series TRHV are rugged and feature good line, load and thermal stability. Operating temperature range is —20°C to +55°C. Also available for 400 cps operation.

Model #TRHV	Output Voltage	Max. Current	Size
1 R5—1	1 KV	5 MA	4¼ x 3¾ x 5½"
2.5R4—1	2.5 KV	4 MA	4¼ x 3¾ x 5½"
5R2—1	5 KV	2 MA	4¼ x 3¾ x 5½"
7.5R1.5—1	7.5 KV	1.5 MA	4¾ x 4 x 6"
10R1—1	10 KV	1 MA	4¾ x 4 x 6"
10R2—1	10 KV	2 MA	6¾ x 4¼ x 7½"
15R1.5—1	15 KV	1.5 MA	6¾ x 4¼ x 7½"
20R1—1	20 KV	1 MA	7¼ x 4 5/16 x 7½"

LOW VOLTAGE

WIDE RANGE VARIABLE —RV-500 SERIES

INPUT: 105 to 125 V, 57-63 CPS, 1φ

MODEL SCRT 32V-15A-1A

SCRT TYPE—Silicon Controlled Rectifier and Transistor Regulators
Designed to supply well regulated DC at high current. In wide usage where ripple and fast transient are required. Advantages include firing angle control for minimum dissipation.

MODEL SCRT	OUTPUT VOLTS	OUTPUT AMPS	STATIC REGULATION 105V-125V Line	STATIC REGULATION N.L. to F.L.	RIPPLE
32V—15A—1A	0—32	0—15	1% or 30MV	1% or 30MV	2MV RMS
60V—7.5—1	0—60	0—7.5	1% or 60MV	1% or 60MV	3MV RMS

SCR TYPE—Silicon Controlled Rectifier Regulator
Designed to supply well regulated DC at high current. In wide usage where ripple and response time characteristics are not too critical. Intended to replace the older, more cumbersome magnetic amplifier types.

MODEL SCR	OUTPUT VOLTS		OUTPUT AMPS		STATIC REGULATION 105V-125V Line	STATIC REGULATION N.L. to F.L.	RIPPLE
32V—15A—1	0/16	16/32	0—15		5% or 150MV	5% or 150MV	200MV RMS
60V—7.5A—1	0/30	30/60	0—7.5		5% or 300MV	5% or 300MV	400MV RMS

DEL ELECTRONICS CORPORATION
521 HOMESTEAD AVE. • MOUNT VERNON, N.Y. • OWENS 9-2000

For details, circle #438 on Reader Service Card

Directory II. Components

69. Power Supplies.

Condenser Products Co., Fla., 15sc, 30sc, 45c, 60sc

Connecticut Telephone & Electric Corp. of Meriden, Conn., 5c, 10c, 15c, 20c, 30c, 45c, 60c

Consolidated Airborne Systems, Inc., N.Y., 5c, 10c, 55c

Consolidated Avionics Corp., N.Y., 5sc, 10sc, 20sc, 30sc, 45sc, 55sc, 60sc

Consolidated Diesel Electric Corp., Conn., 50sc

Consolidated Electrodynamics Corp., Calif., 5s, 10s, 45s

Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 15sc, Tel: 214-EVergreen 1-1135
See ad on page 120

Continental Electronics & Sound Co., Ohio, 5c, 10c, 15c, 20c, 30c, 40c, 45c, 55c, 60c

Control Circuits, Inc., Conn., 10c, 15c, 20c, 30c, 45c, 55c

Control Data Corp., Control Corp. (Subsid.), Minn., 45c

Controlomag Laboratories, Pa., 10c, 15sc, 45sc

Controls Co. of America, Ill., 5c, 10c, 20c, 30c, 45c, 55c

Cook Electric Co., Cook Technological Center, Ill., 55c

Cooke Engineering Co., Va., 5c, 10c, 20c

Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 5sc, 10sc, 20sc, 30sc, 45sc, 55sc

Cosmic, Inc., D.C., 15sc

Crane Electronics Co., Calif., 55c

Cubic Corp., Calif., 10sc, 30sc

Data Products Co., Inc., Md., 5c, 10c, 15s, 20c, 25c, 30c, 40c, 45c, 55c, 60c

Datalog Corp., Metrolog Div., 2415 Amsler St., Torrance, Calif., 5sc, 10sc, 20sc, 30sc, 45sc, 55sc, 60sc, Tel: 213-SPruce 5-6621
See ad in class 40

Daven Co., Subsid. of General Mills, Inc., N.J., 5s, 10s, 15s, 20s, 30s, 40s, 45s, 55s, 60s

Dayton Electronic Products Co., Ohio, 10s, 15c, 20c, 30c, 35c, 45c, 55c, 60c

Del Electronics Corp., 521 Homestead Ave., Mount Vernon, N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 35sc, 45sc, 55sc, 60sc, Tel: 914-OWens 9-2000
See ad in this class

Delcon Corp., Calif., 5sc

Deltex Laboratories, Div. of Delta Exploration Co., Inc., Miss., 55c

Deltron Co., Calif., 25c

Deltron, Inc., Pa., 10s, 15s, 20s, 40s, 45s, 55s, 60s

DeRyder Engineering (Herbert), N.J., 15c, 20c, 45c

Developmental Electronics Corp., Calif., 45sc, 55c

Di-Tran Corp., Calif., 5c, 10c, 55c

Dick Co. (A. B.), Ill., 10s, 20s, 45s, 55s

Dicon Corp., N.Y., 5c, 10c, 15c, 20c, 30c, 35c, 45c, 55c, 60c

Dictograph Products, Inc., Conn., 10c, 55c

Dietz Design, Inc., Mo., 55c

Digital Equipment Corp., Mass., 10s, 55s

Digitrols, Inc., Md., 5s, 10s, 45s, 55s

Direct T/V Windings, Ltd., England, 15sc, 20sc, 25sc, 45sc, 55sc

Dittmore-Freimuth Corp., Wis., 5c, 10c, 20c, 30c, 60c

Djeco, Div. of Djordjevic Engineering Co., Ill., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c

Dorsett Electronics, Inc., Okla., 10sc, 25c, 45sc, 55sc

Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 35c, Tel: 914-MOunt Vernon 8-6900
See ad in class 66

Dressen-Barnes Electronics Corp., Calif., 10s, 20s, 30s, 45s, 55s, 60s

Dresser Electric Co., Mich., 5c, 10c, 15c, 20c, 45c, 60c

Dresser Electronics/HST Div., Texas, 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 55c

Dresser Electronics/SIE Div., Dresser Industries, Inc., Texas, 5c, 10c, 15c, 20c, 25c, 30c, 45c, 55c

Duncan Electric Co., Inc., Davenport Mfg. Div., Ill., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 45sc, 50sc, 55sc, 60sc

Dynage, Inc., Conn., 10sc, 20sc, 45sc

Dynamic Controls Co., Mass., 5c, 10sc, 20sc, 25c, 30c, 45sc, 55sc, 60sc

Dynamics Corp. of America, N.Y., 5c, 10c, 15c, 20c, 30c, 35c, 40c, 50c, 55c, 60c

Dynatronics, Inc., Fla., 10sc, 45sc, 55sc

Dynex, Inc., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 45sc, 50sc, 55sc, 60sc

E D P Corp., Fla., 5c, 10c, 55c

EMP Electronics Research Laboratories, Inc., Ariz., 5c, 10sc, 20c, 25sc, 45c, 55c

E.P. Electric Products Co., Ltd., Canada, 5c, 10c, 25c, 45c, 55c

Edgerton, Germeshausen & Grier, Inc., Mass., 10c, 60c

Elasco, Inc., Mass., 5sc, 10sc, 20sc, 25sc, 45sc, 55sc, 60sc

Elcor, Inc., Va., 10sc, 20sc, 30sc, 45sc, 55sc, 60sc, Isolated sc

Electramatic, Inc., Minn., 5c, 10c

Electric Machinery Mfg. Co., Minn., 50s

Electro-Craft Corp., Minn., 10c, 15c, 25c, 30c, 45c, 55c

Electro Development Corp., Wash., 10c, 15c, 20c, 55c

Electro Engineering Works, Calif., 10c, 15c

Electro-Mech Engineering Co., Mass., 5sc, 10sc, 15sc, 55sc

Electro Networks, Inc., & Cabletron Electronics & Transformer Corp., N.Y., 5c, 10c, 15c, 20c, 25c, 35c, 45c, 55c, 60c

Electro-Physics Co., N.Y., 5c, 10c

Electro Powerpacs, Inc., Mass., 5c, 10c, 20c, 45c, 50c, 55c

Electro Products Laboratories, Ill., 10sc, 20sc, 45s, 55s, 60s

Electro-Seal Corp., Ill., 5c, 10c, 60c

Electro-Solid Controls, Inc., Div. of General Electronic Control Inc., Minn., 55c

Electrodynamic Instrument Corp., 5sc, 10c, 15c, 20c, 30c, 45c, 55c

Electron Arc Div., Jones, Inc., 244 Broad St., Lynn, Mass., 5c, 10sc, 15c, 20sc, 40c, 45c, 50c, 55c, 60c, Tel: 617-LYnn 8-2100
See ad in this class

Electronet Div., Rae Products, Corp., 10c, 15c, 20c, 30c, 35c, 45c, 60c

Electronic Development Laboratories, Inc., Ill., 5c, 10c, 30c, 45c

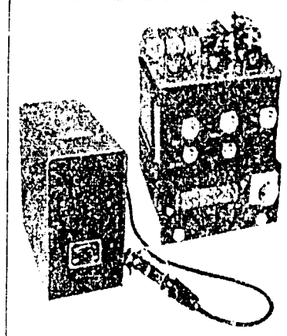
Electronic Energy Conversion Corp., N.Y., 5sc, 10sc, 20sc, 30sc, 45c, 55c, 60sc

Electronic Engineering Co. of California, Calif., 55c

Electronic Lights, Inc., Ill., 5c, 10c, 15sc, 20sc

Electronic Measurements Co., Inc., Lewis St. & Maple Ave., Eatontown, N.J., 10s, 20s, 30s, 45s, 55s, 60s, Tel: 201-LIberty 2-0601
See ad on page 528

PACKAGED POWER



Specialized [illegible] for aircraft, missile, [illegible] marine, space [illegible] for Military [illegible] Navy, Army, Air Force [illegible]

DESIGNED AND BUILT TO SPECIFICATION

ELECTRON ARC
DIVISION JONES INCORPORATED
244 Broad St. LYNN, MASS. LY 8-2100

For details, circle # 439 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226

SILICON AND SELENIUM
DC POWER SUPPLIES

MODEL G50-50R: Input 220V, 3P, 60cps. Output 0-50VDC, 0-50A
MODEL G30-100: Input 220V, 3P, 60cps. Output 0-30VDC, 0-100A
AIRCRAFT BATTERY ELIMINATOR: Input 220V 3P, 60cps. Output 0-30VDC, 20OA
AIRCRAFT BATTERY ELIMINATOR: Rack or Bench. Input 115V, 60cps. Output 0-30VDC, 0-20A. **Price $200.**
REGULATED POWER SUPPLY: Input 115V, 60 cps. Output 5-30VDC, 0-40A. Regulation ±1%
MODEL GX-24-1: Input 115V, 60cps. Output 24VDC, 1A
PORTABLE BATTERY CHARGER: Input 115V, 60 cps. Output 6/12VDC, 20A
MODEL G92F: Input 115V, 60cps. Output 0-30VDC, 0-10A **PRICE $145.**
MODEL A10: Input 115 or 230V, 60cps. Output 115V, 125W. **PRICE $63.**
MODEL G30-40F: Input 115 or 230V, 60cps Output 0-32VDC, 0-40A. **PRICE $325.**
MODEL G30-10FR: Input 115V, 60cps. Output 0-30VDC, 0-10A. **PRICE $185.**
MODEL GX30-10: Rack. Input 115V, 60cps. Output 30VDC, 0-10A. **PRICE $125.**
MODEL G48-6FM: Rack. Input 115V, 60cps. Output 0-48VDC, 0-6A. **PRICE $190.**
MODEL GS 14-15F: Input 115V, 60cps. Output 0-14VDC, 0-15A. **PRICE $125**
MODEL GX30-5: Input 115V, 60cps. Output 30 VDC, 0-5A. **PRICE $70.**
MODEL G-115: Input 115 or 230V, 60cps. Output 0-32VDC, 0-50A. **PRICE $375.**
MODEL G94F: Input 115V, 60cps. Output 0-300VDC, 0-1A. **PRICE $240.**
MODEL GX30-20: Input 115V, 60cps. Output 0-34VDC, 0-20A. **PRICE $185.**

Other models plus full line of plating power supplies also available.
Catalog material available.

Additional features: meters, rated for continuous duty, excellent regulation and ripple, heavy duty components and construction, special designs at small additional cost.

GATES ELECTRONIC CO.
2243 White Plains Road
New York 67, N.Y.. Tel. TUlip 1-5900

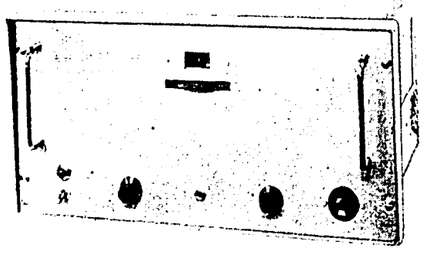
For details, circle #440 on Reader Service Card

Electronic Measurements Corp., N.Y., 20s
Electronic Production & Development, Inc., Calif., 5sc, 10sc, 15c, 20sc, 45sc
Electronic Research Associates, Inc., N.J., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc
Electronic Specialty Co., Calif., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c
Electronic Tube Corp., Pa., 5c, 10c
Electronic Wiring Corp., N.Y., 10c, 45c, 60c
Electrosolids Corp., Calif., 5c, 10c, 45c. 55c
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 5c, 10c, 20c, 55c
Elsco Systems, Inc., Wash., 55c
Embree Electronics Corp., 993 Farmington Ave., West Hartford 7, Conn., 10s, 20s, 45s, Tel: 203-ADams 2-5144
See ad in class 43
Emerson Electric Mfg. Co., Mo., 5c, 10c 15c, 20c, 25c, 30c, 35c, 45c, 50c, 55c, 60c
Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 5s, 60s, Tel: 518-VIctor 2-8400
See ad in class 38
Endevco Corp., Calif., 45s
Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 55c, Tel: 201-BIgelow 2-2790
See ad on page 140
Engelhard Industries, Inc., Makepeace Div., Mass., 10c, 40c
Engineered Electronics Co., Calif., 20s, 55s
Engineering Model Laboratory, Inc., Mass., 5c, 10c, 15c, 20c, 30c, 40c, 45c. 55c, 60s
Ensco, Inc., Utah, 10c, 15c, 45c, 55c
Entron, Inc., Md., 5s
Epsco, Inc., Mass., 10sc, 15c, 20sc, 40s, 45sc, 55sc
Erwood, Inc., Ill., 55c
Espey Mfg. & Electronics Corp., N.Y., 5c, 10c, 15c, 20c. 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c
FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 10s, 15s, 35s, 45s, Tel: 212-RAvenswood 1-9000
See ad in class 37
Fairfield Controls, Inc., Conn., 25sc, 45c, 55c
Fansteel Metallurgical Corp., Ill., 10s, 20s, 30s, 45s, 60s
Farinon Electric, Calif., 10s
Farwest Mfg. Div., Inc., Wash., 5s, 10s, 45sc
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5sc, 10sc, 15sc, 20sc, 30sc, 35sc, 45sc, 55sc, 60sc
Federal Tool Engineering Co., 1400 Pompton Ave., Cedar Grove, N.J., 55sc, Tel: 201-CLifford 6-5300
See ad in class 99
Ferrotran Electronics Co., Inc., N.Y., 5s, 10s, 20s, 30s, 35s, 40s, 45s, 55s, 60s
Fidelitone Microwave, Inc., Ill., 35sc
Fidelity Amplifier Co., Ill., 5c, 20c, 55c
Fidelity Instrument Corp., Pa., 5sc, 10sc, 20sc, 25sc, 45sc, 50sc
Film Capacitors, Inc., N.Y., 5sc, 10sc, 15sc, 30sc, 60sc
Fisher Berkeley Corp., Calif., 10s, 20s
Flite-Tronics, Inc., Calif., 5c, 10sc, 20c. 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c
Flo-Tronics, Inc., Electronic Controls Div., Minn., 10c, 20c
Fluke Mfg. Co., Inc. (John), Wash., 10s, 15s, 20s, 30s, 35s, 45s, 55s, 60s
Forest Electric Co., Ill., 10c, 20c, 45c
Foto-Video Electronics, Inc., N.J., 5s, 10s, 15s, 20s, 45s, 55s, 60s
Fox Products Co., Pa., 10c, 20c, 50c
Franklin Engineering Design Co., Calif., 15c
Franklin Systems, Inc., 2734 Hillsboro Rd., P.O. Box 3250, West Palm Beach, Fla., 10sc, 15sc, 20sc, 45c, 55sc, Tel: 305-TEmple 3-4602
See ad in class 22
Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 5s, 10s, 20s, 45s, 55s, 60s, Tel: 212-EVergreen 6-1300
See ad in class 84
Friend Engineering (Albert W.), Pa., 5c, 10c, 15c, 20c, 25c, 30c, 45c, 50c, 55c, 60c
Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 5c, 35c, 55c, Tel: 216-SHadyside 9-0700
See ad in class 50
Galbraith-Pilot Marine Corp., Div. of Marine Electric Corp., N.Y., 15c, 20c, 30c
Gates Electronic Co., 2243 White Plains Rd., New York 67, N.Y., 10sc, 20sc, 45sc, 55sc, 60sc, Tel: 212-TUlip 1-5900
See ad in this class

NEW Powertron
AC ELECTRONIC GENERATOR

MODEL 150
$525.00

PRECISION AC POWER SUPPLY FOR LABORATORY & PRODUCTION USE



SPECIFICATIONS

Power Output	160 V.A.	Total Distortion	Less than 1%
Fixed Frequency	400 CPS (other freq. avail.)	Regulation	Less than 1%
Variable Frequency	350-450 CPS	Operates with load of any power factor	
External Frequency	50-4000 CPS	Small size	8¾" x 19" Panel

Also Available — Model 250 — 250 VA Power Output

Representatives in Principal Cities

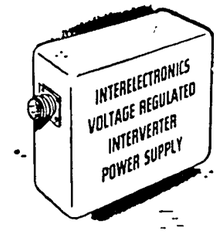
ITECO INDUSTRIAL TEST EQUIPMENT CO.
55 EAST 11th STREET • NEW YORK 3, N. Y.

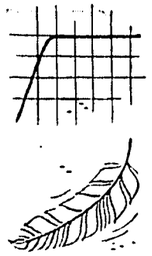
For details, circle #441 on Reader Service Card

Directory II. Components

Gemco Electric Co., Mich., 25c
General Communication Co., 677 Beacon St., Boston 15, Mass., 45c, Tel: 617-COpley 7-6030
See ads in class 37
General Communications Broadcast Division, Inc., Wis., 45c, 55c
General Dynamics/Electronics, N.Y., 5c, 10c, 20c, 30c, 40c, 55c
General Dynamics/Electronics, Information Technology Div., Calif., 15c
General Electric Co., Pa., 5c, 10s, 20sc, 25c, 35c, 40c, 45sc, 50c, 55sc, 60sc
General Electric Co., Apparatus Sales Dept., N.Y., 10c, 15c, 20c, 25c, 30c, 45c
General Electric Co., Communication Products Dept., Technical Products Operation, N.Y., 5s, 10s, 15sc, 45sc, 60c
General Electric Co., High Voltage Specialty Transformer Section, Mass., 5sc, 10sc, 15sc, 40sc
General Electric Co., Specialty Control Dept., Va., 5c, 10sc, 30sc, 45sc, 50sc
General Electric Co. Ltd. of England, Telecommunications Group, England, 55s
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 5c, 10c, 20c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c, 35c, 40c, 45c, 50c, 55c, 60c
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 10c, 35c, 55c
General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 5c, 10c, 20c, 25c, 30c, 45c, 55c, Tel: 612-WEst 9-8571
See ad in class 43
General Magnetics, Inc., 135 Bloomfield Ave., Bloomfield, N.J., 25c, Tel: 201-PIlgrim 8-2400
See ad on pages 42-43
General Meters, Inc., Colo., 5c, 10c, 15c, 20c, 60c
General Microwave Corp., N.Y., 5c, 10c, 35c
General Motors Corp., Delco Radio Div., Ind., 5c, 10c, 45c
General Motors Corp., Detroit Diesel Engine Div., Mich., 50sc
General Nuclear Corp., N.Y., 5sc, 10sc, 20sc, 25sc, 30sc, 40sc, 45sc, 50sc, 55sc, 60sc
General Precision Equipment Corp., Kearfott Semiconductor Corp. (Subsid.), Mass., 5c, 10c, 20c, 30c, 45c, 55c, 60c
General Precision, Inc., Kearfott Div., N.J., 45s, 50s, 55s, 60s
General Precision, Inc., Librascope Div., Calif., 10sc, 55sc
General Radio Co., 22 Baker Ave., West Concord, Mass., 5s, 10s, 20s, 30s, 45s, 60s, Tel: 617-EMerson 9-4400
See ad on Cover 4
General Thermoelectric Corp., P.O. Box 253, Princeton, N.J., 10sc, Tel: 609-DAvis 9-4545
See ad in class 54
General Vacuum Corp., Mass., 15c
Georator Corp., Va., 5c, 10c
Geotronic Laboratories, Inc., Texas, 5c, 10c, 15c, 20c, 25c, 30c, 45c, 55c
Gilfillan Brothers, Inc., Calif., 15c, 35c, 45c
Glentronics, Inc., Calif., 5c, 10sc, 20sc, 30sc, 35c, 40c, 45sc, 55sc, 60sc
Good Electronic Corp., Fla., 10sc, 45sc
Grand Tran, Inc., Mich., 45c
Granger Associates, Calif., 15c, 20c, 35c, 45c, 55c
Green Rectifier Co., N.J., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 45sc, 55sc, 60sc
Greenray Industries, Pa., 5c, 10c
Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 5c, 10c, 45c, 55c, Tel: 312-CHesapeake 3-1100
See ad in class 73
Guildline Instruments, Ltd., Canada, 45s

PROVEN RELIABILITY—
SOLID-STATE POWER INVERTERS
over 260,000 logged hours— voltage-regulated, frequency-controlled, for missile, telemeter, ground-support, 135°C all-silicon units available now—





Interelectronics all-silicon thyratron-like gating elements and cubic-grain toroidal magnetic components convert DC to any desired number of AC or DC outputs from 1 to 10,000 watts.

Ultra-reliable in operation for over 260,000 logged hours; no moving parts, unharmed by shorting output or reversing input polarity. Wide input range (18 to 32 volts DC), high conversion efficiency (to 92%, including voltage regulation by Interelectronics patented reflex high-efficiency magnetic amplifier circuits.

Light weight (to 6 watts oz.), compact (to 8 watts/cu. in.), low ripple (to 0.01 mv. p-p), excellent voltage regulation (to 0.1%), precise frequency control (to 0.2% with Interelectronics extreme environment magnetostrictive standards or to 0.0001% with fork or piezoelectric standards).

Complies with MIL specs for shock (100G 11 msec), acceleration (100G 15 min.), vibration (100G 5 to 5,000 cps), temperature (to 150 degrees C), RF noise (1-26600).

AC single and polyphase units supply sine waveform output (to 2% harmonics), will deliver up to ten times rated line current into a short circuit or actuate MIL type magnetic circuit breakers or fuses; will start gyros and motors with starting current surges up to ten times normal operating line current.

Now in use in major missiles powering telemeter transmitters, radar beacons, electronic equipment. Single and polyphase units now power airborne and marine missile gyros, synchros, servos, magnetic amplifiers.

Interelectronics—first and most experienced in the solid-state power supply field produces its own all-silicon solid-state gating elements, all high flux density magnetic components, high temperature ultra-reliable film capacitors and components, has complete facilities and know how—has designed and delivered more working KVA than any other firm!

For complete engineering data, write Interelectronics today or call LUdlow 4-6200 in New York.

INTERELECTRONICS CORPORATION
2432 Grand Concourse, New York 58, N. Y.

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-225.

146-0033

TRANSISTORIZED DESIGNS

MODEL	DC OUTPUT VOLTS	DC OUTPUT AMPS	REGULATION
SM 14-7M	0-14	0-7	0.1%*
SM 14-15M	0-14	0-15	
SM 14-30M	0-14	0-30	
SM 36-5M	0-36	0-5	
SM 36-10M	0-36	0-10	
SM 36-15M	0-36	0-15	
SM 75-2M	0-75	0-2	
SM 75-5M	0-75	0-5	
SM 75-8M	0-75	0-8	
SM 160-1M	0-160	0-1	
SM 160-2M	0-160	0-2	
SM 160-4M	0-160	0-4	
SM 325-0.5M	0-325	0-0.5	
SM 325-1M	0-325	0-1	
SM 325-2M	0-325	0-2	
SC 18-0.5M	0-18	0-0.5	0.1%
SC 18-1M	0-18	0-1	
SC 18-2M	0-18	0-2	
SC 18-4M	0-18	0-4	
SC 36-0.5M	0-36	0-0.5	
SC 36-1M	0-36	0-1	
SC 36-2M	0-36	0-2	
SC 3672-0.5M	36-72	0-0.5	
SC 3672-1M	36-72	0-1	
SC 32-0.5	0-32	0-0.5	0.01%
SC 32-1	0-32	0-1	
SC 32-1.5	0-32	0-1.5	
2SC 32-1.5 Dual output	0-32	0-1.5	
SC 32-2.5	0-32	0-2.5	
SC 32-5	0-32	0-5	
SC 32-10A	0-32	0-10	
SC 32-15A	0-32	0-15	
SC 60-2	0-60	0-2	
SC 60-5	0-60	0-5	
2SC 100-0.2 Dual output	0-100	0-0.2	
SC 150-1	0-150	0-1	
SC 300-1	0-300	0-1	
PSC 5-2	0-7.5	0-2	0.02%
PSC 10-2	7.5-12.5	0-2	
PSC 15-2	12.5-17.5	0-2	
PSC 20-2	17.5-22.5	0-2	
PSC 28-1	22.5-32.5	0-1	
PSC 38-1	32.5-42.5	0-1	
SR 12-50	5-13	0-50	0.1%
SR 28-50	24-32	0-50	
SR 48-30	41-52	0-30	
HB 2M	0-325	0-200ma	0.1%*
HB 4M	0-325	0-400ma	
HB 6M	0-325	0-600ma	
HB 8M	0-325	0-800ma	

*0.01% REGULATION AVAILABLE

MAGNETIC DESIGN

MODEL	DC OUTPUT VOLTS	DC OUTPUT AMPS	REGULATION
KM 236-15A	0.1-36	0-15	0.5%
KM 236-30	0.1-36	0-30	
KM 236-50	0.1-36	0-50	

kepco®

REGULATED DC POWER SUPPLIES

FEATURING:

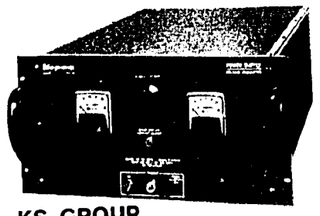
ABC GROUP

High-Quality performance at low cost; Portable and rack-mountable for test bench and systems applications.

REGULATION: 0.05%; RIPPLE: 0.5mvrms; voltage/current regulation; remote programming; adjustable current limiting; overload protection.

ABC30-0.3	0-30vdc@300ma	$99.00
ABC30-0.3M*	0-30vdc@300ma	$119.00
ABC40-0.5	0-40vdc@500ma	$139.00
ABC40-0.5M*	0-40vdc@500ma	$159.00

*Suffix "M" denotes metered unit.
Write for complete specifications.



KS GROUP

An advanced semiconductor design for precise, versatile performance in higher current ranges.

REGULATION & STABILITY: 0.1%/0.01%; voltage/current regulation; remote programming; current limiting; overload protection.

KS 36-30	0-36v dc @ 30amp
KS 36-30M*	0-36v dc @ 30amp
KS 36-30X**	0-36v dc @ 30amp
KS 36-30MX	0-36v dc @ 30amp

*Suffix "M" denotes metered unit.
**Suffix "X" denotes 0.01% Regulation.
Write for complete specifications.

PR GROUP

A flexible new general-purpose line of semi-conductor power supplies. Adjustable wide-range outputs.

± 1% line regulation; semi-regulated for load. Many standard modifications available.

FOR COMPLETE SPECIFICATIONS ON MORE THAN 175 STANDARD MODEL POWER SUPPLIES, SEND FOR KEPCO CATALOG B-611.

kepco inc.®

131-42 SANFORD AVENUE • FLUSHING 52, N.Y.
Area Code 212 IN 1-7000 • TWX # NY 4-5196

SOLID STATE DESIGN

MODEL	DC OUTPUT VOLTS	DC OUTPUT AMPS	REGULATION
PR 15-10M	0-15	0-10	±1%
PR 15-30M	0-15	0-30	
PR 38-5M	0-38	0-5	
PR 38-15M	0-38	0-15	
PR 80-2.5M	0-80	0-2.5	
PR 80-8M	0-80	0-8	
PR 155-1M	0-155	0-1	
PR 155-4M	0-155	0-4	
PR 310-0.6M	0-310	0-0.6	
PR 310-2M	0-310	0-2	

VACUUM TUBE DESIGNS

800B	#1 0-600	0-200ma	<0.1%
	#2 0-600	0-200ma	
	Parallel 1 & 2 0-600	0-400ma	
	Series 1 & 2 0-1200	0-200ma	
430D	#1 0-450	0-300ma	
	#2 0-450	0-300ma	
	Parallel 1 & 2 0-450	0-600ma	
	Series 1 & 2 0-900	0-300ma	
2400B	#1 0-150 Bias	0-5ma	
	#2 0-400	0-150ma	
	#3 0-400	0-150ma	
	Parallel 2 & 3 0-400	0-300ma	
	Series 2 & 3 0-800	0-150ma	
103	#1 0-300	0-75ma	unregulated
	#2 0-300	0-75ma	
	#3 -50 to +50	0-5ma	
	Parallel 1 & 2 0-300	0-150ma	
400B	0-100	0-150ma	<0.1%
	0-150 Bias	0-5ma	
605	0-600	0-500ma	
	0-150 Bias	0-5ma	
615B	0-600	0-300ma	
	0-150 Bias	0-5ma	
1250B	0-1000	0-500ma	
1220C	0-1200	0-50ma	
1520B	0-1500	0-200ma	
2500	0-2500	0-50ma	
KR 11M	0-150	0-125ma	0.1%
KR 1M	100-200	0-125ma	
KR 2M	195-325	0-125ma	
KR 9M	295-450	0-125ma	
KR 8M	0-150	0-300ma	
KR 5M	100-200	0-300ma	
KR 6M	195-325	0-300ma	
KR 7M	295-450	0-300ma	
KR 12M	0-150	0-600ma	
KR 3M	100-200	0-600ma	
KR 4M	195-325	0-600ma	
KR 10M	295-450	0-600ma	
KR 16M	0-150	0-1.5amp	
KR 17M	100-200	0-1.5amp	
KR 18M	195-325	0-1.5amp	
KR 19M	295-450	0-1.5amp	

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Directory II. Components

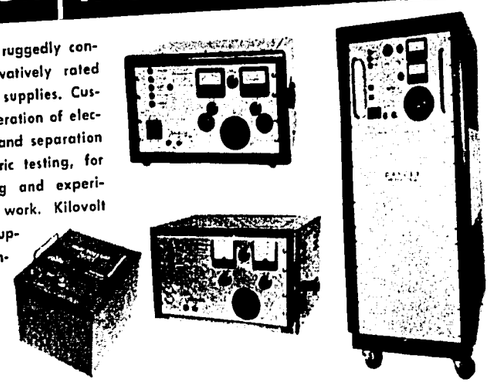
69. Power Supplies.

Gulow Transformer Co., Inc., N.J., 5s, 10s, 15s, 20s, 25s, 30s, 40s, 45s, 55s, 60s
Gulton Industries, Inc., N.J., 20sc, 25sc, 45sc, 55sc
Gyra Electronics Corp., Ill., 10s, 15s, 45s
Gyrex Corp., Calif., 5c
Halex, Inc., Calif., 10c
Hamilton Standard Electronics, Div. of United Aircraft Corp., Conn., 5sc, 10sc, 15sc, 20sc, 30sc
Hammond Mfg. Co., Ltd., Canada, 55sc
Hanner Electronics Co., Inc., N.J., 15s, 20s, 45s
Harmon Co., Inc. (George), Calif., 10sc, 45sc, 55sc, 60sc
Harrison Electrosonics, Inc. (B.M.), Mass., 5c
Harrison Laboratories, Inc., 45 Industrial Road, Berkeley Heights, N.J., 10s, 15s, 20s, 30s, 35s, 40s, 45s, 55s, 60s, Tel: 201-464-1234
See ad on pages 50-51
Harvey-Wells Corp., Mass., 20sc, 45sc, 55sc
Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 5c, 10c, 15c, 20c, 35c, 40c, 45c, 55c
Heath Co., Subsid. of Daystrom, Inc., Mich., 5s, 10s, 20s, 30s, 40s, 45s, 55s, 60s
Hett Associates, Inc., N.J., 15c
Hevi-Duty Electric Co., Div. of Basic Products Corp., Wis., 5c, 10c, 15c, 20c, 30c, 45c, 60c
Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 10s, 20s, 30s, 45s, 50s, 55s, 60s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28
Hewlett-Packard Co., Palo Alto Engineering Co. (Subsid.), Calif., 45c, 55c
High Voltage Engineering Corp., Mass., 15c
Highland Design, Inc., N.Y., 5c, 10c, 15c, 20c, 30c
Hindle Transformer Co., Inc., N.J., 5c, 10c, 15c, 20c, 30c
Hollywood Mfg. & Supply Corp., Calif., 45c
Holt Instrument Laboratories, Wis., 5s, 20s, 45s, 60s
Hoover Co., Electronics Div., Md., 5c, 10c, 35c, 40c, 45c, 50c, 55c
Horlick Co., Inc. (William J.), Mass., 5s, 10c, 60sc
Huggins Laboratories, Calif., 35sc
Hurletron, Inc., Electric Eye Equipment Div., Ill., 10c, 45sc
Hycon Mfg. Co., Calif., 5c, 10c, 55c
Hydro-Aire Co., Div. of Crane Co., Calif., 5c, 10c, 20c, 25c, 30c, 45c, 55c
Hyperion, Inc., Mass., 45s, 55s
Ideal Electric & Mfg. Co., Ohio, 15c
Industrial Instruments, Inc., N.J., 15s
Industrial Test Equipment Co., 55 E. 11th St., New York 3, N.Y., 5s, 10c, 45s, 60s, Tel: 212-GRamercy 3-4684
See ad in this class
Industrial Transformer Corp., N.J., 45c
Industron Corp., Mass., 15c
Infrared Industries, Inc., West Coast Div., Calif., 10s
Inland Motor Corp. of Virginia, Va., 10c, 55c
Instrulab, Inc., Ohio, 10s, 20s
Instrument Corp. of Florida, Fla., 5c, 10c, 20c, 45c
Intercontinental Electronics Corp., N.Y., 5sc, 10sc, 20sc, 25sc, 30sc, 45sc, 55sc, 60sc
Interelectronics Corp., 2432 Grand Concourse, New York 58, N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 40sc, 45sc, 50sc, 55sc, 60sc, Tel: 212-LUdlow 4-6200
See ads in classes 34, 69
International Electronic Research Corp., ELIX Div., Calif., 5sc, 45sc, 60sc
International Electronics Mfg. Co., Md., 10c, 45c, 55c
International Telephone & Telegraph Corp., ITT Industrial Products Div., Calif., 5c, 10c
Invar Electronics Corp., Calif., 5c, 10s, 20s, 30c, 45s, 50s, 55s, 60s
Ionic Electrostatic Corp., N.J., 5s, 10s, 15s, 20s, 30s, 45s, 60s
Ipcolito & Co., Inc. (James), N.Y., 5c, 10c
Isotope Developments, Ltd., England, 15s
Jack & Heintz, Div. of Siegler Corp., Ohio, 5c, 10c, 25c, 45c, 55c
Jackson Electrical Instrument Co., Ohio, 10s, 20s, 45s, 60s
Jerrold Electronics Corp., Dept ITE-104, 15th & Lehigh Ave., Philadelphia 32, Pa., 5s, 10s, Tel: 215-BAldwin 6-3456
See ad in class 38
Johnson & Associates, Inc. (Wm. B.), N.J., 15sc, 55sc, 60sc
Johnson Electronics, Inc., Fla., 5c, 10c, 20c, 25c, 45c, 55c
Jordan Electronics, Div. of Victoreen Instrument Co., Calif., 5sc, 10sc, 15c, 20sc, 30sc, 45sc, 55sc
Joy Mfg. Co., Pa., 5s, 10s, 20s
Joy Mfg. Co., Electrical Products Div., Mo., 20sc
Julie Research Laboratories, Inc., N.Y., 10s, 20s, 50s
Kaar Engineering Corp., Calif., 40c, 55c
Kaiser Electronics, Inc., N.J., 5s, 10s, 15s, 20s, 25c, 30s, 35c, 40c, 45s, 50c, 55c, 60s
Keithley Instruments, Inc., Ohio, 5c, 15s, 30s, 45s
Kepco, Inc., 131-42 Sanford Ave., Flushing 52, N.Y., 5c, 10s, 15s, 20s, 25s, 30s, 35c, 40c, 45s, 50s, 55s, 60s, Tel: 212-INdependence 1-7000
See ad in this class
Kidde Electronics Laboratories, Walter Kidde & Co., Inc., N.J., 5c, 10c, 25c, 55c, 60c
Kilovolt Corp., 238 High St., Hackensack, N.J., 15sc, Tel: 201-HUbbard 8-7373
See ad in this class
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 5s, 10s, 30s, 45s, 60s
Kinetics Corp., Calif., 15s
Kingston Electronics, Div. of Kingston Industries, Inc., Mass., 10s
Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 20s
Knopp, Inc., Calif., 5c, 10c, 15c, 20c, 25c, 30c, 45c, 50c, 55c, 60c
Krohn-Hite Corp., Mass., 5s, 10s, 20s, 30s, 45s, 60s
Kupfrian Mfg. Div., Robinson Technical Products, Inc., 157 Prospect Ave., Binghamton, N.Y., 5sc, 10sc, 15sc, 20sc, 30sc, 40sc, 45sc, 50sc, 55sc, 60c, Tel: 607-RAymond 3-9561
See ad in this class
Kurtston Electronics, N.Y., 5c, 10c, 15c, 20c, 30c, 40c, 45c, 50c, 55c, 60c
Lakeshore Industries Div., Arthur Reed, Inc., Wis., 40c, 55c
LaMarche Mfg. Co., Ill., 10s, 20s, 25s, 30s, 45s, 60s
Lambda Electronics Corp., 515 Broad Hollow Rd., Huntington, L.I., N.Y., 10s, 20s, 25s, 30s, 40s, 45s, 50s, 55s, 60s, Tel: 516-MYrtle 4-4200
See ads on pages 33-38 & in this class, page 524
Land-Air, Inc., Ill., 55c
Langevin, Div. of Sorensen, Inc., Calif., 5s, 10s, 20s, 30s, 45s
LaPointe Industries, Inc., Conn., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c
Leach Corp., 18435 Susana Rd., Compton, Calif., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55c, Tel: 213-NEwcastle 6-0161
See ad in class 23
[illegible]
Lionel Corp., Lionel Electronic Laboratories (formerly Ampex Electronic Laboratories), Dept X, 115-22 Jamaica Ave., Brooklyn 17, N.Y., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, Tel: 212-EVergreen 6-5255
See ad in class 52
Litton Industries, Inc., Electron Tube Div., 960 Industrial Rd., San Carlos, Calif., 15 CRT sc, 55 CRT sc, Tel: 415-LYtell 1-8411
See ad in class 59
Litton Industries, Inc., Hewitt-Robins Inc. (Subsid.), Mt. [illegible] 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

HIGH VOLTAGE POWER SUPPLIES INSULATION TESTERS

Soundly engineered, ruggedly constructed and conservatively rated high voltage power supplies. Custom designed for operation of electrostatic deposition and separation systems, for dielectric testing, for industrial processing and experimental laboratory work. Kilovolt Corporation power supplies represent concentrated experience in the field of high voltage techniques.



GENERAL UTILITY SUPPLIES

FEATURES

- Reversible Polarity Output
- Continuously Variable Output Control
- Automatic Overload Shut-off
- Dual Range Voltage and Current Meters
- Provisions for External Interlock
- Operational Pilot Lamps
- Selenium Rectification

KV	MA	Model
0-30	5	KV30-5

POWER SUPPLIES FOR INDUSTRY

FEATURES

- Reversible Polarity Output
- Continuously Variable Output Control
- Adjustable Overload Shut-off
- Adjustable Overvoltage Shut-off
- Provisions for External Interlock
- Safety Interlock on High Voltage Cabinet Door
- Zero-start Interlock
- Dual Range Voltage and Current Meters
- Fail-safe Output Shorting Mechanism
- Functional Pilot Lamps
- Circuit Breaker Operation

KV	MA	Model
0-1	500	KV1-500
0-1	3000	KV1-3000
0-1	5000	KV1-5000
0-3	200	KV3-200
0-3	1000	KV3-1000
0-5	100	KV5-100
0-5	500	KV5-500
0-5	1000	KV5-1000
0-10	5	KV10-5
0-10	50	KV10-50
0-10	250	KV10-250
0-10	500	KV10-500
0-20	10	KV20-10
0-20	50	KV20-50
0-20	150	KV20-150
0-20	200	KV25-200
0-30	20	KV30-20
0-30	50	KV30-50
0-30	100	KV30-100
0-30	200	KV30-200
0-50	10	KV50-10
0-50	50	KV50-50
0-50	80	KV50-80
0-60	5	KV60-5
0-120	5	KV120-5
0-120	10	KV120-10
0-120	30	KV120-30
0-150	5	KV150-5
0-150	10	KV150-10
0-200	10	KV200-10
*0-250	1	KV250-1
*0-250	5	KV250-5
*0-350	1	KV350-1

DC INSULATION TESTERS

FEATURES

- Reversible Polarity Output
- Continuously Variable Output Control with Vernier Adjust
- Adjustable Overload Shut-off
- Adjustable Overvoltage Shut-off
- Provisions for External Interlock
- Safety Interlock on High Voltage Cabinet Door
- Zero-start Interlock
- Quadruple Range Current Meter
- Triple Range Voltage Meter
- Jack Input for External Microammeter, Optional
- High Voltage Surge-on Provisions, Optional
- Fail-safe Output shorting Mechanism
- Functional Pilot Lamps
- Circuit Breaker Operation
- Selenium Rectification
- Memory Meter, Optional
- Automatic Rate-Of-Rise, Optional

KV	MA	Model
0-30	5	DC30-5
0-60	5	DC60-5
0-120	5	DC120-5
0-150	5	DC150-5
*0-250	5	DC250-5
*0-350	1	DC350-1

AC Insulation Testers are available for testing to ASTM specifications. Full description and prices upon request.

Power packs to 30 KV are available for inclusion as components in your system. Write for OEM quantity prices.

All equipment may be modified to meet users special requirements. Requests are solicited for quotations to your specifications.

*Positive or Negative Polarity. Reversible Polarity on Special Order.

Prices and specs subject to change and should be verified when order is placed.

KILOVOLT CORPORATION

HUBBARD 8-7373

238 HIGH STREET • HACKENSACK, N. J.

For details, circle #444 on Reader Service Card

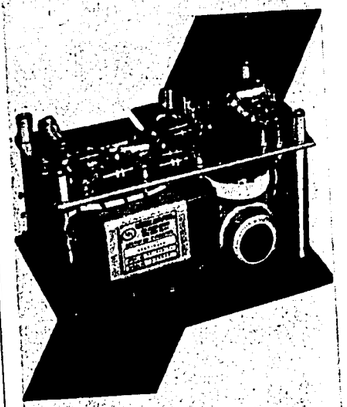
New PRECISION FREQUENCY

STATIC INVERTER SUPPLY

INPUT 28V D.C. ± 10%
OUTPUT Nom. 115V ± 2%
400 CPS ± 0.01%
1 ϕ (2- or 3-phase output available)
RATINGS: 30VA 50VA 100VA
Higher ratings available.

APPLICATION:

For gyro wheel supplies and where precise 400 cycle voltages are required in aircraft, radar and missile computers.



FEATURES:

PRECISION OUTPUT FREQUENCY
RUGGED
EXCELLENT WAVEFORM
SIMPLICITY OF CIRCUITRY
FAST STARTING TIME
GOOD VOLTAGE REGULATION throughout an adjustable range
ISOLATED CASE DESIGN
HIGH RELIABILITY
VIBRATION ISOLATED
COMPACT
LIGHTWEIGHT
MILITARY SPECIFICATIONS

(Send for Bulletin S-864)

THE MAGNETICS CORPORATION

MAGNETIC AMPLIFIERS DIVISION

632 TINTON AVE., NEW YORK 55, N. Y.
CYPRESS 2-6610

For details, circle #445 on Reader Service Card

KUPFRIAN

TRANSISTORIZED POWER SUPPLIES

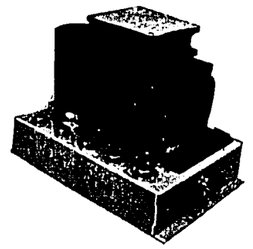
- **QUALITY CONSTRUCTION**
  High quality components are used throughout each unit. Expert workmanship and design provide "built in" quality.
- **DEPENDABILITY**
  The many KUPFRIAN power supplies in operation throughout the world serve to prove that KUPFRIAN units can be depended upon under a wide range of conditions.
- **LOW COST**
  Years of experience by KUPFRIAN MANUFACTURING CORP. in the transistorized power supply field have developed many cost-saving designs and production techniques which in turn reduce unit selling prices without sacrificing quality.

CUSTOM BUILT UNITS TO SPECIFIC REQUIREMENTS, COMMERCIAL OR MILITARY

Wide range of experience in the fields of: MISSILE, AIRCRAFT, COMMUNICATION, CONTROL & INSTRUMENTATION

CUSTOM-BUILT power supplies by KUPFRIAN MANUFACTURING CORP. are continually proving to be the most economical answer to many specific power requirements. KUPFRIAN engineers can supply the most practical design for these applications which result in greater savings and more efficient operation.

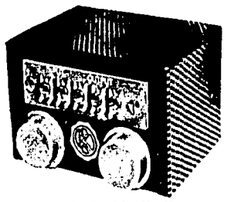
Pictured is a typical custom-built power supply developed to meet a specific customer application. In many instances designs in our file may be modified to fulfill your particular requirements. The diversified experience of KUPFRIAN MANUFACTURING has lent itself to the development of power supplies ranging in output from 5 watts to 1 kilowatt. These units can be supplied to fulfill the requirements of either commercial or military specifications. FORWARD YOUR REQUIREMENTS TODAY FOR A PROMPT QUOTATION.



TYPICAL CUSTOM-BUILT UNIT
Input 115 VAC • 60 cy
Output ± 24 VDC • 800 MA
± 20 VDC • 600 MA
Load regulated ± 2%.
Ripple 0.1% Max.

STANDARD UNITS

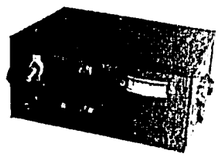
KUPFRIAN MANUFACTURING CORP. Transistorized Power Supplies are highly efficient units, designed to convert low-voltage power sources to higher AC or DC voltages. The solid-state design throughout offers a compact, shock resistent power supply adaptable to a variety of uses. They are instant starting for immediate response with no moving parts or pitted contact problems. Thousands of hours of trouble-free operation are assured with KUPFRIAN-built transistorized power supplies.



MODEL CA-0631-05
WRITE FOR BULLETIN 6071

FREQUENCY REGULATED POWER SUPPLIES

Two standard frequency regulated units are available as stock items. These are the IFA-1260-10; 100 watts and the IFA-1260-25; 250 watts. These units feature frequency control of ±1 cps for 20% to 100% load variation and an input differential of 11 VDC to 16 VDC. A continuous power output of 250 watts or 375 watts intermittent power is available. Output voltage and frequency adjustments can be made by the customer for specific installations. More detailed information on these and other standard frequency controlled units are available on request.



MODEL IFA—1260-10
WRITE FOR BULLETIN 6075

ELECTRONIC ASSEMBLIES

KUPFRIAN capabilities and facilities have lent themselves to the fabricating of electronic assemblies of many types. Experience includes the successful fulfillment of a wide range of customer requirements varying from small power devices to complete business machines.

FOR COMPLETE LITERATURE, DATA SHEETS AND PRICE LISTS, CONTACT:

KUPFRIAN 157 PROSPECT AVE., BINGHAMTON, N. Y.
ROBINSON TECHNICAL PRODUCTS INC. MANUFACTURING DIVISION

For details, circle #446 on Reader Service Card

Directory II. Components

69. Power Supplies.

Lockheed Electronics Co., N.J., 5c, 10c, 25c, 45c, 55c

Lundell & Co., Ill., 5sc, 10sc, 30sc, 50sc, 55sc

Lundy Mfg. Corp., N.Y., 5c, 10c, 55c

MP Engineering Co., Conn., 10c, 60c

Magnalectric Corp., 2635 N. Iroquois, P.O. Box 6008, Tulsa 6, Okla., 5c, 10c, 15c, 20c, 25c, 45c, 55c, 60c, Tel: 918-FIllmore 5-7278
See ad in class 84

Magnetic Amplifiers Div., Siegler Corp., 632 Tinton Ave., New York 55, N.Y., 5sc, 10sc, 25sc, 45sc, 55sc, Tel: 212-CYpress 2-6610
See ad in this class

Magnetic Circuit Elements, Inc., Calif., 5c, 10c, 20c, 25c, 45c

Magnetic Controls Co., Minn., 5c, 10sc, 20c, 25sc, 45sc

Magnetic Instruments Co., Inc., 637 Commerce St., Thornwood, N.Y., 10c, 45c, 55c, Tel: 914-ROdgers 9-5312
See ad in class 43

Magnetics, Inc., Pa., 10sc, 25c, 45c

Mallory & Co., Inc. (P. R.), Ind., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 55c, 60c

Manson Laboratories, Inc., Conn., 5sc, 10sc, 15sc, 20c, 35sc, 55sc, 45sc, 50sc, 55sc, 60sc

Mar-Con Corp., Mass., Inc., 35

Marine View [illegible], Inc., N.Y., 35, 10c, 15c

[illegible], N.Y., Inc., 55c

[illegible] Co., Ltd., France, 35, 45c

Marlo Coil [illegible], N.Y., [illegible] 20c, 25c, 30c, 45c, 55c

Marpet, Inc., [illegible] A., N.Y., [illegible] 25

[illegible] Corp., Calif., Inc., 25

[illegible] Co., Calif., 35c

[illegible] Instrument Co., [illegible]

[illegible] Research [illegible] 35, 60c

Mech-Tronics Corp., [illegible] 45c

Menlo Park Engineering, 21 Hamilton Ave., Menlo Park, Calif., 35c, Tel: 415-DAvenport 6-9059
See ad in class 43

Metrologie, Compagnie [illegible] France, 35c

Metropolitan Le[illegible] Co., [illegible] N.Y., 5c, 10c, 20c, 35c, 55c

Microdot, Inc., Calif., [illegible]

Microphase Corp., [illegible]

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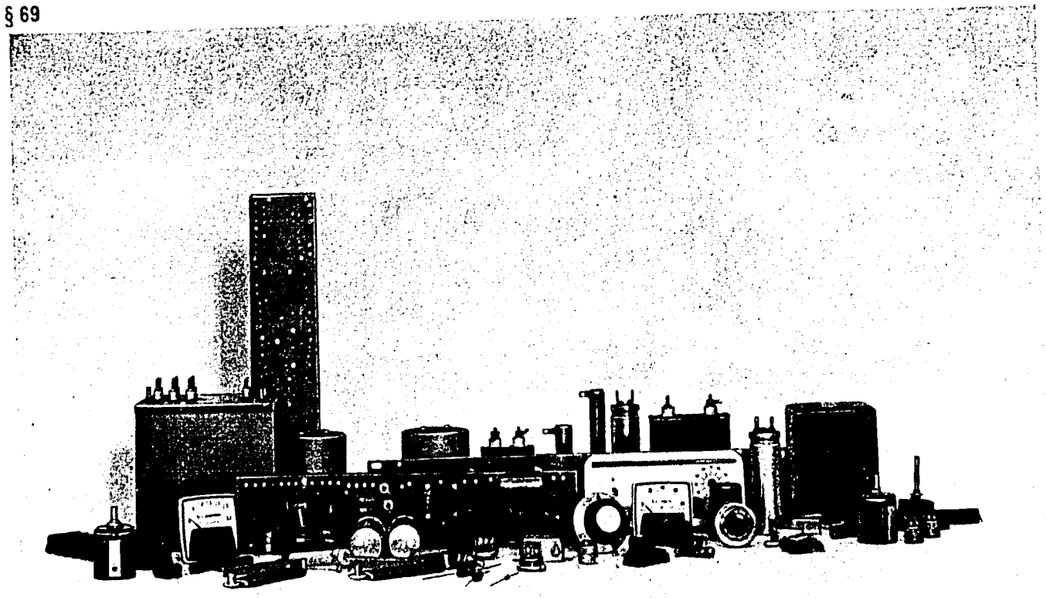
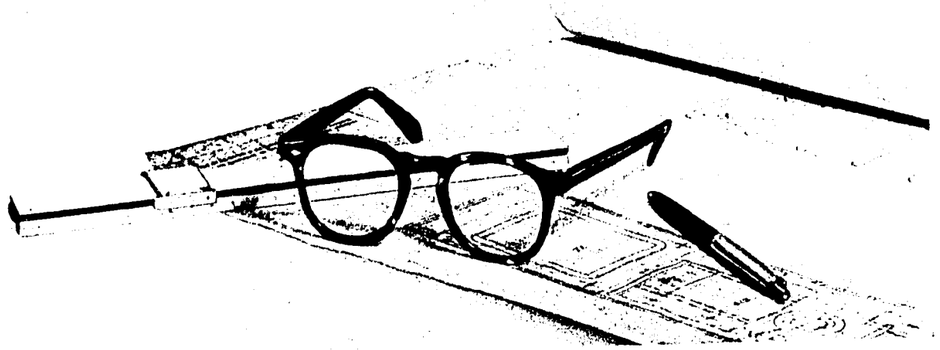




PARTS ARE PART OF CUSTOM POWER... BUT THE BIG PART IS BRAIN POWER

NJE leads the custom power supply field because of its unparalleled engineering experience... experience that turns simple hardware into sophisticated power sources for computers, military equipment and systems for automation.

Very often your supply must be designed from the ground up, with specialists attacking a completely new problem. In other cases, we can modify an existing design to fit your needs in order to speed delivery and reduce costs.

NJE's completely new plant includes all research and development, engineering, drafting, sheet metal work, stock, painting, meter calibration, transformer production, assembly and testing—all under one roof!

Here are just a few of the leading projects now using NJE power supplies and systems: ■ U. S. Navy computer memory power supply ■ "Hustler" ground support power supply system ■ Radar system power supply ■ Hawk missile check-out ■ F-105 flight simulator power supply system ■ Atlas missile check-out ■ Nike Zeus.

For complete details on custom designs and a catalog on one of America's widest line of standards, write today!

NJE CORPORATION
20 BORIGHT AVENUE ■ KENILWORTH, N.J.
BR 2-6000 ■ TWX Cranford, N.J. ■ FAX-FFP

For details, circle #447 on Reader Service Card

Directory II. Components

69. Power Supplies.

Microwave Associates, Inc., South Ave., Burlington, Mass., 35s, Tel: 617-BRowning 2-3000
See ad on page 178

Microwave Dynamics Corp., N.Y., 15sc, 35s

Microwave Semiconductor & Instruments, Inc., N.Y., 35c

Mid-Eastern Electronics, Inc., N.J., 5c, 10sc, 20sc, 25c, 30sc, 40c, 45sc, 50sc, 55sc, 60sc

Mikros, Inc., Ore., 15s, 45s

Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 20s, 30s, Tel: 617-DAvenport 4-4108
See ad in class 51

Miller Electric Mfg. Co., Wis., 10 Welding sc

Milro Controls Co., Inc., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 45c, 50c, 55c, 60c

Milwaukee Transformer Co., Wis., 10c, 45c

Minerals & Insulation Co., N.J., 35s

Minneapolis-Honeywell Regulator Co., Fall River Div., Mass., 10s

Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 20c

Minshall Organ & Electronics, Inc., Vt., 5sc, 20sc, 45sc

Mira Corp., Calif., 10s

Miratel Electronics, Inc., Minn., 10s, 15s, 20s, 30s, 45s

Missouri Research Laboratories, Inc., Mo., 10c, 15c, 20c, 30c, 45c, 55c, 60c

Model Engineering & Mfg. Corp., Ind., 5c, 10c

Model Rectifier Corp., N.Y., 10sc, 20sc, 30sc, 55sc, 60sc

Modern Design, Div. of H. C. Schloer, Inc., N.Y., 5c, 10c, 40c, 45c, 55c

Mohawk Business Machines Corp., N.Y., 5c, 10c, 20c, 30c, 45c

Molectronics, Div. of Motec Industries, Calif., 5c, 10c, 45c

Moloney Electric Co., Mo., 15c, 30c, 45c, 60c

Monroe Electronic Laboratories, Inc., N.Y., 10c, 15c, 20c, 45c, 55c

Montek, Inc., Utah, 10sc, 20sc, 45sc, 55sc, 60sc

Moran Instrument Corp., Calif., 15sc

Morgan Electronics, Mass., 20s, 60s

Motor Generator Corp., Ohio, 5s, 10s, 20s, 45s, 50s

Moulic Specialties Co., Ill., 45c

Muirhead & Co., Ltd., England, 5s

Multi-Amp Electronic Corp., N.J., 5c, 10c, 15c, 20c

Multi Products Co., Inc., Mich., 5s, 10s, 40s

Multronics, Inc., Md., 20s, 45s

Mutron Corp., Mass., 5c, 10c, 20c, 30c, 45c, 55c, 60c

NJE Corp., 20 Boright Ave., Kenilworth, N.J., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc; 50sc, 55sc, 60sc, Tel: 201-BRidge 2-6000
See ad in this class

Naniloa Corp., Ohio, 55c

Narda Microwave Corp., Dept. IRED-61-3, 118-160 Herricks Rd., Mineola, L.I., N.Y., 35s, Tel: 516-PIoneer 6-4650
See ad in class 66

Nash & Thompson, Ltd. (Messrs.), England, 10s, 55s

National Electronics, Wyo., 20c, 45c, 60c

Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 55sc, Tel: 215-GLendale 2-6531
See ad in class 10

Needco of America, Inc., N.J., 10c

Neff Instrument Corp., Calif., 10s, 45s

Neshaminy Electronic Corp., Pa., 10c, 15c, 20c, 45c

Network Industries, Inc., N.J., 5c, 10c, 15c, 20c, 40c, 45c

Networks Electronic Corp., Calif., 5c, 10c, 20c, 25c, 30c, 40c, 45c, 50c, 55c, 60c

Neutronic Associates, Inc., N.Y., 10c, 15c, 30c, 45c, 60c

New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy., Somerville 43, Mass., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, Tel: 617-625-6100
See ad in class 84

New York Transformer Co., Inc., N.J., 5c, 10c, 40c, 45c

Newport Scientific Co., Calif., 5c, 10c, 15c, 20c, 25c, 30c, 45c, 55c

Newton Co., Conn., 10sc

Nichols, Ltd. (R. H.), Canada, 10c, 15c, 20c, 45c

Norbatrol Electronics Corp., Pa., 25c

Norden Div., United Aircraft Corp., Data Systems Dept., Calif., 10s

North Electric Co., Ohio, 5c, 10c, 20c, 25c, 45c, 50c, 55c

North Hills Electronics, Inc., Alexander Pl., Glen Cove, L.I., N.Y., 5s, 10s, 15s, 20s, 30s, 35s, 45s, 55s, 60s, Tel: 516-ORiole 1-5700
See ads in classes 69, 84

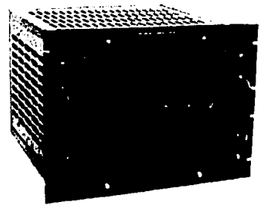
Northeast Scientific Corp., 30 Wetherbee St., Acton, Mass., 15sc, 35sc, 45sc, 60sc, Tel: 617-COlonial 3-7700
See ad in this class

Northern Electronics, Inc., Minn., 10c, 45c, 55c, 60c

Nutron Mfg. Co., Inc., N.J., 5sc, 10sc, 20sc, 25sc, 30sc, 45sc, 55sc, 60sc

Omega Mfg. Co., N.Y., 10s

Opad Electric Co., 43-8 Walker St., New York 13, N.Y., 5c, 10sc, 15c, 20sc, 25c, 30sc, 35c, 45sc, 55sc, 60sc, Tel: 212-WOrth 6-9384
See ad in this class



For *Constant Current*
0.01 μ amp. - 30 amp.

- For diode and [illegible]
- For diode PIV [illegible]
- For transistor avalanche test
- For gate trigger supply
- For calibration

North Hills CURRENT GOVERNORS are widely used by manufacturers and users of current sensitive devices. Of particular interest is the programmable feature in all models, since the current may be electronically pulsed, modulated or programmed.

Features included are as follows: Constant current over wide voltage range, high accuracy and stability, rapid manual or automatic selection of desired current level, current may be electronically pulsed, modulated, and programmed, inline readout, chopper amplifier, temperature compensated sampling resistors, reference elements, oven controlled reference, and

Model (No. all units operate from 115 V AC ± 10%)	Regulated Output Current	Output Voltage	Regulation Load and Line	[illegible]
CS-111	10μa-500 ma	0–250	0.05	[illegible]
CG-12*	0.5-30 amp dc	0–15	0.05	[illegible]
CS-112	0.1μa-10 ma dc	0–100	0.01	[illegible]
CS-120	0.1μa-10 ma dc	0–2200	0.1	[illegible]
CS-11	1μa-100 ma dc	0–50	0.005	[illegible]
CS-110**	0.1μa-150 ma	0–100	0.01	[illegible]
CS-12	10μa-1 amp dc	0–42.5	0.005	[illegible]
CS-128	1μa-1 amp dc	0–50	0.002	[illegible]

* CG-12 requires external unregulated power source [illegible]
** CS-110 can be used as AC source from 0-6000V when used [illegible]

SOLIDCEL™—North Hills voltage reference, [illegible] stable solid state temperature compensated oven controlled [illegible] clude replacement of standard cells, calibration [illegible]

nh NORTH HILLS
ELECTRONICS, INCORPORATED
GLEN COVE, L.I., N. Y. | ORiole 1-5700

For details, circle #448 on Reader Service Card

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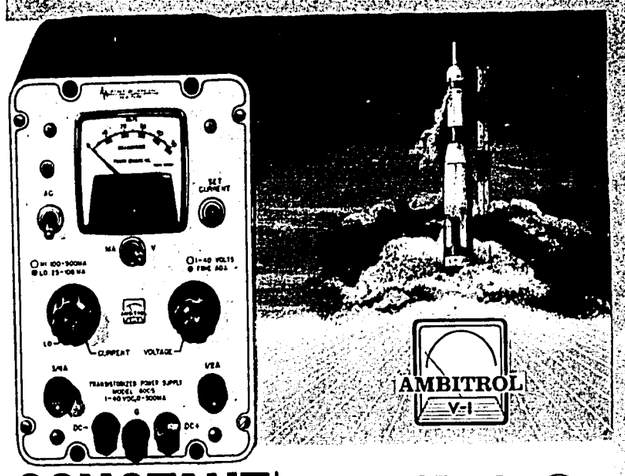
RECOGNIZED RELIABILITY



POWER DESIGNS
Semiconductorized Power Supplies utilize the unique properties of semiconductor devices to create new circuit concepts achieving performance, efficiency and reliability hitherto unattainable.

ROBOTEC
HIGH SPEED PROTECTION AGAINST OVERLOAD and SHORT CIRCUITS

HEATRAN
TRANSISTOR DISSIPATION CONTROL

VOLTAC
TRANSIENT ABSORPTION CIRCUITRY

S·P·D·J
SILICON TRANSISTOR INPUT HIGH STABILITY AMPLIFIER

CONSTANT | VOLTAGE / CURRENT

from the SAME TERMINALS *with* AUTOMATIC TRANSFER TO EITHER MODE

The Power Designs Models 4005 and 2020 Power Supplies add a new dimension to the application of d-c sources for laboratory instrumentation. Truly universal, these instruments may be operated as a *constant voltage* source, a *constant current* source, a *constant voltage* source with *adjustable current limiting* or a *constant current* source with *adjustable voltage limiting*.

The Models 4005 and 2020 employ solid state devices exclusively in a proprietary circuit trademarked AMBITROL.
*TM

AMBITROL* is a dual regulator system permitting continuous control of voltage or current with automatic electronic cross-over to either mode of operation.

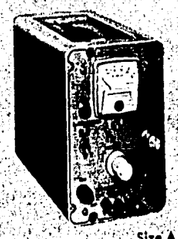
These supplies also feature remote voltage programming, remote current programming, dual concentric controls for coarse and fine adjustment of voltage or current and the HEATRAN® circuit for electronic control of power transistor dissipation.

MODEL 4005

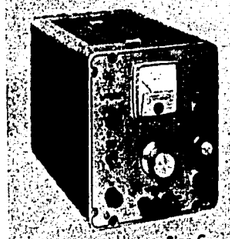
CONSTANT VOLTAGE	CONSTANT CURRENT
Range: 0-40 vdc, 0-0.5 amperes, cont. adjust.	**Range:** 25 to 500 milliamperes, cont. adjust.
Regulation: .05% or 10 millivolts max. for line or load variations.	**Regulation:** .02% or 100 microamperes max., for line or load variations.
Ripple: .0005% or 250 microvolts maximum.	**Voltage compliance:** Output current constant to full rated output voltage of 40 volts.
Response Time: Less than 50 microseconds.	**Ripple Content:** .005% or 20 microamperes max.
Source Z: 0.1 ohms to 20 kc, 0.7 ohms to 1 mc.	**Source Z:** 400,000 ohms approximately.

MODEL 2020

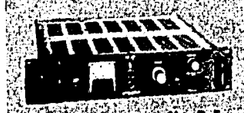
CONSTANT VOLTAGE	CONSTANT CURRENT
Range: 0-20 vdc, 0-2 amperes, cont. adjust.	**Range:** 25 ma to 2.0 amp., cont. adjust.
Regulation: .05% or 10 millivolts max. for line or load variations.	**Regulation:** .05% or 250 microamperes max., for line or load variations.
Ripple: .0005% or 250 microvolts maximum.	**Voltage compliance:** Output current constant to full rated output voltage of 20 volts.
Response Time: Less than 50 microseconds.	**Ripple Content:** .01% or 25 microamperes max.
Source Z: 0.1 ohms to 20 kc, 0.7 ohms to 1 mc.	**Source Z:** 100,000 ohms approximately.



Size A, B



Size C



Size D, E

Rack Panel Adapters for Sizes A and B: Single Model RRA-15 $18.50, Dual Model RRB-15 $15.50. Triple Model RRC-15 $18.50 Type G: Single Model RRA-29 $17.50, Dual Model RRB-29 $17.50. Dual 19" (one size A or B, one size C) RRB-25 $17.50. F.O.B. Westbury, N. Y. Terms, ½% 10. Net 30 days. Prices subject to change without notice.

	MODEL	PRICE
*MODEL 1515 1-15VDC•0-1.5A (A)		$159.50
MODEL 1515A 1-15VDC•0-1.5A (A)		$174.50
MODEL 3206 1-32VDC•0-600MA (A)		$174.50
MODEL 4005 0-40VDC•0-500MA (B)		$143.50
MODEL 2020 0-20VDC•0-2.0A (B)		$197.50
MODEL 5015 1-50VDC•0-1.5A (B)		$229.50
MODEL 5015A 0-50VDC•0-1.5A (B)		$234.50
MODEL 105TA 1-100VDC•0-500MA (B)		$239.50
MODEL 1010T 1-100VDC•0-1.0A (C)		$339.50
MODEL 2050 1-20VDC•0-5.0A (C)		$289.50
MODEL 3240 1-32VDC•0-4.0A (C)		$349.50
MODEL 1210 1-12VDC•0-10.0A (C)		$349.50
MODEL 5010P 1-50VDC•0-1.0A (D)		$299.50
MODEL 1510TA 145-155VDC•0-1.0A (E)		$375.00
MODEL 1510TC 50-150VDC•0-1A (E)		$425.00

Dual Volt/ammeter on all models. Voltmeter only on Model 1515.

SIZES:
(A) 5¼" W x 8¾" H x 10" D
(B) 5¼" W x 8¾" H x 11½" D
(C) 7¾" W x 8¾" H x 13½" D
(D) 19" W x 5¼" H x 14½" D
(E) 19" W x 5¼" H x 14½" D

INPUT: 105-125 V AC 55-440 Cy
REGULATION: .05%
RIPPLE: Models 1515, 1515A, 4005, 2020: 250 Microvolts. Models 5015, 5015A, 3206, 2050, 500 Microvolts. All Others—1.0 Millivolt
Internal Imp: Model 2050, 1210, 1010T, 3240, .005 ohms. All Others—.01 ohms

1700 SHAMES DRIVE • WESTBURY, L.I., NEW YORK
EDgewood 3-6200 • Area Code 516 • TWX WBRY 350

PRAXICON

The PI-9000 Series Power Supplies of which Model PI-9028 is illustrated, utilize an advanced technique for obtaining regulated DC Power at extremely high efficiency by means of switching circuitry which takes energy from the AC source in discrete pulses. These pulses are integrated by the regulator system to supply the load demand. Regulation is achieved by electronic control of pulse amplitude, pulse width, and pulse repetition rate.

PI-9028 2-28 VDC at 2 AMP. **$99.50**

POWER DESIGNS

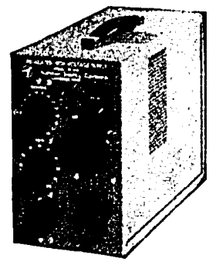
Write For Complete Catalog

Power Designs inc.

For details, circle #449 on Reader Service Card

PRECISION HV SUPPLIES

PORTABLE PATTERN



Model	Voltage	Current
RE-1601	0.2-1.6 KV	0-30 Ma
RE-1602	0.3-1.6 KV	0-10 Ma
RE-1903	0.3-1.9 KV	0-30 Ma

RACK PATTERN

Model	Voltage	Current
RE-1603	0.3-1.6 KV	0-10 Ma
RE-1610	0.3-1.6 KV	0-100 Ma
RE-1611	0.2-1.6 KV	0-100 Ma
RE-1620	0.3-1.6 KV	0-200 Ma
RE-1699	0.3-1.6 KV	0-1 Amp
RE-2003	0.5-2.0 KV	0-30 Ma
RE-2006	0.5-2.0 KV	0-60 Ma
RE-2015	0.5-2.0 KV	0-150 Ma
RE-2060	0.5-2.0 KV	0-600 Ma
RE-3002	0.5-3.0 KV	0-20 Ma
RE-3004	0.5-3.0 KV	0-40 Ma
RE-3006	0.5-3.0 KV	0-60 Ma
RE-3010	0.5-3.0 KV	0-100 Ma
RE-3040	0.5-3.0 KV	0-400 Ma
RE-5001	0.5-5.0 KV	0-10 Ma
RE-5002	0.5-5.0 KV	0-20 Ma
RE-5003	0.5-5.0 KV	0-30 Ma
RE-5005	0.5-5.0 KV	0-50 Ma
RE-5020	0.5-5.0 KV	0-200 Ma
RE-5503	1.0-5.5 KV	0-30 Ma
RE-6003	1.5-6.0 KV	0-30 Ma
RE-6530	0.5-6.5 KV	0-30 Ma
RE-10010	1.0-10 KV	0-10 Ma
RE-10030	1.0-10 KV	0-30 Ma
RE-10100	1.0-10 KV	0-100 Ma

Constant Current Supplies

RI-081	0-81 Ma	0-1000V
RI-234	0-230 Ma	0-350V

A series of high-voltage power supplies providing a stable and ripple-free high-voltage output over a wide range, practically independent of line voltage input or load current variations.

These supplies are completely self-contained and AC operated, and compactly housed in ventilated cabinets designed for either relay-rack mounting or bench use. All operating controls are mounted on front panel; output terminals and input power connection on back.

High-voltage rectifier is a full-wave silicon doubler. Output voltage is continuously variable over entire range in each case, usually variable stepwise in conjunction with a vernier control.

Among special features are molded components — rectifiers, transformers, etc. — cast in epoxy resin, for superior insulation and trouble-free performance.

Any of these supplies can be modified by using meters, polarity switches, co-ax connectors, wire-wound resistors, etc. — or special designs can be built to meet specialized requirements.

The range of any of these supplies can be made to start at zero voltage.

Features

Either positive or negative of any supply may be grounded

Regulation: .01 to .001%

Line Stability: .05 to .005%

Long-term Stability: .01-.05% per hour, about 0.1% per day

Impedance: 1 to 5 Ohms

Ripple: 0.5 to 3 Mv P-P

Standard tubes used

Millimeter Wave Generators

KSG-291	8.3- 8.9	mm
KSG-290	8.9-10.	mm
KSG-289	10. -11.	mm
KSG-33	12. -13.6	mm

NORTHEAST SCIENTIFIC CORP.

30 WETHERBEE STREET **ACTON, MASS.**

For details, circle #450 on Reader Service Card

Directory II. Components

69. Power Supplies.

Oregon Electronic Mfg. Co., Ore., 10sc, 20sc, 30sc, 45sc, 55sc, 60sc

Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 5c, 10sc, 15c, 20sc, 30sc, 35sc, 40c, 45sc, 50c, 55sc, 60sc, Tel: 914-DEerfield 7-6132
See ad in class 43

Ortronix, Inc., Fla., 5c, 10c, 20c, 30c, 45c, 55c

Ovitron Corp., Power Controls Div., Conn., 5c, 10c, 20c, 25c, 30c, 45c, 50c 55c, 60c

PRD Electronics, Inc., 202 Tillary St., Brooklyn 1, N.Y., 35s, Tel: 212-ULster 2-6800
See ad in class 37

PRL Electronics, Inc., N.J., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc

Pacific Electro Magnetics Co., Inc., Calif., 10c, 45c, 55c

Pacific Instrument Co., Calif., 45c

Pacific Magnetic Corp., Calif., 5c, 10c, 20c, 25c, 30c, 45c, 50c, 55c, 60c

Palmer Electric Mfg. Co., Calif., 5sc, 40c, 50c

Parametrics, Calif., 5sc, 10sc, 20sc, 30sc, 45sc, 50sc, 55sc, 60sc

Parks Laboratory (Horace Parsons, Wash., 5c, 10c, 15c, 55c, 60

Parsons Co. (Ralph M. Parsons Div., Calif., 15c, 25c

Pearson Electronics, Inc., 247 Urban Lane, Palo Alto, Calif., 35, Tel: 415-DAvenport 6-2282
See ad in class 84

Perkin-Elmer Corp., Norwalk, Conn., 25, 30c, 35, 60

Perkin-Elmer Corp., Electronic Products Div., Norwalk, Conn., 25, 30c, 35, 60

Perkin-Elmer Corp., Electronic Products Div., Calif., 5c, 10c, 20c

Peschel Electronics, Inc., Townsen R.F.D. 1, Patterson, N.Y., 5sc, 15sc, 20sc, 30sc, 35c, 40sc, 45sc, Tel: 914-TRinity 8-3251
See ad in class 41

Physical Research Corp., Mass., 35c

Philips Electronic Instruments, Inc., Philips Electronic & Pharmaceutical Industries Corp., N.Y., 20c, 30c

Philips Electronics Industries Ltd., Canada, 5c, 10c

Philmore Mfg. Co., Inc., N.Y., 5c, 10c, 55c

Phoenix Precision Instrument Co., Pa., 10c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 31-226

FROM MILLIWATTS TO KILOWATTS

HIGH VOLTAGE POWER SUPPLIES AND EQUIPMENT

We have sold quantities of these power supplies to laboratories, industrial concerns, the government and universities. Only the best available selected material goes into these units, so that you will have many years of dependable service. Only a few of our standard models are shown below. Quotations on special supplies cheerfully given.

PRECISE MEASUREMENTS COMPANY

HIGH VOLTAGE POWER SUPPLIES

One of the most popular power supplies on the market. Completely redesigned for greater ruggedness and convenience of operation. Widely used for powering electronic equipment and for routine breakdown and insulation testing. Output voltage is well filtered D.C. which is adjustable with convenient front panel control. Input is 115 Volt, 60 cycle A.C. Larger 6" precision 1% mirror scale movement available on order. Regulated models offer closely stabilized output voltage regardless of line or load changes.

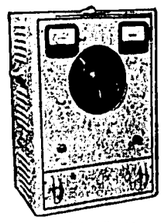
Model	Max. Voltage	Regulated 100 Microamps	Unregulated 1 MA.	Unregulated 5 MA.
6003-1	1,000		$150.00	$200.00
6000	2,500	120.00	175.00	225.00
6005	5,000	135.00	200.00	250.00
6010	10,000	145.00	225.00	275.00
6015	15,000	155.00	250.00	300.00
6025	25,000	205.00	275.00	350.00

Note. Regulated power supplies are of the radio frequency type and adjust from approximately 20% to full rated voltage. The 1 and 5 milliampere types are transformer operated and have a range of zero to full voltage output. These are recommended for industrial service applications.

Mirror Scale Higher Accuracy Meter. Recommended for more exact calibration or test purposes. Add $50.00 to any meter equipped power supply.

For additional built-in current meter (both meters are 3 inch size), including automatic meter protector circuit, add $50.00 to any power.

INDUSTRIAL POWER SUPPLIES



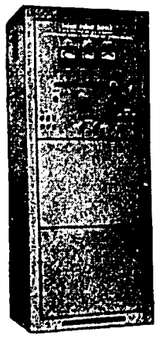
Regulated Types Available

Standard hum level 5% or less. .01% to 1% ripple available. All power supplies have automatic overload cutout control circuits. Regulated models available.

These industrial type power supplies are built for service and efficiency. All are of the transformer type and employ husky components that have been selected for their power handling capacity. Controls are arranged so that operation is greatly simplified and a number of safety features are built in for maximum protection of personnel and equipment. Output is continuously variable from zero to full rated value. Polarity reversing models (as illustrated) can be had at additional cost.

Model	Voltage	Current	Price
F-500V	0-500	3 Amp	$800.00
F-6001	0-1000	2 Amp	975.00
F-6002	0-2000	1 Amp	985.00
F-6003-A1	0-3000	100 MA	375.00
F-6003-AV	0-3000	500 MA	550.00
F-6003-AK	0-3000	1 Amp	1100.00
F-6005-A1-H	0-5000	100 MA	550.00
F-6005-AV	0-5000	500 MA	750.00
F-6005-A1K	0-5000	1 Amp	1200.00
F-6010-A1	0-10,000	100 MA	800.00
F-6020-A05	0-20,000	50 MA	975.00
F-6050-T	0-50,000	½ MA	600.00
F-6100-T	0-100,000	½ MA	1100.00

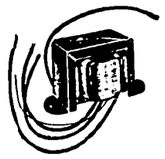
HEAVY DUTY POWER SUPPLIES



For use in applications where high voltages at extra high currents are required. Illustrated is our 100 KW Model, rated for 0 to 7,000 Volts at 14 Amperes DC. This unit is housed in a single convenient cabinet. Output voltage is regulated against line and load changes. Voltage is smoothly adjustable from zero to full output. Automatic circuits protect against overvoltage or over current conditions, turning off main power in a split second. Use of special transformer construction allows constant load drain at full rated output. All power supplies in this series are available with fixed or adjustable output and with or without regulation.

Model	Voltage	Current
A-10	0-1000	5 amperes
A-30	0-3000	5 amperes
A-31	0-3000	10 amperes
A-32	0-3000	20 amperes
A-50	0-5000	5 amperes
A-51	0-5000	10 amperes
A-72	0-7000	15 amperes
A-100	0-10,000	5 amperes
A-110	0-10,000	10 amperes
A-300	0-30,000	5 amperes

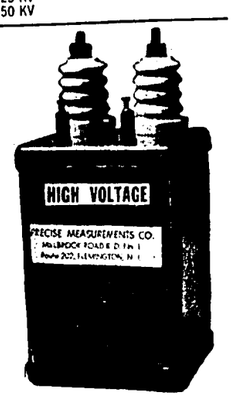
TRANSFORMERS, HIGH VOLTAGE



For experimental, industrial, or production use. These units are small and compact and rated for constant service. Primary designed for 115 Volts, 60 Cycle. Secondary is isolated. Only standard models are listed. We can wind specials for any frequency or voltage. Metering windings available.

Model	Voltage	Model	Voltage
1 KVT	1 KV	10 KVT	10 KV
2 KVT	2 KV	15 KVT	15 KV
3 KVT	3 KV	25 KVT	25 KV
5 KVT	5 KV	50 KVT	50 KV

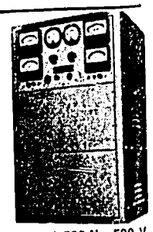
PACKAGED POWER SUPPLIES



These conveniently packaged power units will be found ideal for applications requiring minimum size and weight. Features isolated high voltage terminals permitting either the positive or negative side to be grounded. Rectifier tubes are operated from separate filament transformers so that DC output voltage can be varied from zero to full rated value. Selenium rectifier types have extra cells to assure operation under high line voltage or light loading. All standard units have well filtered DC output. Power packs with AC output available on order.

Model	Output Voltage	Current	Model	Output Voltage	Current
05-KV-5MA	500 Volts DC	5 Ma.	20-KV-1MA	20 KV DC	1 Ma.
1-KV-5MA	1 KV DC	5 Ma.	20-KV-5MA	20 KV DC	5 Ma.
2-KV-5MA	2 KV DC	5 Ma.	30-KV-1MA	30 KV DC	1 Ma.
5-KV-1MA	5 KV DC	1 Ma.	30-KV-5MA	30 KV DC	5 Ma.
5-KV-5MA	5 KV DC	5 Ma.	50-KV-1MA	50 KV DC	1 Ma.
10-KV-1MA	10 KV DC	1 Ma.	50-KV-5MA	50 KV DC	5 Ma.
10-KV-5MA	10 KV DC	5 Ma.	75-KV-1MA	75 KV DC	1 Ma.
15-KV-1MA	15 KV DC	1 Ma.	100-KV-1MA	100 KV DC	1 Ma.
15-KV-5MA	15 KV DC	5 Ma.			

CONSTANT CURRENT POWER SUPPLIES



Duel 500 V - 500 V, 10 Ampere Power Supply. Isolated outputs may be seried or paralleled.

Designed for application where output current must remain constant regardless of loading resistance changes. Used for magnet fields, plating applications, gaseous lamps. Dependable magnetic current stabilizer has no moving parts, no tubes, no transistors to replace. Simply set current to desired level, no balancing or other adjustments needed. Ideal for lamp operation since operating state ionizing voltage in no way affects lamp current. Standard hum level 5%. Lower hum levels available on order.

Model	Maximum Voltage	Maximum Current
C-25-700	25 Volts	700 Amperes
C-70-70	70 Volts	70 Amperes
C-500-10	500 Volts	10 Amperes
C-Duel 500-10	500 or 1,000 Volts	10 or 20 Amperes
C-800-2	800 Volts	2 Amperes
C-1000-100	1000 Volts	100 Amperes

AC INSULATION AND BREAKDOWN TESTERS

Used in testing insulation where AC voltages are desired. Dual instruments are also available which provide choice of AC or DC output with simple toggle switch selection. Units include kilovolt-meter, current meter and automatic overload cutout circuits.

Model	Voltage	VA	AC	Price AC and DC
3000	0 to 3,000	75	$150.00	$ 250.00
3010	0 to 3,000	300	250.00	400.00
3050	0 to 3,000	1,500	500.00	650.00
3100	0 to 6,000	3,000	700.00	1,100.00
5000	0 to 5,000	75	175.00	300.00
1000	0 to 10,000	75	200.00	350.00
1500	0 to 15,000	75	250.00	AC only
2500-AC	0 to 25,000	75	400.00	AC only
2500-DC	0 to 25,000	75	DC only	450.00

PRECISE MEASUREMENTS COMPANY

MILLBROOK LANE • P.O. BOX 172 FLEMINGTON, NEW JERSEY • TEL. STATE 2-3000

For details, circle #451 on Reader Service Card

POWER SUPPLIES

Opad

IMMEDIATE DELIVERY

NOW GUARANTEED FOR THREE YEARS

0-32 V.D.C. 100 M.V. Ripple

Input: V.A.C. 60 Cycles, Single Phase

Amps.	Model	Style	H	W	D	Fig.
5	KM75	Rack	8¾"	19"	9½"	F
	KM75B	Bench	9"	17"	9"	G
10	KM81	Rack	8¾"	19"	9½"	F
	KM81B	Bench	9"	17"	9"	G
20	KM87	Rack	8¾"	19"	9½"	F
	KM87B	Bench	10½"	22"	12"	H
40	KM93	Rack	12¾"	19"	15"	E
	KM93B	Bench	14"	22"	15"	A

FEATURES

- Vacuum Varnish Impregnated Magnetic Components.
- 4½" Rectangular 2% Accuracy, D.C. Panel Meters (3½" on small units).
- Controls include power switch, line and load uses, pilot light, voltage control knob, output binding posts.
- Load Regulation: 1/10 Load 35 volts
  Full load 32 Volts
- Panel Type Carrying Handles.
- Convection Cooled Continuous Duty Ratings.

Bulletin No. 102A

0-125 V.D.C. 1% Ripple

Input: 117 V.A.C. 60 Cycles, Single Phase

Amps.	Model	Style	H	W	D	Fig.
2.5	RS10	Rack	8¾"	19"	9½"	F
	RS10B	Bench	10½"	22"	12"	H
5	RS20	Rack	10½"	19"	13"	F
	RS20B	Bench	12¾"	22"	15"	H
10	RS30	Rack	12¾"	19"	15"	E
	RS30B	Bench	14"	22"	15"	A
20	RS40	Rack	17½"	19"	13"	—
	RS40B	Bench	19¾"	19"	15"	D

FEATURES

- Vacuum Varnish Impregnated Magnetic Components.
- Non-Aging Silicon Rectifiers.
- 4½" Rectangular 2% Accuracy D.C. Panel Meters (3½" on small units).
- Controls include Power Switch, Line and Load Fuses, Pilot Light, Voltage Control Knob and Output Binding Posts.
- Load Regulation: 1/10 Load 130 Volts.
  Full Load 125 Volts.
- Both D.C. Terminals above ground and isolated from A.C. Line.
- Panel Type Carrying Handles.
- Convection Cooled Continuous Duty Ratings.

Bulletin No. 204A

4-32 V.D.C. 5 M.V. Ripple

Input: 105-125 V.A.C. 60 Cycles, Single Phase

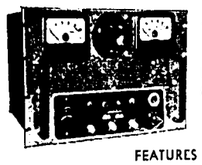
Amps.	Model	H	W	D	Fig.
1.5	TR10	7½"	19"	9½"	B
4	TR20	7½"	19"	9½"	B
10	TR30	8¾"	19"	11"	C
15	TR40	8¾"	19"	11"	C

FEATURES

- Transistorized.
- Regulation ±½% line and load.
- Remote Sensing.
- Zener Diode Reference.
- Short Circuit Protection.
- Controls include power switch, fuses, pilot light, main voltage control and vernier, and output binding posts.
- 2% Accuracy Panel Meters.
- Vacuum Varnish Impregnated Magnetic Components.

Bulletin No. 105

NEW! 0-32 V.D.C. 100 Amps.



1% Ripple

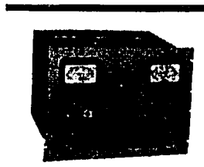
Input: 208 V.A.C., 60 Cycles, 3 Phase

Model KM100

FEATURES

- Only 12¼" H x 19" W x 17" D.
- Fully self-protecting circuit.
- Magnetic contactor starting.
- Adjustable D.C. overcurrent control.
- Overload indicator and reset button.
- 4½" Rect., 2% Acc. Meters.
- Silicon Type Rectifiers.
- Regulation: 1/10 Load 35 Volts.
  Full Load 32 Volts.

Bulletin No. 104



AIRCRAFT BATTERY SUBSTITUTE

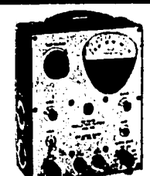
Specifically designed to operate rotating equipment

OUTPUT: 0-30 V.D.C., 20 Amperes.
RIPPLE: Less than ½%.
INPUT: 115 V.A.C., 60 C.P.S. 1 ϕ.
REGULATION: 1/10 Load 35 Volts
Full Load 30 Volts

FEATURES: Ammeter overcurrent protection circuit prevents needle 'slam' when starting inverters & motors.

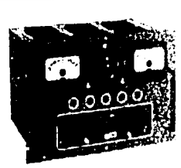
MODEL KM88.....Rack Mount
MODEL KM88D.....Rack Mount with Dust Cover
MODEL KM88B.....Bench Cabinet

Bulletin No. 100B



NON-DESTRUCTIVE INSULATION TESTER

Voltage Range:
0-5 KVAC RMS Continuously Adjustable
Controls:
Power Switch, Test Voltage Adjust., H.V. Circuit Breaker Trip Adj. Calibrated 10ua to 3000ua. Guard Circuit "ON-OFF", Leakage Indicator Lamp, Leakage Reset and Pilot Lamp. (Internal Audible Alarm)
Input:
115 VAC 60 cycles, single phase
Size/Wt:
7½" W x 3⅛" D x 8½" H — 8½ lbs.
MODEL HV 53
Bulletin 1400



DUAL RANGE POWER SUPPLY

OUTPUT: 0-32/64 V.D.C., [illegible] Amps.
RIPPLE: 0.3% R.M.S.
INPUT: 115 V.A.C., 60 C.P.S. 1
FEATURES: Thermal overload protection, indicating line and load fuses, overload warning horn, dual range voltmeter.

MODEL KM95....Rack Mount
MODEL KM95D..Rack Mount with Dust Cover
MODEL KM95B..Bench Cabinet

Bulletin No. 103

Opad **OPAD ELECTRIC COMPANY** Opad

43-8 WALKER STREET • NEW YORK 13, N. Y.

Telephone WOrth 6-0380

For details, circle #452 on Reader Service Card

Directory II. Components

69. Power Supplies.

Pioneer Gen-E-Motor Corp., Ill., 5c, 10c, 20c, 50c

Pioneer Magnetics, Inc., Calif., 5c, 10c, 20c, 45c, 55c

Planetronics, Inc., Pa., 20c, 30c, 55c

Plastic Capacitors, Inc., 2620 N. Clybourn Ave., Chicago 14, Ill., 5sc, 10sc, 15sc, 30sc, 45sc, Tel: 312-DIversey 8-3735

See ad in class 48

Plug-In Instruments, Inc., Texas, 5c, 10c, 20c, 45c, 55c

Polytronic Research, Inc., Md., 5c, 10c, 20c, 40c

Potter Co., Ill., 10sc, 15sc

Power Designs, Inc., 1700 Shames Dr., Westbury, L.I., N.Y., 5c, 10sc, 20sc, 30sc, 45sc, 55sc, 60sc, Tel: 516-EDgewood 3-6200

See ad in this class

Power Equipment Co., Ohio, 5c, 10c, 15c, 20c, 25c, 30c, 40c, 45c, 50c, 55c, 60c

Power Industries, Inc., Ill., 5c, 10c, 15c, 20c, 25c, 30c, 45c, 60c

Power Instruments Corp., Inc., Calif., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 40sc, 45sc, 50sc, 55sc, 60sc

Power Sources, Inc., Mass., 5sc, 10sc, 20sc, 30sc, 35c, 40sc, 45sc, 50sc, 55sc, 60sc

Power-Tron[illegible], N.Y., [illegible] 10sc, 20sc, [illegible] 35c, [illegible] 55c, 60c

Precise Electronic Development Corp., subsidiary of Electronic Measurements, Inc., N.Y., [illegible] 20c, 30c, 35c, 40c, 45c, 55c, 60c

Precise Measurements Co., Millbrook Lane, P.O. Box 172, Flemington, N.J., 5sc, 10sc, 15sc, 45sc, 60sc, Tel: 2[illegible] STate 2-3000

See ad in this class

Precision Apparatus Co., Inc., Div. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 45sc, 55sc, 60sc, Tel: 2[illegible] IWining 4-4200

See ad in class 59

[illegible]

Quan-Tech Laboratories, [illegible] 20sc, 45sc, 55sc, 60sc

RCA Victor Co., Ltd., [illegible]

R-K Laboratories Co., N.Y., [illegible] 30c, 35c, 45c, 55c, 60c

Radiation at State, [illegible]

Radiation Counter Laboratories, [illegible] Ill., 15c

Radiation Dynamics, Inc., [illegible]

Radiation Instrument Development Laboratories, Inc., [illegible]

Radiatronics, Inc., Calif., [illegible] 45c, 55c, 60c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

"TECHNICAL APPARATUS BUILDERS"

AC & DC POWER HEADQUARTERS

TABTRON®—TABPAK®TABTRAN®TABSTAT®

High Current Power Supplies

Five Year Guarantee**

Variable Stepless from Zero to Full Voltage DC
Full Wave Selenium or Silicon Rectifier.
Isolation Power Transformer, Variac®, Meters, Cabinet.

***Per Factory Warranty* *Write Details*
INPT—115 VAC 1 ϕ 60 cys STD! Others Write!

Stock # Volts & Amps	Continuous Rating	With Meters
T12V25AC	0-12VDC @ 25 Amp/5% Ripple	$150
T14V20ACC	0-14V @ 20 A/1% Ripple	124
T14V30ACC	0-14VDC @ 30 A/1% Ripple	189
T14V40ACC	0-14VDC @ 40 A/0.1% Ripple	225
T16V10ACC	0-16VDC @ 10 A/0.5% Rip @ 5 Amp	57
LT32V5A	0-32VAC-DC @ 5 A/0.5% "VARITAB" @	72
T32V5A	0-32VDC @ 5 Amps	53
T32V5ACC	0-32VDC @ 5 Amps/0.5% Ripple VDC	79
T28V5A2CC	0-28VDC @ 5 Amps/.01% Rip 0.3Mv	124
T32V12A	0-32VDC @ 12 Amps	120
T32V12ACC	0-32VDC @ 12 Amps/0.5% Ripple VDC	169
T28V12A2CC	0-28VDC @ 12 Amps/.01% Rip/0.3Mv	158
T32V24A	0-32VDC @ 24 Amps	234
T32V24ACC	0-32VDC @ 24 Amps/.01% Rip VDC	234
T28V24A2CC	0-28VDC @ 24 Amps/0.5% Rip 0.3Mv	297
T32V50A	0-32VDC @ 50 Amps	380
T32V50ACC	0-32VDC @ 50 Amps/1% Ripple VDC	372
T48V30A	0-48VDC @ 30 Amps/0.5% Ripple VDC	375
T130V1A	0-130VDC @ 1 Amp	99
T130V5A	0-130VDC @ 5 Amps/42% Ripple VDC	234
T130V5ACC	0-130VDC @ 5 Amps/1% Ripple VDC	285
T130V10A	0-130VDC @ 10 Amps	275
T120V10ACC	0-120VDC @ 10 Amp/1% Ripple VDC	390
T220V10A	0-220VDC @ 10 Amp	355

"MAGREGPAK"®, MAG. REGULATED & FILTERED
0 to 32 VVDC REG. 1% at 24 to 32 VDC

MRT32V12ACC	0-32VDC @ 12 A/1% Rip VDC/+5%	261
MRT32V25ACC	0-32VDC @ 25 A/1% Rip VDC/+5%	396

"VOLTAB"® TRANSISTORIZED REGULATED VARIABLE POWER SUPPLIES

VT6-10DH	0 to 30VDC @ 0.5 A/0.02% @ 0.3Mv Rip	$115
VT612HS	6 or 12VDC @10% @ 1% Reg 40 Amp	345
VT6.3H	6.3V @ 5 Amps/1% Reg @ 0.3Mv Rip	180
VT25A	0 to 25VDC @ 200 Ma/2% Reg	72
VT.5-30C	0.5 to 30V DC @ 4 Amp/1% @ 50Mv	225

NEW 12-24-28VDC RELAY SUPPLIES—CASED
FILTERED READY TO WORK

B12VER	12-16VDC @ 2 Amps/Filtered	9.50
B12VGR	12-16VDC @ 4 Amps/Filtered	16.00
B24VAR	24-28VDC @ 1 Amp/Filtered	10.00
B24VER	24-28VDC @ 2 Amps/Filtered	14.75
B24VJR	24-28VDC @ 4 Amps/Filtered	24.00

"TABSTAT" TRANSISTORIZED POWER CONVERTERS

Built	Input DC	Output	WVDC¢ Amps
TR625B	6V	250 @ 125VDC @ 100Ma/25 Watts	$36
TR1225B	12V	250 @ 125VDC @ 100Ma/25 Watts	36
TR1250B	12V	500 @ 250VDC @ 200Ma/100 Watts	38
TR100W	12V	115VAC @ 100 Watts/60 Cys	15

WE MANUFACTURE SUPPLIES TO YOUR SPECS! REGULATED & NON-REGULATED UP TO 100 KW

Battery Charger Specialists!
Write Today for Quotation & Catalog

SILTAB® SILICON & TEKSEL® SELENIUM POWER RECTIFIERS
To Your Specs—All Types & Current Ranges! Write.
"SILTAB" †SILICON 150°C RECTIFIERS CONVECTION COOLED

DC AMPS	115VAC	230VAC	460VAC	575VAC	1150VAC	2300VAC
1	35.00	70VAC 42.50	140VAC 52.50	175VAC 62.50	350VAC 112.50	700VAC 225.00
2	42.50	52.50	62.50	75.00	124.50	239.00
5	52.50	62.50	75.00	87.50	162.50	324.15
10	62.50	75.00	87.50	100.00	200.00	409.00
20	75.00	87.50	100.00	112.50	237.50	494.00
30	87.50	100.00	112.50	125.00	275.00	579.00
50	100.00	112.50	125.00	137.50	312.50	664.00
75	112.50	125.00	137.50	150.00	350.00	749.00
100	125.00	137.50	150.00	162.50	387.50	834.00
150	137.50	150.00	162.50	175.00	425.00	919.00
200	150.00	162.50	175.00	187.50	462.50	1004.00

"TEKSEL"® SELENIUM RECTIFIERS, ONE YEAR GUARANTEED!

DC AMPS	36VAC	72VAC	144VAC	288VAC	576VAC
1	36VAC 25.00	72VAC 27.50	144VAC 30.00	288VAC 35.00	576VAC 45.00
2	27.50	30.00	32.50	37.50	47.50
5	30.00	32.50	35.00	40.00	50.00
10	32.50	35.00	37.50	42.50	52.50
20	35.00	37.50	40.00	45.00	55.00
30	37.50	40.00	42.50	47.50	57.50
50	40.00	42.50	45.00	50.00	60.00
75	42.50	45.00	47.50	52.50	62.50
100	45.00	47.50	50.00	55.00	65.00

"TABTRAN" RECTIFIER TRANSFORMERS *FWB, CT & HW*

Sec'd Volts (DUAL † 0-9-15-18-& 0-9-15-18)
Series Sec'ds 0-3-6-9-12-15-18-21-24-27-30-33-36 Volts
Pri. 115 VAC 215 VAC/60 cys. 3¢ STD, 215 & 230 VAC

TR4001	@ 1 Amp per each Sec'd Wndg	$4.75
TR4002	@ 2 Amp per each Sec'd Wndg	6.60
TR4003	@ 5 Amp per each Sec'd Wndg	8.70
TR4005	@ 12 Amp per each Sec'd Wndg	18.00
TR4006	@ 24 Amp per each Sec'd Wndg	33.75
TR4007 *	@ 50 Amp per each Sec'd Wndg	$55.00

† Secds. Series at Amps Shown; Parallel @ 2X Amps

TR4000R 2X16V at 1 amp	ea. Sec'd. Wndg. 3.75

"TABTRAN" UNIVERSAL RECTIFIER CHOKES

CR6001	1 Amp, 0.1 Henrys 1.4 Ohm	$3.75
CR6002	2 Amp, 0.1 Henrys .67 Ohm	5.60
CR6007	4 Amp, .01 Henrys .1 Ohm	5.95
CR6003	5 Amp, .07 Henrys .6 Ohm	9.99
CR6004	12 Amp, .01 Henrys 1 Ohm	12.75
CR6005	24 Amp, .004 Henrys .025 Ohm	14.50
CR6006	50 Amp, .001 Henrys .001 Ohm	45.00

"VACDAC"® SILICON TUBE REPLACEMENTS

TYPE	VRMS/PIV	AMPS	PRICE
ST866	5000/10400	0.3	$20.00
ST816	5000/7000	0.3	$16.00
ST5R4	1900/2800	0.5	$13.00
ST5U4	1120/1600	0.6	$ 8.00

TECHNICAL APPARATUS BUILDERS
SIX CHURCH ST., N. Y. 6 BG, N. Y.
ORDER THRU ELECTRONICS DISTRIBUTOR OR WRITE US FOR CATALOG & DETAILS

For details, circle #453 on Reader Service Card

69. Power Supplies.

Radio Development & Research Corp., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c

Radio Engineering Laboratories, Inc., N.Y., 15c, 20c, 30c, 60c

Radio Frequency Laboratories, Inc., N.J., 5s, 45s, 60s

Radio Industries, Inc., Kans., 40c

Railroad Electronic Laboratories of Omaha, Inc., Nebr., 5c, 10c, 20c, 40c, 55c, 60c

Rainier Co., Inc., N.Y., 5c, 10c, 20c, 40c, 45c, 55c, 60c

Ram Electronics, Inc., N.J., 5c, 10c, 15c, 20c, 25c, 35c, 55c

Ramage & Miller, Inc., Calif., 35sc

Ramyr Mfg. Co., Calif., 10sc, 15sc, 20sc, 25sc, 30sc

Ransom Research, Inc., Calif., 20sc, 45sc, 55sc

Rapid Electric Co., Inc., 2881 Middletown Rd., New York 61, N.Y., 10sc, 20sc, 30sc, 40sc, 45sc, 60sc, Tel: 212-TAlmadge 8-2200
See ad in this class

Ratelco, Inc., Wash., 20sc, 45sc, 55sc, 60sc

Rauland-Borg Corp., Ill., 5s, 10s

Raypar, Inc., Ill., 45c, 55sc

Raytheon Co., Commercial Apparatus & Systems Div., Mass., 5s, 10s, 15s, 20s, 30s, 45s, 55s, 60s

Rectico, Inc., N.J., 5s, 10s, 20s

Reed & Reese, Inc., Calif., 5c, 10c, 20c, 30c, 45c, 55c, 60c

SPELLMAN RF TYPE - DC HIGH VOLTAGE POWER SUPPLIES

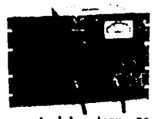
MODEL RG-30

Continuously Variable 15-30 KV Regulated DC Power Supply with Regulated Focus Voltage Tap

A continuous duty DC supply with highly filtered outputs and regulations better than 0.6% at 1 ma.—no load to full load. A variable focus tap 4-6 KV for use with 5WP11, 5TP4 and flying spot tubes. Dimensions: 19" wide x 10½" high x 13" deep.
With HV meter $375 Net Less meter $325 Net
MODEL RG-40 is a 20-40 KV unit with same specifications as RG-30 except .7 ma. at 40 KV.
With meter $375 Net Less meter $325 Net

MODEL PN-30 REVERSIBLE POLARITY

Continuously Variable 1-30 KV Unregulated DC Power Supply



A light, compact unit in wide use for insulation testing, condenser charging, precipitators and laboratory research. Polarity reversible from front panel. Current output—2 milliamperes at 20 KV; 1 ma. at 30 KV. Input—117V AC 60 cycles. Dimensions: 19" x 10½" x 13" .....$275 Net
Less meter .....$225 Net
MODEL PN-30C—Same as above except automatic overload and reset button provided. Adjustable sensitivity 0.5 ma. to 2.5 ma.
With meter .....$325 Net
Less meter .....$275 Net

SPELLMAN HIGH VOLTAGE COMPANY, INC
1930 Adee Ave., Bronx 69, N.Y.
Klngsbridge 7-0306

For details, circle #454 on Reader Service Card

Reeves Instrument Corp., Farmingdale Div., N.J., 5c, 10c, 15c

Reflectone Electronics, Inc., Subsid. of Universal Match Corp., Conn., 10sc, 30sc, 45sc, 55sc, 60sc

Reliance Electric & Engineering Co., Ohio, 5s, 10s, 25s, 45s, 55s, 60s

Rese Engineering, Inc., Pa., 55s

Research Industrial Laboratory of Electronics, Pa., 10c, 15c

Rheem Mfg. Co., Rheem Electronics Div., Calif., 5c, 10c

Rho Engineering Co., Calif., 5c, 10c, 20c, 40c, 45c, 55c

Richardson-Allen Corp., Subsid. of Standard Kollsman Industries, Inc., N.Y., 10c, 15c, 20c, 30c, 40c, 45c, 50c, 55c, 60c

Rimak Electronics, Inc., Calif., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c

Riverbank Laboratories, Dept. of Engineering, Ill., 5c

Rixon Electronics, Inc., Md., 5c, 10sc, 15sc, 20sc, 30c, 35c, 40c, 45sc, 50c, 55sc, 60sc

Roband Electronics, Ltd., Beulah Works, England, 5sc, 10sc, 20sc, 30sc, 45sc, 55sc, 60sc

Rochester Instrument Systems, Inc., N.Y., 15sc

Rodale Electronics, Inc., N.Y., 5c, 10c, 20c, 45c, 55c, 60c

Rogers Electronic Corp., N.Y., 5c, 10c

Rosemount Engineering Co., Minn., 10c, 20c, 55c

Rovan Electronics Laboratories Co., N.J., 10c, 15c, 20c, 30c, 45c, 60c

Rowan Controller Co., Solid State Instrument Laboratories (Div.), N.J., 10sc, 20sc, 30sc, 45sc, 55sc

Ryan Electronics, Div. of Ryan Aeronautical Co., Calif., 35sc

Sampson Chemical & Pigment Corp., Ill., 55c

Sangamo Electric Co., Springfield, Ill., 5c, 10c, 15c, 20c, 45c, Tel: 217-KIngswood 4-6411
See ad on page 142

Sargent-Rayment Co., Calif., 5s, 15s

Saturn Electronics Corp., Texas, 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c

Scaico Controls, Inc., N.J., 35c

Schaevitz Engineering, N.J., 5sc, 10sc, 15c, 20sc, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c

Schauer Mfg. Corp., Ohio, 10sc, 20sc, 45sc, 60sc

Schirmer-National Alarm Co. Corp., N.J., 10sc, 20sc, 50sc

Schoene Electronics Laboratory, Ind., 10c, 45c

Scientific Electric, Inc., N.J., 5c, 10s, 15s, 20s, 30s, 45s, 60s

Sealomatic Electronics Corp., N.Y., 5c, 10c, 15c, 20c

Seco Electronics, Inc., Minn., 10s, 60s

Sel-Rex Corp., N.J., 10sc, 20sc, 45sc, 60sc

Sencore, Inc., Ill., 10s

Servo Corp. of America, N.Y., 5c, 10c

Servomechanisms/Inc., Calif., 10c, 25c, 45c, 60c

Servomex Controls, Ltd., England, 5s, 10s, 20s, 30s, 45s, 55s, 60s

Servonics, Inc., Va., 5c, 10c, 45c

Directory II. Components

69. Power Supplies.

Seven Associates, Inc., Calif., 5c, 10c, 15c, 20c

Shallcross Mfg. Co., N.C., 5c, 10c

Shapiro & Edwards Electronic Instruments, Dept. I, Calif., 5c, 10c, 15c, 20c, 45c, 55c

Sheltered Workshops, Inc., Calif., 5c, 10c, 20c, 40c, 55c, 60c

Siemens New York, Inc., N.Y., 5s, 10s, 15c, 40s, 50s, 60c

Sigma Electronics Research Corp., Wash., 35s

Sivers Laboratory, Sweden, 35s

Slater Electric, Inc., N.Y., 10c, 15c, 20c, 60c

Smith-Florence, Inc., Wash., 15s

Sola Electric Co., Div. of Basic Products Corp., Ill., 5sc, 10sc, 20sc, 25sc, 30sc, 35sc, 45sc, 50sc, 55sc, 60sc

Solartron Electronic Group, Ltd., England, 5s, 10s, 20s, 45s, 55s

Solartron, Inc., Calif., 10s

Solatron, Inc., Mass., 5c, 10c, 30c, 45c, 50c, 55c

Sonex, Inc., 20 E. Herman St., Philadelphia 44, Pa., 30c, 45c, 55c, 60c, Tel: 215-VIctor 3-6400
See ad in class 34

Sonotone Corp., N.Y., 5c, 10c, 20c, 25c, 30c, 45c, 50c, 55c, 60c

Sorensen & Co., Inc., Subsid. of Raytheon Co., Conn., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc

Sorensen Industrial Electronic Co., N.J., 10c, 20c, 40c, 45c

Sparton Electronics, Div. of Sparton Corp., Mich., 15sc, 20c, 55sc

Specific Electronics, Inc., Calif., 5c, 10c, 20c, 30c, 40c, 45c, 50c, 55c

Specific Products, P.O. Box 425, 21051 Costanso St., Woodland Hills, Calif., 10s, 60s, Tel: 213-DIamond 0-3131
See ad in class 26

Speck Electronics, Inc., Calif., 5c, 10c, 20c, 25c, 30c, 45c, 50c, 55c, 60c.

Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 5sc, 10sc, 15sc, 20sc, 30sc, 45sc, 50sc, 55sc, 60sc

Spellman High Voltage Co., Inc., 1930 Adee Ave., New York 69, N.Y., 5sc, 10sc, 15sc, 20sc, 45sc, 55sc, 60sc, Tel: 212-KIngsbridge 7-0306
See ad in this class

Sperry Rand Corp., Sperry Gyroscope Co. of Canada, Ltd. (Subsid.), Canada, 15c

Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 35sc

Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 5s, 10s, 15s, 20s, 25s, 30s, 45s, 55s, 60s

Sperry Rand Corp., Wheeler Electronic Corp. (Subsid.), Conn., 20c, 25c, 30c, 45c

Sprague Electric Co., VecTrol Engineering, Inc. (Subsid.), Conn., 10c, 20c, 45c

Sprague Engineering Corp., Calif., 10c, 15c, 20c, 25c, 30c, 45c, 60c

Stancil-Hoffman Corp., Calif., 45sc

Stancor Electronics, Inc., 3501 W. Addison St., Chicago 18, Ill., 5s, 10s, 15s, 20s, 25s, 30s, Tel: 312-INdependence 3-7400
See ad in class 84

Stancor Electronics, Inc., Pa., 45c, 55c

Standard Electrical Products Co., Ohio, 5c, 10c, 15c, 45c, 55c, 60sc

Standard Electronics Co., Ill., 10sc, 55c

Standard Systems Corp., N.Y., 10sc, 20sc

Standard Telephones & Cables, Ltd., England, 10sc, 15sc, 20sc, 35sc

Standard Television Products, Ltd., Canada, 10sc, 15c, 20c, 30c, 55c

Statham Instruments, Inc., Calif., 20sc, 55sc

Strand Laboratories, Inc., 294 Centre St., Newton 58, Mass., 35sc, Tel: 617-WOodward 9-8890
See ads in classes 37, 40

Straza Electronics, Div. of Straza Industries, Calif., 10sc, 20sc, 30sc, 45sc, 55sc, 60sc

SunAir Electronics, Inc., Fla., 55sc

Superior Electric Co., 100 Ames Ave., Bristol, Conn., 5s, 10s, 60s, Tel: 203-LUdlow 2-9561
See ad on pages 2-11

Sylvania Electric Products Inc., Lighting Products Div., Special Products Operations, Mass., 5c, 10c, 25c, 30c, 45c, 60c

Systems Development, Inc., N.Y., 10c, 15c, 20c, 30c, 45c, 55c, 60c

Systems Research Corp., Calif., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s

TKM Electric Corp., N.Y., 5s, 10s, 50s

TRG, Inc. (Technical Research Group), N.Y., 15s, 35c, 55c

T T Electronics, Inc., Calif., 10s, 15s, 20s, 25s, 45s, 55s, 60s

Taber Instrument Corp., N.Y., 5s, 10s, 20s, 55s

Taffet Electronics, Inc., N.Y., 5c, 10c, 20c, 30c, 40c, 45c, 60c

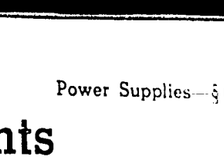
Tamar Electronics, Inc., Calif., 5c, 10c, 20c, 25c, 30c, 35c, 40c, 50c, 55c

Tapetone, Inc., Mass., 10s, 45s

Technical Apparatus Builders, 6 Church St., New York 6 BG, N.Y., 45c, 55c, 60c, Tel: 212-REctor 2-6245
See ad in this class

Technical Materiel Corp., 700 Fenimore Rd., Mamaroneck, N.Y., 10s, Tel: 914-OWens 8-4800
See ads in class 38

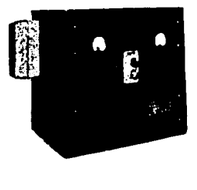
REGULATED DC POWER SUPPLIES



Silicon-Selenium

MAGNETIC AMPLIFIER ± 1% Voltage Regulation

- Greater reliability
- Fast response time
- Greater stability
- Operable under extreme environmental conditions
- No tubes—no warm-up
- Highly efficient



Models available: from 5 amperes to 1500 amperes, 6 volts to 250 volts.

4 Page Brochure M-4-1 Available

RAPID ELECTRIC COMPANY

2881 Middletown Road, New York 61, New York • TA-8-2200

For details, circle #455 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226

DC TO DC HIGH VOLTAGE UNITS

THE VARIA•VOLT "KING"

THE VICTORY 16KV INFRA-RED POWER SUPPLY

Small but potent. So small that it—and the flashlight battery that powers it—can fit in the palm of a man's hand. This new power supply is designed for use with infra-red equipment which enables military men to work and fight at night. Only one inch in diameter and two and one-half inches long, it is capable of maintaining an output of 16,000 volts. Encapsulated for maximum moisture and humidity protection. Durable nickel plated finish.

ELECTRICAL SPECIFICATIONS

Power supply operates from one "C" cell (1.52 VDC) battery.
Voltage output 15,800 to 16,000 when loaded 1×10^{-9} Amps.
At a load of 1×10^{-7} amps the voltage change is not more than 300 VDC.
At a load of 5×10^{-7} amps the voltage is not less than 15,000 VDC.
Input current at 10^{-9} amps is less than 26 MA.
Ripple at 70°F is not greater than 1%
Voltage rise is in not more than 5 seconds.
Voltage will rise under load to a min. of 15,000 VDC when loaded 3×10^{-7} amps.
Physical size 1.000" dia. × 2.410" long.
Negative output from a special High Voltage Header.
- 10KV, 12 KV and 20 KV units available upon request

THE NEW VARIA•VOLT

A HIGHLY EFFICIENT AND ADJUSTABLE TRANSISTORIZED HIGH VOLTAGE UNIT

FEATURING:
Improved Load Regulation
Improved Temperature Stability (E out ± 10% 0°C-50°C)

- Miniaturized
- Rugged Design to Meet MIL-E-5272
- Encapsulated for Maximum Moisture and Humidity Protection
- Output Voltage Adjustable
- Isolated DC Input and Output
- Output up to 3KV
- May be Powered by Flashlight or other standard cells
- 7 Pin Miniature Connector—Glass to Metal Hermetic Seal
- Enamel Finish to MIL-E-15090B Except for Color
- Can be used with standard MIL approved 7 Pin Miniature Tube Clamps to lock in position for extreme shock or vibration applications
- Silicon Rectifiers

NO TALLER THAN A CIGARETTE
diameter 1.000"
overall length 3.437"
case length 3.000"
average weight 4 oz.

DD·8·1

E out	I out μa	I in MA
800V	4	10
1000V	4	13
1200V	2	13

Average readings taken at 1.5 volt input at 25°C

E out	I out μa	I in MA
1200V	5	13
1500V	4	15
1700V	3	15

Average readings taken at 3 volt input at 25°C

E out	I out μa	I in MA
1200V	12	13
1500V	6	14
1800V	2.5	15

Average readings taken at 6 volt input at 25°C

DD·8·1P

E out	I out μa	I in MA
900V	35	30
1200V	24	30
1500V	15	30

Average readings taken at 3 volt input at 25°C

E out	I out μa	I in MA
1100V	85	40
1400V	55	40
1700V	34	40

Average readings taken at 6 volt input at 25°C

Designed and constructed for reliable operation in industry or laboratory use. This unit may be used in typical applications for infra-red detectors, Geiger tubes, scintillation counters and for photo multipliers, ionization chambers, cathode ray tubes and maser frequency meters.

DD·1·3

E out	I out μa	I in MA
1200V	5	16
1400V	4.5	16
1800V	2	16

Average readings taken at 1.5 volt input at 25°C

E out	I out μa	I in MA
1000V	5	10
1500V	5	15
2500V	5	25

Average readings taken at 3 volt input at 25°C

E out	I out μa	I in MA
2000V	10	18
2500V	12	23
3000V	10	28

Average readings taken at 6 volt input at 25°C

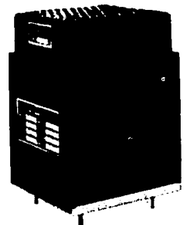
HIGHLY REGULATED AC TO DC UNITS • VICTORY VARIANTS

NOW for the first time through Victory's advanced electrical and mechanical design—a new power supply. Operate the power unit at 1% regulation, remove the operating key and add either a .25% or .05% regulator.

Operating key and special connector design permit complete interchangeability. This allows you to change regulation without any change of wiring or removing supply from its mounting position.

FEATURES

- Encapsulated Transformer and Choke for maximum moisture and humidity protection.
- Output voltage variable for 5% minimum adjustment on models using regulators.
- Aluminum construction for lightweight and maximum corrosion resistance.
- Isolated AC input, DC output.
- Victory specifications are conservative. Derating is not necessary.
- Remote sensing.
- Heat dissipating thermal design. (No heat sink required even at elevated temperatures).
- Short Circuit protected output.
- Overload protected output.
- Rugged design to meet MIL-E-5272.
- Regulators of complete semiconductor design.



- No Down Time
- Maximum Reliability
- Ruggedness
- Flexibility
- Advanced Electrical Design
- Advanced Mechanical Design

PAT. APP. FOR

Power unit can operate separately as a line regulator ± 1%.

Regulator can operate separately for line and load when supplied a DC input voltage

Combined sections form a highly regulated power supply for line and load and can operate without an additional heat sink.

PHYSICAL SIZE
$4\frac{13}{16}$"x$1\frac{1}{2}$"x$1\frac{1}{2}$"H

POWER UNITS

Model	Output	Dimensions
AD8-2A	8.3VDC-2AMP	5⅛"x4½"x5"H
AD12-2A	12VDC-2AMP	5⅝"x3½"x3¼"H
AD28-2A	28VDC-2AMP	5⅝"x3½"x3¼"H

Input: 95-130VAC ±10 cycles
Output Regulation: ±1% for line
Output Ripple: 1% RMS
Output Voltage accurate to within ±5% of nominal at full load
Temperature range of operation:-20° to +50°C
Use of external heat sink is not required

REGULATORS

MODEL	DC Output	DC Input Input ripple must be less than 1 V-PP	Regulation (line & load)	Matched Variant Power Section Model
AD8-2C	8.3V-2A	10-15V	±.05%	AD8-2A
AD8-2B	8.3V-2A	16-18V	±.25%	AD8-2A
AD12-2C	12V-2A	16-24V	±.05%	AD12-2A
AD12-2B	12V-2A	32-44V	±.25%	AD12-2A
AD28-2C	28V-2A	32-44V	±.05%	AD28-2A
AD28-2B	28V-2A	32-44V	±.25%	AD28-2A

±.25% Regulator, Ripple = .036% RMS
±.05% Regulator, Ripple = .018% RMS

COMBINED UNITS

Combination Model No.	DC Output Rating	Regulation Line & Load
AD8-2AB	8.3V-2A	±.25%
AD8-2AC	8.3V-2A	±.05%
AD12-2AB	12V-2A	±.25%
AD12-2AC	12V-2A	±.05%
AD28-2AB	28V-2A	±.25%
AD28-2AC	28V-2A	±.05%

"WE KNOW HOW"

VICTORY ELECTRONICS, Inc.

50 BOND STREET, WESTBURY, L. I. EDGEWOOD 4-8892-7-8

DC TO AC
THE VARIA-VERTER

HERE'S THE ANSWER to industry's increasing need for compact, economical, versatile and reliable sources of 400-cycle power for testing and operation of aircraft and missile components.
WITH VARIA-VERTER, you buy only the power-source you currently need—yet you can easily and inexpensively convert or expand as your needs alter and increase. If a present application, for instance, requires only 25 volt-amperes, you can fulfill that requirement with minimum investment . . . yet with assurance that you will NOT have to purchase an additional, costly regulator if you later need to "step up" to 50 or 100 v.a.

ONLY VARIA-VERTER OFFERS ALL THESE FEATURES

- Encapsulated transformer for maximum moisture humidity protection.
- Isolated input and output.
- Aluminum construction for lightweight and maximum corrosion resistance.
- Complete semi-conductor design.
- Victory specifications are conservative. Derating is not necessary.
- Short circuit protected output.
- Frequency is adjustable for a minimum of 5% (regulated models only).
- Can be operated on resistive or inductive loads.
- Modular structure for interchangeability of the regulator to power unit means greater reliability.
- Heat dissipating thermal design. No additional heat sink required.
- Rugged design to meet MIL-E-5272.
- Paragraph

3.14.3.1.5	Procedure I
4.15.1	Procedure I
4.11.1	Procedure I
4.16.1	Procedure I
4.13.1	Procedure I

THE VARIA•VERTER

Physical Size 4½"x4½"x1⅞"H

3 Highly Regulated Inverters With One Separate Regulator

Other models available upon request

BECAUSE the Regulator (upper unit) is an integral, independent subcomponent, increasing your power output is now as easy as changing a radio tube! When you go from 25 to 50, or 100 VA, you merely replace the power unit—the old regulator is easily connected to the new power unit, with virtually no downtime—means greater reliability and versatility.

MODEL: ELECTRICAL SPECIFICATIONS
DA 115X-.2R— 25V.A.
(Regulator DA 115XR + PWR Unit DA 115X .2B)
DA 115X-.5R— 50V.A.
(Regulator DA 115XR + PWR Unit DA 115X . B)
DA 115X-1R—100V.A.
(Regulator DA 115XR + PWR Unit DA 115X .5(B)
INPUT: 24 to 30 Volts D.C.
OUTPUT: 115 Volts A.C. 400 C.P.S. Square Wave
FREQUENCY REGULATION: ±1% Line and Load
VOLTAGE REGULATION: ±2.5% Line or Load

INVERTER

Physical Size 4½"x4⅓₆"x1⅞"H

Model: DA 115X—1
Input: 28 Volts D.C.
Output: 115 Volts A.C. 400 C.P.S. square wave, unregulated, 100 V.A.

AC TO DC POWER SUPPLY

Physical Size 5⅝"x5¾"x5⅞"H

Model: AD 28—5
Input: 115 Volts A.C. 60 C.P.S.
Output: 28 Volts D.C. 5 Amp. (Regulation Line or Load ±2%)

FREQUENCY CHANGER

Physical Size 5⅝"x5¾"x7⅝"H

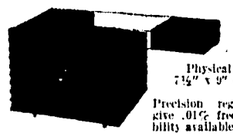
Combination 100VA Inverter and a 28 VDC supply

FOR CONVERTING 60-cycle, single-phase, power-line current to 400 cycles, the two sections shown are used together. For field-testing away from the power line, or for other applications where the source must be 28-volt d.c., the lower section is used. The upper section, by itself, is an unregulated d.c. to a.c. inverter! (115V 400 cycle Square wave) combined they form a frequency changer.
Model: DA—115X—1 + AD 28—5—100V.A.
Input: 115 Volts A.C. 60 C.P.S.
Output: 115 Volts A.C. 400 C.P.S. Square Wave. Unregulated

For details, circle #456 on Reader Service Card

WIDE RANGE SINE WAVE INVERTER

SEPARABLE REGULATOR CAN BE USED ON SINE WAVE OR SQUARE WAVE VARIA-VERTER



Physical Size 7½" x 9" x 6" H

Precision regulation to give .01% frequency stability available on request.

ELECTRICAL SPECIFICATIONS

INPUT: 18-31 VDC Output frequency: 400 cycles
OUTPUT VOLTAGE: 115 VAC
OUTPUT POWER: 100 VA
VOLTAGE REGULATION: ±3%
FREQUENCY REGULATION: ±1%
HARMONIC DISTORTION: 4% max.

In Addition To The Regular Features of VARIA-VERTERS, Added Advantages Of The VARIA-VERTER SINE WAVE INVERTER Are:

- High Efficiency
- Low Harmonic Distortion
- Operation Over Wider Range Of Input Voltage
- Voltage And Frequency Regulation
- Independent Adjustment Of Voltage And Frequency
- Separable Regulator

DC TO DC CONVERTERS

STATIC MOUNT TO MOUNT REPLACEMENTS FOR DYNAMOTORS

Model pictured has triple output:
1—250 VDC-250 MA
2—45 VDC- 10 MA
3—115 VAC 400 cycle square wave 30 VA rating. Frequency is regulated to ± 3% Input 24-30 VDC

Transistorized mount to mount dynamotor replacements offer these advantages:

- Lighter weight
- Higher efficiency
- No brushes
- Improved reliability
- Low starting current
- Instantaneous starting
- No commutator problem at high altitude
- Reduces ambient temp. in equipment
- Longer life
- No maintenance
- No moving parts

DIRECT REPLACEMENTS for VIBRATOR POWER SUPPLIES and GENEMOTORS

PHYSICAL SIZE
3¼"x2⅝"x2⅛"H

Model pictured
150 volts 300MA

Offering these advantages:

- High efficiency (up to 90%)
- Low starting current
- No maintenance
- Improved reliability
- No moving parts
- Light weight

Power ratings up to 50 watts
Ripple less than 1% RMS
Inputs available: 12 or 28 VDC

Available in any voltage from 100 VDC to 400 VDC (tolerance of output voltage 5%)
Higher power units up to 1000 watts on special order.
Other input and output voltages upon request.

"WE KNOW HOW"
VICTORY ELECTRONICS, Inc.
50 BOND STREET, WESTBURY, L.I. EDGEWOOD 4-8892-7-8

For details, circle #457 on Reader Service Card

Directory II. Components

69. Power Supplies.

Techtro-Matic Corp., Vt., 55c
Tel Instrument Electronics Corp., N.J., 15s
Telechrome Mfg. Corp., N.Y., 5s, 10s, 15s, 20s, 30s, 40s, 45s, 55s, 60s
Telecomputing Corp., Calif., 10c, 45c
Telecomtrol Corp., N.J., 35c
Telephonics Corp., N.Y., 20c, 55c
Television Utilities Corp., Div. of Nord, N.Y., 45s

Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 5c, 10c, 15c, 20c, 25c, 30c, 40c, 45c, 50c, 55c, 60c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80

Telkor, Inc., Ohio, 5sc, 20sc, 45sc, 55sc

Teltronics, Inc., 23-27 Main St., Nashua, N.H., 5sc, 10sc, 20c, 30c, 45c, 55sc, 60c, Tel: 603-TUxedo 2-6264
See ad in class 38

Tenco Electronics, Inc., Mass., 25c
Tenney Engineering, Inc., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 45c, 50c, 55c, 60c
Terado Co., Minn., 5s, 10sc, 40s, 55s
Tesla Research Foundation, Utah, 10s
Textron, Inc., Homelite Div., N.Y., 50sc
Thompson, Ltd. (J. Langham), England, 10sc, 45s, 55s, 60s
Thompson Ramo Wooldridge Inc., Educational Electronics Div., N.J., 45c
Thompson Ramo Wooldridge Inc., STL Products Div. of Space Technology Laboratories, Calif., 15sc, 45sc
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 35s, 40s, 50s, 55s
Tipptronic, Inc., Ohio, 10s
Tokyo Shibaura Electric Co., Ltd., Japan, 45s, 55s
Topping Electronics, Ltd., Canada, 5sc, 10sc, 45sc, 50sc
Torwico Electronics, Inc., N.J., 5c, 10c, 20c, 25c, 30c, 40c, 45c
Tracerlab Keleket, Mass., 5sc, 10sc, 15sc, 30sc, 45sc
Trans Electronics, Inc., Calif., 5c, 10c, 15c, 20s, 25c, 30s, 40s, 45s, 55c, 60s
Transformer Design, Inc. of Milwaukee, Wis., 5c
Transformer Engineers, Calif., 10c, 15c, 20c, 30c
Transformer Manufacturers, Inc., Ill., 5c, 10c
Transformer Technicians, Inc., Ill., 5c, 10c, 15c, 20c, 30c, 45c
Transformers, Inc., N.Y., 5c, 10c, 20c, 25c, 30c, 55c
Transistor Devices, Inc., N.J., 5sc, 10sc, 20sc, 30sc, 40sc, 45sc, 50sc, 55sc, 60sc
Transmagnetics, Inc., N.Y., 25c
Transonic, Inc., Calif., 5c, 10c, 15c, 20c, 25c, 30c, 45c, 55c, 60c
Transvat Electronics Corp., Calif., 5c, 10c, 15c, 20c, 25c, 45c, 55c
Trenton Transformer Corp., N.J., 10c, 15c

Trio Laboratories, Inc., Du Pont Dr., Plainview, L.I., N.Y., 5sc, Tel: 516-OVerbrook 1-0400
See ad in class 40

Trionics Corp., Div. of Nantco Corp., Wis., 15c, 20c, 30c, 45c, 55c, 60c
Tronic Coil Winding Co., Inc., Conn., 15c, 55c
Trott Electronics, Inc., N.Y., 5c, 10c, 20c, 45c, 55c, 60c
Trygon Electronics, Inc., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc

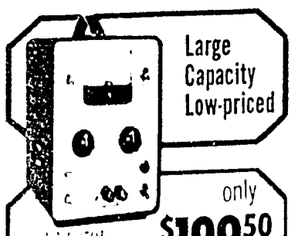
Tung-Sol Electric, Inc., 1 Summer Ave., Newark 4, N.J., 10sc, Tel: 201-HUmboldt 4-8500
See ad on pages 62-63

Ulmer Co. (H. W.), Calif., 5c, 10c, 30c
Ultek Corp., Calif., 15s, 20s
United Control Corp., Wash., 45c
United ElectroDynamics, Inc., Calif., 5sc, 10sc, 20sc, 30sc, 45sc, 55sc
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 25c
U.S. Transistor Corp., N.Y., 55c
United States Undersea Cable Corp., D.C., 10sc, 45sc

Universal Electronics Co., 1720 22nd St., Santa Monica, Calif., 10sc, 20sc, 30sc, 45sc, 55sc, 60sc, Tel: 213-EXbrook 3-9219
See ad in this class

Universal Transformer Co., Texas, Inc.
Universal Transistor Products Corp., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc

PORTABLE REGULATED
DC POWER SUPPLY



Large Capacity Low-priced

model LT-501
6" x 5" x 5"

only $199.50

- CONSTANT VOLTAGE 0-35v 0-1A
- CONSTANT CURRENT 0-30v 0-1A
- Fully transistorized
- N.L. to F.L. 0.1%
- Remote programming
- Ripple 50 microvolts
- Several units may be connected in series
- Transient response 50 microseconds
- 150 other models available

Universal Electronics
1720-22nd St. / Santa Monica, Calif.

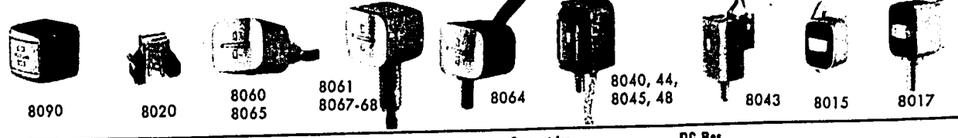
For details, circle #458 on Reader Service Card

DYNAMŪ® magnetic recording heads by Maico

There's a DYNAMŪ recording head to fit almost any production application. Maico engineers have designed them in a choice of frequency responses to fit any application from dictating machines to professional high-fidelity equipment. DYNAMŪ heads come in sizes and mountings to fit commonly used brackets. They use common impedances (which can be varied if desired).

DYNAMŪ's careful manufacturing and 100% inspection, with the resulting closely held tolerances, virtually eliminate rejections on your production line. Long life is built in, particularly in the metal-faced models designed for long, continuous use. Frequency response is stable because of the balanced design of DYNAMŪ heads.

DYNAMŪ erase heads, also designed to fit existing circuitry and hardware, provide clean erasure with low current requirements.



Catalog Number	Head Type	Track Width	Track Spacing	Core	Face	Gap	Impedance (Ohms)	Current for 60db Erase	Inductance	DC Res. (Ohms)	Crosstalk	Termination	Mounting
QUARTER-TRACK STEREO													
8090	Record/ reproduce	0.043	0.093	Lami-nated	Metal	.00008	Hi-Z	....	800mh @ 1KC	400 @ 20°C.	-55db 3V @ 1KC	Four .050 pins	Universal
8020	Double gap erase	0.055	0.071	Lami-nated	Metal	.005	40 @ 60KC	85ma	....	....	....	Four .050 pins	2 side #2-56 studs
HALF-TRACK STEREO													
8060	Record/ reproduce	0.070	0.090	Solid	Metal	.00015	80,000 @ 60KC	....	1000mh @ 1KC	420 @ 20°C.	-50db 3V @ 1KC	14½" 2-cond. shielded	rear #¼-28 stud
8061	Record/ reproduce	0.070	0.090	Solid	Metal	.00015	80,000 @ 60KC	....	1000mh @ 1KC	420 @ 20°C.	-50db 3V @ 1KC	14½" 2-cond. shielded	bottom #¼-28 stud
8064	Record/ reproduce	0.070	0.090	Solid	Metal	.00015	80,000 @ 60KC	....	1000mh @ 1KC	420 @ 20°C.	-50db 3V @ 1KC	10" 2-cond. shielded	bottom #6-28 stud
8065	Record/ reproduce	0.070	0.090	Solid	Metal	.00015	50,000 @ 60KC	....	650mh @ 1KC	350 @ 20°C.	-50db 3V @ 1KC	14" 2-cond. shielded	rear #¼-28 stud
HALF-TRACK MONAURAL													
8040	Record/ reproduce	0.090	....	Solid	Epoxy	.00015	35,000 @ 60KC	....	300mh @ 1KC	275 @ 20°C.	....	13" 2-cond. shielded	bottom #6-32 stud
8043	Rec./repro (no cover)	0.090	....	Solid	Epoxy	.00015	35,000 @ 60KC	....	300mh @ 1KC	275 @ 20°C.	....	8" 2-cond. shielded	bottom #6-32 stud
8044	Record/ reproduce	0.090	....	Solid	Epoxy	.00015	50,000 @ 60KC	....	300mh @ 1KC	300 @ 20°C.	....	13" 2-cond. shielded	bottom #6-32 stud
8045	Record/ reproduce	0.090	....	Solid	Epoxy	.00015	50,000 @ 60KC	....	300mh @ 1KC	300 @ 20°C.	....	12" 2-cond. shielded	bottom #6-32 stud
8048	Record/ reproduce	0.090	....	Solid	Metal	.00015	35,000 @ 60KC	....	300mh @ 1KC	275 @ 20°C.	....	13" 2-cond. shielded	bottom #6-32 stud
8067	Record/ reproduce	0.070	....	Solid	Metal	.00015	80,000 @ 60KC	....	1000mh @ 1KC	420 @ 20°C.	....	8½" 2-cond. shielded	bottom ¼ #-28 stud
8068	Record/ reproduce	0.070	....	Solid	Metal	.00015	80,000 @ 60KC	....	1000mh @ 1KC	420 @ 20°C.	....	10½" 2-cond. shielded	bottom #¼-28 stud
8015A	Double gap erase	0.125	....	Solid	Epoxy	.005	8,500 @ 50KC	12ma	....	....	....	Lugs	side wing two #2 holes
8015B	Double gap erase	0.125	....	Solid	Epoxy	.005	1,400 @ 50KC	30ma	....	....	....	Lugs	side wing two #2 holes
8015D	Double gap erase	0.125	....	Solid	Epoxy	.005	11,000 @ 50KC	10.5ma	....	....	....	Lugs	side wing two #2 holes
8017A	Double gap erase	0.125	....	Solid	Epoxy	.005	8,500 @ 50KC	12ma	....	....	....	Lugs	bottom #6-32 stud
8017B	Double gap erase	0.125	....	Solid	Epoxy	.005	1,400 @ 50KC	30ma	....	....	....	Lugs	bottom #6-32 stud
8017C	Double gap erase	0.125	....	Solid	Epoxy	.005	1,400 @ 50KC	30ma	....	....	....	11" leads	bottom #6-32 stud
8017D	Double gap erase	0.125	....	Solid	Epoxy	.005	8,500 @ 50KC	12ma	....	....	....	7½" leads	bottom #6-32 stud
8018	Double gap erase	0.125	....	Solid	Epoxy	.005	8,500 @ 50KC	12ma	....	....	....	7½" leads	Universal

NOTES: All the above heads can be supplied with different impedances and lead lengths. Specifications are subject to change for product improvement without notice.

CUSTOMIZED MODIFICATIONS of standard DYNAMŪ heads can be made to meet your special requirements for commercial recorders. Maico also supplies special DYNAMŪ heads for telemetry, digital or other military and industrial instrumentation applications. We welcome an opportunity to consult with you on any special requirement you have.

DYNAMŪ® from Maico electronics inc.
A SUBSIDIARY OF W. A. SHEAFFER PEN COMPANY
21 North Third Street • Minneapolis 1, Minnesota

For details, circle #459 on Reader Service Card

Directory II. Components

69. Power Supplies.

Valor Instruments, Inc., Calif., 5sc, 10sc, 20s, 30s, 40s, 45s, 55s, 60s
Vap-Air Div., Vapor Corp., Ill., 5c, 10c, 20c, 45c, 55c
Varian Associates, Tube Div., Calif., 10s, 15s, 35s
Varo, Inc., Texas, 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 40sc, 45sc, 50sc, 55sc
Vector Associates, Inc., N.Y., 10c, 55c, 60c
Vibration Research Laboratories, Inc., N.Y., 5c, 10sc, 15c, 20c, 25c, 30c, 40sc, 45sc, 55sc, 60c
Victory Electronics, Inc., 50 Bond St., Westbury, L.I., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35c, 40c, 45sc, 50c, 55sc, 60sc, Infrared sc, Tel: 516-EDgewood 4-8892
See ad in this class
Video Instruments Co., Inc., Calif., 10s, 20s, 45s, 55s, 60s
Viking Industries, Inc., Calif., 45s
Vinco Electronics Corp., Conn., 5c, 10c, 20c, 30c, 40c, 45c, 55c, 60c
Virginia Electronics Co., Inc., D.C., 5c, 10c, 20c, 30c, 40c, 45c, 55c
Wabash Magnetics, Inc., Miniature Products Div., 812 Manchester Ave., Wabash, Ind., 10c, 15c, Tel: 219-563-2191
See ad in class 51
Walden Electronics Co., Mass., 5c, 15c, 20sc, 30sc, 45sc, 55sc, 60sc
Wallson Associates, Inc., 912-914 Westfield Ave., Elizabeth, N.J., 10sc, 20sc, 30sc, 45sc, 55c, Tel: 201-FLanders 1-0700
See ad in class 41
Warren Mfg. Co., Inc., Mass., 5c, 10sc, 20c, 25c, 45sc, 55c, 60c
Watkins-Johnson Co., Calif., 15c, 35sc
Wavetronics, Inc., N.J., 35c
Wells-Gardner Electronics Corp., Ill., 25c, 45c, 55c
Western Apparatus Co., Div. of Comptometer Corp., Ill., 45sc, 55sc
Western Design & Electronics, Div. of U.S. Industries, Inc., Calif., 10sc, 45sc, 55sc
Westgate Laboratory, Inc., Ohio, 10c, 15c, 20c, 45c, 55c
Westinghouse Electric Corp., Small Motor Div. of Aircraft Equipment Dept., Ohio, 5c, 10c, 45c
Westlab, Inc., N.Y., 20c
Westmore, Inc., N.J., 5sc, 10sc, 15sc, 20sc, 30sc, 45sc, 55sc, 60sc
White Avionics Corp., N.Y., 5sc, 10sc
Whitehall Electronics Corp., Minn., 5c, 10c, 15c
Wickes Engineering & Construction Co., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 40c, 45c, 50c, 55c, 60c
Wilcox Electric Co., Inc., Mo., 5s, 10sc, 15s
Wintronics, Calif., 10sc, 55sc
Woodland Electronics Co., Inc., N.J., 15sc, 20sc, 25sc
Wright Equipment Corp., N.J., 10c, 50c
Wunderlich Radio Co., N.Y., 50sc
York Research Corp., Kip Electronics Div., Conn., 10c, 30c, 60c
Zenith Radio Corp., Wincharger Corp. (Subsid.), Iowa, 5c, 10c, 50c, 55c

Power tubes:
See class 86

Preamplifiers:
See class 43

Printed circuits:
See class 50

Probes, microwave:
See class 66

Probes, transducer:
See class 83

Prototypes:
See class 96

Pulse-forming networks:
See class 48

Radomes:
See class 44

Reactors, saturable:
See class 51

Receivers:
See class 26

Receiving tubes:
See class 85

Record changers & players:
See class 68

Recorders:
See class 27

70. Recording Accessories.

5. Demagnetizers
10. Disks, blank
15. Heads, cutting
20. Heads, playback & erase
25. Reels
30. Splicing equipment
35. Styli, cutting
40. Tape, magnetic recording
45. Wire, magnetic recording

Ace Electric Mfg. Co., N.Y., 30sc
Aerovox Corp., Mass., 5s
Allied Recording Products Co., Inc., N.Y., 10s
Allison Associates, Mass., 10c
Alonge Products, Inc., N.Y., 30s
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 5s, 20c
American Molded Products Co., 2771 W. Chicago Ave., Chicago 22, Ill., 25s, Tel: 312-ARmitage 6-3235
See ad in class 106
Ampex Audio Co., Calif., 20s, 40s

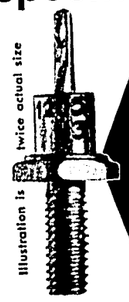
70. Recording Accessories.

Ampex Computer Products Co., Calif., 5s, 10s, 15s, 20sc, 25s, 30s, 35s, 40s
Ampex Instrumentation Products Co., Calif., 5sc, 20sc, 25sc, 30sc, 40sc
Ampex Magnetic Tape Products, Div. of Ampex Corp., Ala., 5s, 25sc, 30s, 40sc
Amplifier Corp. of America, N.Y., 5s
Annis Co. (R. B.), Ind., 5c
Applied Magnetics Corp., Calif., 20sc
Arnold Engineering Co., P.O. Box G, Marengo, Ill., 40s, Tel: 815-JOrdan 8-7251
See ad on page 88
Arvey Corp., Ill., Perforator-Tape sc
Astatic Corp., Ohio, 20c, 25s, 40s
Audio Devices, Inc., N.Y., 5s, 10s, 25s, 35s, 40s
Audiotex Mfg. Co., Div. of GC Textron Electronics, Ill., 5s, 30s
Basic & Experimental Physics, Mass., 45c
Bird & Sons, Ltd. (Sydney S.), England, 25sc
Bogen-Presto, Div. of Siegler Corp., N.J., 35s
California Technical Industries, Div. of Textron, Inc., Calif., 30sc
Capps & Co., Inc., N.Y., 15c
Clevite Corp., Brush Instruments Div., Ohio, 20s
Coleman Electronics, Inc., Calif., 40s
Collaro, Ltd., Ripple Works, England, 25sc
Comptometer [illegible] 25c, Tape Winder sc
Consolidated [illegible] Corp., Calif., 30s
[illegible] 25sc, 30
[illegible] Div., Dresser Industries, [illegible]
Dapsco, Inc., [illegible] 25s, 35s, 40s
Dyna-Empire, Inc., 1075 Stewart Ave., Garden City, L.I., N.Y., 5s, Tel: 516-PIoneer 1-2700
See ad in class 40
E.M.I.-Cossor Electronics, Ltd., Canada, 25s, 40s
Electro Radiation, Inc., Calif., 40
Electronic Engineering Co. of Calif., Santa, Calif., 25s
Electronic Engineers, Inc., Ill., [illegible] 30s
[illegible] Electronics, Div. of Elgin National Watch Co., Ill., 20c
[illegible] Automation, Ltd., [illegible] 30sc
Fairchild Recording Equipment Corp., N.Y., 35 Stereo s
Fidelitone Micro-Gave, Inc., Ill., [illegible] 35sc, 40sc, 45sc
Fort Wayne Metals, Inc., Ind., 45s
Gates Radio Co., Ill., 5s, 20s, 25s, 30s, 35s, 40s
General Instrument Corp., Defense & Engineering Products Group, N.Y., 15c, 20c, 40c
General Instrument Corp., Magne Head Div., Calif., 20sc

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

ANOTHER
Bradley®
PRODUCT

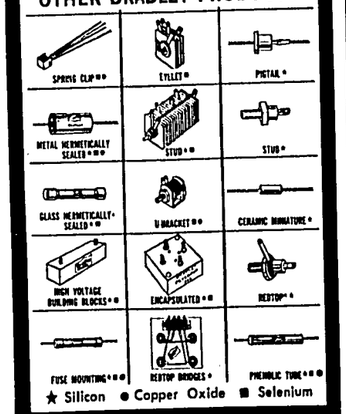
tailored to your specifications



12 ampere stud silicon rectifiers (USAF) IN1199-IN1206

Bradley silicon rectifiers are designed for wide ranges of application. This new 12 ampere stud silicon rectifier, qualified to MIL-E-1/1108, is available with ratings from 50 to 600 volts. These 12 amp. diodes are also available in high voltage assemblies with compensating networks of resistors and capacitors (for example, 50,000 volts at 3 amps.), as well as in standard and special configurations. This development brings the industry still another product in the ever increasing Bradley line of silicon, selenium and copper oxide rectifiers and diodes. Data sheets available on request.

OTHER BRADLEY PRODUCTS

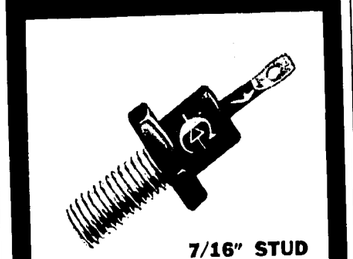


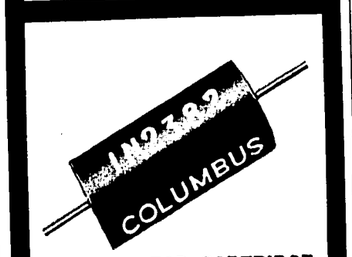
★ Silicon ● Copper Oxide ■ Selenium

Bradley®
SEMICONDUCTOR CORP.

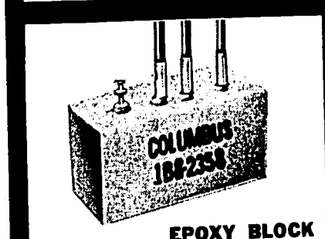
275M WELTON ST., NEW HAVEN 11, CONN.
For details, circle #460 on Reader Service Card

COLUMBUS®
SEMICONDUCTORS®
silicon power rectifiers





AXIAL LEAD CARTRIDGE



EPOXY BLOCK

- All JAN Power Types
- Kilovolt Assemblies to 100 kv
  - (a) Convection cooled
  - (b) Oil-Immersed
  - (c) Epoxy mold
- Single Unit, 2,000 V., 3 Amp
- 2,000 V. Top Hat, 1N2361 (per Mil S-19500 187)
- Tube Replacement
- Axial Lead Cartridges
- Up to 25A @ 145°C.

COLUMBUS ELECTRONICS inc.
1000 SAW MILL RIVER ROAD, YONKERS, N. Y.
YONKERS 8 1221 TWX YONKERS NY 1369

For details, circle #461 on Reader Service Card

70. Recording Accessories.

General Kinetics, Inc., Va., 25c
Gotham Audio Corp., N.Y., 15s
Gray Mfg. Co., Conn., 10s
Greentree Electronics Corp., Calif., 40sc
Gregory Research Engineering Group, N.Y., 20sc
Gresham Transformers, Ltd., England, 20sc
Heldor Electronics Mfg. Co., N.J., 25sc
Houston Instrument Corp., P.O. Box 22234E, Houston 27, Texas, 15sc, 20sc, Tel: 713-MOhawk 7-7405
See ad in class 28
Information Systems, Inc., Affiliate of Ling Temco Vought, Inc., Calif., 20c, 40c
Instrument Systems Corp., N.Y., 5sc, 20sc
International Business Machines Corp., N.Y., 40s
Kalart Co., Inc., Conn., 25s, 30c
Kirsch Music Corp., N.Y., 30sc
L & R Mfg. Co., N.J., 5s
Laboratory For Electronics, Inc., Mass., 5c, 20c
Ling Temco Vought, Inc., Texas, 5c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c
Lipps Engineering (Edwin A.), Calif., 15sc, 20sc
Lockheed Electronics Co., N.J., 20sc, 45sc
Magnasync Corp., Calif., 5s, 25s
Magnecessories, D.C., 30s
Maico Electronics, Inc., 21 N. Third St., Minneapolis 1, Minn., 20sc, Tel: 612-FEderal 9-7041
See ad in this class, page 548
Masonware Co., R.I., 25c
Michigan Magnetics, Inc., Mich., 20sc
Midwestern Instruments, Inc., Okla., 20s
Minicord Corp. of America, N.J., 40s, 45s
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 20sc
Minnesota Mining & Mfg. Co., Magnetic Products Div., Minn., 20s, 25sc, 40sc
Munzig International, Inc., Calif., 40s
Neumade Products Corp., N.Y., 25s, 30s
Norton Associates, Inc., N.Y., 20sc
Nortronics Co., Inc., Minn., 20s
Pacific Electro Magnetics Co., Inc., Calif., 20sc, 25s
Philips Electronics Industries, Ltd., Canada, 25s, 40s
Pickering & Co., Inc., N.Y., 20c
Potter Instrument Co., Inc., N.Y., 20sc, 40c
Prestoseal Mfg. Corp., N.Y., 30sc
RCA Victor Co., Ltd., Canada, 25s, 40s
Radio Corp. of America, RCA Electron Tube Div., N.J., 5s, 25s, 30s, 40sc
Rangertone, Inc., N.J., 15 Sync. sc
Reeves Soundcraft Corp., Conn., 10s, 35s, 40s
Reiter Co. (F.), Calif., 30s
Riemer Co., Inc. (David), N.Y., 30sc
Robins Industries Corp., N.Y., 5s, 20s, 25s, 30sc
Rye Sound Corp., N.Y., 25s, 40s
S.E.D. Memories, Inc., N.J., 20sc
S-I Electronics, Inc., 103 Park Ave., Nutley 10, N.J., 20sc, Tel: 201-NOrth 7-0055
See ad in class 10
Scott Instrument Laboratories, Inc., N.Y., 40s

Directory II. Components

70. Recording Accessories.

Shure Brothers, Inc., Ill., 20s
Sonotone Corp., N.Y., 20sc
Sony Corp., N.Y., 5s, 20s, 40s
SoundScriber Corp., Conn., 5sc, 10sc, 40sc, 45sc
Stancil-Hoffman Corp., Calif., 5sc, 20sc
Standard Record Mfg. Co., Calif., 25sc, 30c
Telephone Dynamics Corp., N.Y., 5s
Transformer Engineers, Calif., 5c
U.S. Recording Co., D.C., 40sc
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 5c, 15s, 20sc, 30s, 35sc, Tel: 212-JUdson 2-3030
See ad on page 224

Rectifying tubes:
See class 87

71. Rectifiers.

5. Copper oxide
10. Germanium
15. Selenium diodes
20. Selenium stacks
25. Semiconductor controlled
30. Silicon
35. Silicon stacks

Allen Electric & Equipment Co., Mich., 15c, 20c, 30c, 35c
American Rectifier Corp., N.Y., 20sc, 25sc, 30sc, 35sc
Associated Electrical Industries (Rugby), Ltd., England, 10s, 25s, 30s, 35s
Barco, Inc., Wis., 20s
Bendix Corp., Red Bank Div., Electron Tube Products, Highway #35, Eatontown, N.J., 30s, Tel: 201-LIberty 2-2000
See ad on pages 48-49
Bendix Corp., Semiconductor Products, N.J., 10s, 30s
Bludworth Marine Div., States Electronics Corp., N.Y., 20c
Bogue Electric Mfg. Co., N.J., 25c, 30c, 35c
Bradley Semiconductor Corp., 275M Welton St., New Haven 11, Conn., 5sc, 15sc, 20sc, 30sc, 35sc, Tel: 203-STate 7-7181
See ad in this class, page 550
Britton Electronics Corp., N.Y., 15s, 20s, 30s, 35c
C & D Batteries, Div. of Electric Autolite Co., Pa., 30sc
CTS of Canada, Ltd., Industrial Electronics Div., Canada, 30c
Clark Electronic Laboratories, Calif., 20sc, 30sc, 35sc
Clevite Corp., Clevite Transistor Div., 200 Smith St., Waltham 54, Mass., 30sc, Tel: 617-TWinbrook 4-7780
See ad in class 76
Cole Instrument Co., Calif., 25c
Columbus Electronics, Inc., 1000 Saw Mill River Rd., Yonkers, N.Y., 30sc, 35sc, Tel: 914-YOnkers 8-1221
See ads in classes 48, 71 (page 550)
Conant Laboratories, Nebr., 5sc, 20sc
Continental Device Corp., Calif., 30sc
Control Circuits, Inc., Conn., 30c
Controls Co. of America, Ill., 25sc, 30sc, 35sc
Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 30sc
Dickson Electronics Corp., Ariz., 30sc
Diodes, Inc., Calif., 30s, 35sc
Diotron, Inc., Pa., 30sc
Djeco, Div. of Djordjevic Engineering Co., Ill., 5c, 10c, 15c, 20c, 25c, 30c, 35c
Eastern Jewel Corp., N.Y., 10s, 30s
Edal Industries, Inc., Conn., 5sc, 15sc, 20sc
Electric Storage Battery Co., Exide Industrial Marketing Div., Pa., 20s, 30s
Electric Wave Filters, Inc., Puerto Rico, 20c
Electronic Devices, Inc., N.Y., 15sc, 20sc, 30sc
Electronic Transistors Corp., N.J., 25sc, 30sc
English Electric Valve Co., Ltd., England, 10s, 30s
Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 10sc, 30sc, Tel: 814-GLendale 6-8592
See ad on pages 78-79
Espey Mfg. & Electronics Corp., N.Y., 30sc, 35c
Fansteel Metallurgical Corp., Ill., 20s, 25s, 30s
Ferranti Electric, Inc., N.Y., 25c
Gates Electronic Co., 2243 White Plains Rd., New York 67, N.Y., 20sc, 30sc, 35sc, Tel: 212-TUlip 1-5900
See ad in class 69
General Electric Co., High Voltage Specialty Transformer Section, Mass., 35sc
General Electric Co., Rectifier Components Dept., N.Y., 5s, 10s, 15s, 20s, 25s, 30s, 35s
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 15sc, 20sc
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 15sc, 20sc
General Instrument Corp., Semiconductor Div., 65 Gouverneur St., Newark 4, N.J., 25sc, 30sc, 35sc, Tel: 201-HUmboldt 5-2100
See ad in class 76
General Motors Corp., Delco Radio Div., Ind., 30sc
General Nuclear Corp., N.Y., 20c, 25c, 30c, 35c
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5c
General Railway Signal Co., N.Y., 5s
Green Rectifier Co., N.J., 15sc, 20sc, 25sc, 30sc, 35sc
Hitachi New York, Ltd., N.Y., 25c, 35c
Hoffman Electronics Corp., Calif., 30s, 35s
Hoffman Electronics Corp., Semiconductor Div., Calif., 30sc, 35sc
Hughes Aircraft Co., Hughes Semiconductor Div., Calif., 30s, 35s
International Rectifier Corp., 233 Kansas St., El Segundo, Calif., 15sc, 20sc, 25sc, 30sc, 35sc, Tel: 213-ORegon 8-6281
See ad on pages 74-75
International Telephone & Telegraph Corp., ITT Distributor Products Div., N.J., 15s, 20s, 30s, 35s
Johnson Matthey & Mallory, Ltd., Canada, 30sc
Kemtron Electron Products, Inc., Mass., 30sc
LaMarche Mfg. Co., Ill., 15s, 20s, 30s, 35s
Le-Hi Electrical Co., N.J., 10s, 15s, 30s
Ledex, Inc., Ohio, 20s, 30s
Lignes Telegraphiques et Telephoniques, France, 30s
Ling Temco Vought, Inc., Texas, 30c, 35sc
Ling Temco Vought, Inc., Micromodular Components Div., Calif., 35sc
Ling Temco Vought, Inc., Temco Electronics Div., Texas, 30c
Mallory & Co., Inc. (P. R.), Ind., 30sc
Miller Electric Mfg. Co., Wis., 20sc
Motorola Semiconductor Products, Inc., Ariz., 30s
Nippon Electric Co., Ltd., Japan, 20s, 25s, 30s
North American Electronics, Inc., 71 Linden St., West Lynn, Mass., 25sc, 30sc, 35sc, Tel: 617-LYnn 8-4800
See ad in this class
Nucleonic Products Co., Inc., Calif., 5c
Opad Electric Co., 43-8 Walker St., New York 13, N.Y., 20c, 35c, Tel: 212-WOrth 6-0380
See ad in class 69
Pacific Semiconductors, Inc., Calif., 30s, 35s
Philco Corp., Pa., 10s, 30s
Philips Electronics Industries, Ltd., Canada, 10s, 30s
Physics Research Laboratories, Inc., Dept. SA-1, P.O. Box 555, Hempstead, L.I., N.Y., 5sc, Tel: 516-IVanhoe 3-8299
See ad in class 40
Radio Corp. of America, RCA Electron Tube Div., N.J., 30s, 35sc
Radio Corp. of America, Semiconductor & Materials Div., Section J-22-NN, Route 202, Somerville, N.J., 30s, 35sc, Tel: 609-RAndolph 2-3200
See ad on pages 54-55
Radio Development & Research Corp., N.J., 15c, 20c, 30c, 35c
Radio Engineering Laboratories, Inc., N.Y., 35c
Ramyr Mfg. Co., Calif., 15sc, 20sc, 30sc, 35sc
Rapid Electric Co., Inc., 2881 Middletown Rd., New York 61, N.Y., 20sc, 35sc, Tel: 212-TAlmadge 8-2200
See ad in class 69
Raytheon Co., Semiconductor Div., Mass., 10sc, 30sc
Rectico, Inc., N.J., 20sc, 35sc
Rosemount Engineering Co., Minn., 25c
Salford Electrical Instruments, Ltd., England, 5s, 20s
Sarkes Tarzian, Inc., Ind., 20sc, 25sc, 30sc, 35sc

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Silicon

RECTIFIERS
CONTROLLED RECTIFIERS
VOLTAGE REGULATORS

nae

MILITARY TYPES

RECTIFIERS

1N1199	MIL-E-1/1108 (USAF)	1N253	MIL-E-1/1024A (JAN)
1N1200	MIL-E-1/1108 (USAF)	1N254	MIL-E-1/989B (JAN)
1N1201	MIL-E-1/1108 (USAF)	1N255	MIL-E-1/990B (JAN)
1N1202	MIL-E-1/1108 (USAF)	1N256	MIL-E-1/991B (JAN)
1N1203	MIL-E-1/1108 (USAF)	1N538	MIL-E-1/1084A (JAN)
1N1204	MIL-E-1/1108 (USAF)	1N540	MIL-E-1/1085A (JAN)
1N1205	MIL-E-1/1108 (USAF)	1N547	MIL-E-1/1083A (JAN)
1N1206	MIL-E-1/1108 (USAF)		

REFERENCE

1N429 ..... MIL-E-1/1134A (USAF)

CONTROLLED RECTIFIERS

10 Amps		16 Amps	
NCR025D	NCR200D	2N681 (NCR025E)	2N685 (NCR200E)
NCR050D	NCR250D	2N682 (NCR050E)	2N686 (NCR250E)
NCR100D	NCR300D	2N683 (NCR100E)	2N687 (NCR300E)
NCR150D	NCR400D	2N684 (NCR150E)	2N688 (NCR400E)

DIODES

1N137A	1N203	1N208	1N213	1N218	1N350	1N225	1N230
1N138A	1N204	1N209	1N214	1N219	1N351	1N226	1N231
1N200	1N205	1N210	1N215	1N220	1N352	1N227	1N232
1N201	1N206	1N211	1N216	1N221	1N353	1N228	1N233
1N202	1N207	1N212	1N217	1N222	1N354	1N229	

VOLTAGE REGULATORS

(Zener Diodes)

1N465	1N1354	1N1515	1N1598	1N1769	1N1816	1N2043	PR436
1N466	1N1355	1N1516	1N1599	1N1770	1N1817	1N2044	PR439
1N467	1N1356	1N1517	1N1600	1N1771	1N1818	1N2045	PR704
1N468	1N1357	1N1518	1N1601	1N1772	1N1819	1N2046	PR705
1N469	1N1358	1N1519	1N1602	1N1773	1N1820	1N2047	PR706
1N470	1N1359	1N1520	1N1603	1N1774	1N1821	1N2048	PR708
1N471	1N1360	1N1521	1N1604	1N1775	1N1822	1N2049	PR710
1N472	1N1361	1N1522	1N1605	1N1776	1N1823	PR410	PR712
1N473	1N1362	1N1523	1N1606	1N1777	1N1824	PR411	PR715
1N474	1N1363	1N1524	1N1607	1N1778	1N1825	PR412	PR718
1N475	1N1364	1N1525	1N1608	1N1779	1N1826	PR413	PR724
1N1313	1N1365	1N1526	1N1609	1N1780	1N1827	PR414	PR804
1N1314	1N1366	1N1527	1N1735	1N1781	1N1828	PR415	PR805
1N1315	1N1367	1N1528	1N1736	1N1782	1N2032	PR416	PR806
1N1316	1N1368	1N1588	1N1737	1N1783	1N2033	PR417	PR808
1N1317	1N1369	1N1589	1N1738	1N1784	1N2034	PR418	PR810
1N1318	1N1507	1N1590	1N1739	1N1785	1N2035	PR419	PR812
1N1319	1N1508	1N1591	1N1740	1N1786	1N2036	PR420	PR815
1N1320	1N1509	1N1592	1N1741	1N1803	1N2037	PR422	PR818
1N1321	1N1510	1N1593	1N1742	1N1804	1N2038	PR424	PR824
1N1322	1N1511	1N1594	1N1765	1N1805	1N2039	PR425	
1N1351	1N1512	1N1595	1N1766	1N1806	1N2040	PR427	
1N1352	1N1513	1N1596	1N1767	1N1807	1N2041	PR430	
1N1353	1N1514	1N1597	1N1768	1N1808	1N2042	PR433	

*The above listed types are also available in 5% voltage tolerances.

HIGH VOLTAGE CARTRIDGE TYPE RECTIFIERS

The NAE cartridge type rectifiers are designed for applications requiring up to 26,000 volts and for currents up to 250 milliamperes. They are fabricated from series connected high PIV junctions and hermetically sealed in ceramic tubes for easy fuse clip mounting

POWER RECTIFIERS

LOW (to 3 Amps)

1N253	1N442B	1N604A	1N1133	1N1230	1N1584	1N2017	NA42
1N254	1N443	1N605	1N1134	1N1230A	1N1585	1N2018	NA43
1N255	1N443B	1N605A	1N1135	1N1231	1N1586	1N2019	NA44
1N256	1N444	1N606	1N1136	1N1231A	1N1587	1N2020	NA45
1N316	1N444B	1N606A	1N1137	1N1232	1N1692	1N2026	NA46
1N317	1N445	1N607	1N1138	1N1232A	1N1693	1N2027	NA47
1N318	1N445B	1N607A	1N1139	1N1233	1N1694	1N2028	NA51
1N319	1N530	1N608	1N1140	1N1233A	1N1695	1N2029	NA52
1N320	1N531	1N608A	1N1141	1N1234	1N1701	1N2030	NA53
1N323	1N532	1N609	1N1142	1N1234A	1N1702	1N2031	NA54
1N324	1N533	1N609A	1N1143	1N1235	1N1703	1N2501	NA55
1N325	1N534	1N610	1N1143A	1N1236	1N1704	1N2502	NA56
1N326	1N535	1N610A	1N1144	1N1251	1N1705	1N2503	NA57
1N327	1N536	1N611	1N1145	1N1252	1N1706	1N2504	NA61
1N332	1N537	1N611A	1N1146	1N1253	1N1707	1N2505	NA62
1N333	1N538	1N612	1N1147	1N1254	1N1708	1N2506	NA63
1N334	1N539	1N612A	1N1148	1N1255	1N1709	1N2507	NA64
1N335	1N540	1N613	1N1149	1N1256	1N1710	1N2508	NA65
1N336	1N547	1N613A	1N1217	1N1257	1N1711	NA1	NA66
1N337	1N550	1N614	1N1217A	1N1258	1N1712	NA2	NA67
1N338	1N551	1N614A	1N1218	1N1259	1N1745	NA3	NA74
1N339	1N552	1N1095	1N1218A	1N1260	1N1746	NA4	NA75
1N340	1N553	1N1096	1N1219	1N1261	1N1747	NA5	NA76
1N341	1N554	1N1100	1N1219A	1N1443	1N1748	NA7	NA84
1N342	1N555	1N1101	1N1220	1N1444	1N1749	NA11	NA85
1N343	1N560	1N1102	1N1220A	1N1487	1N1750	NA12	NA86
1N344	1N561	1N1103	1N1221	1N1488	1N1751	NA13	NA104
1N345	1N562	1N1104	1N1221A	1N1489	1N1752	NA17	NA105
1N346	1N563	1N1105	1N1222	1N1490	1N1753	NA21	NA106
1N347	1N588	1N1115	1N1222A	1N1491	1N1754	NA22	NA124
1N348	1N589	1N1116	1N1223	1N1492	1N1755	NA23	NA125
1N349	1N599	1N1117	1N1223A	1N1537	1N1756	NA24	NA126
1N359	1N599A	1N1118	1N1224	1N1538	1N1757	NA25	NA150
1N360	1N600	1N1119	1N1224A	1N1599	1N1758	NA27	NA150R
1N361	1N600A	1N1120	1N1225	1N1540	1N1759	NA31	NA151
1N362	1N601	1N1124	1N1226	1N1541	1N1760	NA32	NA152
1N363	1N601A	1N1125	1N1227	1N1542	1N1761	NA33	
1N440	1N602	1N1126	1N1227A	1N1543	1N1762	NA34	
1N400B	1N602A	1N1127	1N1228	1N1544	1N2013	NA35	
1N441	1N603	1N1128	1N1228A	1N1581	1N2014	NA36	
1N4418	1N603A	1N1130	1N1229	1N1582	1N2015	NA37	
1N442	1N604	1N1131	1N1229A	1N1583	1N2016	NA41	

MEDIUM (5 Amps to 12 Amps)

1N248	1N1206	1N2021	1N2495	NA0305	NA2010	NA1203	NA603
1N249	1N1341	1N2022	1N2496	NA0310	NA2505	NA1205	NA605
1N250	1N1342	1N2023	1N2497	NA0505	NA2510	NA1210	NA610
1N1199	1N1343	1N2024	1N2512	NA0510	NA3005	NA1215	NA615
1N1200	1N1344	1N2025	1N2513	NA1005	NA3010	NA1220	NA620
1N1201	1N1345	1N2491	1N2514	NA1010	NA3505	NA1230	NA630
1N1202	1N1346	1N2492	1N2515	NA1505	NA3510	NA1240	NA640
1N1203	1N1347	1N2493	1N2516	NA1510	NA4005	NA1250	NA650
1N1204	1N1348	1N2494	1N2517	NA2005	NA4010	NA1260	NA660
1N1205							

HIGH (18 Amps to 35 Amps)

1N248A	1N1187	1N1194	1N1435	1N2156	NA0520	NA3520	NA3035
1N249A	1N1188	1N1195	1N1436	1N2157	NA1020	NA4020	NA2535
1N250A	1N1189	1N1196	1N1437	1N2158	NA1520	NA6035	NA2035
1N1183	1N1190	1N1197	1N1438	1N2159	NA2020	NA5035	NA1535
1N1184	1N1191	1N1198	1N2154	1N2160	NA2520	NA4035	NA1035
1N1185	1N1192	1N1434	1N2155	NA0230	NA3020	NA3535	NA0535
1N1186	1N1193						

GENERAL PURPOSE TYPES

NL5 NL10 NL15 NL20 NL25 NL30 NL40 NL50 NL60

RECTIFIER STACKS

NAE rectifier stacks provide a variety of single phase, three phase, and six phase configurations in a wide range of voltages and currents. Assemblies specially made to suit your requirements.

NORTH AMERICAN ELECTRONICS, INC.

71 Linden Street, West Lynn, Massachusetts • LYnn 8-4800

TWX: LYNN, MASS. 805U

AFFILIATE OF LMC

For details, circle #462 on Reader Service Card

Directory II. Components

71. Rectifiers.

Schauer Mfg. Corp., Ohio, 5sc, 30sc
Sel-Rex Corp., N.J., 20sc, 25sc, 30sc, 35sc
Semi-Elements, Inc., Pa., 10s, 30s
Semicon, Inc., 511 Sweetwater Ave., P.O. Box 328, Bedford, Mass., 30sc, 35sc, Tel: 617-CRestview 4-8542
See ad in this class
Siemens New York, Inc., N.Y., 20s, 30s, 35s
Silicon Transistor Corp., 150 Glen Cove Rd., Carle Place, L.I., N.Y., 30sc, Tel: 516-PIoneer 2-4100
See ad in class 76
Slater Electric, Inc., N.Y., 15c, 20c, 25sc, 30sc, 35sc
Smith-Meeker Eng. Co., N.Y., 30s
Solitron Devices, Inc., N.J., 25sc, 30sc, 35sc
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 20s, 25s
Standard Rectifier Corp., Calif., 30s, 35s
Standard Telephones & Cables, Ltd., England, 20sc, 25sc, 30sc, 35sc
Stearns Electric Corp., Wis., 20c, 30c
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 10s, 30s
Sylvania Electric Products Inc., Semiconductor Div., Mass., 10s, 15s, 30s
Syntron Co., Pa., 15s, 20c, 30s, 35c
Technical Apparatus Builders, 6 Church St., New York 6 BG, N.Y., 20c, 30c, 35c, Tel: 212-REctor 2-6245
See ad in class 69
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 25s, 30s, 35s, Tel: 214-ADams 5-3111
See ad on Cover 3
Thompson, Ltd. (J. Langham), England, 10sc
Thompson Ramo Wooldridge Inc., Radio Industries, Inc. (Subsid.), Ill., 15c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s, 20s, 25s, 30s, 35s
Trans-Sil Corp., N.J., 30sc, 35sc
Transistor Devices, Inc., N.J., 25sc
Transitron Electronic Corp., Mass., 25s, 30s, 35s
Tung-Sol Electric, Inc., 1 Summer Ave., Newark 4, N.J., 30s, 35sc, Tel: 201-HUmboldt 4-8500
See ad on pages 62-63
Tyco Semiconductor Corp., Mass., 25sc, 30c
U.S. Semiconductor Products, Inc., Div. of Nuclear Corp. of America, Ariz., 25c, 30sc
Unitrode Transistor Products, Inc., Mass., 30sc, 35sc
Western Semiconductors, Inc., Calif., 30s, 35c
Westinghouse Electric Corp., Buffalo Div., Industrial Control Dept., N.Y., 15c, 20sc
Westinghouse Electric Corp., Semiconductor Dept., Pa., 25s, 30s, 35sc
Westinghouse Electric Corp., Small Motor Div. of Aircraft Equipment Dept., Ohio, 15c, 20c, 25c, 30c
Wilcox Electronics Co., Calif., 20c

Reels:
See class 70

Reflectors:
See class 66

72. Regulators, Voltage.

5. Automatic
10. Governors, current
15. Manually-operated
20. Varistors

Acme Electric Corp., 44 Water St., Cuba, N.Y., 5c, 15c, Tel: Cuba 4
See ad in class 69
Advance Components, Ltd., England, 5s
American Rectifier Corp., N.Y., 5sc, 15sc

Silicon Controlled Rectifiers up to 600 volts

CURRENTS
5 amp
16 amp
25 amp

VOLTAGES
30
thru
600 volts

The reliable source of supply for Silicon Rectifiers

TOP HAT • STUD • FLANGELESS • INSULATED STUD
PLUG-IN TUBE REPLACEMENT • 200°C. RECTIFIERS

Units will meet or exceed MIL-S-19500 C

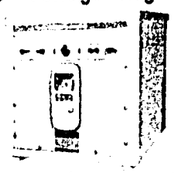
Write for data

Semicon INC. SEMICONDUCTOR DEVICES

511 Sweetwater Ave., P. O. Box 328, Bedford, Massachusetts CRestview 4-8542 TWX: Lex 1795

For details, circle #463 on Reader Service Card

SOLVE YOUR VOLTAGE PROBLEMS WITH Inductrol* Induction Voltage Regulators



Voltage fluctuations can cause electronic tube failure, make equipment operate erratically, increase replacement parts costs. Inductrol regulators operate on the induction principle. This means precise voltage control and high reliability because no brushes or tubes are used. G-E Inductrol regulators are virtually maintenance free.

Inductrol regulator reliability and accuracy of operation can improve the performance of computers, TV transmitters, radio & radar equipment, X-ray equipment, equipment testing devices, and instrument calibration devices.

More information appears opposite G-E listing in this Class No.

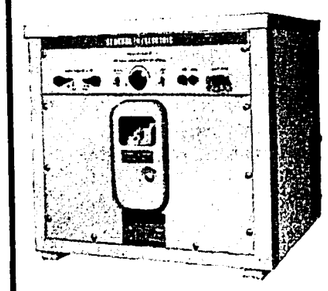
*Registered trade-mark of General Electric Co.

VOLTAGE REGULATOR PRODUCTS SECTION
GENERAL ELECTRIC
PITTSFIELD, MASS.

For details, circle #464 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

For Electronic Applications



RELIABLE

General Electric Inductrol* Induction Voltage Regulators

General Electric's complete line of 50-, 60-, and 400-cycle Inductrol regulators gives you extra values in *reliability* and *compactness*. In ratings up to 600 volts, 750 load kva—single phase, and up to 2000 load kva—three phase, you get these special features:

- SIMPLE, NO-BRUSH DESIGN fewer maintenance problems.
- HIGH SHORT-CIRCUIT STRENGTH will withstand up to 75 times normal current, for 2 seconds.
- HIGH OVERLOAD CAPACITY will withstand up to 100% overloads for one hour.
- HIGH EFFICIENCY 97% to over 99% at full load.
- NO HARMFUL WAVEFORM DISTORTION.
- ECONOMICAL, COMPACT DESIGN requires less floor space.
- DRIFT-FREE CONTROLS voltage automatically held to ± 1% bandwidth.

FOR MORE INFORMATION about General Electric's complete line of Inductrol regulators, contact the voltage regulator representative at your nearby General Electric Apparatus Sales Office. Or write: General Electric Company, Section 008-15, Schenectady 5, New York.

VOLTAGE REGULATOR PRODUCTS SECTION

GENERAL ELECTRIC

PITTSFIELD MASS

For details, circle #465 on Reader Service Card

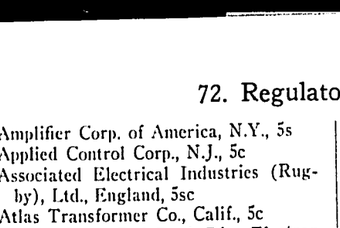
72. Regulators, Voltage.

Amplifier Corp. of America, N.Y., 5s
Applied Control Corp., N.J., 5c
Associated Electrical Industries (Rugby), Ltd., England, 5sc
Atlas Transformer Co., Calif., 5c

Bendix Corp., Red Bank Div., Electron Tube Products, Highway #35, Eatontown, N.J., 5sc, Tel: 201-LIberty 2-2000
See ad on pages 48-49

Brach Mfg. Corp., N.J., 5sc, 10sc
Bulova Research & Development Laboratories, N.Y., 5c, 15c, 20c
California Magnetic Control Corp., Calif., 5c
Cameraflex Corp., N.Y., 5s
Carborundum Co., Refractories Div., N.J., 20sc
Communication Measurements Laboratory, Inc., N.J., 5c, 15c
Consolidated Avionics Corp., N.Y., 5c
Dicon Corp., N.Y., 5c, 15c, 20c
Diotron, Inc., Pa., 20sc
Djeco, Div. of Djordjevic Engineering Co., Ill., 5c
Duncan Electric Co., Inc., Ill., 5sc
E.P. Electric Products Co., Ltd., Canada, 5c
Edal Industries, Inc., Conn., 20c
Electric Regulator Corp., Conn., 5sc, 15c
Electro-Seal Corp., Ill., 5s

Electronic Measurements Co., Inc., Lewis St. & Maple Ave., Eatontown, N.J., 5s, Tel: 201-LIberty 2-0300
See ad on page 138



"Guess They Forgot the Surgistor"

MORE FAILURES of electronic equipments are caused by the destructive inrush surge currents at "Turn On" than any other factor.

A SURGISTOR connected in series with either the AC power line or the filament supply will effectively cushion the starting surge current providing full protection for the equipment. After a 10-15 second Protection Period, the Surge Limiting Resistance is automatically shorted out restoring full voltage to the circuits.

117 Volt Types (AC-DC)

No.	Watts of Load	Starting Ohms	List Price
4125-1	75-150	125	1.95
4100-2	100-275	100	1.95
8050-4	250-400	50	2.45
1035-5	300-500	35	2.95
1025-6	450-650	25	3.45
1020-7	600-850	20	3.95
1015-8	800-1200	15	4.45
1010-9	1170-1500	10	4.95

6-10 Volt Types (AC-DC)

No.	Load Amps.	Starting Ohms	List Price
4003-4	1.5-3.00	3	1.95
4002-5	2.5-5.00	2	1.95

SURGISTORS are designed for use in home, commercial, or industrial equipments operated indoors.

WUERTH PRODUCTS CORP.
1949 Moffett St.
Hollywood, Florida

For details, circle #466 on Reader Service Card

Electronic Specialty Co., Calif., 5c, 10c, 15c, 20c
Electronic Wiring Corp., N.Y., 5c
Fairfield Controls, Inc., Conn., 10c
Fidelity Instrument Corp., Pa., 5sc
Friend Engineering (Albert W.), Pa., 5c, 10c
Gemco Electric Co., Mich., 5c
General Electric Co., Apparatus Sales Dept., N.Y., 5sc, 15s
General Electric Co., Magnetic Materials Section, Mich., 20sc
General Electric Co., Specialty Control Dept., Va., 5sc, 10sc

General Electric Co., Voltage Regulator Products Section, 100 Woodlawn Ave., Pittsfield, Mass., 5sc, 15sc, Tel: 413-HIllcrest 3-3511
See ads in classes 4, 69, 72, 84

General Instrument Corp., Defense & Engineering Products Group, N.Y., 5c, 10c, 15c, 20c

General Radio Co., 22 Baker Ave., West Concord, Mass., 5s, 15s, Tel: 617-EMerson 9-4400
See ad on Cover 4

Gramer Halldorson, Ill., 15sc
Green Rectifier Co., N.J., 5sc, 10sc, 15sc
Gresham Transformers, Ltd., England, 5c
Hartman Electrical Mfg. Co., Ohio, 10c
Hitachi New York, Ltd., N.Y., 5c
Hydro-Aire Co., Div. of Crane Co., Calif., 5c

Interelectronics Corp., 2432 Grand Concourse, New York 58, N.Y., 5sc, Tel: 212-LUdlow 4-6200
See ads in classes 34, 69

Iwasaki Communication Apparatus Co., Ltd., Japan, 5s
Jack & Heintz, Div. of Siegler Corp., Ohio, 5sc
Jamieson Laboratories, Inc., Thermocal Div., Calif., 10c
Kenyon Transformer Co., Inc., N.J., 5c

Kepco, Inc., 131-42 Sanford Ave., Flushing 52, N.Y., 5s, Tel: 212-INdependence 1-7000
See ad in class 69

Kuhnke (H.), Elektrotechnische Fabrik GmbH, Germany, 5sc
Laboratory For Electronics, Inc., Mass., 5c
Loyola Laboratories, Calif., 10c

Magnetic Amplifiers Div., Siegler Corp., 632 Tinton Ave., New York 55, N.Y., 5sc, 10c, Tel: 212-CYpress 2-6610
See ad in class 69

Matthew Laboratories, N.Y., 5s, 10s

Microlectron, Inc., 1547 18th St., Santa Monica, Calif., 10c, Tel: 213-EXbrook 3-0356
See ads in classes 50, 60, 74

Mid-Eastern Electronics, Inc., N.J., 5sc
Modern Design, Div. of H. C. Schloer, Inc., N.Y., 5c, 15c
Moeller Instrument Co., Inc., Electronics Div., N.Y., 5c
Montek, Inc., Utah, 5sc
Motordyne, Inc., Subsid. of Air-Marine Motors, Inc., Calif., 10 Motor sc

NJE Corp., 20 Boright Ave., Kenilworth, N.J., 5sc, 15sc, Tel: 201-BRidge 2-6000
See ad in class 69

Directory II. Components

72. Regulators, Voltage.

Neshaminy Electronic Corp., Pa., 5sc
Nichols, Ltd. (R. H.), Canada, 5c
Nippon Electric Co., Ltd., Japan, 20s
Norbatrol Electronics Corp., Pa., 5c, 10c

North Hills Electronics, Inc., Alexander Place, Glen Cove, L.I., N.Y., 10s, Tel: 516-ORiole 1-5700
See ads in classes 69, 84

Nucleonic Products Co., Inc., Calif., 20c
Ohmite Mfg. Co., Ill., 15sc
Omega Mfg. Co., N.Y., 5c, 15c
Ovitron Corp., Power Controls Div., Conn., 5c, 10c
Pennon Electronics, Inc., Calif., 5c
Phoenix Transformer Co., Ariz., 5c
Plug-In Instruments, Inc., Tenn., 5s
Power Instruments Corp., Inc., Calif., 5sc
Power-Tronic Systems, Inc., N.Y., 5sc
RCA Victor Co., Ltd., Canada, 20s
Radiation, Inc., Fla., 15s
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 5s
Safety Electrical Equipment Corp., Conn., 5c
Sola Electric Co., Div. of Basic Products Corp., Ill., 5sc, 10sc
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 5s
Sprague Electric Co., VecTrol Engineering, Inc. (Subsid.), Conn., 10 Rectifier & Thyratron c

Stancor Electronics, Inc., 3501 W. Addison St., Chicago 18, Ill., 5sc, Tel: 312-INdependence 3-7400
See ad in class 84

Stancor Electronics, Inc., Pa., 5s
Standard Electrical Products Co., Ohio, 5sc, 15sc
Standard Television Products, Ltd., Canada, 5sc
Stevens-Evans, Inc., Calif., 5sc

Superior Electric Co., 100 Ames Ave., Bristol, Conn., 5s, 15s, Tel: 203-LUdlow 2-9561
See ad on pages 2-11

Tel Instrument Electronics Corp., N.J., 5s

Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 5c, 10c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80

Thordarson-Meissner, Ill., 15sc
Torwico Electronics, Inc., N.J., 5c
Trionics Corp., Div. of Nautec Corp., Wis., 20c
Varo, Inc., Texas, 5c, 10c, 15c
Vibration Research Laboratories, Inc., N.Y., 5c

Victory Engineering Corp., 118 Springfield Ave., Springfield, N.J., 20s, Tel: 201-MUrdock 8-7150
See ad in class 74

Warren Mfg. Co., Inc., Mass., 5c
Westinghouse Electric Corp., Buffalo Div., Industrial Control Dept., N.Y., 10c
Wickes Engineering & Construction Co., N.J., 5c, 10c, 15c

Wuerth Products Corp., 1949 Moffett St., Hollywood, Fla., 10sc, Tel: 305-WAbash 3-1105
See ad in this class

Relay testers:
See class 41

73. Relays.

5. Coaxial
10. Contact
15. d'Arsonval
20. Differential
25. Electro-optical
30. Frequency-selective
35. Hermetically sealed
40. Impulse
45. Keying
50. Latching
55. Polarized
60. Power control & overload
65. Rotary
70. Sensitive
75. Solid-state
80. Stepping
85. Subminiature
90. Telephone
95. Time-delay

ATR Electronics, Inc., 300 E. Fourth St., Saint Paul 1, Minn., 60c, 90c, Tel: 612-CApital 2-3791
See ad in class 53

Abrams Instrument Corp., Mich., 95c
Aeromag, Inc., Mich., 70sc, 75sc

SOLVE YOUR VOLTAGE PROBLEMS WITH Inductrol* Induction Voltage Regulators

Voltage fluctuations can cause electronic tube failure, make equipment operate erratically, increase replacement parts costs. Inductrol regulators operate on the induction principle. This means precise voltage control and high reliability because **no brushes or tubes** are used. G-E Inductrol regulators are virtually maintenance free.

Inductrol regulator reliability and accuracy of operation can improve the performance of computers, TV transmitters, radio & radar equipment, X-ray equipment, equipment testing devices, and instrument calibration devices.

More information appears opposite G-E listing in this Class No.

*Registered trade-mark of General Electric Co.

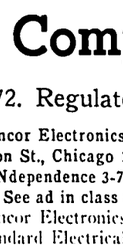
VOLTAGE REGULATOR PRODUCTS SECTION

GENERAL ELECTRIC

PITTSFIELD, MASS

For details, circle #467 on Reader Service Card

MICRO-MINIATURE • ULTRA-RELIABLE • ULTRA-PRECISION • SOPHISTICATED



SOLID STATE

INTERVAL TIMERS and TIME DELAY RELAYS

AVAILABLE FEATURES:

- Time delays from one millisecond to fifteen minutes
- Program timers (multi-outputs) up to several days
- Instant reset • Instant relay turn-on • 18-32 VDC
- Adjustable externally, remotely, or pre-set
- Reverse polarity protected • Temperature compensated
- Noise filtered • Transient suppressed
- Repeat-cycle • Sequencers • Pulsers
- Modules • Multiples
- Positive or negative output • Up to 6 PDT • 10 amps.
- Variety of sizes, configurations, header styles, & mountings
- Hermetically sealed and potted for shock and vibration protection

. . . Specially designed and manufactured models can be tailored to your requirements thru our field engineering services. Bulletins available. Write today.

ELECTRONIC PRODUCTS CORP.

4642 Belair Road • Baltimore 6, Maryland • Phone HAmilton 6-1268 • TWX - BA 203 U

For details, circle #468 on Reader Service Card

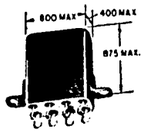
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226

ALLIED CONTROL RELAYS

MILITARY RELAYS

SUBMINIATURE

TYPE KHJ-6D
DPDT ● DC

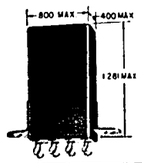


OPERATING CONDITIONS for KHJ-6D

Contact Rating: Low level up to 2 amps. non-inductive at 29 volts d-c or 115 volts a-c. 3 amp. contacts available on request.
Ambient Temperature: —65°C to +125°C
Vibration: 5-28 cps at 0.5 in. double amplitude, 28-2000 cps at 20g.
Shock: 50g operational.
Terminals: 0.2 in. grid spaced plug-in, printed circuit or hooked type solder terminals.

SENSITIVE

TYPE JSH-6D
DPDT ● DC

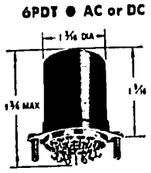


OPERATING CONDITIONS for JSH-6D

Average Pull-in Power at 25°C: SPDT-25 milliwatts; DPDT-40 milliwatts.
Contact Rating: 2 amps. non-inductive at 29 volts d-c or 1 amp. at 115 volts a-c. Low level contacts are available on request.
Ambient Temperature: —65°C to +125°C
Vibration: 5-55 cps at 0.12 in. double amplitude; 55-2000 cps at 20g.
Shock: 50g operational.
Weight: 1.1 ounce maximum.

MINIATURE

TYPE MHJ-18
6PDT ● AC or DC



OPERATING CONDITIONS for MHJ-18

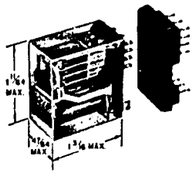
Contact Rating: Low level up to 5 amps. non-inductive at 29 volts d-c or 2 amps. at 115 volts a-c.
Ambient Temperature: —65°C to +125°C
Vibration: 5-28 cps at 0.5 in. double amplitude; 28-2000 cps at 20g.
Shock: 50g standard.
Weight: 4.2 ounces maximum.
AC: This relay is supplied with self contained diodes for 60 to 400 cps operation.

OTHER RELAY TYPES	Maximum Contact Pile-Up	Contact Rating Amps.	Coil Operation	Max. Basic Dimensions: Width & Length		Seated Height
JH-6D	DPDT	5	DC	.400	.800	.906
JH-18D	6PDT	2	DC	.800	1.200	.781
KHY-6D	DPDT	2	DC	.359	.797	.759
RSH	DPDT	2	DC	.765 dia.		1.609
SW	DPDT	5	DC	.906	1.406	1.625
CH-12	4PDT	10	AC or DC	1.203	1.203	1.718
MH-6D	DPDT	5	DC	.645 dia.		1.328
MH-12D	4PDT	5	DC	1.056 dia.		1.328
MH-18D	6PDT	5	DC	1.197 dia.		1.328
MHJ-12	4PDT	5	AC or DC	1.056 dia.		1.328
MHY-12	4PDT	10	AC or DC	1.197 dia.		1.328

COMMERCIAL RELAYS

TELEPHONE

TYPE T-154
4PDT ● DC



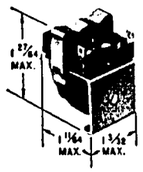
OPERATING CONDITIONS for T-154

Contact Rating: 2 amps. resistive or 1 amp. inductive at 29 volts d-c or 115 volts a-c. Low level or 5 amp. contacts available.
Nominal Coil Power: 700 milliwatts.
Minimum Coil Power: DPDT-125 milliwatts; 4PDT-300 milliwatts.
Dielectric: 1000 volts rms at sea level.
Terminals: Open relay—plug-in solder lugs or octal plug. Sealed relay—hooked type solder terminals, 14-pin miniature plug or octal plug.
Enclosure: Open, dust cover or hermetically sealed.

OTHER RELAY TYPES	Maximum Contact Pile-Up	Contact Rating Amps.	Coil Operation	Max. Basic Dimensions: Width & Length		Seated Height
LK	6PDT	2	DC	1.078	1.718	1.890
LKH	4PDT	2	DC	1.437	1.625	2.656
SK	6PDT	2	DC	.968	1.687	1.468
SKH	4PDT	2	DC	1.437	1.625	2.062
TAH	4PDT	2	DC	.953	1.343	1.593

GENERAL PURPOSE

TYPE FC-3D
SPDT ● DC



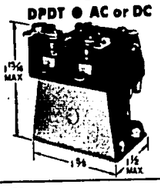
OPERATING CONDITIONS for FC-3D

Contact Rating: 2 amps. resistive or 1 amp. inductive at 29 volts d-c or 115 volts a-c.
Nominal Coil Power: 2.0 watts.
Minimum Coil Power: 300 milliwatts.
Capacity: Closed contacts to frame or between open contacts 3.0 mmf; open contacts to frame 1.5 mmf.
Dielectric Strength: 1000 volts rms at sea level.
Terminals: Solder lugs or "Miniature Faston" solderless tabs.

OTHER RELAY TYPES	Maximum Contact Pile-Up	Contact Rating Amps.	Coil Operation	Max. Basic Dimensions: Width & Length		Seated Height
AS-3	SPDT	5	AC or DC	1.000	1.687	1.296
BJ-6	DPDT	5	AC or DC	.875	1.703	1.968
F	DPST	2	DC	1.375	1.656	1.203
ME-6	DPDT	5	AC or DC	.828	1.406	1.203

POWER

TYPE BO
DPDT ● AC or DC



OPERATING CONDITIONS for BO

Contact Rating: 15 amps. non-inductive; 10 amps. inductive or 8 amps. motor load at 29 volts d-c or 115 volts a-c.
Dielectric Strength: 1500 volts rms at sea level.
Nominal Coil Power: 2.5 watts d-c or 5.0 volt amps. a-c.
Enclosure: Dust cover or hermetically sealed with hooked type solder terminals or octal plug.

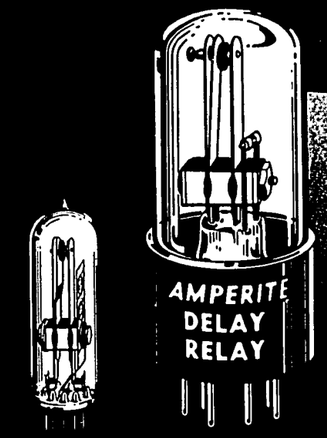
OTHER RELAY TYPES	Maximum Contact Pile-Up	Contact Rating Amps.	Coil Operation	Max. Basic Dimensions: Width & Length		Seated Height
BOHR-6	DPDT	10	AC or DC	1.671	1.796	2.687
BOY-6D	DPDT	10	DC	1.843	1.500	1.937
CNA-13	SPST	50	AC or DC	2.093	2.281	2.406
PB	4PDT	10	AC or DC	1.218	1.437	1.859
PO	4PDT	15	AC or DC	1.906	2.281	2.250

ALLIED CONTROL RELAYS • SOLENOID VALVES • SWITCHES
Allied Control Company, Inc., 2 East End Ave., N. Y. 21, N. Y. • BU 8-7403

For details, circle #469 on Reader Service Card

AMPERITE PREFERRED

by design engineers—because they're
MOST COMPACT • SIMPLEST • MOST ECONOMICAL
HERMETICALLY SEALED



Thermostatic DELAY RELAYS

2 to 180 Seconds

Actuated by a heater, they operate on A.C., D.C., or Pulsating Current.

Hermetically sealed. Not affected by altitude, moisture, or climate changes.

SPST only—normally open or closed.

Compensated for ambient temperature changes from —55 to +70 C. Heaters consume approximately 2 W. and may be operated continuously. The units are **rugged, explosion-proof, long-lived, and—inexpensive!**

TYPES: Standard Radio Octal, and 9-Pin Miniature

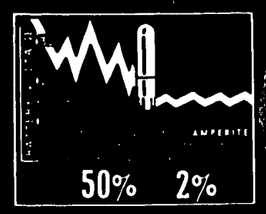
List Price, $4.00.
Standard Delays

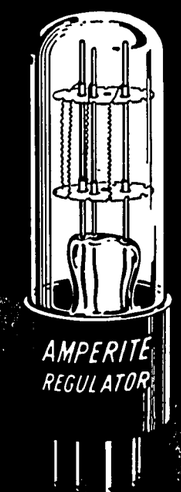
Also — Amperite Differential Relays: Used for automatic overload, under-voltage or under-current protection

PROBLEM? Send for Bulletin No. TR-81

BALLAST REGULATORS

Amperite Regulators are designed to keep the current in a circuit **automatically regulated** at a definite value (for example, 0.5 amp.) For currents of 60 ma. to 5 amps. Operate on A.C., D.C., or Pulsating Current





Hermetically sealed, they are not affected by changes in altitude, ambient temperature (—55 to +90 C), or humidity . . . Rugged, light, compact, most inexpensive . . . **List Price, $3.00.**

Write for 4-page Technical Bulletin No. AB-51

AMPERITE CO. Inc., 561 Broadway, New York 12, N. Y.
Telephone CAnal 6-1446
In Canada: Atlas Radio Corp. Ltd., 50 Wingold Ave., Toronto 10

For details, circle #470 on Reader Service Card

Directory II. Components

73. Relays.

Ad-Yu Electronics Laboratory, Inc., 340 Terhune Ave., Passaic, N.J., 70sc, Tel: 201-GRegory 2-5622
See ad in class 57

Adams & Westlake Co., Ind., 10sc, 40sc, 70sc, 95c, Mercury sc

Advanced Development Laboratories, Inc., N.H., 5c

Advanced Electronics, Inc., Conn., 70c

Advanced Research Associates, Md., 60s

Airborne Accessories Corp., N.J., 75sc

Airdesign Corp., Pa., 35s, 50s, 65c, 85c

Allen-Bradley Co., Wis., 5c, 95c

Allen Electric & Equipment Co., Mich., 15c

Allen Organ Co., Inc., Pa., 25sc

Allied Control Co., 2 East End Ave., New York 21, N.Y., 5c, 20c, 35sc, 45sc, 50c, 55c, 60sc, 65sc, 70sc, 85sc, 90sc, 95c, Tel: 212-BUtterfield 8-7403
See ad in this class

Allis-Chalmers Mfg. Co., Wis., 75c

American Instrument Co., Inc., Md., 70s, 95s

American Machine & Foundry Co., Government Products Group, N.Y., 5s, 20s, 35s, 40s, 50s, 55s, 60s, 70s, 75s, 85s, 90s, 95s

American-Monarch Corp., Mass., 35sc, 70sc, 80sc

Amperite Co., Inc., 561 Broadway, New York 12, N.Y., 95c, Tel: 212 CAnal 6-1446
See ad in this class

Assembly Products, Inc., 75 Wilson Mills Rd., Chesterland 44, Ohio, 30s, 70s, 70s, Tel: 216-HAmilton 6-4200
See ad in this class

Automatic Metal Products Corp., Berry St., Brooklyn 11, N.Y., 65sc, 85sc, Tel: 212-EVergreen 7-2000
See ad in class 52

Automatic Switch Co., 50sc, 70c, 95sc

Automatic Timing & Controls, Inc., Pa.

Axiel Electronics, Inc., Calif.

Axtonics, Ltd., Calif., 40s, 45s, 50s, 55s, 65s, 80s

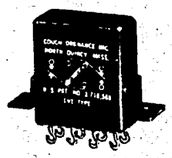
Babcock Relays, Inc., Calif., 40s, 45s, 50s, 55s, 60s, 65s, 70s, 85s, 90s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226

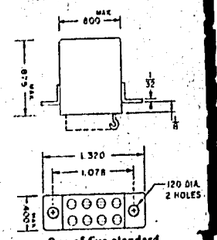
RUGGED ROTARY RELAYS

Couch

EXCEPTIONAL RELIABILITY WHERE THE ENVIRONMENT IS EXTREME

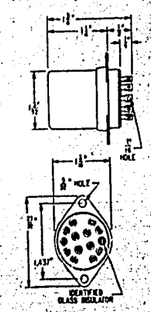


Type 2R Relay CVE Type



One of five standard mounting styles

4C36B Relay CVE Type



One of six standard mounting styles

15 section JR Switch

MICRO-MINIATURE ROTARY RELAYS

ONE SIZE — 3 DIFFERENT SENSITIVITIES

DATA SHEET NO.

Catalog Number	Coil Resistance ±10% @ 25°C	Maximum Pull-In Current	Minimum Drop-Out Current	Nominal Operating Value	Coil Sensitivity	
	Ohms	MA.	MA.	Volts	Milliwatts	
2R25A42-B	600	18.5	2.8	26.5	250	6
2R10A44-B	1500	7.5	1.1	26.5	100	6
2R04A46-B	3750	3.0	.5	26.5	40	6

Weight: 18 ± 1 Gram
Ambient Temperature: −65°C to +125°C
Contacts: 2PDT (2 Form C) 2A @ 30 VDC
Vibration: 30 G to 2,000 CPS
Shock: 100 G
Dielectric Strength: 1,000 VAC

SUB-MINIATURE ROTARY RELAYS

DATA SHEET NO.

STANDARD 26.5 VDC RELAYS

Catalog Number	Number Form C Contacts	Contact Rating 100,000 Operations	Coil Resistance ±10% @ 25°C	Maximum Pull-In Current	Nominal Operating Value	Notes	
			Ohms	MA.	Volts		
2A37-B	2	3 AMPS 30VDC	475	27	26.5	Dry Ckt. Capability	3
4A36-B	4	3 AMPS 30VDC	300	41	26.5	Dry Ckt. Capability	2
4C36-B	4	5 AMPS 30VDC	300	41	26.5	Heavy Duty	1
2B36-B	2	10 AMPS 30VDC	300	41	26.5	Heavy Duty	4
4AP36-AF	4	3 AMPS 30VDC	300	41	26.5	Dry Ckt. Plug-In	5
Other Available Values			19 to 27K	165 to 5.0	6.6 to 250	Wide Range of Mounting Styles Avail.	

Weight: 3.2 oz. Max.
Ambient Temperature: −65° to +125°C
Vibration: 20G to 2000 CPS
Insulation Resistance: 1000 Megohms Min.
Shock: 75G Min.

THE JR MULTIPOLE ROTARY SWITCH

DATA SHEET NO. S-1

The JR Switch is manufactured in accordance with MIL-S-21604 (Ships). It features contact ratings of 10A at 125VAC and 5A at 125VDC. Switches can be assembled with any number of sections up to 25 and can contain any combination of rotor types.

Write for Data Sheets which contain complete technical specifications

Couch **COUCH ORDNANCE INC.** A Subsidiary of S H Couch Company, Inc.

3 Arlington Street, North Quincy 71, Massachusetts • Tel. (Boston) CY 8-4147

For details, circle #471 on Reader Service Card

NEW RELAY

Branson Corp. now offers — for the first time — a truly miniaturized relay with a high order of operational reliability. Fully capable of meeting military requirements, the Type JR provides the circuit engineer with a new dimension in design flexibility.

The small space requirements of the new component approximate those of many transistors. This high density packing compatibility means excellent volumetric efficiency in circuit board applications.

Contact Arrangement . . . . . 1 Form C (SPDT)
Contact Rating . . Dry circuit or 1 amp 28VDC resistive
Life . . . . . 100,000 operations min.
Operate Time . . . . . 3 MS max.
Release Time . . . . . 3 MS max.

Available in several combinations of case, header and terminal style.

Shock . . . . . 50 G's 11 milliseconds
Vibration . . . . . 10-2000 cps 30 G's
Temperature . . . . . −65°C to +125°C

For complete technical details write or call:

BRANSON Corp.
41 SOUTH JEFFERSON ROAD
WHIPPANY, NEW JERSEY
TUCKER 7-1100

For details, circle #472 on Reader Service Card

Directory II. Components

73. Relays.

Barber-Colman Co., Motors & Components Div., Dept. V, P.O. Drawer 6a, 19119 Rock St., Rockford, Ill., 88sc, Tel: 815-WOodland 9-6551
See ad in class 67

Barker & Williamson, Inc., Pa., 75c

Base, Inc., Wis., 85sc, 70c, 90c

Bay Ray Electronics, Inc., 41, 75c

Bergen Laboratories, Inc., N.J., 75c

Bethlehem Instrument Co., Inc., Pa., 70c

Biddle Co., James G., Pa., 90c

Bourns, Inc., Calif., 55c, 85c

Brach Mfg. Corp., Inc., of Central Bronze Corp., N.J., 75c

Bradford Components, Inc., N.Y., 85c, 50c, 60c

Branson Corp., 41 S. Jefferson Rd., P.O. Box 234, Whippany, N.J., 85sc, 45sc, 50sc, 55sc, 65sc, 85sc, 95sc, Tel: 201 TUcker 7-1100
See ad in this class

Bristol Co., Conn., 55c, 85c

Buckwell Engineering Co., Inc., Calif., 60c

CTS Corp., 1142 W. Beardsley Ave., Elkhart, Ind., 85sc, Tel: 219 JAckson 3-0210
See ad on page 12

METER-RELAYS

Model 151C

Model 161C

Model 561C

Case Styles

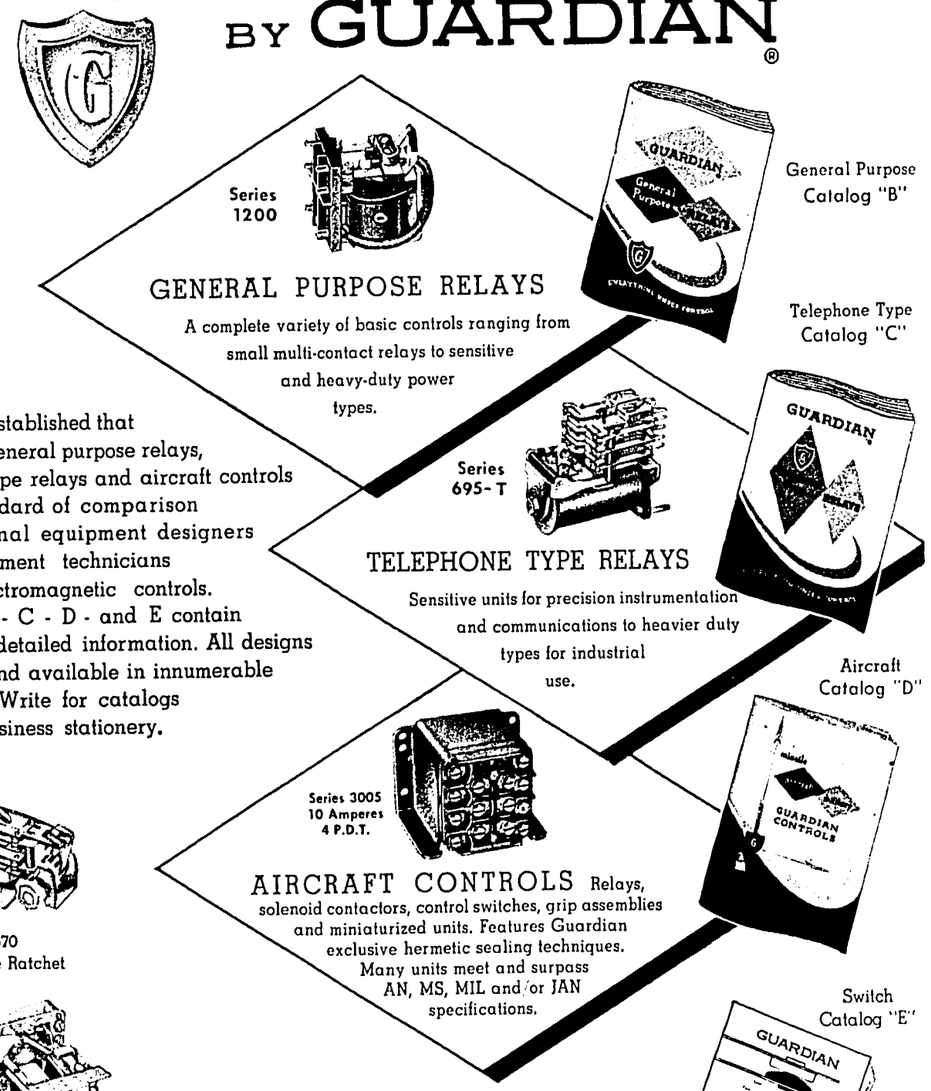
MIL Specs

ASSEMBLY PRODUCTS INC.
Chesterland 33, Ohio

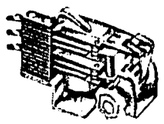
For details

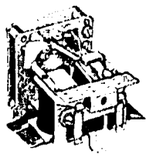
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 5 to 226

Everything UNDER CONTROL BY GUARDIAN®

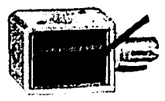


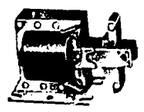
The fact is established that Guardian general purpose relays, telephone type relays and aircraft controls are the standard of comparison when original equipment designers and government technicians specify electromagnetic controls. Catalogs B - C - D - and E contain completely detailed information. All designs are basic and available in innumerable variations. Write for catalogs on your business stationery.

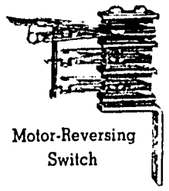

Series 670
Impulse Ratchet


M.E.R. Stepper

Submit your requirements for specific recommendations


No. 22 Solenoid


No. 18 Solenoid


Motor-Reversing Switch

GUARDIAN ELECTRIC
MANUFACTURING COMPANY
1572 W. CARROLL AVENUE, CHICAGO 7, ILLINOIS

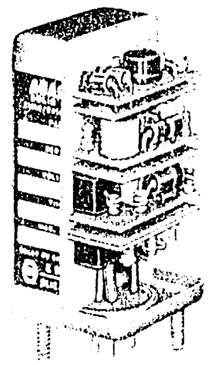
For details, circle #474 on Reader Service Card

Directory II. Components

73. Relays.

Canadian Aviation Electronics, Ltd., Canada, 75sc
Carborundum Co., Refractories Div., N.J., 35sc
Carma Mfg. Co., Calif., 65c, 70c, 80c
Cathodeon, Ltd., Meadowcroft Laboratories, England, 35s
Centroid Engineering & Mfg. Corp., 126 Jackson St., Cambridge 40, Mass., 70c, 75c, Tel: 617-TRowbridge 6-7250
See ads on page 111 & in class 91
Clare & Co. (C. P.), Ill., 30s, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc, 65sc, 70sc, 80sc, 85sc, 90sc, 95sc
Clark Controller Co., Ohio, 50s, 60s, 75s, 95s
Cole Instrument Co., Calif., 25c, 30c, 75c, 80c, 95c
Comar Electric Co., 3349 Addison St., Chicago 18, Ill., 35c, 40c, 45c, 70c, 85c, 90c, 95c, Tel: 312-JUniper 8-2410
See ad on page 132
Compact Circuits Co., Div. of Electrons, Inc., N.J., 25sc
Computer Instruments Corp., 92 Madison Ave., Hempstead, L.I., N.Y., 15c, Tel: 516-IVanhoe 3-8200
See ad in class 74
Connector Corp., Ill., 10sc, 90sc
Continental Electronics Corp., N.Y., 5c, 95c
Continental Electronics & Sound Co., Ohio, 90sc
Control Data Corp., Control Corp. (Subsid.), Minn., 30sc, 90sc
Control Dynamics Corp., Calif., 35sc, 65sc, 70sc, 85c
Cook Electric Co., Ill., 10sc, 35sc, 50sc, 55sc, 70sc, 75sc, 80sc, 90sc, 95sc
Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 5sc, 20sc, 35sc, 40sc, 55sc, 60sc, 80sc, 85sc, 90sc, Bi-Stable c
Corona Engineering Service, N.Y., 60s, 10 Mercury s
Couch Ordnance, Inc., 3 Arlington St., North Quincy 71, Mass., 35s, 65s, 70s, 85s, Tel: 617-CYpress 8-4147
See ad in this class
Crane Electronics Co., Calif., 75c
Curtiss-Wright Corp., Electronics Div., N.J., 75sc, 95sc
Curtiss-Wright Corp., Electronics Div., N.M., 75sc
Cutler-Hammer, Inc., Wis., 35s, 60s
Davis Electric Co., Mo., 35c, 50c, 80c, 85c, 90c
Daystrom, Inc., Control Systems Div., Calif., 70s, 75s
Daystrom, Inc., Weston Instruments Div., N.J., 10s, 15s, 35s, 70s
Destron Co., Calif., 95sc
Developmental Electronics Corp., Calif., 75c, 95c
Dialtron Corp., N.Y., 35c, 70c, 85c, 95c
Dielectric Products Engineering Co., Inc., Me., 5sc, 75c
Djeco, Div. of Djordjevic Engineering Co., Ill., 75c
Dmeter Mfg. Co., Inc., N.Y., 95c
Don-Lan Electronics, Inc., Calif., 5sc, 50c
Dow-Key Co., Inc., Minn., 5sc
E-T-A Products Co. of America, Ill., 60s, 95c
Eagle Signal Co., Div. of Gamewell Co., Ill., 35sc, 40sc, 95sc
Eastern Precision Resistor Co., Div. of Dynacron Electronic Corp., N.Y., 95c
Ebert Electronics Corp., N.Y., 35s, 50s, 55c, 60s, 70sc, 95sc, Mercury-Plunger sc
Edison Industries (Thomas A.), Instrument Div. (McGraw-Edison Co.), N.J., 5s, 15s, 35s, 55s, 60s, 65s, 70s, 95s
Elastic Stop Nut Corp. of America, Elizabeth Div., Dept. S3-1462, 1027 Newark Ave., Elizabeth, N.J., 75sc, 95s, Tel: 201-ELizabeth 2-2900
See ad in this class
Electro-Mechanical Specialties Co., Inc., Calif., 35sc, 60sc, 65sc, 70sc, 80sc, 85sc
Electro Radiation, Inc., Calif., 25c, 75c
Electro-Seal Corp., Ill., 35s, 60s, 95s
Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., Minn., 75c
Electro-Tec Corp., N.J., 35sc, 85sc
Electron-Radar Products, [illegible] 95sc
Electronic Control Corp., [illegible]
Electronic Controls, Inc., [illegible] 90sc
Electronic Products Corp., 4642 Reliance Rd., Baltimore 6, Md., 75sc, 95sc, Tel: 301-HAmilton 6-1205
See ad in this class
Electronic Specialty Co., Calif., 5c, 30c, 35c, 45c, 50c, 55c, 60c, 65c, 75c, 85c, 95c
Electropol, Inc., Calif., [illegible]
Elgin Electronics, Div. of Elgin National Watch Co., Calif., 5sc, 35sc, 40s, 45s, 50s, 60sc, 65sc, 70sc, 85sc, 90sc, 95sc
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 85s, 95c
Elotec Corp., Calif., 35s, 40s, 60s
Elsco Systems, Inc., Wash., 75c
Essex Wire Corp., KRM Controls Div., Ind., 35s, 60s, 70s, 90s, 95s
Etelco, Ltd., England, Inc., 30s, 35s, 40s, 50s, 55s, 65s, 70s, 80s, 85s, 90s
Executone, Inc., Components Div., N.Y., 10s, 55s, 70s, 85s
Filtors, Inc., N.Y., 35sc, 50sc, 55sc, 65sc, 70sc, 85sc
Five Star Co., Inc., [illegible] 50c

NEW SOLID STATE time/delay/relays



...with traditional AGASTAT reliability!

Now available . . . *solid-state* AGASTAT time/delay relays with accuracy and reliability essential for critical missile and computer applications

Advanced design . . . uses modular construction for versatility, rapid delivery on custom units. Specially selected, matched and tested components assure highest reliability and uniformity

Six basic types . . . cover timing ranges from 0.05 sec. to 60 hrs. Only 1⅛" sq. . . . hermetically sealed . . . immune to shock, vibration and voltage variations. Operation—18-32 vdc, pull-in or drop-out. Load current up to 2 amps. Write for brochure . . . contains full technical details. Dept. S-1462

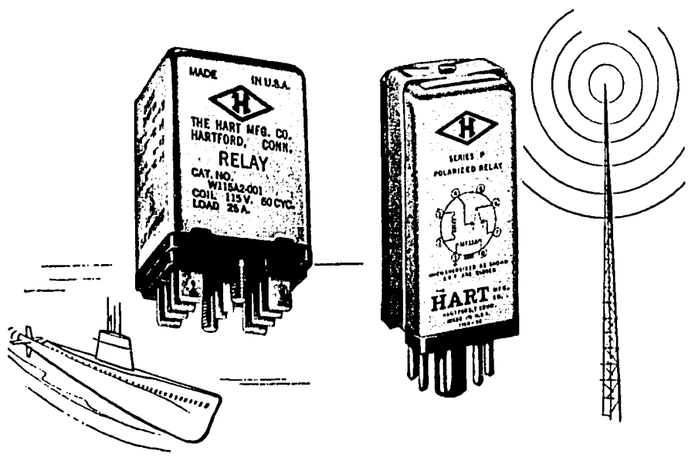
AGASTAT TIMING INSTRUMENTS
ELASTIC STOP NUT CORPORATION OF AMERICA
ELIZABETH DIVISION • ELIZABETH, NEW JERSEY

IN CANADA: ESNA CANADA, LTD., 12 GOWER ST., TORONTO [illegible]

For details, circle #475 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81 229

Heart of the Control System



"DIAMOND H" Relays

Look into the heart of the control system for a missile, a computer, a nuclear submarine, or a great many other critical applications. You might be surprised how often you'll find "Diamond H" relays.

Unless, of course, you're one of the increasing number of engineers who've already selected "Diamond H" relays for a spot where they just have to work despite all sorts of adverse conditions.

Hart makes relays of three basic types: miniature, hermetically sealed, aircraft-missile relays (Series R/S); high speed, sensitive, polarized relays (Series P), and general purpose AC, DC relays (Series W).

Technical literature outlining the wide range of characteristics available with each type relay is yours for the asking. You'll find "Diamond H" engineers uncommonly adept at working out a variation of the basic designs to meet your set of specific requirements.

Tell us your needs . . . by phone, wire or letter.

THE HART MANUFACTURING COMPANY
265 Bartholomew Ave., Hartford 1, Conn.

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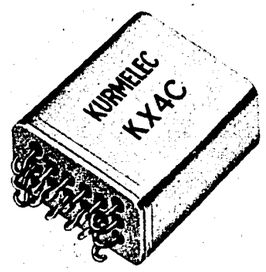
KURMAN ANNOUNCES "MIGHTY-MITE" *THE ASTRORELAY*



Brooklyn 22, N.Y. The smallest and lightest series of 4 POLE DOUBLE THROW RELAYS featuring high shock-vibration immunity, extreme reliability, low input power consumption, and meeting all the requirements of MIL-R-5757D, have been designed and made available by Kurman Electric Company, a Subsidiary of Crescent Petroleum Corp. This new Space-Age Relay, the Astrorelay, weighs approximately ½ oz., and meets the rugged demands of the missile and computer field.

This unique 4 Pole Double Throw micro-miniature relay, not larger than a postage stamp and the same size as Kurman KX-2C, offers excellent vibration immunity 30 G's 10-5000 CPS; 40 G's 10-2000 CPS. Special versions are available featuring vibration immunity of 50 G's 10-5000 CPS. The Astrorelay will meet 100 G shock test requirements.

Standard voltage ranges available are 6, 12, 24 volts. The relay will operate over a minus 65–+ 125 degrees C temperature range with a pull in power of approximately 250 milliwatts. Standard 4 pole double throw contact arrangement offers operation at any load from dry circuit, up to 2 amperes at 28 VDC resistive, featuring a contact resistance of less than 30 milliohms. Operate speed at nominal voltage will be approximately 8 milliseconds including a 2 millisecond maximum contact bounce. Drop out speed will be less than 4 milliseconds. In spite of the extremely small size, the insulation resistance is in excess of 1000 megohms, the relay will withstand a high potential break down test of 750 volts AC between any mutually insulated terminals or terminals in case. Dimensions are 0.875 x 0.800 x 0.400.

For complete details, write to
Kurman Electric Co.
191 Newel Street
Brooklyn 22, New York

For details, circle #477 on Reader Service Card

Directory II. Components

73. Relays.

Fortiphone, Ltd., Components & Transformer Divs., England, 85s

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 75c, 95c, Tel: 216-SHadyside 9-0700
See ad in class 50

G-V Controls, Inc., N.J., 30sc, 35sc, 60c, 75sc, 85sc, 95sc

General Automatic Corp., N.J., 20c, 35sc, 45sc, 50c, 70sc, 90c, 95c

General Communication Co., 677 Beacon St., Boston 15, Mass., 5s, Tel: 617-COpley 7-6030
See ads in class 37

General Devices, Inc., P.O. Box 253, Princeton, N.J., 75s, Tel: 609-WAlnut 4-2500
See ad adjacent to Index to Advertisers, back of book

General Dynamics/Electronics, N.Y., 90sc

General Electric Co., Pa., 20c, 30c, 60c, 75c, 95c

General Electric Co., Apparatus Sales Dept., N.Y., 20s, 35s, 50s, 55s, 60s, 85s, 95s

General Electric Co., Specialty Control Dept., Va., 35sc, 50sc, 55sc, 70sc, 85sc, 90sc

General Instrument Corp., Defense & Engineering Products Group, N.Y., 40c, 45c, 60c, 70c, 75c, 85c, 95c

General Instrument Corp., Semiconductor Div., 65 Gouverneur St., Newark 4, N.J., 75c, Tel: 201-HUmboldt 5-2100
See ad in class 76

General Railway Signal Co., N.Y., 55s, 60s, 70s, 95s

Giannini Controls Corp., Cramer Controls Corp., Conn., 35sc, 95sc

Glasseal Products Co., Inc., N.J., 35sc

Globe Electrical Mfg. Co., Calif., 35c, 50c, 55c, 70c, 90c, 95c

Goat Electronics, Inc., N.Y., 35c, 50c, 70c, 90c, 95c

Greibach Instruments Corp., 329 North Ave., New Rochelle, N.Y., 15sc, 25sc, Tel: 914-NEw Rochelle 3-7900
See ad in class 61

Griffiths Electronics, Inc., N.J., 85sc

Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 10c, 30c, 35c, 40c, 45c, 50c, 60c, 65c, 70c, 75c, 80c, 85c, 90c, 95c, Tel: 312-CHesapeake 3-1100
See ad in this class

Gulow Transformer Co., Inc., N.J., 75s

Gunnar Laboratories, Inc., Fla., 80c, 90c, 95c

H-B Instrument Co., Pa., 10sc, 35sc, 60sc, 70sc

Haledy Electronics Co., N.Y., 10sc, 35sc, 70sc

Harman-Kardon, Inc., N.Y., 75c

Harmon Co., Inc. (George), Calif., 75sc, 95sc

Harrel, Inc., N.Y., 75c

Hart Mfg. Co., 265 Bartholomew Ave., Hartford 1, Conn., 35s, 40s, 50s, 55s, 65s, 70s, Tel: 203-JAckson 5-3491
See ad in this class

Hartman Electrical Mfg. Co., Ohio, 10c, 20sc, 30sc, 35sc, 50c, 55c, 60c, 70c, 85c, 95c

Haydon Co. (A. W.), Calif., 30c, 60c, 75c, 95c

Haydon Co. (A. W.), Conn., 80c, 95c

Heinemann Electric Co., N.J., 95 Overload sc

Hi-G, Inc., Conn., 35sc, 50sc, 65sc, 70sc, 75sc, 80sc, 85sc, 95sc

Hi-Spec Electronics Corp., Calif., 35c, 70 Environmental c, 85c

Hillburn Electronics Corp., N.Y., 10s, 35s, 40s, 45s, 50s, 60s, 70s, 80s, 85s, 90s

Hitachi New York, Ltd., N.Y., 20c

Hoffman Electronics Corp., Calif., 75s

Hufco Industries, Calif., 35c, 85c, 90c

Hydro-Aire Co., Div. of Crane Co., Calif., 95sc

Imtra Corp., Mass., 80s, 90s

Industrial Timer Corp., N.J., 10sc, 40sc, 50sc, 60sc, 70sc, 90sc, 95sc

Infrared Industries, Inc., Mass., 25sc

Instrument Systems Corp., N.Y., 75c

International Instruments, Inc., 88 Marsh Hill Rd., Orange, Conn., 15c, Tel: 203-SYcamore 5-4711
See ad in class 61

International Telephone & Telegraph Corp., ITT Kellogg, Ill., 10s, 40s, 45s, 50s, 55s, 65s, 80c, 90s

Iron Fireman Mfg. Co., Electronics Div., Ore., 35sc, 50sc, 65c, 70sc, 85sc

J-B-T Instruments, Inc., 133 Hamilton St., New Haven 8, Conn., 30c, Tel: 203-STate 7-5825
See ads in classes 61, 80

Jack & Heintz, Div. of Siegler Corp., Ohio, 30c

Jaidinger Mfg. Co., Inc., Ill., 15c, 35c, 40c, 50c, 70c, 85c, 95c

James Electronics, Inc., 4050 N. Rockwell St., Chicago 18, Ill., 5s, 20s, 35s, 55s, 70s, Tel: 312-COrnelia 7-6333
See ad in class 53

Janco Corp., Calif., 65sc, 80sc

Jennings Radio Mfg. Corp., 970 McLaughlin Ave., San Jose 8, Calif., 5s, 50s, 60s, Tel: 408-CYpress 2-4025
See ad in class 49

Johnson Co. (E. F.), Minn., 60s

Jordan Electronics, Div. of Victoreen Instrument Co., Calif., 75c, 95sc

Kahl Scientific Instrument Corp., Calif., 35sc

Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 5c

Kidde Electronics Laboratories, Walter Kidde & Co., Inc., N.J., 40c, 50c, 55c, 70c, 75c, 85c, 95c

Klann Organ Supply Co., Va., 45s, 50s

Kuhnke (H.), Elektrotechnische Fabrik GmbH, Germany, 10sc, 50sc, 60sc, 65sc, 70sc, 80sc, 95sc

Kurman Electric Co., Subsid. of Crescent Petroleum Corp., 191 Newel St., Brooklyn 22, N.Y., 10sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc, 70sc, 85sc, 90sc, 95c, Tel: 212-EVergreen 3-8000
See ad in this class

Land-Air, Inc., Ill., 35s, 65s, 80s, 90s

Land-Air, Inc., Stepper Motors Div., Calif., 65c, 80c, 85c, 90c, 95c

Larson Instrument Co., 21 Greenbush Rd., Orangeburg, N.Y., 15c, 40c, 45c, 55c, 60c, 70c, 95c, Tel: 914-ELmwood 9-2310
See ad in class 61

Leach Corp., 18435 Susana Rd., Compton, Calif., 10sc, 20sc, 35sc, 50sc, 55sc, 60sc, 65sc, 70sc, 75sc, 85sc, 95sc, Tel: 213-NEvada 6-1061
See ad in this class

Ledex, Inc., Ohio, 35sc, 65sc, 80sc, 85sc

Life Instrument Co., Inc., Mass., 60sc, 70sc

Line Electric Co., N.J., 10sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc, 70c, 90sc, 95sc

Ling Temco Vought, Inc., Texas, 75c

Ling Temco Vought, Inc., Micromodular Components Div., Calif., 75c

Lionel Corp., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 60c, 65c, 70c, 75c, 80c, 85c, 90c, 95c

Liquidometer Corp., N.Y., 70s

Lumatron Electronics, Inc., 116 County Courthouse Rd., New Hyde Park, L.I., N.Y., 5s, Tel: 516-PIoneer 7-3200
See ad in class 23

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P&B RELAYS

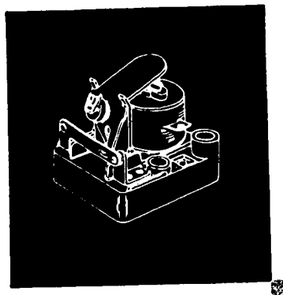
TELEPHONE TYPE RELAYS

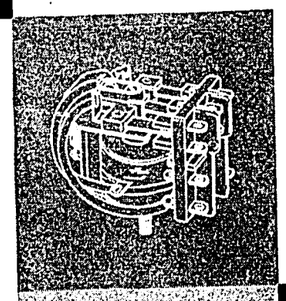
SENSITIVE RELAYS

GENERAL PURPOSE RELAYS

POWER RELAYS

SPECIAL PURPOSE RELAYS



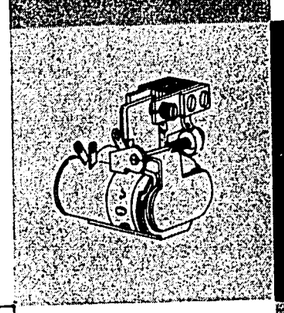


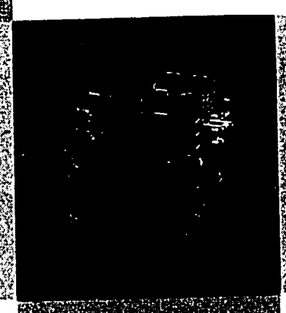
The largest and most complete relay line in the industry.

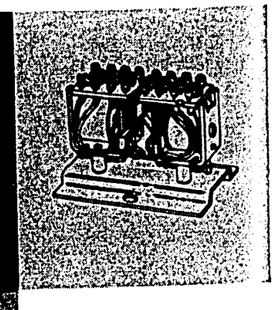
P&B standard relays—43 series in more than 450 voltages and contact arrangements—are available for off the shelf delivery from leading electronic parts distributors across the nation.

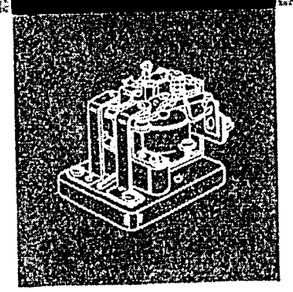
The designing and manufacturing of high quality, custom relays to fit specific requirements is a P&B specialty.

Your inquiries are always welcome. Write or call direct, or consult the P&B sales representative near you.









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Directory II. Components

73. Relays.

Lundell & Co., Ill., 75sc
Mack Electric Devices, Inc., Pa., 35s, 50sc, 70sc
Magnavox Co., Magnavox Research Laboratories, Calif., 10s, Logic s
Magnecraft Electric Co., Ill., 10sc, 35sc, 40sc, 50sc, 60sc, 70sc, 85sc, 90sc, 95sc
Magnetic Amplifiers Div., Siegler Corp., 632 Tinton Ave., New York 55, N.Y., 60sc, 75sc, Tel: 212-CYpress 2-6610
See ad in class 69
Magnetic Devices, Inc., Md., 5sc, 10s, 50s, 55s, 65s, 70s
Magnetic Devices, Ltd., England, 5s, 10s, 20s, 35s, 40s, 45s, 50s, 60s, 70s, 80s, 85s, 90s
Mallory & Co., Inc. (P. R.), Ind., 30sc, 75c, 95c
Marsland Engineering, Ltd., Canada, 35c, 50c, 70c, 85c, 95c
Marstan Electronics Corp., N.Y., 20c, 30c, 35s, 60c, 70c, 75c, 80c, 85c, 95c
Master Specialties Co., Calif., 75s, 95s
McElroy Electronics Corp., Mass., 45c, 95c
Mectron Co., N.J., 5s
Microdot, Inc., Calif., 5s
Miniature Electronic Components Corp., Mass., 35s, 40c, 45c, 50c, 55c, 70s, 85s, 90s
Minneapolis-Honeywell Regulator Co., Precision Meter Div., N.H., 15c, 70c
Mobil Electronics, Inc., Ind., 90sc
Monitor Relays, Inc., Ill., 20c, 35c, 40c, 45c, 50c, 90c
Moore Associates, Inc., Calif., 75s
Motorola, Inc., Military Electronics Div., Ariz., 75c
Muirhead & Co., Ltd., England, 20s
Muirhead Instruments, Inc., N.Y., 20s
Multronics, Inc., Md., 65s
Munzig International, Inc., Calif., 50s, 85s, 90s
Natel Engineering Co., Calif., 75s, 95s
Naybor Laboratories, Inc. (E. V.), N.Y., 35s, 50s, 65s, 85s, 95s
Networks Electronic Corp., Calif., 20c, 35c, 70c, 75c, 85c
Nippon Electric Co., Ltd., Japan, 55s, 90s
Norbatrol Electronics Corp., Pa., 75sc
North Electric Co., Ohio, 20s, 35s, 50c, 55c, 65s, 70s, 80s, 85s, 90s
Oak Mfg. Co., Ill., 35sc, 65sc, 80sc
Ohmite Mfg. Co., Ill., 35c, 50c, 60sc, 70sc, 90sc, 95c
Osborne Electric Co., Ltd., Canada, 5sc, 10sc, 35sc, 40sc, 50sc, 70sc, 80sc, 90sc, 95sc
Ovitron Corp., Power Controls Div., Conn., 60c, 75sc
Pacific Relays, Inc., Calif., 35c, 70c, 85c
Pacific Scientific Co., Calif., 35s
Penn Keystone Corp., Conn., 35sc, 40sc, 50sc, 55sc, 70sc, 75sc, 95sc
Pennon Electronics, Inc., Calif., 75c, 95c
Phaostron Instrument & Electronic Co., Calif., 15sc, 35sc, 70sc, 75sc
Philadelphia Scientific Glass Co., Pa., 10s, 35s, 70s, 85c
Philco Corp., Pa., 75s
Philips Electronics Industries, Ltd., Canada, 10s, 35s, 45s, 70s, 80s, 85s, 95s
Phillips Control Co., Div. of Phillips-Eckardt Electronic Corp., Ill., 10c, 20c, 30c, 35c, 50c, 60c, 85c, 90c, 95c
Photo-Crystals, Inc., Ill., 35sc, 60sc, 95sc
Photobell Co., Inc., N.Y., 25s
Pollak Corp. (Joseph), 75-95 Freeport St., Boston 22, Mass., 5c, 10c, 20c, 35c, 50c, 60c, 70c, 75c, 90c, 95c, Tel: 617-AVenue 2-9550
See ad in this class
Potter & Brumfield, Div. of American Machine & Foundry Co., Princeton, Ind., 10sc, 35sc, 40sc, 50sc, 55sc, 60sc, 70sc, 85sc, 90sc, Tel: 812-FUlton 5-5251
See ad in this class
Power Instruments Corp., Inc., Calif., 30sc, 75sc
Precision Thermometer & Instrument Co., Pa., 70sc, 75sc
Presin Co., Inc., Calif., 25sc
Price Electric Corp., 316 E. Church St., Frederick, Md., 5c, 35c, 50c, 55c, 60c, 65c, 70c, 80c, 85c, 90c, 95c, Tel: 301-MOnument 3-5141
See ad in this class
R F Products, Div. of Amphenol-Borg Electronics Corp., 33 E. Franklin St., Danbury, Conn., 5sc, 35sc, 65sc, 85sc, Tel: 203-Pioneer 3-9272
See ad in class 80
Radio Engineering Products, Ltd., Canada, 55s
Ram Meter, Inc., Mich., 60c
Raytheon Co., Industrial Components Div., Mass., 25sc
Relays, Inc., N.Y., 35sc, 45sc, 60sc, 70sc, 85sc, 90sc
Research Industrial Laboratory of Electronics, Pa., 70s
Rhodes, Inc. (M. H.), Conn., 95sc
Rixon Electronics, Inc., Md., 75sc
Robertshaw-Fulton Controls Co., Aero Div., Ohio, 40sc, 45sc, 50sc, 60sc, 70sc, 95sc
Rochar Electronique, France, 95c
Rowan Controller Co., Md., 10c, 60c, 95c
Rypinski Co. (C. A.), Calif., 45c
Salford Electrical Instruments, Ltd., England, 15s
Scam Instrument Corp., Ill., 35c
Schaevitz Engineering, N.J., 5c, 20c, 25c, 30c, 40c, 45c, 50c, 55c, 65c, 70c, 75c, 95c
Scherma Mfg. Co., Inc. (F. A.), N.Y., 5c, 35c, 90c

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CATALOGS UPON REQUEST

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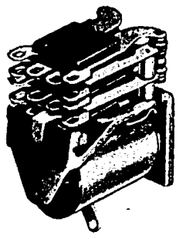
PRICE ELECTRIC RELAYS

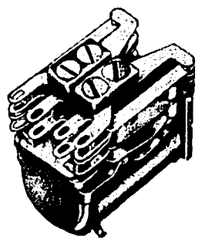
TELEPHONE
SERIES 5400
Miniature General-Purpose

To 4PDT. DC operated.* Contact ratings to 10 Amps. Coils for standard voltages to 120 VDC. Vibration-15G through 500 cycles. Shock-30G. Open (solder lugs or printed circuit tabs); Hermetically Sealed (plug-in and solder terminals).



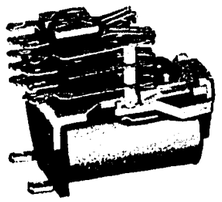
TELEPHONE
SERIES 5700
Midget General-Purpose

To 4PDT. AC or DC operated. Contact ratings to 10 Amps; single or bifurcated contacts available. Coils for standard voltages to 120 VDC or 230 VAC. Available to meet requirements of MIL-R-5757D, Types RY3JA1A4L01 and RY4JA1A2L02. Open or Hermetically Sealed (plug-in, solder terminals, AN connector).



TELEPHONE
SERIES 5600
Intermediate General-Purpose

To 6PDT. DC operated.* Contact ratings to 10 Amps; single or bifurcated contacts available. Coils for standard voltages to 120 VDC; special construction available for slow operate and/or release. Open or Hermetically Sealed (plug-in and solder terminals).

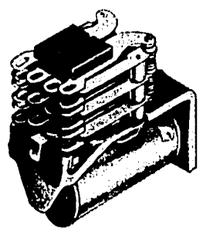


TELEPHONE
SERIES 5350
Small General-Purpose

To 6PDT. DC operated.* Contact ratings to 5 Amps. Coils for standard voltages to 120 VDC. Shock-30G. Vibrations—some styles to 10G through 500 cycles. Open or Hermetically Sealed (plug-in, and solder terminals).

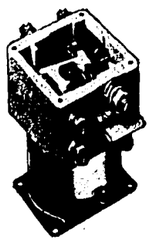
SENSITIVE
SERIES 5300
Small Sensitive

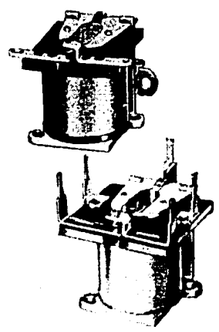
To DPDT. DC operated.* Contact rating 2 Amps to 26.5 VDC or 115 VAC. Standard sensitivity—20 milliwatts per pole; also available 10 milliwatts per pole sensitivity. Shock-30G. Vibration to 10G through 500 cycles available. Open or Hermetically Sealed (plug-in, and solder terminals).



HIGH CURRENT ROTARY
SERIES 8200

To 4PNO. DC operated.* Contact ratings to 200 Amps. Standard operating voltage-26.5 VDC. Temperature range —65° to +125°C. Shock-70G. Vibration-30G to 500 cycles. Open or Hermetically Sealed.



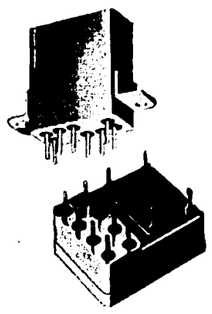


GENERAL PURPOSE
STYLES 1001 & 1005

SPDT. AC or DC operated. Standard contact ratings of 1 and 3 Amps; 10 Amp rating available on special order. Style 1001 has solder lugs and frame mounting. Style 1005 for printed circuit applications. Ideal for TV, automotive, and appliance control circuit applications.

MULTIPOLE
SERIES 2100

To 6PDT. AC or DC operated. Contact ratings to 15 Amps single break, 30 Amps double break. Coils for standard voltages to 120 VDC or 230 VAC. Open or Hermetically Sealed (plug-in and solder terminals).



MICRO-MINIATURE
STYLES 6 & 6A

DPDT. DC operated.* Lightweight, crystal can type relay is simple, reliable and versatile. Ideal for miniaturized assemblies. Termination can be provided to meet most requirements.

Style 6A is designed specifically for use in printed circuitry. Installed height is approximately 0.44".

Style 6 is available to meet requirements of MIL-R-5757D, Type RY4NA3B3L01.

SUB-MINIATURE
STYLE 506

DPDT. DC operated.* For Low-Level Circuits and General Purpose use. Available with isolated contact chamber for reliable low-level circuit switching. Solder or plug type termination. Available to meet requirements of MIL-R-5757D, Type RY4LA3B3L01.

SUB-MINIATURE
STYLES 300 & 520

6 PDT. DC operated.* A General Purpose relay of simple design and high reliability. Available with isolated contact chambers for reliable low-level circuit switching. Available to meet requirements of MIL-R-5757D, Types RY4LC2A3L01 and RY4LC3B3L01.

Suitable for AC operation with rectifiers.

PRICE ELECTRIC CORPORATION

316 Church Street
Frederick, Maryland

MOnument 3-5141
TWX: Fred 565-U

For details, circle #482 on Reader Service Card

reson-ator
FREQUENCY SELECTIVE DEVICES

RESONANT REED RELAYS AND OSCILLATOR CONTROLS

Reson-ator Resonant Reed Relays and Oscillator Controls are precision electro-mechanical devices engineered to provide the finest, most economical method of detection and generation of frequencies in the audio range. Ideal for any application requiring the stability and long life characteristic of this tuning fork type device.

- SIGNALING SYSTEMS
- DATA TRANSMISSION
- TONE GENERATORS
- FREQUENCY STANDARDS
- REMOTE CONTROL
- FREQUENCY DETECTION
- AUDIO FILTERS
- TELEMETERING

Brief Specifications—

Frequencies—67 cps to 1600 cps

Coil Resistances—1 to 1500 ohms DC

Temperature stability—±.0025%/°C from —40°C to +100°C

Reference 25°C

Enclosure—Drawn copper can, .750" x .750" x 3.281" overall. Provided with standard 7 pin hermetic seal header.

Relay Bandwidths—To suit customers requirements. From ±.1% to ±4%

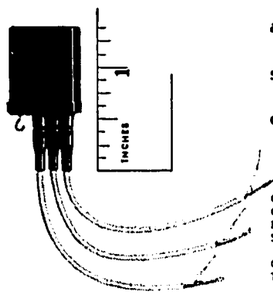
Complete specifications and application data available upon request.

SDL

SECURITY DEVICES LABORATORY
ELECTRONICS DIVISION OF SARGENT & GREENLEAF, INC.
ROCHESTER 21, NEW YORK

For details, circle #483 on Reader Service Card

TELEX/AEMCO *Now Offers*



a truly
subminiature
coaxial relay

SPECIFICATIONS

Contact arrangement . . . . . 1 form C (SPDT)
Contact rating . . . . . 1 watt r.f.—50 ohms
Frequency range . . . . . 20 to 400 mc
Standing wave ratio . . . . . 1.25 to 1 over the frequency range
Crosstalk . . . . . 50 db down
Temperature range . . . . . —55° C to 100° C

SUBMINIATURE COAXIAL RELAY

At last! A truly subminiature coaxial. Created by TELEX-AEMCO engineers to meet requirements of ultra-compact airborne and portable communication equipment. Designed to withstand severe shock and vibration requirements.

Mountings, cables, connectors, and coil characteristics can be supplied to your specifications.

Limited production is now available. Call or wire today. Identify inquiry as type 95 subminiature coaxial relay.
(Pat. Pend.)

a division of Telex, Inc.

TELEX/AEMCO
Mankato, Minnesota

TWX 1042
Ph. 8-6288

A new and complete catalog of TELEX/AEMCO relay and timer products is now ready for you. Write on your letterhead for your free copy today.

Your inquiry about special relay requirements is invited. TELEX/AEMCO specializes in the design and production of special design relay products.

Send us your specifications. Your inquiry will receive prompt and courteous attention.

For details, circle #484 on Reader Service Card

Directory II. Components

73. Relays.

Scientific Electronic Laboratories, Inc., N.J., 35s

Security Devices Laboratory, 24 Seneca Ave., Rochester 21, N.Y., 30sc, Tel: 716-HOpkins 7-3200
See ads in classes 46, 73

Siemens New York, Inc., N.Y., 55s

Sigma Electronics Research Corp., Wash., 5c

Sigma Instruments, Inc., Mass., 40c

Simpson Electric Co., 5218 W. Kinzie St., Chicago 44, Ill., 15sc, Tel: 312-EStebrook 9-1121
See ad in class 61

Slip Ring Co. of America, Calif., 95sc

Solatron, Inc., Mass., 70c, 75c

Solid State Electronics Co., Dept. I, 15321 Rayen St., Sepulveda, Calif., 75s, 95c, Tel: 213-EMpire 4-2271
See ad on page 44

Sorensen Industrial Electronic Co., N.J., 95c

Space Components, Inc., D.C., 35c, 55c, 70c

Spacetronics, Inc., P.O. Box 12325, 6000 Camp Bowie Blvd., Fort Worth 16, Texas, 35s, 55s, 85s, Tel: 817-PErshing 8-1271
See ad in class 53

Sparton Electronics, Div. of Sparton Corp., Mich., 75c

Standard Instrument Corp., N.Y., 95s

Standard Telephones & Cables, Ltd., England, 10sc, 35sc, 45sc, 50sc, 55sc, 65sc, 70sc, 85sc, 90sc

Stark Electronic Instruments, Ltd., Canada, 50s, 60s, 85s

Stelma, Inc., Conn., 75c

Stevens-Arnold, Inc., 7 Elkins St., South Boston 27, Mass., 30s, 35s, 45s, 55s, Tel: 617-ANdrew 8-1170
See ad in class 53

Struthers-Dunn, Inc., N.J., 10sc, 25sc, 35sc, 40sc, 50sc, 60sc, 65sc, 70sc, 80sc, 85sc, 95sc

Sunshine Scientific Instrument, Pa., 15s

Sylvania Electric Products Inc., Lighting Products Div., Special Products Operations, Mass., 35c

Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 65s, Tel: 201-WIndsor 4-2221
See ad in class 80

Telecomputing Corp., Calif., 35sc, 65s, 70sc, 85sc

Telecomputing Corp., Electronic Components Div., Calif., 85sc

Telex Aemco, Div. of Telex, Inc., 39 State St., Mankato, Minn., 5c, 10sc, 35c, 45sc, 50sc, 60c, 70c, 85c, 90sc, 95sc, Tel: 8-6288
See ad in this class

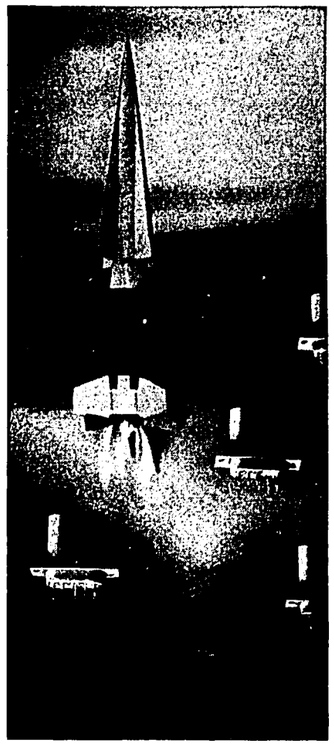
Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 5c, 10c, 35c, 40c, 45c, 50c, 60c, 70c, 75c, 85c, 95c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80

Tempo Instrument, Inc., N.Y., 75c, 95c

Terado Co., Minn., 70sc, 85s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

RELAY NEWS from Union Switch & Signal

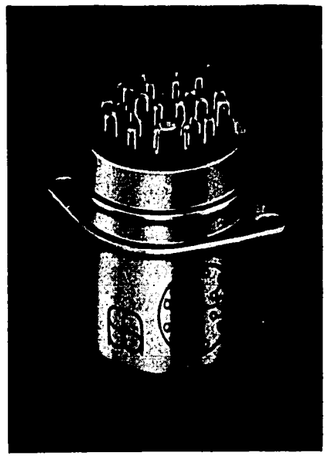


Contact Redundancy in New UNION Crystal Case Relays

The UNION 2-pole double throw General Purpose Crystal Case Relay is designed to consistently meet the requirements of Mil-R-5757D and Mil-R-5757/10. Its essential features . . . from minimum size to optimum reliability . . . permit it to be used in aircraft, guided missiles, shipboard and ground control electronic equipment.

A unique torsion-wire armature suspension system and a rugged all-welded frame construction provide a high level of vibration and shock immunity. Contact redundancy, which assures reliability in dry circuit and higher level contact loads, is provided through the use of bifurcated contacts.

Available with 0.2" grid-spaced header or "S" type header, with various mountings, terminals, and operating voltages. Write for Bulletin 1064.



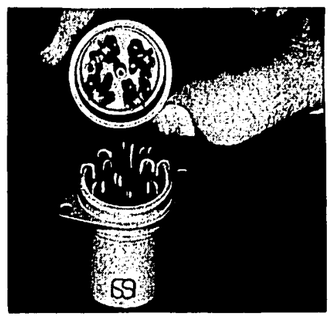
Why UNION Relays Are So Dependable

There's a good reason why our relays are the standard for reliability. For years, we've been building tough, reliable relays for use in airborne and guided missile electronic equipment and similar vital applications where perfect operation under severe environmental conditions is mandatory.

Our engineers created a compact 6-PDT miniature relay with just three major assemblies . . . instead of a fistful of small parts. This was accomplished by using a balanced rotary-type armature that provided a maximum resistance to the severe shock and vibration environment of aircraft and guided missiles. The rotary principle of operation is utilized in all our relays.

We have a reputation for building reliable electronic components and we intend to maintain our tradition for building reliable relays. And we supply these quality relays in quantity. Stocks are now available for prototype requirements in New York, Pittsburgh, Dallas and Los Angeles.

New 4-PDT-10-amp Relay Most Compact Rotary Type Available



This new durable relay is designed to meet the requirements of Mil-R-6106. It's a rugged relay featuring exceptionally sturdy terminals and husky contacts for high current applications. Glass-coated cylindrical contact actuators attached to the rotary armature provide square mating of contact surfaces, thereby assuring longer relay life. The balanced rotary armature provides maximum resistance to severe shock and vibration.

This small 4-PDT-10-Ampere relay is currently available with 115VAC and various DC operating voltages. Various mounting styles are provided. Write for bulletin 1069.

For additional information, write for Bulletin 1017 or call Churchill 2-5000 in Pittsburgh.

MEMBER OF THE NATIONAL ASSOCIATION OF RELAY MANUFACTURERS

UNION SWITCH & SIGNAL
DIVISION OF WESTINGHOUSE AIR BRAKE COMPANY
PITTSBURGH 18, PENNSYLVANIA

For details, circle #485 on Reader Service Card

Directory II. Components

73. Relays.

Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expwy., P.O. Box 5012, Dallas 22, Texas, 60c, Tel: 214-ADams 5-3111
See ad on Cover 3
Therm, Inc., N.Y., 5sc
Therm-O-Disc, Inc., Ohio, 95c
Thermal Controls, Inc., N.J., 35s, 70s, 95s
Tipptronic, Inc., Ohio, 70s
Torwico Electronics, Inc., N.J., 20c, 30c, 35c, 50c, 55c, 60c, 70c, 75c, 95c
Touch-Plate Mfg. Corp., Calif., 50s
Transco Products, Inc., Calif., 5sc
Trepac Corp. of America, N.J., 55s, 70s, 75s, 90s, 95s
Tung-Sol Electric, Inc., East Orange Plant, N.J., 75sc
Ulanet Co. (George), 416 Market St., Newark 5, N.J., 95s, Tel: 201-MArket 2-4876
See ad in class 82
Union Switch & Signal, Div. of Westinghouse Air Brake Co., Braddock Ave., Pittsburgh 18, Pa., 10s, 35s, 65s, 70s, 85s, Tel: 412-CHurchill 2-5000
See ad in this class
United Control Corp., Wash., 20c, 75c, 95c
United States Instrument Corp., Va., 10sc, 40c, 45c, 80c, 90c, 95c
Universal Match Corp., Armament Div., Mo., 95 Undervoltage c
Vactric (Control Equipment), Ltd., England, 85s
Vap-Air Div., Ill., 60c, 75c, 95c
Voltron Products, Inc., Calif., Meter-Type sc
Ward Leonard Electric Co., 83 South St., Mount Vernon, N.Y., 50s, 60sc, 70sc, Tel: 914-MOunt Vernon 4-1000
See ad in this class
Waugh Engineering Co., Calif., 30s
Webcor, Inc., Electronics Div., Ill., 95c
Western Design & Electronics, Div. of U.S. Industries, Inc., Calif., 75sc
Westinghouse Electric Corp., Buffalo Div., Industrial Control Dept., N.Y., 75c
Westinghouse Electric Corp., Standard Control Dept., Pa., 60s, 95s
Wheaton Engineering Div., Hurletron, Inc., Ill., 30c, 35c, 75c, 85c, 95c
Wheelock Signals, Inc., N.J., 35c, 55c, 60c, 70c, 85c
Wilson & Co. (G. C.), W.Va., 95s
Winatic Corp., N.Y., 60c
Zenith Electric Co., Ill., 95sc

Repeaters, servo:
See class 77

Resistor testers:
See class 41

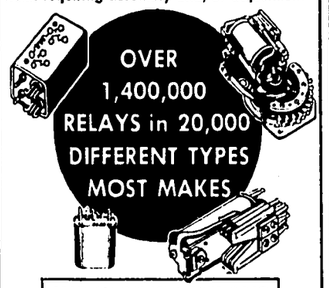
74. Resistors.

5. Carbon, deposited
10. Carbon, fixed
15. Carbon, variable
20. Film, precision
25. High-megohm
30. Networks
35. Potentiometers
40. Potentiometers, precision
45. Printed-circuit
50. Rheostats
55. Thermistors
60. Wirewound, fixed
65. Wirewound, precision
70. Wirewound, variable

Accuracy, Inc., 223 Crescent St., Waltham 54, Mass., 35c, 40 Sine & Cosine c, 70c, Tel: 617-TWinbrook 4-1126
See ad in this class
Ace Coil & Electronics Co., N.J., 65c
Ace Electronics Associates, Inc., Mass., 35sc, 40 Trimmers (Conductive Plastic) sc, 45c, 65sc, 70sc
Advancement Devices, Inc., N.Y., 35c
Aero Electronics Corp., Calif., 40sc
Aerovox Corp., Mass., 5s, 10s, 20c, 60s, 65s
Allen-Bradley Co., Wis., 10s, 15sc, 20sc, 50s
Allies' Products Corp., Fla., 5sc

SAVE TIME and EXPENSE on PURCHASING RELAYS

IMMEDIATE DELIVERY
Off Shelf Items
•
DELIVERY WITHIN 1 WEEK
Items requiring assembly and/or adjustment

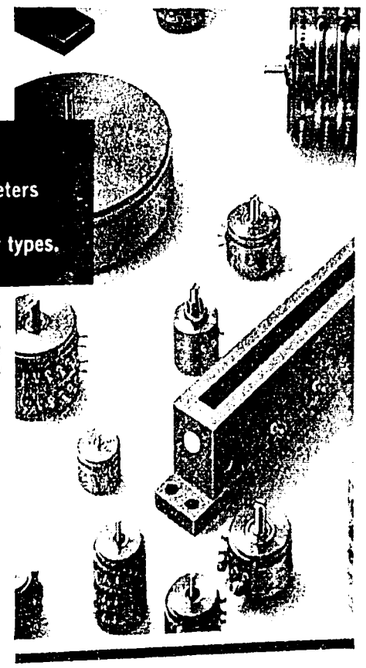


WE DELIVER RELAYS NOT PROMISES
PRODUCTION QUANTITIES IN STOCK
SEND FOR CATALOG R

Universal RELAY CORP.
42 WHITE ST., NEW YORK 13, N. Y. • WAlker 5-9257

For details, circle #486 on Reader Service Card

We make the finest precision potentiometers in both linear and non-linear types.



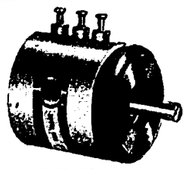
Write or call for comprehensive technical data

Accuracy, Inc.
223 CRESCENT ST.
WALTHAM 54, MASS.
TWinbrook 4-1126

For details, circle #487 on Reader Service Card

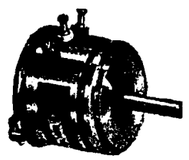
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

BORG MICROPOT® POTENTIOMETERS



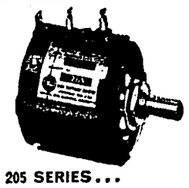
2100 SERIES . . .

7/8" diameter. 3 and 10-turn models. Resistances 10 to 40K (3-turn); 25 to 120K (10-turn). ±.5% standard linearity accuracy. −55°C to +125°C range. Request data sheets 160, 161.



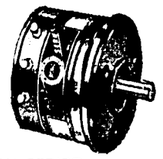
2400 SERIES . . .

Single-turn series. 7/8", 1-7/16", 2", 3" diameters. Resistances to 200K. ±1% to ±.5% standard linearity accuracy. −55°C to +125°C range. Request data sheets 186, 189, 190, 191.



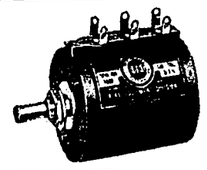
205 SERIES . . .

1-3/4" diameter. 3 and 10-turn models. Resistances 10 to 50K (3-turn); 1.15 to 100K (10-turn). ±.5% to ±.05% standard linearity accuracy. −55°C to +105°C range. Request data sheets 131, 162.



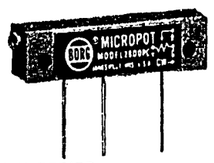
900 SERIES . . .

2" diameter. 3 and 10-turn models. Resistances 15 to 60K (3-turn); 25 to 100K (10-turn). ±.5% to ±.05% standard linearity accuracy. −55°C to +125°C range. Request data sheets 128, 129.



1100 SERIES . . .

1-13/16" diameter. 10-turn. Economically priced. Resistances 25 to 100K. ±.5% to ±.1% standard linearity accuracy. −55°C to +105°C range. Low-cost precision. Request data sheet 132.



2800 SERIES . . .

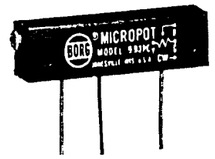
High-temperature, wirewound trimmer. −60°C to +175°C range. Each unit 100% tested against leakage. Resistances 10 to 50K. 1-1/4" length. 3 terminal types. Data sheet 173.

990 SERIES . . .

High temperature, wirewound trimmer. −60°C to +175°C range. Sealed against leakage. Resistances 10 to 50K. Four terminal types. 1-1/4" length. Data sheet 196.

992 SERIES . . .

Wirewound trimmer. −55°C to +105°C operating temperature. Resistances 10 to 50K. Three terminal types. 1-1/4" length. Economically priced. Request data sheet 172.



993 SERIES . . .

Carbon film element trimmer. −55°C to +105°C range. Resistances 20K to 1 megohm. Three terminal types. 1-1/4" length. Economically priced. Request data sheet 172.

BORG MICRODIAL® TURNS—COUNTING DIALS

3000 SERIES . . .

Concentric-scale. 1" dia. or 1-5/32" with finger-tip brake. 10-turns. Designed for 2100 and 2440 Micropot units; fine for any Micropot. Colors available. Data sheet 187.

1300 SERIES . . .

Direct-reading—3, 4, 5-digit models. 10, 100, 1000 turns. 1.8" to 2-1/16" dia. Brake optional. Reduce reading errors with in-line numerals. Data sheets 135, 136.

1320 SERIES . . .

Concentric-Scale type. 10-turns. 1-3/4" diameter. Finger-tip brake optional. Bright or satin chrome, gloss or dull black or combinations. Data sheet 138.

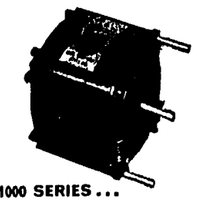
1330 SERIES . . .

Direct-reading, digital type. 10-turns. High style design. Internal, red or white light. Choice of colors. 1-3/4" dia. Finger-tip brake optional. Data sheet 164.

1360 SERIES . . .

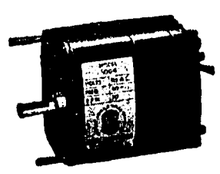
High style design. Attractive profile, colors. Molded numerals and lines. Won't scale or rub off. 1-3/4" diameter. 10-turns. Fingertip brake. Data sheet 137.

BORG MOTORS—FREQUENCY STANDARDS



1000 SERIES . . .

Sub-fractional H.P. instrument motors. Synchronous and induction. Two and 4-pole. Reversible. With or without gear trains. 1/750 to 1/2000 H.P. Request data sheet 139.

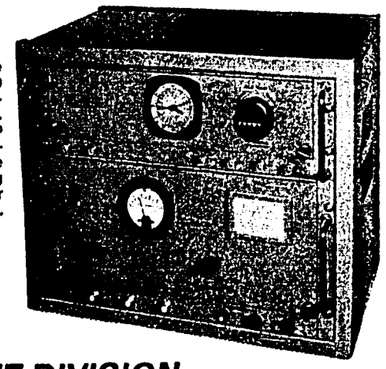


1060 SERIES . . .

Sub-fractional H.P. induction type control motors. Low inertia, high resistance squirrel-cage rotors. Variable speed, reversible. Gear trains available. Request data sheet 165.

Borg Frequency and Time Standards provide up to 1000 times the accuracy of conventional frequency comparisons. Stability of ±5 parts in 10^{10} per day after 21 days of continuous operation. Complete with Frequency Monitoring clock and Standby Power Supply. Request Bulletin 198.

See your nearest Borg Sales Office location in Representatives Section



BORG EQUIPMENT DIVISION

Amphenol-Borg Electronics Corporation

Janesville, Wisconsin • Phone Pleasant 4-6616

Micropot® Potentiometers • Microdial® Turns-Counting Dials • Sub-Fractional Horsepower Motors • Frequency and Time Standards

For details, circle #488 on Reader Service Card

Directory II. Components

74. Resistors.

Amelco, Inc., Handley Potentiometer Div., Calif., 35sc, 40 Trimmer sc

American Communications Corp., N.Y., 35c

American Electronics, Inc., Calif., 40c

Analogue Controls, Inc., N.Y., 40c

Ardente Acoustic Laboratories, Ltd., England, 15sc, 35sc, 45sc

Armstrong Whitworth Equipment, Sir W. G. Armstrong Whitworth Aircraft, Ltd., England, 40sc

Arnhold Ceramics, Inc., N.Y., 5s, 15s, 20s, 25s

Automation Research & Design Associates, N.J., 65c

Beckman Instruments, Inc., Helipot Div., Calif., 20sc, 25c, 35sc, 40sc, 65sc, 70sc

Belclere Co., Ltd., England, 30c

Biddle Co. (James G.), Pa., 50s, 65s, 70s

Blackburn Electronic Corp., Pa., 30c, 40c, 60c, 65c, 70c

Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 35sc, 40sc, 65sc

Bond Electronics Corp., N.J., 60c, 65c

Borg Equipment Div., Amphenol-Borg Electronics Corp., 120 S. Main St., Janesville, Wis., 35sc, 40sc, Tel: 608-PLeasant 4-6616
See ad in this class

Bourns, Inc., Calif., 15s, 35s, 40s, 45s, 50s, 60s, 65s, 70s

Bowitz Electronics, Calif., 35c, 40c, 50c, 70c

Bradford Components, Inc., N.Y., 60c, 65c

British Radio Electronics, Ltd., D.C., 5s, 40c

Brys Instrument Co., N.Y., 35sc, 40c, 50c, 60c, 65c, 70c

CBC Electronics Co., Inc., Pa., 20c

CTS Corp., 1142 W. Beardsley Ave., Elkhart, Ind., 15sc, 25c, 30c, 35sc, 45c, 50c, 60c, 65c, 70sc, Tel: 219-JAckson 3-0210
See ad on page 12

Calbest Electronics, Calif., 40sc

California Resistor Corp., Calif., 60sc, 65sc

Campbell Industries, Inc., N.H., 5sc

Carborundum Co., Refractories Div., N.J., 5sc, 55sc

Carter Mfg. Corp., Mass., 40sc

Carter Parts Co., Ill., 35sc, 50c, 60c, 70c

Centralab, Electronics Div. of Globe-Union, Inc., 900A E. Keefe Ave., Milwaukee 1, Wis., 35sc, Tel: 414-WOodruff 2-9200
See ad in this class

Chicago Aerial Industries, Inc., Ill., 35s, 40s, 70s

Chicago Aerial Industries, Inc., Kintronic Div., Ill., 40c

Chicago Telephone of California, Inc., Calif., 15c, 25c, 35c, 45c, 50c, 70c

Clark Controller Co., Ohio, 50s, 60s

Clarostat Mfg. Co., Inc., N.H., 5sc, 10c, 15sc, 20c, 30c, 35sc, 40sc, 45c, 50sc, 60sc, 65c, 70sc

Colber Corp., N.J., 60s

Cole Instrument Co., Calif., 65c

Computer Instruments Corp., 92 Madison Ave., Hempstead, L.I., N.Y., 5sc, 15sc, 20sc, 25sc, 35sc, 40sc, 50sc, Tel: 516-IVanhoe 3-8200
See ad in this class

Con-Elco, Div. of Edcliff Instruments, Calif., 5sc, 15sc, 35sc, 40c, 50sc, 70sc

Conrad-Carson Electronics, Inc., Calif., 60sc, 65sc

Consolidated Airborne Systems, Inc., N.Y., 25c, 30c, 60c, 65c, 70c

Consolidated Resistance Co. of America, Inc., N.Y., 30c, 60c, 65c

Constanta Co. of Canada, Ltd., Canada, 5sc, 20sc, 25c

Continental-Wirt Electronics Corp., Pa., 5sc, 20sc, 35sc, 50sc, 60sc, 70sc

Corning Glass Works, Corning Electronic Components Div., 750 High St., Bradford, Pa., 20s, 25s, 45s, Tel: 814-FOrest 2-5571
See ads in classes 48, 49, 74

Culver-Stearns Mfg. Co., Mass., 60sc, 65sc, 70sc

Dale Electronics, Inc., Subsid. of Hathaway Instruments, Inc., 1318 28th Ave., P.O. Box 488, Columbus, Nebr., 5s, 20s, 25s, 30c, 35s, 45s, 60sc, 65sc, Tel: 402-LOcust 4-3131
See ad in this class

Daven Co., Subsid. of General Mills, Inc., N.J., 20s, 30s, 35s, 40s, 45s, 50s, 60s, 65s, 70s

Daystrom, Inc., Weston Instruments Div., N.J., 20s

DeJur-Amsco Corp., Electronics Div., N.Y., 40c, 50c

DeWitt Development Co., Ill., 60c

Dmeter Mfg. Co., Inc., N.Y., 25c, 30c, 60c, 65c

Duncan Electronics, Inc., Calif., 40sc, 50sc

Eastern Jewel Corp., N.Y., 70s

Eastern Precision Resistor Co., Div. of Dynacron Electronic Corp., N.Y., 25c, 30c, 45c, 60c, 65c, 70c

Edcliff Instruments, Calif., 15sc, 35c, 40c, 70sc

Electra Mfg. Co., 4051 Broadway, Kansas City 11, Mo., 5c, 20c, 30c, Tel: 816-WEstport 1-6864
See ad in this class

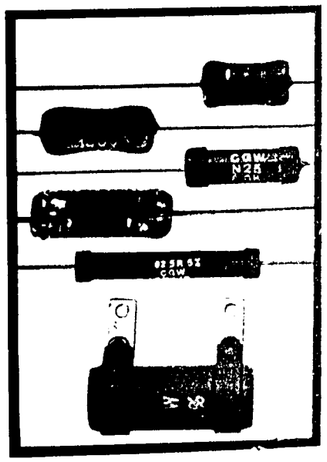
Electro-Flex Heat, Inc., Conn., 60sc

Electro-Mec Div. of Waltham Precision Instrument Co., Inc., 47-51 33rd St., Long Island City 1, N.Y., 35c, 40c, 65c, 70c, Tel: 212-STillwell 6-3402
See ad in class 80

Electro Radiation, Inc., Calif., 20s, 45c

CORNING TIN OXIDE RESISTORS

In recent 30,000 hour load life tests at 140% of rated load, tin oxide resistors showed a 1% drift capability . . . a good indication of their inherent stability and reliable performance.



N • To MIL-R-10509B, ½, 1, and 2W. Derating to 130°C. 50R to 4.2 megohms.

N • To MIL-R-10509C, Char. B, ½, 1, and 2W. Derating to 150°C.

NF • MIL-R-10509C. Fusion sealed in glass for the ultimate in performance. 10 ohm to 360K, derating to 150°C.

LPI • Low power for radio, tv, etc. 3, 4, 5, 7, and 10W. From 10 ohms to 110K.

C • General purpose resistor priced to compete with composition types in ½, 1 and 2W sizes. From 10 ohms to 1.4 megohms.

R • ½ to 115W at 250°C. Derating to 235°C. 10 ohms to 1 megohm. MIL-R-11804C.

S • High temperature to MIL-R-11804C in 1, 2 and 4W at 400°C. Derating to ½ power at 120°C. 10R to 4.2 megohms.

WC-5 • Water cooled. 10 to 300 ohms, dissipating up to 5 KW.

H • High frequency for dummy antennas, circuit loading, damping, etc. 5 to 140W. 10 ohms to 1 megohm.

HL • For high power dummy antennas and circuit loading. 250 to 6000W.

Write for data sheets.

CORNING ELECTRONIC COMPONENTS

CORNING GLASS WORKS, BRADFORD, PA.

For details, circle #489 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226

from DALE
Better Things in
Smaller Packages

WIRE WOUND
Miniature Power Resistors

Carefully designed, precision made under stringent quality controls for critical electronic circuits where space is at a premium.

Types RS - HS - PRS - RLS - RSE
(Available with Weldable Leads)

Resistance range from .05 ohm to 175K ohms, depending on type; tolerance range from .05% to .3%

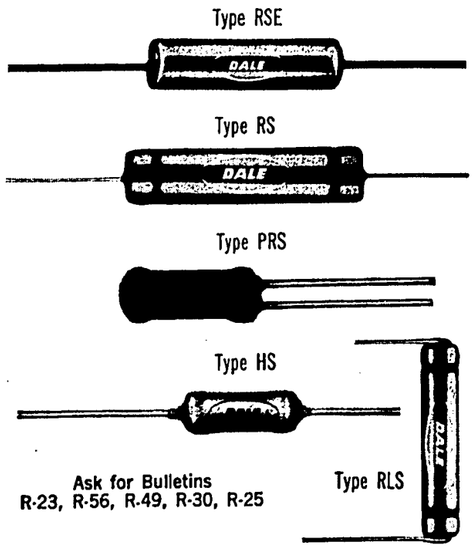
TYPE RS with axial leads in eight wattages—½, 1, 2, 2.5, 3, 5, 7, 10; ten sizes.

TYPE HS with axial leads in eight wattages -1.25, 3.75, 3, 3.25, 4.25, 6.5, 9, 13; nine sizes.

TYPE PRS with parallel leads in four wattages—3, 5, 7, 10; five sizes.

TYPE RLS with radial leads in six wattages—1, 2, 3, 5, 7, 10; eight sizes.

TYPE RSE in metal housing for clip mounting; five wattages—2, 3, 5, 7, 10; seven sizes.



Ask for Bulletins
R-23, R-56, R-49, R-30, R-25

Types NS - NLS

Non-inductive characteristics. Five wattages—2, 3, 5, 7, 10; six sizes. Resistance range from 1 ohm to 37K ohms, depending on size and type; tolerance range from .05% to 3%.

TYPE NS with axial leads; TYPE NLS with radial leads.

Ask for Bulletin R-34

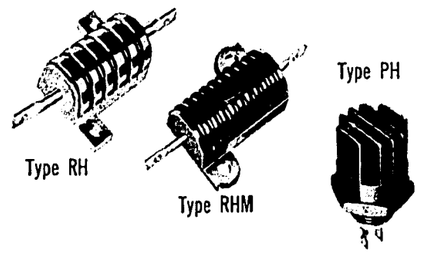
Types RH - RHM - PH

Silicone sealed in aluminum metal housing. TYPE RH and RHM have tabs for mounting to heat sink; TYPE PH designed for mounting through hole in chassis or heat sink.

TYPE RH six wattages—5, 10, 25, 50, 100, 250; resistance range from 0.1 ohm to 175K ohms.

TYPE RHM-25—25 watts for unprecedented reliability.

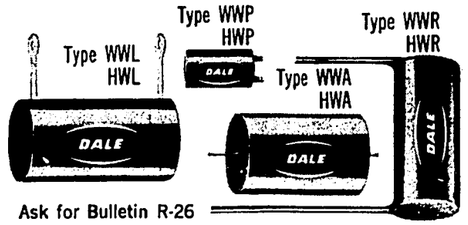
TYPE PH three wattages—10, 25, 100; resistance range from 0.1 ohm to 60K ohms. Tolerance range from .05% to 3%.



Ask for Bulletins R-21, R-36

Types WW - HW

Precision, encapsulated, bobbin-type, non-inductive. HW prefix denotes high temperature characteristics. Rated at .1 watt to 2.5 watts, depending on size and type; resistance range from .1 ohm to 6 megohms; tolerance range from .02% to 3%. Available with axial leads, lugs, radial leads and parallel leads.



Ask for Bulletin R-26

DALE ELECTRONICS, INC.
1318 28th Ave., Columbus, Nebraska
A subsidiary of Hathaway Instruments, Inc.

from DALE
Better Things in
Smaller Packages

Deposited Carbon and Metal Film Resistors

(Available with Weldable Leads)

Carefully designed, precision made under stringent quality controls to assure stability and accurate, dependable performance in high frequency applications.

Type DC

Resistance range from 1 ohm to 200 megohms; tolerance 1% or higher as specified. TYPE DC in seven wattages—1/10, 1/8, 1/4, 1/2, 1, 2, 5; ten sizes.

Type DC

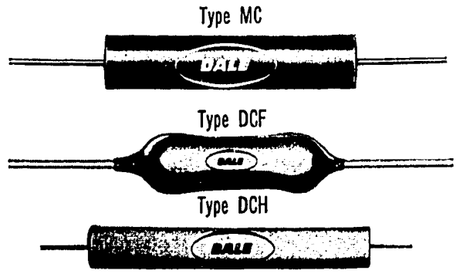
Ask for Bulletin R-24

Types MC - DCF - DCH
(Insulated)

TYPE MC is a deposited carbon resistor completely insulated and protected from environmental and mechanical damage by molded housing; resistance range from 1 ohm to 50 megohms. Available in five wattages—1/8, 1/4, 1/2, 1, 2; five sizes in standard tolerance of 1%.

TYPE DCF has a new coating material which provides a completely insulated resistor, yet maintains sub-miniature size. Resistance range from 1 ohm to 50 megohms; six wattages—1/10, 1/8, 1/4, 1/2, 1, 2; nine sizes in standard tolerance of 1%.

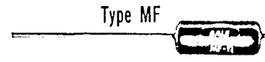
TYPE DCH hermetically sealed in non-hygroscopic ceramic envelopes; seven wattages—1/10, 1/8, 1/4, 1/2, 1, 2, 5; ten sizes.



Ask for Bulletins R-35, R-42, R-27

Type MF

Combines advantages of Dale's molding techniques with advanced high vacuum metal film procedures. It has inherently good R.F. characteristics, low noise levels, high stability, complete insulation. Resistance range from 100 ohms to 4 megohms, depending on size; tolerance 1%. Five wattages—1/8, 1/4, 1/2, 1, 2; five sizes. Temperature coefficient ±50 and ±100 P.P.M.



Ask for Bulletin R-43

WIRE WOUND
Trimmer Potentiometers

Series 1200 - 1100 - 900 - 600 - 1500 - 5000

Produced under stringently controlled conditions to assure highest quality and reliability. Welded construction throughout; sealed to protect against moisture and potting compounds.

SERIES 1200—A truly outstanding miniature T-Pot; three terminal configurations for standard or printed circuit mounting; 10 to 50K ohms; 5% tolerance; 1 watt.

SERIES 1100—Miniature, high temperature; three terminal configurations for standard mounting; 10 to 100K ohms; 10% tolerance; 1 watt.

SERIES 900—Sub-miniature, three terminal configurations for standard or printed circuit mounting; 10 to 30K ohms; 5% tolerance; 1 watt.

SERIES 600—Sub-miniature; eight terminal configurations for standard, panel or printed circuit mounting; 10 to 30K ohms; 5% tolerance; 1 watt.

SERIES 1500—Miniature, nine terminal configurations for standard, panel or printed circuit mounting; 10 to 50K ohms; 5% tolerance, 1 watt.

SERIES 5000—New sub-miniature space saving, square configuration; 100 to 50K ohms; 5% tolerance; 1 watt.

Ask for Bulletins R-51, R-50, R-59, R-60, R-61

Series 100 - 200 - 300

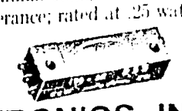
Designed to give excellent performance for normal circuit problems where economy is of prime importance, yet dependable performance is a necessity.

SERIES 100—Five terminal configurations; 10 to 50K ohms; 5% tolerance; rated at .8 watt.

SERIES 200—Five terminal configurations; 10 to 50K ohms; 10% tolerance; rated at .5 watt.

SERIES 300—Two terminal configurations; 100 to 20 K ohms; 15% tolerance; rated at .25 watt.

Ask for Bulletins
R-53, R-54, R-55



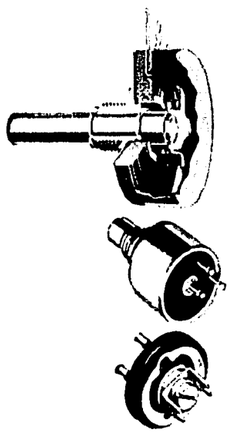
DALE ELECTRONICS, INC.
1318 28th Ave., Columbus, Nebraska
A subsidiary of Hathaway Instruments, Inc.

Centralab®: a RELIABLE source for

RELIABLE PRODUCTS

FOR MILITARY & COMMERCIAL APPLICATIONS

Most CENTRALAB products are available for immediate delivery in industrial quantities at factory prices, from CENTRALAB stocking distributors.



HOT MOLDED COMPOSITION VARIABLE RESISTORS

Meet MIL-R-94 environmental and test requirements. Provide smooth noise-free operation and high stability for which hot molded units are well known.

2 WATT @ 500V—Raised resistance track reduces surface contamination. Wide clearance between bushing and collector track for increased high voltage stability. Carbon collector and pick-off brushes.

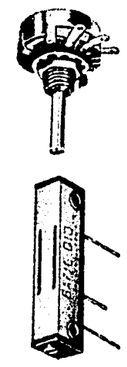
1-3/32" diam., 5/8" deep. 500 ohms—5 meg, linear taper; 10K-2.5 meg log taper.

3/4 WATT @ 350V—Metal enclosed units, available with triple "O" ring shaft seal. 23/32" diam., 1/2" deep. Same resistances as 2 watt unit.

1/2 WATT @ 350V—Similar construction as 3/4 watt. 1/2" diam., 15/32" deep. 100 ohms—5 meg, lin. taper.

1/3 WATT at 350V TRIMMER—locking type variable fixed resistor. Extremely resistant to shock vibration, acceleration, can be encapsulated. 19/32" diam., 11/32" deep. 50 ohms—5 meg, linear taper.

Write for Group G bulletins.



VARIABLE RESISTORS

1/4W. Linear Motion, wirewound 100 to 20K ohms and composition 10K to 2.5 meg. .250" x .325" x 1.250".

1/10W. Microminiature, 0.286" diam; Ultraminiature, 0.502" diam; Subminiature, 5/8" diam; 500 ohms to 10 megs. 1/4W. and 1/2W. Subminiature—For instruments and military. 43/64" diam. 500 ohms to 2.5 megs.

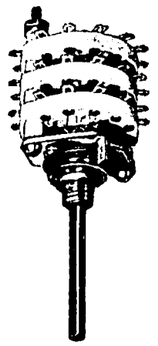
1/4W. Multiple Miniature—Up to 4 variable and 9 fixed resistors on a 3/4" x 2-1/4" steatite plate. 1000 ohms to 5 megs.

1/2W. Standard—For radio, TV. Single, Twin or dual-concentric. 15/16" diam. 250 ohms to 10 megs.

1-1/2W. Wirewound—for military and instruments. 11/16" diam., 5/16" deep. 4 ohms to 30K ohms.

2-5W. Wirewound—For instruments and TV. Single or dual-concentric. 1-5/32" diam. 1 ohm thru 100K ohms. Also available as 20 watt audio L and Bridged T Pad attenuators.

Write for Group B bulletins.



ELECTRONIC SWITCHES

Subminiature rotary—15/16" diam. for military and high reliability applications. Rating 0.5 amp. at 6VDC, 100 ma. at 110VAC. Laminated phenolic, steatite, single or multiple sections.

Miniature rotary—1-1/4" diam. for military and high reliability applications. Rated 2.0 amps. at 15VDC and 250 ma. at 110VAC. Available single or multiple ceramic, Mycalex and phenolic sections.

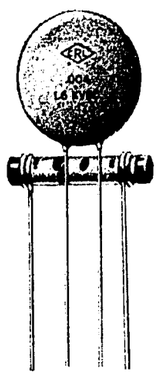
Standard rotary—1-5/16" diam. laminated phenolic or steatite insulation, single or multiple sections. Rating 2 amps. at 15-VDC. 150 ma. at 110VAC. (Resistive load.)

Heavy-duty power—For transmitter, industrial control, laboratory testing, military, commercial. 2-13/16" diam. 7-1/2 amp. rating at 110VAC. 25,000 cycles minimum.

Spring return—1-5/16" diam., coil or C-type springs, phenolic, steatite, single or multiple sections.

Specialized—Lever, slide, tone, tuner sections, others.

Write for Group P bulletins.



CERAMIC CAPACITORS

Ultraminiature—3 to 10VDC, 0.22—2.2 mfd.—for low power factor transistor applications.

Temperature compensating—Discs, tubulars, 150 v to 6,000 VDCW. 1 mmf.—0.1 mf. Capacitance +100 to —5250 ppm.

Bypass—Coupling—Discs, tubulars, 150 v to 6,000 VDCW, 1 mmf.—0.1 mf.

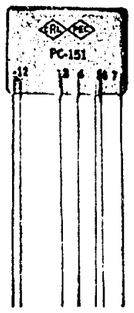
High Voltage—High Accuracy—High Voltage types, up to 30,000 VDCW, High Accuracy types, ± 1% tolerance, 500 VDCW, up to 2,500 mmf.

Trimmer—Tubular or flat. Meet MIL-C-81A specifications. 1 mmf. to 400 mmf. 500 VDCW.

Feed-thru—10—5000 mmf., 500—1,500 VDCW, bushing, shoulder, ring, eyelet, resistor-capacitor combinations.

Specialties—Stand-off, button-shape, potted, other capacitors.

Write for Group D bulletins.



PACKAGED CIRCUITS

Complete computer and Radio-TV circuits, amplifiers, oscillators, detector networks, resistor networks—including transistors, capacitors, resistors, wiring and inductance, manufactured to your specific performance limits.

PEC* circuits result in substantial savings in assembly costs. These high reliability packaged circuits can be supplied in a wide variety of terminals for printed circuit board applications.

1/2W. resistors meet applicable MIL-R-11 specifications, 50 ohms to 50 megs. Capacitors up to .01 mmf.

Write for Group T bulletins.

*Trade Mark

ENGINEERED CERAMICS

High alumina—85%, 95%, 99%—for high frequency, high temperature applications close tolerance (±.00025") designs. L6A Jan-I-10 grade.

Grade Jan-I-10-L5A steatite, Grade L2A Corderite, and Grade L2A Electrical Porcelain. For applications where high dielectric and compressive strength, high dimensional stability, low loss and low power factor are required, there is a CENTRALAB ceramic material for the job.

CENTRALAB also specializes in metalizing of ceramics, for hermetic seals or mechanical attachment of other ceramic or metal parts.

Write for Group X bulletins.

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G-6140

THE ELECTRONICS DIVISION OF GLOBE-UNION INC.
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In Canada: Centralab Canada Ltd., P.O. Box 400, Ajax, Ontario

ELECTRONIC SWITCHES • VARIABLE RESISTORS • CERAMIC CAPACITORS • PACKAGED ELECTRONIC CIRCUITS • ENGINEERED CERAMICS

For details, circle #492 on Reader Service Card

MICROWAVE RESISTORS by FILMOHM

NEW FLEXIBLE DISK RESISTORS

Rugged [illegible] METAL FILM [illegible] Low T.C. [illegible] Capacitance [illegible] Standard [illegible] Tolerances [illegible]

NEW MICROWAVE BOLOMETERS DISK TYPE

Broadband [illegible] wirewound Evanohm wire types [illegible] matched elements. Maximum VSWR at the standard mount less than 1.5 to 1.

NEW TWT ATTENUATOR RODS

Precision coated bands of carbon films [illegible] assembly and [illegible] products by Kanthal. Offered by R F [illegible] meter cut [illegible] of each rod

FOR RELIABILITY . . . STABILITY, UNIFORMITY

FILMOHM Metal Film Resistors offer: high stability • low temperature coefficient • tinned electrodes • micro-thin resistance film (even at highest frequencies) • quality-controlled dimensions, electrical and high temperature characteristics. Choose from a wide variety of shapes, sizes, base materials for a precision-engineered FILMOHM Microwave Resistor to suit your requirements.

•

FILMCARD
Metal film Fibreglass resistance card for all low power attenuators and terminations. Available in a wide range of resistivities. Easily fabricated. Ask about new FILMCARD KIT.

COAXIAL DISCS AND RODS
Metal resistance film fused to PYREX base, sealed with micro-thin quartz coating. From BNC to largest line size. Bulletin M-1-1.

METALLIZED GLASS ATTENUATOR ELEMENTS
Standard plates available for L through K bands.

FOTOCERAM* ATTENUATOR ELEMENTS
Ruggedized precision attenuator elements. Withstands severe shock and vibration.
*Reg. T.M. Corning Glass Wks., Corning, N. Y.

FILMOHM METALLIZED MICA
For use as rotary and guillotine attenuator elements. Ideal for mm. frequencies. Available in large sheets or fabricated parts. From .001" to .005" thick.

COAXIAL TERMINATION RESISTORS
Metal film, ceramic base resistors for 3/8" line coaxial terminations. Useable up to 10 KMC.

CERAMIC DISC RESISTORS
New, low cost, ruggedized disc resistors for coaxial terminations.

FLEXIBLE RESISTANCE CARD
Completely flexible thin plastic resistance card. May be laminated to cavities for use as mode suppressors.

HI-POWER COAXIAL LOAD RESISTORS
Metal film tubular glass resistors, non-inductive, for dummy loads and terminations. Standard and special sizes to 2' long.

STRIPLINE RESISTORS
Mica-base resistors as thin as copper stripline. Cement directly into stripline circuits.

MICRO-MODULE RESISTORS
Available on special order utilizing glass, ceramic or mica base. Custom-designed to suit your micro-miniature applications.

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FILMOHM CORPORATION
48 WEST 25th STREET, NEW YORK 10, N. Y.
WA 4-6605 TWX NY 1-4892

For details, circle #493 on Reader Service Card

Directory II. Components

74. Resistors.

Electro Scientific Industries, Inc., Ore., 35s, 40s, 60s, 65s, 70s,

Electro-Techniques, Calif., 40sc

Electromath Corp., N.Y., 35sc, 40sc, 60sc, 65sc, 70sc

Electronet Div., Rue Products, Calif., 65c

Electronic Development Laboratory, Inc., Ill., 65c

Electronic Plastics Co., Calif., 20s

Electrophono & Parts Corp., N.Y., 15s, 35s, 70s

Electropot, Inc., Calif., 40sc

Empire Precision Metal Parts, N.Y., 35c, 40c

Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 10sc, Tel: 814-GLendale 6-8592
See ad on pages 78-79

Espey Mfg. & Electronics Corp., N.Y., 30c

Fairchild Controls Corp., N.Y., 35sc, 40sc

Fenwal Electronics, Inc., Mass., 55sc

Ferroxcube Corp. of America, E. Bridge St., Saugerties, N.Y., 55s, Tel: 914-CHerry 6-2811
See ads in classes 10, 34, 55, 74, 92, 100

Film Resistors, Inc., N.J., 5sc, 20sc

Filmohm Corp., 48 W. 25th St., New York 10, N.Y., 20sc, Tel: 212-WAtkins 4-6605
See ad in this class

Fluke Mfg. Co., Inc. (Johns, Wash., 35s, 40s, 50s, 65c, 70s

Fortiphone, Ltd., Components & Transformer Divs., England, 15s

Franklin Engineering Design Co., Calif., 25c, 60 Hi-Voltage c

G C Electronics Co., Div. of Textron Electronics, Inc., Ill., 5s, 55s

Gamewell Co., Mass., 40c, 70sc

General Circuits, Inc., N.Y., 45c

General Controls Co., Calif., 35s, 40s, 60s, 65s, 70s

General Electric Co., Apparatus Sales Dept., N.Y., 50s, 60s, 70s

General Electric Co., Magnetic Materials Section, Mich., 55sc

General Instrument Corp., Semiconductor Div., 65 Gouverneur St., Newark 4, N.J., 60sc, 65sc, Tel: 201-HUmboldt 5-2100
See ad in class 76

General Radio Co., 22 Baker Ave., West Concord, Mass., 35s, 40s, 50s, 60s, 65s, 70s, Tel: 617-EMerson 9-4400
See ad on Cover 4

Now . . . for immediate delivery of RESISTORS SPRAGUE CLAROSTAT DALE OHMITE at factory prices DIAL BARCLAY 7-7777

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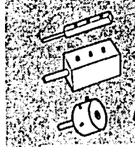
Precision Film Potentiometers



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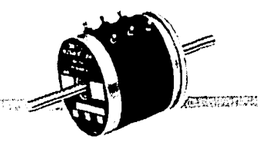
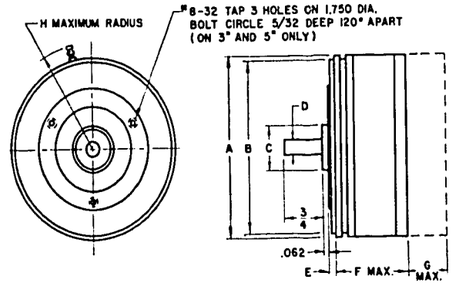
- PRECISION LINEARITY
- LOW OPERATIONAL NOISE
- MULTI-MILLION CYCLE LIFE

Rotary





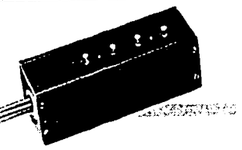
DIMENSIONS

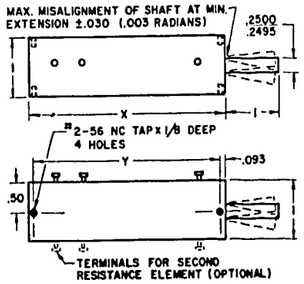
MODEL	50	78	105 & 106	205 & 206	305 & 306	505 & 506
A	1/2	7/8	1 3/32	2	3	5
B	.4375	.7500	1.0300	1.8750	2.8750	4.8750
C	---	---	---	---	.7500	.7500
D	.1250	.1250	.1250	.2500	.2500	.2500
E	.060	.040	.040	.060	.060	.060
F	3/4	.635	.635	.985	1.350	1.870
G	---	.635	.635	.985	1.350	1.870
H	1/2	.570	.670	1.125	1.800	2.800

SPECIFICATIONS

MODEL	LINEAR	SINE-COSINE
Mechanical Rotation	360° Continuous	
Electrical Function Angle	350° Nominal	360°
Resistance Range	1K-250K	500Ω-50K Quad
Best Linearity or Conformity	.1% ÷ Inch of Dia.	.3% P-P ÷ Inch of Dia.
Virtual Resolution	1/75,000 ÷ Inch of Diameter	
Wattage	Diameter x 2	
Temperature Range	−55°C to 150°C	
Taps, Maximum No.	Diameter x 6	
Starting Torque (In.−Oz.)	Diameter x .15	Diameter x .2
Guaranteed Life (at 100 R.P.M.)	To 30 Million Cycles	

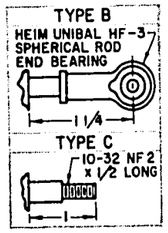
Linear





DIMENSIONS

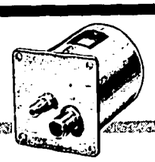
STROKE	X	Y
1/4" to 1"	2.125	1.937
1" to 2"	3.125	2.937
2" to 3"	4.125	3.937
3" to 4"	5.125	4.937
4" to 5"	6.125	5.937
Over 5"	1.125 + Stroke	.937 + Stroke

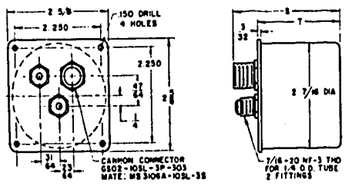


SPECIFICATIONS

Resistance Range	250 Min. to 125K Max. Per Inch of Stroke
Best Linearity	.05% ÷ Length of Stroke
Virtual Resolution	1/35,000 ÷ Inch of Stroke
Wattage	1 Watt Per Inch of Stroke
Temperature Range	−55°C to 150°C
Taps, Maximum No.	4 Per Inch of Stroke
Starting Force	.5 Lb. Max at 25°C
Life	To 30 x 10⁶ Strokes Depending on Circuitry

Pressure





SERIES 6000

1	Infinite Resolution Potentiometer Output
2	Pressure Range 0-5 to 0-4000 P.S.I. Gage, Differential, Absolute
3	Linearity ± 0.3% (0-100 P.S.I.) ± .5% (0-4000 P.S.I.)
4	Direct Coupled Pressure Capsule Eliminates Backlash, Friction and Repeatability Errors
5	Temperature Sensitivity Less Than .005% °C
6	High Output Voltage (50 Volts Max. AC or DC)
7	Ruggedized For Worst Environmental Conditions

DIMENSIONS	0-100 PSI	100-4000 PSI
S	3 3/8	2 3/8
T	2 19/32	1 19/32

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COMPUTER INSTRUMENTS CORPORATION
85 MADISON AVENUE, HEMPSTEAD, L.I., N.Y.

CIC

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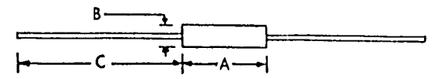
Now, one source — ELECTRA offers you all these precision resistors



All Electra resistors are designed to meet or exceed Mil-R-10509C. For complete details, see your local representative, or write for catalog and price schedules. Your request will bring complete specifications and charactertistics on any or all types by return mail.

DEPOSITED CARBON "R" COAT

Electra Part No.	Mil Style	Wattage	Mil Resistance Range	Manufactured Resistance Range	Maximum Rated Voltage	Length A ±1/32	Dia. B ±1/32	Leads Dia.	Lead Length C ± 1 8
DC 1/10		1/10		10 ohms to 300 K	250	1/4	3/32	#22	1-1/2
DC 1/8		1/8		5 ohms 800 K	250	5/16	3/32	#26	1-1/2
DC 1/8X		1/8		100 ohms 1 meg	250	5/16	3/32	#22 capless	1-1/2
DC 1/4A	RN10X	1/4	5 ohms 1 meg	5 ohms 2 meg	300	15/32	3/32	#22	1-1/2
DC 1/4X		1/4		100 ohms 2 meg	300	7/16	1/8	#22 capless	1-1/2
DC 1/2C		1/2		3 ohms 4 meg	350	1/2	11/64	#20	1-1/2
DC 1/2A	RN20X	1/2	10 ohms 2.0 meg	4 ohms 5 meg	350	5/8	11/64	#20	1-1/2
DC 1/2B		1/2		10 ohms 5 meg	350	23/32	7/32	#20	1-1/2
DC 1/2		1/2		10 ohms 5 meg	500	13/16	11/64	#20	1-1/2
DC 1	RN25X	1	10 ohms 4.99 meg	8 ohms 26 meg	500	*15/16	19/64	#20	1-1/2
DC 2	RN30X	2	30 ohms 10 meg	15 ohms 90 meg	750	*2-1/16	19/64	#20	1-1/2
				*Tol. ±1/16					

DEPOSITED CARBON MOLDED JACKET

						± .001	± .010		±1/8
DCM 1/10		1/10		10 ohms to 300 K	250	.260	.125	#22	1-1/2
DCM 1/8	RN60B	1/8	10 ohms 1 meg	4 ohms 3 meg	250	.410	.142	#22	1-1/2
DCM 1/4	RN65B	1/4	10 ohms 2 meg	5 ohms 7 meg	300	.600	.225	#22	1-1/2
DCM 1/2	RN70B	1/2	10 ohms 2.5 meg	4 ohms 8 meg	350	.755	.270	#20	1-1/2
DCM 1	RN75B	1	10 ohms 5.11 meg	5 ohms 28 meg	500	1.115	.400	#20	1-1/2
DCM 2	RN80B	2	30 ohms 10 meg	10 ohms 100 meg	750	*2.240	.400	#20	1-1/2
				*Tol. ± .030					

DEPOSITED CARBON HERMETICALLY SEALED

						± .001	± .010		±1/8
HC 40		1/8		8 ohms 1 meg	150	* .241	.160	#22	1-1/2
HC 10	RN60B	1/8	10 ohms 1 meg	8 ohms 1 meg	250	.427	.155	#22	1-1/2
HC 8	RN65B	1/4	10 ohms 2 meg	8 ohms 5 meg	300	** .640	.240	#22	1-1/2
HC 12	RN70B	1/2	10 ohms 2.5 meg	10 ohms 10 meg	350	.833	.250	#20	1-1/2
HC 6	RN75B	1	10 ohms 5.11 meg	8 ohms 25 meg	500	1.115	.400	#20	1-1/2
HC 7	RN80B	2	30 ohms 10 meg	20 ohms 50 meg	750	*2.240	.400	#20	1-1/2
				*Tol. ±1/32		** ± .015			

PRECISION CARBON FILM (HIGH TEMPERATURE) "R-5" COAT

CF 1/10		1/10		10 ohms 300 K	250	.250	.093	#22	1-1/2 ±1/8
CF 1/8	RN60B	1/8	10 ohms 1 meg	10 ohms 4 meg	250	.375 +1/16 −1/32	.125 +.040 −.010	#22	1-1/2 ±1/8
CF 1/4	RN65B	1/4	10 ohms 2 meg	5 ohms 12 meg	300	.625 +1/32 −1/16	.1875 +1/16 −1/32	#22	1-1/2 ±1/8
CF 1/2	RN70B	1/2	10 ohms 2.5 meg	5 ohms 12 meg	350	.750 +3/32 −1/16	.250 +1/32 −1/32	#20	1-1/2 ±1/8

PRECISION MOLDED AND "R-5" COAT METAL FILM

MF 1/10 MFS 1/10		1/10		30 ohms 200 K	250	.260 ± .015 .265 ± .015	.125 ± .010 .085 ± .010	#22	1-1/2 ±1/8
MF 1/8 MFS 1/8	RN60C	1/8	100 ohms 301 K	30 ohms 500 K	250	.406 ± .015	.135 ± .010	#22	1-1/2 ±1/8
MF 1/4 MFS 1/8	RN65C	1/4	100 ohms 499 K	50 ohms 1 meg	300	.594 ± .015	.210 ± .015	#22	1-1/2 ±1/8
MF 1/2 MFS 1/2	RN70C	1/2	100 ohms 1 meg	50 ohms 1.5 meg	350	.750 ± .020	.265 ± .015	#20	1-1/2 ±1/8
MF 1 MFS 1	RN75C	1	100 ohms 2 meg	50 ohms 4 meg	500	1.105 ± .020	.395 ± .020	#20	1-1/2 ±1/8
MF 2 MFS 2		2		100 ohms 10 meg	750	2.239 ± .020	.400 ± .020	#20	1-1/2 ±1/8

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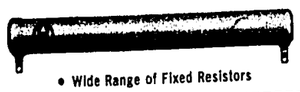
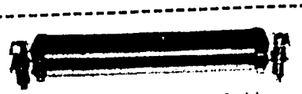
Proven performance in the most severe environments!

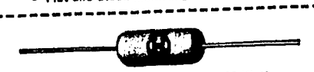
H-H "Gray Line" RESISTORS



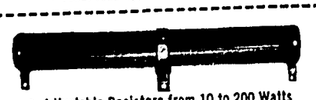
• Wide Range of Fixed Resistors



• Flat and Stack Mounting Power Resistors



• Axial-lead Types from 2 to 10 Watts



• Adjustable Resistors from 10 to 200 Watts

H-H "Gray Line" precision made resistors are available in a wide range of types . . . incorporate design and construction features that assure dependable performance in critical applications. Non-crazing and high temperature enamel, stronger core, welded wire connections, higher shock resistance and immunity to salt spray and humidity insure high reliability.

"Gray Line" fixed, ferrule, axial and adjustable resistors comply with MIL-R-26 specifications.

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Distributors Corporation

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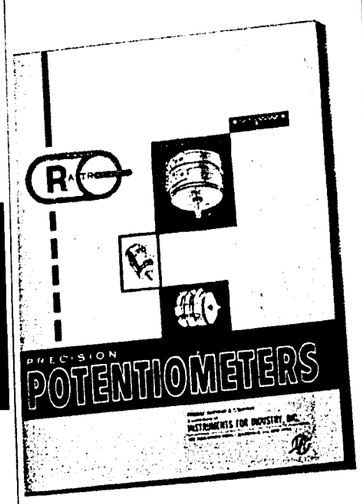
Your personal catalog of

RAYTRON PRECISION POTENTIOMETERS



- describes most of our standard precision potentiometers
- gives electrical, mechanical and general specifications
- includes drawings and temperature rating curves
- offers helpful general engineering data

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Hicksville, L. I., New York

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74. Resistors.

General Resistance, Inc., Dept. PI, 430 Southern Blvd., New York 55, N.Y., 30sc, 65sc, Tel: 212-CYpress 2-1500
See ad in this class

Giannini Controls Corp., Calif., 35c, 40c
Globe Electrical Mfg. Co., Calif., 70s
Gow-Mac Instrument Co., N.J., 55sc
Gray Instrument Co., Pa., 35c

Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 35sc, 40sc, 65sc, 70sc, Tel: 516-WElls 8-9500
See ad in class 77

Guildline Instruments, Ltd., Canada, 40s, 65s
Gulton Industries, Inc., N.J., 55sc
Gunnar Laboratories, Inc., Fla., 30c, 60c, 70c
Halex, Inc., Calif., 20c, 30c
Hamilton Hall Resistor Corp., Wis., 10s, 55s, 60sc

Hardwick, Hindle, Inc., 40 Hermon St., Newark 5, N.J., 35sc, 50sc, 60sc, 70sc, Tel: 201-MArket 2-8200
See ads in this class

Helco Products Corp., Calif., 35c, 40 Wirewound c, 65c, 70c
Hitachj New York, Ltd., N.Y., 55c
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Howell Instruments, Inc., Texas, 35s, 40s
Hydraulic Research Div. of Textron-Bell, Hyres Electrical Div., Calif., 35sc, 45sc, 70sc

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voltage dividers . . . analog-digital . . . summing amplifier . . . ladder . . . power supply . . . functional generator

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GenRes

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N Y 55. N Y CY 2 1500

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Industrial Instruments, Inc., N.J., 65s
Instrument Resistors Co., N.J., 60s, 65s

Instruments For Industry, Inc., 101 New South Rd., Hicksville, L.I., N.Y., 40c, Tel: 516-OVerbrook 1-7100
See ads in classes 43, 74

Intellux, Inc., Scientific Components Div., Calif., 20c, 30c, 35c, 40c
Interlab, Inc., N.Y., 5sc, 20sc, 40s, 60sc, 65sc, 70sc
International Resistance Co., Pa., 5c, 10c, 15c, 20c, 60c, 65c, 70c
Julie Research Laboratories, Inc., N.Y., 60sc, 65sc

K-F Development Co., 2606 Spring St., Redwood City 1, Calif., 35c, 40c, 60c, 65c, Tel: 415-EMerson 8-5670
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Kelvin Electric Co., Calif., 30c, 45c, 60c, 65c
Key Resistor Corp., Calif., 5c, 10c, 20c, 25c, 30c, 60c, 65c

Keystone Carbon Co., Thermistor Div., 1935 State St., Saint Marys, Pa., 55sc, Tel: 814-TErminal 4-1591
See ad on page 41

Kidco, Inc., N.J., 5sc, 10sc, 20 Carbon & Metal sc
Kidde Electronics Laboratories, Walter Kidde & Co., Inc., N.J., 55c
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 60c, 65sc
Kulite Semiconductor Products, Inc., N.J., 55c
Langevin, Div. of Sonotec, Inc., Calif., 30s, 35s, 40s, 45s, 60s, 65s, 70s
Lectrohm, Inc., Ill., 45c, 60 Power sc, 70sc
Leeds & Northrup Co., Pa., 65s
Lesa Costruzioni Elettromeccaniche S.P.A., Italy, 15sc, 35sc, 45s, 50sc, 70sc
Ling Temco Vought, Inc., Texas, 30sc
Ling Temco Vought, Inc., Micromodular Components Div., Calif., 30sc
Lionel Corp., N.J., 35s, 40s, 65s, 70s

Lionel Corp., Lionel Electronic Laboratories (formerly Anton Electronic Laboratories), Dept. X-2, 1226 Flushing Ave., Brooklyn 37, N.Y., 40sc, Tel: 212-EVergreen 6-5715
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Liquidometer Corp., N.Y., 35sc
Litton Industries, Inc., Components Group, Potentiometer Div., N.Y., 35sc, 40sc, 65sc, 70sc
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Lockheed Electronics Co., Avionics & Industrial Products Div., Calif., 35sc, 40sc, 45sc
Mallory & Co., Inc. (P. R.), Ind., 15sc, 35sc, 40sc, 45sc, 50sc, 60sc, 65sc, 70sc
Mallory Controls Co., Div. of P. R. Mallory & Co., Inc., Ind., 15sc, 20c, 35sc, 50sc, 60sc, 70sc
Markite Corp., N.Y., 35sc, 40 Conductive-Plastic sc
Marsland Engineering, Ltd., Canada, 60c, 70c
Marstan Electronics Corp., N.Y., 30s, 45s, 65s
Maurey Instrument Corp., Ill., 40sc, 45sc, 50sc, 65sc, 70sc
McElroy Electronics Corp., Mass., 60c
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Micro-Lectric, Inc., N.Y., 35s, 40s, 60c, 65c
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Microlectron, Inc., 1547 18th St., Santa Monica, Calif., 20sc, 25c, 30c, 45sc, Tel: 213-EXbrook 3-0356
See ads in classes 50, 60, 74

Mid-Eastern Electronics, Inc., N.J., 25sc

Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 65sc, Tel: 305-OXford 1-1220
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Miller Electro-Research Laboratories, Wis., 60c, 65c
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RESISTORS

100 PHYSICAL SIZES

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New winding techniques mass-produce resistors free from dangerous "cross-overs" and insulation breakdowns. Maximum **reliability** is assured . . . and . . . at mass-production prices.

According to your need, PRECISION'S Type TX Resistors may be had in the size and resistance value you want for your circuit. Terminals may be either axial or radial. Tolerances are standard from ±1% to ±1/20%. Where extreme accuracies are required, tolerances to ±1/100% may be obtained . . . inductively or non-inductively wound.

Military requirements are to PRECISION'S specifications.

PHYSICAL SIZE: Available in 100 sizes, ranging from diameters from 1/16" through 3/8" and lengths from 3/16" to 1-1/2".

RESISTANCE RANGES: From .01 ohm through 5.0 megohm — in any resistance value required or decimal part thereof.

ACCURACY: ±5% to ±1/20%. Tolerances ±1/50% to ±1/100% (absolute) available on specification.

TEMPERATURE COEFF. OF RESISTANCE: Standard ±0.0005%°C. throughout. Special temperature coefficient +5000 ppm° to ±1 ppm°C.

For complete information about PRECISION'S Sub-Miniature Type TX Resistors, write to:

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MANUFACTURERS OF WIRE WOUND RESISTORS EXCLUSIVELY

121 U. S. Highway #22, Hillside, New Jersey

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Miniature Electronic Components Corp., Mass., 35s, 45s, 60c, 65c, 70s
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 40s
Minshall Organ & Electronics, Inc., Vt., 35sc, 40sc
Model Engineering & Mfg. Corp., Ind., 35c, 40c, 50c, 60c, 65c, 70c
Model Rectifier Corp., N.Y., 50sc
Montek, Inc., Utah, 30sc, 60sc, 65sc
Muirhead & Co., Ltd., England, 35s, 40s, 60s, 65s, 70s
Muirhead Instruments, Inc., N.Y., 60s, 65s
Munzig International, Inc., Calif., 5s
Muter Co., Muter Div., Ill., 35c, 45c, 50c, 60c, 70c
National Electric Controller Co., Ill., 50c
National Resistance Co., N.Y., 20c, 25c, 30c, 45c, 60c, 65c
Neptune Electronics Co., N.Y., 10s, 15s, 35s, 50s, 70s
New England Instrument Co., Mass., 20c, 35s, 40 Conductive-Plastic s, 65s, 70s
Non-Linear Systems, Inc., P.O. Box 728, Del Mar, Calif., 65sc, Tel: 213-SKyline 5-1134
See ad on pages 76-77
Norden Div., United Aircraft Corp., Ketay Dept., N.Y., 35sc, 40sc, 60sc, 65sc, 70sc
Nucleonic Products Co., Inc., Calif., 55s
Ohio Carbon Co., Ohio, 10sc, 60c, 70c

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Directory II. Components

74. Resistors.

Ohmite Mfg. Co., Ill., 10s, 20 Metal sc, 35s, 50sc, 60sc, 65sc, 70c
Omtronics Mfg., Inc., Nebr., 30c, 60sc, 65sc
Ortho Industries, Inc., 7 Paterson St., Paterson 1, N.J., 65sc, Tel: 201-MUlberry 4-5858
See ad in class 59
Pacific Electrical Instrument Laboratory, Calif., 5s, 10s, 20s, 25s, 60s, 65s
Pacific Resistor Co., Calif., 20sc, 30c, 60sc, 65sc
Pendar, Inc., Calif., 60s, 65s
Penn Resistor Corp., 526 N. Broad St., Lansdale, Pa., 5s, 20s, Tel: 215-ULysses 5-9516
See ad in this class
Perkin-Elmer Corp., Vernistat Div., Conn., 40 AC sc
Phaostron Instrument & Electronic Co., Calif., 5sc, 20sc
Philco Corp., Pa., 20s
Philips Electronics Industries, Ltd., Canada, 10s, 55s
Photocircuits Corp., 31 Sea Cliff Ave., Glen Cove, L.I., N.Y., 45c, Tel: 516-ORiole 6-8000
See ad in class 50
Polytronics Co., Canada, 60c, 65sc
Precision Line, Inc., Mass., 35c, 40c, 50c, 70c
Precision Resistor Co., Inc., 121 U.S. Hwy. #22, Hillside, N.J., 30c, 45c, 60c, 65c, Tel: 201-BIgelow 3-3809
See ad in this class
Pyrocircuits Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 20c, 25c, Tel: 516-POrt Washington 7-3949
See ad in class 50
Pyrofilm Resistor Co., Inc., N.J., 5sc, 10sc, 20sc, 25sc, 30sc
Rattray & Co. (George): See Instruments For Industry, Inc.,
Reed & Reese, Inc., Calif., 30c, 35c, 40c, 60c, 65c, 70c
Renco Electronics, Inc., N.Y., 60c
Reon Resistor Corp., N.Y., 15sc, 25sc, 30c, 35sc, 40c, 45c, 50c, 60c, 65c, 70c

VECO PIONEERS NEW THERMISTOR AND VARISTOR FRONTIERS

FREE . . . VECO's complete line catalog — an invaluable aid in designing high-reliability circuitry wherever heat or voltage must be measured, controlled or used.

VICTORY ENGINEERING CORPORATION
118 Springfield Ave., Springfield, N. J.

Thermistors - Varistors - Chopperettes - Combustion Analyzers - Thermistor Catheters and Needles - Matched Thermistors - Thermal Conductivity Cells - Thermistor and Varistor Kits - Hypsometers - LOX Thermistors - and many other products.

For details, circle #506 on Reader Service Card

ONE COMPLETE RESISTOR SOURCE

1. Fixed, Wirewound, Power type Resistors, to MIL-R-26C and the commercial equivalents, in vitreous enamel or cement coatings, 5 watts to 200 watts.
2. Adjustable, Wirewound, power resistors in vitreous enamel or cement, 5 watts to 200 watts.
3. Precision, Wirewound Resistors, to MIL-R-93 and commercial.
4. Power-Precision wirewound resistors, Silicone coated, axial leads, 0.01 to 10% tol. (trade name—TECHSILOHM)
5. Power resistors, aluminized housing, RH types, MIL-R-18546B. (Trade name—Power pack)
6. Multisection wirewound, resistors, vitreous enamel and cement.
7. Printed circuit resistors.
8. Deposited carbon resistors in accordance with MIL-R-10509C.
9. Metal Film, Fixed, resistors, high stability—¼ watt to 10 watts.
10. Flat stacked mounted resistors. 10 watts to 60 watts.
11. Special resistors for every application.
12. Non-Inductive Resistors.
13. Wirewound heater elements.

TECH-OHM RESISTOR maintains over 500,000 resistors in stock and solicits your requirements based on quality, price, service, delivery and 13 years' experience.

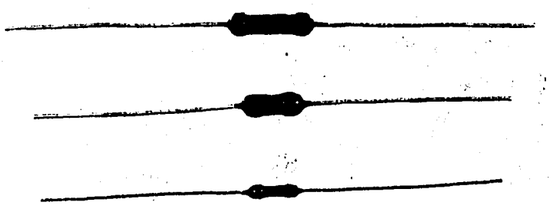
For technical information ask for Dan Chiafetz—Dept. 10

Tech-Ohm Electronics, Inc.

36-11 33rd Street
LONG ISLAND CITY 6, New York
Stillwell 6-2274

For details, circle #505 on Reader Service Card

LOW COST—HI STABILITY DEPOSITED CARBON RESISTORS



RESISTANCE—2.7 ohms to 50 Meg
TOLERANCE—1%, 2%, & 5%
WATTAGE—⅛, ¼, ½, 1 & 2 Watt
COATINGS—Epoxy Coated, Molded & Hermetic Sealed
AVAILABILITY—Stock to 10 days
COST—As low as 6.2¢ each

YOUR request for Specifications, prices & samples will receive immediate attention.

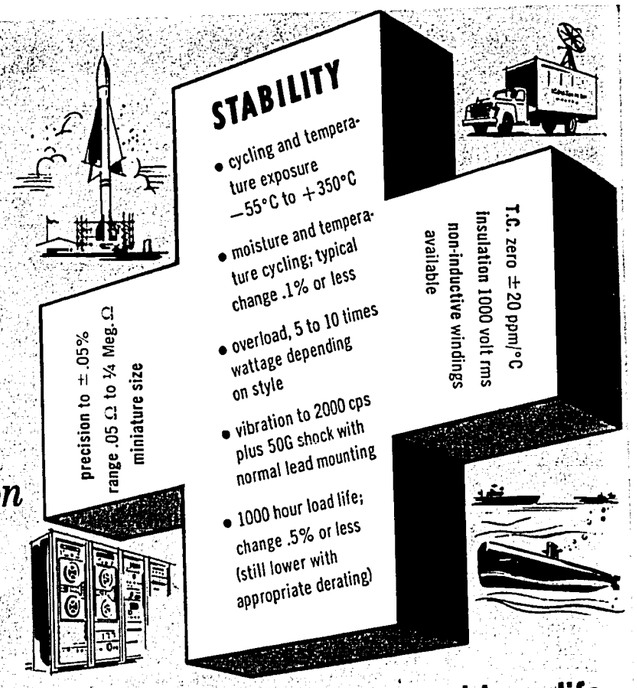
PENN RESISTOR CORP.
526 NO. BROAD ST. **LANSDALE, PA.**
UL 5-9516

For details, circle #507 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

SAGE POWER RESISTORS

offer this unequaled combination of **PLUS** *features:*



these PLUS values mean trouble-free performance and long life reliability in your equipment.

Sage Electronics alone enjoys a position of product leadership in this field based on:

- 12 years specialized experience in miniature power resistors.
- exclusive use of high stability precision wire.
- introduction of newly developed Impervohm® coating, which offers superior protection in all combinations of moisture, temperature and voltage. Impervohm® also is highly resistant to ultrasonic solvent wash.

SPECIFY THESE SAGE SILICOHM® RESISTORS

TYPE "CS" CLIPPER METAL SHEATHED RESISTORS

Similar in all respects to Type "S", fully insulated plus addition of metal sleeve for heat sink mounting in spring clip holders.

TYPE "S" IMPERVOHM® COATED POWER RESISTORS

Meet or exceed MIL-R-26C requirements.

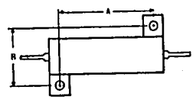
Style	Rating Watts
	full heat sink rating
CS3W	6
CSR5W	10
CSS7W	14
CSR7W	16
CS10W	20

Style	Rating Watts	Body Length	Body Diameter	Resistance Range, Ohms*
S1W	1	.406	.094	.5 — 10,000 (1800)
SA1W	1	.500	.125	.5 — 15,000 (3300)
SB1W	1	.687	.125	.5 — 24,000 (5300)
SA2W	2	.500	.187	.5 — 18,000 (3900)
SB2W	2	.812	.187	.5 — 33,000 (7500)
S2W	3	.625	.250	.5 — 25,000 (5500)
S3W	3	.750	.250	.5 — 35,000 (8000)
SS5W	5	.875	.312	.1 — 60,000 (13,500)
SR5W	5	1.000	.312	.1 — 75,000 (17,000)
SS7W	7	1.250	.312	.1 — 100,000 (22,000)
SR7W	8	1.375	.375	.05 — 140,000 (32,000)
SS10W	10	1.812	.375	.05 — 200,000 (43,000)
S10W	10	1.937	.375	.05 — 250,000 (49,000)

TYPE "M" METAL CLAD CHASSIS MOUNT RESISTORS

Aluminum housed resistors for heat sink mounting. SAGE Type "M" units feature less temperature rise than other similar resistors. Lower hot spot means longer service life and exceptional stability.

Meet or exceed requirements of MIL-R-18546 and MIL-R-8781 (USAF).



Dielectric strength to 2500 volts rms.

Style	Rating Watts	Resistance Range, Ohms*	A	B
M10W	14	.5 — 35,000 (5500)	.562	.625
M25W	25	.1 — 60,000 (13,500)	.719	.781
M50W	50	.05 — 200,000 (43,000)	1.562	.844

NOTE: All dimensions are inches nominal.

**Parenthetical figures show maximum values for .001 diameter wire.*

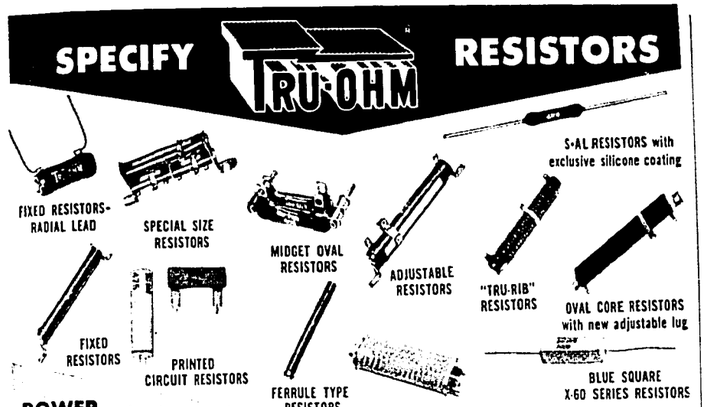
Complete specifications available on request.

SAGE SAGE ELECTRONICS CORPORATION

COUNTRY CLUB ROAD • EAST ROCHESTER, N. Y.

For details, circle #508 on Reader Service Card

SPECIFY TRU-OHM RESISTORS



TRU-OHM PRODUCTS — Division of Model Engineering and Mfg. Inc. — General sales Office 3426 West Diversey Blvd. Chicago 47, Illinois — Factory: Huntington, Indiana

For details, circle #509 on Reader Service Card

Directory II. Components

74. Resistors.

Resistance Products Co., Pa., 10sc, 20sc, 25sc, 65sc

Resistors, Inc., Ill., 60c, 70c

Resistron, Inc., Calif., 45c, 60c, 65c

Rex Rheostat Co., N.Y., 35s, 50s

Rho Engineering Co., Calif., 30c, 60sc, 65sc

Ruckelshaus Laboratories, Inc. (John G.), N.J., 20c, 35 Film c

Sage Electronics Corp., Country Club Rd., East Rochester, N.Y., 60c, 65c, Tel: 716-LUdlow 6-8010
See ad in this class

Salford Electrical Instruments, Ltd., England, 40s

San Fernando Electric Mfg. Co., Calif., 35sc, 40sc, 65sc

Sensitive Research Instrument Corp., 310-316 Main St., New Rochelle, N.Y., 65sc, Tel: 914-BEverly 5-2300
See ad in class 31

Servomechanisms/Inc., Mechatrol Div., N.Y., 40c

Servonic Instruments, Inc., Calif., 35c, 40sc

Shalleross Mfg. Co., N.C., 25sc, 30sc, 45sc, 60sc, 65sc

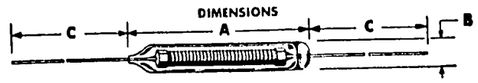
Shallite, Inc., N.J., 30c, 45c, 60c, 65c

Sheltered Workshops, Inc., Calif., 35c, 50c, 60c, 70c

THE VICTOREEN INSTRUMENT COMPANY

5806 HOUGH AVENUE • CLEVELAND 3, OHIO

GLASS-SEALED DEPOSITED CARBON RESISTORS

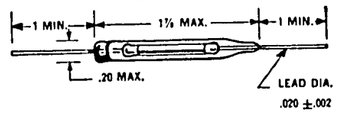


RESISTOR DATA CHART

TYPE	RESISTANCE	TOLERANCE	VOLTAGE COEF. %/V	TEMP. COEF. %/°C	MAX. W.V.	WATTAGE	MAX. TEMP. C	DIMENSIONS A (MAX)	DIMENSIONS B (MAX)	DIMENSIONS C (MIN)
RX2	1 Meg to 50 Meg	1,2,5,10,20 Note 1	—.0002	—0.08	3000	1	125	2	.413	1½
RX3	1 Meg to 200 Meg	1,2,5,10,20 Note 2	—.0002	—0.08	10,000	3	125	3½	.413	1½
RX4	200 ohm to 50 Meg	1,2,5	—.0002	—0.05	800	5	200	2	.413	1½
RX5	200 ohm to 200 Meg	1,2,5 Note 3	—.0002	—0.05	2000	10	200	3½	.413	1½
RX8	100 ohm to 10 Meg	1,2,5	—.0002	—0.05	750	2	200	1½	.240	1½

NOTE: 1: 1% and 2% tolerance available only below 20 meg.
2: 1%, 2% and 5% tolerance available only below 100 meg.
3: 1% and 2% tolerance available only below 100 meg.

HI-MEG RESISTORS



GLASS SEAL: HI-MEGS are vacuum sealed in a glass envelope which is treated with a special silicone varnish which keeps the resistor relatively free from the effects of moisture.

RESISTANCE: HI-MEG resistors are available in values from 10^8 to 10^{14} ohms.

TOLERANCE: HI-MEG resistors can be supplied in the following tolerances: 1% below 10^{12} ohms, 2% and 5% below 10^{13} ohms, and 10% over the entire range.

MAXIMUM WORKING VOLTAGE: 1000 volts.

MAXIMUM OPERATING AMBIENT TEMPERATURE: 100°C.

POWER RATING: The power rating for any HI-MEG resistor is equal to one divided by the resistance in megohms.

For details, circle #510 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

VITROHM RESISTORS

STOCK RESISTORS

Ward Leonard offers the largest selection of stock resistor types and sizes. Seven distinct stock resistor types are available for immediate shipment from the plant or your local *A.I.*Distributor. Resistors ranging from 2 to 200 watts and with resistance values from 1 to 250,000 ohms are designed to meet a multitude of needs and applications. The secret of Ward Leonard Vitrohm Resistor dependability, accuracy and consistency lies in the balanced design of every component in each resistor.

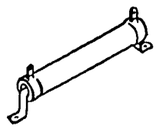
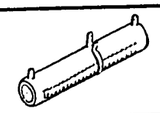
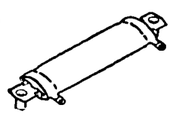
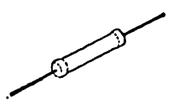
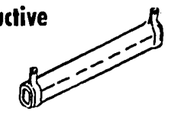
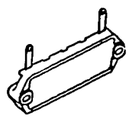
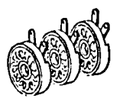
CATALOG 15

Hard covered 64 page "CATALOG No. 15" on our complete line of stock and made-to-order resistors and resistor parts available. Illustrated with complete information, it contains ratings, graphs, dimensional drawings and tables. Write for one today.

METOHM RESISTORS

Exceeding MIL-R-10509D

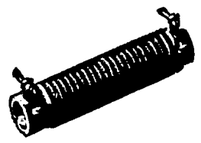
METOHM Resistors are Result-Engineered Molded metal film precision resistors and are now offered for a multitude of commercial, industrial, and military electronic requirements. METOHM Resistors feature high stability, reliability and accuracy in combination with low and controllable temperature coefficients. METOHM Resistors come in three standard sizes — ⅛, ¼, and ½ watts. For more information write for CATALOG 50.

type	application	watt ratings	resistance values (in ohms)
fixed 	General usage for voltage dropping, current limiting, etc. Electronic and industrial apparatus such as communication, instrument, motor control, appliance, transportation and similar equipment. Available in tapped and multi-section forms.	5 to 200	1 to 250,000
adjustable 	Circuits requiring adjustability. Voltage dividing or regulating purposes in control equipment, rectifiers, voltage and speed regulators, etc.	10 to 200	1 to 150,000
stripohm 	Equipment where space saving is a limiting design factor. Aviation, communication and navigation equipment. Available in fixed, adjustable, tapped and multi-section forms.	20 to 75	1 to 65,000
axiohm 	Apparatus requiring quick, easy installation of resistors and where space is limited. Radio and electronic equipment, communication, instrument and similar apparatus requiring miniature power resistors.	2 to 12.5	1 to 75,000
non-inductive 	High frequency circuits where tubular resistors with low values of inductance and distributed capacitance are required. Radio and other electronic apparatus such as therapeutic, transmitter, telephone, etc.	35 to 160	1 to 1,000
plaqohm 	Where a compact power resistor having low values of inductance and distributed capacitance is required. High frequency electronic equipment including laboratory test, induction heating, transmitter, etc. Available in fixed and tapped forms.	25 to 150	1 to 10,000
discohm 	On equipments where a miniature power resistor with low values of inductance and distributed capacitance is needed. High frequency electronic circuits in diathermy, carrier telephone and similar equipment.	24	1 to 4,000

Available from Stock — See your local Authorized Industrial Distributor

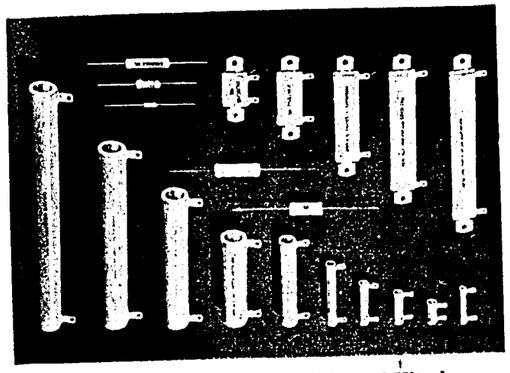
For details, circle #511 on Reader Service Card

RIBFLEX



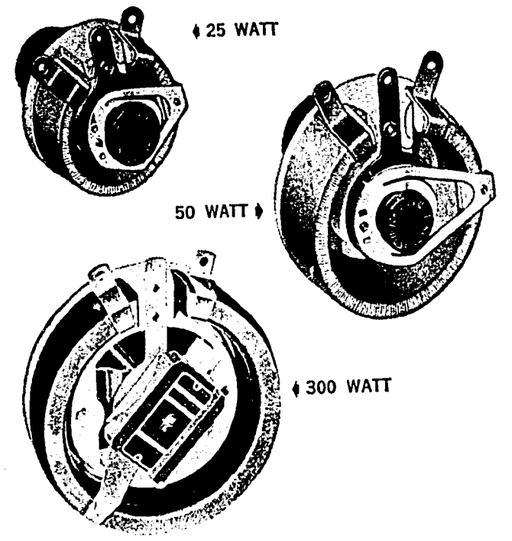
Ribflex resistors consist of a metal alloy resistance ribbon, reflexed, wound on edge on a ceramic core and held in place with vitreous enamel. Available in fixed, adjustable, tapped and multi-section forms. Used for intermittent and continuous-duty circuits where high wattage must be dissipated in a relatively small space such as in industrial motor controls, load banks, etc. CATALOG 15.

MIL RESISTORS



Ward Leonard manufactures a full line of Vitrohm resistors designed to meet the requirements of specifications MIL-R-26C and MIL-R-15109. The MIL-R-26C resistors, applied in electronic and electrically operated Military equipment, must successfully withstand a series of severe tests including thermal shock, humidity, electrolysis, momentary overload, etc. MIL-R-15109 resistors with suitable mountings are designed for HI-shock applications. BULLETIN 12.

RING RHEOSTATS



watt rating	ring dia. (in inches)	resistance values (in ohms) min.	resistance values (in ohms) max.
25	1 1/16	1	5,000
50	2 5/16	1	10,000
100	3 3/32	1	10,000
150	4	1	10,000
300	6	1	2,500

OTHER PRODUCTS BY W/L

MAGNETIC RELAYS

A complete line of a.c. and d.c. magnetically operated relays. Six basic stock types plus countless special purpose varieties. Send for RELAY CATALOG.

MAGNETIC CONTACTORS AC OR DC

A complete line of unit-insulated AC and DC solenoid contactors for main line switching, reversal or acceleration. All parts completely accessible. NEMA Sizes 00 to 5. A.C. BULLETIN 4450, D.C. BULLETIN 1950.

LOAD BANKS

For artificial loading applications to 70 KW Ward Leonard offers a full line of convection cooled load banks. Standardized frameworks accommodate Ribflex or Barohm resistors. Send for BULLETIN 39.

MAGNETIC STARTERS

Manual-magnetic-non-reversing for use with single phase motors and polyphase squirrel cage induction motors. BULLETIN 3151—Manual, NEMA Sizes 0 and 1, BULLETIN 4110—Magnetic, to NEMA Size 5.

PUSH BUTTON STATIONS

Wide selection of standard and heavy duty pushbutton stations for surface or flush mounting. Enclosures for watertight and dusttight pilot circuit applications. BULLETIN 2901.

WARD LEONARD ELECTRIC CO.

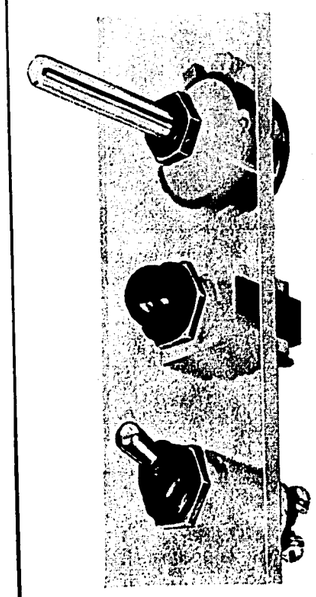
Result – Engineered Controls Since 1892

For details, circle #512 on Reader Service Card

APM HEXSEALS*

Modular

SWITCH and SHAFT SEALS



- Fit all industrial electrical controls.
- Meet Military Specifications: MIL-B-005423A (ASG), MIL-B-19257 (Ships), SCL-6303 (Sig. Corps), Par. 183.10-20, Part (B) U.S. Coast Guard. *Trade Mark

SEND FOR CATALOG 359B *describing items above, also seals for circuit breakers, indicator lights and other electronic components.*

A.P.M. Corporation
41 Honeck Street, Englewood, N. J.
LOwell 9-5700

Designers and Manufacturers of
HIGH PRESSURE STATIC AND MOVABLE SEALS
HEXSEALS* • SEELSKREWS* • SEELBOLTS* • SEELRIVITS*

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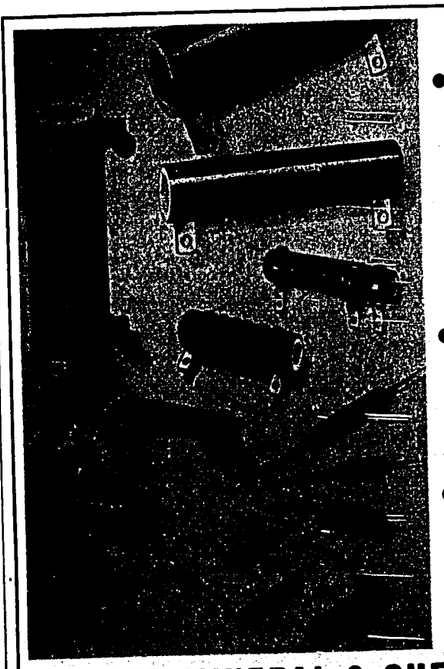
74. Resistors.

Sony Corp., N.Y., 55s
Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 35sc, 40 Trimming Non-Linear sc
Speer Carbon Co., Onondaga Electronics Div., N.Y., 30c, 45c
Speer Carbon Co., Speer Resistor Div., Pa., 10sc
Sprague Electric Co., Mass., 5sc, 20sc, 25c, 30c, 45c, 60sc, 65sc
Stackpole Carbon Co., Pa., 10s, 15sc, 35sc
Standard Telephones & Cables, Ltd., England, 5sc, 10sc
Subminiature Instruments Corp., Calif., 20s, 35sc, 40sc, 45c, 60sc, 65sc, 70sc
Superior Resistor & Electronics Corp., Ind., 60sc, 65sc, 70sc
Taylor Instrument Companies, N.Y., 35c
Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 30c, 50c, 65c, **Tel:** 201-WIndsor 4-2221
See ad in class 80
Tech-Ohm Electronics, Inc., Dept. 10, 36-11 33rd St., Long Island City 6, N.Y., 5sc, 10c, 15c, 20sc, 35sc, 60sc, 65sc, 70sc, **Tel:** 212-STillwell 6-2274
See ad in this class
Technology Instrument Corp., Mass., 10sc, 20c, 30sc, 35sc, 40sc, 45sc, 50c, 60sc, 65sc, 70sc
Technology Instrument Corp. of California, Calif., 25c, 30c, 35c, 40c, 45c, 50c, 60c, 65c, 70c
Techtro-Matic Corp., Vt., 30c, 45c
Tel-Laboratories, Inc., N.H., 30c, 45c, 60c, 65c
Telewave Laboratories, Inc., N.Y., 20sc
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expwy., **P.O. Box 5012, Dallas 22, Texas,** 5s, 10s, 20s, 25s, 45s, 55s, **Tel:** 214-ADams 5-3111
See ad on Cover 3
Thermalic Electronics Corp., Calif., 30sc, 55sc, 60sc, 65sc, 70sc
Thompson, Ltd. (J. Langham), England, 40s, 65s
Tipptronic, Inc., Ohio, 55s
Toko Radio Coil Laboratories, Ltd., Japan, 5s
Topper Mfg. Co., Inc., N.Y., 20c, 25c, 65c
Transitron Electronic Corp., Mass., 30c, 45c
Trionics Corp., Div. of Nautec Corp., Wis., 55c
Tru-Ohm Products, Div. of Model Engineering & Mfg., Inc., 3426 W. Diversey Blvd., **Chicago 47, Ill.,** 25c, 30sc, 35sc, 50sc, 60sc, 65sc, 70sc, **Tel:** 312-EVerglade 4-2646
See ad in this class
Tyco Semiconductor Corp., Mass., 55c
Ultronix, Inc., Calif., 30c, 35sc, 45c, 60c, 65c, 70c
United Mineral & Chemical Corp., 16 **Hudson St., New York 13, N.Y.,** 5c, 25c, 35c, 50c, 60c, 65c, **Tel:** 212-BEekman 3-8870
See ads in classes 74, 104



- **WIREWOUND RESISTORS:** Vitreous (Mil type up to 1000°F), Cement Coated, Lacquered, Unlacquered, Precision: Fixed, Adjustable and Spindle types
- **DEPOSITED CARBON FILM RESISTORS:** 1%, 2%, 5%, 10% tolerances
- **PRECISION CARBON FILM RESISTORS:** 1%, .5%, .3%, .2% tolerances

UNITED MINERAL & CHEMICAL CORP.
16 HUDSON STREET NEW YORK 13, N.Y.
Phone: BEekman 3-8870
U.S. & CANADIAN REPRESENTATIVES

For details, circle #514 on Reader Service Card

Directory II. Components

74. Resistors.

Victoreen Instrument Co., 5806 **Hough Ave., Cleveland 3, Ohio,** 5s, 20s, 25s, **Tel:** 216-ENdicott 1-6200
See ads in classes 74, 86
Victory Engineering Corp., 118 **Springfield Ave., Springfield, N.J.,** 55s, **Tel:** 201-MUrdock 8-7150
See ad in this class
Voak Engineering Co., Inc., Calif., 40sc
Vogue Instrument Corp., N.Y., 40sc
Walsco Electronics Mfg. Co., Div. of GC Textron Electronics, Inc., Ill., 5s
Waltham Precision Instrument Co., Mass., 35s, 40s
Ward Leonard Electric Co., 83 **South St., Mount Vernon, N.Y.,** 20sc, 50sc, 60sc, 65sc, 70sc, **Tel:** 914-MOunt Vernon 4-1000
See ad in this class
Waters Mfg., Inc., Mass., 35sc, 40sc, 70sc
Wells Co., Inc. (Gary), N.Y., 20s
Wells Industries Corp., Calif., 35sc, 40sc, 65sc, 70sc
Welwyn Canada, Ltd., Canada, 5sc, 20sc, 25c, Oxide sc
Welwyn Electric, Ltd., England, 5sc, 15c, 25c, 30c, 35c, 50c, 60sc, 65c, 70c
Westinghouse Electric Corp., Semiconductor Dept., Pa., 55 Positive-Temp. Coefficient sc
Wilrite Products, Inc., Ohio, 5c, 20c
Winslow Co., Inc., N.J., 35c, 65s, 70s
Workman TV Products, Inc., Fla., 60s

Resolvers, servo:
See class 77

Rheostats:
See class 74

Rotators, antenna:
See class 44

Saturable reactors:
See class 51

Saturable transformers:
See class 84

Screw-machine products:
See class 97

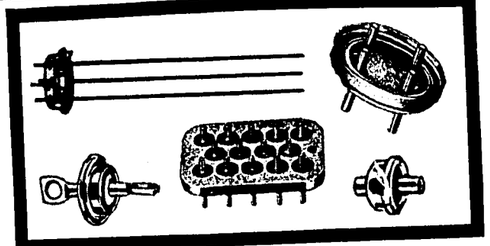
Seals, mechanical:
See class 97

75. Seals, Hermetic.

5. Ceramic-to-metal
10. Glass-to-metal
15. Headers
20. Sapphire-to-glass

AMP, Inc., Capitron Div., Pa., 5c
A.P.M. Corp., 41 **Honeck St., Englewood, N.J., Switch & Shaft sc, Tel:** 201-LOwell 9-5700
See ads in classes 75, 97
Acme Wire Co., Conn., 5s, 10s
Advanced Vacuum Products, Inc., Subsid. of Glass-Tite Industries, Inc., Conn., 5sc, 15sc
Aeroseel, Inc., N.J., 10sc, 15sc
Aldrich Mfg. Co. (C.G.), Pa., 15c
Alloys Unlimited, Inc., N.Y., 5sc, 10sc, 15sc, 20sc
American Feldmuehle Corp., N.Y., 5c
American Lava Corp., Subsid. of Minnesota Mining & Mfg. Co., Cherokee & Manufacturers Rd., Chattanooga 5, Tenn., 5sc, 15c, **Tel:** 615-AMherst 5-3411
See ad on page 98
American Sealants Co., Conn., 5s, 10s
American Smelting & Refining Co., N.Y., 5c, 10c
Amphenol-Borg Electronics Corp., Amphenol Connector Div., 1830 **S. 54th Ave., Chicago 50, Ill.,** 10sc, 15s, **Tel:** 312-BIshop 2-1000
See ad on page 114
Associated Electrical Industries (Rugby), Ltd., England, 10s
B G Corp., N.J., 5sc
Bel Fuse, Inc., 198 **Van Vorst St. at Morris St., Jersey City 2, N.J.,** 10c, **Tel:** 201-HEnderson 2-0463
See ad in class 57
Belling & Lee, Ltd., Great Cambridge Rd., Enfield, Middlesex, England, 10sc, **Tel:** Enfield 5393
See ad in class 52
Bendix Corp., Red Bank Div., Electron Tube Products, Hwy. #35, Eatontown, N.J., 5sc, 15sc, **Tel:** 201-LIberty 2-2000
See ad on pages 48-49
Bon-De Electronic Laboratories, Inc., Mass., 10s
Braun-Knecht-Heimann Co., Calif., 10c
Burndy-Escon Div., Burndy Corp. & Glass-Tite Industries, Inc., R.I., 10s, 15s
CFI Corp., Dept. IRE, Cottage Place, Mineola, L.I., N.Y., 5c, 10c, 15c, **Tel:** 516-PIoneer 6-0571
See ad in class 92
CTS Corp., 1142 **W. Beardsley Ave., Elkhart, Ind.,** 10c, **Tel:** 219-JAckson 3-0210
See ad on page 12
Carborundum Co., Refractories Div., N.J., 5sc, 10sc, 15c
Carvil Technical Ceramics, Inc., N.J., 5sc, 15sc
Cathodeon, Ltd., Meadowcroft Laboratories, England, 5sc, 10sc, 15sc
Centralab, Electronics Div. of Globe-Union, Inc., 900A **E. Keefe Ave., Milwaukee 1, Wis.,** 5c, **Tel:** 404-WOodruff 2-9230
See ad in class 74

make your connections with DAGE



Corrosion resistant
Mechanical strength
Precision
Quality you can trust

Precision Hermetic Seals

a complete line of compression and Kovar single pin seals and multi-pin headers

Complete facilities include ultra-sonic impact grinder to cut glass beads; auto-loader to charge metal shells; belt fed, controlled atmosphere furnaces for volume production.

Truly objective quality control, engineered and implemented by *independent* consulting firm.

Specialists in engineering to specification. Day-by-day challenge of non-standard units give DAGE engineers a tremendous background of technical experience . . . yours for a letter or phone call.

Write or call for Catalog 1259 and name of your DAGE representative . . .

DAGE ELECTRIC COMPANY, INC.

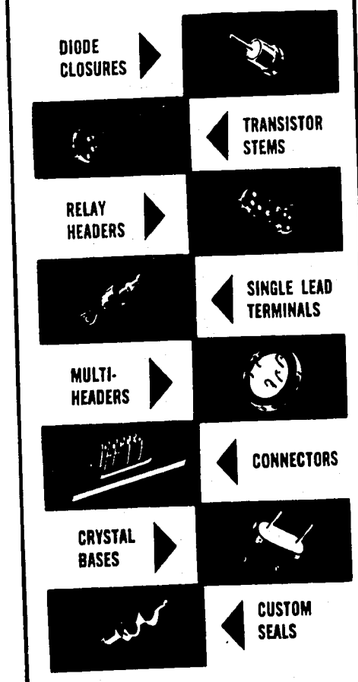
For details, circle #515 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Sealed Rite by Hermetite

HERMETIC SEALS

- Glass to Metal
- Ceramic to Metal
- Copper Seals
- Hi-temp Seals



For high reliability in your seal requirements, whether they are standard or custom designed, Hermetite is your prime source. Our seals are not only designed to meet your requirements, but are made to surpass your specifications. Our highly skilled engineering staff is ready to assist you with designs for special applications.

For further information contact:

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100 LADGE DRIVE
AVON, MASSACHUSETTS
JUniper 3-7000

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75. Seals, Hermetic.

Ceramaseal, Inc., N.Y., 5s, Sapphire-to-Metal s

Ceramatronics, Inc., N.J., 5c, 10c, 15c, 20c

Ceramco, Inc., N.J., 5c, 10c

Ceramics International Corp., N.J., 5sc, 15c

Cerberus AG, Werk fur Elektronentechnik, Switzerland, 5c, 10c

Chemical Development Corp., Mass., 5s, 10s, 15s, 20s

Consolidated Electrodynamics Corp., Calif., 5s

Coors Porcelain Co., Colo., 5sc, 15c

Dage Electric Co., Inc., 67 N. Second St., Beech Grove, Ind., 10s, 15s, Tel: 317-STate 7-5305
See ads in classes 52, 75

Davis Electronics, Inc., Calif., 10c, 15c

Deutsch Co., Electronic Components Div., Calif., 10s, 15s

Device Seals, Inc., Calif., 5c, 10c, 15c, 20c

Du-Co Ceramics Co., Pa., 5c

Eisler Engineering Co., Inc., 753 S. 13th St., Newark 3, N.J., 10c, Tel: 201-BIgelow 3-5310
See ad in class 99

Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 5c, Tel: 415-LYtell 1-1451
See ad on pages 29-32

Electrical Industries, Div. of Philips Electronics & Pharmaceutical Industries Corp., 691 Central Ave., Murray Hill, N.J., 10sc, 15sc, Tel: 201-CRestview 7-4300
See ad on page 108

Electro-Ceramics, Inc., Utah, 5c

Electro-Seal Corp., Ill., 10s

Electronic Parts Mfg. Co., Inc., N.J., 10c, 15c

Electronic Production & Development, Inc., Calif., 5sc, 10sc, 15sc

Electronic Products Co., Div. of Victoreen Instrument Co., N.Y., 10c

Electronic Products, Inc., Mass., 5sc, 10sc, 15sc

Elliott-Litton, Ltd., England, 5c, 10sc, 15sc

Emerson & Cuming, Inc., Mass., 5s, 10s

Ferranti Electric, Inc., N.Y., 5c

Filmohm Corp., 48 W. 25th St., New York 10, N.Y., 10c, Tel: 212-WAtkins 4-6605
See ad in class 74

Fish-Schurman Corp., N.Y., 10sc

Frenchtown Porcelain Co., N.J., 5sc, 15sc

Garde Mfg. Co., R.I., 15sc

General Ceramics, Div. of Indiana General Corp., Crows Mill Rd., Keasbey, N.J., 5sc, Tel: 201-VAlley 6-5100
See ad in class 64

General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 5c, 10c, 15c

Glass-Solder Engineering, Calif., 5sc, 10sc, 15sc

Glass-Tite Industries, Inc., R.I., 10c, 15c

Glasseal Products Co., Inc., N.J., 5c, 10sc, 15sc

Greenfield Hermetic Components Corp., Mass., 10sc

Hamlin, Inc., Wis., 10sc

Haveg Industries, Inc., Taunton Div., Mass., Synthetic-to-Metal c

Heldor Electronics Mfg. Co., N.J., 5sc, 15sc

Hermaseal Co., Inc., Ind., 10c, 15c

Hermetic Pacific Corp., Calif., 5sc, 10sc, 15sc

Hermetic Seal Corp., N.J., 5c, 10sc, 15sc

Hermetite Corp., 100 Ladge Dr., Avon, Mass., 5c, 10sc, 15sc, 20c, Tel: 617-JUniper 3-7000
See ad in this class

Ilikon Corp., Mass., 10c

Infrared Industries, Inc., West Coast Div., Calif., 20sc

Isochem Resins Co., R.I., 5sc, 10sc

Isolantite Mfg. Corp., 337 Warren Ave., Stirling, N.J., 5c, Tel: 201-CRestview 7-3737
See ad in class 92

Isotronics, Inc., N.J., 10sc, 15c

Kahl Scientific Instrument Corp., Calif., 10sc, 15sc

Kahle Engineering Co., 3319 Hudson Ave., Union City, N.J., 5c, 10c, 15c, Tel: 201-UNion 7-6500
See ad in class 99

Kimble Glass Co., Subsid. of Owens-Illinois, Ohio, 10s

Lennard Co., Inc. (P. M.), Fla., 10c

Lignes Telegraphiques et Telephoniques, France, 10s, 15s

Lionel Corp., N.J., 10c, 15c

Lionel Corp., Lionel Electronic Laboratories (formerly Anton Electronic Laboratories), Dept. X-2, 1226 Flushing Ave., Brooklyn 37, N.Y., 5sc, 10sc, Tel: 212-EVergreen 6-5715
See ad in class 52

Litton Engineering Laboratories, P.O. Box 949, Grass Valley, Calif., 5c, 15c, Tel: 916-273-6176
See ad in class 99

Litton Industries, Inc., Components Group, Triad Transformer Corp., Calif., 15s

Lundey Associates, Inc., Mass., 15c

Marblette Corp., N.Y., 5s, 10s

Mechtronics Corp., Subsid. of Mechmetal-Tronics, Inc., Calif., 15c

Metalizing Industries, Inc., N.J., 5sc, 15sc

Metaplast Co., Inc., N.Y., 5c, 10c

Methode Electronics, Inc., 7447 W. Wilson Ave., Chicago 31, Ill., 5c, 10c, 15c, Tel: 312-UNderhill 7-9600
See ad adjacent to Index to Advertisers, back of book

Mitronics, Inc., 132 Floral Ave., Murray Hill, N.J., 5sc, 15c, Tel: 201-277-3400
See ad in class 92

Molecular Electronics Co., N.J., 5c, 10sc, 15sc

Mycalex Corp. of America, 125A Clifton Blvd., Clifton, N.J., 5c, 15c, Tel: 201-PRescott 9-8866
See ad in class 101

National Beryllia Corp., First & Haskell Aves., Haskell, N.J., 5c, 15c, Tel: 201-TEmple 9-1600
See ad in class 92

Networks Electronic Corp., Calif., 10c, 15c

Norrich Plastics Corp., N.Y., 15c

Owens-Illinois Glass Co., Ohio, 10sc

Pacific Universal Products Corp., Calif., 10c

Directory II. Components

75. Seals, Hermetic.

Parker-Hannifin Corp., Parker Seal Co. (Div.), 10567 Jefferson Blvd., Culver City, Calif., 5sc, 10sc, Tel: 213-VErmont 9-1161
See ad in class 97

Pek Laboratories, Inc., Calif., 10c, 20c

Pheoll Mfg. Co., Inc., Ill., 15c

Philadelphia Scientific Glass Co., Pa., 5c, 10c

Physical Sciences Corp., Affil. of Packard-Bell Electronics, Calif., 5sc, 15sc

Plastic Associates, Calif., 5sc, 10sc

Plastronic Engineering Co., Mass., 15sc

Pyrocircuits Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 5c, 10c, 15c, Tel: 516-POrt Washington 7-3949
See ad in class 50

Quality Hermetics, Ltd., Canada, 10sc, 15sc

Resitron Laboratories, Inc., Calif., 5sc, 10sc, 20sc

Richfield Coined Products Co., N.J., 15sc

Rimak Electronics, Inc., Calif., 10c

Romac Products Co., N.Y., 5c, 10c, 15c

Ross Co. (Milton), Pa., 5sc, 10sc, 15sc

Scientific Electronic Laboratories, Inc., N.J., 5s, 10s, 15s, 20s

Seal-A-Metic Co., Div. of Filtors, Inc., N.J., 10c, 15c

Sealtron Corp., Ohio, 10sc

Semicon of California, Inc., Calif., 5c, 20c

Shaw Instrument Corp., Pa., 5sc, 15c, 20c

Sheltered Workshops, Inc., Calif., 15c

Silicone Seals, Inc., Ill., Compression sc

Sinclair Mfg. Co., Mass., 10c, 15c

Sphere Co., Inc., N.J., 5s, 15s

Standard Telephones & Cables, Ltd., England, 5sc, 10sc

Staver Co., Inc., N.Y., 15c

Strat-O-Seal Mfg. Co., Ill., 15c, Silicone-to-Metal s

Sylvania Electric Products Inc., Lighting Products Div., Special Products Operations, Mass., 5c, 10c, 15c

Technical Ceramics & Lava Corp., N.J., 5sc, 10sc

Telecomputing Corp., Calif., 5c

Telegraph Condenser Co., Ltd., United Insulator Div., England, 5sc

Thor Ceramics, Inc., N.J., 5sc, 10sc, 15sc

Torwico Electronics, Inc., N.J., 15c

Trionics Corp., Div. of Nautec Corp., Wis., 5c, 10c

Tronex, Inc., Tenth St., Millville, N.J., 5c, 10sc, 15sc, Tel: 609-TAylor 5-1750
See ad in this class

Tung-Sol Electric, Inc., 1 Summer Ave., Newark 4, N.J., 5c, 10c, 15c, 20c, Tel: 201-HUmboldt 4-8500
See ad on pages 62-63

Uni-Seal, Inc., N.J., 10sc, 15c

United-Carr Fastener Corp., Carr Fastener Co. (Div.), Mass., 10c

United Components, Inc., 105 Lincoln Ave., Orange, N.J., 5c, 10sc, 15sc, Tel: 201-ORange 7-3030
See ads in classes 75, 76

United Products Co., N.J., 5sc, 10c, 15c

U.S. Stoneware Co., Alite Div., Ohio, 5sc, Sapphire-to-Ceramic c

Universal Match Corp., Armament Div., Mo., 10c

Vacuum Ceramics, Inc., Ill., 5c, 10sc, 15c

Vitroseal Corp., Pa., 10sc, 15sc

Warren Components Div., El-Tronics, Inc., Pa., 10c, 15c

Welwyn Electric, Ltd., England, 5sc

Wihtol Laboratories, Inc., Calif., 15c

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Semiconductor-controlled rectifiers:
See class 71

Semiconductor crystals:
See class 56

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Long experience in the semiconductor field has enabled us to develop hermetic sealing to the absolute in protection against corrosion and contamination, thus assuring the same characteristics out in space as at sea level on earth.

Our expert engineering group is at your disposal and will be pleased to offer assistance on any specific problem.

Your inquiries are invited.

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105 LINCOLN AVE. ORANGE, N.J.
ORange 7-3030

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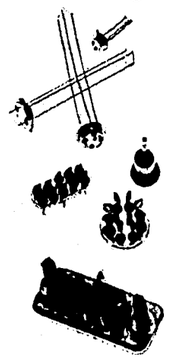
MANUFACTURER OF GLASS TO METAL SEALS



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MILLVILLE, NEW JERSEY
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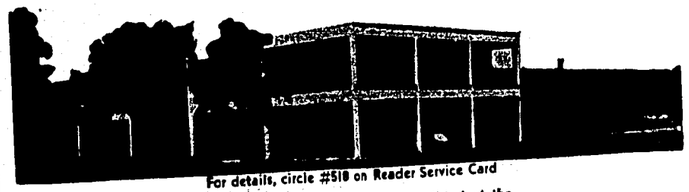

For details, circle #518 on Reader Service Card

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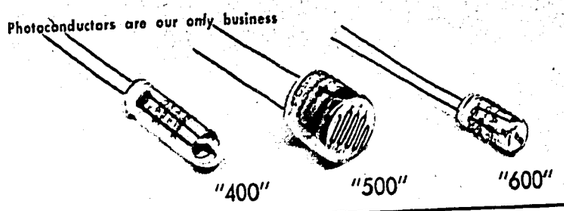

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3 SERIES IN GLASS
. . . TO MEET MOST DESIGN NEEDS !

Now, 25 standard types in glass!

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CL402	CdS	.265x1	5150	1M	300	75
CL402S[5]	CdS	.265x1	5150	1M	300	75
CL403	CdSe	.265x1	7350	133K	300	75
CL403S[5]	CdSe	.265x1	7350	133K	300	75
CL403A	CdSe	.265x1	7350	75K	300	75
CL403AS[5]	CdSe	.265x1	7350	75K	300	75
CL403ASL[5]	CdSe	.265x1	7350	3.5K	60	75
CL404	CdSe	.265x1	6900	30K	300	75
CL404S[5]	CdSe	.265x1	6900	30K	300	75
CL404SL[5]	CdSe	.265x1	6900	1.5K	60	75
CL407	CdS	.265x1	6150	133K	300	75
CL407S[5]	CdS	.265x1	6150	133K	300	75
CL504	CdSe	.5x.5	6900	1.5K	250	500-2502
CL504L	CdSe	.5x.5	6900	0.25K	60	500-2502
CL505	CdS	.5x.5	5500	9K	250	500-2502
CL505L	CdS	.5x.5	5500	1.5K	60	500-2502
CL602[3]	CdS	.25x.5	5150	1M	300	75
CL603[3]	CdSe	.25x.5	7350	133K	300	75
CL603A[3]	CdSe	.25x.5	7350	75K	300	75
CL603AL	CdSe	.25x.5	7350	3.5K	60	75
CL604[3]	CdSe	.25x.5	6900	30K	300	75
CL604L	CdSe	.25x.5	6900	1.5K	60	75
CL605	CdS	.25x.5	5500	166K	300	75
CL605L	CdS	.25x.5	5500	7.5K	60	75
CL607[3]	CdS	.25x.5	6150	133K	300	75

Operating temperature, all types, −50 to +75° C.
[1]Average DC resistance measured at 2 foot-candles, 2870° K. and 25° C ambient.
[2]With and without heat sink.
[3]Designed to replace previous plastic types. [4]At 25° C ambient. [5]S denotes side view cell.

Salient Characteristics:

- Hermetically Sealed Glass Enclosures.
- A Variety of Spectral Response and Resistance.
- The High Sensitivity and Fast Response of Cadmium Selenide.
- Power Dissipation to ½ watt, continuous.
- High Ratio of Light to Dark Current at low light levels.
- Stable and closely controlled Parameters.
- NEW! Low Resistance "L" types for Transistor and other low voltage applications!

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Clairex Photoconductive Cells . . . variable resistors controlled by light . . . unique design components for automation and control.

Your local distributor may be able to supply Clairex Photoconductors from stock. If not call or write our New York office for direct and immediate service, or contact our technical representative in your area listed below.

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Minneapolis 3, Minn.
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CENTRAL
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Chicago 41, Illinois
Phone: SPRING 7-2500

CALIFORNIA AND SOUTH WEST
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Beverly Hills, Calif.
Phone: BRADSHAW 2-9311

AUTOMOTIVE FIELD
Daniel J. Clifford
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Phone: TRINITY 5-3544

OHIO STATE: Edmund Frost, 14545 Chelmsford Rd., Mayfield Heights, Cleveland 24, Ohio. Phone: HILLCREST 2-9040

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FANON

SILICON DIFFUSED JUNCTION MESA POWER TRANSISTORS

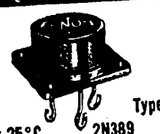
- High Power Transistors
- High Wattage Dissipation
- High Reliability in Extreme Conditions
- Proven in: Power Amplifiers; Power Converters; Power Switching; Power Supply Regulators; DC & Servo Amplifiers; Relay Replacements

Supplied in three standard case styles and all popular types. As of June 1, 1961, the types listed are available for immediate delivery.

STYLE TO-3

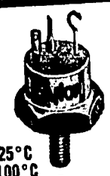
	Types	
75 Watts @ 25°C	2N1487	2N1490
43 Watts @ 100°C	2N1488	2N1069
Max. 7.5 Amp I_c	2N1489	2N1070
Max. 100 Volts V_c		

SQUARE STYLE



	Types	
85 Watts @ 25°C	2N389	2N1210
45 Watts @ 100°C	2N424	2N1211
Max. 7.5 Amp I_c	2N389A	2N1620
Max. 100 Volts V_c	2N424A	

DOUBLE-ENDED STUD STYLE



	Types
85 Watts @ 25°C	2N1616
45 Watts @ 100°C	2N1617
Max. 7.5 Amp I_c	2N1618
Max. 100 Volts V_c	

Fanon has the power transistor you want today.

FANON TRANSISTOR CORPORATION

439 Frelinghuysen Ave. Newark 12, N. J.

For details, circle #520 on Reader Service Card

Directory II. Components

Semiconductor materials:
See class 102

Semiconductor parts:
See class 105

Semiconductor testers:
See class 41

76. Semiconductor Devices.

5. Diodes, germanium
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15. Diodes, silicon
20. Diodes, tunnel
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30. Diodes, zener
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40. Photocells
45. Transistors, gallium arsenide
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60. Transistors, photo
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Advanced Micro-Electronics, Inc., R.I., 15c, 55c, 60c, 70sc, 75sc
Advanced Research Associates, Md., 55 Composite-Power s
American Elite, Inc. (Telefunken), N.Y., 5s, 40s
Amperex Electronic Corp., N.Y., 5s, 15s, 30s, 50s, 55s, 60s, 65s, 70s, 75s
Associated Electrical Industries (Rugby), Ltd., England, 5s, 10s, 15s, 30s, 40s, 50s, 55s, 70s
Automation Devices, Inc., Pa., 40s
Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 75s, Tel: 617-UNiversity 4-7420
See ad in class 86
Baldwin Piano Co., Ohio, 40sc
Bell, Inc. (F. W.), Ohio, 35s
Bendix Corp., Red Bank Div., Electron Tube Products, Highway #35, Eatontown, N.J., 15s, 50s, Tel: 201-LIberty 2-2000
See ad on pages 48-49
Bendix Corp., Semiconductor Products, N.J., 5s, 15s, 50s, 55s, Power Transistors s
Bogue Electric Mfg. Co., N.J., 15c, 30c
Bradley Semiconductor Corp., 275M Welton St., New Haven 11, Conn., 15sc, Tel: 203-STate 7-7181
See ad in class 71
Britton Electronics Corp., N.Y., 5c, 15s, 30c
Burroughs Corp., Mich., 15sc
CBS Electronics, Div. of Columbia Broadcasting System, Inc., Mass., 5s, 10s, 50s, 55s
CBS Electronics, Semiconductor Operations, Mass., 50sc
Clairex Corp., 8 W. 30th St., New York 1, N.Y., 40sc, Tel: 212-MUrray Hill 4-0940
See ad in this class
Clevite Corp., Clevite Transistor Div., 200 Smith St., Waltham 54, Mass., 5sc, 15sc, 50sc, Tel: 617-TWinbrook 4-7780
See ad in this class
Columbus Electronics, Inc., 1000 Saw Mill River Rd., Yonkers, N.Y., 15sc, 30sc, Tel: 914-YOnkers 8-1221
See ads in classes 48, 71
Computer Diode Corp., N.J., 15sc
Continental Device Corp., Calif., 15sc, 30sc, 70sc
Controls Co. of America, Ill., 15sc, 30sc
Controls Co. of America, Electron Div., Ariz., 15sc, 30sc
Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 5sc, 65sc
Crystalonics, Inc., Mass., 55sc, 70sc
Daystrom, Inc., Weston Instruments Div., N.J., 35s, 40s
Device Development Corp., Mass., 35s
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Diotron, Inc., Pa., 15sc, 25sc, 30sc, Gallium Diodes sc
Eastman Kodak Co., 343 State St., Rochester 4, N.Y., 40sc, Tel: 716-LOcust 2-6000
See ad in class 17
Ebauches S.A., Dept. Semiconducteurs, Switzerland, 50s, 60s, 75s
Edgerton, Germeshausen & Grier, Inc., Mass., 10sc
Egan Laboratory, N.Y., 35c
Electro Radiation, Inc., Calif., 40c
Electron-Radar Products, Ill., 40sc
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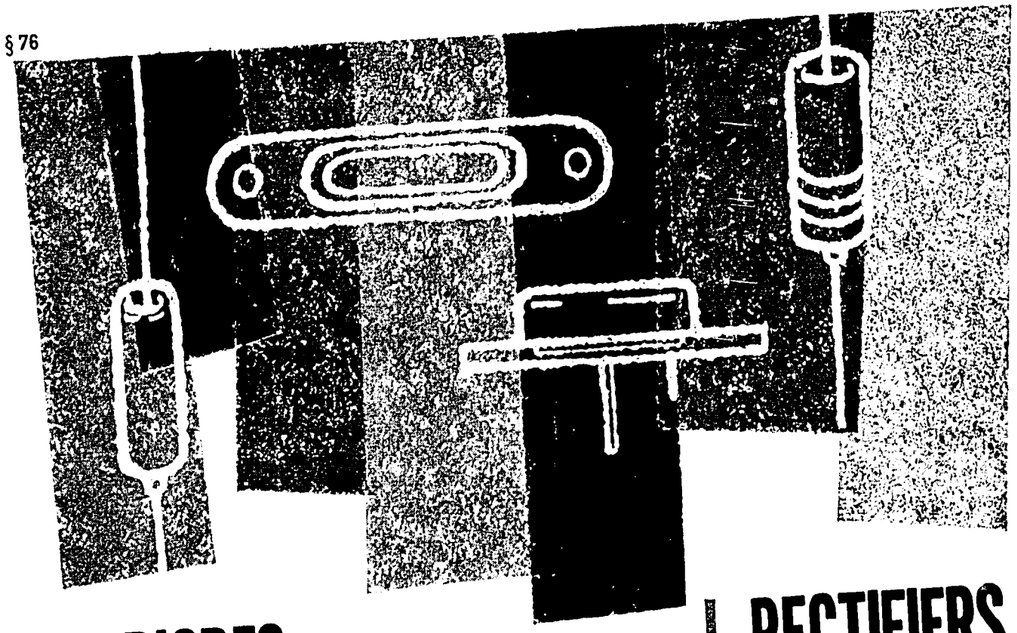

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- HIGH CONDUCTANCE
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1N198	1N276	1N281

Basic features include high forward conductance . . . recovery times in millimicroseconds . . . high inverse resistance . . . ruggedized mechanical construction . . . exceptional uniformity of characteristics.

Silicon Junction in the following types:

- FAST SWITCHING (0.15 to 1.0μ Sec.)
- GENERAL PURPOSE • MILITARY TYPES:

1N457	1N459	1N662
1N458	1N643	1N663
	1N658	

Designed to meet the most stringent commercial and military requirements, these diodes combine fast switching and high forward conductance, while protecting against thermal runaway at high voltages and temperatures up to 150°C.

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Germanium in the following types:

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- AMPLIFIER 2–4 watts plus 2 watt Spacesaver design
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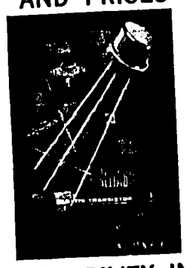

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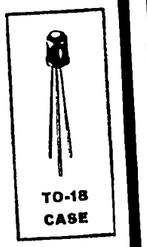

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Directory II. Components

76. Semiconductor Devices.

Electronic Transistors Corp., N.J., 50sc, 55sc, 65sc

Electronics Corp. of America, Mass., 40sc

Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 70c, Tel: 201-BIgelow 2-2700
See ad on page 140

Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 5sc, 15sc, Tel: 814-GLendale 6-8592
See ad on pages 78-79

Espey Mfg. & Electronics Corp., N.Y., 30sc

Fairchild Semiconductor Corp., 545 Whisman Rd., Mountain View, Calif., 15s, 55s, 60s, 70s, 75s, Tel: 415-YOrkshire 8-8161
See ad in this class

Fanon Transistor Corp., 439 Frelinghuysen Ave., Newark 12, N.J., 15c, 50s, 70s, Tel: 201-BIgelow 3-1020
See ad in this class

Fansteel Metallurgical Corp., Ill., 15s, 30s

Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 50c

Ferranti Electric, Inc., N.Y., 40c

Ferroxcube Corp. of America, E. Bridge St., Saugerties, N.Y., 40s, Tel: 914-CHerry 6-2811
See ads in classes 10, 34, 55, 74, 92, 100

Finney Co., Ohio, 5s

Gahagan, Inc., R.I., 5c, 10c

General Electric Co., Semiconductor Products Dept., N.Y., 5s, 10s, 15s, 20sc, 50sc, 70sc

General Instrument Corp., Defense & Engineering Products Group, N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc, 65sc, 70sc, 75sc

General Instrument Corp., Semiconductor Div., 65 Gouverneur St., Newark 4, N.J., 5sc, 15sc, 20sc, 30sc, 50sc, 55sc, 60sc, 70sc, 75sc, Tel: 201-HUmboldt 5-2100
See ad in this class

General Motors Corp., Delco Radio Div., Ind., 15s, 50sc, 55sc, 70sc

General Precision Equipment Corp., Kearfott Semiconductor Corp. (Subsid.), Mass., 40c, 55c, Diffused-Base Transistors c

General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5sc, 15sc, 35sc, 50sc, 70sc

General Precision, Inc., Kearfott Div., N.J., 50s, 70s

Glasseal Products Co., Inc., N.J., 5c, 15sc, 50c, 70sc, 75sc

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Hoffman Electronics Corp., Calif., 5c, 10c, 15sc, 20sc, 25c, 30sc, 40sc, 70sc, 75sc

Hoffman Electronics Corp., Semiconductor Div., Calif., 10c, 15sc, 20sc, 25c, 30sc, 40sc, 70sc, 75c

Hughes Aircraft Co., Hughes Semiconductor Div., Calif., 5s, 10s, 15s, 20s, 25s, 30s, 55s, 65s, 70s

Industro Transistor Corp., N.Y., 50sc, 70sc

Infrared Industries, Inc., Mass., 40sc

Infrared Industries, Inc., West Coast Div., Calif., 40sc

Instrument Systems Corp., N.Y., 5sc, 20sc, 30sc, 40sc, 45sc

Intellux, Inc., Scientific Components Div., Calif., 15c

International Diode Corp., N.J., 5 Alloy-Junction sc

International Electronics Corp., N.Y., 5c, 15c, 30c, 40s, 50c, 55c, 60s, 65c, 70c

International Rectifier Corp., 233 Kansas St., El Segundo, Calif., 15sc, 30sc, 40sc, Tel: 213-ORegon 8-6281
See ad on pages 74-75

International Telephone & Telegraph Corp., ITT Distributor Products Div., N.J., 30s

Kemtron Electron Products, Inc., Mass., 5sc, 10sc, 15sc

Lignes Telegraphiques et Telephoniques, France, 5s, 10s, 15s, 25s, 30s, 50s, 55s, 70s

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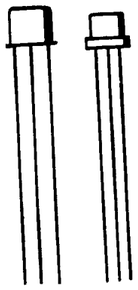
General Instrument is your source for silicon planar expitaxial transistors and silicon microtransistors, as well as germanium computer, drift, MAT°° and MADT† types. Highest quality and long semiconductor life are assured through detailed research, careful product development and advanced production techniques. Complete specifications, engineering life test data and design curves are available on all General Instrument transistors, including the representative types listed here • Call the General Instrument sales office or franchised distributor nearest you or write today for Catalog SR-2099 to General Instrument Semiconductor Division, 65 Gouverneur Street, Newark 4, New Jersey.



TRANSISTORS

GERMANIUM

Computer Types (PNP and NPN)	Drift Types PNP	MAT®** PNP	High Voltage Types (PNP)	High Voltage Types (NPN)
2N315 2N425° 2N315A through 2N316 2N428° 2N316A 2N438 2N317 2N439 2N317A 2N440 2N356 2N444A 2N356A 2N445A 2N357 2N446A 2N357A 2N447A 2N358 2N519A 2N358A° 2N520A 2N388° 2N521A 2N396 2N522A 2N396A° 2N523A 2N404° 2N578 2N413 through 2N414 2N582 2N416° 2N585 2N417° 2N1000	2N602 2N603 2N604 2N643 2N1065 2N1670 2N1678	2N393° 2N1122 2N1122A 2N1411°	2N398 2N1408 (GT34HV)	2N1310 2N1672 (GT1200)
Photo Transistors		**MADT®† Types**	**Bilateral Types**	
2N1392 2N469A. 2N1393 2N1394		PNP	(PNP)	(NPN)
		2N499° 2N501 2N501A° 2N502 2N502A 2N503 2N504 2N588	2N592 2N593	2N594 2N595 2N596
	2N1012 through 2N1090 2N1309 2N1091 2N1605 2N1302 (GT1658)		**Audio Types**	
			2N43A° 2N44A° 2N331° 2N464°	through 2N467° GT81 GT109

PLANAR EPITAXIAL TRANSISTORS

SILICON

2N1613 2N696°° 2N697° 2N698 2N699 2N1711 2N1252 2N1253 2N1410 2N1893 2N1958 2N1959 2N1990 □ 2N914 2N706° 2N706A 2N706B 2N707 2N708 2N743 2N744 2N753 2N783 2N784 2N834

TUNNEL DIODES

GERMANIUM

TD5	TD7
TD5A	TD7A
TD6	TD8
TD6A	TD8A

**MICRO ALLOY TRANSISTOR, T M PHILCO CORP.
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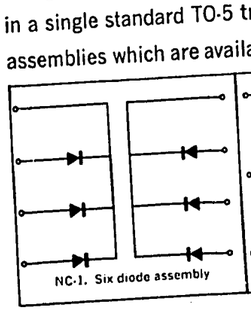
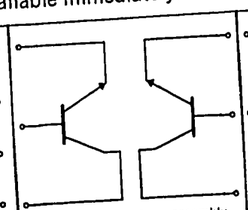
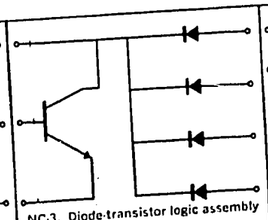


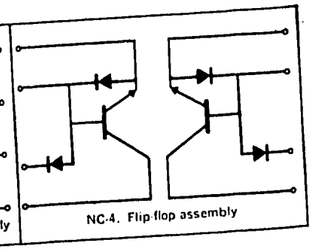
NC-1. Six diode assembly



NC-2. Two transistor assembly



NC-3. Diode-transistor logic assembly



NC-4. Flip-flop assembly

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General Purpose Types	Types Designed to Meet JAN Specs	High Conductance Types	High Temperature Types	Computer Types
1N67A 1N95 1N99A 1N118A 1N68A 1N96 1N100A 1N89 1N97A 1N116A 1N90 1N98A 1N117A	1N126A 1N270 1N127A 1N276 1N128 1N277 1N198	1N270 1N281	1N277	1N191 1N192

SILICON DIODES

All Purpose Types	General Purpose Types	Types Designed to Meet JAN Specs	Fast Recovery Types	Ultra-Fast Recovery Types	High Conductance Types
1N658° 1N891 1N892 1N893 DR999	1N456 1N461 1N462 1N463 1N464	1N457 1N458 1N459	1N625 1N658° through 1N659 1N629 1N660 1N643° 1N661 1N645° 1N662° through 1N649° 1N663°	1N903 1N914 1N914A 1N916 1N916A	1N482 1N484 1N486 1N482A 1N484A 1N486A 1N482B 1N484B 1N483 1N485 1N483A 1N485A 1N483B 1N485B

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250 Milliwatts	400 Milliwatts	1 Watt	3,5 Watts	10 Watts
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SILICON RECTIFIERS

General Purpose Types	Types Designed to Meet JAN Specs	Magnetic Amplifier Types	Power Supply Types	High Power Silicon Diode/Rectifiers Designed to Meet USAF Specs
1N248 1N601A 1N676 1N1101 1N248A 1N602A 1N677 through 1N249 1N604A 1N678 1N1105 1N249A 1N605A 1N679 through 1N250 1N606A 1N681 1N1487 1N250A 1N607A through 1N536 1N608A 1N687 through 1N537 1N609A 1N689 1N1692 1N539 1N610A 1N846 through 1N550 1N611A through 1N555 1N612A 1N889 1N2080 1N599A 1N613A 1N1095 through 1N600A 1N614A 1N1096 1N2086 1N1100 1N2512 through 1N2517	1N253 1N254 1N255 1N256 1N538 1N540 1N547	1N332 1N442 1N333 1N443 1N334 1N444 1N335 1N445 1N336 1N440B 1N337 1N441B 1N338 1N442B 1N339 1N443B 1N340 1N444B 1N440 1N445B 1N441	1N341 1N1115 1N1581 through through through 1N349 1N1120 1N1587 1N530 1N1124 1N1612 through through through 1N535 1N1128 1N1616 1N560 1N1199 1N1254 1N561 through through 1N562 1N1206 1N2160 1N563 1N1341 1N2793 through through 1N599 1N1348 1N2800 through 1N614	1N645 1N646 1N647 1N648 1N649 MP Hi Temp. Series MP100 MP225 MP300 MP400 MP500 MP600
	High Voltage Cartridges 1N1731° 1N1733° 1N1734°			

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Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 70c
Micro Systems, Inc., Calif., 40sc
Microsemiconductor Corp., Calif., 15sc
Microwave Associates, Inc., South Ave., Burlington, Mass., 10s, 15s, 20s, 25s, Tel: 617-BRowning 2-3000
See ad on page 178
Microwave Semiconductor & Instruments, Inc., N.Y., 10c, 25s
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 5c, 15c, 50c, 70c
Minneapolis-Honeywell Regulator Co., Semiconductor Products Div., Minn., 40sc, 50sc, 55sc, 70sc, 75c
Motorola Semiconductor Products, Inc., Ariz., 15s, 30s, 50s, 55s, 70s, 75s
Munzig International, Inc., Calif., 5s, 15s, 20s, 45s, 50s, 55s
National Semiconductor Corp., Sugar Hollow Road, Danbury, Conn., 55sc, 70sc, 75sc, Tel: 203-PIoneer 3-7624
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National Transistor Mfg., Inc., Mass., 5sc, 15sc, 50sc, 70sc
Nippon Electric Co., Ltd., Japan, 5s, 10s, 15s, 50s, 55s, 60s, 65s, 70s
North American Electronics, Inc., 71 Linden St., West Lynn, Mass., 15sc, 30sc, Tel: 617-LYnn 8-4800
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Nucleonic Products Co., Inc., Calif., 5s, 15s, 40s
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Pacific Semiconductors, Inc., Calif., 15s, 25s, 30s, 55s, 70s, 75s
Philco Corp., Pa., 5s, 10s, 15s, 20s, 25s, 50s, 55s, 60s, 70s, 75s
Philco Corp., Lansdale Div., Pa., 5s, 10s, 15s, 20s, 45s, 50s, 55s, 70s, 75s
Philips Electronics Industries, Ltd., Canada, 5s, 15s, 30s, 40s, 50s, 55s, 70s
Pioneer Electric & Research Corp., Ill., 40sc
Plastic Mold & Engineering Co., R.I., 30c, 35c
Princeton Electronics Corp., N.J., 15s
RCA Victor Co., Ltd., Canada, 5s, 10s, 15s, 20s, 25s, 30s, 40s, 45s, 50s, 55s, 60s, 65s, 70s, 75s, Nuclear-Detector Diodes s
Radio Corp. of America, Defense Electronic Products, N.J., 5s, 15s, 20s, 45s, 50s, 55s, 60s, 65s, 70s
Radio Corp. of America, RCA Electron Tube Div., N.J., 5s, 10s, 15s, 20s, 25s, 40s, 45c, 50s, 55s, 70s
Radio Corp. of America, Semiconductor & Materials Div., Section J-22-NN, Route 202, Somerville, N.J., 15s, 45c, 50s, 55s, 70s, Tel: 609-RAndolph 2-3200
See ad on pages 54-55
Radio Development & Research Corp., N.J., 15c, 70c
Rauland Corp., Ill., 50s, 75s
Raytheon Co., Semiconductor Div., Mass., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 55sc, 65sc, 70sc, 75sc
Rheem Mfg. Co., Rheem Semiconductor Corp. (Subsid.), Calif., 15s, 55s, 70s, 75s
Schauer Mfg. Corp., Ohio, 15sc
Secoa Electronics Corp., N.Y., 70sc
Semi-Elements, Inc., Pa., 5s, 10s, 15s, 40c, 50c, 55c, 70c
Semicon, Inc., 511 Sweetwater Ave., P.O. Box 328, Bedford, Mass., 15sc, 30sc, Tel: 617-CRestview 4-8542
See ad in class 71
Shockley Transistor, Unit of Clevite Transistor, Calif., 15sc
Siemens New York, Inc., N.Y., 15s, 35c
Silicon Transistor Corp., 150 Glen Cove Rd., Carle Place, L.I., N.Y., 15sc, 30sc, 70sc, Tel: 516-PIoneer 2-4100
See ad in this class, page 598
Slater Electric, Inc., N.Y., 15sc
Solar Systems, Inc., Ill., 40sc
Solid State Products, Inc., Mass., 70c
Solitron Devices, Inc., N.J., 15sc
Somerset Radiation Laboratory, Inc., N.J., 10s
Sony Corp., N.Y., 5s, 15s, 20s, 50s, 55s, 70s
Sperry Rand Corp., Sperry Semiconductor Div., Conn., 15sc, 55sc, 70sc, 75sc
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 40s
Sprague Electric Co., Mass., 50sc, 70sc
Standard Rectifier Corp., Calif., 15s, 30s
Standard Telephones & Cables, Ltd., England, 5s, 15s, 20s, 30s, 40s, 45c, 50s, 55s, 65s, 70s
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 5s, 10s, 15s, 20s, 25s, 50s, 55s, 65s, 70s, 75s, Epitaxial Transistors s
Sylvania Electric Products Inc., Semiconductor Div., Mass., 5s, 10s, 15s, 20s, 25s, 50s, 55s, 65s, 70s, 75s
Syntron Co., Semiconductor Div., Pa., 15s, 30s
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 15s, 20s, 25s, 30s, 40s, 50s, 55s, 60s, 70s, 75s, Tel: 214-ADams 5-3111
See ad on Cover 3
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s, 20s, 30s, 40s, 45s, 50s, 55s, 60s, 65s, 70s, 75s
Tokyo Shibaura Electric Co., Ltd., Japan, 5s, 10s, 15s, 20s, 25s, 30s, 40s, 45s, 50s, 55s, 60s, 70s, 75s
Topper Mfg. Co., Inc., N.Y., 75c
Trans-Sil Corp., N.J., 15sc, 30c
Transitron Electronic Corp., Mass., 5s, 15s, 20s, 25s, 30s, 40s, 50s, 55s, 70s, 75s, Binistors sc
Tung-Sol Electric, Inc., 1 Summer Ave., Newark 4, N.J., 15s, 40s, 50s, 55s, PNPN 4-Layer s, Tel: 201-HUmboldt 4-8500
See ad on pages 62-63
Tyco Semiconductor Corp., Mass., 10sc, 15c, 25sc, 70sc
United Components, Inc., 105 Lincoln Ave., Orange, N.J., 15sc, Tel: 201-ORange 7-3030
See ads in classes 75, 76
U.S. Semiconductor Products, Inc., Div. of Nuclear Corp. of America, Ariz., 15sc, 30sc
U.S. Transistor Corp., N.Y., 20c, 50c, 70c
Unitrode Transistor Products, Inc., Mass., 15sc, 30sc
Varo, Inc., Texas, 15c
Victoreen Instrument Co., 5806 Hough Ave., Cleveland 3, Ohio, 30s, Tel: 216-ENdicott 1-6200
See ads in classes 74, 86

Silicon Junction Diodes

All vacuum alloyed and soldered

In addition to offering such standard features as:

- hermetically sealed
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- high temperature operation
- efficient rectification

United is using exclusively high vacuum for all operations where metallic parts are joined, to prevent the remotest possibility of contamination.

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UNITED's Unique low leakage—
fast recovery Diode "IN934"

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

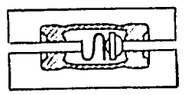
SEMICONDUCTORS

HIGH POWER NPN SILICON TRANSISTORS

5 WATT	150 WATT	85 WATT	75 WATT	85 WATT	25 WATT	40 WATT
2N498	2N1015	2N1616	2N1069	2N389	2N1067	2N1047
2N547	2N1015A	2N1617	2N1070	2N389A	2N1068	2N1048
2N657	2N1015B	2N1618	2N1487	2N424	2N1483	2N1049
2N1116	2N1016		2N1488	2N424A	2N1484	2N1050
2N1479	2N1016A		2N1489	2N1210	2N1485	2N1768
2N1700	2N1016B		2N1490	2N1211	2N1486	2N1769
2N2033			2N1702	2N1620	2N1701	

HIGH RELIABILITY SILICON GLASS DIODES

JAN TYPES	SIG. C. TYPES 1N643	AF TYPES
1N457	1N658	1N645
1N458	1N662	1N646
1N459	1N663	1N647



SILICON DIODES—GENERAL PURPOSE TYPES

TYPE	MAX. FORWARD D.C. VOLT. V @ mA	MAX. REV. D.C. CURR. @ MAX. REV. WKG. VOLT. μA @ 25°C	μA @ 150°C	MAX. REV. WKG. VOLT.	MIN. REV. VOLT @ 100 μA & 25°C	MAX. AV. FORWARD CURR. @ 25°C mA	@ 150°C mA
1N456	1.0 @ 40	0.025	5	25	30	90	
1N457	1.0 @ 20	0.025	5	60	70	75	
1N458	1.0 @ 7	0.025	5	125	150	55	
1N459	1.0 @ 3	0.025	5	175	200	40	
1N461	1.0 @ 15	0.5	30	25	30	60	
1N462	1.0 @ 5	0.5	30	60	70	50	
1N463	1.0 @ 1	0.5	30	175	200	30	
1N464	1.0 @ 3	0.5	30	125	150	40	
1N482	1.1 @ 100	0.25	30	36	40	100	25
1N482A	1.0 @ 100	0.025	15	36	40	200	50
1N482B	1.0 @ 100	0.025	5	36	40	200	50
1N483	1.1 @ 100	0.25	30	70	80	100	25
1N483A	1.0 @ 100	0.025	15	70	80	200	50
1N483B	1.0 @ 100	0.025	5	70	80	200	50
1N484	1.1 @ 100	0.25	30	130	150	100	25
1N484A	1.0 @ 100	0.025	15	130	150	200	50
1N484B	1.0 @ 100	0.025	5	130	150	200	50
1N485	1.1 @ 100	0.25	30	180	200	100	25
1N485A	1.0 @ 100	0.025	15	180	200	200	50
1N485B	1.0 @ 100	0.025	5	180	200	200	50
1N486	1.1 @ 100	0.25	50	225	250	100	25
1N486A	1.0 @ 100	0.05	25	225	250	200	50
1N487	1.1 @ 100	0.25	50	300	330	100	25
1N487A	1.0 @ 100	0.1	25	300	330	200	50

Operating Temperature Range —80°C to 200° C Maximum power dissipation 250 mW @ 25° C

SILICON DIODES—FAST SWITCHING TYPES

TYPE	MAX. FORWARD D.C. VOLT. V @ mA	MAX. REV. D.C. CURR. @ MAX. REV. WKG. VOLT. μA @ 25°C	μA @ 100°C	MAX. REV. WKG. VOLT.	MIN. REV. VOLT. @ 100μA & 25°C	REVERSE RECOVERY
1N625	1.5 @ 4	1.0	30	20	30	400k Ω min. in 1 μ sec.†
1N626	1.5 @ 4	1.0	30	35	50	400k Ω min. in 1 μ sec.†
1N627	1.5 @ 4	1.0	30	75	100	400k Ω min. in 1 μ sec.†
1N628	1.5 @ 4	1.0	30	125	150	400k Ω min. in 1 μ sec.†
1N629	1.5 @ 4	1.0	30	175	200	400k Ω min. in 1 μ sec.†
1N658**	1.0 @ 100	0.05 @ 50V	25 @ 50V+150°C	100	120	80k Ω min. in 0.3 μ sec. ‡

†Switching from 30 mA to 35 volts. Modified IBM "Y" circuit.
‡Switching from 5 mA to 40 volts. JAN 256 Circuit.
Operating temperature range —80°C to +150°C. Maximum power dissipation: 200 mW @ 25° C. Derate at 1.6 mW/°C above 25° C.

SILICON DIODES—CONTROLLED FORWARD TYPES

TYPE	FORWARD VOLT DROP @ 10 mA VOLTS	MAX. REV. D.C. CURR. @ MAX. REV. WKG. VOLTS μA @ 25°C	μA @ 150°C	MAX. WKG. VOLT	MIN. REV. V. @ 100 μA & 25°C	MAX. AV. FORWARD CURR. @ 25°C mA	@ 150° C mA
STC 101	.7 to .74	0.025	15	35	40	200	50
STC 102	.7 to .74	0.025	5	35	40	200	50
STC 103	.7 to .74	0.025	15	70	80	200	50
STC 104	.7 to .74	0.025	5	70	80	200	50
STC 105	.7 to .74	0.025	15	130	150	200	50
STC 106	.7 to .74	0.025	5	130	150	200	50
STC 107	.7 to .74	0.025	15	180	200	200	50
STC 108	.7 to .74	0.025	5	180	200	200	50

Operating Temperature Range—80°C to 200°C Maximum power dissipation 250 mW @ 25°C

HIGH POWER DIODES

1N645	1N646	1N647

SILICON TRANSISTOR CORPORATION

CARLE PLACE, LONG ISLAND, NEW YORK, PIONEER 2-4100

For details, circle #529 on Reader Service Card

Directory II. Components

76. Semiconductor Devices.

Vidaire Electronics Mfg. Corp., N.Y., 15sc, 50sc
Western Electric Co., Inc., Laureldale Plant, Pa., 15sc, 50sc
Western Semiconductors, Inc., Calif., 10c, 15s, 20c, 25c, 30s
Western Transistor Corp., Calif., 55sc, 70sc, 75sc
Westinghouse Electric Corp., Semiconductor Dept., Pa., 15s, 20s, 35s, 55s, 70s

Servo amplifiers:
See classes 43 & 77

Servo analyzers:
See class 40

Servo motors:
See class 67

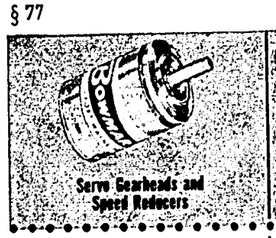
Servo-type control equipment:
See class 4

77. Servomechanisms.

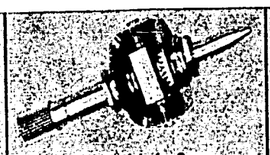
5. Amplifiers, servo
10. Brakes
15. Clutches, magnetic
20. Controls
25. Couplings
30. Gears, gear-trains, etc.
35. Motor-generators, servo
40. Multipliers, servo
45. Repeaters
50. Resolvers

ACF Electronics Div., ACF Industries, Inc., Md., 5c, 15c
Acoustica Associates, Inc., Calif., 5c
Acromag, Inc., Mich., 5sc
Adams Rite Mfg. Co., Calif., 20sc
Advance Gear & Machine Corp., Calif., 10c, 25c, 30c
Advanced Development Laboratories, Inc., N.H., 5c
Advanced Research Associates, Md., 5
Transistorized s, 45s
Advancement Devices, Inc., N.Y., 5c, 30c
Aeroflex Laboratories, Inc., N.Y., 5c, 35c
Aetna Electronics Corp., N.J., 5c
Aircraft Armaments, Inc., Md., 5c, 30c
Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 5sc, Tel: 301-ACademy 8-4600
See ad in class 53
Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 5sc, Tel: 305-LUdlow 3-6160
See ad in class 53
Airtronics, Inc., D.C., 5c
Altair Research & Mfg. Co., Calif., 10s, 15
American Avionics, Inc., Div. of Astro-Science Corp., Calif., 5c, 20c
American Brake Shoe Co., Raymond Atchley Div., Calif., 5sc
American Electronics, Inc., Calif., 5sc, 30sc, 35sc, 40sc, 50sc
American Electronics, Inc., Electro-Mechanical Div., Calif., 50c
American Electronics, Inc., Instrument Div., Calif., 5sc, 35sc, 50sc
American Machine & Foundry Co., Greenwich Engineering Div., Conn., 5c
American Measurement & Control, Inc., Mass., 5sc, 20sc
American Monarch Corp., American Electronics Div., Minn., 10c
American Optical Co., J. W. Fecker Div., Pa., 5sc, 20sc, 30sc, 45sc
American Rectifier Corp., N.Y., 10sc, 20sc
Angler Industries, Inc., N.J., 30c
Antlab, Inc., Ohio, 5sc
Applied Control Corp., N.J., 5s
Arch Gear Works, Inc., Mass., 30sc
Associated Electrical Industries (Rugby), Ltd., England, 5c, 20c
Astronautics Corp. of America, Wis., 5sc, 20c, 25c, 40c, 45c
Ateliers de Montages Electriques, (AME), France, 5s, 20c
Atlas Precision Products Co., Pa., 30sc
Automation Research & Design Associates, N.J., 5c
Autotronics, Inc., Mo., 10sc, 15sc, 30sc
Avien, Inc., N.Y., 5c
Avon Gear & Engineering Co., Ill., 30sc
Barth Engineering & Mfg. Co., Inc., Conn., 5c
Basic & Experimental Physics, Mass., 5c, 20c, 40c, 50c
Bayside Watch Tool Co., Inc., N.Y., 10sc, 15sc, 20sc, 30sc, 35sc, 50sc
Beaver Gear Works, Inc., Ill., 30c
Beckman Instruments, Inc., Helipot Div., Calif., 5sc, 10sc, 15sc, 35sc
Bendix Corp., Bendix-Pacific Div., Calif., 5c, 10c, 15c, 20sc, 30c, 35c
Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J., 5c, 30c, 35c, 45c, 50c, Tel: 201-ATlas 8-2000
See ad on pages 46-47
Bendix Corp., Friez Instrument Div., Md., 5c
Bendix Corp., Industrial Controls Section, Mich., 20sc
Bendix Corp., Montrose Div., Pa., 5c, 45c
Bendix Corp., Pioneer-Central Div., Iowa, 5c, 30c
Benson-Lehner Corp., Calif., 5c
Bogue Electric Mfg. Co., N.J., 35c
Boonshaft & Fuchs, Inc., Pa., 5s, 20s
Bowmar Instrument Corp., 8000 Bluffton Rd., Fort Wayne, Ind., 5c, 10c, 20c, 30sc, 40c, 45c, 50c, Tel: SHerwood 3121
See ad in this class
Brach Mfg. Corp., Div. of General Bronze Corp., N.J., 5sc, 20sc
Bulova Research & Development Laboratories, N.Y., 5s, 20c, 30c
Bulova Watch Co., Inc., Electronics Div., Dept. A-1376, 61-10 Woodside Ave., Woodside 77, N.Y., 5sc, Tel: 212-NEwtown 9-5700
See ad in class 56
Cable Specialists of Conn., Conn., 5c
Cadre Industries Corp., N.Y., 5c
Canadian Aviation Electronics, Ltd., Canada, 5c, 30c, 40c, 45c, 50c
Carma Mfg. Co., Calif., 5c
Carmody Corp., N.Y., 10sc, 15sc
Central Dynamics, Ltd., Canada, 5c
Centroid Engineering & Mfg. Corp., 126 Jackson St., Cambridge 40, Mass., 5c, Tel: 617-TRowbridge 6-7250
See ads on page 111 & in class 91
Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., Texas, 5s, 20c
Chicago Aerial Industries, Inc., Ill., 30c
Clary Corp., Calif., 20c
Clifton Precision Products Co., Inc., Pa., 5c, 10c, 15c, 30c, 35c, 50c
Clipper Gear & Machine Co., Mich., 10c, 15c, 20c, 25c, 30c
Collectron Corp., 304 E. 45th St., New York 17, N.Y., 5c, 50c, Tel: 212-MUrray Hill 9-7120
See ad in class 80
Communication Measurements Laboratory, Inc., N.J., 5c, 20c
Compact Circuits Co., Div. of Electrons, Inc., N.J., 5sc
CompuDyne Corp., Mass., 5s, 20c, 40c
CompuDyne Corp., Pa., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc, 50sc
Computer Instruments Corp., 92 Madison Ave., Hempstead, L.I., N.Y., 40c, Tel: 516-IVanhoe 3-8200
See ad in class 74
Computer Sciences, Inc., N.Y., 5s, 10 Limit-Stops e, 30c, 40sc
Computer Systems, Inc., N.J., 5sc, 40sc, 50sc
Consolidated Airborne Systems, Inc., N.Y., 5sc, 40c, 50sc
Control Data Corp., Cedar Engineering Div., Minn., 5sc, 35sc, 40c, 45c, 50c
Control Technology Co., Inc., N.Y., 5sc, 20sc, 40sc, 45sc
Cook Electric Co., Cook Technological Center, Ill., 5c
Cornwell Electronics Corp., N.Y., 5sc
Cunningham Industries, Inc., Conn., 30 Analog c
Custom Gear Co., Inc., Ind., 30c
Cutler-Hammer, Inc., Wis., 10s, 15s, 20s
Daco Instrument Co., N.Y., 30sc
Datex Corp., Calif., 40sc, 45sc
Daystrom, Inc., Transicoil Div., Pa., 5sc, 10sc, 30sc, 35sc, 45sc, 50sc
Del Electronics Corp., 521 Homestead Ave., Mount Vernon, N.Y., 50c, Tel: 914-OWens 9-2000
See ad in class 69
DeLandri Precision Elements Co., Inc., N.Y., 30c
Developmental Electronics Corp., Calif., 5c
Di/An Controls, Inc., Mass., 5c
Dial Products Co., N.J., 10s, 15s, 25s, Tension-Controls s
Diehl Mfg. Co., N.J., 5sc, 30sc, 35sc, 50sc
Digitrols, Inc., Md., 5c
Dittmore-Freimuth Corp., Wis., 30c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

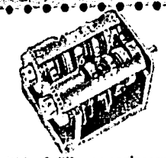

Servo Gearheads and Speed Reducers

BOWMAR
PRECISION MECHANICAL COMPONENTS


Differentials for Servo Applications

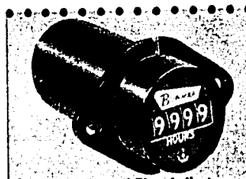
Spring Return Mechanisms

Angle Counters


Multi-bank "Human-engineered" Counters

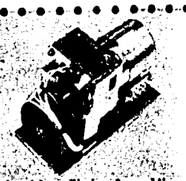
BOWMAR
PRECISION COUNTERS AND INDICATORS

Miniature Internal Pinion Counters


Digital Elapsed Time Indicators

BOWMAR
PRECISION TIMING AND PROGRAMMING DEVICES

Printed Circuit Counters and Programmers


Motor-driven Timing Assemblies

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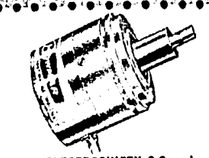
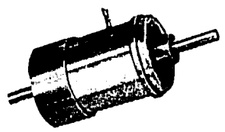
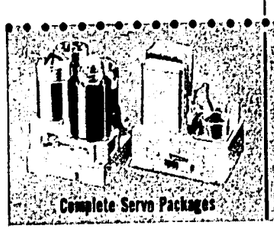
PRECISION ELECTROMECHANICAL DEVICES

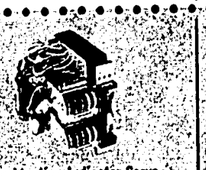

"ELECTROSHIFT" 2-Speed Gearchangers

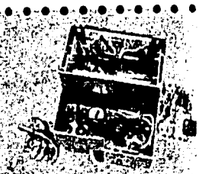
Servo Motors, Motor-tachometers and Motor-gearheads


Brake, Clutch and Brake-clutches


Complete Servo Packages

BOWMAR
PRECISION SERVO PACKAGES


Combination Indicator-Servo Packages


Electronic Servo Assemblies

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Bowmar offers the system designer an integrated, "one stop" capability for all types and quantities of precision control instrumentation. Many precision components and assemblies are available for IMMEDIATE DELIVERY; and specialized units can be redesigned or newly created to satisfy your exact requirements. Additionally, Bowmar's wide experience can be utilized to engineer and produce complete weight and space saving servo packages, to impart maximum reliablity and performance to the overall system.

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Tel: MAnhasset 7-9050
TWX: MANH-NY 492

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Bohman-Proctor Co.
601 North Fern Creek Ave.
Orlando, Florida
Tel: GA 5-6860, GA 4-2238
TWX: OR-7114

NO. OHIO, W. PA.
Sheridan Associates, Inc.
6333 York Road
Cleveland 30, Ohio
Tel: TUxedo 4-8066
TWX: CV-824

DAYTON, OHIO AREA
Sheridan Associates, Inc.
Room 210, 4217 No. Main St.
Dayton 5, Ohio
Tel: CRestview 7-7212

SO. OHIO, SO. IND. & KY.
Sheridan Associates, Inc.
Roselawn Center Building
Cincinnati 37, Ohio
Tel: MElrose 1-2460
TWX: CI-406

NO. IND. & MICH.
Bowmar Instrument Corp.
8000 Bluffton Road
Fort Wayne, Indiana
Tel: Sherwood 3121
TWX: FW-296

ILL., IOWA & WISC.
Consult Chicago Telephone Directory for Regional Office Effective 1 July 61

MINNESOTA
Howard A. Culien & Assoc.
3424 East Lake Street
Minneapolis 6, Minn.
Tel: PArkway 4-3988
TWX: MP-497

KANS. AND MO.
John Durbin Co.
1101 Forestwood
Box 5859 Ferguson Sta.
St. Louis 35, Mo.
Tel: JAckson 1-1233

ARK., LA., OKLA., TEX.
Southwest Electronic Industries
273 Meadows Building
Dallas 6, Texas
Tel: EMerson 3-1671

NEW MEXICO
Southwest Electronic Industries
727 Morningside, N. E.
Albuquerque, New Mexico
Tel: ALpine 5-2278

ARIZONA
Jewett Company
32-B First Street
Scottsdale, Arizona
Tel: WHitney 5-9711
TWX: SCSDL 120

CALIFORNIA
Jewett Company
13111 Ventura Blvd.
North Hollywood, California
Tel: STate 9 8103
TWX: V NYS 5465

IDAHO, ORE. AND WASH.
E. F. Reiber Co.
P. O. Box 1621
Seattle 55, Wash.
Tel: ATlas 4-0720

QUE., N. B., N. S., EAST. ONT.
Aeromotive Engineering Products
147 Hymus Blvd., Pte. Claire Que.
Tel: OX 7-0810—Lachine, Que.

WEST. ONT.
Aeromotive Engineering Products
1912a Avenue Road
Toronto 12, Ontario, Can.
Tel. RUssell 3-4288

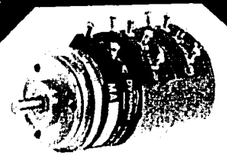
ALBERTA, SASK., B. C.
Aeromotive Engineering Products
424 51st. Street
Calgary, Alberta, Can.
Tel: ALpine 2-0933

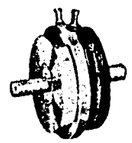
BOWMAR INSTRUMENT CORPORATION
8000 Bluffton Road
Fort Wayne, Indiana
Telephone Sherwood 3121 • TWX FW296

For details, circle #530 on Reader Service Card

PRECISION MAGNETIC CLUTCHES BRAKES

Spring Clutch-Magnetic Brake


Wafer Clutch/Brake for Pots


Wafer Brake Actual Size

Benefit by Dynamic Instrument's specialized experience in the clutch/brake field. Custom or standard models furnished. Wide variety of frame sizes and types. Our engineers are available to help you design your equipment or system better with superior clutches and brakes.

Write for catalog.

Dynamic INSTRUMENT CORP.

59 New York Ave., Westbury, L. I., N.Y.
EDgewood 3-1600

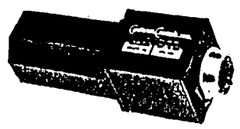
For details, circle #531 on Reader Service Card

Directory II. Components

77. Servomechanisms.

Djeco, Div. of Djordjevic Engineering Co., Ill., 5c, 20c
Dorsett Electronics, Inc., Okla., 20sc
Drexel Dynamics Corp., Pa., 5c, 40c, 45c, 50c
Dynamic Gear Co., Inc., N.Y., 25s, 30sc
Dynamic Instrument Corp., 59 New York Ave., Westbury, L.I., N.Y., 10sc, 15sc, Tel: 516-EDgewood 3-1600
See ad in this class
Dynamics Corp. of America, N.Y., 5c, 15sc, 30sc, 35c, 40c, 50c
Dynex, Inc., N.Y., 30sc
Eastern Air Devices, Inc., N.H., 35c
Eastern Industries, Div. of Laboratory For Electronics, Inc., Conn., 20c
Edison Industries (Thomas A.), Instrument Div. (McGraw-Edison Co.), N.J., 10sc, 35sc
Electric Indicator Co., Inc., Conn., 35c, 50c
Electric Tachometer Corp., Pa., 45c, 50c
Electro-Craft Corp., Minn., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c
Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., Minn., 5c, 20c
Electrodynamic Instrument Corp., Texas, 5c
Electromation Co., Calif., 5s
Electronic Communications, Inc., Fla., 5c
Electronic Controls, Inc., Conn., 5sc
Electronic Specialty Co., Calif., 5c, 35c
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 30c, 50c
Elm Instrument Corp., N.Y., 5sc, 10sc, 15sc, 30sc, 40sc
Emerson Electric Mfg. Co., Mo., 5c, 20c, 30c
Empire Precision Metal Parts, N.Y., 10c, 15c
Engineering Model Laboratory, Inc., Mass., 5c
Exact Engineering & Mfg., Inc., Calif., 10c, 15sc, 20c, 25c, 30sc, 40sc
Exactel Instrument Co., Calif., 5sc, 30s, 35s, 40s, 45s, 50s
Fac Instrument Corp., N.Y., 10sc, 15sc, 25sc, 30sc
Fairchild Controls Corp., N.Y., 10c, 15c
Fairchild Stratos Corp., Fairchild Electronic Systems Div., N.Y., 5c
Fairfield Controls, Inc., Conn., 5sc, 20c
Falcon Div., General Thermodynamics Corp., 211 Concord Turnpike, Cambridge 40, Mass., 25sc, Tel: 617-TRowbridge 6-3269
See ad in class 41
Farrand Controls, Inc., N.Y., 20sc, 50sc
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5c, 15c, 30c, 45c
Ford Instrument Co., N.Y., 5c, 25c, 30c, 35c, 50c
Formsprag Co., Mich., 25c
Forway Industries, Inc., N.J., 10c, 15c
Fourdee, Inc., Fla., 20sc, 25sc, 30sc
Franke Gear Works, Inc., Ill., 30sc
Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 5sc, Tel: 212-EVergreen 6-1300
See ad in class 84
G-M Laboratories, Inc., Ill., 35c
Gap Instrument Corp., Conn., 25s, 30sc
Garrett Corp., AiResearch Mfg. Co., Calif., 5c, 10c, 15c, 30c
Gear Specialties, Inc., Ill., 30c
Geartronics Corp., Actuator Products Div., Mass., 15sc, 25sc, 30sc
Geartronics Corp., Massachusetts Gear Div., Mass., 30c
Gemco Electric Co., Mich., 5c
General Aniline & Film Corp., Ansco Div., N.Y., 5c, 20c, 30c, 40c
General Applied Science Laboratories, Inc., Merrick & Stewart Aves., Westbury, L.I., N.Y., 5s, Tel: 516-EDgewood 3-6960
See ad in class 35
General Automatics, Inc., Calif., 20c
General Bronze Corp., G B Electronics Div., N.Y., 5sc, 30sc
General Dynamics/Electronics, N.Y., 5c, 45c, 50c
General-Electro Mechanical Corp., N.Y., 10sc, 15sc
General Mills, Inc., Minn., 30c
General Motors Corp., Delco Radio Div., Ind., 5c

ULTRA-RELIABLE ENCODER MODULES
to your specs.
SERVO DRIVEN LINEAR/SECANT ENCODER



Package shown weighs only 18 oz., is 1 7/8" square x 6½" long and contains all of the following within the case.

Servo amplifier • Servo motor • 11 bit (2,048 count) binary, self-selecting, V-scan, non-ambiguous encoder (Guidance Controls Mod. ADC 11-11) • 10-turn follow-up pot. • 200:1 ratio gear train • Encoder driver circuit • 11 bit output decoding logic • Track/memory relays • Trimming pots and resistor network • Input and output through 32 pin connector

Guidance Controls Corp. invites your inquiries for servo driven systems of all types.

GUIDANCE CONTROLS CORP.
ENGINEERS HILL, PLAINVIEW, N.Y.

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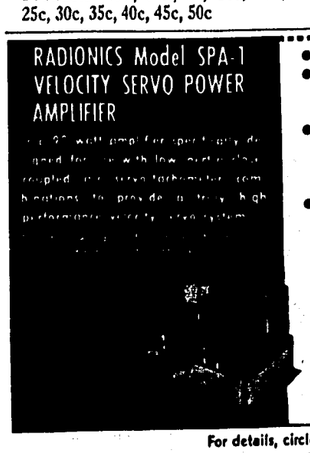
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

77. Servomechanisms.

General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5sc, 30sc, 40sc, 45sc, 50s
General Precision, Inc., Kearfott Div., N.J., 5s, 10s, 15s, 20s, 30s, 35s, 40s, 45s, 50s
General Precision, Inc., Librascope Div., Calif., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 40sc
General Precision, Inc., Link Div., N.Y., 5sc, 20c, 25sc, 30sc, 40sc
General Time Corp., N.Y., 10s, 15s, 20s, 25s
Genisco, Inc., Calif., 35sc
Giannini Controls Corp., Calif., 30c, 50c
Globe Industries, Inc., Ohio, 10c, 15c, 20c, 30c, 35c
Good Electronic Corp., Fla., 5sc
Granite State Machine Co., Inc., N.H., 5c, 15c, 20c, 25c, 30c
Grant Gear Works, Inc., Mass., 30c
Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 10sc, 15sc, 30c, Tel: 516-WElls 8-9500
See ad in this class
Gulton Industries, Inc., N.J., 5sc
Hall-Barkan Instruments, Inc., N.Y., 10c, 15c, 20c, 25c, 30c
Hamilton Standard Electronics, Div. of United Aircraft Corp., Conn., 5c
Hamilton Watch Co., Industrial Products Div., Pa., 30c
Harowe Precision, Inc., Pa., 30c, 35sc, 45sc, 50sc
Harrel, Inc., N.Y., 5c
Henschel Corp., Mass., 5sc, 30c, 45sc
Hitachi New York, Ltd., N.Y., 30c
Hobbs Mfg. Co., Mass., 10sc, 15sc
Hoffman Electronics Corp., Calif., 15c, 20c, 25c, 30c
Hoover Electric Co., Calif., 5c, 10c, 15c, 20c, 30c, 35c
Huyck Systems Co., N.Y., 5s, 35s, 45s
Hydro-Aire Co., Div. of Crane Co., Calif., 5c, 20c
I.D. Precision Components Corp., N.Y., 30sc
IMC Magnetics Corp., Eastern Div., N.Y., 35c, 50c
IMC Magnetics Corp., Western Div., Calif., 50c
I-T-E Circuit Breaker Co., Special Products Div., Pa., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 50c
Illinois Tool Works, Licon Div., 6615 W. Irving Park Rd., Chicago 34, Ill., 20sc, Tel: 312-AVenue 2-4040
See ad in class 80
Industrial Control Co., N.Y., 5sc, 20sc, 30sc, 40sc, 45sc, 50sc
Insco Co., Div. of Barry Wright Corp., Mass., 30c
Instron Engineering Corp., Mass., 5sc
Instru-Lec Corp., N.Y., 30c
Instrument Components of New Jersey, Inc., N.J., 35c
Instrument Corp. of Florida, Fla., 5c, 20c, 25c, 35c
Instrument Systems Corp., N.Y., 5sc, 20sc, 30sc, 40sc, 45sc
Intectron, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 5c, Tel: 617-WOodward 9-9311
See ad on page 163
Intercontinental Electronics Corp., N.Y., 5c
International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 20c, 30c
Jack & Heintz, Div. of Siegler Corp., Ohio, 5c, 10c, 15c, 20c, 30c
Jackson Bros. (London), Ltd., N.Y., 25sc, 30sc
Jan Hardware Mfg. Co., Inc., N.Y., 10s, 15s, 25s, 30s, 35s
Janette Div., National Pneumatic Co., Inc., Mass., 35c
Japan Servo Co., Ltd., N.Y., 30c
Johnson Electronics, Inc., Fla., 5c
Jones Electronics (Hiram), Calif., 30s
Jordan Controls, Inc., Wis., 5s
Jordan Electronics, Div. of Victoreen Instrument Co., Calif., 5sc
Juall Gear Co., Inc., N.J., 30c
Kaman Aircraft Corp., Conn., 5c
Kinetic Instrument Corp., N.Y., 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc
Kollmorgen Corp., Mass., 15c
Kollsman Motor Corp., Pa., 35sc, 45sc, 50sc
Laboratory For Electronics, Inc., Mass., 5c, 20c
Lavezzi Machine Works, Ill., 30c
Lear, Inc., Calif., 5sc, 10sc, 15sc, 20sc, 30sc, 35sc, 40sc
Ling Temco Vought, Inc., Texas, 5sc, 15c
Ling Temco Vought, Inc., F F & M Electronics, Inc. (Subsid.), Calif., 5sc
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c, 15c
Lionel Corp., N.J., 5c, 35c, 50c
Liquidometer Corp., N.Y., 5c, 20c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 5c, 15c, 20c, 30c, 45c, 50c
Lundy Mfg. Corp., N.Y., 5c, 10sc, 15c, 20c, 30sc, 35c
MacLaren & Co., Inc. (F. B.), N.Y., 5sc, 20c, 40c
MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 5c, 20c, 30c, 45c, Tel: 305-LOgan 4-8518
See ad in class 4
Magnetic Amplifiers Div., Siegler Corp., 632 Tinton Ave., New York 55, N.Y., 5sc, Tel: 212-CYpress 2-6610
See ad in class 69
Magnetic Corp., Calif., 10sc, 15sc, 20sc
Magnetic Instruments Co., Inc., 637 Commerce St., Thornwood, N.Y., 5sc, 40c, Tel: 914-ROdgers 9-5312
See ad in class 43
Magnetico, Inc., N.Y., 5sc
Magnetics Research Co., Inc., N.Y., 5c
Magtrol, Inc., N.Y., 10c, 15c, 20c, 30c
Marsland Engineering, Ltd., Canada, 10c, 15c, 30c
Martin Co. (Martin-Marietta Corp.), Md., 5c
Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 50c
Mason, Shaver & Rhoades, Inc., Pa., 25c, 30c
Maurer, Inc. (J. A.), N.Y., 5c, 15c, 20sc, 40c, 45c
Mayberry Electronics Co., Calif., 5s
McDonnell Aircraft Corp., Mo., 5c
McNally Bros. Machine & Gear Co., Inc., Wis., 10c, 15c, 30sc
Measurements Research Co., Pa., 30sc
Mechtronics Corp., Subsid. of Mechmetal-Tronics, Inc., Calif., 25c
Melcor Electronics Corp., Dept. ID, 48 Toledo St., South Farmingdale, L.I., N.Y., 5sc, 40c, Tel: 516-MYrtle 4-5570
See ad in class 43
Metron Instrument Co., Colo., 25s, 30s
Micro Gee Products, Inc., Calif., 5sc
Midwest Automatic, Inc., Iowa, 10s
Midwestern Instruments, Inc., Okla., 5s, 20s
Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 40sc, 45sc, 50sc, Tel: 305-OXford 1-1220
See ad in class 28
Minneapolis-Honeywell Regulator Co., Fall River Div., Mass., 5s, 20c
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 5sc
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 15c, 30c
Missouri Research Laboratories, Inc., Mo., 5c, 30c, 45c
Model Engineering & Mfg. Corp., Ind., 5c, 30c
Moog Servocontrols, Inc., Industrial Div., N.Y., 5sc
Moran Instrument Corp., Calif., 5c
Muirhead & Co., Ltd., England, 5s, 35s, 50s,



- Undistorted power output: 90 watts at 60 cps.
- Output impedances: Output voltages of 70 and 115 volts, with a buck-boost winding of 5, 10, and 20 volts, for maximum stall-torque adjustment.
- Inputs: AC servo drive signal and a-c tach signal mixed with separate gain controls. 20 mv to either channel for full output. Amplifier hum and noise referred to input is 20 microvolts.
- Provisions for velocity servo operation:
  - Excitation and reference phase shift networks for both servo motor and tachometer.
  - Center-tapped drive-signal voltage source for direction of rotation reversal.
  - Adjustable tachometer feedback release control to allow maximum slewing rates as a straight servo.
  - Compensation for tachometer residual hum prevents motor drift with no signal.

For further information write for technical data on Model SPA-1 amplifier.

RADIONICS, INC.
76 CAMBRIDGE STREET • BURLINGTON, MASS.

For details, circle #533 on Reader Service Card

Directory II. Components

77. Servomechanisms.

Muirhead Instruments, Inc., N.Y., 5s, 30s, 35s, 50s
Natel Engineering Co., Calif., 5s
National Co., Inc., Mass., 5s, 30s, 35s
Networks Electronic Corp., Calif., 5c
New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Hwy, Somerville 43, Mass., 5c, Tel: 617-625-6100
See ad in class 84
New York Air Brake Co., Feedback Controls Subsid., Mass., 5sc, 20sc, 30sc, 40sc, 45sc
Newport Scientific Co., Calif., 5c
Nixon Gear & Machine Co., Inc., N.Y., 30c
Norbatrol Electronics Corp., Pa., 5c
Norden Div., United Aircraft Corp., Conn., 5sc, 50sc
Norden Div., United Aircraft Corp., Data Systems Dept., Calif., 5sc
Norden Div., United Aircraft Corp., Ketay Dept., N.Y., 5sc, 35sc, 40sc, 45sc, 50sc
North Atlantic Industries, Inc., Terminal Dr., Plainview, L.I., N.Y., 45sc, Tel: 516-OVerbrook 1-8600
See ad in class 35
Northeast Electronics Corp., N.H., 5c
Northfield Precision Instrument Corp., N.Y., 30c
Oilgear Co., Servocontrol Div., Mass., 5sc, 20sc
Olympic Radio & Television, Div. of Siegler Corp., N.Y., 5sc, 45sc
On Mark Couplings, Inc., Calif., 25c
OPTOmechanisms, Inc., N.Y., 5c
Orbit Instrument Corp., N.Y., 10sc, 15 Potentiometric Centering-Device sc, 30c, 45c
Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N.Y., 5c, Tel: 914-DEerfield 7-6132
See ad in class 43
Oster Mfg. Co. (John), Avionic Div., Wis., 5s, 30s, 50s
Ovitron Corp., Hodge Controls Div., Conn., 10sc, 15 Particle sc, 20c
Ovitron Corp., Power Controls Div., Conn., 5c, 20c
Pegasus Laboratories, Inc., Mich., 5sc, 20sc
Pennon Electronics, Inc., Calif., 5c
Perkins Machine & Gear Co., Mass., 30sc
Philbrick Researches, Inc. (George A.), Mass., 5sc
Pic Design Corp., Subsid. of Benrus Watch Co., Inc., N.Y., 10s, 15s, 25s, 30s
Planet Instrument, Inc., Ind., 30sc
Plug-In Instruments, Inc., Tenn., 5s, 20s
Power Instruments Corp., Inc., Calif., 5sc, 20sc
Power-Tronic Systems, Inc., N.Y., 5sc, 40c, 50sc
Precision Mechanisms Corp., N.Y., 20c, 25s, 30s, 45c
Precision Specialties, Inc., N.J., 15c
R-K Laboratories Co., N.Y., 5c, 45c
Radiatronics, Inc., Calif., 5c, 30c
Radio Corp. of America, Defense Electronic Products, N.J., 5s, 40s
Radio Development & Research Corp., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c
Radionics, Inc., 76 Cambridge St., Burlington, Mass., 5s, Tel: 617-BRowning 2-1233
See ads in classes 40, 77
Rainier Co., Inc., N.Y., 5c, 40c, 45c, 50c
Reed & Reese, Inc., Calif., 15c
Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, N.Y., 5c, 15s, 25s, 30s, 40s, 45sc, 50s
Reflectone Electronics, Inc., Subsid. of Universal Match Corp., Conn., 5sc
Rheem Mfg. Co., Rheem Electronics Div., Calif., 20sc
Rich Electronics, Inc., Fla., 5c
Rodale Electronics, Inc., N.Y., 5c
Rotating Components, Inc., 1560 Fifth Ave., Bay Shore, L.I., N.Y., 30sc, 35sc, Tel: 516-MOhawk 6-8500
See ad in class 47
Sangamo Electric Co., Springfield, Ill., 30c, 35c, 50c, Tel: 217-KIngswood 4-6411
See ad on page 142
Schaevitz Engineering, N.J., 5sc, 10c, 15c, 20sc, 25c, 30c, 35sc, 40c, 45c, 50c
Sciaky Bros., Inc., Ill., 5c, 35c
Scope, Inc., Va., 5c, 40c, 45c, 50c
Servo Corp. of America, N.Y., 5sc, 45c
Servo Development Corp., 2 Willis Court, Hicksville, L.I., N.Y., 5sc, 30sc, 40c, 45c, 50c, Tel: 516-OVerbrook 1-4343
See ad in this class
Servo Dynamics Corp., N.H., 5c
Servo Systems Co., N.J., 5s
Servo-Tek Products Co., Inc., N.J., 20s, 30s, 35s, 45s, 50s
Servomechanisms/Inc., Calif., 5c
Servomechanisms/Inc., Mechatrol Div., N.Y., 5s, 15s, 30s, 35s
Servometer Corp., N.J., 25sc
Servomex Controls, Ltd., England, 5s, 20s, 30s, 35s
Servonics, Inc., Va., 5c, 20c, 30c
Servotronics, Inc., N.Y., 5c, 20c, Torque Motors c
Shapiro & Edwards Electronic Instruments, Dept. I, Calif., 5c
Sier-Bath Gear & Pump Co., Inc., N.J., 25sc, 30c
Simplatrol Products Corp., Mass., 10sc, 15sc
Solartron, Inc., Calif., 40s, 50s
Solatron, Inc., Mass., 5c
Sparton Electronics, Div. of Sparton Corp., Mich., 5c
Special Instruments Laboratory, Inc., Tenn., 5c, 20c

2 WILLIS COURT • HICKSVILLE, L. I., N. Y.
PHONE: OVerbrook 1-4343 • AREA CODE 516
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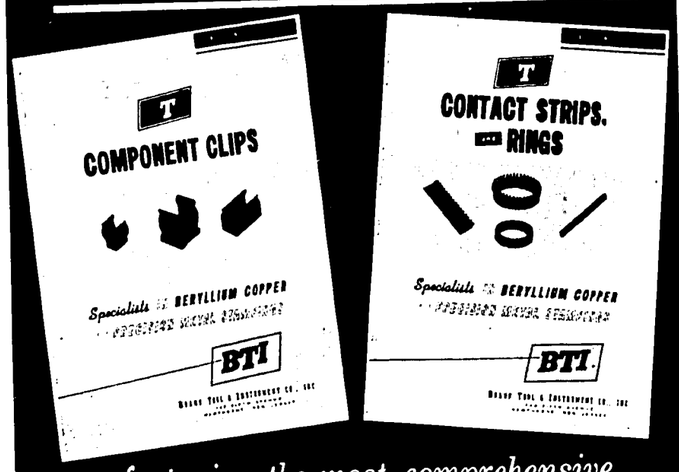
BULLETINS



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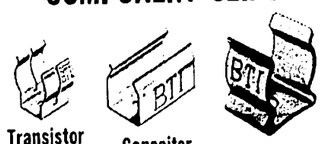
COMPONENT CLIPS



Transistor Clips and Retainers | Capacitor Retainers | Fuse Clips

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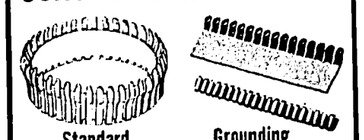
CONTACT STRIPS & RINGS

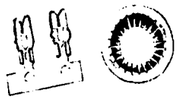


Standard contact rings for electronic tubes | Grounding and contact strips from stock

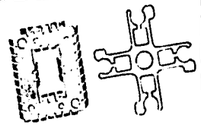
SEND FOR BULLETIN NO. E-109

PRECISION MADE BERYLLIUM COPPER CUSTOM STAMPINGS

Multi-spring and spring washers



Flat stampings and intricately formed parts



We invite your inquiries on specially designed stampings made from beryllium copper. Braun's highly skilled engineering staff is ready to assist you on any of your custom-design requirements.

BTI

BRAUN TOOL & INSTRUMENT COMPANY, INC.
143 Fifth Ave., Hawthorne, N. J.

For details, circle #535 on Reader Service Card

77. Servomechanisms.

Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 10sc, 15sc, 20sc, 25c, 30c, 40sc, 45sc
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 5sc, 20c, 45sc
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 5s, 10s, 15s, 20s, 35sc
Sprague Electric Co., VeeTrol Engineering, Inc. (Subsid.), Conn., 5c, 20c
Sterling Instrument Div., Designatronics, Inc., N.Y., 10sc, 15sc, 20sc, 25sc, 30sc
Straza Electronics, Div. of Straza Industries, Calif., 5sc
Superior Mfg. & Instrument Corp., N.Y., 30sc
Superite Gear & Instrument Corp., N.Y., 10c, 15c, 25c, 30c
Taber Instrument Corp., N.Y., 5s
Technology Instrument Corp., Mass., 10sc, 15sc, 25sc
Technology Instrument Corp. of California, Calif., 10c, 15c
Telecomputing Corp., Value Engineered Products, Inc. (Subsid.), Calif., 5c
Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 5c, 20c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80
Ten Bosch, Inc. (M.), N.Y., 5 LQR s
Thermo Electric Co., Inc., N.J., 5s
Thermovolt Instruments, Ltd., Canada, 30c
Theta Instrument Corp., 520 Victor St., Saddle Brook, N.J., 5s, 40s, 45s, Tel: 201-HUbbard 7-3508
See ad in class 97
Thompson Ramo Wooldridge Inc., Radio Condenser Co. (Subsid.), N.J., 15c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5c, 20c, 25c, 45c
Topper Mfg. Co., Inc., N.Y., 5c
Transistor Applications, Inc., Mass., 5c
Transmagnetics, Inc., N.Y., 40sc
Transonic, Inc., Calif., 5c
Ultronix, Inc., Calif., 10sc, 15sc
United Control Corp., Wash., 5sc, 20c, 40c, 45c
U.S. Gear Corp., Mass., 30sc
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 5c, 15c, 20c
Universal Match Corp., Armament Div., Mo., 5sc
Vactric (Control Equipment), Ltd., England, 30s, 35s
Valcor Engineering Corp., N.J., 10sc, 15sc
Vap-Air Div., Vapor Corp., Ill., 5c
Varo, Inc., Texas, 5c, 20c, 35sc
Vernitron Corp., 131 Old Country Rd., Carle Place, L.I., N.Y., 45sc, 50sc, Tel: 516-PIoneer 1-4130
See ad in class 67
Vogue Instrument Corp., N.Y., 30s
Warner Electric Brake & Clutch Co., Wis., 10s, 15s, 20s, 25s
Warren Mfg. Co., Inc., Mass., 5c
Webster Electric Co., Wis., 5c
Western Gear Corp., Electro Products Div., Calif., 30c
Westgate Laboratory, Inc., Ohio, 5c
Wheaton Engineering Div., Hurlcon, Inc., Ill., 30c
White Avionics Corp., N.Y., 5sc

Directory II. Components

77. Servomechanisms.

Wintronics, Calif., 5c
Wright Div. of Sperry Rand Corp., Calvin & Holloway Sts., Durham, N.C., 35sc, 50c, Tel: 919-682-8161
See ad in class 67
Zero-Max Co., Minn., 30c

Shields, tube & semiconductor:
See class 105

Shifters, phase:
See class 66

Shock mounts:
See class 89

Sinks, heat:
See class 105

Slip-rings & slip-ring assemblies:
See class 52

Slotted lines & measuring accessories:
See class 37

78. Sockets.

5. Adapter
10. Capacitor
15. Crystal
20. Diode clips
25. Light
30. Miniature
35. Printed circuit
40. Relay
45. Transistor clips
50. Tube, receiving
55. Tube, transmitting
60. UL industrial type

Accurate Electronics Corp., Ohio, 5sc, 15sc, 20c, 25c, 35c
Aeronautical Electric Co., 5656 Northwest Hwy., Chicago 46, Ill., 25sc, Tel: 312-SPring 4-5200
See ad in class 63
Air Born Connectors, Inc., Texas, 35c, 40c
Air-O-Tronics Engineering Co., N.Y., 5 Test sc
Alcon Metal Products, Inc., Ill., 5s, 20s, 30s, 35s, 50s
Alden Products Co., 10140 N. Main St., Brockton 64, Mass., 30s, 40s, 50s, Tel: 617-JUniper 3-0160
See ad in class 50
Aldrich Mfg. Co. (C. G.), Pa., 20c
Allied Control Co., Inc., 2 East End Ave., New York 21, N.Y., 40sc, Tel: 212-BUtterfield 8-7403
See ad in class 73
Alpine Electronic Components, Conn., 20sc
Alwac Computer Div., El-Tronics, Inc., Calif., 35c
Amatom Electronic Hardware Co., Inc., N.Y., 20sc
Ampco Mfg. Co., N.J., 5c, 25c, 30c
Amphenol-Borg Electronics Corp., Amphenol Connector Div., 1830 S. 54th Ave., Chicago 50, Ill., 40s, 50s, 60s, Tel: 312-BIshop 2-1000
See ad on page 114
Arnel Electronics, Inc., N.J., 40sc
Arrow-Hart & Hegeman Electric Co., Conn., 60s
Astral Electronics, Inc., Calif., 35s
Atlantis Electronics Corp., Texas, 5 Transistor-Test s, 45s
Atlee Corp., Atlas Div., Mass., 15sc, 20sc, 45sc
Augat Brothers, Inc., 33 Perry Ave., Attleboro, Mass., 15s, 20s, 40s, 45s, Tel: 617-CAstle 2-2202
See ad in class 105
Barker Products Co., Mass., 5sc, 35sc, 50sc
Barnes Development Co., 213 W. Baltimore Pike, Lansdowne, Pa., 30sc, 35sc, 40sc, 45c, Tel: 215-MAdison 2-1525
See ad in class 41
Beauchaine & Sons, Inc., N.H., 5c
Belling & Lee, Ltd., Great Cambridge Rd., Enfield, Middlesex, England, 30s, 35s, Tel: Enfield 5393
See ad in class 52
Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 15s, 20s, 50s, 55s, 60s, Tel: 212-WOrth 6-5611
See ad in class 91
Blinn Co. (Delbert), Calif., 20s
Braun Tool & Instrument Co., Inc., 143 Fifth Ave., Hawthorne, N.J., 10sc, 15c, 20c, 45sc, Tel: 201-HAwthorne 7-1773
See ad in this class, page 604
Bulova Research & Development Laboratories, N.Y., 15s
Burndy Corp., Omaton Div., Richards Ave., Norwalk, Conn., 40sc, Tel: 203-TEmple 8-1169
See ad in class 52
Cable Electric Products, Inc., R.I., 25sc, 30sc
Chicago Miniature Lamp Works, Ill., 25c, 30c
Cinch Mfg. Co., 1026 S. Homan Ave., Chicago 24, Ill., 5s, 10s, 15sc, 30sc, 35sc, 40sc, 45s, 50sc, Tel: 312-NEvada 2-2000
See ad on pages 64-65
Circon Component Corp., Santa Barbara Municipal Airport, Goleta, Calif., 25s, 30s, 35s, Tel: 805-WOodland 7-1113
See ad in class 63
Cole Electric Co., Calif., 5c, 40c, 60c
Connector Corp., Ill., 5sc, 10c, 15sc, 20c, 25sc, 30sc, 35sc, 40c, 50sc, 55sc, 60c
Continental Electronics & Sound Co., Ohio, 5sc
Crouse Hinds Co., N.Y., 5s
Culver-Stearns Mfg. Co., Mass., 5sc, 25sc, 30sc
DKE Electronic Bases, Inc., N.J., 55c
Deutsch Co., Electronic Components Div., Calif., 30s
Dialight Corp., 60 Stewart Ave., Brooklyn 37, N.Y., 25sc, 30sc, 60s, Tel: 212-HYacinth 7-7600
See ad in class 63
Dittmore-Freimuth Corp., Wis., 50c, 55c
Drake Mfg. Co., 4622 N. Olcott Ave., Chicago 31, Ill., 25s, Tel: 312-UNderhill 7-7227
See ad in class 63
Dyna Magnetic Devices, Inc., N.Y., 30sc
Eagle Electric Mfg. Co., Inc., N.Y., 5s, 25s, 30s, 60s
Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 55sc, Tel: 415-LYtell 1-1451
See ad on pages 29-32
Elco Corp., Pa., 15s, 30sc, 35s, 40s, 50sc, 55s
Electro-Ceramics, Inc., Utah, 55c
Electro-Products, Inc., Mich., 5s
Electronic Engineering Co. of California, Calif., 5s
Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 10c, Tel: 814-GLendale 6-8592
See ad on pages 78-79
Fortiphone, Ltd., Components & Transformer Divs., England, 30s
Forway Industries, Inc., N.J., 5c
Garlock, Inc., Garlock Electronic Products, N.J., 15sc, 30s
General Circuits, Inc., N.Y., 35c
Glenair, Inc., Calif., 5c
Grayhill, Inc., Ill., 20s, 45s, 55 Pencil c
Gries Reproducer Corp., 168 Beechwood Ave., New Rochelle, N.Y., 5c, Tel: 914-NEw Rochelle 3-8600
See ad in class 97
Hermetic Seal Corp., N.J., 30sc
Hi-Spee Electronics Corp., Calif., 40c
I.H. Mfg. Corp., N.Y., 5s, 15s, 30s, 35s, 45s, 50s
Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif., 5sc, 25s, 30s, Tel: 213-TRiangle 7-1144
See ad on page 162 & in class 63
Industrial Electronic Hardware Corp., N.Y., 5c, 15s, 30sc, 35sc, 40c, 50sc
International Electronic Research Corp., IERC Div., Calif., 35s, 50s
Javex Electronics, Calif., 15s, 30s
Jettron Products, Inc., N.J., 10c, 20s, 30c, 35s, 45sc, 50s, 55s
Johnson Co. (E. F.), Minn., 15s, 50s, 55s
Kenru Co., N.J., 60sc
Kost Products Co., Inc., Ill., 20s
Kulka Electric Corp., 633-643 S. Fulton Ave., Mount Vernon, N.Y., 20s, 25s, 30s, 60s, Tel: 914-MOunt Vernon 4-4024
See ads in classes 80, 81
Lab-Tronics, Inc., 3656 N. Lincoln Ave., Chicago 13, Ill., 5sc, Tel: 312-GRaceland 7-7900
See ad in class 62
Leecraft Mfg. Co., Inc., N.Y., 25sc, 30sc, 35c
Leviton Mfg. Co., Inc., N.Y., 25s, 30s, 60s
Line Electric Co., N.J., 5sc, 40sc
Lionel Corp., N.J., 35s
Lionel Corp., Lionel Electronic Laboratories (formerly Anton Electronic Laboratories), Dept. X-2, 1226 Flushing Ave., Brooklyn 37, N.Y., 30sc, 35sc, 40sc, Tel: 212-EVergreen 6-5715
See ad in class 52

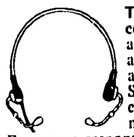
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

TELEX® HEADSETS

MAGNA-TWIN® MARK III—Developed specially for language learning field, aircraft, ham and commercial broadcasting. Provides true response and reproduction of vowels and consonants; suitable for all electronics applications presently used in American schools. Fully adjustable, weighs only 12 oz. Frequency response: 50 to 9,000 cps. Sensitivity: average 118 db for 1 mw input measured into a 6 c.c. coupler. Impedance to DC resistance ratio: 10:1. Headphone impedances: 500 to 600, 10,000 and 50,000 ohms. Others up to 200,000 ohms available on request. Reluctance, carbon, ceramic and magnetic noise-canceling microphones are optional.

DYNA-TWIN®—Custom-designed, balanced receivers provide unusually sensitive stereophonic reproduction. Dynamic receiver elements also assure exceptional high fidelity monaural listening. Weighs only 12 oz. Foam rubber muff seals and fully adjustable headbands allow use over long periods without discomfort or fatigue. Frequency response: 30 to 15,000 cps based on 10:1 subjective loudness ratio re 90 phons. Sensitivity: better than 90 db SPL for 1 mw input. Input required: 15 mw. Maximum input: 1 watt. Comfortable listening level; 1 mw.

TV "LISTENER"® — New "Listener" is designed to provide unique private listening features for home and institutional uses. Attach any radio, TV or central system without soldering. "Listener" switch turns set speaker on or off; user listens in private through Earset®. Built-in volume control is excellent for persons with a hearing loss. Second listener can use unit with optional second Earset®. Case is high impact plastic; will not crack or break with normal use. 15′ flexible cord has built-in strain relief. 5′ Earset® cord is flex-tested for assurance of long life.



TWINSET®—FAA approved. For commercial, amateur, and industrial uses. The standard on many airlines. Light and comfortable, just 1.6 oz. Signal piped directly into ears means less background noise and less signal loss. Frequency response: 50 to 5,000 cps. Sensitivity: 120 db above .000204 dynes per sq. cm. for 1 mw input. Impedances: 1,000, 500 (FAA approved) and 64 ohms. Volume control cords optional.

BOOM-MIKE HEADSET—Rugged, but weighs only 3.5 oz. Used on Pan American's 707 Jet Clipper; countless ham radio, TV, ship-to-shore, classroom, secretarial uses. Frequency response: to 5,000 cps. Sensitivity: 120 db above .0002 dynes per sq. cm. per mw input. Receiver impedance: 500 ohms. Available with double or single receiver, split phones. Choice of reluctance, dynamic, crystal, carbon or ceramic mikes with various impedances.

For complete information on these and other TELEX listening devices and accessories, write today.

TELEX/Communications Accessories Division
Telex Park, St. Paul 1, Minn., Dept. CA-513

For details, circle #536 on Reader Service Card

78. Sockets.

Litton Industries, Inc., Electron Tube Div., 960 Industrial Rd., San Carlos, Calif., 50s, 55s, Tel: 415-LYtell 1-8411
See ad in class 86

Lyn-Tron, Inc., Calif., 20s
MacLeod & Hanopol, Inc., Mass., 5c
Magnetic Devices, Ltd., England, 35s
Mandex Mfg. Co., Inc., Ill., 5sc, 30sc, 35sc
Marine View Electronics, Inc., N.Y., 5c, 20c, 45c
Massey, Inc. (A. H.), Conn., 5s, 25s, 60s
Mectron Co., N.J., 5s

Methode Electronics, Inc., 7447 W. Wilson Ave., Chicago 31, Ill., 5sc, 15sc, 30sc, 35sc, 40sc, 45sc, Tel: 312-UNderhill 7-9600
See ad adjacent to Index to Advertisers, back of book

Micarta Fabricators, Inc., Ill., 25c, 30c
Micro-Lectric, Inc., N.Y., 15c

Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 15s, 30s, 50sc, 55sc, Tel: 617-DAvenport 4-4108
See ad in class 51

Morse Co. (Frank W.), Mass., 5sc, 25sc, 30sc
Mosley Electronics, Inc., Mo., 5s, 15s
Mycalex Tube Socket Corp., N.J., 35s, 45c, 50c
National Co., Inc., Mass., 15s
National Radio Co., Inc., Mass., 15s, 50s, 55s
Norrich Plastics Corp., N.Y., 5c, 30c, 50c, 55c
Nuclear Corp. of America, Central Electronic Mfrs. Div., N.J., 55s
Nugent Electronics Co., Inc., Ind., 15sc, 30sc, 35sc, 40sc
Oki & Willadsen, Ltd., Canada, 30s, 35s, 50s
Permonite Mfg. Co., Ill., 15s, 30s, 35s, 60s
Perrott Engineering Laboratories, Inc., Subsid. of Federated Electronics, Inc., Va., 15c
Philips Electronics Industries, Ltd., Canada, 50s, 55s
Plastic Mold & Engineering Co., R.I., 30s, 35s
Pomona Electronics Co., Inc., Calif., 5s
Precision Metal Products Co., Mass., 5 Test sc
Raypar, Inc., Ill., 50sc, 60sc
Remler Co., Calif., 50s, 55s
Rimak Electronics, Inc., Calif., 20s, 30s, 35s
Robinson Machine Works, Inc., Ind., 10sc, 15sc, 30sc, 35sc
Rodale Mfg. Co., Inc., Pa., 5s, 25s, 30s, 60s
Ross Co. (Milton), Pa., 10sc, 20sc, 30sc, 35sc, 40sc, 45sc
Russell & Stoll Co., Inc., N.Y., 60s
Rye Sound Corp., N.Y., 30s
Scientific Electronic Laboratories, Inc., N.J., 55s

Sealectro Corp., 139 Hoyt St., Mamaroneck, N.Y., 20sc, Tel: 914-OWens 8-5600
See ad in class 81

Signal Indicator Corp., N.Y., 25sc, 30sc, 60sc
Slater Electric, Inc., N.Y., 60sc
Sloan Co., Color-Lite Div., Calif., 25sc, 30sc, 35sc
Smith, Inc. (Herman H.), Dept. 12, 2326 Nostrand Ave., Brooklyn 10, N.Y., 15s, 50s, Tel: 212-CLoverdale 3-7900
See ad in class 62
Space Products, Calif., 35sc
Speed Electronics, N.J., 35c
Staver Co., Inc., N.Y., 20c, 45c

Superior Electric Co., 100 Ames Ave., Bristol, Conn., 5s, Tel: 203-LUdlow 2-9561
See ad on pages 2-11

Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 30c, 35s, 50s, 55s
Sylvania Electric Products Inc., Lighting Products Div., Mass., 25s, 30s
Teradyne, Inc., Mass., 20s
Titchener & Co. (E. H.), N.Y., 35c
Torotor A/S, N.Y., 30sc, 35sc, 50sc
Uni-Tel, Inc., N.Y., 20sc
United International Dynamics Corp., Mass., 35s

United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 30c, 35c, 50c, 55c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104

Vector Electronic Co., Inc., 1100 Flower St., Glendale 1, Calif., 5sc, Tel: 213-CHapman 5-1076
See ad in class 50

Vemaline Products Co., N.J., 20sc, 45sc
Wade Electric Products Co., Mich., 35c
Waldom Electronics, Inc., Ill., 15s, 20s, 35s, 50s
Warren Components Div., El-Tronics, Inc., Pa., 20c
Webster Electronics Co., Inc., N.Y., 25c, 30c

Solar batteries:
See class 46

Solar generators:
See class 58

Solenoid coils:
See class 51

Solenoid switches:
See class 80

Sources:
See classes 14 & 22

Spacers:
See class 105

79. Speakers.

5. Air-modulated
10. Baffles
15. Commercial-grade
20. Cones
25. Headphones
30. High-frequency
35. Low-frequency
40. Wide-range, 2 & 3-way systems

Acoustic Research, Inc., Mass., 40s
Acoustical Mfg. Co., Ltd., England, 40 Electrostatic s
Advanced Acoustics Corp., N.J., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc
Aircraft Radio Corp., N.J., 25s
American Communications Corp., N.Y., 10sc, 40c
American Development Electronics Co., N.J., 10c, 25c

Directory II. Components

79. Speakers.

Amplivox Exports, Ltd., England, 25sc
Arkay Products Mfg. Co., Calif., 15s
Arlo Electronic Corp., N.Y., 15sc
Arnhold Ceramics, Inc., N.Y., 15s, 30s, 35s, 40s
Atlas Sound Corp., N.Y., 10sc, 15sc, 30sc
Audax, Inc., N.Y., 10s, 15s, 30s, 35s, 40s
Audiotex Mfg. Co., Div. of GC Textron Electronics, Ill., 25s
Avco Research & Advanced Development Div., Mass., 5sc, 15sc, 30sc, 35sc
Barker Sales Co., N.J., 30c, 35c, 40c
Becker Electronics Mfg. Corp., N.Y., 5s, 15s, 30s, 35s, 40s
Best Mfg. Co., Inc., N.C., 15c
Bestcraft Products Co., Inc., N.Y., 10c
Bozak Mfg. Co. (R. T.), Conn., 10s, 30s, 35s, 40s
British Industries Corp., N.Y., 15s, 25s, 40s

Bud Radio, Inc., 2118 E. 55th St., Cleveland 3, Ohio, 10s, Tel: 216-HEnderson 1-7166
See ad in class 90

Calbest Electronics, Calif., 10sc, 40sc
California Chassis Co., Calif., 10sc
Cannon Co. (C. F.), N.Y., 25sc
Carbonneau Industries, Inc., Mich., 30c, 35c, 40c
Cinaudagraph, Inc., Ill., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc
Cletron, Inc., Ohio, 15s, 30s, 35s, 40s
Cleveland Electronics, Inc., Ohio, 10c, 15sc, 30sc, 35sc, 40sc
Continental Merchandise Co., Transistor Products Div., N.Y., 15s
Continental Sound Engineering, Inc., Wis., 10s
Crosby-Teletronics Corp., N.Y., 40s
Dyna Magnetic Devices, Inc., N.Y., 15sc, 25sc, 30sc, 35sc
E.M.I.-Cossor Electronics, Ltd., Canada, 40s
Electro-Products, Inc., Mich., 10s
Electro-Voice, Inc., Mich., 10s, 30s, 35s, 40s
Electronic Products Corp., Subsid. of Futura Mfg. Corp., Mo., 15c
Electronic Research Associates, Inc., N.J., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc
Eprad, Inc., Ohio, 15s
Fedtro, Inc., Federal Electronics Sales Div., N.Y., 25s
Fisher Radio Corp., N.Y., 40s
Fortiphone, Ltd., Components & Transformer Divs., England, 25s
Fourjay Industries, Ohio, 10sc, 15c
Frazier, Inc., Texas, 10s, 40s
Galbraith-Pilot Marine Corp., Div. of Marine Electric Corp., N.Y., 15 Marine-Type sc
Gates Radio Co., Ill., 10s, 25s
General Coil Products Corp., N.Y., 25c
General Dynamics/Electronics, N.Y., 10s, 15sc, 30sc, 35sc, 40sc
General Motors Corp., Delco Radio Div., Ind., 15c, 20c
Goodman's Industries, Ltd., Axiom Works, England, 10s, 15s, 30s, 35s, 40s
Gotham Audio Corp., N.Y., 25s
Harman-Kardon, Inc., N.Y., 40s
Hartley Products Co., N.Y., 10sc, 40s

Hawley Products Co., 333 N. Sixth St., Saint Charles, Ill., 20sc, Tel: 312-JUno 4-3130
See ad in this class

Heppner Mfg. Co., Ill., 15c, 30c, 35c
Hitachi New York, Ltd., N.Y., 25c
Hobbs, Inc. (Guy), Pa., 10sc
International Telephone & Telegraph Corp., ITT Distributor Products Div., N.J., 15s, 30s, 35s, 40s
International Telephone & Telegraph Corp., ITT Kellogg, Ill., 25s
Jensen Mfg. Co., Div. of Muter Co., Ill., 15sc, 30sc, 35sc, 40sc
KLH Research & Development Corp., Mass., 20c, 30s, 35s, 40s
Klipsch & Associates, Inc., Ark., 40sc
Knowles Electronics, Inc., Ill., 25 Miniature sc
Lansing Sound, Inc. (James B.), Calif., 5c, 10s, 30s, 35s, 40s
Lansky Die Cutting Corp., N.Y., 10c
Ling Temco Vought, Inc., Texas, 5sc, 10s, 15s, 20s, 25c, 30s, 35s, 40s, Underwater sc
Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid.), Calif., 5s, 10s, 15s, 20s, 30s, 35s, 40s
Ling Temco Vought, Inc., Ling Electronics Div., Calif., 5s
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c, 10sc, 15sc, 20sc, 25c, 30sc, 35sc, 40sc, Underwater sc, Explosion-Proof sc
Lowell Mfg. Co., Mo., 10sc
MP Engineering Co., Conn., 10sc
Marsland Engineering, Ltd., Canada, 15sc
Materials for Electronics, Inc., N.Y., 15sc
McGregor Electronic Industries, Inc., Iowa, 15c
Melody Master Mfg. Co., Ill., 25sc
Minshall Organ & Electronics, Inc., Vt., 5sc, 10sc, 15sc
Mundt & Sons (Charles), N.J., 10c
Murdock Corp., Mass., 25sc
National Co., Inc., Mass., 15s
National Radio Co., Inc., Mass., 15s
Neshaminy Electronic Corp., Pa., 30s, 35s, 40s
Oxford Components, Div. of Oxford Electric Corp., Ill., 10c, 30c, 40c
Parkway Specialties Co., Mich., 10s
Permoflux Products Co., Div. of Linlar, Inc., Calif., 15sc, 25sc, 30sc, 35sc, 40sc
Philips Electronics Industries, Ltd., Canada, 15s, 25s, 30s, 35s, 40s
Pickering & Co., Inc., N.Y., 30c
Plastic Mold & Engineering Co., R.I., 25c
Powers Co. (J. J.), Ill., 10sc

Precision Apparatus Co., Inc., Div. of Pacotronics, Inc., 70-31 84th St., Glendale 27, N.Y., 40c, Tel: 212-TWining 4-4290
See ad in class 39

Premier Metal Products Co., 337 Manida St., New York 59, N.Y., 10s, Tel: 212-WYandotte 1-6600
See ads in classes 90, 93

Private Tele-Communications, Inc., Ill., 10s
Product & Industrial Engineering Corp., Va., 15s
Quam-Nichols Co., Ill., 15sc, 30sc, 35sc, 40sc
Quincy Speaker Mfg. Corp., Ill., 10s, 15sc, 30sc, 35sc, 40sc
Racon Electric Co., Inc., N.Y., 15sc, 30s, 35s, 40s
Radio Corp. of America, Defense Electronic Products, N.J., 15s, 25s, 30s, 35s, 40s
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 40c
Rek-O-Kut Co., Inc., N.Y., 30s, 35s, 40s
Remler Co., Calif., Aircraft s
Roanwell Corp., N.Y., 25sc
Roflan Co., Mass., 25c
Rola Co., Div. of Muter Co., Ohio, 15c, 30c, 35c
Rotary Devices Corp., N.J., 40c

CONES *MOLDED—SEAMLESS*
FOR
Radio—TV—Phonos—Communications & Hi-Fi
ALSO
Suspensions—Dust Caps—Annular Supports
Cloth & Resin Cones For Outdoor Units
—WHIZZERS—
HAWLEY PRODUCTS COMPANY
ST. CLAIR, ILLINOIS

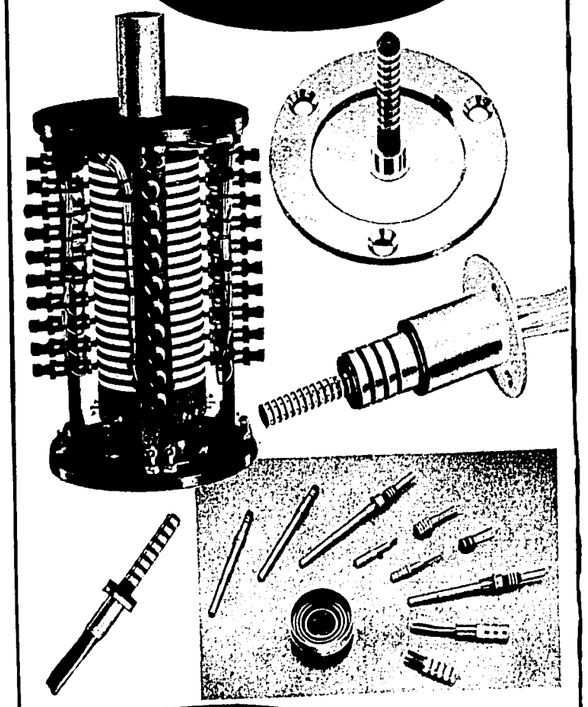
For details, circle #537 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Airflyte ELECTRONICS CO.

Shown here are just a few examples of our products. We invite your inquiry on the development and production to your specifications. Avail yourself of our engineering facilities to carry-through from design ... to prototype ... to mass production. Hundreds of stock molds eliminate tooling in most cases.

SLIP RING ASSEMBLIES

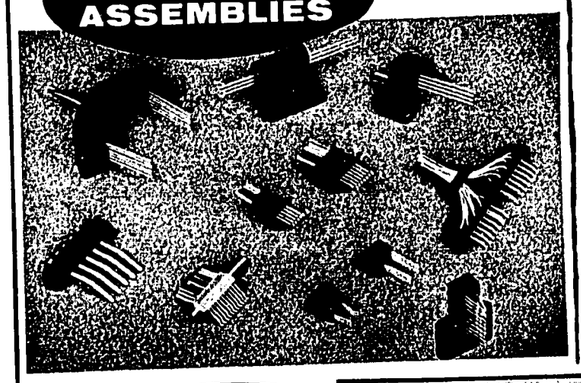


COMMUTATING SWITCHES

HIGH SPEED ROTARY SWITCHES FOR TELEMETERING, SAMPLING, PROGRAMING AND ANALOG-DIGITAL CONVERSION.

Airflyte's production facilities are geared to produce standard and non-standard commutators at "off-the-shelf" prices. Featuring noise-free performance through the use of solid gold alloy commutating surfaces ... and exclusive drum construction for maximum life, uniform wear and close angular tolerance. We will supply packaged units (as illustrated) or component commutators and/or brush blocks. All products designed to meet MIL-E 5272 and MIL-E 5400 and other special environmental specifications.

BRUSH BLOCK ASSEMBLIES



Airflyte ELECTRONICS CO.

537 AVENUE A
BAYONNE
NEW JERSEY

Write for literature and prices.

For details, circle #538 on Reader Service Card

Directory II. Components

79. Speakers.

Rye Sound Corp., N.Y., 25s
Sanyo Electric Co., Ltd., Japan, 5s, 30s, 35s, 40s
Saxton Products, Inc., 4320 Park Ave., New York 57, N.Y., 10s, Tel: 212-WEllington 3-6400
See ad in class 91
Scott, Inc. (H. H.), Mass., 40s
Sherwood Electronic Laboratories, Inc., Ill., 40s
Sonograf Electric Co., N.Y., 10sc, 15sc, 20sc, 30s, 35s, 40s
Sonotone Corp., N.Y., 15s, 25s, 30s, 35s, 40s
Standard Systems Corp., N.Y., 10s, 15s, 30s, 40s
Standard Telephones & Cables, Ltd., England, 15sc, 25sc
Stephens Trusonic, Inc., Calif., 10s, 15s, 30s, 35s, 40s
Stevens Products, Inc., N.J., 20sc
Superex Electronics Corp., N.Y., 25s
Tandberg of America, Inc., N.Y., 30s
Tannoy (America), Ltd., N.Y., 10s, 15s, 40s
Telephone Dynamics Corp., N.Y., 25sc
Telephonics Corp., N.Y., 25s
Telex, Inc., Dept. CA-513, 1633 Eustis St., Saint Paul 1, Minn., 25sc, Tel: 612-MIdway 6-7211
See ads in classes 79 (page 606), 80
Thompson Ramo Wooldridge Inc., Bell Sound Div., Ohio, 30sc, 40sc
Tokyo Shibaura Electric Co., Ltd., Japan, 15s, 25s
Trimm, Inc., Ill., 25sc
United States Instrument Corp., Va., 25c
Utah Radio Products Corp., Ind., 10s, 15s, 30s, 35s, 40s, Reverberators s
Valco Mfg. Co., Ill., Reverberators sc
Vari Corp., Minn., 25s
Waber Electronics, Inc., Pa., 10s
Waldom Electronics, Inc., Ill., 20 Coil s
Weathers Industries, N.J., 40c
Wellcor, Inc., Ill., 10c
Western Electro-Acoustic Laboratory, Inc., Calif., 40c
Westlab, Inc., N.Y., 40c
Wilder Engineering Products, Ill., 15sc, 30sc, 35sc, 40sc
Wintronics, Calif., 10sc, 15sc
Wright-Zimmerman, Inc., Minn., 15sc, 30c, 35c, 40c

Splicing equipment:
See class 70

Stacks, silicon & selenium:
See class 71

Standby power supplies:
See class 69

Stands, microphone:
See class 65

Stereo equipment:
See classes 26, 42, 43 & 88

Storage devices:
See classes 10 & 50

Storage tubes:
See class 86

Strips, terminal:
See class 81

Styli:
See classes 68 & 70

Superconductive devices:
See classes 10, 50 & 54

Switches, microwave:
See class 66

80. Switches & Contacts.

2. Acceleration
4. Circuit breakers
6. Coaxial
8. Commutator
10. Contacts
12. Crossbar
14. Electronic
16. Ferrite
18. Foot
20. Inertia
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52. Thermal
54. Time
56. Toggle
58. Transfer
60. Vacuum

A.P.W. Co., N.J., 44sc
Ace Spring Mfg. Co., Inc., N.Y., 48c
Adams-Russell Co., Inc., 200 Sixth St., Cambridge 42, Mass., 6c, 16c, Tel: 617-UNiversity 8-8040
See ads in classes 59, 66
Advance Components, Ltd., England, 6s
Advanced Development Laboratories, Inc., N.H., 6c, 16c, 58c
Advanced Research Associates, Md., 14s, 32s, 46s
Advanced Technology Laboratories, Div. of American-Standard, Calif., 8s
Aero Geo Astro Corp., Va., 24c
Aero Mechanism, Inc., Calif., 2sc, 34s, 60c
Aerodyne Controls Corp., N.Y., 2s, 34s
Aerospace Controls, Calif., 2c, 20c
Aerovox Corp., Mass., 10s
Air Born Connectors, Inc., Texas, 10s
Aircraft & Missile Consultants, Calif., 34c
Airflyte Electronics Co., 537 Ave. A, Bayonne, N.J., 8sc, 38sc, Tel: 201-HEmlock 6-2230
See ad in this class, page 608
Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 4s, 14s, 46s, Tel: 301-ACademy 8-4600
See ad in class 53
Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 4s, 14s, 46s, Tel: 305-LUdlow 3-6160
See ad in class 53
Alcor Mfg. Co., Ill., 18c, 30c, 32c, 36c, 38c, 42c
Alden Products Co., 10140 N. Main St., Brockton 64, Mass., 36s, Tel: 617-JUniper 3-0160
See ad in class 50

80. Switches & Contacts.

Alford Mfg. Co., 299 Atlantic Ave., Boston 10, Mass., 6s, Tel: 617-HAncock 6-2150
See ad in class 66
Allied Control Co., Inc., 2 East End Ave., New York 21, N.Y., 30sc, 36sc, 56sc, Tel: 212-BUtterfield 8-7403
See ad in class 73
Alloy Bellows, Inc., Ohio, 34sc, 60sc
Alpine Electronic Components, Conn., 56c
American Development Electronics Co., N.J., 10c
American Machine & Foundry Co., N.Y., 54s
American Machine & Foundry Co., Government Products Group, N.Y., 6sc, 12s, 60s
American Machine & Foundry Co., Greenwich Engineering Div., Conn., 14s
American Missile Products Co., Inc., Calif., 8c
American-Monarch Corp., Minn., 36sc, 38sc, 42sc
American-Standard Controls Div., Mich., 30c, 36c, 42c
Ampco Mfg. Co., N.J., 30c, 32c, 36c
Amphenol-Borg Electronics Corp., Amphenol Connector Div., 1830 S. 54th Ave., Chicago 50, Ill., 10sc, Tel: 312-BIshop 2-1000
See ad on page 114
Andrew Corp., 363 E. 75th St., P.O. Box 807, Chicago 42, Ill., 6s, Tel: 312-Fieldbrook 9-3300
See ad on page 86
Applied Control Corp., N.J., 14c
Applied Electronics Corp. of New Jersey, P.O. Box 43, Metuchen, N.J., 8sc, 14sc, Tel: 201-LIberty 9-9200
See ad in class 34
Applied Magnetics Corp., Calif., 14sc, 46sc
Arch Gear Works, Inc., Mass., 24c
Ardente Acoustic Laboratories, Ltd., England, 38sc, 48sc
Ariel Davis Mfg. Co., Utah, 32sc, 38sc, 58sc
Arkay Products Mfg. Co., Calif., 36s, 38s, 40s
Armstrong Whitworth/Brush, Falcon Works, England, 8s, 38sc
Arrow-Hart & Hegeman Electric Co., Conn., 18s, 24s, 26s, 30sc, 32s, 36s, 38s, 40s, 42sc, 48c, 52s, 56sc, 58c
Artisan Electronics Corp., N.J., 44sc
Ascop, Div. of Electro-Mechanical Research, Inc., N.J., 8sc, 26sc, 38sc
Associated Electrical Industries (Rugby), Ltd., England, 14s, 26s, 32s, 34s, 36s, 44s
Astral Electronics, Inc., Calif., 38s
Atlas Chemical Industries, Inc., Ordnance Materiel Dept., Del., Explosive sc
Audioscars Corp., N.Y., 34s
Automatic Electric Co., Subsid. of General Telephone & Electronics, Ill., 22c, 24c, 38c, 42c, 44c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

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You will find the same high standards of workmanship resulting in heretofore unobtainable ACCURACY.

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47-51 33 Street
Long Island City 1 N Y

For details, circle #539 on Reader Service Card

80. Switches & Contacts.

Automatic Metal Products Corp., 323 Berry St., Brooklyn 11, N.Y., 6sc, 32sc, 38sc, Tel: 212-EVergreen 8-6057
See ad in class 52

Automatic Switch Co., N.J., 44c, 58sc
Automation Devices, Inc., Pa., Air sc, Proximity sc
Automation, Inc., Mass., 38 Electro-Optical c
Autotronics, Inc., Mo., 44c, 48c
Aviel Electronics, Inc., Calif., 6c
B & M Electronics Mfg. Co., Ind., 14s
Barco, Inc., Wis., 18s
Barker & Williamson, Inc., Pa., 6s
Barwood Electronics, Inc., Calif., 18c
Bay-Roy Electronics, Inc., Ohio, 6c, 44sc
Beckman & Whitley, Inc., Calif., 4sc
Beck's, Inc., Minn., 8c

Bendix Corp., Eclipse-Pioneer Div., Teterboro, N.J., 56c, Tel: 201-ATlas 8-2000
See ad on pages 46-47

Bendix Corp., Friez Instrument Div., Md., 20c, 34sc
Bendix Corp., Pioneer-Central Div., Iowa, 2sc, 20sc, 34sc
Bently Scientific Co., Calif., 14sc
Bergen Laboratories, Inc., N.J., 14s, 20s, 46s

Bird Electronic Corp., 30303 Aurora Rd., Cleveland 39, Ohio, 6s, Tel: 216-CHurchill 8-1200
See ad on page 210

Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 4s, 22s, 30s, 32s, 36s, 38s, 40s, 42s, 56s, Tel: 212-WOrth 6-5611
See ad in class 91

Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 38sc

Bogart Mfg. Corp., 315 Seigel St., Brooklyn 6, N.Y., 6sc, Tel: 212-HYacinth 7-4972
See ad in class 66

Bon-De Electronic Laboratories, Inc., Mass., 26s, 34s
Brach Mfg. Corp., Div. of General Bronze Corp., N.J., 26sc, 46sc
Brainin Corp. (C. S.), N.Y., 10c
Bright Radio Laboratories, Inc., N.Y., 10c, 38c
Bristol Co., Conn., 34sc
Brys Instrument Co., N.Y., 38c
Bulova Research & Development Laboratories, N.Y., 2c, 20c, 38c
Burling Instrument Co., Inc., N.J., 52s
C-M Mfg. & Machine Co., Inc., N.J., 10 Tungsten c

CTS Corp., 1142 W. Beardsley Ave., Elkhart, Ind., 18sc, 30c, 32c, 36c, 38c, 42c, 48c, Tel: 219-JAckson 3-0210
See ad on page 12

Cable Electric Products, Inc., R.I., 36sc, 38sc, 40sc, 44sc, 52sc, 56sc
Canadian Marconi Co., Canada, 60c

Cannon Electric Co., 3208 Humboldt St., Los Angeles 31, Calif., 26s, 38s, 44s, Tel: 213-CApitol 5-1251
See ad in class 52

Capitol Machine Co., Conn., 22 Lever c, 36c, Push-Pull c
Carling Electric, Inc., Conn., 18sc, 30sc, 36sc, 38sc, 40sc, 42sc, 56sc
Carma Mfg. Co., Calif., 14c, 36c, 38c, 44c
Carson Mfg. Co., Inc., Ind., 32c, 38c, Air-Velocity c
Carter Parts Co., Ill., 24c, 36sc, 42c

Centralab, Electronics Div. of Globe-Union, Inc., 900A E. Keefe Ave., Milwaukee 1, Wis., 32sc, 36sc, 38sc, 40sc, 48sc, Tel: 414-WOodruff 2-9200
See ad in class 74

Century Electronics & Instruments, Inc., Okla., 34sc
Ceramco, Inc., N.J., 10c, 52c
Cetron Electronic Corp., Ill., 30s
Cherry Electrical Products Corp., Ill., 24sc, 30sc, 36sc, 42sc
Chicago Aerial Industries, Inc., Kintronic Div., Ill., 8c
Chicago Dynamic Industries, Inc., Ill., Digital c, 38sc, 44c
Chicago Telephone of California, Inc., Calif., 18s, 30c, 32c, 38c, 42c, 48c
Circle F Mfg. Co., N.J., 22s, 30s, 36s, 38s, 40s, 42s, 56s
Clare & Co. (C. P.), Ill., 26s, 28s, 36sc, 38sc, 40sc, 42sc, 48sc
Clark Controller Co., Ohio, 24s, 32s, 36s
Co Engineering Co., N.J., 8c, 28c
Cole Electric Co., Calif., 38c
Cole Instrument Co., Calif., 2c, 20c, 34c, 38c, 40c, 46c, 50c, 58c

Collectron Corp., 304 E. 45th St., New York 17, N.Y., 8c, 38c, Tel: 212-MUrray Hill 9-7120
See ad in this class

Columbus Electric Mfg. Co., Ohio, 24s, 30s, 38s, 42s, 48s, 52s
Colvin Laboratories, Inc., N.J., 34c

Comar Electric Co., 3349 Addison St., Chicago 18, Ill., 30c, Tel: 312-JUniper 8-2410
See ad on page 132

Computer Control Co., Inc., Eastern Div., 983 Concord St., Framingham, Mass., Digital sc, Tel: 617-TRinity 5-6185
See ad in class 8

Computer Control Co., Inc., Western Div., 2251 Barry Ave., Los Angeles 64, Calif., Digital c, Tel: 213-GRanite 8-0481
See ad in class 8

Computer Instruments Corp., 92 Madison Ave., Hempstead, L.I., N.Y., 8c, 34c, 38c, Tel: 516-IVanhoe 3-8200
See ad in class 74

Connecticut Telephone & Electric Corp. of Meriden, Conn., 12c, 22c
Connector Corp., Ill., 24sc, 30sc, 32sc, 36c, 38s, 42sc
Consolidated Controls Corp., Conn., 34sc, 60c
Continental Electronics Corp., N.Y., 6c, 22c

Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 12c, 58c, Tel: 214-EVergreen 1-1135
See ad on page 120

Continental Electronics & Sound Co., Ohio, 18sc
Continental-Wirt Electronics Corp., Pa., 40sc
Control Equipment Corp., Mass., 14s, 46s
Control Products, Inc., N.J., 24c, 30sc, 36sc, 42s, 52sc, 56sc
Controls Co. of America, Ill., 4sc, 20c, 22c, 24sc, 30sc, 32c, 36sc, 38sc, 40sc, 42sc, 44sc, 46c, 48sc, 50c, 54sc, 56sc, 58sc

Directory II. Components

80. Switches & Contacts.

Controls Co. of America, Control Switch Div., Ill., 36c, 38c, 56c
Cook Electric Co., Ill., 14sc, 34sc, 46sc, 52sc, 54sc
Corona Engineering Service, N.Y., 28s

Couch Ordnance, Inc., 3 Arlington St., North Quincy 71, Mass., 38s, Tel: 617-CYpress 8-4147
See ad in class 73

Crosby-Teletronics Corp., N.Y., 14s
Cryogenerators, Inc., R.I., 10sc, 14sc, 42sc
Culver-Stearns Mfg. Co., Mass., 22sc, 30sc, 36sc, 40sc, 48sc, 56sc
Cunningham Son & Co., Inc. (James), N.Y., 12 Scanning-Module s, 44c
Cutler-Hammer, Inc., Wis., 4s, 18s, 22s, 24s, 26s, 30s, 34s, 36s, 38s, 40s, 42s, 44s, 48s, 56s
Daco Instrument Co., N.Y., 44sc
Dales Co. (Franklin), Ohio, 52c
Daven Co., Subsid. of General Mills, Inc., N.J., 8c, 24c, 38s, 42s, 44c, 48c, 50s
Deringer Metallurgical Corp., Ill., 10c
Destron Co., Calif., 54c
Deutsch Co., Electronic Components Div., Calif., 6s, 10s, 14s, 42s

Dialight Corp., 60 Stewart Ave., Brooklyn 37, N.Y., 30c, 36c, Tel: 212-HYacinth 7-7600
See ad in class 63

Diamond Antenna & Microwave Corp., Mass., 6sc
Dicon Corp., N.Y., 46c
Dielectric Products Engineering Co., Inc., Me., 6sc
Dietz Co., Inc. (Henry G.), N.Y., 34s, 60s
Digitran Co., Calif., 10s, 38s
Diotron, Inc., Pa., 46sc
Dittmore-Freimuth Corp., Wis., 6c, 8c, 10c, 14c, 38c
Dmeter Mfg. Co., Inc., N.Y., 52c
Don-Lan Electronics, Inc., Calif., 6sc
Dormeyer Industries, Ill., 44sc

Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 6sc, Tel: 914-MOunt Vernon 8-6900
See ad in class 66

Dow-Key Co., Inc., Minn., 6sc
Duncan Electronics, Inc., Calif., 38c
E-Kay Mfg. Co., Inc., N.J., 10c
E & M Laboratories, Calif., 6c, 14c, 16c
E-T-A Products Co. of America, Ill., 26s, 52s, 54s
Eagle Electric Mfg. Co., Inc., N.Y., 28s, 32s, 36s, 38s, 42s, 50s, 56s
Eagle Signal Co., Div. of Gamewell Co., Ill., 54sc
Eastern Technical Associates, Inc., Mass., 20sc
Edeliff Instruments, Calif., 2c, 34c
Edwards High Vacuum (Canada), Ltd., Canada, 60s
Edwards High Vacuum, Inc., N.Y., 60s

Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 60s, Tel: 415-LYtell 1-1451
See ad on pages 29-32

Eldema Corp., Calif., 30sc
Electro-Craft Corp., Minn., 44 High-Temp. c

Electro-Mec Div. of Waltham Precision Instrument Co., Inc., 47-51 33rd St., Long Island City 1, N.Y., 8c, 38c, Tel: 212-STillwell 6-3402
See ad in this class

Electro-Mechanical Research, Inc., Fla., 8c, 14c
Electro-Mechanical Specialties Co., Inc., Calif., 26sc, 38sc, 44sc
Electro-Miniatures Corp., N.J., 8c, 10c, 38c
Electro-Seal Corp., Ill., 26s
Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., Minn., 14c, 26c, 30sc, 36sc, 42sc, 46c
Electro Switch Corp., Mass., 8c, 30c, 32c, 38c, 42c, 48c, 50c, 58c

Electro Switch Corp., Slip-Ring Div., Osterville, Mass., 8c, 14c, 38c, Tel: 617-GArden 8-6986
See ad in this class

Electro-Tec Corp., N.J., 8c, 14c, 38c, Telemetering c, Selector c
Elect omagnetic Technology Corp., Calif., 14c
Electronic Controls, Inc., Conn., 30sc, 36sc, 44sc, 58sc
Electronic Parts Mfg. Co., Inc., N.J., 10c

Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., 46c, 54c, Tel: 301-HAmilton 6-1268
See ad in class 73

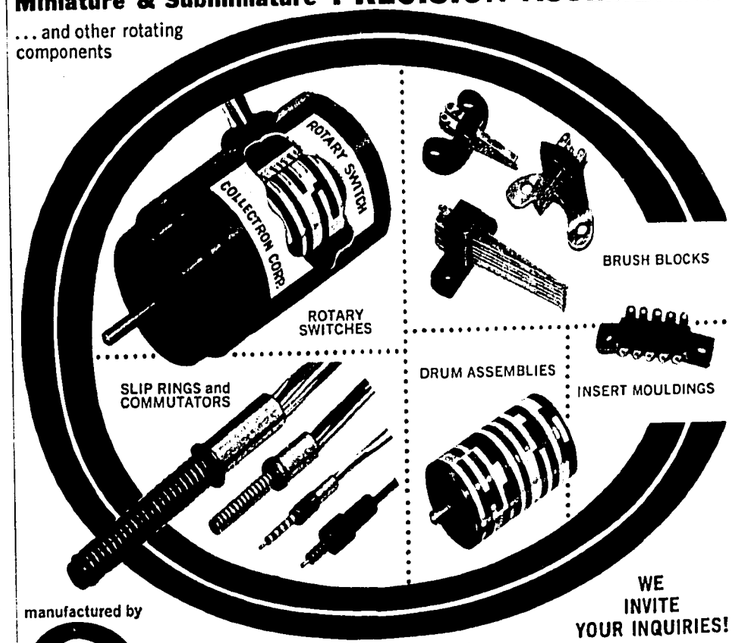
Electronic Specialty Co., Calif., 6c, 26c
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 2c, 20c, 44c, 46c, 54c
Elliott-Automation, Ltd., England, 16sc, 60sc
Ellison Draft Gage Co., Inc., Ill., 30s, 34s, 60s
Elotec Corp., Calif., 44s, 56s

Endicott Coil Co., Inc., 24 Charlotte St., Binghamton, N.Y., 44c, Tel: 607-SWarthmore 7-1263
See ad in class 51

Engelhard Industries, Inc., Makepeace Div., Mass., 6c, 8c, 10c, 12c, 38c, 40c, 46c
Epsco, Inc., Mass., 8sc, 14sc, 46sc
Essex Wire Corp., RBM Controls Div., Ind., 10s, 12s, 32s, 34s, 52s
Etelco, Ltd., England, 14sc, 16c, 22s
Exactel Instrument Co., Calif., 34s, 60s

FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 16c, Tel: 212-RAvenswood 1-9000
See ad in class 37

Miniature & Subminiature PRECISION ASSEMBLIES
... and other rotating components



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SLIP-RINGS
and
ROTARY SWITCHING
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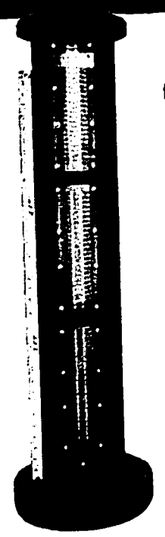

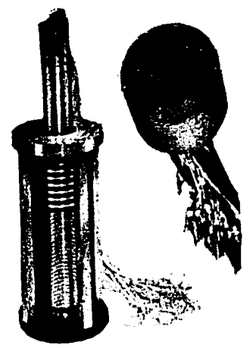

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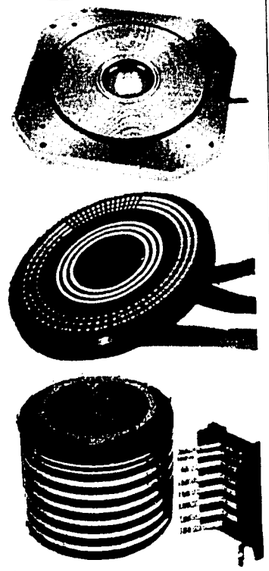
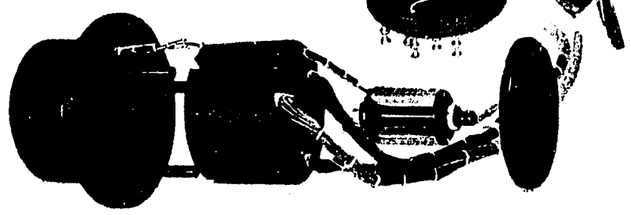
- *Drum-type or pancake*
- *Internal or external rings*
- *Continuous or segmented*

Your performance specification is our standard in designing and building slip-rings for such services as: gyros, radar antennas, inertial-guidance systems, instruments, telemetering, programming, sampling, sequence selecting, and thermocouple, thermistor, and strain-gage circuits.

Bulletin 61-01 gives details of representative ELECTRO SWITCH slip-ring designs and includes a convenient check list for your use in specifying slip-rings and rotary switching and selector assemblies. Write today for your free copy.





ELECTRO SWITCH CORP
SLIP-RING DIVISION
Osterville, Massachusetts

For details, circle #541 on Reader Service Card

80. Switches & Contacts.

Fairfield Controls, Inc., Conn., 26c, 32c, 46sc
Fansteel Metallurgical Corp., Ill., 10c, 42s
Federal-Anti-Capacity Switch Co., N.Y., Anti-Capacity c
Fenwal, Inc., Mass., 52c
Ferranti Electric, Inc., N.Y., 16c
Fisher Berkeley Corp., Calif., 22s
Fortiphone, Ltd., Components & Transformer Divs., England, 38s, 40s, 56s
Frebank Co., Calif., 34c

Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 14sc, Tel: 216-SHadyside 9-0700
See ad in class 50

Fryling Mfg. Co., Pa., 14c
Furnas Electric Co., Ill., 18s, 24s, 26s, 30s, 34s, 36s, 38s, 44s, 48s, 50s
G-V Controls, Inc., N.J., 46c, 52c
Gamewell Co., Mass., 38 Commutator c
Gardiner Electronics, Ariz., 14c
Gemco Electric Co., Mich., 38sc
General Aniline & Film Corp., Ansco Div., N.Y., 38c

General Communication Co., 677 Beacon St., Boston 15, Mass., 6s, Tel: 617-COpley 7-6030
See ads in class 37

General Communications Broadcast Division, Inc., Wis., 36c, TV Assemblies c
General Control Co., Mass., 10c, 14c, 18c, 22c, 30c, 36c, 48c, 56c, 58c, Lever c
General Controls Co., Calif., 18s, 24s, 28s, 34s, 40s, 42s, 52s, 54s
General Controls Co., PIC Automation Controls Div., Ill., 18s, 28s, 42s

General Devices, Inc., P.O. Box 253, Princeton, N.J., 8s, 14s, 46s, Tel: 609-WAlnut 4-2500
See ad adjacent to Index to Advertisers, back of book

General Electric Co., Apparatus Sales Dept., N.Y., 10s, 18s, 24s, 30s, 32s, 36s, 38s, 42s, 44s, 52s, 54s, 56s
General Electric Co., Wiring Device Dept., R.I., 22s, 28s, 36s, 42s, 56s
General Findings, Inc., Industrial Div., Mass., 10sc, 12sc, 14sc
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 14c, 42c, 56c, 60c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 38sc, 52sc, 56sc

General Instrument Corp., Semiconductor Div., 65 Gouverneur St., Newark 4, N.J., 46c, Tel: 201-HUmboldt 5-2100
See ad in class 76

General Precision, Inc., Kearfott Div., Calif., 6c, 16sc

General RF Fittings, Inc., 702 Beacon St., Boston 15, Mass., 6c, Tel: 617-KEnmore 6-2290
See ad in class 52

Genisco, Inc., Calif., 2sc
Giannini Controls Corp., Calif., 34c
Giannini Controls Corp., Cramer Controls Corp., Conn., 54sc
Gibson Electric Co., Pa., 10c
Gilfillan Brothers, Inc., Calif., 20sc
Gillen Co. (John), Subsid. of Stanray Corp., Ill., 10c

Directory II. Components

80. Switches & Contacts.

Globe Electrical Mfg. Co., Calif., 42c, 44c
Goat Electronics, Inc., N.Y., 44c, 48c, 58c
Godfrey Mfg. Co., Ill., 54c
Gordos Corp., N.J., 26s, 28s
Gorn Electric Co., Inc., Gorn Electronics Div., Conn., 34sc

Graphite Metallizing Corp., 1057 Nepperhan Ave., Yonkers, N.Y., 8c, 10sc, 38sc, Tel: 914-YOnkers 8-8400
See ad in class 52

Grayhill, Inc., Ill., 36s, 38s, 42s, 48s, 50s
Great Lakes Mfg. Corp., Ohio, 34c
Grigsby Co., Inc., Ill., 14c, 36c, 38c, 40c, 42c, 48c, 52c, 54c

Guardian Electric Mfg. Co., 1572 W. Carroll Ave., Chicago 7, Ill., 4c, 10c, 14c, 26c, 30c, 36c, 40c, 42c, 44c, 48c, Tel: 312-CHesapeake 3-1100
See ad in class 73

Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 38sc, 48c, Tel: 516-WElls 8-9500
See ad in class 77

Guildline Instruments, Ltd., Canada, 38s
Gulow Transformer Co., Inc., N.J., 16s
Hadlock & Temte, Inc., Ill., 34c, 56c
Hamlin, Inc., Wis., 2sc, 26s, 28s, 60sc
Harmon Co., Inc. (George), Calif., 2 Impact sc, 20sc

Hart Mfg. Co., 265 Bartholomew Ave., Hartford 1, Conn., 30s, 38s, 42s, 56s, Tel: 203-JAckson 5-3491
See ad in class 73

Hartman Electrical Mfg. Co., Ohio, 44c
Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 8c, 10s, 14c, 26s, 38c
Haydon Co. (A. W.), Calif., 14c, 46c, 54c
Haydon Co. (A. W.), Conn., 54c
Haydon Switch, Inc., Conn., 2c, 20c, 24c, 30c, 34c, 36s, 38c, 42s
Heath Co., Subsid. of Daystrom, Inc., Mich., 14s
Heinemann Electric Co., N.J., 4sc
Hickok Electrical Instrument Co., Ohio, Programming-Card Assemblies sc
High Vacuum Equipment Corp., Mass., 60s
Hitachi New York, Ltd., N.Y., 4c, 12c, 26c
Hoffman Electronics Corp., Calif., 2c, 8c, 14c, 20c
Hycon Mfg. Co., Calif., 16c
Hydraulic Research Div. of Textron-Bell, Hyres Electrical Div., Calif., 44c

Hyle'ronics Corp., 185 Cambridge St., Burlington, Mass., 16c, 46c, Tel: 617-BRowning 2-0670
See ad in class 66

IE Mfg., Ill., 14s
IMC Magnetics Corp., Eastern Div., N.Y., 34c, 38c, 44c
IMC Magnetics Corp., Western Div., Calif., 44c
I-T-E Circuit Breaker Co., Special Products Div., Pa., 38c

Illinois Tool Works, Licon Div., 6615 W. Irving Park Rd., Chicago 34, Ill., 24sc, 30sc, 36sc, 38sc, 42sc, 44sc, 56sc, Stepper sc, Tel: 312-AVenue 2-4040
See ad in this class

Industrial Devices, Inc., N.J., 38s
Industrial Timer Corp., N.J., 18sc, 54sc

Inertia Switch, Inc., 311 W. 43rd St., New York 36, N.Y., 2sc, 20sc, 26sc, 30sc, 42sc, 54sc, Tel: 212-JUdson 6-5880
See ad in this class

Instrument Development Laboratories, Inc., Mass., 8sc, 38sc
Instrument Systems Corp., N.Y., 8sc, 26sc, 38sc, 46sc
Instruments, Inc., Calif., 8c, 14c
Interlab, Inc., N.Y., 36s, 56s
International Register Co., Ill., 54sc
International Telephone & Telegraph Corp., ITT Kellogg, Ill., 12s, 22s, 38s
Irvan Engineering Co., Inc., Calif., 16c

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- long life
- high dependability
- exacting performance

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TYPE 16
22 Million actuations by test
¼" thick—25/32" wide
Rated 10 amps. 250 V.A.C.

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10 Million actuations by test
15 or 20 amp. 125, 250, or 460 V.A.C.

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Need special switches for specific jobs? LICON can meet your requirements including hermetic sealing and control assemblies.

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THIS is the actual size of the

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It represents a totally new concept in acceleration sensing devices. Weight: about one ounce. Only one moving part: a precision ground ball held by an alnico magnet. The ball is released to close or open an electric circuit when the force of acceleration exceeds the magnet's pull.

It's as simple as that. Yet this versatile I-S design makes possible switches that respond axially, radially, or omnidirectionally, from 0.01 g to 500 gs. With adjustable g settings, if you desire. Automatic reset is optional. Closure time is variable. Accurate within 0.1%. Meets all applicable Mil specs.

But more than an ingenious design, the I-S switch represents an important attitude . . . an attitude that produces only equipment of sound and simple design and reliable performance, of uses limited only by your needs.

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INERTIA SWITCH, INC. 311 West 43rd St., New York 36 • JUdson 6-5880
Inertia Switch invites research and development inquiries in the acceleration sensitive field.

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

UNIQUE SUB-MINIATURE INSTRUMENT TYPE ROTARY GOV'T-QUALITY TOGGLE JBT SWITCHES

- Nominal 1" Dia.
- 12—Positions
- MIL-Materials
- Accelerated Snap-Action Detent
- More Contacts per Deck (patented wafer design)

Series 5000 Provides up to 8 Poles per Deck

Newest in the J-B-T switch family are 1" subminiature Series 5000 and 7000, used exclusively where miniaturized electrical or electronic devices require savings in space or weight and where performance requirements are high. Patented wafer construction provides unusual amount of switching capability per deck. Made with MIL type materials including silver alloy wafer contacts, gold-plated. **See Bulletin SM-11A.**

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Catalog 558-G shows the more familiar J-B-T instrument-type rotary selector switches, laminated or molded types, in 14 and 20 positions, providing extra contacts in minimum space. 1 to 6 decks (more in some models). Variations are made as 6-pole, double-throw per deck, also 3-4-5 and 6-position lever types. Molded models available in banded and ruggedized construction.

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J-B-T manufactures over 140 models of single pole, double pole, or 4 pole toggle switches for MIL-S-3950A and other government quality construction. Heavy duty types feature solid coin silver contacts and rocker arms unique to J-B-T for consistently low contact resistance. Medium duty types use double-grip, self-cleaning contacts. Bulletin TS-6C gives details.

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J-B-T INSTRUMENTS INC
NEW HAVEN 8 CONN

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80. Switches & Contacts.

J B L Instrument Co., Pa., 32c, 38c, 50c, 58c

J-B-T Instruments, Inc., 133 Hamilton St., New Haven 8, Conn., 38s, 56s, Tel: 203-STate 7-5825
See ads in classes 61, 80

Jaidinger Mfg. Co., Inc., Ill., 36c, 42c, 52c

Jamieson Laboratories, Inc., Thermocal Div., Calif., 2sc, 20sc, 24c, 38c, 52sc

Janco Corp., Calif., 24sc, 30sc, 32sc, 38sc, 42sc, 44sc, 48sc, 50sc, 58sc

Javex Electronics, Calif., 38s

Jennings Radio Mfg. Corp., 970 McLaughlin Ave., San Jose 8, Calif., 4s, 6s, 60s, Tel: 408-CYpress 2-4025
See ad in class 49

Johnson Co. (E. F.), Minn., 42s, 58s

Johnson Matthey & Mallory, Ltd., Canada, 10c

Jordan Electronics, Div. of Victoreen Instrument Co., Calif., 54sc

Joy Mfg. Co., Pa., 36s, 42s, 56s

Joy Mfg. Co., Electrical Products Div., Mo., 36sc, 42sc, 56sc

Kahl Scientific Instrument Corp., Calif., 28sc

Kay Electric Co., Dept. ID-10, Maple Ave., Pine Brook, N.J., 56s, Tel: 201-CApital 6-4000
See ad on pages 72-73

Kinetics Corp., Calif., 4s, 6s, 32s, 46s, 58s

Kings Electronics Co., Inc., N.Y., 6c

Kirkland Co. (H. R.), N.J., 30s, 36s

Klann Organ Supply Co., Va., 12c, 26s, 30s, 58sc, Assemblies sc

Kuhnke (H.), Elektrotechnische Fabrik GmbH, Germany, 36sc, 38sc, 44sc, 56sc

Kulka Electric Corp., 633-643 S. Fulton Ave., Mount Vernon, N.Y., 30s, 32s, 42s, 56s, Tel: 914-MOunt Vernon 4-4024
See ads in classes 80, 81

Land-Air, Inc., Stepper Motors Div., Calif., 38c, 44c

Langevin, Div. of Sonotec, Inc., Calif., 38s

Leach Corp., 18435 Susana Rd., Compton, Calif., 46sc, Tel: 213-NEvada 6-1061
See ad in class 73

Lear, Inc., Lear-Romec Div., Ohio, 34sc

Ledex, Inc., Ohio, 38sc, 42sc, 44sc

Leeds & Northrup Co., Pa., 22s, 36s, 38s, 42s, 50s, 56s

Leesona Corp., Leesona Moos Laboratories Div., N.Y., 54sc

Lektra Laboratories, Inc., N.Y., 18s, 54s

Leviton Mfg. Co., Inc., N.Y., 22s, 28s, 30s, 32s, 36s, 38s, 40s, 42s, 50s, 56s

Lind Instruments, Inc., Calif., 8s

Line Electric Co., N.J., 18sc, 26c, 44sc, 54c

Linemaster Switch Corp., Conn., 18sc

Ling Temco Vought, Inc., Texas, 12c, 14c, 46c, 58c

Ling Temco Vought, Inc., Micromodular Components Div., Calif., 46c

Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 14c

Lionel Corp., N.J., 30s, 40s, 42s, 48s

Lisk Co., Inc. (G. W.), N.Y., 44sc

Litton Industries, Inc., Components Group, Airtron Div., N.J., 16sc

Litton Industries, Inc., Electron Tube Div., 960 Industrial Rd., San Carlos, Calif., 60sc, Tel: 415-LYtell 1-8411
See ad in class 86

Lucerne Products, Inc., Ohio, 18c

Lumatron Electronics, Inc., 116 County Courthouse Rd., New Hyde Park, L.I., N.Y., 6s, 28s, Tel: 516-PIoneer 7-3200
See ad in class 23

Lundy Mfg. Corp., N.Y., 26sc

M & G Metal Products Co., Ill., 10c, 12c

Magnavox Co., Magnavox Research Laboratories, Calif., 8s, 26s, Logic-Assemblies s

Magnetic Amplifiers Div., Siegler Corp., 632 Tinton Ave., New York 55, N.Y., 26sc, 46sc, Tel: 212-CYpress 2-6610
See ad in class 69

Magnetic Corp., Calif., 44sc

Magnetics, Inc., Pa., 26s, Logic-Assemblies s

Mallory & Co., Inc. (P. R.), Ind., 10sc, 24sc, 36sc, 38sc, 42sc, 56sc

Mallory Controls Co., Div. of P. R. Mallory & Co., Inc., Ind., 14sc, 36c, 38sc, 50sc

Marco Industries Co., Calif., 30sc, 36sc

Markite Corp., N.Y., 38sc

Marsland Engineering, Ltd., Canada, 44c

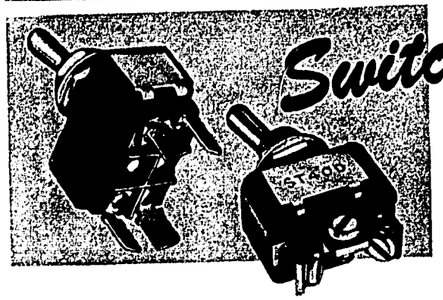
Marstan Electronics Corp., N.Y., 14c, 42c, 46c, 54c

Massey, Inc. (A. H.), Conn., 42s, 56s

Master Specialties Co., Calif., 30s, 36 Lighted s, 42s

Maurey Instrument Corp., Ill., 38c

Maury & Associates, Calif., 6c



Designed and built for long, rugged, dependable service, Kulka Toggle Switches provide positive, precise switching for electronic and electrical circuits. Made to Joint Army and Navy Specifications JAN-S-23, MIL-S-21195, MIL-S-6745 and MIL-S-3950A. Available in SPST, SPDT, DPST and DPDT types, DC and AC up to 1600 cps.

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SCREW — SOLDER — OR TAB

Now, specify the terminal type best suited to your needs. Standard screw terminal, hole-through solder type, or male tab for accepting Burndy, AMP or Kent female slip-on connectors.

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633-643 SO. FULTON AVENUE, MOUNT VERNON, N. Y.

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Directory II. Components

80. Switches & Contacts.

Maxson Electronics Corp., N.Y., 2sc, 20sc, 26sc, 42sc, 46c

Maxson Electronics Corp., Unimax Switch Div., Conn., 24sc, 30sc, 36sc, 42sc

McElroy Electronics Corp., Mass., 6c, 12c, 36c, 54c

Mech-Tronics Corp., Ill., 14c

Mechanical Products, Inc., Mich., 4sc

Mechtronics Corp., Subsid. of Mech-metal-Tronics, Inc., Calif., 34c

Mel-Rain Corp., Ind., 4c, 52c

Meletron Corp., Calif., 34sc, 38sc, 42sc, 44sc

Mercoid Corp., Ill., 28s

Mercury Contacts, Inc., Ohio, 28c

Metal Textile Corp., Div. of General Cable Corp., N.J., 10sc

Micro-Lectric, Inc., N.Y., 8c, 38s

Microdot, Inc., Calif., 6s

Micromega Corp., Calif., 16c

Microphase Corp., Conn., 6c

Microwave Associates, Inc., South Ave., Burlington, Mass., 6s, 16s, 46s, Tel: 617-BRowning 2-3000
See ad on page 178

Microwave Dynamics Corp., N.Y., 6c

Microwave Electronics Corp., Calif., 16c, 46c

Microwave Semiconductor & Instruments, Inc., N.Y., 16s

Miller-Harris Instrument Co., Wis., 54c

Milli-Switch Corp., Pa., 24sc, 36sc, 38sc, 42sc, 56sc

Minitec, Calif., 52c

Minneapolis-Honeywell Regulator Co., Micro Switch Div., Ill., 14s, 18s, 24s, 26s, 28s, 30s, 32s, 36s, 38s, 42s, 48s, 50s, 52s, 56s

Minneapolis-Honeywell Regulator Co., Special Systems Div., Pa., 10c

Model Engineering & Mfg. Corp., Ind., 20c, 38c

Molex Products Co., Ill., 14c, 30c, 36c

Montek, Inc., Utah, 38sc, 46sc

Montgomery Mfg. Co., Inc., Ind., 54sc

Mossman, Inc. (Donald P.), P.O. Box 265, Brewster, N.Y., 30c, 36c, 48c, Lever c, Turn c, Tel: 914-BRewster 9-3725
See ad in this class

Motorola, Inc., Military Electronics Div., Ariz., 16c, 46c

Muirhead & Co., Ltd., England, 22s, 38s

Muirhead Instruments, Inc., N.Y., 22s, 38s

Murray Mfg. Corp., N.Y., 4s

Muter Co., Muter Div., Ill., 4c, 40sc, 48c, 52c

Mycalex Electronics Corp., N.J., 8sc, 38c

National Radio Co., Inc., Mass., 10sc

Nelson Electric Mfg. Co., Okla., 20s

Network Industries, Inc., N.J., 36sc, 42sc, 56sc

Newark Controls Co., N.J., 34sc, 60sc

Ney Co. (J. M.), Maplewood Ave., Bloomfield, Conn., 10sc, Tel: 203-CHapel 2-2281 (Hartford)
See ad in class 104

Nippert Electric Products Co., Ohio, 8sc

Non-Linear Systems, Inc., P.O. Box 728, Del Mar, Calif., Logic-Assemblies sc, Tel: 213-SKyline 5-1134
See ad on pages 76-77

North Electric Co., Ohio, 12s, 22s, 48s

Norwalk Thermostat Co., Ohio, 52c

Nuclear Corp. of America, Central Electronics Mfrs. Div., N.J., 60s

O & S Research, Inc., N.J., 30s, 36sc, 42s

Oak Mfg. Co., Ill., 30sc, 32sc, 36sc, 38sc, 40sc, 42sc, 44sc, 48sc, 50sc, 54sc

Ohio Carbon Co., Ohio, 10sc

Ohmite Mfg. Co., Ill., 32sc, 38sc, 50sc

Ovitron Corp., Power Controls Div., Conn., 14sc, 46sc

Pacific Scientific Co., Calif., 2s, 8s, 20s, 26s

Palomar Scientific Corp., Calif., 2s, 34c

Pamar Electronics, Inc., Subsid. of Hoke, Inc., N.J., 34s

Parker Metal Goods Co., Mass., 10sc, 14sc, 18sc, 22sc, 36sc, 56sc

Pass & Seymour, Inc., N.Y., 30c, 36c, 38c, 40c, 56sc

Pendar, Inc., Calif., 22s, 26s, 30s, 32s, 36s, 42s, 44s, 48s

Penn Keystone Corp., Conn., 14c, 46c

Penta Laboratories, Inc., Calif., 60s

Perkin-Elmer Corp., Vernistat Div., Conn., Digital s, Assemblies s

Philadelphia Scientific Glass Co., Pa., 28s, 60s

Philips Electronics Industries, Ltd., Canada, 14s, 24s, 34s, 48s, 52s, 54s

Photocon Research Products, Calif., 34c, 60c

Pickering & Co., Inc., N.Y., 44sc

Pioneer Foot Switch Co., Ill., 18sc, 30sc, 36s, 48s.

Plastronic Engineering Co., Mass., 10c

Pollak Corp. (Joseph), 75-95 Freeport St., Boston 22, Mass., 22c, 30c, 32c, 36c, 38c, 42c, 44c, 46c, 50c, 56c, Tel: 617-AVenue 2-9550
See ad in class 73

Poly-Scientific Corp., Va., 8sc, 38sc, 40sc

Power Instruments Corp., Inc., Calif., 26sc

Precision Line, Inc., Mass., 8c, 14c, 38c

Precision Mechanisms Corp., N.Y., 24s

Precision Thermometer & Instrument Co., Pa., 52sc

Pressure Elements, Inc., N.J., 34sc

Pylon Co., Inc., Mass., 10c

Pyramid Instrument Corp., N.Y., Remote sc

Pyrocircuits Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 16c, Tel: 516-POrt Washington 7-3949
See ad in class 50

R F Products, Div. of Amphenol-Borg Electronics Corp., 33 E. Franklin St., Danbury, Conn., 6sc, 26sc, 38sc, 48sc, 56sc, 58sc, Tel: 203-PIoneer 3-9272
See ad in this class

R-K Laboratories Co., N.Y., 8c, 14c

Radio Switch Corp., N.J., 38sc

Rantec Corp., Calif., 16sc, 46c

Raymond Engineering Laboratory, Inc., Conn., 2sc, 20sc

Raytheon Co., Industrial Components Div., Mass., 14sc

Raytheon Co., Microwave & Power Tube Div., Mass., 16sc

Raytheon Co., Semiconductor Div., Mass., 46sc

Recora Co., Inc., Ill., 18s, 30s

Resitron Laboratories, Inc., Calif., 60sc

Rhodes, Inc. (M. H.), Conn., 54sc

Riemer Co., Inc. (David), N.Y., 14s, 36s, 38sc, 40s, 56sc

Rixon Electronics, Inc., Md., 46sc

Robertshaw-Fulton Controls Co., Acro Div., Ohio, 14sc, 24sc, 30sc, 34sc, 36sc, 42sc, 56sc

Rocker Solenoid Co., Calif., 44c

Rodale Mfg. Co., Inc., Pa., 28s, 36s, 38s, 42s, 50s, 56s

Roflan Co., Mass., 36c, 42c

Rotary Devices Corp., N.J., 8c, 10c, 38c

Rowan Controller Co., Md., 4c, 26c, 32c, 52c, 56c

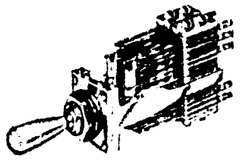
Russell & Stoll Co., Inc., N.Y., 30s, 36s, 48s, 50s

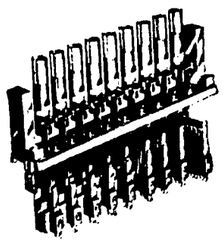
Rye Sound Corp., N.Y., 18s

Saint Marys Carbon Co., Pa., 10c

MOSSMAN SWITCHES

PUSH BUTTON • LEVER • TURN





Mossman lever, turn, push and interlocking push button switches are flexibly designed for adaptation to a great variety of electrical switching applications. All Mossman switches are designed for rugged, reliable service, constructed largely with non-ferrous, quality materials, carefully assembled.

DONALD P. MOSSMAN, INC.
BREWSTER, N.Y.

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R F PRODUCTS

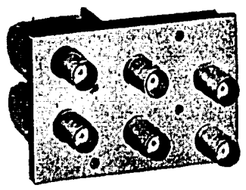
NEW DIMENSIONS IN R F CAPABILITY . . .

R F Products is a new division of Amphenol-Borg Electronics Corporation. It specializes in the design, manufacture and marketing of radio frequency components and assemblies under the widely known Amphenol, Borg and DK trademarks.

DK PRECISION-BUILT COAXIAL SWITCHES

R F Products can usually supply the coaxial switch you need from factory inventory. But if you have a special requirement that can't be met by one of our standard stocked switches, R F Products' engineering group is prepared to design the switch that will—and fast. Over 5000 different DK coaxial switch designs tailored to specific customers applications demonstrate the depth and creative capability of RF Products engineering staff.

Your DK coaxial switch catalog will be sent on request.



Series 323 DK coaxial switches are compact high-density designs for complex multi-position, multi-pole switching.

AMPHENOL IPC COAXIAL CONNECTORS

Pint-size Amphenol Subminax Coaxial Connectors feature full-size electrical characteristics.

R F Products offers a wider range of UG and commercial types of radio-frequency connector designs than any other manufacturer in the industry. Each Amphenol and IPC coaxial connector is engineered to satisfy all standards and most special requirements.

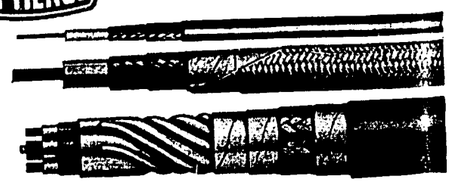
Behind the well-known quality of these coaxial connectors are new dimensions in service and engineering that are yours when you specify connectors by R F Products.

Send for your copies of the Amphenol and IPC coaxial connector catalogs.

AMPHENOL COAXIAL CABLE AND WIRE

R F Products can deliver from stock the largest selection of RG type cables in the world. Add this ability to Amphenol coaxial cable's hard-won reputation for engineering leadership—the first flexible cable to withstand continuous operation at 1000° F., for example—and you get an idea of R F Products' capability to serve you.

Write for R F Products catalog W-61.



There is an Amphenol Coaxial Cable to fit your requirement.

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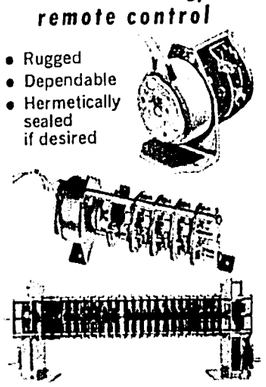
SWITCH TO TECH LABS for Precision Electrical Resistance Instruments

STEPPING SWITCHES

for automation, telemetering, remote control

- Rugged
- Dependable
- Hermetically sealed if desired



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for all electronic equipment

- Meets or exceeds government specs.
- Printed circuit and special designs
- Quick deliveries
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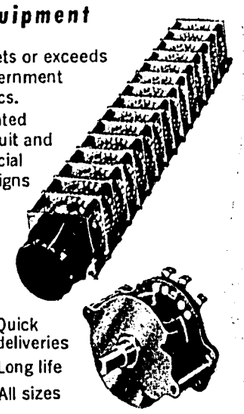
- All sizes



CAM SWITCHES

for counting and control

- Decade switch
- Control switch
- Decimal to binary converter

TECH LABORATORIES, INC. PALISADES PARK, NEW JERSEY

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Directory II. Components

80. Switches & Contacts.

Salford Electrical Instruments, Ltd., England, 4s, 52s

Sanders Associates, Inc., N.H., 20s

Sangamo Electric Co., Springfield, Ill., 4s, 34s, 52s, 54s, Tel: 217-KIngswood 4-6411
See ad on page 142

Sargent Electric Corp., N.Y., 32sc, 56sc, Trigger sc

Scanwell Laboratories, Inc., 6601 Scanwell Lane, Springfield, Va., 6c, Tel: 703-FLeetwood 4-5800
See ad in class 44

Schaevitz Engineering, N.J., 20c, 24c, 32c, 34c, 38c, 44c, 46c

Schutter Microwave Corp., N.Y., 6c

Sealectro Corp., 139 Hoyt St., Mamaroneck, N.Y., 6sc, 10sc, 12sc, Tel: 914-OWens 8-5600
See ad in class 81

Semi-Alloys, Inc., N.Y., 10c

Sensitive Research Instrument Corp., 310-316 Main St., New Rochelle, N.Y., 10sc, 38sc, Tel: 914-BEverly 5-2300
See ad in class 31

Servonic Instruments, Inc., Calif., 34c

Servotronics, Inc., N.Y., 44c

Shallcross Mfg. Co., N.C., 4sc, 10sc, 30sc, 36sc, 38sc, 44sc, 48sc, 50sc

Sheltered Workshops, Inc., Calif., 44c

Sierra Electric Corp., Calif., 28s, 42s, 56s

Sightmaster Corp., R.I., 52c

Sigma Electronics Research Corp., Wash., 6c

Signal Indicator Corp., N.Y., 30c, 36c

Singer-Bridgeport, Div. of Singer Mfg. Co., Conn., 44c

Slater Electric, Inc., N.Y., 22sc, 28sc, 30sc, 32c, 34c, 36c, 42sc, 48c, 56sc, 60c

Slip Ring Co. of America, Calif., 8sc, 38sc

Sloan Co., Color-Lite Div., Calif., 30sc, 36sc, 42sc, 44sc

Smith, Inc. (Herman H.), Dept. 12, 2326 Nostrand Ave., Brooklyn 10, N.Y., 14s, 22s, 30s, 36s, 38s, 40s, 48s, 56s, Tel: 212-CLoverdale 3-7900
See ad in class 62

Solid State Electronics Co., Dept. I, 15321 Rayen St., Sepulveda, Calif., 14s, 46s, Tel: 213-EMpire 4-2271
See ad on page 44

Space Components, Inc., D.C., 26s, 30s, 32s, 42s, Hermetically-Sealed s

Sparton Electronics, Div. of Sparton Corp., Mich., 2c, 10c, 20c, 38sc, 44sc

Speck Electronics, Inc., Calif., 14c, 16c, 30c, 36c, 46c, 52c, 56c

Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 44c

Speidel Corp., Industrial Div., R.I., 2c, 20c, 34c, 60c

Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 26s, 44s

Stackpole Carbon Co., Pa., 40sc

Standard Electrical Products Co., Ohio, 36c, 38sc

Staver Co., Inc., N.Y., 10c

Stelon, Inc., N.J., 10c

Stevens Mfg. Co., Inc., P.O. Box 1007, Mansfield, Ohio, 52c, Tel: 614-TUxedo 4-1311
See ad on page 144

Subminiature Instruments Corp., Calif., 8c, 38c

Sunshine Scientific Instrument, Pa., 2c, 20c, 26c, 56sc

Superior Switch Co., Va., 4s, 18s, 22s, 24s, 26s, 28s, 30s, 34s, 36s, 40s, 42s, 44s, 48s, 56s

Switchcraft, Inc., 5561 N. Elston Ave., Chicago 30, Ill., 22sc, 30sc, 36sc, 48sc, 56sc, Tel: 312-SPring 4-1515
See ad in class 62

Sylvania Electric Products Inc., Lighting Products Div., Mass., 36s

Tapeswitch Corp. of America, N.Y., 10sc, 18sc, 24sc, 30 Ribbon sc, 48sc, 50sc

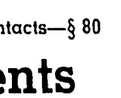
Tech Laboratories, Inc., Bergen & Edsall Blvds., Palisades Park, N.J., 6c, 8c, 10sc, 18c, 24c, 26c, 30c, 32c, 36c, 38c, 40c, 42c, 44c, 48c, 50c, 52c, 58c, Tel: 201-WIndsor 4-2221
See ad in this class

Technical Wire Products, Inc., N.J., 10sc

Technitron Div., Continental Copper & Steel Industries, Inc., N.J., 4sc

SPECIAL PRODUCTS BY TELEX ®

MULTIPLE ARRAY SWITCH* —Special modular construction allows more circuits; use any number of buttons to stack any number of custom arrays up to 92. Each button represents an 8 pole single or 4 pole double throw, normally opened or closed. In many applications this will allow the elimination of relays. All or any button and detent can be interlocked. Absence of complex multiplicity of parts extends reliability over 500,000 operations.



NEON INDICATOR LIGHTS* —Transistor driven, they combine advantages of low current drain with low voltage operation. Supply is 24V DC nominal, signal is -6V DC to trigger. Eliminates auxiliary power supplies and permits operation from logic circuits. Low power requirement allows operation as a two-terminal device by combining signal and supply voltages. Life expectancy is a nominal 25,000 hours for NE-2H @ .5 ma lamp current. Each meets MIL. STD. 202 specifications.

*Variations in sizes and shapes to specification.

For more information concerning these low cost products, write Sales Manager.

TELEX/SPECIAL PRODUCTS DIVISION

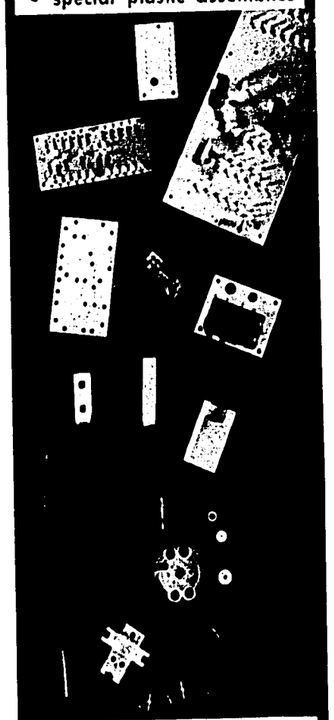
Telex Park, St. Paul 1, Minn. Dept. SP-106

For details, circle #549 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

SPECIFY
EMMCO
for 10 or 10,000

• terminal boards • standard and special terminals
• fabricated plastic parts
• engraved or silk screen panels • punched parts
• special plastic assemblies



One of the industry's leading suppliers, Emmco Plastics Corporation can produce high-quality fabricated plastic parts tailored to your specific electrical or electronic application. A complete staff of skilled personnel, modern manufacturing facilities and rigid quality control procedures enable Emmco to provide fabricated components... in quantity, to close tolerances, at low cost.

FOR MORE INFORMATION on Emmco's capabilities and products, write for free descriptive bulletin, Handy Materials Guide, and Design Specification Sheet. Emmco's Sales Department can also furnish price information or technical assistance on a specific application. Send us your prints for prompt quotations. 301-2

Emmco

PLASTICS CORPORATION
68 VINE STREET, EVERETT, MASSACHUSETTS
DUnkirk 9-1660 TWX: Ever-Mass-152

For details, circle #550 on Reader Service Card

80. Switches & Contacts.

Technology Instrument Corp., Mass., 8s, 38sc, 48sc
Technology Instrument Corp. of Acton, Mass., 2c
Telecomputing Corp., Whittaker Gyro Div., Calif., 2c, 20c

Telex, Inc., Dept. SP-106, 1633 Eustis St., Saint Paul 1, Minn., 30sc, 36sc, 46c, 54sc, Tel: 612-MIdway 6-7211
See ads in classes 79, 80

Telonic Engineering Corp., P.O. Box 277, Laguna Beach, Calif., 6c, Tel: 714-HYatt 4-7581
See ad in class 39

Telonic Industries, Inc., 60 N. First Ave., Beech Grove, Ind., 6sc, Tel: 317-STate 7-7241
See ad in class 39

Tempo Instrument, Inc., N.Y., 14c, 46c, 54c
Texas Instruments Incorporated, Metals & Controls, Inc. (Div.), Mass., 4c, 42c

Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 4sc, 10c, 24c, 34c, 36c, 38c, 42c, Tel: 214-ADams 5-3111
See ad on Cover 3

Therm, Inc., N.Y., 6sc
Thermalic Electronics Corp., Calif., 46sc, 52sc
Thermel, Inc., R.I., 24sc, 34c, 42sc, 52sc
Thermo Electric Co., Inc., N.J., 22c, 36c, 38s
ThermoCal, Inc., Calif., 34c, 52c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 6s, 8s, 10s, 14s
Torotor A/S, N.Y., 36sc, 38sc, 48sc, 56sc
Torres Engineering Co., Inc. (C.), N.J., 24sc, 30sc, 36sc, 42sc, 56c
Torsion Balance Co., N.J., 56sc
Touch-Plate Mfg. Corp., Calif., 36s
Tower Mfg. Corp., R.I., 30sc, 36sc, 38sc, 40sc, 42sc
Tracerlab Keleket, Mass., 48sc, 54sc
Transco Products, Inc., Calif., 6sc
Transistor Electronics Corp., Minn., 36sc
Transitron Electronic Corp., Mass., 46c
Trepac Corp. of America, N.J., 46sc
Tricon Mfg. Co., Ill., 10sc
Trionics Corp., Div. of Nautec Corp., Wis., 46c
Tubular Rivet & Stud Co., Mass., 10c

Tung-Sol Electric, Inc., 1 Summer Ave., Newark 4, N.J., 60s, Tel: 201-HUmboldt 4-8500
See ad on pages 62-63

Ulanet Co. (George), 416 Market St., Newark 5, N.J., 42sc, 52sc, 54sc, Tel: 201-MArket 2-4876
See ad in class 82

Ulmer Co. (H. W.), Calif., 60c
Unison Products, Inc., Mich., 38c
United-Carr Fastener Corp., Ucinite Co. (Div.), Mass., 36c, 42sc, Assemblies sc
United Control Corp., Wash., 2sc, 20c, 26c, 46c, 52sc, 58c
United Electric Controls Co., Mass., 24sc, 34sc, 42sc, 52sc, 60sc
United ElectroDynamics, Inc., Calif., 8sc, 14sc
United International Dynamics Corp., Mass., 40s
U.S. Electronics Corp., N.J., 44c
United States Instrument Corp., Va., 14c, 36c, 38c
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 2c, 20c, 52c
United States Time Corp., Conn., 2c
Universal Circuit Controls, Ill., 22c, 24c, 36c, 42c, 48c, 50c, 52c
Universal Match Corp., Armament Div., Mo., Explosive c
Vactric (Control Equipment), Ltd., England, 38s
Vap-Air Div., Vapor Corp., Ill., 26c, 46c, 52sc
Vemaline Products Co., N.J., 18sc, 36sc
Vitro Electronics, Div. of Vitro Corp. of America, Md., 36sc
Wade Electric Products Co., Mich., 10c, 38c, 40c, 42c, 56c
Wallace & Tiernan, Inc., N.J., 34s, 60s
Walsco Electronics Mfg. Co., Div. of GC Textron Electronics, Inc., Ill., 22s, 30s, 32s, 36s, 38s, 40s, 56s

Ward Leonard Electric Co., 83 South St., Mount Vernon, N.Y., 26s, 32s, 36s, Tel: 914-MOunt Vernon 4-1000
See ad in class 74

Webster Electronics Co., Inc., N.Y., 10c, 14c
West Coast Electrical Mfg. Co., Calif., 44sc
Westinghouse Electric Corp., Buffalo Div., Industrial Control Dept., N.Y., 46c
Westinghouse Electric Corp., Semiconductor Dept., Pa., 46s, 52s
Westinghouse Electric Corp., Standard Control Dept., Pa., 4s, 18s
Wheaton Engineering Div., Hurletron, Inc., Ill., 14c, 46c, 54c
White Avionics Corp., N.Y., 34c
Wilson & Co. (G. C.), W.Va., 54s
Winslow Co., Inc., N.J., 6sc, 36s, 38s
Winterburn Mfg. Co., Conn., 4s, 38
Speed s, Interlock s
Wintronics, Calif., 4c, 14c
Wood Electric Corp., Mass., 4s
Zenith Electric Co., Ill., 26sc, 30sc, 54sc, 58sc

Synchros:
See class 67

Tachometers:
See class 40

Tape, magnetic recording:
See class 70

Tape phonographs:
See class 68

Tape storage devices:
See class 10

Television tubes:
See class 85

Television tuners:
See class 88

Terminations:
See class 66

Directory II. Components

81. Terminals.

5. Blocks & strips
10. Hermetically-sealed
15. Printed-circuit
20. Rivet or stud
25. Wire-end

ADC Products, Div. of Magnetic Controls Co., 2863 13th Ave. S., Minneapolis 7, Minn., 5c, Tel: 612-PArkway 1-5551
See ad in class 84

AMP, Inc., Pa., 5sc, 15sc, 25sc
AMP, Inc., Capitron Div., Pa., 10sc
Abbott-Clark Machine & Tool, Inc., N.J., 5c
Accurate Electronics Corp., Ohio, 5sc, 15c, 20sc
Acme Model Engineering Co., N.Y., 5sc
Advanced Vacuum Products, Inc., Subsid. of Glass-Tite Industries, Inc., Conn., 10sc
Aerolite Electronics Corp., N.J., 5sc, 10sc

Aeronautical Electric Co., 5656 Northwest Hwy., Chicago 46, Ill., 5sc, Tel: 312-SPring 4-5200
See ad in class 63

Aeroseel, Inc., N.J., 10sc
Alcon Metal Products, Inc., Ill., 5s, 15s
Alcor Mfg. Co., Ill., 5c

Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 15s, Tel: 617-FOrest 6-4467
See ad on page 82

Alden Products Co., 10140 N. Main St., Brockton 64, Mass., 25s, Tel: 617-JUniper 3-0160
See ad in class 50

Allegri-Tech, Inc., N.J., 5c, 15c, 20c
Allen-Bradley Co., Wis., 5s
Allison Associates, Mass., 5c, 15c
Alpine Electronic Components, Conn., 5c, 15c, 20sc, 25c
Amatom Electronic Hardware Co., Inc., N.Y., 15sc, 20sc, 25sc
American Communications Corp., N.Y., 5sc, 25sc

American Lava Corp., Subsid. of Minnesota Mining & Mfg. Co., Cherokee & Manufacturers Rd., Chattanooga 5, Tenn., 10sc, Tel: 615-AMherst 5-3411
See ad on page 98

American Machine & Foundry Co., Thompson-Bremer & Co. (Div.), Ill., 25s
American Pamcor, Inc., Pa., 25s

Amphenol-Borg Electronics Corp., Amphenol Connector Div., 1830 S. 54th Ave., Chicago 50, Ill., 5s, 15s, Tel: 312-BIshop 2-1000
See ad on page 114

Anchor Specialty Mfg. Co., Inc., N.J., 5c
Armel Electronics, Inc., N.J., 5sc, 20sc
Arrow-Hart & Hegeman Electric Co., Conn., 5s
Autotronics, Inc., Mo., 20c
Baer Co. (N. S.), N.J., 5c
Baldwin-Lima-Hamilton Corp., Electronics & Instrumentation Div., Mass., 5sc
Bead Chain Mfg. Co., 11 Mountain Grove St., Bridgeport 5, Conn., 15s, 20s, Tel: 203-EDison 4-4124
See ad in class 97
Belling & Lee, Ltd., Great Cambridge Rd., Enfield, Middlesex, England, 5s, 15s, 20s, Tel: Enfield 5393
See ad in class 52

Bendix Corp., Red Bank Div., Electron Tube Products, Highway #35, Eatontown, N.J., 5sc, 10 Ceramic-to-Metal sc, Tel: 201-LIberty 2-2000
See ad on pages 48-49

Berg Mfg. Corp., Pa., 5c, 15c, 25c

Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 5s, 25s, Tel: 212-WOrth 6-5611
See ad in class 91

Blinn Co. (Delbert), Calif., 20s
Bright Radio Laboratories, Inc., N.Y., 20c
Brilhart Electronics Corp., N.Y., 5c, 10c, 15c
Buchanan Electrical Products Corp., N.J., 5s
Bureau of Engraving, Inc., Minn., 15c

Burndy Corp., Omaton Div., Richards Ave., Norwalk, Conn., 5sc, 10sc, 15sc, Tel: 203-TEmple 8-1169
See ad in class 52

CFI Corp., Dept. IRE, Cottage Place, Mineola, L.I., N.Y., 10c, Tel: 516-PIoneer 6-0571
See ad in class 92

Cambridge Thermionic Corp., Mass., 5sc, 15sc, Solder sc
Carborundum Co., Refractories Div., N.Y., 10c
Carvil Technical Ceramics, Inc., N.J., 5sc, 10sc
Ceramaseal, Inc., N.Y., 10s
Ceramatronics, Inc., N.J., 10c
Ceramco, Inc., N.J., 10c

Cinch Mfg. Co., 1026 S. Homan Ave., Chicago 24, Ill., 5s, 15s, 25s, Tel: 312-NEvada 2-2000
See ad on pages 64-65

Cinch Mfg. Co., Graphik-Circuits Div., Calif., 5sc

Cinch Mfg Co., Howard B. Jones Div., 1026 S. Homan Ave., Chicago 24, Ill., 5s, Tel: 312-NEvada 2-2000
See ad on pages 64-65

Collectron Corp., 304 E. 45th St., New York 17, N.Y., 5c, Tel: 212-MUrray Hill 9-7120
See ad in class 80

Comco Plastics, Inc., N.Y., 5c, 15c
Consolidated Resistance Co. of America, Inc., N.Y., 25c
Continental-Diamond Fibre Corp., Del., 5c
Coors Porcelain Co., Colo., 10c
Cox Mfg. Co., Texas, 20c
Crescent Fabricators Corp., N.Y., 5c
Cryogenerators, Inc., R.I., 20sc, 25sc
Culbertson Products, Inc., N.J., 5c, 10c
Culver-Stearns Mfg. Co., Mass., 5sc
Curtis Development & Mfg. Co., Wis., 5s, 15c
Dante Electric Mfg. Co., Conn., 25s
Davies Molding Co. (Harry), Ill., 5c
Deringer Metallurgical Corp., Ill., 20c
Device Seals, Inc., Calif., 10c
Dittmore-Freimuth Corp., Wis., 5c
E T C, Inc., Ohio, 25 Solderless sc
Electric Terminal Corp., R.I., 25s

Electrical Industries, Div. of Philips Electronics & Pharmaceutical Industries Corp., 691 Central Ave., Murray Hill, N.J., 10sc, Tel: 201-CRestview 7-4300
See ad on page 108

Electrical Insulation Co., Inc., N.Y., 5c
Electro-Neutronics, Inc., Calif., 15c
Electronic Parts Mfg. Co., Inc., N.J., 10c, 20c, 25c
Electronic Plastics Corp., Mass., 5c, 10s, 15s, 20s
Electronic Production & Development, Inc., Calif., 20sc
Elliott-Automation, Ltd., England, 15sc
Elotec Corp., Calif., 5s
Emerson Plastics Corp., N.Y., 5c

Emmco Plastics Corp., 68 Vine St., Everett 49, Mass., 5c, 20sc, Tel: 617-DUnkirk 9-1660
See ad in this class, page 618

Enflo Corp., N.J., 15c

Federal Screw Products, Inc., 3917 N. Kedzie Ave., Chicago 18, Ill., 5s, 25s, Tel: 312-IRving 8-5744
See ad in class 97

Fisher & Crome, Pa., 5c
Franklin Fibre-Lamitex Corp., Del., 5c, 20c
Frenchtown Porcelain Co., N.J., 10sc

Fusite Corp., Dept. H-1, 6000 Fernview Ave., Cincinnati 12, Ohio, 10s, Tel: 513-REdwood 1-2020
See ad on page 118

GOE Engineering Co., Calif., 5sc
Garde Mfg. Co., R.I., 5sc, 15sc, 20sc
Garlock, Inc., Garlock Electronic Products, N.J., 20s
Gemco Electric Co., Mich., 5sc
Gemex Precision Metals, Inc., N.J., 5c, 10c, 15c, 20c, 25c

General Ceramics, Div. of Indiana General Corp., Crows Mill Rd., Keasbey, N.J., 10sc, Tel: 201-VAlley 6-5100
See ad in class 64

General Dynamics/Electronics, N.Y., 5sc
General Electric Co., Apparatus Sales Dept., N.Y., 5s
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 10c
General Mfg. Co., Calif., 15sc, 20sc
General Motors Corp., Packard Electric Div., Ohio, 10c, 15sc, 20sc, 25sc
General Products Corp., N.Y., 5s
Gillen Co. (John), Subsid. of Stanray Corp., Ill., 20c
Glass-Solder Engineering, Calif., 10sc
Glass-Tite Industries, Inc., R.I., 10c
Glasseal Products Co., Inc., N.J., 10sc

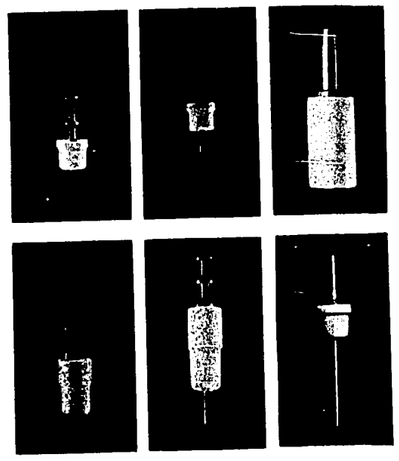
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

SEALECTRO QUALITY COMPONENTS

THE ORIGINAL PRESS-FIT® TEFLON*TERMINALS

Over 600,000 catalogued numbers. The fast, easy, dependable way to make connections. Teflon body withstands high heat, vibration, shock, and temperature cycling. Sealectro provides complete services, including engineering, design, chassis preparation tools, and the world's most complete line of teflon terminals in all standard EIA colors.

- ★ **SUBMINIATURE STAND-OFFS** — The ultimate in space-saving terminals for sub-miniaturization programs
- ★ **SUBMINIATURE FEED-THRUS** — For facilitating connections through chassis or casing in subminiature components and assemblies
- ★ **PROBES AND PLUGS** — Companion units for connectors and test jacks
- ★ **MINIATURE STAND-OFFS** — For components and assemblies stressing higher operating voltages rather than space-saving
- ★ **MINIATURE FEED-THRUS** — Wide selection of bushing diameters and lengths for making connections through chassis or casing
- ★ **CONNECTORS AND TEST JACKS** — Breakaway connectors (male and female) miniature test point jacks (female) accepting test probes.



►WRITE FOR CATALOG

*Reg. Trademark of E. I. Du Pont de Nemours & Co., Inc.

SUPERIOR CONHEX SUB-MINIATURE RF CONNECTORS

SCREW-ON CONNECTORS

SNAP-ON CONNECTORS

NEW CRIMP-TYPE CONNECTORS (Screw-on)

NEW CRIMP-TYPE CONNECTORS (Snap-on)

Superior electrical and mechanical characteristics. Available as either Clamp-On or Crimp-On types for Scew-On or Snap-On connections. Connector to cable connections in either type are stronger than the cable itself. Wide range of types in both 50-ohm and 75-ohm impedance. Captivated contacts insure proper engagement of mating parts. Design prevents distortion of cable, thus eliminating electrical characteristic changes.

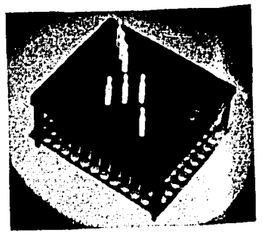
- ★ STRAIGHT CABLE PLUG AND JACKS
- ★ BULKHEAD RECEPTACLES
- ★ CABLE FEED-THRUS
- ★ RIGHT ANGLE PLUGS
- ★ CABLE TERMINATIONS
- ★ PRINTED WIRING RECEPTACLES
- ★ TEE ADAPTORS
- ★ BNC AND TNC CABLE PLUGS
- ★ ADAPTORS, BNC, TNC, N, TO CONHEX JACKS AND PLUGS.

►WRITE FOR CATALOG

SEALECTOBOARD

CORDLESS PROGRAM BOARDS

An exclusive Sealectro design permitting complete switching, programming and component interpositioning without patchcords in minimum space. Shorting pins, or component holders, are merely inserted at desired X- and Y-axis coordinate. Standard boards available. Custom designed and made boards to fit any X- and Y-axes requirements. Save money. Assure top dependability. Save space. Provide fast, simple operation. Incorporate the Sealectoboard in all equipment requiring multi-point switching, programming or component interposing.



►WRITE FOR CATALOG

Sealectro CORPORATION
139 HOYT STREET, MAMARONECK, NEW YORK
PHONE: OWENS 8-5600 TWX: MAMARONECK NY 5120

For details, circle #551 on Reader Service Card

KULKA TERMINAL BLOCKS

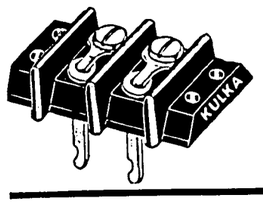
MOLDED BARRIER CONSTRUCTION

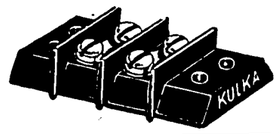
Kulka terminal blocks, used extensively in electrical and electronic assemblies, eliminate splicing, increase insulation, stop leakages and shorts, and generally simplify wiring work.

Molded of high tensile strength bakelite for general commercial use, they are available in other materials made in full compliance with latest military specifications, MIL-M-14E, covering CFG, MFE, MME, MDG, MAI-60, GDI-30, PM14, and other types of special plastics.

Kulka terminal blocks are made in many styles and sizes for varied applications. With 1 to 26 terminals, depending on size. Supplied with or without marker strips which may be printed or plain, or blocks can be engraved.

WIDEST SELECTION OF TYPES AND SIZES



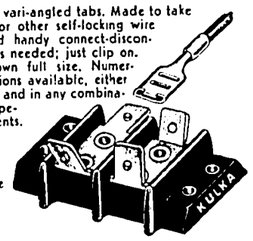


Used extensively in electronic and electrical assemblies, Kulka Terminal Blocks eliminate splicing, increase insulation, stop leakage and shorts, and simplify wiring. In widest range of types, sizes, insulating materials, terminals, etc. Here shown are two types of popular 600 Series. There's a Kulka Terminal Block for every need!

"KLIPTITE" BLOCKS

Available with vari-angled tabs. Made to take AMP, Burndy or other self-locking wire lugs. Fast and handy connect-disconnect; no screws needed; just clip on. 600 Series shown full size. Numerous tab variations available, either flat or angled, and in any combination to meet special requirements.

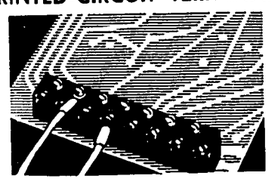
SERIES 800
Shown full size



MINIATURE BLOCKS

409 Series is ideal for miniaturization. Shown full size. Only 4⅜" long for 21 terminals. 5/16" wide with barrier. Also available with one-sided and two-sided soldering lug. Also with threaded holes taking 4-40 screws for mounting through chassis, if desired.

PRINTED-CIRCUIT TERMINALS



Simplify those external connections to printed-circuit boards, no matter how jammed up. Kulka 520 Series miniature terminal blocks mount on board. Terminal pins below slip into standard mounting holes for dip-soldering. Screw terminals. Readily connected or disconnected. 2 to 24 terminals. Entire assembly can be encapsulated.

MILITARY TERMINAL BOARDS

Heavy-duty terminal blocks in the widest range of types, materials, sizes. Here shown one-quarter size is a Military Terminal Board made to drawing 9000, Series S6505 B, 73214, Rev. H. Supplied in MAI-60 glass-filled Alkyd as per MIL-M-14 with latest revision. Threaded studs of manganese-bronze, molded in plastic. Slotted brass nuts. Typical of the "specials" developed and produced by Kulka.

Write for latest KULKA Terminal Block Catalog!

KULKA ELECTRIC CORP.

633-643 SO. FULTON AVENUE • MOUNT VERNON, N. Y.
Telephone: MOunt Vernon 4-4024 — 4025 — 4026 — 4027

For details, circle #552 on Reader Service Card

Directory II. Components

81. Terminals.

Gorn Electric Co., Inc., Gorn Electronics Div., Conn., 15s

Graphite Metallizing Corp., 1057 Nepperhan Ave., Yonkers, N.Y., 20c, Tel: 914-YOnkers 8-8400
See ad in class 52

Gunnar Laboratories, Inc., Fla., 5c, 25c

Hall-Barkan Instruments, Inc., N.Y., 10c

Hamilton Standard Electronics, Div. of United Aircraft Corp., Conn., 15sc

Hampden Mfg. Co., Inc., Mass., 5c

Haveg Industries, Inc., Taunton Div., Mass., 10c

Hellermann Canada, Ltd., Canada, 5s, 25s

Hermaseal Co., Inc., Ind., 10c

Hermetic Pacific Corp., Calif., 10sc

Hermetic Seal Corp., N.J., 10sc

Hermetite Corp., 100 Ladge Dr., Avon, Mass., 10sc, Tel: 617-JUniper 3-7000
See ad in class 75

Heyman Mfg. Co., 147 N. Michigan Ave., Kenilworth 7, N.J., 25c, Tel: 201-CHestnut 5-2345
See ad in class 97

Hobson Bros., Inc., Ill., 5c

Hollingsworth Co., Solderless Terminal Div., Pa., 25sc

H.H. Mfg. Corp., N.Y., 15s

Hikon Corp., Mass., 10c

Industrial Electronic Hardware Corp., N.Y., 15s

Infrared Industries, Inc., Mass., 5sc

Ippolito & Co., Inc. (James), N.Y., 20sc

Jan Engineering, Calif., 20 Ground-Stud sc

Javex Electronics, Calif., 25s

Jones Electronics (Hiram), Calif., 5s, 20s

Jones & Roy Co., Calif., 25c

Joy Mfg. Co., Electrical Products Div., Mo., 5sc

Kaddis Mfg. Corp., N.Y., 20c, 25c

Kibbey Instrument Co., Calif., 25s

Kings Electronics Co., Inc., N.Y., 5s

Klann Organ Supply Co., Va., 5sc

Kolton Electric Mfg. Co., N.J., 5s

Kulka Electric Corp., 633-643 S. Fulton Ave., Mount Vernon, N.Y., 5sc, 15s, 20s, Tel: 914-MOunt Vernon 4-4024
See ads in classes 80, 81

Lab-Tronics, Inc., 3656 N. Lincoln Ave., Chicago 13, Ill., 5c, 25sc, Tel: 312-GRaceland 7-7900
See ad in class 62

Lionel Corp., N.J., 5c

Lionel Corp., Lionel Electronic Laboratories (formerly Anton Electronic Laboratories), Dept. X-2, 1226 Flushing Ave., Brooklyn 37, N.Y., 5sc, Tel: 212-EVergreen 6-5715
See ad in class 52

Litton Industries, Inc., Components Group, Triad Transformer Corp., Calif., 10s

Litton Industries, Inc., Components Group, U.S. Engineering Co. Div. (USECO), Calif., 5sc, 10sc, 15s, 20sc

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Rugged, Precision
MINIATURE THERMOSTATS

MODEL 13

For your precise applications:

- MISSILES
- ELECTRONIC CONTROL
- AIRCRAFT
- COMPUTERS
- AUTOPILOTS
- TRANSISTOR PROTECTION

MODEL 24

MODEL 11

Illustrations shown full size

★ Hermetically Sealed
★ Strain Relief Protected

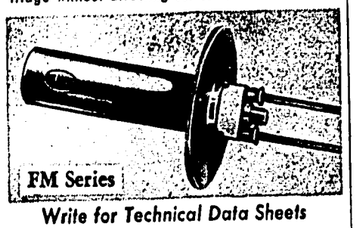
The quality of Ulanet miniature thermostats has been proved by years of dependable operation under the most extreme conditions. Their inherent accuracy and rapid response has been the leading reason for their final choice in so many critical applications. Get in touch with Ulanet for the answer to your heat control problems.

NEW!
Hermetically Sealed Surface-Sensing Miniature Thermostat

The only unit that meets the most stringent aircraft and military applications.

Send for Bulletin 100 for full details and dimensional drawings.

FM Series—The only metal thermostats that withstand mechanical clamping or pinching of cartridge without affecting set calibration.



FM Series

Write for Technical Data Sheets

SINCE 1931
ULANET

GEORGE ULANET COMPANY
416 Market St., Newark, N. J.
For details, circle #553 on Reader Service Card

81. Terminals.

Long, Inc. (Thomas J.), N.Y., 5c
Lundey Associates, Inc., Mass., 10sc
Lyn-Tron, Inc., Calif., 5s, 15s, 20s, 25s
Magnetic Devices, Ltd., England, 5s
Malco Mfg. Co., Ill., 5s, 15s, 20s, 25s
Mandex Mfg. Co., Inc., Ill., 5sc
Marathon Electric Mfg. Corp., Wis., 5s
Marine View Electronics, Inc., N.Y., 5sc, 25sc
Marshall Associates, Inc. (John), Conn., 20s, 25s, Lugs s
Materials for Electronics, Inc., N.Y., 10sc
McElroy Electronics Corp., Mass., 5sc
Mech-Tronics Corp., Ill., 5c
Mechanical Engraving Co., Inc., N.Y., 5c
Metalizing Industries, Inc., N.J., 5sc, 10sc
Methode Electronics, Inc., 7447 W. Wilson Ave., Chicago 31, Ill., 10sc, 15sc, Tel: 312-UNderhill 7-9600
See ad adjacent to Index to Advertisers, back of book
Metropolitan Telecommunications Corp., N.Y., 5c
Micarta Fabrications, Inc., Ill., 5c, 15c
Microdot, Inc., Calif., 5s
Milford Rivet & Machine Co., Conn., 20sc
Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 5s, Tel: 617-DAvenport 4-4108
See ad in class 51
Minneapolis-Honeywell Regulator Co., Fall River Div., Mass., 5s
Minshall Organ & Electronics, Inc., Vt., 15sc
Mitronics, Inc., 132 Floral Ave., Murray Hill, N.J., 10sc, 20sc, Tel: 201-277-3400
See ad in class 92
Molecular Electronics Co., N.J., 10c
Molex Products Co., Ill., 5c, 25c
Morse Co. (Frank W.), Mass., 25s
Motorola, Inc., Military Electronics Div., Ariz., 15c
Murdock Corp., Mass., 5s
National Beryllia Corp., First & Haskell Aves., Haskell, N.J., 10c, Tel: 201-TEmple 9-1600
See ad in class 92
National Connector Corp., Minn., 15sc
National Tel-Tronics Corp., 52 Saint Casimir Ave., Yonkers, N.Y., 5sc, 15c, 20c, 25c, Tel: 914-YOnkers 8-6400
See ad in class 62
Nichols Products Co., N.J., 5c
Noesting Pin Ticket Co., Inc., 732 E. 136th St., New York 54, N.Y., 25c, Tel: 212-MO 9-6465
See ad in class 105
Norrich Plastics Corp., N.Y., 5c, 10c, 20c
North Electric Co., Ohio, 5s
Olympic Plastics Co., Inc., Calif., 5sc
Pacific Coast Electronics Corp., Calif., 5s, 25s
Parker Metal Goods Co., Mass., 5sc
Penn Fibre & Specialty Co., Inc., Pa., 5c, 15c
Penn-Union Electric Corp., Pa., 5sc, 20sc, 25sc
Permonite Mfg. Co., Ill., 5c
Physical Sciences Corp., Affil. of Packard-Bell Electronics, Calif., 10c
Plastic Associates, Calif., 5sc
Plastronic Engineering Co., Mass., 10c, 15c, 20sc, 25sc
Precision Metal Products Co., Mass., 5sc, 15sc, 20sc
Pylon Co., Inc., Mass., 15c, 20c
Quality Hermetics, Ltd., Canada, 10sc
Rimak Electronics, Inc., Calif., 5sc, 15sc, 20sc, 25c
Ross Co. (Milton), Pa., 5sc, 10sc, 15sc
Rowan Controller Co., Md., 5c
Rye Sound Corp., N.Y., 5s
Sangamo Electric Co., Springfield, Ill., 5s, Tel: 217-KIngswood 4-6411
See ad on page 142
Sealectro Corp., 139 Hoyt St., Mamaroneck, N.Y., 5sc, 15sc, Tel: 914-OWens 8-5600
See ad in this class
Servwell Products Co., Ohio, 25s
Shaw Instrument Corp., Pa., 10c
Silicone Insulation, Inc., N.Y., 5c
Sjoberg & Son (C.), R.I., 20s, 25s
Slip Ring Co. of America, Calif., 5sc
Smith, Inc. (Herman H.), Dept. 12, 2326 Nostrand Ave., Brooklyn 10, N.Y., 5s, Tel: 212-CLoverdale 3-7900
See ad in class 62
Speed Electronics, N.J., 5c, 15c, 20c, 25c
Sphere Co., Inc., N.J., 10s
Standard Insert Co., Calif., 20c
Standard Plastics Co., Inc., Mass., 20c
Standard Telephones & Cables, Ltd., England, 5sc
Stanwyck Coil Co. (E.), 75 Carson Ave., Newburgh, N.Y., 15c, Tel: 914-JOhn 1-3030
See ad in class 51
States Co., Conn., 5c
Stelon, Inc., N.J., 5c, 20c
Stewart Stamping Co., N.Y., 5c
Telegraph Condenser Co., Ltd., England, 5s, 10s
Television Associates, Inc., Div. of Melpar, Inc., Ind., 15c
Thomas & Betts Co., Inc., N.J., 5sc, 25sc
Thor Ceramics, Inc., N.J., 10sc
Tri-Dex Co., Calif., 5c
Tubular Rivet & Stud Co., Mass., 20c
Twin Lock, Inc., Calif., 5c
Uni-Seal, Inc., N.J., 10c
United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 10c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104
United Products Co., N.J., 10c, 20c
United States Instrument Corp., Va., 5sc
U.S. Stoneware Co., Alite Div., Ohio, 10c
Vacuum Ceramics, Inc., Ill., 10sc
Vector Electronic Co., Inc., 1100 Flower St., Glendale 1, Calif., 5sc, Tel: 213-CHapman 5-1076
See ad in class 50
Wade Electric Products Co., Mich., 5c, 25sc
Waldom Electronics, Inc., Ill., 5 Lug s, 25s, Solderless s
Walsco Electronics Mfg. Co., Div. of GC Textron Electronics, Inc., Ill., 5s
Wells Electronics Co., Ind., 15s

Terminations:
See class 66

Test clips, jacks & leads:
See class 62

Directory II. Components

Testers:
See class 41

Thermal control equipment:
See class 4

Thermal indicators:
See class 61

Thermal switches:
See class 80

82. Thermal Devices.

5. Thermocouples
10. Thermostats, bimetal
15. Thermostats, hermetically-sealed
20. Thermostats, mercury

Advanced Electronics, Inc., Conn., 5c
Advanced Products Co., Conn., 5s
Advanced Technology Laboratories, Div. of American-Standard, Calif., 5s
Aero Research Instrument Co., Inc., Ill., 5sc
Airtronics, Inc., D.C., 5c, 10s
American Instrument Co., Inc., Md., 10c, 20c
American Thermo-Electric Co., Calif., 5 Vacuum sc
Astra Technical Instrument Corp., Calif., 5sc
Atkins Technical, Inc., Ohio, 5sc
Bailey Meter Co., Ohio, 5s
Baldwin-Lima-Hamilton Corp., Electronics & Instrumentation Div., Mass., 5sc
Barker Sales Co., N.J., 5c
Belling & Lee, Ltd., Great Cambridge Rd., Enfield, Middlesex, England, 10sc, Tel: Enfield 5393
See ad in class 52
Bird Electronic Corp., 30303 Aurora Rd., Cleveland 39, Ohio, 5c, Tel: 216-CHurchill 8-1200
See ad on page 210
Blue M Electric Co., Ill., 5s
Bon-Dc Electronic Laboratories, Inc., Mass., 5s
Bram Metallurgical-Chemical Co., Pa., 5sc
Bristol Co., Conn., 5c
Bulow Electric Co., Mich., 20c
Burling Instrument Co., Inc., N.J., 10sc
Cable Electric Products, Inc., R.I., 10c
Central Dynamics, Ltd., Canada, 5c
Ceramco, Inc., N.J., 5c, 10c, 15c
Chatham Controls Corp., N.J., 10s, 15s
Clark Crystal Co., Inc., Mass., 15c
Control Products, Inc., N.J., 10sc, 15sc
Controls Co. of America, Ill., 10sc
Cox & Co., Inc., N.Y., 5sc, 10s, 15s
Dales Co. (Franklin), Ohio, 10c
Daystrom, Inc., Weston Instruments Div., N.J., 5s
Dyna-Empire, Inc., 1075 Stewart Ave., Garden City, L.I., N.Y., 5c, Tel: 516-Ploneer 1-2700
See ad in class 40
Edison Industries (Thomas A.), Instrument Div. (McGraw-Edison Co.), N.J., 5s, 10s, 15s
Edmund Scientific Co., N.J., 5s
Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 5c, Tel: 201-BIgelow 2-2700
See ad on page 140
Engelhard Industries, Inc., Instruments & Systems Section, N.J., 5sc
Fenwal, Inc., Mass., 10sc, 15sc
Fire Control Co., Inc., Del., 10s, 15s
Foxboro Co., Mass., 5sc
G-V Controls, Inc., N.J., 10sc, 15sc
General Controls Co., Calif., 5s, 10s, 20s
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 15c
Genistron, Inc., Calif., Reference-Junctions c
Glasseal Products Co., Inc., N.J., 15sc
Grigsby Co., Inc., Ill., 10c
Gulton Industries, Inc., N.J., 5sc
H-B Instrument Co., Pa., 20sc
Hagan Chemicals & Controls, Inc., Pa., 10c
Instruments, Inc., Calif., 5c, Thermocouple-Reference c
International Equipment Co., Mass., Cryostats c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., Cryostats c
J-B-T Instruments, Inc., 133 Hamilton St., New Haven 8, Conn., 5s, Tel: 203-STate 7-5825
See ads in classes 61, 80
Jamieson Laboratories, Inc., Thermocal Div., Calif., 10c, 15c
Kahl Scientific Instrument Corp., Calif., 20sc
Keith Co. (W. P.), Calif., 5sc
Leeds & Northrup Co., Pa., 5s
Lewis Engineering Co., Conn., 5sc
Lignes Telegraphiques et Telephoniques, France, 5s
Malaker Laboratories, N.J., Cryogenic-Thermometers c
McDonnell Aircraft Corp., Mo., 5c
Mel-Rain Corp., Ind., 10c
Minco Products, Inc., Minn., Resistance-Thermometers s
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 5s, 10s, 20s
Modern Laboratory Equipment Co., N.Y., 15sc
Needco of America, Inc., N.J., 5c
Noel Mfg. Co., Inc., N.Y., 10c
Norwalk Thermostat Co., Ohio, 10sc
Pacific Transducer Corp., Calif., 5s
Partlow Corp., N.Y., 15sc, 20sc
Philadelphia Scientific Glass Co., Pa., 15sc, 20sc
Philco Corp., Sierra Electronic Corp. (Div.), Calif., Thermopiles s
Precision Scientific Co., Ill., 20s
Precision Thermometer & Instrument Co., Pa., 10s, 15c, 20sc
Pyro-Electric, Inc., Ind., 5sc
Pyrometer Co. of America, Inc., Pa., 5s
Pyrometer Instrument Co., Inc., N.J., 5s
RDF Corp., N.H., 5 Probes & Reference-Junctions sc, Resistance-Thermometers sc
Rescon Electronics Corp., Mass., 5sc
Revere Corp. of America, Conn., 5s
Richards Co., Inc. (Arklay S.), Mass., 5sc
Rosemount Engineering Co., Minn., 5c
Royco Instruments, Inc., Calif., 5sc
Salford Electrical Instruments, Ltd., England, 10s
Scaico Controls, Inc., N.J., 10c, 15c
Semi-Alloys, Inc., N.Y., 5sc, 10sc
Sensitive Research Instrument Corp., 310-316 Main St., New Rochelle, N.Y., 5s, Tel: 914-BEverly 5-2300
See ad in class 31
Smith Mfg. Co., Inc. (E. C.), Pa., 5sc
Stevens Mfg. Co., Inc., P.O. Box 1007, Mansfield, Ohio, 10c, 15c, Tel: 614-TUxedo 4-1311
See ad on page 144
Stratocon Corp., N.J., 10c
Taylor Instrument Companies, N.Y., 5c
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 10c, 15c, Tel: 214-ADams 5-3111
See ad on Cover 3
Therm, Inc., N.Y., Resistance-Thermometers sc
Therm-O-Disc, Inc., Ohio, 10c, 15c
Thermalic Electronics Corp., Calif., 5sc
Thermel, Inc., R.I., 5c, 10sc, 15sc
Thermo Electric Co., Inc., N.J., 5s
Thermo Products Co. Inc., Wis., 5sc
Thermovolt Instruments, Ltd., Canada, 5c
Trinity Equipment Corp., N.Y., 5s, Thermowells c
Triplett Electrical Instrument Co., 286 Harmon Rd., Bluffton, Ohio, 5s, Tel: Bluffton 3231
See ad in class 61
Ulanet Co. (George), 416 Market St., Newark 5, N.J., 10s, 15c, Tel: 201-MArket 2-4876
See ad in this class, page 622
Ulmer Co. (H. W.), Calif., 5s
United Aircraft Products, Inc., Ohio, 15sc
United Control Corp., Wash., 10sc, 15sc
United Sensor & Control Corp., Conn., 5sc
Valverde Laboratories, N.Y., 10s, 15s
Vap-Air Div., Vapor Corp., Ill., 15sc, 20sc
Wilcolator Co., N.J., 10c, 15c
Winslow Co., Inc., N.J., 5s

Thermionic converters:
See class 58

Thermistors:
See class 74

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Thermocouple wire:
See class 91

Thermocouples:
See class 82

Thermoelectric devices:
See classes 54 & 58

Thermopiles:
See class 82

Thermostats:
See class 82

Thin-film circuits:
See class 50

Thyratrons:
See class 86

Time-delay devices:
See class 73

Timers:
See class 61

Timing devices, precision:
See class 10

Toroidal coils:
See class 51

Toroidal cores:
See class 55

Toroidal transformers:
See class 84

Torque testers:
See class 41

Towers:
See class 44

83. Transducers.

5. Accelerometers **20. Photoelectric**
10. Electromechanical **25. Thermoelectric**
15. Magnetostrictive

ACF Electronics Div., ACF Industries, Inc., Md., 10sc

A R & T Electronics, Inc., Subsid. of Baldwin Piano Co., 1101 McAlmont St., P.O. Box 627, Little Rock, Ark., 20s, Tel: 501-FRanklin 5-6441
See ads in classes 9, 10, 11, 83

Accurate Electronics Corp., Ohio, 10c
Acoustica Associates, Inc., Calif., 10sc, 15sc
Advanced Technology Laboratories, Div. of American-Standard, Calif., 25s
Aero Mechanism, Inc., Calif., 5c, 10c
Aero Research Instrument Co., Inc., Ill., 25sc
Aerospace Controls, Calif., 20sc

Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 20s, Tel: 617-FOrest 6-4467
See ad on page 82

Allied Research Associates, Inc., Mass., 5c
American Bosch Arma Corp., N.Y., 5c
American Brake Shoe Co., Dynisco Div., Mass., 10sc

83. Transducers.

American Measurement & Control, Inc., Mass., 10sc
Ampex Computer Products Co., Calif., 10sc
Applied Electronics Co., Calif., 10c

Arnold Engineering Co., P.O. Box G, Marengo, Ill., 15s, Tel: 815-JOrdan 8-7251
See ad on page 88

Ascop, Div. of Electro-Mechanical Research, Inc., N.J., 10sc, 15sc

Assembly Products, Inc., 75 Wilson Mills Rd., Chesterland 33, Ohio, Linear s, Tel: 216-HAmilton 3-3131
See ad in class 73

Associated Electrical Industries (Rugby), Ltd., England, 20c
Astatic Corp., Ohio, 10sc
Astra Technical Instrument Corp., Calif., 25sc
Astro-Space Laboratories, Inc., Ala., 5c
Astromics, Div. of Mitchell Camera Corp., Calif., 10s
Astronautics Corp. of America, Wis., 10sc
Audax, Inc., N.Y., 10c
Automatic Timing & Controls, Pa., 10s
Automation, Inc., Mass., 20c
Automation Research & Design Associates, N.J., 10c, 15c, 20c, 25c
Avien, Inc., N.Y., 10c, 25c
B & F Instruments, Inc., Pa., 5sc
B & K Instruments, Inc. of Bruel & Kjaer, Ohio, 5s
Baldwin-Lima-Hamilton Corp., Electronics & Instrumentation Div., Mass., 10sc
Baldwin Piano Co., Ohio, 20sc
Basic & Experimental Physics, Mass., 5c, 15c, 20c, 25c
Beckman Instruments, Inc., Spinco Div., Calif., 10c
Beckman & Whitley, Inc., Calif., 25s
Bendix Corp., Bendix-Pacific Div., Calif., 5sc, 10c, 15c
Bendix Corp., Cleveland Instrument Co., Ohio, 10s
Bendix Corp., Industrial Controls Section, Mich., 20s
Bendix Corp., Pioneer-Central Div., Iowa, 5c, 15sc
Bendix Corp., Sheffield Corp. (Subsid.), Ohio, 10s
Block Associates, Inc., Mass., 10sc
Bludworth Marine Div., States Electronics Corp., N.Y., 15sc
Bolsey Corp. of America, N.Y., 20sc
Borg-Warner Corp., Borg-Warner Controls Div., Calif., 5sc, 10sc
Bourns, Inc., Calif., 5c, 10c
Branson Instruments, Inc., Conn., 10s
Bruel & Kjaer (A/S), Denmark, 5s
Bulova Research & Development Laboratories, N.Y., 10c
Bytrex Corp., Mass., 5c, 10c
Canadian Westinghouse Co., Ltd., Canada, 15c
Century Electronics & Instruments, Inc., Okla., 10sc, 25sc
Chatillon & Sons (John), N.Y., 20s
Chesapeake Instrument Corp., Md., 5c
Cinaudagraph, Inc., Ill., 10sc
Clark Electronic Laboratories, Calif., 5s, 10 Load-Cell sc, 20sc
Cleveland Electronics, Inc., Ohio, 5c
Clevite Corp., Brush Instruments Div., Ohio, 10s
Clevite Corp., Clevite Electronic Components Div., Ohio, 5sc
Clevite Corp., Clevite Ordnance Div., Ohio, 10c, 15c
Clifton Precision Products Co., Inc., Pa., 10c
Collins Corp. (G. L.), Calif., 10sc
Columbia Research Laboratories, Inc., Pa., 5sc, 10sc, Piezoelectric sc
Colvin Laboratories, Inc., N.J., 5c, 10sc, Displacement c
Comptometer Corp., Radiation Electronics Co. (Div.), Ill., 20sc

Computer Instruments Corp., 92 Madison Ave., Hempstead, L.I., N.Y., 10sc, Tel: 516-IVanhoe 3-8200
See ad in class 74

Consolidated Controls Corp., Conn., 10c
Consolidated Controls Corp., N.M., 5c, 10c, 25c
Consolidated Electrodynamics Corp., Calif., 5s, 10s
Control Data Corp., Cedar Engineering Div., Minn., 5sc
Controls Co. of America, Ill., 10sc
Crescent Engineering & Research Co., Calif., 10sc
Daystrom, Inc., Weston Instruments Div., N.J., 20s
Daystrom-Wiancko Engineering Co., Calif., 5sc, 10sc
Dayton Electronic Products Co., Ohio, 5s
Daytronic Corp., Ohio, 10s
Decker Corp., Pa., 10sc
DeJur-Amsco Corp., Electronics Div., N.Y., 5c, 10c

Del Electronics Corp., 521 Homestead Ave., Mount Vernon, N.Y., 10c, Tel: 914-OWens 9-2000
See ad in class 69

Dicon Corp., N.Y., 10c, 20c, 25c
Dictograph Products, Inc., Conn., 10c
Digitool Corp., Texas, 20sc
Dillon & Co., Inc. (W. C.), Calif., 10 Load-Cell sc
Dunn Engineering Corp., Mass., 10c

Dyna-Empire, Inc., 1075 Stewart Ave., Garden City, L.I., N.Y., 10c, Tel: 516-PIoneer 1-2700
See ad in class 40

Dyna Magnetic Devices, Inc., N.Y., 10sc
Dynamics Research Corp., Mass., 10sc, 20sc
E.M.I.-Cossor Electronics, Ltd., Canada, 15c
Eastern Technical Associates, Inc., Mass., 5sc
Edcliff Instruments, Calif., 5sc, 10c
Edison Industries (Thomas A.), Instrument Div. (McGraw-Edison Co.), N.J., 10sc, 25sc
Ehrenpreis Engineers (David), N.Y., 5c
Electric Regulator Corp., Conn., 10sc
Electric Tachometer Corp., Pa., 10s
Electro-Ceramics, Inc., Utah, 10c, Electroacoustic c

Electro Impulse Laboratory, Inc., 208 River St., Red Bank, N.J., 25 Probe sc, Tel: 201-SHadyside 1-0404
See ad in class 37

Electro-Mechanical Research, Inc., Fla., 10s

Directory II. Components

83. Transducers.

Electro Products Laboratories, Inc., Ill., 10sc
Electro Radiation, Inc., Calif., 10c, 20c
Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., Minn., 10c
Electro-Sonic Laboratories, Inc., N.Y., 10c
Electronic Control Corp., Mich., 20s
Electronic Research Associates, Inc., N.J., 10sc, 15sc
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 5c, 10c
Elliott-Automation, Ltd., England, 25sc
Elm Instrument Corp., N.Y., 5sc, 10sc
Endevco Corp., Calif., 5sc
Engelhard Industries, Inc., Instruments & Systems Section, N.J., 25sc
Engelhard Industries, Inc., Makepeace Div., Mass., 10c

Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 10sc, Tel: 814-GLendale 6-8592
See ad on pages 78-79

Espey Mfg. & Electronics Corp., N.Y., 10c, 25c
Etelco, Ltd., England, 10s
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 10c
Flow Corp., Mass., 5c, 10 Probe c, 25c
Gemco Electric Co., Mich., 10sc
General Aniline & Film Corp., Ansco Div., N.Y., 10c
General Dynamics/Electronics, N.Y., 10c, 15c
General Electric Co., Heavy Military Electronics Dept., N.Y., 10c, 15c, 20c

General Electric Co., Instrument Dept., 40 Federal St., Lynn, Mass., 10s, Tel: 617-LYnn 3-3400
See ad in class 61

General Instrument Corp., Defense & Engineering Products Group, N.Y., 10sc, 15sc, 25sc
General Instrument Corp., Harris ASW Div., Conn., 5sc, 10sc, 15sc, Piezoelectric sc
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5sc, 10sc
General Precision, Inc., Kearfott Div., N.J., 5s, 10s, 15s

General Radio Co., 22 Baker Ave., West Concord, Mass., 5s, Tel: 617-EMerson 9-4400
See ad on Cover 4

General Thermoelectric Corp., P.O. Box 253, Princeton, N.J., 25c, Tel: 609-DAvis 9-4545
See ad in class 54

Genisco, Inc., Calif., 5sc
Geotechnical Corp., Texas, 5sc
Geotronic Laboratories, Inc., Texas, 10c
Giannini Controls Corp., Calif., 5c, 10c
Gow-Mac Instrument Co., N.J., 25 Probe sc
Gray Mfg. Co., Conn., 5c

Guidance Controls Corp., Commercial St., Engineers Hill, Plainview, L.I., N.Y., 10c, Tel: 516-WElls 8-9500
See ad in class 77

Gulton Industries, Inc., N.J., 5sc, 10sc, Bio-Medical sc, Electroacoustic sc
Hagan Chemicals & Controls, Inc., Pa., 10c
Halex, Inc., Calif., 15c
Harrison Electrosonics, Inc. (B. M.), Mass., 5c, 10c, 15c, Electroacoustic c

Hewlett-Packard Co., 1080D Page Mill Rd., Palo Alto, Calif., 10s, 20s, Tel: 415-DAvenport 6-7000
See ad on pages 13-28

Hoffman Electronics Corp., Calif., 5c, 10c
Hollywood Mfg. & Supply Corp., Calif., 10c
Humphrey, Inc., Calif., 5c, 10c
Hydro-Aire Co., Div. of Crane Co., Calif., 20sc

Inertia Switch, Inc., 311 W. 43rd St., New York 36, N.Y., 5sc, Tel: 212-JUdson 6-5880
See ad in class 80

Infrared Industries, Inc., Mass., 20sc
Infrared Industries, Inc., West Coast Div., Calif., 20sc
Instrument Systems Corp., N.Y., 10sc
International Rectifier Corp., Dallons Laboratories, Inc. (Subsid.), Calif., 10s
International Telephone & Telegraph Corp., ITT Federal Labs., N.J., 5c

James Electronics, Inc., 4050 N. Rockwell St., Chicago 18, Ill., 10c, Tel: 312-COrnelia 7-6333
See ad in class 53

Jefferson, Inc. (Ray), Pa., 10sc
Kennedy Co., Calif., 25 Probe c
Kent Corp. (F. C.), Div. of Bart Mfg. Corp., N.J., 10c, 15c
Kistler Instrument Corp., N.Y., 5 Load-Cell s, 10s

Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 5c, 10c, Tel: 516-RAvenswood 9-7580
See ad in class 89

Kulite-Bytrex Corp., Mass., 5 Load-Cell c
Kulite Semiconductor Products, Inc., N.J., 10c
Lebow Associates, Inc., Mich., 10 Torque & Load-Cell sc
Leesona Corp., Leesona Moos Laboratories Div., N.Y., 10c
Lessells & Associates, Inc., Mass., 10c
Lewis Engineering Co., Conn., 25sc
Lind Instruments, Inc., Calif., 5c
Lindly & Co., Inc., N.Y., 20sc
Ling Temco Vought, Inc., Texas, 10sc, 15c
Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid.), Calif., 10sc
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 10c, 15c
Liquidometer Corp., N.Y., 15c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 10c
Lockheed Electronics Co., N.J., 10 Load-Cell sc
Lockheed Electronics Co., Avionics & Industrial Products Div., Calif., 5 Load-Cell c, 10c
Lundy Mfg. Corp., N.Y., 10c

MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 10c, 20c, 25c, Tel: 305-LOgan 4-8518
See ad in class 4

Mandrel Industries, Inc., Greenleaf Mfg. Div., Mo., 5c
Manning, Maxwell & Moore, Inc., Conn., 10c
Massa Div., Cohu Electronics, Inc., Mass., 5s, 10s, 15s
Maxson Electronics Corp., N.Y., 5c
McKenna Laboratories, Calif., Ultrasonic sc
Mechtronics Corp., Subsid. of Mechmetal-Tronics, Inc., Calif., 10 Bellows c
Melpar, Inc., Special Products Div., Va., 20sc
Micro Systems, Inc., Calif., 10sc, 20sc, Microminiature sc, Bio-Medical sc
Microdot, Inc., Calif., 25s

Baldwin®

SUB-MINIATURE
PHOTOELECTRIC

TRANSDUCERS

MODEL 200-13 BIT ACCURACY

Compact, Type 23 synchromount with NO BRUSHES, NO GEARS, LOW TORQUE Diameter: 2.6", Length, 3 5/16", Weight: 1.25 lbs.

Write for our FACT SHEET

AR&T ELECTRONICS, INC.
BOX 627 LITTLE ROCK, ARKANSAS

A wholly-owned subsidiary of the Baldwin Piano Company

For details, circle #554 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

83. Transducers.

Midwestern Instruments, Inc., Okla., 10s, 20s
Minatron Corp., N.J., 10sc
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 10sc, 25s
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 5c, 10c
Motorola, Inc., Military Electronics Div., Ariz., 10c
Murata Mfg. Co., Ltd., Nagaoka-cho, Otokuni-gun, Kyoto, Japan, 10 Ceramic c, Tel: Kotari 236
See ad on page 214
National Semiconductors, Ltd., Canada, 20sc
National Ultrasonic Corp., N.J., 15sc
New London Instrument Co., Conn., 5s, 10s, 25s
Nilsen Mfg. Co., Fla., 10sc
Norden Div., United Aircraft Corp., Conn., 5sc
Ohio Semiconductors, Div. of Tecumseh Products Co., 1205 Chesapeake Ave., Columbus 12, Ohio, 25s, Tel: 614-HUdson 6-9561
See ad on page 45
Omega Dynamics Corp., Calif., 5sc, Pressure-Probes s
Oster Mfg. Co. (John), Avionic Div., Wis., 10s
Pace Engineering Co., Calif., 5s, 10s
Pacific Electro Kinetics, Calif., 10sc
Packard-Bell Electronics Corp., Calif., 10c
Palomar Scientific Corp., Calif., 5s, 10s
Philips Electronics Industries, Ltd., Canada, 5s
Photobell Co., Inc., N.Y., 20s
Photocon Research Products, Calif., 10sc
Photomation, Inc., N.J., 20s
Physical Sciences Corp., Affil. of Packard-Bell Electronics, Calif., 10c
Pickering & Co., Inc., N.Y., 10sc
Pioneer Electric & Research Corp., Ill., 20s
Plastic Mold & Engineering Co., R.I., 10c
Potter Aeronautical Corp., N.J., 10 Flow & Airspeed Sensors sc
Power-Tronic Systems, Inc., N.Y., 5c, 10c
Powertron Ultrasonics Corp., N.Y., 10sc
Pressure Elements, Inc., N.J., 10sc, Pressure Capsules & Diaphragms sc
Radio Development & Research Corp., N.J., 15c
Ramapo Instrument Co., Inc., N.J., 10 Flow s
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 15s
Raytheon Co., Industrial Components Div., Mass., 5s
Reed & Reese, Inc., Calif., 10c
Revere Corp. of America, Conn., 10 Load-Cell s, 25c
Rheem Mfg. Co., Rheem Electronics Div., Calif., 10sc, 20c
Richards Co., Inc. (Arklay S.), Mass., 25sc
Rosemount Engineering Co., Minn., 25c
Rotiform Co., Calif., 20sc
Rye Sound Corp., N.Y., 10s, 15s
Sage Instruments, Inc., N.Y., 10 Load-Cell c, Electroacoustic c
Salford Electrical Instruments, Ltd., England, 10s
Sampson Chemical & Pigment Corp., Ill., 20c, 25c
Sanborn Co., Subsid. of Hewlett-Packard Co., 175 Wyman St., Waltham 54, Mass., 10s, Tel: 617-TWinbrook 4-6300
See ad on pages 70-71
Santa Barbara Research Center, Subsid. of Hughes Aircraft Co., Calif., 20c, 25c
Scaico Controls, Inc., N.J., 25c
Schaevitz Engineering, N.J., 5sc, 10sc, 15sc, 20sc, 25sc
Schwarzer Co., 46 Salmi Rd., Framingham, Mass., 10s, 20s, Tel: 617-TRinity 2-1830
See ads in classes 5, 23, 28
Servomechanisms/Inc., Calif., 5c, 10c, 25c
Servonic Instruments, Inc., Calif., 10c
Servotronics, Inc., N.Y., 10c
Sheltered Workshops, Inc., Calif., 10c
Sigma Electronics Research Corp., Wash., 25s
Singer-Bridgeport, Div. of Singer Mfg. Co., Conn., 5c, 10c
Smith Mfg. Co., Inc. (E. C.), Pa., 25sc
Solar Systems, Inc., Ill., 20sc
Solartron Electronic Group, Ltd., England, 10s
Solartron, Inc., Calif., 5s, 10s
Solid State Electronics Co., Dept. I, 15321 Rayen St., Sepulveda, Calif., 10c, Tel: 213-EMpire 4-2271
See ad on page 44
Sonar Radio Corp., N.Y., 15s
Southern Instruments, Ltd., England, 5s, 10s
Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 5c, 10c, 15c
Sperry Rand Corp., Sperry Gyroscope Co. of Canada, Ltd. (Subsid.), Canada, 5c
Sperry Rand Corp., Sperry Phoenix Co. (Div.), Ariz., 5sc
Sprague Electric Co., Mass., Piezoelectric sc
Standard Controls, Inc., Wash., 10sc
Standard Electronics Research Corp., N.J., 20s
Standard Instrument Corp., N.Y., 20s
Starling Corp., Calif., 20s
Statham Instruments, Inc., Calif., 5sc, 10sc
Straza Electronics, Div. of Straza Industries, Calif., 20c
Sunshine Scientific Instrument, Pa., 5c, 10c
Taber Instrument Corp., N.Y., 10s
Tang Industries, Inc., Mass., 25c
Technology Instrument Corp., Mass., 5s
Technology Instrument Corp. of California, Calif., 5c
Telecomputing Corp., Calif., 10c
Telecomputing Corp., Whittaker Gyro Div., Calif., 5sc
Telectro Industries Corp., N.Y., 10c
Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 10c, 25c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80
Ten Bosch, Inc. (M.), N.Y., 5s
Therm, Inc., N.Y., 5c, 10c, 15c, 25sc
Thermalic Electronics Corp., Calif., 25sc
Theta Instrument Corp., 520 Victor St., Saddle Brook, N.J., 10s, Tel: 201-HUbbard 7-3508
See ad in class 97
Thompson, Ltd. (J. Langham), England, 5s, 10 Load-Cell & Piezoelectric s
Time & Frequency, Ill., 10c, 15c
Trans-Sonics, Inc., Mass., 10sc, 25sc
Transitron Electronic Corp., Mass., 25c
Transonic, Inc., Calif., 5c, 15c
Unholtz-Dickie Corp., 2994 Whitney Ave., Hamden 18, Conn., 5s, 10 Piezoelectric s, Tel: 203-ATwater 8-3358
See ad in class 36
Union Ultra-Sonic Corp., Mass., 15sc
United Control Corp., Wash., 5sc, 25sc
United States Gauge Div., American Machine & Metals, Inc., Pa., 10sc
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 5c, 10c
U.S. Sonics Corp., Mass., 5sc, 10sc, 25sc
United States Time Corp., Conn., 5sc
Valpey Crystal Corp., 1100 Highland St., Holliston, Mass., 10c, Tel: 617-GArden 9-4851
See ads on page 219 & in class 56
Vap-Air Div., Vapor Corp., Ill., 10c
Victory Engineering Corp., 118 Springfield Ave., Springfield, N.J., 25c, Tel: 201-MUrdock 8-7150
See ad in class 74
Vinson Mfg. Co., Inc., Calif., 10sc
Waugh Engineering Co., Calif., 10s
Wayne-George Corp., Mass., 10c
White Avionics Corp., N.Y., 5c, 10c
Whitehall Electronics Corp., Minn., 15c, 25c
Yellow Springs Instrument Co., Inc., Ohio, 25sc

84. Transformers.

2. 400 cps
4. Audio
6. Current-limiting
8. Hermetically-sealed
10. High-voltage
12. Horizontal output & flyback
14. Instrument
16. Isolation
18. Linear
20. Low-frequency
22. Matched, precision
24. Microwave
26. Miniature
28. Power
30. Pulse
32. RF & IF
34. Saturable
36. TV deflection
38. TV impedance-matching
40. Toroidal
42. Ultrasonic
44. Variable
46. Vibrator
48. Voltage-dividing
50. Voltage-regulating

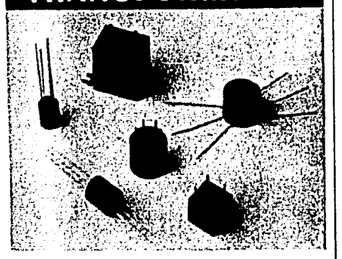
ACDC Electronics, Inc., 2979 N. Ontario St., Burbank, Calif., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 20c, 22c, 24c, 26c, 28c, 30c, 34c, 40c, 46c, 48c, Tel: 213-VIctoria 9-2414
See ad in class 69
A C Electronics, Inc., Calif., 2sc, 4sc, 6sc, 8sc, 10sc, 18sc, 20sc, 22sc, 26sc, 28sc, 32sc, 34sc, 40sc, 42sc, 44sc, 48sc, 50sc
A C Transformer Corp., N.J., 4c, 10c, 16c, 28c, 34c, 50c
ADC Products, Div. of Magnetic Controls Co., 2863 13th Ave. S., Minneapolis 7, Minn., 2sc, 4sc, 6c, 8sc, 10c, 14c, 16sc, 18c, 20c, 22c, 26sc, 28sc, 30c, 34c, 40c, 46c, 48c, 50c, Tel: 612-PArkway 1-5551
See ad in this class

Directory II. Components

84. Transformers.

AMP, Inc., Pa., 6sc, 10sc, 16sc, 30sc, 34sc, 40sc, 50sc
AMP, Inc., Capitron Div., Pa., 2c, 8c, 10c, 28c, 30c, 34c, 40c
A R & T Electronics, Inc., Subsid. of Baldwin Piano Co., 1101 McAlmont St., P.O. Box 627, Little Rock, Ark., 4c, Tel: 501-FRanklin 5-6441
See ads in classes 9, 10, 11, 83
ATR Electronics, Inc., 300 E. Fourth St., Saint Paul 1, Minn., 28c, 46sc, Tel: 612-CApital 2-3791
See ad in class 53
Ace Coil & Electronics Co., N.J., 32c
Acme Electric Corp., 44 Water St., Cuba, N.Y., 2c, 6c, 8c, 16c, 24c, 26c, 28c, 34c, 44c, 50sc, Tel: Cuba 4
See ad in class 69
Acme Electric Heating Corp., Mass., 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 28c, 30c, 44c, 46c, 48c, 50c
Acoustica Associates, Inc., Calif., 42c
Acro Electronic Products Co., Pa., 2sc, 4sc, 16sc, 18sc, 20sc, 28sc
Acromag, Inc., Mich., 40c
Adams Electronics, Inc., Mich., 32c
Advance Components, Ltd., England, 6s, 28s, 50s
Advance Ross Electronics Corp., Ill., 12sc, 36sc
Advanced Development Laboratories, Inc., N.H., 22c, 24c, 32c
Advanced Electronics, Inc., Conn., 4c
Advancement Devices, Inc., N.Y., 2s, 4c, 6c, 8s, 10s, 16c, 20c, 22c, 24c, 28s, 34sc, 50s
Aerocoil, Inc., N.J., 2c, 8c, 34c, 40c
Aetna Electronics Corp., N.J., 42c
Airdesign Corp., Pa., 2sc, 4sc, 10sc, 16sc, 20sc, 26sc, 28sc, 30sc, 50sc
Airpax Electronics, Inc., Cambridge Div., Jacktown Rd., Cambridge, Md., 2sc, 4sc, 8sc, 10sc, 14sc, 20sc, 26sc, 28sc, 30sc, 34sc, 40sc, 44sc, 46sc, 48sc, Tel: 301-ACademy 8-4600
See ad in class 53
Airpax Electronics, Inc., Seminole Div., 6601 N.W. 19th St., Fort Lauderdale, Fla., 2sc, 4sc, 8sc, 10sc, 14sc, 20sc, 26sc, 28sc, 30sc, 34sc, 40sc, 44sc, 46sc, 48sc, Tel: 305-LUdlow 3-6160
See ad in class 53
Airtec, Inc., N.J., 24c
Aladdin Electronics Div., Aladdin Industries, Inc., Tenn., 4sc, 8sc, 14sc, 20sc, 26sc, 30sc, 32sc, 40c
Allen Avionics, Inc., N.Y., 26c, 30c, 32c, 40c, 44c
American Communications Corp., N.Y., 38sc
American Machine & Foundry Co., Greenwich Engineering Div., Conn., Wafer c
American Magnetics Corp., Ill., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 20c, 22c, 26c, 28c, 34c, 38c, 46c, 48c
American Missile Products Co., Inc., Calif., 40c
American-Monarch Corp., Minn., 2c, 6c, 8c, 10c, 16c, 28c, 30c, 34c, 50c
American Rectifier Corp., N.Y., 2c, 6c, 16sc, 28c, 34c, 50c
American Research & Mfg. Corp., Md., 40c
Amplifier Corp. of America, N.Y., 2c, 4c, 28sc, 50sc
Amy, Aceves & King, Inc., N.Y., 32s
Anderson Controls, Inc., Ill., 28c
Anko Mfg. Co., Inc., Wis., 28c, 50c
Annis Co. (R. B.), Ind., 14sc
Applied Control Corp., N.J., 18c, 26c, 40c, 48c
Ardente Acoustic Laboratories, Ltd., England, 4sc, 26sc
Ariel Davis Mfg. Co., Utah, 44sc

PULSE TRANSFORMERS



Pulse widths available from 50 millimicrosecs to 25 microsecs in a variety of configurations.

Sub-Miniaturization at its very best. Encapsulated, potted, molded and plug-in types.

F & W has specialized equipment and skilled operators, so necessary to handle the extremely fine wire sizes and exacting assembly work required in the production of Pulse Transformers.

Let us quote on your special Pulse Transformer requirements.

forbes and wagner, inc.
350 Central Avenue
Silver Creek, N.Y. • Phone YE 4-2691
For details, circle #555 on Reader Service Card

COMPLETE LINES IN STOCK FOR IMMEDIATE DELIVERY

From A through V
UNITED TRANSFORMER CORP.
Rapid delivery on government source inspected units

STANCOR ELECTRONICS

ADELPHI ELECTRONICS PI 7-5195
"where promises are kept"
142 Mineola Blvd., Mineola, L.I., N.Y.
FAST SERVICE IS ADELPHI'S MOST IMPORTANT COMMODITY
For details, circle #556 on Reader Service Card

To improve output of TRANSFORMERS

specify

Inductrol* Induction Voltage Regulators

Voltage fluctuations can cause electronic tube failure, make equipment operate erratically, increase replacement parts costs. Inductrol regulators operate on the induction principle. This means precise voltage control and high reliability because **no brushes or tubes** are used. G-E Inductrol regulators are virtually maintenance free.

More information appears opposite General Electric "Voltage Regulator" listing in Directory II, Class 72.

*Registered trade-mark of General Electric Co.

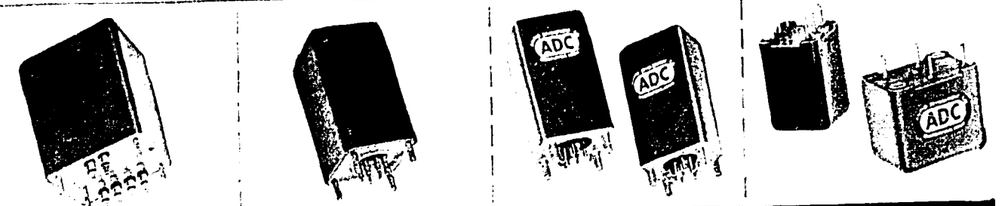
VOLTAGE REGULATOR PRODUCTS SECTION
GENERAL ELECTRIC
PITTSFIELD MASS

For details, circle #557 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

ADC

TRANSFORMERS · FILTERS · REACTORS
JACKS & PLUGS · JACK PANELS

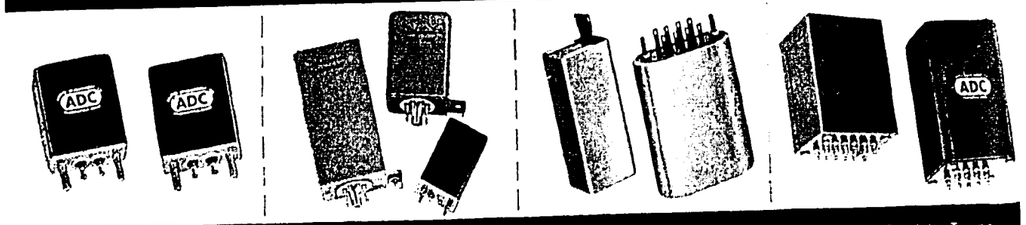


Military Standard POWER Transformers Types MS-90016 through MS-90036.

Military Standard AUDIO Transformers Types MS-90000 through MS-90008.

Sub-Miniature, hermetically sealed, low frequency inductors and transformers.

Transformers and filters for TRANSISTOR and PRINTED CIRCUIT applications to meet MIL-T-27A Grade 5, Class R or S.

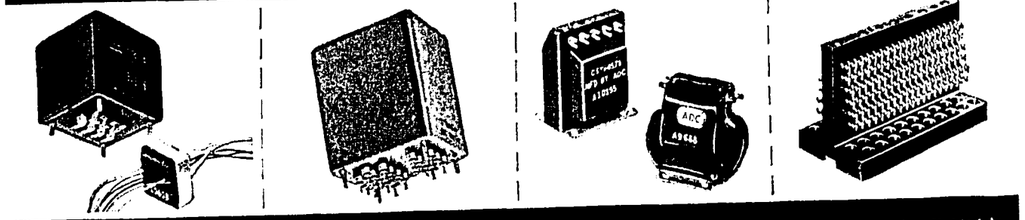


Toroids Hermetically sealed or open units for all frequency ranges.

Filters Sub-Audio to 1.5 mcs.

Telephone Coils Mechanically and electrically interchangeable with Western Electric.

Broadcast Quality Transformers Standard of the Industry.

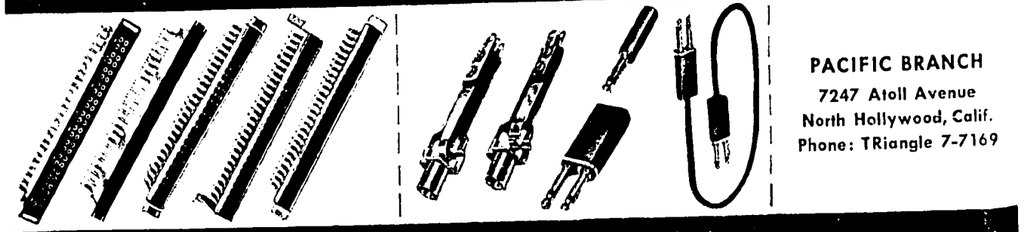


Magnetic Amplifiers and Saturable Transformers For servo motor control; DC-DC Power Supplies, and switching silicon controlled rectifiers.

Balanced Modulators Designs over a wide range up to 500 kcs.

Encapsulated Transformers--Using custom epoxy compounds for military and commercial applications.

Terminal Blocks Molded to your specifications. Six popular sizes in stock.



Jack Panels Several size panels in stock.

Plugs, Patch Cords and Jacks Standard in the communication industry. Long frame telephone type jacks; wide variety; two and three conductor.

Government Approved Qualification Testing Laboratory.

PACIFIC BRANCH
7247 Atoll Avenue
North Hollywood, Calif.
Phone: TRiangle 7-7169

Choose from over 500 stock items (see Radio Master) or let ADC design to your requirements

ADC

ADC PRODUCTS
A Division of Magnetic Controls Company
2863-13TH AVENUE SOUTH • MINNEAPOLIS 7, MINNESOTA
PACIFIC BRANCH *North Hollywood, California*
TRANSFORMERS • REACTORS • FILTERS • JACKS AND PLUGS • JACK PANELS

For details, circle #558 on Reader Service Card

Directory II. Components

84. Transformers.

Armstrong Whitworth/Brush, Falcon Works, England, 2c, 4c, 8c, 20c, 28c, 30c, 32c, 34c, 48c, 50c

Arnold Magnetics Corp., Calif., 2sc, 8sc, 10sc, 26sc, 28sc, 30sc, 34sc, 40sc, 50sc

Artronic Instrument Co., Md., 26c, 30c, 34c, 40c

Arvred Co., Inc., Mass., 30c, 32c

Associated Research, Inc., 3792 W. Belmont Ave., Chicago 18, Ill., 14sc, Tel: 312-COrnelia 7-4040
See ad in class 41

Ateliers de Montages Electriques (AME), France, 32c

Atlantic Transformer Corp., Conn., 2c, 4c, 8c, 10c, 16c, 18c, 20c, 26c, 28c, 30c, 40c, 42c, 46c, 48c

Atlas Coil, Inc., Conn., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 28c, 30c, 32c, 34c, 36c, 38c, 40c, 42c, 44c, 46c, 48c, 50c

Atlas Engineering Co., Inc., Mass., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 26c, 28c, 30c, 34c, 40c, 42c, 46c, 48c, 50c

Atlas Transformer Co., Calif., 2c, 4c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 40c, 42c, 46c, 48c, 50c

Auto-Test, Inc., Ill., 28sc

Automatic Coil Co., Inc., N.Y., 20c, 30c, 32c, 40c, 44c

Automatic Timing & Controls, Pa., 18 Differentials

Avtron Mfg., Inc., Ohio, 2c

Axel Electronics, Inc., 134-20 Jamaica Ave., Jamaica 18, N.Y., 30c, Tel: 212-AXtel 1-3900
See ad in class 48

Bach-Simpson, Ltd., Canada, 14s, 40s

Baldwin Piano Co., Ohio, 4sc

Barker & Williamson, Inc., Pa., 32c, 40sc

Barrett Coil Co., Inc., Fla., 32c, 40c

Barwood Electronics, Inc., Calif., 2c, 4c, 8c, 14c, 16c, 26c, 28c, 40c

Basic & Experimental Physics, Mass., 20c, 40c

Basler Electric Co., Magnetic Components Dept., Ill., 2c, 4c, 6c, 8c, 10c, 16c, 18c, 20c, 28c, 34c, 40c, 42c, 44c, 46c, 48c, 50c

Bathman Engineering Co., Calif., 2c, 20c, 28c, 40c, 50c

Bell Electronics Corp., Ill., 32c

Belmont Co., Ltd., England, 2c, 4sc, 6c, 8c, 10c, 14c, 16c, 18c, 20sc, 26sc, 28c, 30c, 34c

Bell Aerosystems Co., Avionics Div., N.Y., 2c, 8c, 10c, 18c, 28c, 30c

Bendix Television Associates, Ltd., Canada, 38s

Bendix Corp., Bendix Radio Div., Government Products Dept., Md., 2c, 4c, 8c, 24c, 30c, 32c, 40c

Berkshire Laboratories, N.H., 30s

Berkshire Transformer Corp., Conn., 2c, 4c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 34c, 40c, 42c, 46c, 48c

Best Mfg. Co., Inc., N.C., 2c, 4c

Bitterman Electric Co., Inc., Conn., 2c, 6c, 16c, 20c, 24c, 26c, 28c, 30c, 32c, 40c

Blackburn Electronic Corp., Pa., 8c, 22c, 26c, 30c, 32c, 34c, 40c

Bogue Electric Mfg. Co., N.J., 2c, 50c

Bowitz Electronics, Calif., 48c

Bradford Components, Inc., N.Y., 4c, 26c, 28c

Branson Instruments, Inc., Conn., 42s

Bright Radio Laboratories, Inc., N.Y., 32c

Broadway Coil Co., Ill., 32c, 38c, 44c

Bucknell Engineering Co., Inc., Calif., 2c, 14c, 28c

Budd-Stanley Co., Inc., 175 Eileen Way, Syosset, L.I., N.Y., 24sc, Tel: 516-WAlnut 1-7550
See ad on pages 92

Bundy Electronics Corp., N.J., 40sc

Burmac Electronics Co., Inc., 142 S. Long Beach Rd., Rockville Centre, L.I., N.Y., 30c, Tel: 516-ORiole 8-3070
See ad in class 69

Burnell & Co., Inc., Dept. IR-2, 10 Pelham Pkwy., Pelham Manor, N.Y., 40c, 44sc, Tel: 914-PElham 8-5000
See ad on page 106

Burroughs Corp., Electronic Instruments Div., Pa., 30c, 40c

Bush Transformer Corp., N.Y., 2c, 4c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 40c, 42c, 46c, 48c, 50c

CBC Electronics Co., Inc., Pa., 30sc

C & K Components, Inc., Mass., 30c

CTS Corp., 1142 W. Beardsley Ave., Elkhart, Ind., 4c, 28c, Tel: 219-JAckson 3-0210
See ad on page 12

Cable Electric Products, Inc., R.I., 6sc, 28sc, 48sc, 50sc

Caddell-Burns Mfg. Co., Inc., N.Y., 20sc, 32sc, 44sc

Calbest Electronics, Calif., 32c

California Magnetic Control Corp., Calif., 2c, 4c, 8c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 40c, 42c, 48c, 50c

Campbell Co., Inc. (Colin), Conn., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 40c, 42c, 48c

Campbell X-Ray Corp., Mass., 10c

Canadian Marconi Co., Canada, 2c, 4c, 8c, 16c, 20c, 22c, 28c, 32c, 40c, 42c, 46c

Canadian Westinghouse Co., Ltd., Canada, 8c, 10c, 28c, 34c, 40c

Captran Corp., Ill., 2c, 4c, 6c, 10c, 14c, 16c, 20c, 22c, 28c, 34c, 38c, 42c, 44c, 48c, 50c

Carad Corp., Calif., 2c, 4c, 6c, 8c, 10c, 22c, 30sc, 32c, 40c, 42c

Carma Mfg. Co., Calif., 2c

Carol Electronics Corp., W.Va., 4c, 8c, 14c, 16c, 26c, 28c, 32c

Carson Mfg. Co., Inc., Ind., 44c, 48c, 50c

Carvil Technical Ceramics, Inc., N.J., 26c

Celco Constantine Engineering Laboratories Co., 70 Constantine Dr., Mahwah, N.J., 2sc, 4sc, 6sc, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 22sc, 26sc, 28sc, 30sc, 32sc, 34sc, 36sc, 38sc, 40sc, 42sc, 44sc, 46sc, 48sc, 50c, Tel: 201-DAvis 7-1123
See ad on page 130

Central Coil Co., Inc., Ind., 32c, 40c

Central Transformer Co., Ill., 2c, 4c, 6c, 8c, 10c, 16c, 18c, 20c, 24c, 26c, 28c, 34c, 42c, 46c, 48c, 50c

Century Coil Corp., Ill., 2c, 6c, 10c, 14c, 16c, 28c, 34c, 48c

Chicago Electronic Engineering Co., Ill., 2c, 4c, 8c, 28c, 34c

Chicago Magnetic Control Div., Ill., 2c, 4c, 8c, 22c, 28c, 34c

Chicago Telephone of California, Inc., Calif., 4c, 28c, 32c

Cinaudagraph, Inc., Ill., 2sc, 4sc, 6sc, 8sc, 12sc, 14sc, 16sc, 18sc, 20sc, 22sc, 26sc, 28sc, 30sc, 34sc, 38sc, 42sc, 48sc, 50sc

Circuitdyne Corp., Calif., 2c, 4c, 8c, 16c, 18c, 20c, 22c, 26c, 28c, 34c, 40c, 42c, 48c, 50c

Clear Beam Antenna Corp., Calif., 38s

Clough-Brengle Co., Ill., 4s

Coast Coil Co., Calif., 2c, 4c, 8c, 10c, 14c, 16c, 22c, 26c, 34c, 40c, 48c

Coil Co. of America, Inc., N.J., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 40c, 42c, 46c, 48c, 50c

Coil Engineering & Mfg. Co., Ind., 4c, 16c, 28c, 46c

Coilcraft, Inc., Ill., 8c, 16c, 30c, 32c, 34c, 40c, 44c

Cole Instrument Co., Calif., 14c

Columbia Technical Corp., N.Y., 32c

Columbus Process Co., Inc., Ind., 2c, 4c, 6c, 8c, 10c, 16c, 18c, 20c, 22c, 26c, 28c, 34c, 36c, 46c, 48c

Communication Accessories Co., U.S Hwy. 50 & 71 By-Pass, Lee's Summit, Mo., 2c, 4c, 8c, 10c, 16c, 26c, 28c, 30c, 34c, 40c, Tel: 816-LAclede 4-3500
See ad on page 112

Communication Electronics, Inc., Md., 2c, 4c, 8c, 28c

Components Corp., Ill., 2c, 30c, 34c, 36c

Components for Research, Inc., Calif., 2sc, 10sc, 16sc, 28c, 34c

Conrad Carson Electronics, Inc., Calif., 10c, 26c, 32c, 34c, 42c

Control Circuits, Inc., Conn., 30c

Control Data Corp., Minn., 2c, 14c, 28c

Control Data Corp., Control Corp. (subsid.), Minn., 2c, 4c, 6c, 8c, 14c, 16c, 20c, 28c, 46c, 48c

Controlonmag Laboratories, Pa., 30c, 36c

Cook Electric Co., NRK Motor Corp. Div., Ill., 24c

Cornell Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 46sc

Cornwell Electronics Corp., N.Y., 2sc, 6sc, 16sc, 28sc, 34sc, 40sc, 48sc, 50sc

Crest Transformer Corp., Ill., 2c, 4sc, 6sc, 8sc, 10sc, 14sc, 16sc, 20sc, 26sc, 28sc, 34sc, 44sc, 46sc, 48sc, 50sc

Cycle Transformer Corp., N.J., 2c, 4c, 8c, 10c, 16c, 20c, 26c, 28c, 30c, 34c, 42c, 46c, 50c

Dale Electronics, Inc., Subsid. of Hathaway Instruments, Inc., 1318 28th Ave., P.O. Box 488, Columbus, Nebr., 26c, 32c, 40c, Tel: 402-LOcust 4-3131
See ad in class 74

Daystrom, Inc., Weston Instruments Div., N.J., 14s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

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- Maximum power efficiency and optimum pulse performance.
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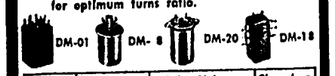
- Ruggedized construction — Grade 4.
- Series or parallel connection of windings for optimum turns ratio.



Cat. No.	MIL Type	Pulse Voltage Kilovolts	Char. Imp. Ohms
MPT- 1	TF4RX35YY	0.25/0.25/0.25	250
MPT- 2	TF4RX35YY	0.25/0.25	250
MPT- 3	TF4RX35YY	0.5/0.5/0.5	250
MPT- 4	TF4RX35YY	0.5/0.5	250
MPT- 5	TF4RX35YY	0.5/0.5/0.5	500
MPT- 6	TF4RX35YY	0.5/0.5	500
MPT- 7	TF4RX35YY	0.7/0.7/0.7	200
MPT- 8	TF4RX35YY	0.7/0.7	200
MPT- 9	TF4RX35YY	1.0/1.0/1.0	200
MPT-10	TF4RX35YY	1.0/1.0	200
MPT-11	TF4RX35YY	1.0/1.0/1.0	500
MPT-12	TF4RX35YY	0.15/0.15/0.3/0.3	700

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Primary 105/115/125 V 50-60~

Cat. No.	Appl.	MIL Std.	MIL Type
MGP 1	Plate & Fil.	90026	TF4RX03HA001
MGP 2	Plate & Fil.	90027	TF4RX03JB002
MGP 3	Plate & Fil.	90028	TF4RX03KB006
MGP 4	Plate & Fil.	90029	TF4RX03LB003
MGP 5	Plate & Fil.	90030	TF4RX03MB004
MGP 6	Plate	90031	TF4RX02KB001
MGP 7	Plate	90032	TF4RX02LB002
MGP 8	Plate	90036	TF4RX02NB003
MGF 1	Filament	90016	TF4RX01EB002
MGF 2	Filament	90017	TF4RX01GB003
MGF 3	Filament	90018	TF4RX01FB004
MGF 4	Filament	90019	TF4RX01HB005
MGF 5	Filament	90020	TF4RX01FB006
MGF 6	Filament	90021	TF4RX01GB007
MGF 7	Filament	90022	TF4RX01JB008
MGF 8	Filament	90023	TF4RX01KB009
MGF 9	Filament	90024	TF4RX01JB012
MGF 10	Filament	90025	TF4RX01KB013

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Cat. No.	Imped. level—ohms	Appl.	MIL Std.	MIL Type
MGA 1	Pri. 10,000 C.T. Sec. 90,000 Split & C.T.	Interstage	90000	TF48RX15AJ001
MGA 2	Pri. 600 Split Sec. 4, 8, 16	Matching	90001	TF48RX16AJ002
MGA 3	Pri. 600 Split Sec. 135,000 C.T.	Input	90002	TF48RX10AJ001
MGA 4	Pri. 600 Split Sec. 600 Split	Matching	90003	TF48RX16AJ001
MGA 5	Pri. 7,600 Tap @ 4,800 Sec. 600 Split	Output	90004	TF48RX13AJ001
MGA 6	Pri. 7,600 Tap @ 4,800 Sec. 4, 8, 16	Output	90005	TF48RX13AJ002
MGA 7	Pri. 15,000 C.T. Sec. 600 Split	Output	90006	TF48RX13AJ003
MGA 8	Pri. 24,000 C.T. Sec. 600 Split	Output	90007	TF48RX13AJ004
MGA 9	Pri. 60,000 C.T. Sec. 600 Split	Output	90008	TF48RX13AJ005

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1720 Weirfield St., Brooklyn (Ridgewood) 27, N.Y.

DeCoursey Engineering Laboratory, Calif., 34c, 40c
Deeco Instruments, Inc., Calif., 2c, 4c, 8c, 14c, 18c, 20c, 22c, 34c, 40c
Del Electronics Corp., 521 Homestead Ave., Mount Vernon, N.Y., 2sc, 6sc, 8sc, 10sc, 14sc, 16sc, 26sc, 28sc, 34sc, Tel: 914-OWens 9-2000
See ad in class 69
Delta Coils, Inc., N.J., 20c, 26c, 32c, 40c, 44c
Delta Radio Co., N.Y., 32c
Deltex Laboratories, Div. of Delta Exploration Co., Inc., Miss., 20sc, 22sc, 40sc
Deltron Co., Calif., 34c, 40c, 50c
DeMornay-Bonardi Corp., 780 S. Arroyo Pkwy., Pasadena, Calif., 24s, Tel: 213-SYcamore 2-4142
See ad on pages 68-69
Developmental Electronics Corp., Calif., 26sc, 30sc, 40c
Dielectric Products Engineering Co., Inc., Me., 24c, 32c
Dietz Design, Inc., Mo., 2c, 4c, 6c, 8c, 20c, 22c, 26c, 28c, 30c, 32c, 34c, 40c, 48c
Digitrols, Inc., Md., 2c, 4s, 28sc, 30c
Direct T/V Windings, Ltd., England, 4sc, 10sc, 12sc, 14sc, 16sc, 20sc, 26c, 30sc, 32sc, 34sc, 36sc, 38c, 50c
Dittmore-Freimuth Corp., Wis., 16c, 30c, 40c
Djeco, Div. of Djordjevic Engineering Co., Ill., 2c, 10c, 18c, 22c, 24c, 28c, 30c, 34c, 50c
Dormeyer Industries, Ill., 2c, 4c, 6c, 10c, 16c, 28c, 46c
Dorne & Margolin, Inc., N.Y., 24c
Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 24sc, Tel: 914-MOunt Vernon 8-6900
See ad in class 66
Dresser Electronics/HST Div., Texas, 2sc, 4sc, 8sc, 10sc, 16sc, 18sc, 20c, 22c, 24sc, 26sc, 28sc, 30c, 34c, 40sc, 48c, 50c
Duncan Electric Co., Inc., Davenport Mfg. Div., Ill., 10c, 14c, 16c
Dynaco, Inc., Pa., 4s
Dynamics Corp. of America, N.Y., 4c, 6c, 10c, 18c, 22c, 24c, 28c, 32c, 36c, 40c, 44c, 48c, 50c
Dynamics Corp. of America, American Transformer Div., N.Y., 40sc
EMP Electronics Research Laboratories, Inc., Ariz., 2c, 8c, 20c, 28c, 30c, 34c, 40sc
E.P. Electric Products Co., Ltd., Canada, 2c, 8c, 16c, 28c, 50c
ESC Electronics Corp., N.J., 40c
Eagle Electric Mfg. Co., Inc., N.Y., 6s
Edgerton, Germeshausen & Grier, Inc., Mass., 8c, 30c, 32c, 44c
Edko Electronics Engineering Co., N.Y., 2c, 4c, 6c, 8c, 10c, 16c, 18c, 20c, 26c, 28c, 34c, 42c, 46c, 48c
Eisler Engineering Co., Inc., 753 S. 13th St., Newark 3, N.J., 16c, 28c, Tel: 201-BIgelow 3-5310
See ad in class 99
El-Rad Mfg. Co., Ill., 12c, 30sc, 32c, 36c, 40c
Elasco, Inc., Mass., 2c, 4c, 8c, 16c, 28c, 34c
Elcor, Inc., Va., 16sc
Electran Mfg. Co., 1901 N. Clybourn Ave., Chicago 14, Ill., 2c, 6c, 8c, 10c, 14c, 16c, 28c, 34c, 46c, Tel: 312-BIttersweet 8-4596
See ad in this class
Electric Wave Filters, Inc., Puerto Rico, 28c, 40c
Electrical Windings, Inc., Ill., 2c, 4c, 8c, 14c, 16c, 26c, 28c, 46c
Electro Assemblies, Inc., Ill., 32c, 44c
Electro-Craft Corp., Minn., 2c, 8c, 30c, 34c, 40c
Electro Development Corp., Wash., 2c, 4c, 10c, 26c, 28c
Electro Engineering Works, Calif., 2c, 4sc, 6c, 8c, 10s, 14c, 16c, 18c, 20c, 26c, 28sc, 34c, 42c
Electro Networks, Inc., & Caledonia Electronics & Transformer Corp., N.Y., 2c, 4c, 8c, 10c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 40c, 46c, 48c
Electro Powerpacs, Inc., Mass., 2c, 4c, 8c, 10c, 14c, 16c, 28c, 46c
Electro-Seal Corp., Ill., 8s
Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., Minn., 2c, 4c, 16s, 20c, 26c, 28c, 44s
Electro-Sonic Laboratories, Inc., N.Y., 4s, 14s, 26s
Electro Winders Co., Inc., Calif., 2c, 4c, 6c, 8c, 10c, 14c, 18c, 20c, 22c, 26c, 30c, 32c, 34c, 40c, 44c, 48c, 50c
Electrodynamic Instrument Corp., Texas, 2c, 4c, 6c, 8c, 10c, 14c, 16c, 20c, 22c, 26c, 28c, 30c, 40c
Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 2c, 4c, 6c, 8c, 10c, 28sc, 34c, 42c, Tel: 617-LYnn 8-2100
See ad in class 69
Electronic Coils, Inc., Mass., 40c
Electronic Components Corp., Ill., 2c, 4c, 6c, 10c, 16c, 28c, 38c, 46c, 48c, 50c
Electronic Production & Development, Inc., Calif., 26c, 40c
Electronic Research Associates, Inc., N.J., 2sc, 4sc, 6sc, 8sc, 10sc, 14sc, 16sc, 18sc, 20sc, 22sc, 26sc, 28sc, 34sc, 40sc, 42sc, 44sc, 48sc, 50sc
Electrosolids Corp., Calif., 2c, 28c
Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 50c, Tel: 201-BIgelow 2-2700
See ad on page 140
Engineering Model Laboratory, Inc., Mass., 16c, 20c, 28c
Engineering Specialties, Ohio, 40c
Ensign Coil Co., Ill., 4c
Epco Products, Inc., N.Y., 2c, 4c, 6c, 8c, 10c, 16c, 20c, 26c, 28c, 30c, 34c, 40c, 42c, 44c, 46c
Epic, Inc., N.Y., 14s
Epsco, Inc., Mass., 30sc, 34sc
Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 30sc, 40sc, Tel: 814-GLendale 6-8592
See ad on pages 78-79
Erie Resistor Corp., Ceramic Components Div., Pa., 32c
Espey Mfg. & Electronics Corp., N.Y., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 32c, 34c, 40c, 42c, 44c, 46c, 48c, 50c
Exactel Instrument Co., Calif., Differential s

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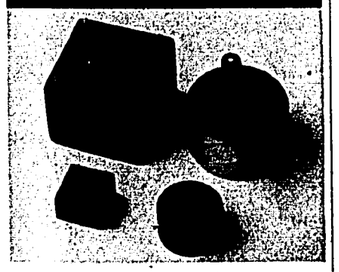
Directory II. Components

84. Transformers.

FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 24s, 32s, Tel: 212-RAvenswood 1-9000
See ad in class 37
Fairfield Controls, Inc., Conn., 2c, 4c, 6c, 16c, 20c, 26c, 28c, 30c, 34c, 40c
Farrand Controls, Inc., N.Y., Analog-Digital sc
Ferritronics, Ltd., Canada, 26c, 30c, 32c, 38c
Ferro Magnetics Co., Calif., 2c, 4c, 6c, 8c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 40c, 48c, 50c
Ferrotran Electronics Co., Inc., N.Y., 2s, 4s, 8s, 16s, 26s, 28s, 32s
Fidelity Instrument Corp., Pa., 28sc, 50sc
Filtron Co., Inc., N.Y., 30c
Fischer Electric Co., Inc., Fla., 2c, 4c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 24c, 28c, 30c, 42c, 46c, 48c, 50c
Fisher Engineering, Inc., Ind., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 32c, 34c, 40c, 42c, 46c, 48c
Forbes & Wagner, Inc., 350 Central Ave., Silver Creek, N.Y., 30c, 34c, 40c, Tel: 716-YEllowstone 4-2691
See ads in classes 33, 51, 57, 84
Forest Electric Co., Ill., 2c, 4c, 6c, 8c, 16c, 20c, 26c, 28c, 46c
Fortiphone, Ltd., Components & Transformer Divs., England, 4sc, 26sc, 40c
Foster Transformer Co., Ohio, 2c, 4c, 8c, 16c, 20c, 26c, 28c, 30c, 46c
Fox Products Co., Pa., 28c, 34c
Franklin Engineering Design Co., Calif., 10c, 16c
Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N.Y., 2sc, 4sc, 6sc, 8sc, 10sc, 14sc, 16sc, 20sc, 22s, 26sc, 28sc, 30sc, 34sc, 40sc, 42sc, 46c, 50sc, Tel: 212-EVergreen 6-1300
See ad in this class
Friend Engineering (Albert W.), Pa., 6c, 12c, 30c, 36c, 40c
Fugle-Miller Laboratories, Inc., N.J., 10c, 32c, 34c, 40c, 42c
Galbraith-Pilot Marine Corp., Div. of Marine Electric Corp., N.Y., 2c, 4c, 6c, 8c, 10c, 16sc, 28c
Gar Precision Parts, Inc., Conn., 24c
Gates Electronic Co., 2243 White Plains Rd., New York 67, N.Y., 16sc, 28sc, Tel: 212-TUlip 1-5900
See ad in class 69
General Coil Products Corp., N.Y., 32c, 38c, 42c
General Dynamics/Electronics, N.Y., 24c
General Electric Co., Apparatus Sales Dept., N.Y., 2c, 4c, 6c, 8sc, 14s, 16c, 26sc, 28sc, 30sc, 34c, 40c, 50sc
General Electric Co., High Voltage Specialty Transformer Section, Mass., 2c, 10c, 28c, 30c
General Instrument Corp., Automatic Mfg. Div., N.J., 32sc
General Instrument Corp., Defense & Engineering Products Group, N.Y., 2sc, 4sc, 6sc, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 22sc, 24sc, 26sc, 28sc, 30sc, 32sc, 34sc, 36sc, 38sc, 40sc, 42sc, 44sc, 46sc, 48sc, 50sc
General Instrument Corp., F. W. Sickles Div., 165 Front St., P.O. Box 330, Chicopee, Mass., 8c, 12c, 22c, 26c, 32c, 36c, 40c, 44c, Tel: 413-LYceum 4-4781
See ad in class 57
General Magnetics, Inc., 2641 Louisiana Ave., Minneapolis 26, Minn., 2c, 4c, 6c, 8sc, 10c, 14sc, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30sc, 32c, 34c, 40c, 48c, 50c, Tel: 612-WEst 9-8571
See ad in class 43
General Meters, Inc., Colo., 26c
General Microwave Corp., N.Y., 24c
General Motors Corp., Delco Radio Div., Ind., 2c, 4c, 28c

TOROIDAL TRANSFORMERS



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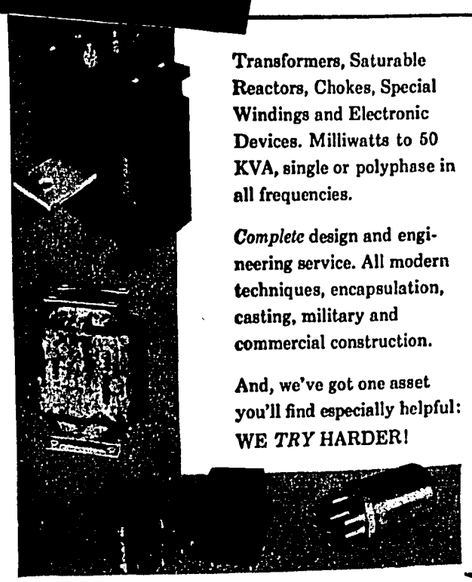
Transformers



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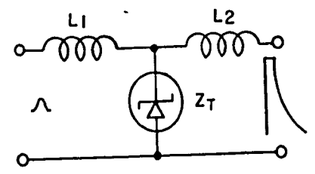

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TULSA, OKLAHOMA
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84. Transformers.

General Precision Equipment Corp., Strong Electric Corp. (Subsid.), Ohio, 2c, 28c
General Precision, Inc., Kearfott Div., Calif., 24c
General Precision, Inc., Kearfott Div., N.J., 24s
General Radio Co., 22 Baker Ave., West Concord, Mass., 4s, 20s, 40s, 44s, Tel: 617-EMerson 9-4400
See ad on Cover 4
General Railway Signal Co., N.Y., 28s
Geotronic Laboratories, Inc., Texas, 2c, 4c, 8c, 10c, 14c, 16c, 18c, 20c, 26c, 28c, 30c, 34c, 40c, 42c, 48c
Gertsch Products, Inc., Calif., 2sc, 4sc, 8sc, 16s, 20s, 22s, 44s, 48s
Gilfillan Brothers, Inc., Calif., 10c, 12c, 24c, 30c, 36c, 38c
Gramer Halldorson, Ill., 2sc, 4sc, 6sc, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 22sc, 24sc, 26sc, 28sc, 30sc, 32sc, 34sc, 36sc, 38sc, 40sc, 42sc, 44sc, 46sc, 48sc, 50sc
Grand Coil Winders, Mich., 4c, 6c, 10c, 14c, 16c, 28c, 44c
Grand Tran, Inc., Mich., 2c, 4c, 6c, 8c, 16c, 20c, 22c, 28c, 30c, 34c, 46c, 48c, 50c
Grand Transformers, Inc., Mich., 2c, 4c, 6c, 8c, 10c, 16c, 20c, 22c, 28c, 34c, 46c, 48c, 50c
Green Rectifier Co., N.J., 6c, 10c, 16c, 28sc, 34sc, 44sc, 46sc, 50sc
Gresham Transformers, Ltd., England, 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 40c, 46c, 50c
Gudeman Co., Ill., 8sc, 30sc, 40c
Gudeman Co. of California, Inc., Calif., 8sc, 26c, 30sc, 40c
Gulow Transformer Co., Inc., N.J., 2s, 4s, 6s, 8s, 10s, 14s, 16s, 18s, 20s, 22s, 24s, 26s, 28s, 30s, 34s, 40s, 42s, 44s, 48s, 50s
Gulton Industries, Inc., N.J., 40sc
Hadley Co., Inc. (Robert M.), Calif., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 40c, 42c, 44c, 46c, 48c, 50c
Hamilton Watch Co., Industrial Products Div., Pa., 30sc, 40sc
Hammond Mfg. Co., Ltd., Canada, 2sc, 4sc, 8sc, 10sc, 14sc, 16sc, 20c, 26sc, 28sc, 30c, 34c, 40c, 42c, 48c
Harder Co. (Donald C.), Calif., 2c, 4c, 8c, 10c, 16c, 20c, 28c, 30c, 32c, 34c, 40c
Hathaway Denver, Div. of Hathaway Instruments, Inc., Colo., 26c, 32c, 40c
Hevi-Duty Electric Co., Div. of Basic Products Corp., Wis., 2c, 6c, 8c, 10sc, 28sc, 34sc, 48c, 50sc
Hewlett-Packard Co., Palo Alto Engineering Co. (Subsid.), Calif., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 26c, 28c, 30c, 34c
Highland Design, Inc., N.Y., 2c, 4c, 6c, 8c, 10c, 16c, 20c, 26c, 28c, 50c
Hindle Transformer Co., Inc., N.J., 2c, 6c, 8c, 10c, 16sc, 20c, 28sc, 34sc, 42c, 50sc
Hisonic, Inc., Kans., 8c, 40c
Hughey & Phillips, Inc., 3200 N. San Fernando Blvd., Burbank, Calif., 16s, Tel: 213-VIctoria 9-1104
See ad in class 44
I.H. Mfg. Corp., N.Y., 4s, 6s, 16s, 28s, 48s
ITA Electronics Corp., Pa., 32sc
Inductor Engineering, Inc., Del., 30c, 34c, 40c
Industrial Transformer Corp., N.J., 2c, 4c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 34c, 38c, 40c, 42c, 46c, 48c, 50c
Industron Corp., Mass., 10c, 28c
Instrument Resistors Co., N.J., 32c
Instrument Systems Corp., N.Y., 14c, 24c, 34sc, 40sc
Intercontinental Electronics Corp., N.Y., 2s, 4s, 6s, 8s, 10s, 16s, 18s, 20s, 22s, 26s, 28s, 30s, 34s, 38s, 40s, 44s, 48s, 50s
Interelectronics Corp., 2432 Grand Concourse, New York 58, N.Y., 2c, 6c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 40sc, 42c, 44sc, 48c, 50c, Tel: 212-LUdlow 4-6200
See ads in classes 34, 69
JFD Electronics Corp., 6101 16th Ave., Brooklyn 4, N.Y., 8c, 18c, 22c, 26c, 30c, 32c, 40c, 44c, Tel: 212-DEwey 1-1000
See ad on pages 56-57
Jack & Heintz, Div. of Siegler Corp., Ohio, 2sc, 14sc, 16sc
James Electronics, Inc., 4050 N. Rockwell St., Chicago 18, Ill., 2sc, 4sc, 8sc, 14sc, 16sc, 22sc, 26sc, 30sc, 34c, 46c, Tel: 312-COrnelia 7-6333
See ad in class 53
Jefferson Electric Co., Ill., 2c, 16s, 28s
Jensen Mfg. Co., Div. of Muter Co., Ill., 4s
Jet Electronics Corp., Calif., 10c, 12c, 30c, 36c
Johnson Electronics, Inc., Fla., 2c, 4c, 8c, 16c, 18c, 20c, 26c, 30c, 32c, 34c, 40c
K.G.S. Electronics, Calif., 2c, 4c, 8c, 14c, 16c, 20c, 28c, 34c, 40c, 48c
K.V. Transformer Corp., Conn., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 34c, 40c, 42c, 46c, 48c
Kapitol Magnetic Corp., Ill., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 34c, 40c, 42c, 44c, 46c
Kenyon Transformer Co., Inc., N.J., 2c, 4sc, 8c, 10c, 16c, 20c, 28sc, 30c, 34c, 40c, 42c, 44c, 46c, 50c
Kepco, Inc., 131-42 Sanford Ave., Flushing 52, N.Y., 2c, 6c, 44c, 50c, Tel: 212-INdependence 1-7000
See ad in class 69
Kessler Co., Inc. (Frank), N.Y., 2c, 4sc, 8c, 14c, 16c, 26sc
Keystone Products Co., N.J., 2c, 4c, 6c, 10c, 14c, 16c, 26c, 30c, 34c, 40c, 42c, 46c
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 2c, 4c, 8c, 14s, 16c, 20s, 26s, 28s, 30s, 38c, 40s, 48c, 50c
Knopp, Inc., Calif., 2c, 6c, 10c, 14sc, 16c, 20c, 28c, 34c, 42c, 44c, 46c, 48c, 50c
Kolton Electric Mfg. Co., N.J., 16s
Kuhnke (H.), Elektrotechnische Fabrik GmbH, Germany, 50sc
Kupfrian Mfg. Div., Robinson Technical Products, Inc., 157 Prospect Ave., Binghamton, N.Y., 2c, 28c, 40c, Tel: 607-RAymond 3-9561
See ad in class 69
Laboratory For Electronics, Inc., Mass., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 38c, 40c, 44c, 48c, 50c
Land-Air, Inc., Ill., 28s
Landis & Gyr, Inc., N.Y., 14s

Directory II. Components

84. Transformers.

Langevin, Div. of Sonotec, Inc. Calif., 4s, 34s
Lee Electric, Inc., N.J., 6c, 16c, 50c
Leonard Electric Products Co., N.Y., 10c, 32c, 36c, 38c
Light Electric Corp., N.J., 2c, 4c, 6c, 10c, 16c, 20c, 28c, 34c, 50c
Lindberg Engineering Co., Ill., 34c, 50c
Linell Engineering Corp. (Charles S.), Ill., 32sc
Ling Temco Vought, Inc., Texas, 2c, 4sc, 6c, 8c, 10c, 16c, 18c, 20c, 22c, 26c, 28sc, 30c, 34c, 40c, 46c
Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid.), Calif., 2c, 4sc, 8c, 10c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 40c
Ling Temco Vought, Inc., Peerless Electrical Products Div., Calif., 2c, 4sc, 6c, 8c, 10c, 16c, 18c, 20c, 26c, 28sc, 30c, 34c, 40c, 46c
Lionel Corp., N.J., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 40c, 42c, 44c, 46c, 48c, 50c
Liquidometer Corp., N.Y., 2sc, 14c, 26c
Litton Industries, Inc., Components Group, Airtron Div., N.J., 24c
Litton Industries, Inc., Components Group, Triad Transformer Corp., Calif., 2sc, 4sc, 6sc, 8sc, 12sc, 14sc, 16sc, 18c, 20sc, 22sc, 26sc, 28sc, 30sc, 34sc, 36sc, 38sc, 40sc, 46sc, 48sc, 50sc
Lockheed Electronics Co., Avionics & Industrial Products Div., Calif., 2c, 6c, 10c, 40c
Magnalectric Corp., 2635 N. Iroquois, P.O. Box 6008, Tulsa 6, Okla., 2c, 4sc, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 40c, Tel: 918-FIllmore 5-7278
See ad in this class
Magnatran, Inc., N.J., 10c, 16c, 28c, 42c
Magnetic Amplifiers Div., Siegler Corp., 632 Tinton Ave., New York 55, N.Y., 34sc, 50sc, Tel: 212-CYpress 2-6610
See ad in class 69
Magnetic Circuit Elements, Inc., Calif., 2sc, 4c, 8sc, 14c, 16sc, 20sc, 22c, 26sc, 28c, 30c, 34c, 40c, 48sc
Magnetico, Inc., N.Y., 2sc, 26sc, 34sc, 40sc
Magnetics Research Co., Inc., N.Y., 2c, 26c, 30c, 40sc
Manson Laboratories, Inc., Conn., 2sc, 8c, 10c, 16sc, 24sc, 30sc, 40c
Marconi's Wireless Telegraph Co., Ltd., N.Y., 50s
Materials for Electronics, Inc., N.Y., 4sc, 26sc, 28sc
Matrix Research & Development Corp., N.H., 40c
Maury & Associates, Calif., 24sc
Maxwell Electronics Corp., Texas, 34c, 40sc, 50sc
Mayberry Electronics Co., Calif., 14c, 20c, 26c, 30c, 34c, 40c
McGregor Electronic Industries, Inc., Iowa, 4c
Melco Products, Inc., Minn., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 20c, 24c, 26c, 28c, 30c, 34c, 36c, 38c, 42c, 46c
Melcor Electronics Corp., Dept. ID, 48 Toledo St., South Farmingdale, L.I., N.Y., 2c, 4c, 14c, 16c, 26c, Tel: 516-MYrtle 4-5570
See ad in class 43
Meridian Metalcraft, Inc., Calif., 24c
Merit Coil & Transformer Corp., Fla., 2c, 4sc, 8c, 10sc, 12sc, 14c, 16sc, 26sc, 28sc, 30sc, 32sc, 36sc, 38sc, 40sc, 42c, 46sc, 48sc, 50sc
Merrimac Research & Development, Inc., 517 Lyons Ave., Irvington 11, N.J., 24c, Tel: 201-ESsex 1-1616
See ad in class 45
Metropolitan Telecommunications Corp., N.Y., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 32c, 34c, 36c, 40c, 42c, 48c, 50c
Microdot, Inc., Calif., 10s, 16s, 50s
Microsecond Electronics, Inc., Ariz., 2c, 4c, 8c, 10c, 20c, 22c, 26c, 30c, 32c, 40c
Microtran Co., Inc., 145 E. Mineola Ave., Valley Stream, L.I., N.Y., 2sc, 4sc, 8sc, 10c, 14sc, 16c, 18c, 20c, 22sc, 26sc, 28sc, 34c, 40sc, 42c, 46c, 48sc, Tel: 516-LOcust 1-6050
See ad in this class
Mid-Eastern Electronics, Inc., N.J., 50c
Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 32sc, Tel: 617-DAvenport 4-4108**
See ad in class 51
Miller Co. (J. W.), Calif., 10sc, 26sc, 32sc, 38sc, 44sc
Milro Controls Co., Inc., N.J., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 28c, 30c, 32c, 34c, 40sc, 44c, 46c, 48c, 50c
Milwaukee Transformer Co., Wis., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 34c, 40c, 48c, 50c
Minatron Corp., N.J., 18 Differential sc
Mitchell Electronics Corp., N.Y., 2c, 4c, 8c, 10c, 14c, 16c, 20c, 22c, 26c, 28c, 34c, 42c, 46c, 48c, 50c
Modelectric Products Corp., N.J., 26c
Mohawk Business Machines Corp., N.Y., 2c, 4c, 16c, 20c, 26c, 28c, 46c, 48c, 50c
Moloney Electric Co., Mo., 2c, 6c, 8c, 10c, 16c, 20c, 28c, 30c, 34c, 50c
Morey Corp., Ill., 26c, 32c
Mosley Electronics, Inc., Mo., 38s
Mystic Transformers, Inc., Mass., 2c, 4c, 8c, 10c, 16c, 20c, 28c
National Coil Co., Wyo., 2c, 4c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26sc, 28c, 32c, 42c, 46c, 48c
National Electronics, Wyo., 14c

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- Antenna Matching
- Interstage Coupling
- Impedance Matching
- Computer Drive Circuits
- Signal Distribution
- Pulse Applications
- Voltage Step-Up
- DC Isolation
- Phase Detectors
- Balanced Modulators

Type Number	Impedance Ratio	Type Number	Impedance Ratio
1100	75 Unb/75 Bal	0500	50 Unb/100 Bal
1300	75 Unb/100 Bal	0400	50 Unb/150 Bal
1400	75 Unb/150 Bal	0500	50 Unb/200 Bal
1500	75 Unb/200 Bal	0501	50 Unb/300 Bal
1501	75 Unb/300 Bal	0600	50 Unb/450 Bal
1600	75 Unb/450 Bal	0700	50 Unb/600 Bal
1700	75 Unb/600 Bal	0800	50 Unb/800 Bal
1800	75 Unb/800 Bal	0900	50 Unb/1200 Bal
1900	75 Unb/1200 Bal		

Frequency range on some of these units is as wide as 100 kc to 100 mc. Data sheets with individual curves are available upon request

North Hills wideband transformers have been designed for low insertion loss (less than 1 db) and good matching characteristics over wide frequency ranges. Balanced windings feature extremely low unbalanced voltages and have a center tap. Complete specifications are available upon request.

Three case styles are offered. Series AA models are potted in metal cases with a terminal board on the bottom and two 6-32 spade mounting bolts. Series BA are hermetically sealed with glass terminals at the case ends and two 4-40 studs on the bottom for mounting. Series BB is similar to BA except that the unbalanced connection is provided by a BNC connector.

A great variety of different requirements is being met by special designs. Your specifications for custom wideband transformers may be submitted for quotation.

NORTH HILLS ELECTRONICS, INCORPORATED
GLEN COVE, L.I., N.Y. OR 6-5700
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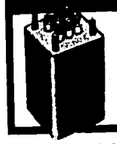
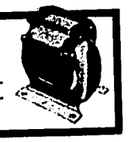
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-224.

CUSTOM DESIGNED TRANSFORMERS for RELIABILITY



HERMETIC
Ceramic compression terminals. Stud type mounting. Schematic. Baked enamel finish, MIL-T-27A.

ENCAPSULATED HIPERSIL
Bracket mounting. Epoxy impregnation and coating. Resists environmental extremes.

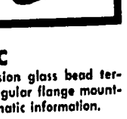


SUB-MINIATURE MIL CASE
Hermetic. Ceramic compression terminals. ¾" x ¾" x 1⅛" H. Wt. 1⅛ oz. MIL-T-27A Grade 4, class R.

MINIATURE MOLDED
Epoxy cast. Resists environmental extremes. For plug-in printed circuits. .040 pins ⅞" x 1 9/32" x ⅞" H. Wt. 1¾ oz.

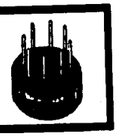
ENCAPSULATED POWER
Bracket mounting. Used in portable equipment where terminals must be brought out from Transformer.

HIGH TEMPERATURE OPEN FRAME
For Airborne Applications, Teflon, Mylar, and Silicone insulations used. Flat bracket mounting.



HERMETIC
High compression glass bead terminals. Rectangular flange mounting. Full schematic information.

TOROIDS
Precision Inductors, Audio Transformers, Power Transformers, DC-DC Converter Switching Transformers



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Ill., Glen Ellyn—J. H. Kleker Co.
Ind., Indianapolis—Wright Engrg. Corp
Md.—Arnold Associates
Mass., Boston—C. Segel Co.
Mich., Dearborn—F. A. Villani
Minn., Minneapolis—E. O. Hagstead & Assoc.
Mo., St. Louis—W. T. McGary
N. Y., Hollis—Al Friedman Assoc.
N. Y., New York City—Ed Glass Assoc.
N. Y., Syracuse—A. L. Perkins Co.
Ohio, Cincinnati—J. O. Olsen Co.
Ohio, Cleveland—J. O. Olsen Co.
Pa., Philadelphia—Arnold Assoc.
Pa., Pittsburgh—J. O. Olsen Co.
Tex., Grand Prairie—Howell Sales Inc.
Wash., Seattle—W. H. Haight Co.
WEST COAST WAREHOUSE:
1060 Evelyn St., Menlo Park, Calif.
1557 N. Western Ave., Los Angeles, Calif.

MICROTRAN company, inc.
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VALLEY STREAM N.Y.

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84. Transformers.

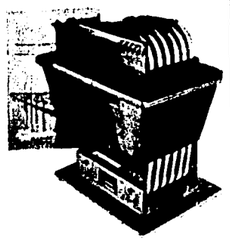
National Radio Co., Inc., Mass., 32c
National Ultrasonic Corp., N.J., 42sc
Natural Lighting Corp., Calif., 28sc, 34sc, 50sc
Neshaminy Electronic Corp., Pa., 2c, 4c, 6sc, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 34c, 42c, 50sc
Networks Electronic Corp., Calif., 2c, 34c, 40c, 50c
New England Transformer Co., Inc., Subsid. of Transistor Applications, Inc., 47 McGrath Highway, Somerville 43, Mass., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 38c, 40c, 42c, 44c, 46c, 48c, Tel: 617-625-6100
See ad in this class
New York Coil Co., Inc., Pa., 4c, 6c, 8c, 10c, 12c, 14c, 16c, 20c, 26c, 28c, 30c, 32c, 34c
New York Transformer Co., Inc., N.J., 2c, 4c, 8c, 12c, 14c, 16c, 20c, 22c, 26c, 28c, 30c, 34c, 40c, 46c, 48c, 50c
Newport Scientific Co., Calif., 16sc, 40c
Noel Mfg. Co., Inc., N.Y., 28c
North Atlantic Industries, Inc., Terminal Drive, Plainview, L.I., N.Y., 2sc, 16sc, 22sc, 48sc, Tel: 516-OVerbrook 1-8600
See ad in class 35
North Hills Electronics, Inc., Alexander Place, Glen Cove, L.I., N.Y., 30s, 32s, 40s, 42s, Wideband s, Tel: 516-ORiole 1-5700
See ads in classes 69, 84
Northern Electronic & Vacuum Industries, Canada, 40s
Nothelfer Winding Laboratories, Inc., N.J., 2c, 6c, 10c, 14c, 16c, 20c, 28c, 30c, 34c
Nytronics, Inc., Essex Electronics Div., N.J., 8c, 30c, 32c, 40c, 50sc
Oaktron Electric Co., Ill., 4c, 14c, 26c
Ohmite Mfg. Co., Ill., 44sc
Omega Laboratories, Inc., Haverhill St., Rowley, Mass., 24sc, Tel: 617-WHitney 8-7757
See ad in class 66
Omega Mfg. Co., N.Y., 50c
Oregon Electronic Mfg. Co., Ore., 14c, 16c, 28c, 34c, 40c
Ortho Industries, Inc., 7 Paterson St., Paterson 1, N.J., 40c, Tel: 201-MUlberry 4-5858
See ad in class 59
Ortho Magnetics, Inc., Pa., 2c, 4c, 6c, 8c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 32c, 34c, 42c, 46c, 48c, 50c
Osborne Electric Co., Ltd., Canada, 20sc, 28sc, 44sc, 50sc
Osborne Electronics Corp., Ore., 2c, 4c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 34c, 38c, 40c, 44c, 46c, 48c
Osborne Transformer Corp., Mich., 2c, 4c, 6c, 8c, 10c, 16c, 20c, 28c, 34c, 40c, 42c
Otis Radio & Electric Corp., Iowa, 32c
Ovitron Corp., Standard Winding Co. (Div.), 44-62 Johnes St., Newburgh, N.Y., 2c, 4c, 6c, 8c, 12c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 32c, 34c, 36c, 38c, 40c, 42c, 44c, 48c, 50c, Tel: 914-JOhn 1-1541
See ad in class 51
Oxford Components, Div. of Oxford Electric Corp., Ill., 4c

Directory II. Components

84. Transformers.

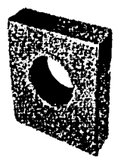
PCA Electronics, Inc., 16799 Schoenborn St., Sepulveda, Calif., 8sc, 26sc, 30sc, 32c, 40c, Tel: 213-EMpire 2-0761
See ad in class 57
Pacific Instrument Co., Calif., 2c, 4c, 8c, 16c, 20c, 26c, 28c, 30c, 34c, 40c
Pacific Magnetic Corp., Calif., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 20c, 22c, 26c, 28c, 34c, 40c, 42c, 44c, 48c
Partridge Transformers, Ltd., England, 2c, 4s, 8sc, 10c, 14c, 16c, 26c, 28sc, 30c, 42c, 46c
Pearson Electronics, Inc., 707 Urban Lane, Palo Alto, Calif., 4c, 10sc, 14sc, 20c, 30c, 42c, Tel: 415-DAvenport 6-7285
See ad in this class
Penn Transformer Corp., Pa., 12c, 36c
Pennon Electronics, Inc., Calif., 2c, 6c, 8c, 10c, 16c, 18c, 20c, 28c, 34c, 40c, 50c
Perkin-Elmer Corp., Vernistat Div., Conn., 44c
Permoflux Products Co., Div. of Linlar, Inc., Calif., 2sc, 4sc, 8sc, 10sc, 16sc, 20sc, 26sc, 28sc, 30sc, 42sc, 44sc, 50sc
Peschel Electronics, Inc., Towners, R.F.D. 1, Patterson, N.Y., 10c, Tel: 914-TRinity 8-3251
See ad in class 41
Phoenix Transformer Co., Ariz., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 42c, 46c, 48c, 50c
Physics Research Laboratories, Inc., Dept. SA-1, P.O. Box 555, Hempstead, L.I., N.Y., 14sc, Tel: 516-IVanhoe 3-8299
See ad in class 40
Polyphase Instrument Co., Pa., 2c, 4c, 6c, 8c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30sc, 32c, 34c, 40c, 42c, 48c, 50c
Power Equipment Co., Ohio, 2c, 16c, 28c, 34c, 50c
Power Industries, Inc., Ill., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 32c, 34c, 40c, 42c, 44c, 46c
Precise Measurements Co., Millbrook Lane, P.O. Box 172, Flemington, N.J., 10sc, 44sc, Tel: 201-STate 2-3000
See ad in class 69
Precision Electronics Co., Mass., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 34c, 46c, 48c
Precision Electronics, Inc., N.Y., 2c, 4c, 8c, 10c, 14c, 16c, 20c, 22c, 24c, 26c, 28c, 34c, 42c, 44c, 48c, 50c
Preferred Coils, Inc., Mass., 6c, 16c, 20c, 26c, 28c, 30c, 32c, 40c
Prototype Transformer Corp., N.J., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 20c, 22c, 24c, 26c, 28c, 30c, 34c, 42c, 46c, 48c
Pulse Engineering, Inc., Calif., 8sc, 26sc, 30sc, 34c, 40sc
Pyrocircuits Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 26c, Tel: 516-POrt Washington 7-3949
See ad in class 50
Q.L.C. Corp., N.Y., 32c
Quam-Nichols Co., Ill., 4s
Qutronic Transformer Corp., N.Y., 2c, 4c, 6c, 8c, 14c, 16c, 22c, 26c, 28c, 34c, 40c, 50c
RCA Victor Co., Ltd., Canada, 4sc, 20sc, 24sc, 40sc
Racon Electric Co., Inc., N.Y., 4s
Radiation at Stanford, Calif., 10sc, 16sc, 28sc, 30sc
Radiatronics, Inc., Calif., 24c, 32c
Radio Development & Research Corp., N.J., 2c, 6c, 8c, 20c, 28c, 34c, 40c
Radio Engineering Laboratories, Inc., N.Y., 2c, 4c, 10c, 20c, 22c, 28c, 32c, 40c, 44c, 48c
Radio Television Products Corp., Mich., 32c
RaeCo, Inc., Ind., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 26c, 28sc, 30c, 46c, 48c
Railroad Electronic Laboratories of Omaha, Inc., Nebr., 40c
Railway Communications, Inc., Mo., 40c

very high voltage high reliability pulse products



PEARSON PULSE TRANSFORMERS
High voltage custom units designed to meet any specification or system application. We supply complete tanked pulse transformer systems, including filament and pulse current transformers, voltage dividers, heat exchanger, tube socket, all bushings, internal bypassing and connections.

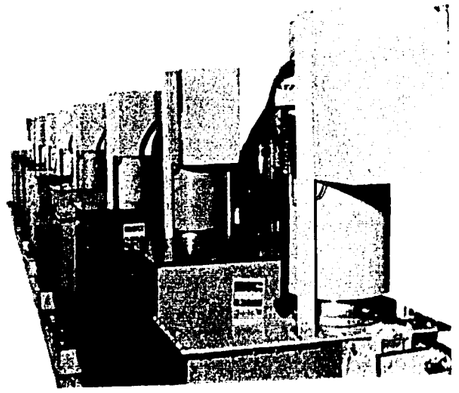
Unit at left, compared with the size of a telephone directory, is rated at 250 kv, 2.5 μsec. and 100 kw average power.



PEARSON PULSE CURRENT TRANSFORMERS
For precision pulse shape and amplitude viewing and wide band waveform viewing. Pulse currents from milliamperes to ten thousands of amperes at voltages up to 300 kv. Fast rise-time - 20 μμsec. Droop - 0.1% to 0.0005% per μsec. High output amplitude accuracy of +1%, —0%.

PEARSON PULSE VOLTAGE DIVIDERS
For monitoring pulse voltages up to 300 kv. Voltage division ratio adjustable from 3000 to 6000 : 1. Droop - 0.01% per μsec. for one megohm cable termination.

ALL PEARSON PULSE PRODUCTS ARE NOW UNCONDITIONALLY GUARANTEED FOR TWO YEARS.



Nine Pearson pulse transformers driving klystron amplifiers in a linac built by Applied Radiation Corporation, Walnut Creek, California. These 200 kv units are tanked complete with pulse shape monitoring, filament transformer, bushings, heat exchanger and klystron socket.

PEARSON ELECTRONICS, INC.
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Over 900 different units for military and commercial applications are available for immediate delivery through your Stancor distributor and are listed in the Stancor Industrial Transformer Catalog CS-101. Write in for your free copy.

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Stancor's 48-man engineering department can design and produce transformers, filters, toroids and other inductive devices to your exact specifications. Ask us for a quote.

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84. Transformers.

Ram Electronics, Inc., N.J., 4sc, 6c, 8c, 10sc, 12sc, 16c, 22c, 28c, 30c, 32sc, 36sc, 38c, 48c, 50c
Ramyr Mfg. Co., Calif., 6sc, 10sc, 20sc, 28sc, 50sc
Rantec Corp., Calif., 24c
Ratelco, Inc., Wash., 6c, 34c
Raypar, Inc., Ill., 2c, 4c, 8c, 10c, 12c, 16c, 18c, 28c, 30c, 46c
Raytheon Co., Microwave & Power Tube Div., Mass., 2sc, 4sc, 6sc, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 26sc, 28sc, 30sc, 34sc, 36sc, 40sc, 42sc, 44sc, 46sc
Redman Electronics Corp., Conn., 30c, 32c, 40c, 42c
Reed & Reese, Inc., Calif., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 26c, 28c, 30c, 32c, 40c, 44c, 48c, 50c
Reeves Instrument Corp., Farmingdale Div., N.J., 4c, 6c, 8c, 10c, 28c, 34c, 40c, 44c, 48c, 50c
Rego Insulated Wire Corp., N.J., 22s
Renco Electronics, Inc., N.Y., 32c, 40c
Richardson-Allen Corp., Subsid. of Standard Kollsman Industries, Inc., 28c
Riemer Co., Inc. (David), N.Y., 4sc, 26sc
Rixon Electronics, Inc., Md., 2c, 4c, 6c
Rogers Electronic Corp., N.Y., 2c, 4s, 12s, 26c, 28c, 36s, 38s, 42c, 48c, 50c
Rola Co., Div. of Muter Co., Ohio, 2c, 4c, 6c, 8c, 10c, 12c, 16c, 20c, 26c, 30c, 36c, 38c, 44c, 46c
Rollan Electric Co., Ill., 32c
Rye Sound Corp., N.Y., 26s
Rytron Co., Inc., Calif., 2c, 4c, 8c, 16c, 22c, 26c, 30c, 32c, 34c, 40c, 48c, 50c
SNC Mfg. Co., Inc., Wis., 4sc, 8c, 10c, 14c, 16sc, 28sc, 30c, 34c, 40c
Sadelco, Inc., N.Y., 38s
Salford Electrical Instruments, Ltd., England, 14s

Sangamo Electric Co., Springfield, Ill., 2c, 4c, 6c, 8c, 10c, 14s, 16c, 22c, 28c, 30c, 34c, 40c, 50c, Tel: 217-KIngswood 4-6411
See ad on page 142

Sartron, Inc., Ore., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 40c, 42c, 46c, 48c, 50c
Saturn Electronics Corp., Texas, 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 38c, 40c, 42c, 44c, 46c, 48c, 50c
Scaico Controls, Inc., N.J., 24c

Scanwell Laboratories, Inc., 6601 Scanwell Lane, Springfield, Va., 24c, Tel: 703-FLeetwood 4-5800
See ad in class 44

Schaevitz Engineering, N.J., 44sc
Sciaky Bros., Inc., Ill., 28c
Sealomatic Electronics Corp., N.Y., 6c, 10s, 16s, 20s, 28s, 50c

Seg Electronics Co., Inc., 12 Hinsdale St., Brooklyn 7, N.Y., 40c, Tel: 212-DI 5-6262
See ad in class 59

Servo-Tek Products Co., Inc., N.J., 44s, 50s
Servodyne Corp., Mass., 10c, 28c
Servomechanism/Inc., Calif., 2c, 6c, 8c, 14c, 18c, 20c, 26c, 28c, 30c, 40c, 44c, 50c
Siemens New York, Inc., N.Y., 10c, 14c, 28s
Sigma Electronics Research Corp., Wash., 24c
Signal Transformer Co., Inc., N.Y., 2c, 4c, 6c, 8c, 10c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 42c, 46c, 48c

Simpson Electric Co., 5218 W. Kinzie St., Chicago 44, Ill., 14sc, Tel: 312-EStebrook 9-1121
See ad in class 61

Smallwood, Ltd. (S. G.), Canada, 4, 12c, 32c, 38c
Sola Electric Co., Div. of Basic Products Corp., Ill., 2c, 6sc, 8sc, 16sc, 28sc, 50sc
Sorensen & Co., Inc., Subsid. of Raytheon Co., Conn., 50sc
Sparton Electronics, Div. of Sparton Corp., Mich., 2c, 4c, 10c, 14c, 18c, 20c, 22c, 26c, 28c, 30c, 32c, 34c, 40c, 48c, 50c
Specific Electronics, Inc., Calif., 2c, 4c, 14c, 20c, 26c, 32c

Spellman High Voltage Co., Inc., 1930 Adee Ave., New York 69, N.Y., 2c, 6c, 10sc, 16c, 30c, 32sc, 34c, Tel: 212-KIngsbridge 7-0306
See ad in class 69

Sperry Rand Corp., Sperry Gyroscope Co. (Div.), N.Y., 2c, 10c, 18c, 22c, 24c, 26c, 30c, 40c
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 24sc
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 2c, 10s, 18s, 34s, 50s
Sperry Rand Corp., Wheeler Electronic Corp. (Subsid.), Conn., 4c, 6c, 8c, 10c, 16c, 20c, 26c, 28c, 30c, 32c, 34c, 40c, 50c
Sprague Electric Co., Mass., 30sc

Stancor Electronics, Inc., 3501 W. Addison St., Chicago 18, Ill., 2sc, 4sc, 8sc, 10sc, 12sc, 16sc, 26sc, 28sc, 30sc, 32sc, 34sc, 36sc, 38s, 40sc, 42c, 46sc, 50sc, Tel: 312-INdependence 3-7400
See ad in this class

Stancor Electronics, Inc., Pa., 2sc, 4sc, 8sc, 12sc, 16sc, 26sc, 28sc, 30sc, 32sc, 34sc, 36sc, 38s, 40sc, 46sc, 50sc
Standard Electrical Products Co., Ohio, 2c, 16c, 28c, 34c, 40c, 44sc, 48c, 50sc
Standard Electronics, Div. of Dynamics Corp. of America, N.J., 4c, 6c, 8c, 10c, 16c, 28c, 30c, 40c, 44c, 50c
Standard Telephones & Cables, Ltd., England, 2sc, 8sc, 14sc, 24sc, 26sc, 28sc, 30sc, 32sc, 50sc
Standard Television Products, Ltd., Canada, 2c, 4sc, 8c, 10c, 20c, 26c, 28c, 30c, 40c, 46c, 50c
Sterling Instrument Div., Designatronics, Inc., N.Y., 18c, 20c, 22c, 26c, 30c, 32c, 40c, 42c, 44c
Sterling Transformer Corp., N.Y., 2sc, 4c, 6c, 8c, 10sc, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 34c, 40c, 42c, 46c, 48c, 50c
Summit Coil Co., N.J., 32c, 38c
SunAir Electronics, Inc., Fla., 40sc
Superex Electronics Corp., N.Y., 20s

Superior Electric Co., 100 Ames Ave., Bristol, Conn., 44s, Tel: 203-LUdlow 2-9561
See ad on pages 2-11

Sylvania Electric Products Inc., Lighting Products Div., Special Products Operations, Mass., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 24c, 26c, 28c, 34c, 40c, 42c, 44c, 46c, 48c, 50c
Syncro Corp., Ohio, 4c, 8c, 20c, 28c, 34c, 38c

Directory II. Components

84. Transformers.

Systems Research Corp., Calif., 40sc
TMC (Canada), Ltd., Canada, 8s, 28s, 32s
Technitrol, Inc., Pa., 30s
Tele Coil Co., N.J., 12c, 16c, 30c, 32c, 36c, 38c, 40c
Telecomputing Corp., Calif., 4c, 8c, 30c, 40c
Telecomputing Corp., Electronic Components Div., Calif., 2c, 6c, 30c, 34c, 40c
Telectro Industries Corp., N.Y., 8c
Telectron Co., Div. of Elliott & Evans, Inc., Fla., 36c

Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 40c, 42c, 46c, 48c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80

Telex, Inc., Ballastran Div., Ind., 2c, 4c, 6c, 8c, 10c, 20c, 22c, 26c, 28c, 30c, 34c, 40c
Ten Bosch, Inc. (M.), N.Y., 2s
Tenco Electronics, Inc., Mass., 2c, 4c, 6c, 8c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 40c, 50c
Tensor Electric Development Co., Inc., N.Y., 2c, 4c, 8c, 16c, 28c, 30c, 32c, 34c
Thompson Ramo Wooldridge Inc., Radio Industries, Inc. (Subsid.), Ill., 26c, 32c, 38c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 2c, 18c, 20c, 28c, 30c, 32c
Thordarson-Meissner, Ill., 2sc, 4sc, 6sc, 8sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20sc, 22sc, 24sc, 26sc, 28sc, 30sc, 32sc, 34sc, 36sc, 40sc, 42sc, 44sc, 46sc, 48sc, 50sc
Titan Transformer Co., Inc., Mass., 2c, 4c, 8c, 10c, 16c, 20c, 26c, 28c, 30c, 34c, 46c

Todd Electric Co., Inc., 6 Brook St., Yonkers, N.Y., 2c, 4c, 8c, 14c, 16c, 18c, 20c, 26c, 28c, 30c, 34c, 42c, 46c, Tel: 914-YOnkers 3-8850
See ad in this class

Toko Radio Coil Laboratories, Ltd., Japan, 32c
Topping Electronics, Ltd., Canada, 32c
Torocoil Co., Ill., 40c
Toroidal Components Co., Calif., 26c, 28c, 34c, 40c
Toroids Unlimited, Inc., Pa., 2c, 4c, 8c, 16c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 40c

Torotel, Inc., 5512 E. 110th St., Kansas City 34, Mo., 2sc, 4sc, 6c, 8sc, 10c, 14c, 16sc, 18c, 20c, 22c, 26sc, 28c, 34c, 40sc, 48c, 50c, Tel: 816-SOuth 1-6314
See ad in class 51

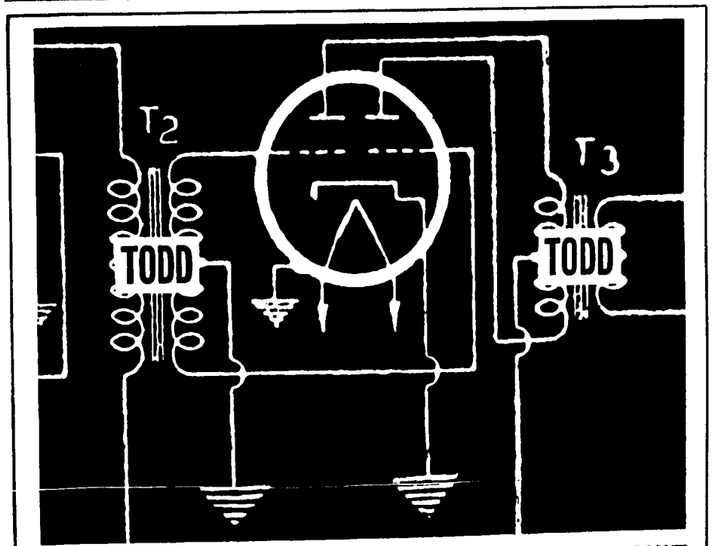
Torotor A/S, N.Y., 32sc

Torotron Corp., Dept. D, 256 E. Third St., Mount Vernon, N.Y., 2c, 4c, 8c, 14c, 16c, 26c, 32c, 34c, 40s, 42c, Tel: 914-MOunt Vernon 8-6900
See ad in class 51

Torwico Electronics, Inc., N.J., 2c, 4c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 34c, 40c
Touch-Plate Mfg. Corp., Calif., 28s
Tracerlab Keleket, Mass., 10sc
Transformer Design, Inc. of Milwaukee, Wis., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 34c, 38c, 40c, 42c, 46c, 48c
Transformer-Electronics Co., Colo., 2c, 4c, 6c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 34c, 40c, 44c, 48c, 50c
Transformer Engineers, Calif., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 26c, 28c, 30c, 34c, 40c, 46c, 48c, 50c
Transformer Manufacturers, Inc., Ill., 4c, 6c, 8c, 10c, 14c, 16c, 20c, 22c, 26c, 28c, 34c, 46c, 48c, 50c
Transformer Specialty Co., Pa., 2c, 4c, 8c, 10c, 16c, 28c, 34c
Transformer Technicians, Inc., Ill., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 40c, 46c, 48c, 50c
Transformers, Inc., N.Y., 2c, 4c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 40c, 42c, 46c, 48c
Translite Electronics Corp., Ill., 36c
Transonic, Inc., Calif., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 32c, 34c, 38c, 40c, 42c, 46c, 48c, 50c
Transval Electronics Corp., Calif., 2c, 4c, 8c, 10c, 14c, 16c, 20c, 26c, 30c, 40c
Trenton Transformer Corp., N.J., 6c, 10c, 16c, 28c
Tresco, Inc., Pa., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 38c, 40c, 42c, 44c, 46c, 48c, 50c
Tronic Coil Winding Co., Inc., Conn., 2c, 4c, 10c, 16c, 28c, 32c, 34c, 40c, 42c, 46c, 48c, 50c
Turbo Machine Co., Pa., 24sc
Union Electric & Mfg. Co., N.J., 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 30c, 34c, 40c, 42c, 46c, 48c, 50c
United Control Corp., Wash., 16c, 40c
United Shoe Machinery Co., Mass., 24c
U.S. Electronics Corp., N.J., 4c, 16c, 20c, 28c, 32c, 42c, 46c
U.S. Science Corp., Calif., 18c, 40c, 44c
U.S. Sonics Corp., Mass., 32sc, 42c

United Transformer Corp., 150 Varick St., New York 13, N.Y., 2sc, 4sc, 6c, 8sc, 10sc, 14sc, 16sc, 18sc, 20sc, 22c, 24c, 26sc, 28sc, 30sc, 34sc, 40sc, 42c, 44sc, 46c, 48c, 50sc, Tel: 212-ALgonquin 5-3500
See ad on Cover 2

Universal Toroid Coil Winding, Inc., N.J., 2c, 6sc, 22c, 28sc, 30sc, 34sc, 40sc, 44 Differential c, 48c
Universal Transformer Co., Texas, 2c, 4sc, 8c, 10sc, 14c, 16c, 20c, 26c, 28c
Utah Radio Products Corp., Ind., 4s



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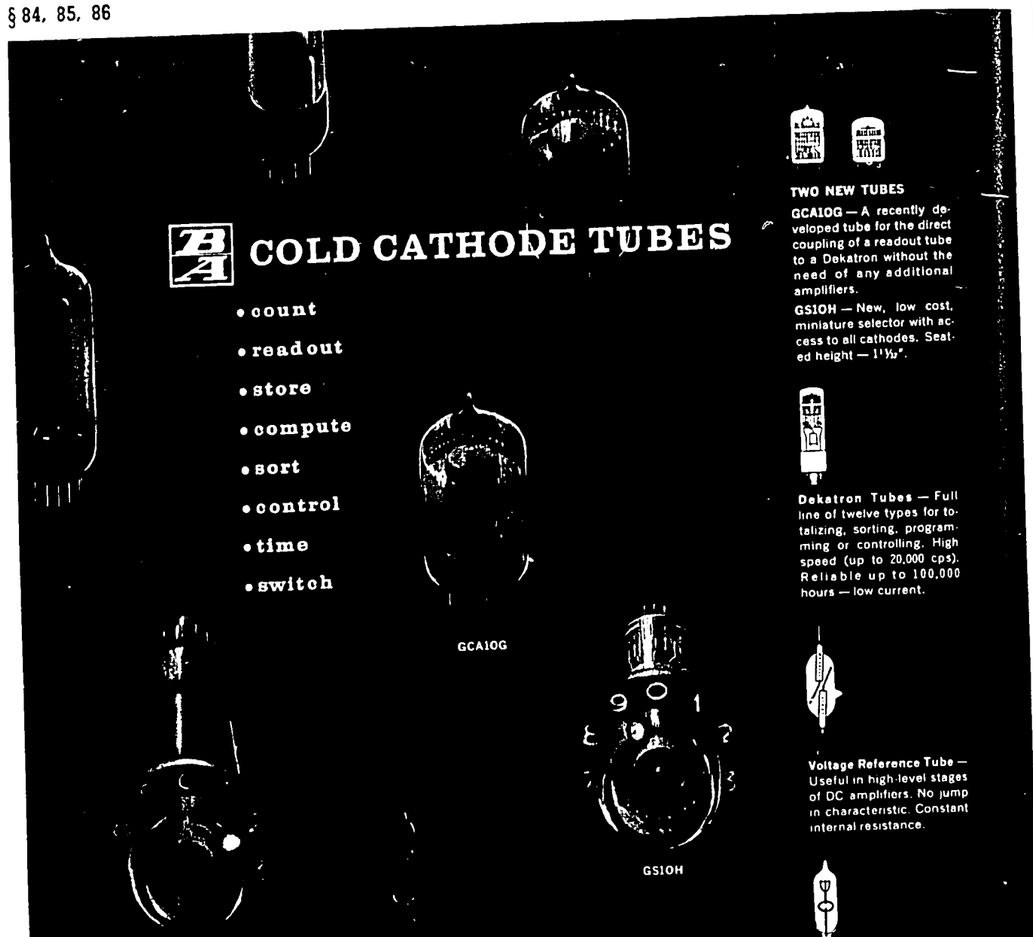
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.



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Directory II. Components

84. Transformers.

Valor Instruments, Inc., Calif., 2c, 8s, 10c, 16c, 20s, 26s, 28c, 30s, 32s, 34c, 40s
Vanguard Electronics Co., Calif., 8c, 26c, 32sc, 40c
Vap-Air Div., Vapor Corp., Ill., 2c, 50c
Varo, Inc., Texas, 2c, 4c, 6c, 8c, 10c, 14c, 16c, 18c, 20c, 22c, 26c, 28c, 34c, 40c, 44c, 48c, 50c
Vibration Research Laboratories, Inc., N.Y., 2c, 8c, 10c, 28c, 34c, 46c, 50c
Virginia Electronics Co., Inc., D.C., 2c, 4c, 8c, 10c, 14c, 18c, 20c, 26c, 28c, 30c, 32c, 40c, 42c, 48c
Vitro Electronics, Div. of Vitro Corp. of America, Md., 4c, 16c, 28c, 30c, 32sc, 34c, 40c, 48c
WacLine, Inc., Ohio, 14sc
Warren Mfg. Co., Inc., Mass., 2c, 4c, 16c, 18c, 20c, 28c
Wells Electronics Co., Ind., 22sc, 26sc, 32sc, 42c
Western Design & Electronics, Div. of U.S. Industries, Inc., Calif., 16c, 28c, 30c
Westinghouse Electric Corp., Small Motor Div. of Aircraft Equipment Dept., Ohio, 2c, 14c, 48c, 50c
Westinghouse Electric Corp., Specialty Transformer Dept., Pa., 2c, 28sc, 30c, 34sc, 40c
Wickes Engineering & Construction Co., N.J., 2c, 4c, 6c, 8c, 16c, 18c, 20c, 28c, 34c, 48c, 50c
Wiegand Mfg. Co., N.Y., 32c
Wilcox Electric Co., Inc., Mo., 2sc, 4c, 8c, 10c, 14c, 16c, 26c, 30sc, 32sc, 34c, 40sc, 48c
Wirco Electronics, Inc., Calif., 32c
Woodward-Schumacher Electric Corp., Ill., 2c, 4c, 16c, 20c, 26c, 28c, 36c, 38c, 46c

Transistor clips:
See class 78

Transistor parts:
See class 105

Transistor testers:
See class 41

Transistors:
See class 76

Transmitters:
See class 42

Transmitting tubes:
See class 86

Traveling-wave tubes:
See class 86

Trimmers:
See class 49

Tube parts:
See class 105

Tube testers:
See class 41

Tubes, microwave:
See class 86

Tubes, receiving:
See class 85

Tubes, special purpose:
See class 86

Tubes, transmitting:
See class 86

85. Tubes, Entertainment-Type.

5. Glass
10. Metal
15. Miniature
20. Subminiature
25. TV picture, color
30. TV picture, monochrome

American Elite, Inc. (Telefunken), N.Y., 5s, 15s, 20s
American Radio Co., Inc., N.Y., 15s, 20s
Amperex Electronic Corp., N.Y., 5s, 15s
Autometric Corp., N.Y., 25c
Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 20s, Tel: 617-UNiversity 2-7420
See ad in class 86
Bendix Corp., Red Bank Div., Electron Tube Products, Hwy. #35, Eatontown, N.J., 5sc, 15sc, 20s, Tel: 201-LIberty 2-2000
See ad on pages 48-49
British Industries Corp., N.Y., 5s
CBS Electronics, Div. of Columbia Broadcasting System, Inc., Mass., 5s, 15s (See Raytheon Co.)
Calvideo Electronics, Inc., Calif., 5s, 10s, 30s
Canadian Marconi Co., Canada, 5s, 10s, 15s, 30s
Canadian Westinghouse Co., Ltd., Canada, 5s, 10s, 15s, 20s, 30s
Condor Electronics, Inc., Calif., 20sc
Continental Electronics Corp., Calif., 30sc
Electronica Industrial S.A., Brazil, 30sc
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5s, 15c
General Electric Co., Cathode Ray Tube Dept., N.Y., 30s
Griffiths Electronics, Inc., N.J., 20sc
Hitachi New York, Ltd., N.Y., 5c, 25c, 30c
International Electronics Corp., N.Y., 5s, 15s, 20s
Kaiser Aircraft & Electronics, Div. of Kaiser Industries Corp., Calif., 30c
Kimble Glass Co., Subsid. of Owens Illinois, Ohio, 5s
Kriss Electronics, Inc., N.J., 5s, 10s, 25c, 30s
Le-Hi Electrical Co., N.J., 5s, 10s, 15s, 20s
MacKay Research Labs., Ariz., 5c
Minicord Corp. of America, N.J., 5s, 10s, 20s

85. Tubes, Entertainment-Type.

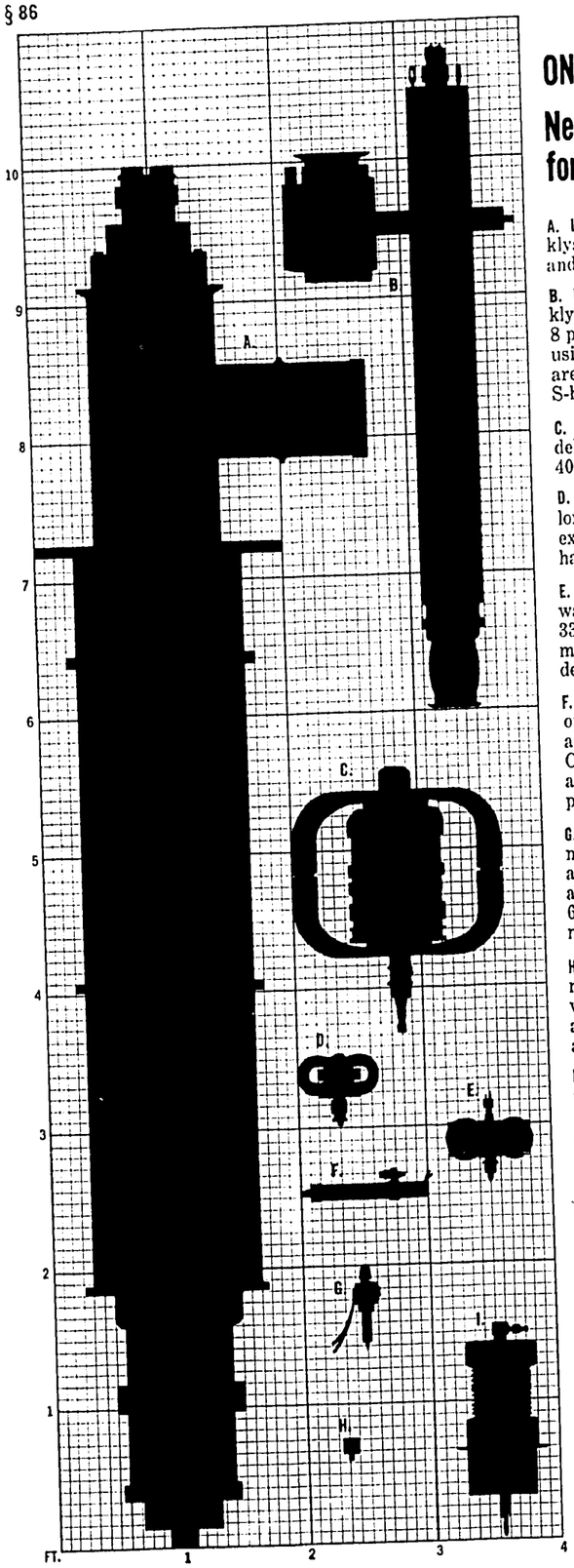
National Television Tube, Inc., N.J., 5c, 10c, 30c
National Video Corp., Ill., 25c, 30s
Nippon Electric Co., Ltd., Japan, 5s, 15s, 20s, 30s
Norrich Plastics Corp., N.Y., 10c, 15c, 20c
Nucleonic Products Co., Inc., Calif., 5s
Owens-Illinois Glass Co., Ohio, 5sc
Philadelphia Scientific Glass Co., Pa., 5s
Philco Corp., Pa., 5s, 15s, 30s
Philco Corp., Lansdale Div., Pa., 5s, 15s, 20s, 30s
Philips Electronics Industries, Ltd., Canada, 5s, 10s, 15s, 20s, 30s
Pioneer Electronics Corp., Calif., 30sc
Polaris Engineering Corp., Ill., 5sc, 10sc, 15sc, 25sc, 30sc
RCA Victor Co., Ltd., Canada, 5s, 10s, 15s, 20s, 25s, 30s
Radio Corp. of America, Defense Electronic Products, N.J., 5s, 10s, 15s, 20s, 25s, 30s
Radio Corp. of America, RCA Electron Tube Div., N.J., 5s, 10s, 15s, 20s, 25s, 30s
Rauland Corp., Ill., 30sc
Raytheon Co., Industrial Components Div., Mass., 5sc, 15sc, 20sc
Rye Sound Corp., N.Y., 20s
Sonotone Corp., N.Y., 5c, 15c, 20c
Standard Television Tube Corp., Pa., 25s, 30s
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 5s, 10s, 15s, 20s, 25s, 30s
Sylvania Electric Products Inc., Electronic Tubes Div., N.Y., 5s, 10s, 15s, 20s, 30s
Tokyo Shibaura Electric Co., Ltd., Japan, 5s, 10s, 15s, 20s, 25s, 30s
Tung-Sol Electric, Inc., 1 Summer Ave., Newark 4, N.J., 5s, 15s, 20s, 30s, Tel: 201-HUmboldt 4-8500
See ad on pages 62-63
Westinghouse Electric Corp., Electron Tube Div., N.Y., 5sc, 15sc, 30
White Mountain Electronics, Inc., 30sc

86. Tubes, Industrial-Type.

2. ATR & TR
4. Backward-wave
6. Cathode-ray
8. Ceramic
10. Counter
12. Electrometer
14. Electron-multiplier
16. Geiger-Mueller
18. Glass
20. Ignitrons
22. Image
24. Image-orthicons
26. Klystrons
28. Magnetrons
30. Miniature
32. Metal
34. Monoscopes
36. Multiplier phototubes
38. Noise-source
40. Phototubes
42. Power, large
44. Power, medium
46. Power, small
48. Storage
50. Subminiature
52. Thyratrons
54. Traveling-wave
56. Trigger
58. Vidicons
60. Voltage regulators & ballasts
62. X-Ray

Aerolux Light Corp., N.Y., 56c
American Elite, Inc. (Telefunken), N.Y., 6s, 12s, 26s, 30s, 50s, 52s, 54s, 60s
American Feldmuehle Corp., N.Y., 8c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.



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C. L-3455 HIGH POWER MAGNETRON: A new magnetron delivering a minimum of 2 megawatts peak power at 406-450 mc. with a .002 duty cycle.

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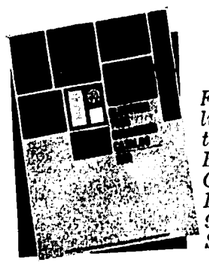
E. L-3629 FLOATING DRIFT TUBE KLYSTRON: High power, water-cooled klystron oscillator fixed tuned at 33,000-37,000 mc. Power output: 15 watts CW minimum. Other tubes available for immediate delivery from 12-4 mm. wavelength.

F. L-3472 TWT: PPM focused traveling wave tube offers higher CW power — 10 watts minimum — and wider bandwidth in a compact 3-lb. size. Operates in the range of 7,000-11,000 mc. One of a line of TWT's including a 1000-watt X-band pulse tube.

G. MICROTRON: The L-3189, one-kilowatt CW magnetron, is accompanied in package form by an electromagnet and filter assembly, high voltage and filament and isolation transformers. Only 6-second warm-up. Two year warranty for domestic microwave cooking.

H. L-3430 CUBE MINIATURE MAGNETRON: A one-kilowatt miniature magnetron, fixed tuned at 9300 ± 30 mc. weighing less than 9 ounces and no bigger than a normal X-band waveguide flange. Developments at other power levels and frequencies are planned.

I. L-3408 SWITCH TUBE: Provides switching at relatively low control voltage levels with an efficiency of 95 percent. Features high voltage holdoff, high current handling. Collector ratings: 150 Kv; 20 Amps; 10 KW dissipation.



For information on our tube line, exclusive of classified types, send for the 1961 Electron Tube Condensed Catalog. Write to: Marketing Dept., Electron Tube Division, 960 Industrial Road, San Carlos, California

LITTON INDUSTRIES
Electron Tube Division
MICROWAVE TUBES AND DISPLAY DEVICES

For details, circle #571 on Reader Service Card

Directory II. Components

86. Tubes, Industrial-Type.

American Radio Co., Inc., N.Y., 4s, 50s, 54s

Amglo Corp., 4337 N. Ravenswood Ave., Chicago 13, Ill., 56s, Stroboscopic sc, Tel: 312-BUckingham 1-2727
See ads in classes 67, 86

Amperex Electronic Corp., N.Y., 8s, 10s, 14s, 16s, 18s, 20s, 26s, 28s, 30s, 32s, 36s, 40s, 42s, 44s, 46s, 50s, 52s, 54s, 56s, 60s, 62s

Amperite Co., Inc., 561 Broadway, New York 12, N.Y., 60c, Tel: 212-CAnal 6-1446
See ad in class 73

Ajax Electronics, Inc., N.J., 6c

Avcop, Div. of Electro-Mechanical Research, Inc., N.J., 14sc, 30sc, 40sc

Associated Electrical Industries (Rugby), Ltd., England, 2s, 20s, 26s, 28s, 40s, 52s

Atomic Accessories, Inc., Subsid. of Baird-Atomic, Inc., 817 W. Merrick Rd., Valley Stream, L.I., N.Y., 16s, Tel: 516-CUrtiss 5-9300
See ad in class 22

Automatic Corp., N.Y., 6 Color c, 48 Color c

Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 6s, 10s, 16s, 56s, 60s, Tel: 617-UNiversity 4-7420
See ad in this class, page 638

Barwood Electronics, Inc., Calif., 60c

Bendix Corp., Red Bank Div., Electron Tube Products, Hwy. # 35, Eatontown, N.J., 4sc, 8sc, 16c, 18s, 26sc, 30sc, 32sc, 38sc, 44sc, 46sc, 50sc, 52sc, 54sc, 56sc, 60s, Tel: 201-LIberty 2-2000
See ad on pages 48-49

Bomac Laboratories, Inc., Mass., 2sc, 4sc, 26sc, 28sc, 38sc, 54sc

Bram Metallurgical-Chemical Co., Pa., 32sc

Burroughs Corp., Electro Data Div., Calif., 10s

Burroughs Corp., Electronic Components Div., N.J., 10s, 38s

CBS Electronics, Div. of Columbia Broadcasting System, Inc., Mass., 6s, 18s, 30s, 36s, 46s, 50s, 56s, 60s (See Raytheon Co.)

CBS Laboratories, Div. of Columbia Broadcasting System, Inc., Conn., 36s

Calvidyne Electronics, Inc., Calif., 6s

Canadian Marconi Co., Canada, 2c, 26sc, 28sc, 54sc

Canadian Westinghouse Co., Ltd., Canada, 2s, 18s, 20s, 24s, 30s, 32s, 42s, 44s, 46s, 52s, 58s, 60s

Cathodeon, Ltd., Meadowcroft Laboratories, England, 24s, 34sc, 48sc, 58sc

Cerberus AG, Werk fur Elektronentechnik, Switzerland, 10s, 12s, 18s, 30s, 50s, 52s, 56s, 60s

Cetron Electronic Corp., Ill., 2s, 6s, 40s, 42s, 44s, 46s, 52s

Comet, Ltd., Switzerland, 62sc

Condor Electronics, Inc., Calif., 8sc, 30sc

Connell & Co., Calif., 60sc

Continental Electronics Corp., Calif., 9sc, 34sc

Coors Porcelain Co., Colo., 8sc

Corning Glass Works, Corning Electronic Components Div., 750 High St., Bradford, Pa., 18sc, Tel: 814-FOrest 2-5571
See ads in classes 48, 49, 74

DKE Electronic Bases, Inc., N.J., 6c, 32c, 42c, 44c, 46c, 62c

DeRyder Engineering (Herbert), N.J., 6c

Diamond Electronics, Div. of Diamond Power Specialty Corp., Ohio, 22sc, 58sc

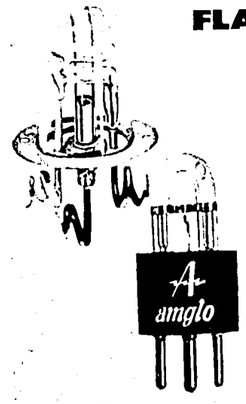
Dimensions, Inc., N.Y., 48c

Dy-Co Ceramics Co., Pa., 8c

DuMont Div., Fairchild Camera & Instrument Corp., N.J., 6c, 36c, 48c

Dunlee Corp., Ill., 62sc

Uniform for Life
amglo
FLASHTUBES



—remain unchangingly uniform throughout their long service life. These scientifically developed and precision built gaseous conduction tubes are products of more than a quarter century of Amglo research and development — many are original Amglo. Available in wide variety, including reflective base, self-ionizing, grid controlled flashtubes, stroboscopic and special service tubes and signal lights. These and many other special tubes are covered in the Amglo Catalog.

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AMGLO CORPORATION
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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-276.

Machlett Electron Tubes for

Broadcasting, Communications & Navigation Industry, Radar & Special Purpose

- a partial listing -

MEDIUM & HIGH POWER TRIODES

TYPE	CATHODE VOLTS	CATHODE AMPS	MU	MAXIMUM ANODE RATING VOLTS	ANODE AMPS	INPUT WATTS	DISS. WATTS	FULL INPUT FREQ. MCS.	COOLING
ML-354	12.0	220	25	15000	12	150000	75000	20	W
ML-356	7.5	170	20	12500	6.0	60000	22500	25	W
ML-880	12.6	315	20	10500	6.0	60000	20000	25	W
ML-892	22.0	60	50	15000	2.0	30000	10000	1.6	W
ML-892R	22.0	60	50	12500	2.0	18000	4000	1.6	F-A
ML-5530	5.0	55	26	5000	1.75	8750	4000	110	F-A
ML-5530-H	5.0	55	26	8500	1.75	10000	4000	30	F-A
ML-5531	6.3	92	24	10500	3.75	30000	10000	30	F-A
ML-5541	7.5	57	26	8500	2.75	23000	10000	110	F-A
ML-5604	11.0	176	20	12500	3.0	32500	10000	25	F-A
ML-5606	22.0	60	50	14000	2.0	25000	10000	1.6	W
ML-5658	12.0	310	20	12500	5.0	60000	20000	15	W
ML-5667	11.0	120	21	10000	2.0	20000	7500	22.5	F-A
ML-5668	22.0	60	50	14000	2.0	28000	20000	5	W
ML-5669	22.0	60	50	14000	2.0	28000	10000	5	F-A
ML-5681	12.0	220	25	15000	12.0	150000	75000	30	W
ML-5682	16.5	325	30	16000	20.0	300000	120000	30	W
ML-5736	6.0	60	22	5000	1.4	5000	2500	60	F-A
ML-6256	12.6	29	20	5500	1.5	7000	5000	110	W
ML-6257	12.6	29	20	5500	1.5	7000	5000	110	W
ML-6258	12.6	29	20	5500	1.5	7000	3000	110	F-A
ML-6420	7.0	85	20	10000	2.2	20000	12500	30	W
ML-6421	7.0	85	20	10000	2.2	20000	10000	30	F-A
ML-6422	7.0	85	90	12500	2.5	30000	20000	30	W
ML-6423	7.0	85	90	12500	2.5	30000	12500	30	F-A
ML-6424	7.0	120	20	12500	3.5	40000	20000	30	W
ML-6425	7.0	120	20	12500	3.5	40000	12500	30	F-A
ML-6426	8.0	200	20	12500	8.0	80000	40000	30	W
ML-6427	8.0	200	20	12500	8.0	80000	20000	30	F-A
ML-6576	7.5	170	5.5	12000	5.0	45000	22500	25	W
ML-6623	6.0	60	22	5000	1.4	5000	2500	30	F-A
ML-6696	13.0	205	20	16000	11	120000	60000	30	W
ML-6697	13.0	205	20	16000	11	120000	35000	30	F-A
ML-7120	7.0	85	4.4	10000	2.2	20000	12500	30	W
ML-7124	8.0	200	4.7	12500	8.0	80000	40000	30	W
ML-7479	8.0	200	20	12500	8.0	90000	50000	30	V
ML-7482	16.5	450	45	20000	30.0	600000	200000	30	V
ML-7560	16.5	450	45	20000	30.0	600000	175000	30	W

MEDIUM POWER TETRODE

ML-7007	5.0	180	10	7500	4	24000	12000	220	F-A

UHF TRIODES

ML-2C39A	6.3	1.0	100	1000	0.100	100	100	2500	F-A
ML-2C39WA	6.0	1.0	100	1000	0.100	100	100	2500	F-A
ML-3CPN10A5	6.0	1.0	100	3500†	3.0†	26	10	3000	C
ML-3CX100A5	6.0	1.0	100	1000	0.100	100	100	2500	F-A
ML-6442	6.3	0.9	50	3000†	2.5†	7.5	8	5000	C
ML-6771	6.3	0.57	90	300	0.025	90	6.25	4000	C
ML-7209	6.0	1.0	100	3500*	3.0*	35	35	3000	F-A
ML-7210	6.3	0.85	75	3500†	2.8†	25	25	3000	F-A
ML-7211	6.3	1.3	80	1000	0.150	150	100	2500	F-A
ML-7289	6.0	1.0	100	1000	0.100	100	100	2500	F-A
ML-7698	6.3	1.3	80	3500*	5.0*	58	10	3000	C
ML-7855	6.0	1.0	80	1000	0.100	100	100	2500	F-A

TELEVISION CAMERA TUBES

TYPE	PHOTOCATHODE SIZE DIAGONAL	DEFLECTION METHOD	SPECTRAL RESPONSE	SIGNAL OUTPUT	TARGET	GRID VOLTAGE G_1	G_2	G_3	G_4	G_5
5820 Image ORTHICON	1.8"	magnetic	S-10	3-24μa		−24 to −110	300	250 to 330	140 to 180	0 to 125
ML-7038A VIDICON	.63"	magnetic	S-18	.1-.3μa (2-14 ft-C)	50-110	−125	350	350	350	—
ML-7351 High Sensitivity VIDICON	.63"	magnetic	peak at 6000A°	.1-.32μa (.1-1.0 ft-C)	40	−125	350	350	350	—
ML-S-5228	.63"	magnetic	U-V	.1-.3μa (.4μa/μw peak sens)	10-50	−125	350	350	350	—

HARD PULSE MODULATOR TUBES

	CATHODE VOLTS	CATHODE AMPS	MAXIMUM RATINGS MU	VOLTAGE CURRENT Peak-kv	Pulse-amps	PLATE Diss-kw	COOLING
ML-8038	13.0	205	125	125	175	6	L
ML-6544	6.0	60	90	25	75	1	F-A
ML-7248	6.3	11.7	—	125	2.0	0.2	R-C
ML-7333	6.0	16	175	25	18	0.06	R-C
ML-7335	5.5	65	125	20	75	5	F-A
ML-7560	16.5	450	45	55	550	175	W
ML-7668	12.6	29	—	150	15	0.75	R-C
ML-7715	6.0	60	400	70	90	3	F-A

HIGH VACUUM RECTIFIER and/or CLIPPER DIODES

TYPE	CATHODE VOLTS	CATHODE AMPS	ANODE RATINGS INV. PKV	PEAK MA	INSULATION	COOLING
ML-102A	20	19.0	75	750	Air	C
ML-141	5.5	6.5	125	750	Oil	R-C
ML-142	3.8	6.6	100	300	Oil	R-C
ML-148	5.7	6.6	150	1000	Oil	R-C
ML-199	12	23	110	10000	Air	C
ML-322	6.3	.95	.8	600	Air	C
ML-5575/100	20	24	150	1000	Air	C
ML-5576/200	20	32	150	2500	Air	C
ML-6908	12	23	150	10000	Oil	R-C

STORAGE TUBES

	DIAMETER:	LENGTH:	DEFLECTION METHOD (Write Gun)	(Read Gun)	FOCUSING METHODS (Write and Read Gun)
TMA-403X (Scan Converter)	3.0"	26.6"	Magnetic	Electrostatic	Electrostatic
ML-6577 (Storage Display Tube)	5.0"	30.25"	Electrostatic		Electrostatic

LEGEND:

R-C . . . Radiation and Convection
W . . . Water
F-A . . . Forced Air
C . . . Convection
L . . . Liquid
V . . . Vapor
‡ . . . D-C Cathode Current
* . . . Duty Cycle: 0.0033
† . . . Duty Cycle: 0.0025 max
§ . . . Hold-Off Voltage

MACHLETT

THE MACHLETT LABORATORIES INC.
Subsidiary of Raytheon Co.
SPRINGDALE, CONNECTICUT

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Directory II. Components

86. Tubes, Industrial-Type.

E.M.I.-Cossor Electronics, Ltd., Canada, 14sc, 16sc, 26s, 28s, 36s, 48s, 52s, 58s
EMI/U.S., Ltd., Calif., 6sc, 14sc, 16sc, 18sc, 22sc, 24sc, 26sc, 28sc, 30sc, 32sc, 36sc, 40sc, 48sc, 54sc, 58sc, 60sc
Edgerton, Germeshausen & Grier, Inc., Mass., 6sc, 52sc, 54c
Ehrenpreis Engineers (David), N.Y., 54c
Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 8s, 18s, 20s, 26sc, 28sc, 42sc, 44sc, 46sc, 52s, 54sc, Tel: 415-LYtell 1-1451
See ad on pages 29-32
Eitel-McCullough, Inc., National Electronics, Inc. (Subsid.), Ill., 20s, 52s
Electro-Ceramics, Inc., Utah, 8c
Electro-Mechanical Research, Inc., Fla., 36sc, 40s
Electron-Radar Products, Ill., 40sc
Electronic Enterprises, Inc., N.J., 44sc, 46sc, 52sc, 60sc
Electronic Products Co., Div. of Victoreen Instrument Co., N.Y., 10s, 16s, 60s
Electronic Tube Corp., Pa., 6sc, 18sc, 48c, 54sc
Electronica Industrial S.A., Brazil, 6c
Electrons, Inc., N.J., 52s

ETC electronic tube corporation
Cathode Ray Equipment

Cathode Ray Tubes, Industrial and Military Single and Multi-Gun.

Magnetic, electrostatic, high-resolution, large screen — bright display types; metal to glass, fiber optics face plates; flying spot scanners.

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SYRACUSE .....GRanite 4-7409
PHILADELPHIA .....SHerwood 7-9080
WASHINGTON .....OLiver 4-6400
BALTIMORE .....ENterprise 9-6400
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Elliott-Automation, Ltd., England, 2sc, 4sc, 26sc, 28sc, 38sc, 52sc, 54sc, 62sc
Elliott-Litton, Ltd., England, 14 Monitor c, 26sc, 28sc, 38sc, 54sc
English Electric Valve Co., Ltd., England, 4s, 6s, 8s, 18s, 20s, 24s, 26s, 28s, 42s, 44s, 46s, 48s, 52s, 54s, 56s, 58s, 60s
Ericsson Corp., Subsid. of L. M. Ericsson Telephone Co. (Stockholm), 100 Park Ave., New York 17, N.Y., Telephone-repeater s, 30s, Tel: 212-MUrray Hill 5-4030
See ad in class 86
Etelco, Ltd., England, 10s, 30s, 40s, 48s, 50s, 56s, 60s
Eureka X-Ray Tube Corp., Ill., 62s
Ferranti Electric, Inc., N.Y., 6c, 26c, 28c, 48c
Field Emission Corp., Ore., 62sc
Frenchtown Porcelain Co., N.J., 8c
Geisler Laboratories, Calif., 4c, 26sc, 54c
General Dynamics/Electronics, N.Y., 6c
General Dynamics/Electronics, Information Technology Div., Calif., 6 Shaped-beam sc
General Electric Co., Cathode Ray Tube Dept., N.Y., 6sc, 24sc
General Electric Co., Power Tube Dept., N.Y., 20s, 26sc, 28 Voltage-tunable sc, 32s, 42s, 52 Hydrogen sc, 54sc
General Electric Co., Receiving Tube Dept., Ky., 8c, 18c, 30c, 32c, 50c, 52c
General Electric Co., X-Ray Dept., Wis., 62s
General Electrodynamics Corp., Texas, 6c, 22sc, 36c, 40c, 48sc, 58sc
Griffiths Electronics, Inc., N.J., 10c, 38sc, 50sc, 52sc, 56sc
Harshaw Chemical Co., Crystal Div., Ohio, 14c, 36c
Hitachi New York, Ltd., N.Y., 6c, 8c, 14c, 26c, 52c, 58c, 62c
Huggins Laboratories, Inc., Calif., 4sc, 54sc
Hughes Aircraft Co., Microwave Tube Div., Calif., 4sc, 42sc, 44sc, 46sc, 54sc
Hughes Aircraft Co., Vacuum Tube Products Div., Calif., 48sc
Image Instruments, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., Storage-Display Devices sc, Tel: 617-WOodward 9-8440
See ads in classes 9, 10, 21, 86
Infrared Industries, Inc., West Coast Div., Calif., 40sc
Instrument Corp. of Florida, Fla., 36c
Intercontinental Electronics Corp., N.Y., 48s

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Provides independent scanning of both input and output of storage tube. Also gives instantaneous recording and continuous readout as well as continuous and variable, or instantaneous erasure. Readout may be with scans completely different from those used in recording. "Reads" and "Writes" simultaneously. No film, no tape, no processing required.

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TUBES

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7150
Amplifier Tetrode

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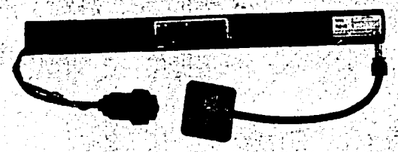
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

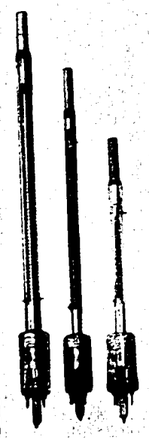


STEWART

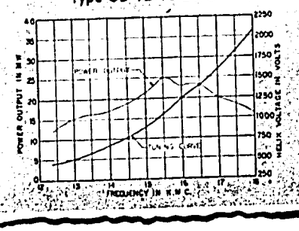
Backward Wave Oscillators

Stewart BWOs offer more uniform power output vs. frequency characteristics and electronic tunability over a greater bandwidth than conventional tube designs. Each Stewart BWO is guaranteed for a minimum of 500 operating hours.

Standard types are listed below; in addition, Stewart engineers will produce, in either experimental or production quantities, oscillators covering partial or octave bandwidths. Inquiries are invited on permanent-magnet-focused tubes and traveling wave amplifiers.



Performance Curves
Type OD 12-18 BWO



TYPE #	FREQ. RANGE* Gc	POWER** Min-Max, mw
OD 1-2	1-2	50-200
OD 1-2.6	1-2.6	50-200
OD 2-4	2-4	30-120
OD 3.7-5.9	3.7-5.9	30-45
OD 4-8	4-8	10-70
OD 5.2-8.3	5.2-8.3	10-40
OD 6-11	7-11	10-40
OD 6-12	6-12	10-30
OD 7-13	8.2-12.4	10-15
OD 10-15	10-15.5	10-20
OD 12-18	12.4-18	10-25
OD 15-22	15-22	10-20
OD 18-27	18-27	10-20
OD 26-40	26.5-40	5-20

*Other bands also avail. **Higher min. power on special order

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- cleaner operation
- faster heating and cooling
- lower operating cost
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- air or controlled atmosphere, with single or mixed gases
- accurate pyrometer control of temperature
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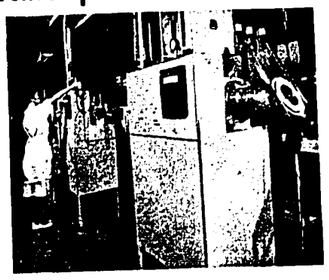
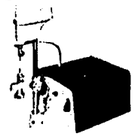


STEWART
Precision Resistance
WELDERS



- complete package unit; built-in electronic timer
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- flexible cable foot control, operable from any location
- universal electrode mount; instantly adjustable
- fully adjustable weld pressures

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STEWART
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86. Tubes, Industrial-Type.

International Electronics Corp., N.Y., 6c, 10s, 12s, 16s, 26c, 28s, 30s, 30c, 40s, 42c, 44c, 46c, 50s, 52c, 54c, 56c, 60s
International Telephone & Telegraph Corp., ITT Components Div., Electron Tube Dept., N.J., 4sc, 8sc, 22sc, 36sc, 40sc, 42sc, 44sc, 46sc, 48sc, 52sc, 54s
International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 36c, 54c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 6s, 14s, 22 Electro-Optical s, 36s, 40s, 48 Electro-Optical s
Isolantite Mfg. Corp., 337 Warren Ave., Stirling, N.J., 8sc, Tel: 201-CRestview 7-3737
See ad in class 92
Itek Laboratories, Div. of Itek Corp., Mass., 6c
Jet Electronics Corp., Calif., 6sc, 34c
Johnson & Associates, Inc. (Wm. B.), N.J., 10sc, 16sc
Kahl Scientific Instrument Corp., Calif., 16s
Kaiser Aircraft & Electronics, Div. of Kaiser Industries Corp., Calif., 6c
Kane Engineering Laboratories, Calif., 26c
Keith Co. (W. P.), Calif., 8sc
Kemlite Laboratories, Inc., Ill., Flash sc
Kimble Glass Co., Subsid. of Owens-Illinois, Ohio, 6s
Landis & Gyr, Inc., N.Y., 10s

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Directory II. Components

86. Tubes, Industrial-Type.

Le-Hi Electrical Co., N.J., 30s, 32s, 46s, 50s
Leighton Laboratories (H. W.), Pa., 10c, 16c
Lewis & Kaufman Electronics Corp., Tube Div., Calif., 4c, 18s, 26c, 44s, 46s, 54c
Ling Temco Vought, Inc., Texas, 42c, 44s, 52c, 56c
Ling Temco Vought, Inc., United Electronics Co. (Subsid.), N.J., 42c, 44s, 52c, 56c
Lionel Corp., N.J., 2c, 10c, 14c, 16c, 40c
Lionel Corp., Lionel Electronic Laboratories (formerly Anton Electronic Laboratories), Dept. X-2, 1226 Flushing Ave., Brooklyn 37, N.Y., 16sc, 60sc, Tel: 212-EVergreen 6-5715
See ad in class 52
Litton Engineering Laboratories, P.O. Box 949, Grass Valley, Calif., 8c, 42c, Tel: 916-273-6176
See ad in class 99
Litton Industries, Inc., Electron Tube Div., 960 Industrial Rd., San Carlos, Calif., 2sc, 4sc, 6 Fiber-Optic sc, 8sc, 14sc, 18sc, 20sc, 26sc, 28sc, 30sc, 38sc, 42sc, 44sc, 46sc, 54 Millimeter sc, Countermeasure sc, Forward-Wave sc, Tel: 415-LYtell 1-8411
See ad in this class
Louthan Plant, Refractories Div., Ferro Corp., Ohio, 8c
Machlett Laboratories, Inc., Subsid. of Raytheon Co., 1063 Hope St., Springdale, Conn., 8s, 18s, 24s, 42s, 44s, 46s, 48sc, 58s, 62s, Tel: 203-FIreside 8-7511
See ad in this class
MacKay Research Laboratories, Ariz., 6c, 28c, 36c, 40c, 52c
Marconi's Wireless Telegraph Co., Ltd., N.Y., 20s, 24s, 26s, 28s, 30s, 42s, 44s, 46s, 52s, 54s, 58s
Metcom, Inc., P.O. Box 272, Salem, Mass., 2sc, 26sc, 28sc, Tel: 617-PIoneer 4-8400
See ads on page 177 & in this class
Microwave Associates, Inc., South Ave., Burlington, Mass., 2s, 4s, 28s, 54s, Tel: 617-BRowning 2-3000
See ad on page 178
Microwave Electronics Corp., Calif., 4sc, 14c, 44sc, 46sc, 54sc
Mitchell Radiation Products Corp., Pa., 62s
Mosaic Fabrications, Inc., Mass., 6c, 22c
National Beryllia Corp., First & Haskell Aves., Haskell, N.J., 8c, Tel: 201-TEmple 9-1600
See ad in class 92
National Ceramic Co., N.J., 8c
National Union Electric Corp., Electronics Div., Ill., 6sc, 30sc, 34c, 46sc, 60sc
National Video Corp., Ill., 6c
Nippon Electric Co., Ltd., Japan, 6s, 22s, 24s, 26s, 28s, 30s, 32s, 34s, 36s, 38s, 40s, 42s, 44s, 46s, 48s, 50s, 52s, 54s, 56s, 58s, 60s
Norrich Plastics Corp., N.Y., 32c
Nuclear Corp. of America, Central Electronic Mfrs. Div., N.J., 2s, 8s, 10s, 16s, 38s, 42s, 44s
Nuclear Development Laboratory, Inc., Mo., 16sc
Nucleonic Corp. of America, N.Y., 16s
Owens-Illinois Glass Co., Ohio, 6sc
Pek Laboratories, Inc., Calif., 34c, 42c, 44c, 62c
Penta Laboratories, Inc., Calif., 42s, 44s, 52s
Philadelphia Scientific Glass Co., Pa., 18s, 20s
Philco Corp., Pa., 6s, 18s, 30s, 38s, 60s
Philco Corp., Lansdale Div., Pa., 6s, 18s, 30s, 50s
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 6s, 10s, 16s, 62s
Philips Electronics Industries, Ltd., Canada, 2s, 4s, 6s, 8s, 10s, 12s, 14s, 16s, 18s, 20s, 26s, 28s, 30s, 32s, 36s, 38s, 40s, 42s, 44s, 46s, 48s, 50s, 52s, 54s, 56s, 60s, 62s
Photo-Crystals, Inc., Ill., 40sc
Pioneer Electronics Corp., Calif., 6sc, 34sc, 48sc
Polaris Engineering Corp., Ill., 6c, 18c, 34c
RCA Victor Co., Ltd., Canada, 2s, 4s, 6s, 8s, 10s, 12s, 14s, 16s, 18s, 20s, 22s, 24s, 26s, 28s, 30s, 32s, 34s, 36s, 38s, 40s, 42s, 44s, 46s, 48s, 52s, 54sc, 56s, 58s, 60s
Radio Corp. of America, Defense Electronic Products, N.J., 2s, 4s, 6s, 8s, 10s, 14s, 18s, 22s, 24s, 28s, 32s, 38s, 40s, 42s, 44s, 46s, 48s, 50s, 54s, 58s
Radio Corp. of America, RCA Electron Tube Div., N.J., 6s, 8s, 18s, 20s, 22s, 24s, 28sc, 30s, 32s, 34sc, 36s, 40s, 42s, 44s, 46s, 48sc, 52s, 54sc, 56s, 58s, 60s
Rauland Corp., Ill., 6sc, 22c
Raytheon Co., Industrial Components Div., Mass., 6sc, 8c, 10sc, 12sc, 16sc, 18sc, 30sc, 44sc, 46sc, 48sc, 50sc, 52sc, 60sc
Raytheon Co., Microwave & Power Tube Div., Mass., 4sc, 8c, 26sc, 28sc, 54c
Resitron Laboratories, Inc., Calif., 6sc, 8sc, 22sc, 42c, 44c, 46c, 58sc, 62sc
S-F-D Laboratories, Inc., N.J., 28sc, 42c, 44c, 46c, 54c
Scientific Electronic Laboratories, Inc., N.J., 18s
Semicon of California, Inc., Calif., 8c, 18c
Servodyne Corp., Mass., 26c

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Magnetrons
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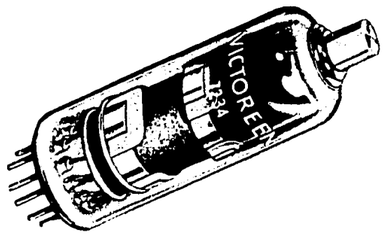
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

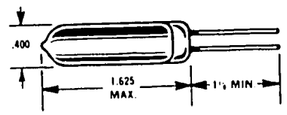
THE VICTOREEN INSTRUMENT COMPANY
5806 HOUGH AVENUE • CLEVELAND 3, OHIO

HIGH VOLTAGE PENTODES



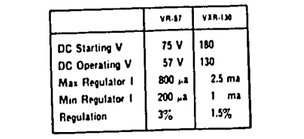
CHARACTERISTICS	7234 PENTODE	6AU PENTODE	7581 PENTODE
E_f	6.3 V	6.3 V	6.3 V
I_f	150 ma	150 ma	150 ma
E_b MAX	10,000 V	4,000 V	1,000 V
I_b MAX	5 ma	10 ma	20 ma
G_m	3800	2500	5000
R_p	1 Megohm	930 Kohm	30 Kohm
SIZE	T-6½	T-5½	T-6½

GLOW TYPE VOLTAGE REGULATORS



	VR-87	VR-150
DC Starting V	75 V	180
DC Operating V	57 V	130
Max Regulator I	800 μa	2.5 ma
Min Regulator I	200 μa	1 ma
Regulation	3%	1.5%

ELECTROMETER TRIODE
VX-55



TYPICAL OPERATION AND TEST CONDITIONS

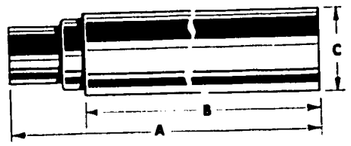
E_f	1.25	Volts	I_p	95	μa
I_f	10.0	ma	G_m	110	μmho
E_p	7.5	Volts	I_g	5×10^{-14}	amp
E_g	−2.2	Volts	M_u	2.1	

ELECTROMETER TETRODE
5800/VX-41A

AS A TETRODE ELECTROMETER

Plate Voltage	+4.5	Volts	Transconductance	15	μmhos
Accelerator Grid Voltage (g_1)	+3.4	Volts	Plate Current	12	μa
Control Grid Voltage (g_1)	−3	Volts	Accelerator Grid Current	300	μa
Amplification Factor	1		Control Grid Current	10^{-13}	Amp

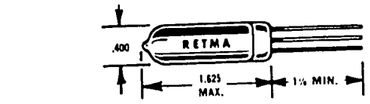
CORONA TYPE VOLTAGE REGULATORS



Commonly Used Metal Regulators*

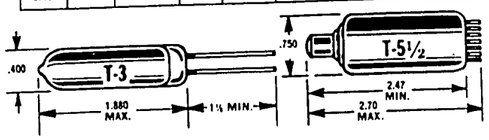
TYPE	VOLTAGE RANGE	TOLERANCE	NOM. TEST POINT	CURRENT MAX.	CURRENT MIN.	REGULATION 100-1000μa	DIMENSIONS A	B	C
M1058	6 KV-10 KV	±500V	500μa	1000μa	50μa	7½%	6⅝	5	1¼
M105	10 KV-20 KV	±500V	500μa	1000μa	100μa	10%	6⅝	5	1¼
M108	10 KV-20 KV	±500V	500μa	1000μa	100μa	7%	9⅝	8	1¼
M128	20 KV-25 KV	±500V	500μa	1000μa	100μa	10%	7⅝	6	1⅛
M128	20 KV-27 KV	±500V	500μa	1000μa	100μa	7%	9⅝	8	1⅛

CORONA TYPE VOLTAGE REGULATORS



R. E. T. M. A. Types

TYPE	NOM.	TOLERANCE	NOM. TEST PT.	CURRENT IN μa MIN.	MAX.	PEAK	REGULATION VOLTS	CURRENT RANGE
5950	700V	± 15V	25μa	5	100	150	14V	5-100μa
5841	900V	± 18V	25μa	5	100	150	18V	5-100μa
6143	1200V	± 24V	25μa	10	100	150	24V	5-100μa
6119	2000V	±100V	25μa	15	100	150	40V	5-100μa

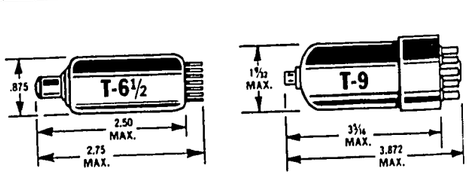


Commonly Used Models in T-3 Size*

TYPE	NOM TEST PT.	TOLERANCE	NOM.	CURRENT IN μa MIN.	MAX.	PEAK	REGULATION VOLTS	CURRENT RANGE
GV3B-400	50μa	± 10V	400V	5	150	300	15V	5-150μa
GV3B-600	50μa	± 10V	600V	5	150	300	20V	5-150μa
GV3A-900	50μa	± 15V	900V	10	250	350	25V	10-250μa
GV3A-1200	50μa	± 30V	1200V	10	250	400	40V	10-250μa
GV3A-1500	50μa	± 30V	1500V	15	300	500	50V	15-300μa
GV3A-2000	50μa	± 50V	2000V	15	300	500	75V	15-300μa

Commonly Used Models in T-5½ Size*

TYPE	NOM.	TOLERANCE	NOM TEST PT.	CURRENT IN μa MIN.	MAX	PEAK	REGULATION VOLTS	CURRENT RANGE
GV5B-700	700V	± 20V	100μa	10	250	350	25V	10-250μa
GV5B-900	900V	± 25V	100μa	10	300	500	30V	10-300μa
GV5B-1000	1000V	± 30V	100μa	10	300	500	35V	10-300μa
GV5A-1200	1200V	± 36V	100μa	10	400	600	40V	10-400μa
GV5A-2200	2200V	± 65V	100μa	20	800	1000	50V	20-800μa
GV5A-3000	3000V	± 90V	100μa	30	1000	1200	75V	30-1000μa



Commonly Used Models in T-6½ Size

TYPE	NOM VOLTAGE	TOLERANCE	NOM. TEST PT.	CURRENT IN μa MIN	MAX	PEAK	REGULATION**
GV6A-450	450	± 11V	500μa	20	1000	1300	30V
GV6A-1000	1000	± 25V	500μa	30	1000	1500	42V
GV6A-2500	2500	± 65V	500μa	50	1500	3500	100V
GV6A-3000	3000	± 75V	500μa	50	1000	3500	70V

**This regulation is the change in voltage over the useful range of current from MIN. to MAX.

Commonly Used Models in T-9 Size

TYPE	NOM. VOLTAGE	TOLERANCE	NOM TEST PT	CURRENT IN μa MIN.	MAX	PEAK	REGULATION**
GV9A-600	600	± 15V	1000μa	50	1500	2000	25V
GV9A-1000	1000	± 25V	1000μa	50	1750	2200	45V
GV9A-2000	2000	± 50V	1000μa	50	3500	4200	80V
GV9A-3000	3000	± 75V	1000μa	50	2700	7000	110V

**This regulation is the change in voltage over the useful range of current from MIN. to MAX.

* T-3 size voltage regulators are available in any desired nominal voltage ±2% from 400 volts to 2000 volts at the customary test point of 50 ua. T-5½ size voltage regulators are available in any desired nominal voltage ±3% from 400 volts to 6000 volts at the nominal test point at 100 ua. Metal regulators are available in any desired voltage ±500 volts from 7½ KV. to 27½ KV. at the customary test point of 500 ua. All other characteristics such as maximum and minimum currents, regulation, etc., may be interpolated from the table.

For details, circle #582 on Reader Service Card

Directory II. Components

86. Tubes, Industrial-Type.

Shaw Instrument Corp., Pa., 8c
Siemens New York, Inc., N.Y., 54s
Signalite, Inc., N.J., 60sc
Skiatron Electronics & Television Corp., N.Y., 6s
Sonotone Corp., N.Y., 30sc, 50sc
Sperry Rand Corp., Sperry Electronic Tube Div., Fla., 26 Frequency-Multiplier sc, 42sc, 44sc, 46sc, 54sc
Sperry Rand Corp., Sperry Gyroscope Co. (Div.), N.Y., 26c, 54c
Standard Telephones & Cables, Ltd., England, 4sc, 10sc, 14sc, 18sc, 26sc, 28sc, 30sc, 44sc, 46sc, 52sc, 54sc, 56sc, 60sc
Star Porcelain Co., N.J., 8c
Stark Electronic Instruments, Ltd., Canada, 10s, 30s
Steward Mfg. Co. (D. M.), Tenn., 8c
Stewart Engineering Co., Santa Cruz 12, Calif., 4sc, 18sc, 32sc, 54sc, Tel: 408-GArden 6-4100
See ad in this class
Superior Electric Co., 100 Ames Ave., Bristol, Conn., 60s, Tel: 203-LUdlow 2-0561
See ad on pages 2-11
Superior Porcelain Co., W.Va., 8s
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 2s, 4s, 6s, 8s, 10s, 18s, 20s, 24s, 26s, 28s, 30s, 32s, 42s, 50s, 52s, 54s, 56s, 58s, 60s
Sylvania Electric Products Inc., Electronic Tubes Div., N.Y., 2s, 4sc, 6s, 8s, 10s, 18s, 20s, 24s, 26sc, 28sc, 30s, 32s, 42s, 44s, 46s, 50s, 52s, 54sc, 56s
Sylvania Electric Products Inc., Special Tube Operations, Calif., 2c, 4c, 10c, 26c, 28c, 54c, 56c
Technical Ceramics & Lava Corp., N.J., 8sc
Thermosen, Inc., Conn., 38sc, 60sc
Thomas Electronics, Inc., N.J., 6sc
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 2s, 4s, 6s, 8s, 18s, 20s, 22s, 24s, 26sc, 28s, 30s, 32s, 34s, 42s, 44s, 46s, 48s, 50s, 52s, 54s, 56s, 58s, 60s
Thor Ceramics, Inc., N.J., 8sc
Tokyo Shibaura Electric Co., Ltd., Japan, 6s, 10s, 12s, 14s, 16s, 20s, 22s, 24s, 26s, 28s, 30s, 32s, 34s, 36s, 40s, 42s, 44s, 46s, 48s, 50s, 52s, 54s, 56s, 58s, 60s, 62s
Tracerlab Keleket, Mass., 12s, 16s
Transonic, Inc., Calif., 8c
Tucor, Inc., Conn., 2c, 4c, 38c, 54c
Tung-Sol Electric, Inc., 1 Summer Ave., Newark 4, N.J., 8sc, 12s, 18sc, 20c, 30sc, 38s, 40s, 44sc, 46s, 50sc, 52sc, 56sc, 60sc, Tel: 201-HUmboldt 4-8500
See ad on pages 62-63
Ulmer Co. (H. W.), Calif., 6c, 34c
United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 8c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104
Varian Associates, Tube Div., Calif., 2s, 4s, 8s, 26s, 28s, 38s, 42s, 44s, 46s, 54s
Victor-Bernard Industries, Inc., Pa., 2s, 6s
Victoreen Instrument Co., 5806 Hough Ave., Cleveland 3, Ohio, 16s, Tel: 216-ENdicott 1-6200
See ads in classes 74, 86
Videonics, Inc., Mass., 58s
Waterman Products Co., Inc., 2445 Emerald St., Philadelphia 25, Pa., 6sc, Tel: 215-GArfield 6-8600
See ad in class 23
Watkins-Johnson Co., Calif., 4sc, 26c, 54sc
Western Radiation Laboratory, Calif., 16c, 40c
Westinghouse Electric Corp., Electronic Tube Div., N.Y., 2sc, 4sc, 6sc, 8sc, 10sc, 18sc, 20sc, 22sc, 24sc, 26sc, 28sc, 30sc, 42sc, 44sc, 46sc, 48sc, 52sc, 54sc, 58sc
White Mountain Electronics, Inc., N.H., 6sc
Wisconsin Porcelain Co., Wis., 8c
Wood Counter Laboratory (N.), Ill., 10sc, 16sc
York Research Corp., Kip Electronics Div., Conn., 26c, 30c, 50c, 52c
Zirconium Corp. of America, Ohio, 8c

Tubes, microwave:
See class 86

Tubes, receiving:
See class 85

87. Tubes, Rectifying.

5. Gas
10. Grid-controlled
15. Mercury-vapor
20. Vacuum

Aerolux Light Corp., N.Y., 5c
American Elite, Inc. (Telefunken), N.Y., 20s
Amperex Electronic Corp., N.Y., 5s, 10s, 15s, 20s
Associated Electrical Industries (Rugby), Ltd., England, 5s, 10s, 15s
Bendix Corp., Red Bank Div., Electron Tube Products, Hwy. #35, Eatontown, N.J., 5sc, 10sc, 15sc, 20sc, Tel: 201-LIberty 2-2000
See ad on pages 48-49
Black Light Corp. of America, Calif., 15s
CBS Electronics, Div. of Columbia Broadcasting System, Inc., Mass., 20s (See Raytheon Co.)
Calvideo Electronics, Inc., Calif., 20s
Canadian Westinghouse Co., Ltd., Canada, 5s, 10s, 15s, 20s
Cetron Electronic Corp., Ill., 5s, 10s, 15s, 20s
Chicago Miniature Lamp Works, Ill., 5c, 20c
Comet, Ltd., Switzerland, 20sc
Condor Electronics, Inc., Calif., 20sc
DKE Electronic Bases, Inc., N.J., 20c
Dunlee Corp., Ill., 20sc
Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 5s, 10s, 15s, 20s, Tel: 415-LYtell 1-1451
See ad on pages 29-32
Eitel-McCullough, Inc., National Electronics, Inc. (Subsid.), Ill., 5s, 10s, 15s, 20s
Electronic Enterprises, Inc., N.J., 5sc, 10sc, 15sc, 20sc
Electrons, Inc., N.J., 5s, 10s
English Electric Valve Co., Ltd., England, 5s, 15s, 20s
Eureka X-Ray Tube Corp., Ill., 20s
General Electric Co., Power Tube Dept., N.Y., 15s, 20s
General Electric Co., Receiving Tube Dept., Ky., 10c, 15c
Gordos Corp., N.J., 5s, 15s
International Electronics Corp., N.Y., 5s, 10s, 15s, 20s
International Telephone & Telegraph Corp., ITT Components Div., Electron Tube Dept., N.J., 15sc, 20sc
Itek Laboratories, Div. of Itek Corp., Mass., 20c
K.F.R. Corp., Calif., 20sc
Le-Hi Electrical Co., N.J., 5s, 10s, 15s, 20s
Lewis & Kaufman Electronics Corp., Tube Div., Calif., 20s
Ling Temco Vought, Inc., Texas, 5c, 10s, 15s, 20s
Ling Temco Vought, Inc., United Electronics Co. (Subsid.), N.J., 5c, 10s, 15s, 20s
Lionel Corp., N.J., 5c

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STS125	$500.00	6826	$400.00
STX69	395.00	6861	495.00

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QK518	550.00	QKB747	1200.00
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PAGE ELECTRONICS 136 Liberty Street, NYC 6, NY

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

87. Tubes, Rectifying.

Litton Industries, Inc., Electron Tube Div., 960 Industrial Rd., San Carlos, Calif., 5sc, Tel: 415-LYtell 1-8411
See ad in class 86

Machlett Laboratories, Inc., Subsid. of Raytheon Co., 1063 Hope St., Springdale, Conn., 10s, 15s, 20s, Tel: 203-FIreside 8-7511
See ad in class 86

Marconi's Wireless Telegraph Co., Ltd., N.Y., 5s, 10s, 15s, 20s
Nippon Electric Co., Ltd., Japan, 5s, 10s, 15s, 20s
Nuclear Corp. of America, Central Electronic Mfrs. Div., N.J., 20s
Pek Laboratories, Inc., Calif., 20c
Penta Laboratories, Inc., Calif., 20s
Philco Corp., Lansdale Div., Pa., 5s, 20s
Philips Electronics Industries, Ltd., Canada, 5s, 10s, 15s, 20s
RCA Victor Co., Ltd., Canada, 5s, 10s, 15s, 20s
Radio Corp. of America, Defense Electronic Products, N.J., 10s, 20s
Radio Corp. of America, RCA Electron Tube Div., N.J., 5s, 10s, 15s, 20s
Raytheon Co., Industrial Components Div., Mass., 5sc, 20sc
Resitron Laboratories, Inc., Calif., 10sc, 20sc
Scientific Electronic Laboratories, Inc., N.J., 20s
Sonotone Corp., N.Y., 20s
Standard Telephones & Cables, Ltd., England, 5sc, 20sc
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 15s, 20s
Sylvania Electric Products Inc., Electronic Tubes Div., N.Y., 20s
Thermosen, Inc., Conn., 20sc
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s, 20s
Tokyo Shibaura Electric Co., Ltd., Japan, 5s, 10s, 15s, 20s
Tung-Sol Electric, Inc., 1 Summer Ave., Newark 4, N.J., 5sc, 10sc, 15sc, 20sc, Tel: 201-HUmboldt 4-8500
See ad on pages 62-63
Ulmer Co. (H. W.), Calif., 10c, 20c
Ultra-Violet Products, Inc., Calif., 15s
Varian Associates, Tube Div., Calif., 5s, 20s
Westinghouse Electric Corp., Electronic Tube Div., N.Y., 5sc, 10sc, 15sc, 20sc
York Research Corp., Kip Electronics Div., Conn., 5c, 10c

Tubes, special purpose:
See class 86

Tubes, transmitting:
See class 86

88. Tuners.

5. AM
10. Antenna
15. FM
20. Klystron
25. Microwave
30. SSB
35. Stereo
40. TV
45. UHF-VHF

Acoustical Mfg. Co., Ltd., England, 5s, 15s
Advanced Development Laboratories, Inc., N.H., 10c, 20c, 25c

Advancement Devices, Inc., N.Y., 10c, 25sc
Aeronautical Communications Equipment, Inc., Fla., 10s
Aircom, Inc., 48 Cummington St., Boston 15, Mass., 20sc, 25sc, Tel: 617-COpley 7-9115
See ads in classes 44, 66
Airtec, Inc., N.J., 20c, 25c
Airtronics, Inc., D.C., 10c, 25c, 45c
American Communications Corp., N.Y., 5sc
American Geloso Electronics, Inc., N.Y., 5s, 15s, 30s
Ampex Audio Co., Calif., 35s
Anderton Electronic Laboratory, Utah, 35c
Antenna & Radome Research Associates, Inc. (ARRA), 27 Bond St., Westbury, L.I., N.Y., 25s, Tel: 516-EDgewood 4-8770
See ad in class 45
Applied Technology, Inc., Calif., 25c, 45c
Arkay International, Inc., N.Y., 5c, 15c, 35c
Atlas Precision Products Co., Pa., 40c
Audiotronics Corp., Calif., 5s
Barker & Williamson, Inc., Pa., 10c
Bendix Corp., M. C. Jones Electronics Co., Inc. (Subsid.), Conn., 25c
Bird & Sons, Ltd. (Sidney S.), England, 5c, 15c, 40c, 45c
Bogen-Presto, Div. of Siegler Corp., N.J., 15s, 35s
Boulevard Electronics, Inc., Ill., 35s
British Industries Corp., N.Y., 15s
Broadway Coil Co., Ill., 10c
Budd-Stanley Co., Inc., 175 Eileen Way, Syosset, L.I., N.Y., 25sc, Tel: 516-WAlnut 1-7550
See ad on page 92
Calbest Electronics, Calif., 5sc, 15sc, 35sc
Carma Mfg. Co., Calif., 5c
Communication Accessories Co., U.S. Hwy. 50 & 71 By-Pass, Lee's Summit, Mo., 45c, Tel: 816-LAclede 4-3500
See ad on page 112
Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 25c, Tel: 214-EVergreen 1-1135
See ad on page 120
Continental Mfg., Inc., Nebr., 15c, 35c
Continental Merchandise Co., Transistor Products Div., N.Y., 15sc, 40s
Cooke Engineering Co., Va., 5c, 10c, 15c
Corning Glass Works, Corning Electronic Components Div., 750 High St., Bradford, Pa., 15sc, 45s, Tel: 814-FOrest 2-5571
See ads in classes 48, 49, 74
Croname, Inc., Ill., 5sc
Crosby-Teletronics Corp., N.Y., 15s, 35s
DeMornay-Bonardi Corp., 780 S. Arroyo Pkwy., Pasadena, Calif., 25s, Tel: 213-SYcamore 2-4142
See ad on pages 68-69
DeWald Radio, Div. of United Scientific Laboratories, Inc., N.Y., 15sc, 35sc
Diamond Antenna & Microwave Corp., Mass., 10c, 20sc, 25sc
Dominion Electrohome Industries, Ltd., Canada, 5s, 15s
Don-Lan Electronics, Inc., Calif., 10sc, 25sc, 45sc
Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 10sc, 25sc, Tel: 914-MOunt Vernon 8-6900
See ad in class 66
Drake Co. (R. L.), Ohio, 30s
Dynaco, Inc., Pa., 15s
Dynair Electronics, Inc., Calif., 40c
Dynamics Corp. of America, N.Y., 20c, 30sc
Eico Electronic Instrument Co., Inc., 33-00 Northern Blvd., Long Island City 1, N.Y., 5s, 15s, 35s, Tel: 212-STillwell 6-8700
See ad in class 41
Electro-Mech Engineering Co., Minn., 5sc, 15sc, 35sc, 40sc
Electronic Specialty Co., Calif., 25c, 45c
Elliott-Automation, Ltd., England, 10sc, 15sc, 25sc, 45sc
Emerson Electric Mfg. Co., Mo., 25c
Empire Devices, Inc., 37 Prospect St., Amsterdam, N.Y., 20s, 25s, 45s, Tel: 518-VIctor 2-8400
See ad in class 38
FXR, Div. of Amphenol-Borg Electronics Corp., 25-26 50th St., Woodside 77, N.Y., 25s, Tel: 212-RAvenswood 1-9000
See ad in class 37
Fisher Radio Corp., N.Y., 5s, 15s, 35s
Frequency Standards, Div. of Harvard Industries, Inc., N.J., 25c
Fuji Communication Apparatus Mfg. Co., Ltd., N.Y., 40c
General Dynamics/Electronics, N.Y., 5sc, 15sc, 25c, 30sc, 35sc
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35sc, 40sc, 45sc
General Instrument Corp., Radio Receptor Co., Inc. (Subsid.), N.Y., 5c, 15c, 25c, 30c, 45c
General Instrument Corp., F. W. Sickles Div., 165 Front St., P.O. Box 330, Chicopee, Mass., 15c, 40c, 45c, Tel: 413-LYceum 4-4781
See ad in class 57
General Microwave Corp., N.Y., 20c, 25c, 45c
General Motors Corp., Delco Radio Div., Ind., 5c
General Precision, Inc., Kearfott Div., Calif., 25c
Gilfillan Brothers, Inc., Calif., 25c
Gombos Co., Inc. (John), N.J., 25c
Gorham Electronics, Div. of Gorham Corp., R.I., 25c
Granger Associates, Calif., 10s
Granite State Machine Co., Inc., N.H., 10c
Harman-Kardon, Inc., N.Y., 5s, 15s, 35s
Heath Co., Subsid of Daystrom, Inc., Mich., 5s, 15s, 35s
Hughes Industries, N.J., 25s
ITA Electronics Corp., Pa., 15c, 45c
I-T-E Circuit Breaker Co., Special Products Div., Pa., 10c
Instrument Systems Corp., N.Y., 25c, 45c
Interference Testing & Research Laboratory, Inc., Mass., 45c
International Electronics Mfg. Co., Md., 10c

Directory II. Components

88. Tuners.

Itek Electro-Products Co., Div. of Itek Corp., 75 Cambridge Pkwy., Cambridge 42, Mass., 30c, Tel: 617-UNiversity 4-7200
See ad in class 59
JFD Electronics Corp., 6101 16th Ave., Brooklyn 4, N.Y., 10c, Tel: 212-DEwey 1-1000
See ad on pages 56-57
Jerrold Electronics Corp., Dept. ITE-104, 15th & Lehigh Ave., Philadelphia 32, Pa., 15s, Tel: 215-BAldwin 6-3456
See ad in class 38
Jetronic Industries, Inc., Pa., 5c, 15c
Johnson Co. (E. F.), Minn., 10s
Johnson Electronics, Inc., Fla., 15c
Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 10c
Karg Laboratories, Inc., Conn., 5c, 15sc, 35s, 45c
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 40 Closed-Circuit c
Knight Electronics Corp., Subsid. of Allied Radio Corp., Ill., 5s, 15s, 35s
LEL, Inc., 77 Akron St., Copiague, L.I., N.Y., 45c, Tel: 516-AMityville 4-2200
See ad in class 43
LaPointe Industries, Inc., Conn., 5c, 10c, 25c, 40c, 45c
Lettine Radio Mfg. Co., N.Y., 10c
Lieco, Inc., 130 Eileen Way, Syosset, L.I., N.Y., 25sc, Tel: 516-WAlnut 1-6300
See ad in class 66
Ling Temco Vought, Inc., Texas, 5sc, 10sc, 15sc, 25c, 30c, 35sc, 40s, 45s
Ling Temco Vought, Inc., Altec Lansing Corp. (Subsid.), Calif., 5s, 15s, 35s
Ling Temco Vought, Inc., Electron Corp. (Subsid.), Texas, 5s, 10s, 15s, 40s, 45s
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c, 15c, 30c, 35c
Lionel Corp., N.J., 10c, 15c, 20c, 25c, 30c, 40c
Lionel Corp., Telerad Div., N.Y., 25c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 10c, 20c
M.C.S. Corp., Calif., 25c
Mallory & Co., Inc. (P. R.), Ind., 45sc
Marsland Engineering, Ltd., Canada, 40c, 45c
Master Mobile Mounts, Inc., Calif., 10s
Maury & Associates, Calif., 25c
McIntosh Laboratory, Inc., N.Y., 5s, 15s, 35s
Meridian Metalcraft, Inc., Calif., 20c, 25c
Merrimac Research & Development, Inc., 517 Lyons Ave., Irvington 11, N.J., 25c, Tel: 201-ESsex 1-1616
See ad in class 45
Microlab, 570 W. Mount Pleasant Ave., Livingston, N.J., 25sc, 45sc, Tel: 201-WYman 2-5700
See ad in class 66
Microphase Corp., Conn., 25sc
Microwave Associates, Inc., South Ave., Burlington, Mass., 25s, Tel: 617-BRowning 2-3000
See ad on page 178
Microwave Electronics Corp., Calif., 25c
Miller Co. (J. W.), Calif., 5s
Miratel Electronics, Inc., Minn., 5s, 15s, 40s, 45s
Model Engineering & Mfg. Corp., Ind., 25c, 30c
Modern Design, Div. of H. C. Schloer, Inc., N.Y., 5c
Munzig International, Inc., Calif., 15s
Narda Microwave Corp., Dept. IRED-61-3, 118-160 Herricks Rd., Mineola, L.I., N.Y., 25s, Tel: 516-PIoneer 6-4650
See ad in class 66
Oak Mfg. Co., Ill., 15sc, 40sc, 45sc
Omega Laboratories, Inc., Haverhill St., Rowley, Mass., 25sc, Tel: 617-WHitney 8-7757
See ad in class 66
PRD Electronics, Inc., 202 Tillary St., Brooklyn 1, N.Y., 25s, 45s, Tel: 212-ULster 2-6800
See ad in class 37
Pabst Engineering Equipment Co., Inc., N.J., 25c
Philco Corp., Government & Industrial Group, Pa., 20c, 25c, 30c
Philips Electronics Industries, Ltd., Canada, 15s
Polytronic Research, Inc., Md., 30c, 40c
Precise Electronics & Development Corp., Subsid. of Designatronics, Inc., N.Y., 5s, 15s, 35s
Precision Apparatus Co., Inc., Div. of Pacotronics Inc., 70-31 84th St., Glendale 27, N.Y., 5sc, 15sc, 35sc, Tel: 212-TWining 4-4290
See ad in class 39
Precision Electronics, Inc., Ill., 15s, 35s
Precision Microwave Corp., Mass., 20c, 25c
Product & Industrial Engineering Corp., Va., 5c, 15c, 35c
Protection Equipment Co., Inc., Minn., 5sc, 15sc
Quality Electronics, Inc., N.Y., 5s, 15s, 35s
Quincy Speaker Mfg. Corp., Ill., 15sc, 35sc
RLC Electronics, Inc., 805 Mamaroneck Ave., Mamaroneck, N.Y., 20sc, 25sc, 45sc, Tel: 914-OWens 8-7440
See ads in classes 45, 59
Radar Design Corp., N.Y., 25sc
Radar Measurements Corp., 190 Duffy Ave., Hicksville, L.I., N.Y., 25sc, Tel: 516-OVerbrook 1-5600
See ad in class 37
Radiatronics, Inc., Calif., 25c
Radio Corp. of America, Defense Electronic Products, N.J., 5s, 15s, 35s, 40s, 45s
Radio Engineering Laboratories, Inc., N.Y., 20c
Rainier Co., Inc., N.Y., 5c, 15c
Rantec Corp., Calif., 25c
Rauland-Borg Corp., Ill., 15s, 35s
Reeves Instrument Corp., Farmingdale Div., N.J., 10c, 30c
Remington Rand Univac, Div. of Sperry Rand Corp., Minn., 10sc
Sanyo Electric Co., Ltd., Japan, 15s
Sargent-Rayment Co., Calif., 5s, 15s, 35s
Scaico Controls, Inc., N.J., 25sc
Schutter Microwave Corp., N.Y., 25sc
Servo Corp. of America, N.Y., 45c
Shell Electronics Mfg. Corp., N.Y., 5s, 15s, 35s
Sheltered Workshops, Inc., Calif., 5c, 10c, 15c, 30c, 35c
Sherwood Electronic Laboratories, Inc., Ill., 15s, 35s
Sperry Rand Corp., Sperry Microwave Electronics Co. (Div.), Fla., 25sc
Standard Coil Products (Canada), Ltd., Canada, 15c, 40sc, 45c
Standard Kollsman Industries, Inc., Ill., 15c, 40c, 45c
Standard Systems Corp., N.Y., 5s, 15s
Tech-Master Corp., N.Y., 5c, 15c, 35c
Technical Materiel Corp., 700 Fenimore Rd., Mamaroneck, N.Y., 10s, Tel: 914-OWens 8-4800
See ads in class 38
Telecomtrol Corp., N.J., 20c, 25c
Thompson Ramo Wooldridge Inc., Bell Sound Div., Ohio, 5sc, 15sc
Thompson Ramo Wooldridge Inc., Radio Condenser Co. (Subsid.), N.J., 5c, 15c, 45c
Tokyo Shibaura Electric Co., Ltd., Japan, 40s
Torotor A/S, N.Y., 5sc, 15sc, 40sc
Transis-Tronics, Inc., Calif., 5s, 15s, 35s
Trutone Electronics, Inc., Calif., 15s, 35s
Turbo Machine Co., Pa., 25sc
United Shoe Machinery Co., Mass., 25c
Vinco Electronics Corp., Conn., 15c, 45c
Waveline, Inc., N.J., 25s
Wavetronics, Inc., N.J., 25c
Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., 25sc, Tel: 301-LOckwood 4-0121
See ad in class 45
Wells-Gardner Electronics Corp., Ill., 5c, 15c, 40c
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 30sc, Tel: 212-JUdson 2-3030
See ad on page 224

Tuning coils:
See class 51

Tuning forks:
See class 31

Tunnel diode memories:
See class 10

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Control Measure Analyze

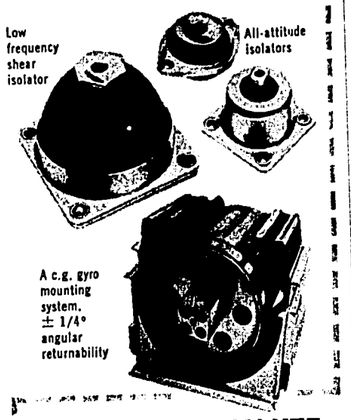
Vibration Shock Noise

Now—from a single source—KORFUND—engineered solutions to all your vibration, shock and noise problems.

CONTROL

Newest Elastomer Mounts And Systems

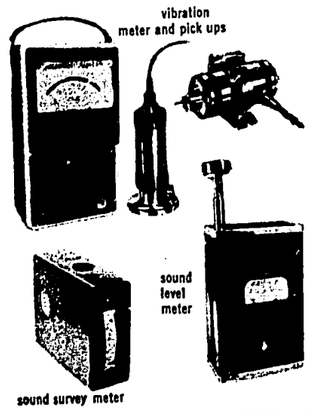
Compact. Wide ranges of temperatures, natural frequencies, and loadings. Internal hysteresis damping.



MEASURE & ANALYZE

Advanced Design Precision Instruments

Many completely transistorized portable meters and laboratory instruments and transducers.



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WESTBURY L I NEW YORK

For details, circle #584 on Reader Service Card

Tunnel diodes:
See class 76

Ultrasonic delay lines:
See class 57

Ultrasonic transformers:
See class 84

Vacuum tube rectifiers:
See class 87

Vacuum tube voltmeters:
See class 40

Vacuum tubes:
See classes 85 & 86

Valves:
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Varactor diodes:
See class 76

Variable capacitors:
See class 49

Variable speed controls:
See class 4

Varistors:
See class 72

Vibrator transformers:
See class 84

Vibrators:
See class 53

89. Vibration Mounts.

5. Mounts, vibration & shock **10. Pads, isolation**

Aeroflex Laboratories, Inc., N.Y., 5sc, 10sc
Allied Research Associates, Inc., Mass., 5sc
American Felt Co., Conn., 5s, 10s
Auburn Mfg. Co., Conn., 10c
Barry Controls, Div. of Barry Wright Corp., Mass., 5 Damper sc, 10sc
Bendix Corp., Sheffield Corp. (Subsid.), Ohio, 10c
Bushings, Inc., Mich., 5sc, 10sc
Dittmore-Freimuth Corp., Wis., 5c
Ehrenpreis Engineers (David), N.Y., 5sc, 10sc
Emerson Electric Mfg. Co., Mo., 5c, 10c
Erwood, Inc., Ill., 5c
Fibrous Glass Products, Inc., N.Y., 5c, 10c
Felters Co., Mass., 5s, 10s
Gemex Precision Metals, Inc., N.J., 5c, 10c
Goodrich Industrial Products Co. (B. F.), Ohio, 5sc
Harmon Co., Inc. (George), Calif., 5sc
Industrial Electronic Rubber Co., Ohio, 5c, 10c
Jan Hardware Mfg. Co., Inc., N.Y., 5s
Johnson Co., Inc. (K. W.), Ohio, 5sc
Korfund Co., Inc., 22D Cantiague Rd., Westbury, L.I., N.Y., 5c, 10c, Tel: 516-RAvenswood 9-7580
See ad in this class

89. Vibration Mounts.

Lord Mfg. Co., Pa., 5sc, 10sc
MB Electronics, Div. of Textron Electronics, Inc., Conn., 5sc, 10sc
Marine View Electronics, Inc., N.Y., 5c
Minnesota Rubber Co., Minn., 5c
Minshall Organ & Electronics, Inc., Vt., 5sc, 10sc
Preservation Packaging, Inc., N.J., 10c
Rek-O-Kut, Inc., N.Y., 5 Acoustic sc
Remler Co., Calif., 5s
Robinson Vibrashock Div., Robinson Technical Products, Inc., N.J., 5sc
Rosemount Engineering Co., Minn., 5sc
Titchener & Co. (E. H.), N.Y., 5c

Vidicons:
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Voltage converters:
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Voltage dividers:
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Voltage-dividing & regulating transformers:
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Voltage regulating tubes:
See class 86

Voltage regulators:
See class 72

Voltage testers:
See class 41

Voltmeters:
See class 61

Voltmeters, AF:
See class 35

Voltmeters, digital & VTVM:
See class 40

Wattmeters & watt-hour meters:
See class 61

Waveguides & accessories:
See class 66

Windows, infrared:
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Windows, waveguide:
See class 66

Wire & cable:
See class 91

Wire, magnetic-recording:
See class 70

X-Ray tubes:
See class 86

Yokes, deflection:
See class 51

Zener diodes:
See class 76

1962 IRE DIRECTORY

Directory III Materials & Services

Electronic Hardware, Fabricators and Services, Machinery & Tools, Materials & Production

23 major groups 270 products

The products and services of the radio-electronics industry have been organized into three basic directories:

I. Complete Equipment
II. Components
III. Materials & Services

Within these three basic directories, 112 major product and service groups are numbered consecutively throughout. Under each of these 112 classes a further breakdown is given, showing in detail by a system of code numbers after each firm listed what specific products within the class are manufactured by that firm.

For a terminology cross-index listing all products in alphabetical order, consult the pink section preceding page 1.

The first few times you use this EDGE INDEX

follow the "How to use" instructions slowly—one step at a time. After that you will be able to open easily and almost instantly to the section that you seek.

HOW TO USE

1. Bend the Directory almost double with the back cover page on the inside.
2. Hold in your right hand with your four fingers near to the bound edge and your right thumb near the middle of the open side of this page.
3. From the heavy or light line symbol adjacent to the subject you seek, run your eyes across the page edges until you reach the horizontally corresponding symbol.
4. OPEN THERE!

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For complete list of products and services, arranged alphabetically for fast reference, see the pink section preceding page 1.

COMPLETE DATA SPREADS
ALPHABETICAL DIRECTORY
DIRECTORY I COMPLETE EQUIPMENT
DIRECTORY II COMPONENTS
DIRECTORY III MATERIALS & SERVICES
DISTRIBUTION

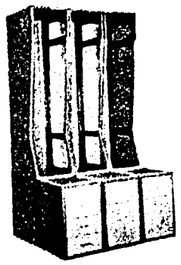
INDEX TO MATERIALS & SERVICES DIRECTORY

90. Cabinets, Enclosures & Panels
91. Cable & Wire
92. Ceramics
93. Chassis, Racks & Slides
94. Chemicals & Compounds
95. Engineers, Consulting
96. Fabricators & Custom Builders
97. Hardware & Findings
98. Heating Equipment
99. Machinery
100. Materials, Ferrimagnetic
101. Materials, Insulation
102. Materials, Semiconductor
103. Materials, Shielding
104. Metals
105. Parts, Tubes & Semiconductor
106. Plastic Moldings
107. Plastics
108. Publishing
109. Services
110. Solder
111. Tools
112. Tubing

AMCO 1000 G's CERTIFIED SHOCK TESTS

Amco Aluminum and Semi-Custom Modular Frames qualify for Airborne, Shipboard and Ground Support Applications

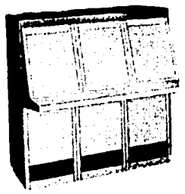
Certified Independent Tests prove Amco Aluminum and Semi-Custom Frames withstand shock & vibration under Mil E-5272C; Procedure XI (5–500cps), Procedure III (approx. 1000g's shock Mil-S901), Procedure II (15g's and drop Mil-S4456). Write for Test Report Supplement E.



Aluminum

ALUMINUM . . . Unique! Meets any size . . . Flush or recessed mounting of panels. Almost any shape from 13 basic parts . . . 3 castings & 10 extrusions. Units from 6" to 20 ft.; slopes from 0° to 90° standard. MilSpecs 6062-T6 extrusions and 356-T6 castings.

SEMI-CUSTOM . . . Heavy-duty, more internal clearance . . . 14 ga. box-channel steel frames, 12 ga. gusseting provides exceptional rigidity both front-to-back and side-to-side. Frames based on 22½" increments provides clearance for recessing 19" wide panels. Meets EIA Standards.

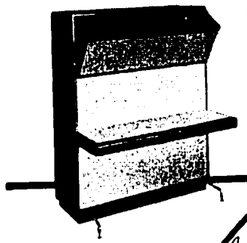


Semi-Custom

CUSTOM . . . When space and appearance are critical . . . 16 ga. double-channel steel frames, based on increments of 19⅛" widths, supports in excess of 3000 lbs. Multi-width panels and cowlings give single-unit appearance with series mounted racks. Meets EIA Standards.

Amco manufactures all necessary blowers, chassis slides, doors and drawers, writing surfaces, cowling lights and other accessories. **Check the extra savings you get thru Amco's combined-discount system of racks and accessories.** *PLUS FREE ASSEMBLY.*

Amco is your one complete source of Modular Instrument Enclosure Systems and Accessories. Write today for catalog of complete specifications.



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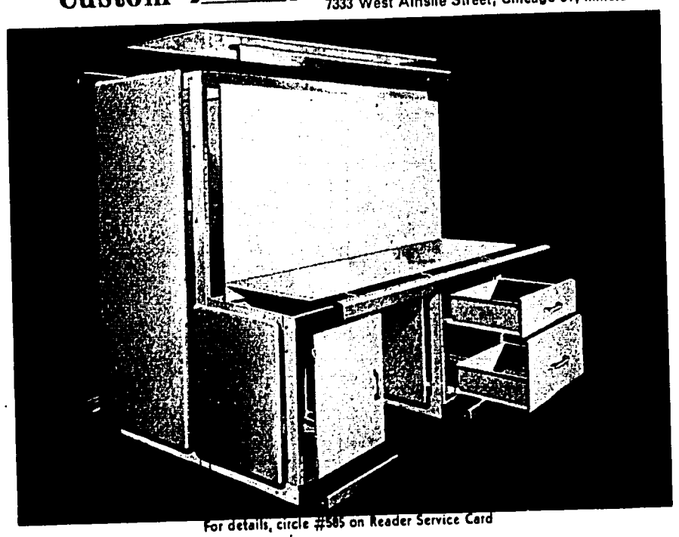
Factory trained representatives in principal cities of U.S. and in Canada.

Custom **AMCO ENGINEERING CO.**
7333 West Ainslie Street, Chicago 31, Illinois



For details, circle #585 on Reader Service Card

Abrasives: See class 94

Absorbers, microwave: See class 103

Adapter sockets: See class 78

Air-conditioning equipment: See class 99

Air filters: See class 90

Alignment tools: See class 111

Alloys: See class 104

Anodes: See class 105

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Bases, tube & semiconductor: See class 105

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Brushes, motor: See class 97

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Directory III. Materials & Services

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Cabinets: See classes 90 & 93

90. Cabinets, Enclosures & Panels.

5. Benches, test & work
10. Boxes, metal
15. Boxes, plastic
20. Cabinets, metal
25. Cabinets, plastic
30. Cabinets, wood
35. Cases, instrument & meter
40. Cases, transit
45. Consoles
50. Dollies
55. Enclosures, dust-free
60. Filters, air
65. Huts & shelters, mobile
70. Panels, instrument & meter
75. Panels, metal relay-rack

A A Metal Products, Inc., Vt., 10c, 20c, 70c

ACF Electronics Div., ACF Industries, Inc., Md., 5c, 10c, 20c, 45c, 55c, 65c

A & S Electronic Die Corp., N.Y., 10c, 20c, 35c, 70c

Abalon Precision Mfg. Corp., N.Y., 5c, 10c, 20c, 35c, 40c, 45c, 50c, 55c, 70c, 75c

Abbott-Clark Machine & Tool, Inc., N.J., 10c, 20c, 70c, 75c

Ace Engineering & Machine Co., Inc., Pa., 20c, 55c

Ackerman Engravers, Inc., N.Y., 70c, 75c

Acme Model Engineering Co., N.Y., 10c

Acro Products Corp., Ill., 20sc

Acromark Co., N.J., 70c

Ad-Yu Electronics Laboratory, Inc., 249 Terhune Ave., Passaic, N.J., 20sc, Tel: 201-GRegory 2-5622
See ad in class 57

Aero Geo Astro Corp., Va., 45c, 70c

Ainslie Corp., 531 Pond St., South Braintree 85, Mass., 50sc, Tel: 617-VIctor 8-0850
See ad in class 44

Air Control, Inc., Pa., 10sc, 15sc, 25sc, 55sc, 60sc, Environmental-Enclosures sc

Air Filter Corp., Wis., 60c

Air-Maze Div., Rockwell Standard Corp., Ohio, 60c

Aircraft Armaments, Inc., Md., 20c

Akro-Mils, Inc., Ohio, 10sc, 15sc, 20sc, 25sc

Albano Co., Inc., Honeycomb Div., 555 W. 54th St., New York 19, N.Y., 5sc, 20s, 30s, 35c, 40c, 45sc, 65sc, 70s, Honeycomb-Structures sc, Tel: 212-PLaza 7-5887
See ad in this class

Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 20s, 75s, Tel: 617-FOrest 6-4467
See ad on page 82

Alden Products Co., 10140 N. Main St., Brockton 64, Mass., 5sc, 20s, 35s, 40s, Tel: 617-JUniper 3-0160
See ad in class 50

Alden Systems Co., Mass., 5s

Aldrich Mfg. Co. (C. G.), Pa., 70c

Allen Electric & Equipment Co., Mich., 20s

Allied Fabricating Corp., Ill., 15c, 20c, 35c, 55c, 70c, 75c

Alpitec, Inc., Conn., 5c, 10c, 20c, 35c, 40c, 45c, 50c, 55c, 70c, 75c

Althor Products, N.Y., 15s

Amco Engineering Co., 7333 W. Ainslie St., Chicago 31, Ill., 5c, 10c, 20sc, 45sc, 50s, 55s, 60s, 70sc, 75sc, Tel: 312-UNderhill 7-8500
See ad in this class

American Aluminum Co., Inc., Dept. E, 230 Sheffield St., Mountainside, N.J., 10sc, 20c, 35sc, 40c, 55sc, 70c, 75c, Tel: 201-ADams 3-3500
See ad in class 96

American Communications Corp., N.Y., 30sc, 75c

Analab Instrument Corp., N.J., 50s

Anchor Specialty Mfg. Co., Inc., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 70c, 75c

Anderson & Sons, Inc., Mass., 70c

Anetsberger Brothers, Inc., Ill., 10sc, 20sc, 45sc, 55sc, 70sc

Anodyne, Inc., North Shore Nameplate Div., Fla., 10sc, 20sc, 35sc, 40sc, 70sc, 75sc

Apahouser Corp. of N.E., Mass., 15c, 75c

Apex Coated Fabrics Co., Inc., N.Y., 15c

Argus Mfg. Co.: See Cabtron

Artisan Metal Works Co., Ohio, 10c, 20c, 35c, 45c, 50sc, 70c, 75c

Astro Dynamics, Inc., Mass., 15c, 25c, 40c

Atkins & Merrill, Inc., Mass., 15c, 25c, 45c

Atlantis Electronics Corp., Texas, 50sc

Avco Corp., Nashville Div., Tenn., 20c, 25c, 45c, 50c, 65c

Avionics, Ltd., Canada, 5c, 10c, 15c, 20c, 25c, 30c, 70c, 75c

Bailey Meter Co., Ohio, 70sc

Baker Co., Inc., Me., 5sc, 20sc, 55sc, Environmental-Enclosures sc

Bal Corp. (William), N.J., 35c, 40c, 50c

Barre Co., Inc., N.J., 10c, 20c, 35c, 40c, 45c, 55c, 70c, 75c

Baumker Mfg. Co., Ohio, 5s, 10c, 20c, 70c, 75c

Bay Products Div., American Metal Works, Inc., Pa., 5s, 10s, 20s, 50s

Bell Aerosystems Co., Avionics Div., N.Y., 10c, 20c, 45c, 70c, 75c

Bendix Corp., York Div., Pa., 45c

Bennett Mfg. Co., Inc., N.Y., 10c, 20c, 35c, 45c, 70c

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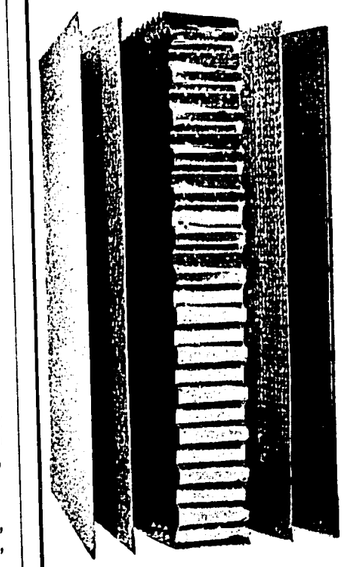

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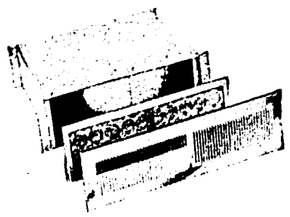

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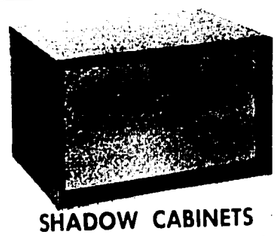

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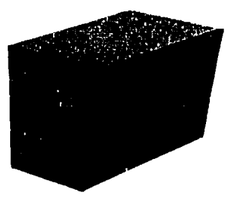

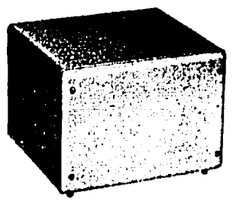

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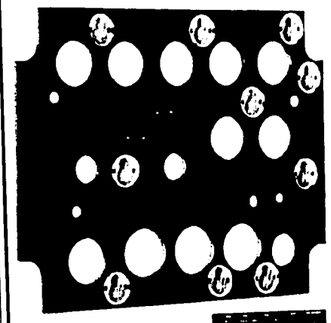

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See ad in this class

Bogue Electric Mfg. Co., N.J., 65c
Boonton Molding Corp., N.J., 15c, 25c
Borg-Warner Corp., Ingersoll Products Div., Ill., 20s, 45s, 50s, 75s
Boyle Metalcraft Corp., N.Y., 5c, 10c, 20c, 40c, 45c, 55c, 70c, 75c

Bradley Industries, Inc., 1650-1658 N. Damen Ave., Chicago 47, Ill., 15s, Tel: 312-ARmitage 6-8197
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British Industries Corp., N.Y., 30s
Brooks & Perkins, Inc., Mich., 5c, 10c, 20c, 35c, 40c, 45c, 50c, 55c, 65c, 70c

Bud Radio, Inc., 2118 E. 55th St., Cleveland 3, Ohio, 10sc, 20sc, 35sc, 45s, 50c, 55c, 70sc, 75s, Tel: 216-HEnderson 1-7166
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Budd Electronics, Inc., N.Y., Environmental-Enclosures c
Burroughs Corp., Control Instrument Co. (Subsid.), N.Y., 20c, 45c, 70c, 75c

Cabtron, Div. of Argus Mfg. Co., 1218 S. Western Ave., Chicago 8, Ill., 20s, 45s, 50s, 55s, 60s, 70s, 75s, Tel: 312-243-2565
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California Chassis Co., Calif., 10sc, 20sc, 35sc, 45sc, 50sc, 70sc, 75sc
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Carey Electronic Engineering Co., Ohio, 60sc
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Ceramco, Inc., N.J., 60c
Chem-Ionics Corp., Wash., 20s, 60s, 75s
Chicago Thrift-Etching Corp., Ill., 70c, 75c
Christman Industries, Inc., N.Y., 10c, 20c
Churchill Lighting Corp., Mass., 10
Pressurized & Explosion-Proof sc, 20c, 35c, 55c, 70c, 75c
Cinaudagraph, Inc., Ill., 10c, 20c, 35c, 55c, 70c
Clough-Brengle Co., Ill., 10s, 20s
Clover Industries, Inc., N.Y., 15s
Coils-Electronics Co., Pa., 10c, 50c
Cole Electric Co., Calif., 20c
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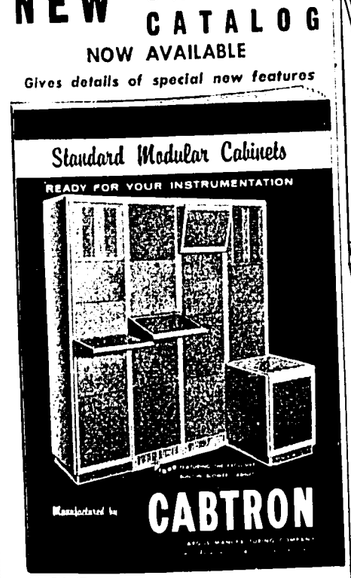
Columbia Metal Box Co., N.Y., 10c, 20c, 35c, 55c, 70c, 75c
Conco Plastics, Inc., N.Y., 15c, 25c
Compo Shoe Machinery Corp., Special Products Div., Mass., 5s, 45s
Concord Control, Inc., Mass., Keyboards c
Conn-Craft Co., Conn., 70c
Connecticut Telephone & Electric Corp. of Meriden, Conn., 70c, 75c
Consolidated Diesel Electric Corp., Conn., 65c
Contemporary American Furniture, Inc., Ill., 5c, 30c, 40c, 45c
Continental-Diamond Fibre Corp., Del., 15c

Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 20c, 45c, Tel: 214-EVergreen 1-1135
See ad on page 120

Continental Electronics & Sound Co., Ohio, 15s, 25s, 35s, 70c
Controlled Atmosphere Enclosures Mfg. Co., Fla., 10c, 15c, 20c, 25c, 55s, 60s
Controls Co. of America, Ill., 45c, 70c, 75c
Cook Electric Co., Ill., 20sc, 45sc, 70sc, 75sc
Cornell-Dubilier Electronics Div., Federal Pacific Electric Co., N.J., 65c
Corry Jamestown Corp., Pa., 10c, 20c, 45c, 55c



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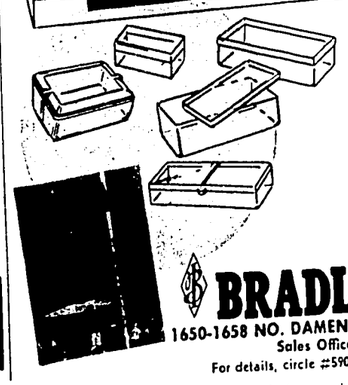

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Daniels, Inc. (C. R.), Md., Fabric Products sc
Davies Molding Co. (Harry), Ill., 15s, 35s, 70s
Delcon Corp., Calif., 10c, 20c
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Detronic Industries, Corp., Mich., 10c, 20c, 35c, 40c, 45c, 50c, 55c, 70c, 75c
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Dominion Electrohome Industries, Ltd., Canada, 30s, 45s
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Drexel Dynamics Corp., Pa., 5c, 10c, 20c, 35c, 40c, 45c, 50c, 55c, 65c, 70c, 75c
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Eagle Signal Co., Div. of Gamewell Co., Ill., 75c
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Equipto Div., Aurora Equipment Co., Ill., 5sc, 10sc, 20sc, 45sc, 55sc, 70sc, 75sc
Equipto Electronics Corp., Ill., 5sc, 10sc, 20sc, 45sc, 50sc, 55sc, 60sc, 70sc, 75sc
Espey Mfg. & Electronics Corp., N.Y., 20c, 35c, 40c, 45c
Eugene Engineering Co., Inc., 1217 Hyde Park Ave., Hyde Park 36, Mass., 10sc, 20sc, 35sc, 40sc, 45sc, 50c, 55c, 70c, 75c, Tel: 617-EMpire 1-7000
See ads in classes 96, 105
Export Packing & Crating Co., Inc., N.Y., 40c, 65c
Falstrom Co., 74A Falstrom Ct., Passaic, N.J., 5c, 10c, 20c, 35c, 40c, 45c, 55c, 70c, 75c, Tel: 201-PRescott 7-0013
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Farr Co., Calif., 60sc
Farwell Metal Fabricating, Minn., 10c, 20c, 35c, 40c, 45c, 55c, 70c, 75c
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Flotron Industries, Inc., Calif., 5s, 20s, 50s, 75s
Forma Scientific, Inc., Ohio, 20c
Formica Metal Products Co., 225 Corporation Way, Medford 55, Mass., 5sc, 10c, 20c, 35c, 45c, Tel: 617-EXport 5-5656
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Golden Co., N.Y., 10c, 20c, 35c, 70c, 75c
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Great Eastern Mfg. Co., N.Y., 60c
Great Eastern Metal Products Co., Div. of GEMP Mfg. Corp., 22 Woodworth Ave., Yonkers 2, N.Y., 10c, 20c, 35c, Tel: 914-GReenleaf 6-7300
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Green Rectifier Co., N.J., 10c, 20c
Grumman Aircraft Engineering Corp., N.Y., 10c, 20c, 50c, 55c, 65c
H K Metal Craft Mfg. Corp., N.Y., 10c
HPI. Mfg. Co., Ohio, 10c, 70c
Hake Products, Inc., Ohio, 20s, 25s
Halliburton Enterprises, Inc., Mfg. Div., Calif., 10sc, 20sc, 35sc, 40sc
Hammond Mfg. Co., Ltd., Canada, 5c, 10sc, 20sc, 35sc, 45sc, 50sc, 55sc, 70sc, 75sc
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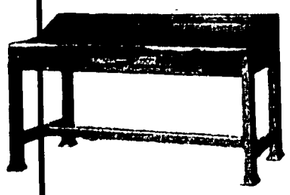

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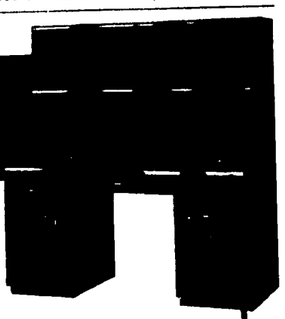

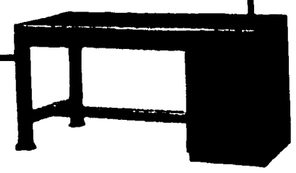

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Horton & Hubbard Mfg. Co., N.H., 25c, 30c, 35c, 40c
Houston Fearless Corp., Westwood Div., Calif., 20c, 65c
Hudson Tool & Die Co., Inc., N.J., 10sc, 35sc, 55sc
Humble Mfg. Co., Ltd., Canada, 10c, 20c, 35c, 45c, 75sc
Hunter Mfg. Co., Ohio, 10c, 20c, 40c
Hydro Molding Co., Inc., N.Y., 15c, 25c, 35c, 70c
Independent Metal Fabricators, Inc., N.Y., 10s, 20s, 45s, 75s
Industrial Engravers, Inc., N.Y., 70c
International Electronics Mfg. Co., Md., 10c, 70c, 75c
Jan Hardware Mfg. Co., Inc., 70sc
Jandor, Inc., Ohio, 10c, 20c, 35c, 40c, 50c, 60c, 70c
Jasco Aluminum Products, 31 Nassau Terminal Rd., New Hyde Park, L.I., N.Y., 70c, 75c, Tel: 516-FLoral Park 4-8607
See ads in class 105
Jefferson Electronic Products, Div. of Jefferson Electric Co., Calif., 10c, 15c
Jodee Plastics, Inc., N.Y., 15c, 25c
Kaman Aircraft Corp., Conn., 10c, 20c, 35c, 45c, 55c
Kerrco, Inc., Nebr., 25c, 70c
Kewaunee Scientific Equipment Co., Mich., 10sc, 20sc, 45c, 50sc, 55sc, 60sc
Keystone Mfg. Co., Div. of Avis Industrial Corp., Mich., 10c, 20c, 35c, 55c
Kinn Electronics Corp., Md., 20c, 30c
Kleer Vue Mfg. Co., Inc., Pa., 20s, 25s
Koch & Sons (H.), Calif., 15c, 35c, 40c
Kollman Case Corp., Ind., 35c, 40c
Kolton Electric Mfg. Co., N.J., 10c, 20c
Kuhn & Jacob Molding & Tool Co., N.J., 15c, 25c
Kurz-Kasch, Inc., Ohio, 15c, 25c
Laboratory Furniture Co., Inc., N.Y., 5sc, 20sc, 30sc
Landsberger Plastics Co., N.Y., 15sc, 25c
Langevin, Div. of Sonotec, Inc., Calif., 70s, 75s
Lavelle Aircraft Corp., Pa., 10c, 20c, 45c, 65c
Lehigh Valley Electronics Engineering & Mfg., Inc., Pa., 70c
Lenkurt Electric Co., Inc., Calif., 20s
Lennard Co., Inc. (P. M.), Fla., 5sc, 10s, 15s, 20s, 25s, 30c, 55s, 60s
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Ling Temco Vought, Inc., F F & M Electronics, Inc. (Subsid.), Calif., 45c, 55c, 60c, 70c, 75c
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Lone Star Plastics Co., Inc., Texas, 15c, 25c
Lowell Mfg. Co., Mo., 20c
Lyman Electronic Corp., Mass., 70c
Lynch Mfg. Co. (R. H.), Calif., 10c, 20c, 35c, 45c, 50c, 70c, 75c
Lyncoach & Truck Co., Inc., N.Y., 65c
Lyon Metal Products, Inc., Ill., 20c
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Magnetic Industries, Inc., Texas, 20sc, 45sc, 70sc
Magnetics, Inc., Pa., 20sc, 45sc, 70c
Malkin-Illion Co., N.J., 10c, 20c, 35c, 40c, 45c, 55c, 75c
Marine View Electronics, Inc., N.Y., 10c, 20c, 45c, 50c, 55c, 70c, 75c
Martin Co. (Martin-Marietta Corp.), Electronics Div., Md., 45c
Master Etching Corp., N.J., 70c, 75c
Mastra Co., Ohio, 30sc, 35c, 40c
Maurer, Inc. (J. A.), N.Y., 5c, 70c, 75c
Maysteel Products, Inc., Wis., 20c
McKiernan-Terry Corp., N.J., 50c
Mech-Tronics Corp., Ill., 10c, 20c, 35c, 45c, 55c, 70c, 75c
Mechanical Engraving Co., Inc., N.Y., 70c
Metal Works, Inc., Mo., 10c, 20sc, 35s, 45sc, 50s, 70sc, 75c
Metalcraft, Inc., N.Y., 10c, 20c, 35c, 45c, 55c, 70c, 75c
Metallic Arts of New England, Inc., Mass., 10c, 20c, 35c, 40c, 45c, 55c, 70c, 75c
Mid-West Metal Products, Inc., Kans., 5c, 10c, 20c, 35c, 40c, 45c, 50c, 55c, 70c, 75c
Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 20sc, Tel: 305-OXford 1-1220
See ad in class 28
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 10c, 15c, 20c, 45c, 55c, 70c, 75c
Minshall Organ & Electronics, Inc., Vt., 15sc, 25sc, 35sc, 40sc
Missile Systems Corp., California Div., Calif., 10c, 20c, 40c, 45c
Missouri Research Laboratories, Inc., Mo., 70c, 75c
Mobil Electronics, Inc., Ind., 10sc, 20sc, 35sc, 70sc, 75sc
Morris Co. (Robert E.), Conn., 5s
Moulic Specialties Co., Ill., 20c
Muckle Mfg. Co., Minn., 10c, 20c, 35c, 55c
Multi Products Co., Inc., Mich., 10s, 20s
National Vulcanized Fibre Co., Del., 40c
Neal Feay Co., Calif., 70c, 75c
Nelson Electric Mfg. Co., Okla., 10c, 20c, 45c, 70c
Neumade Products Corp., N.Y., 10s, 20s
New Brunswick General Sheet Metal Works, N.J., 20c, 45c, 50c, 55c, 70c
Newberg Industrial Case Co., N.Y., 15c, 35c
Newcastle Fabrics Corp., N.Y., Grille-Cloth sc
Newcomb Audio Products Co., Calif., 20s
Norrich Plastics Corp., N.Y., 15c
North America Electronics, Ala., 35c, 45c
Northern Electronics, Inc., Minn., 10c
Northwest Industries, Ltd., Canada, 5c, 10c, 15c, 65c, 70c
Nostrand Metal Fabricators Corp., N.Y., 10sc, 20s, 35c, 40c
Nuclear Development Corp. of America, N.Y., 20c, 45c, 70c, 75c

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- Maximum stability, versatility, and mobility of single units and multiple assemblies.
- Full range of sizes, finishes, accessories, and fittings.

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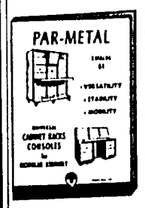

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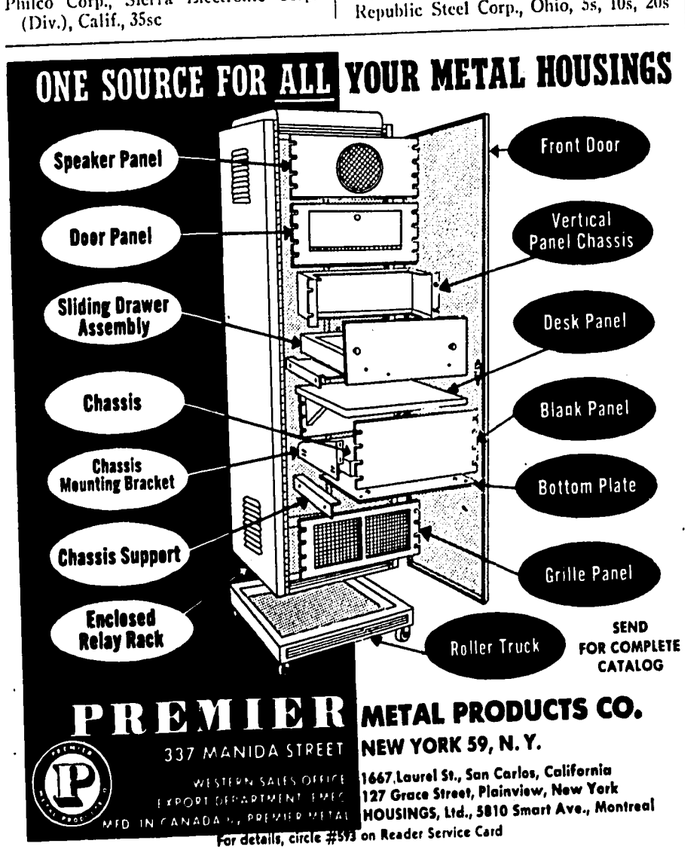
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

90. Cabinets, Enclosures & Panels.

Oiljak Mfg. Co., Inc., N.J., 10c, 20c, 35c, 40c, 45c, 70c, 75c
Oki & Willadsen, Ltd., Canada, 70c, 75c
Owatonna Tool Co., Minn., 10s
Pabst Engineering Equipment Co., Inc., N.J., 10c, 15c, 20c, 35c, 60c, 70c, 75c
Pac-Tron, Inc., Mass., 15sc, 25sc, 35sc, 40sc, 55sc
Pacific Mercury Electronics, Div. of Thomas Organ Co., Calif., 30c, 45c
Par-Metal Products Corp., 32-42 49th St., Long Island City 3, N.Y., 20s, 45s, 50s, 55s, 75s, Tel: 212-AStoria 8-8905
See ad in this class
Parkway Specialties Co., Mich., 10s, 30s, 45s
Pearce-Simpson, Inc., Fla., 10sc, 15sc, 20sc, 25c, 30c
Pedersen Electronics Corp., Calif., 10c, 45c, 70c, 75c
Pelco Sales, Inc., Calif., 55 Environmental-Enclosures s
Pennwood Numechron Co., 7249 Franks-town Ave., Pittsburgh 8, Pa., 10c, Tel: 412-FRemont 1-4200
See ad in class 11
Perfecting Service Co., N.C., 60s
Perfection Electronics, Inc., N.Y., 10c, 20c
Peterson & Neville, Inc., Mass., 10sc, 20sc, 70sc
Philco Corp., Lansdale Div., Pa., 55sc
Philco Corp., Sierra Electronic Corp. (Div.), Calif., 35sc
Photo Chemical Products, Inc., N.Y., 70c, 75c
Plastofilm, Inc., Ill., 15c
Plastronic Eng. Co., Mass., 15sc, 35sc
Powers Co. (J. J.), Ill., 10sc, 15sc, 20sc, 25sc, 30sc
Premier Metal Etching Co., N.Y., 70c
Premier Metal Products Co., 337 Manida St., New York 59, N.Y., 10s, 20s, 35s, 45s, 50s, 70s, 75s, Tel: 212-WYandotte 1-6600
See ads in classes 90, 93
Pressteel Co., Calif., 5sc, 20sc
Pry Welding & Mfg., Inc., Pa., 10c, 20c, 50c
Pylon Electronic Development Co., Ltd., Canada, 40c
Q-Line Mfg. Corp., N.Y., 5c, 10sc, 15c, 20sc, 25c, 35c, 40c, 55c, 65c, 70c, 75c
Quality Name Plate, Inc., N.J., 70c, 75c
Quincy Speaker Mfg. Corp., Ill., 30c, 45c, 55c
R.N.R. Metal Products, Inc., N.Y., 10c, 20c
Radex Corp., Ill., 60sc
Radiaphone Co., Inc., Calif., 5c, 10c, 20c, 35c, 45c
Radiatronics, Inc., Calif., 10c, 20c, 35c, 40c, 45c, 50c, 70c, 75c
Radio Frequency Labs., Inc., N.J., 50s
Radio-Matic of America, Inc., N.J., 30c, 35c, 45c
Rauland-Borg Corp., Ill., 20c
Remler Co., Calif., 25c
Republic Steel Corp., Ohio, 5s, 10s, 20s
Research, Inc., Minn., 20sc, 45sc, 70sc
Riester & Thesmacher Co., Ohio, 10c, 20c, 35c, 45c, 55c, 75c
Rimak Electronics, Inc., Calif., 5sc, 10sc, 20c, 35c, 40c, 70c, 75c
Rixon Electronics, Inc., Md., 10c, 35c, 55c, 70c, 75c
Roberts Co., Inc. (R. O.), Calif., 10c
Rogers Mfg. Co. (Dayton), Minn., 70c
Ross Co. (Milton), Pa., 15sc, 25c, 35c
Russell & Stoll Co., Inc., N.Y., 55s
Saint Regis Paper Co., N.J., 25c
Schaffer Air Industries, Inc., N.Y., 50c
Schuyler Mfg. Corp., N.J., 60sc
Seiscor, Div. of Seismograph Service Corp., Okla., 10c, 20c, 45c, 70c
Sheltered Workshops, Inc., Calif., 5c, 10c, 20c, 30c
Sheridan-Gray, Inc., Calif., 5c, 10c, 15c, 20c, 25c, 30c, 35c, 40c, 45c, 55c, 65c, 70c, 75c
Shieldair Co., Pa., 60 RF c
Shielding, Inc., N.J., 5c, 55c, 65c
Sierra Electric Corp., Calif., 15c, 70c
Silicone Insulation, Inc., N.Y., 65c, 70c
Skydyne, Inc., River Rd., Port Jervis, N.Y., 5sc, 10c, 15sc, 20c, 25c, 30c, 35sc, 40c, 45c, Tel: 3-2241
See ad on page 128
Skyline Electronics, Inc., Colo., 5c, 10c, 15c, 20sc, 35c, 40c, 45c, 50c, 55c, 70c, 75c
Skyline Products, Inc., 819 Grand Blvd., Deer Park, L.I., N.Y., 5c, 10c, 20c, 40c, 45c, 50c, 55c, 75c, Tel: 516-MOhawk 7-8644
See ad in this class
Slidecraft, Inc., N.Y., 50c
Solartron Electronic Group, Ltd., England, 10s, 20s, 35s, 45s
Spaulding Fibre Co., Inc., 310 Wheeler St., Tonawanda, N.Y., 15c, Tel: 716-NX 2-2000
See ad in class 107
Specialty Electronics Development Corp., N.Y., 65c
Speed Electronics, N.J., 70c
Stacor Equipment Co., N.J., 5 Drafting sc
Stafford Mfg. Co., Inc., N.Y., 5c, 10c, 20c, 35c, 40c, 45c, 50c, 55c, 65c, 70c, 75c
Standard Electric Time Co., Mass., 5c, 20c, 45c, 70sc, 75c
Standard Pressed Steel Co., Pa., 25sc
Staples-Hoppmann, Inc., Va., 10c, 20c, 35c, 45c, 70c, 75c
Staver Co., Inc., N.Y., 10sc
Steinberg & Son, Inc. (Irving C.), N.J., 10c, 20c, 35c, 40c, 45c, 50c, 70c, 75c
Stevens Walden, Inc., Mass., 10sc, 20sc
Sun Dial Corp., N.J., 70c
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 25c
TA Mfg. Corp., Calif., 10s, 20s, 35s, 40s, 55s
TMC (Canada), Ltd., Canada, 20s, 40s, 45s, 75s
Taffet Electronics, Inc., N.Y., 10c, 20c, 35c, 40c, 45c, 50c, 70c, 75c
Tannoy (America), Ltd., N.Y., 30s
Taylor Instrument Companies, N.Y., 45c, 70c, 75c
Technibilt Corp., Calif., 50sc
Technical Service Corp., Ky., 50sc



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Directory III. Materials & Services

90. Cabinets, Enclosures & Panels.

Technical Wire Products, Inc., N.J., 10c, 20c, 60c
Telecomputing Corp., Calif., 40c, 45c
Telecomputing Corp., Advanced Structures Div., Calif., 15c, 25c, 35c, 55c, 65c, 70c
Telkor, Inc., Ohio, 10sc, 20sc, 35sc, 55sc
Temperature Engineering Corp., N.J., 10s, 15s, 55s
Templet Industries, Inc., N.Y., 70c
Thermo Products Co., Inc., Wis., 70c
Thompson, Ltd. (J. Langham), England, 10sc, 20sc, 35sc, 45sc
Titchener & Co. (E. H.), N.Y., 50c
Tocco Metal Products, Inc., N.Y., 5c, 10c, 20c, 35c, 45c, 70c, 75c
Topatron, Inc., Calif., 5s, 45s, 55s
Tower Construction Co. (Tower Communications Co.), 2700 Hawkeye Dr., Sioux City 2, Iowa, 65sc, Tel: 2-3631
See ad in class 44
Transval Electronics Corp., Calif., 5c, 10c, 20c, 35c, 40c, 45c, 50c, 70c, 75c
Tri Metal Works, Inc., N.J., 10c, 20c, 45c, 55c, 70c, 75c
Trinity Equipment Corp., N.Y., 60c
Trott Electronics, Inc., N.Y., 10c, 55c, 70c, 75c
Twin Coach Co., Aircraft & Missiles Div., N.Y., 10c, 20c, 40c, 45c, 65c
Ultramotive Co., Calif., 20c, 45c, 75c
Union Steel Chest Corp., N.Y., 10sc, 20sc
Unistrut Products Co., Ill., 5c, 20c, 55c, 70c, 75c
United States Instrument Corp., Va., 70c, 75c
United States Radium Corp., N.J., 70c
Vanity Fair Electronics Corp., N.Y., 35sc
Vector Electronic Co., Inc., 1100 Flower St., Glendale 1, Calif., 10sc, Tel: 213-CHapman 5-1076
See ad in class 50
Virginia Electronics Co., Inc., D.C., 45c
Volkert Stampings, Inc., N.Y., 20sc
Waldom Electronics, Inc., Ill., 15s, 35s
Walton Tool & Die Co., Inc., Calif., 10c, 20c, 45c
Warwick Products Co., Ohio, 15sc, 25sc, 35sc, 40c
Washington Aluminum Co., Inc., Md., 10c, 20c, 35c, 40c, 45c, 50c, 65c, 70c, 75c
Watson Mfg. Co., Inc., N.Y., 20c, 45c
Wellcor, Inc., Ill., 5c, 30c, 45c, 55c
Wells Electronics Co., Ind., 30c
Wells Industries Corp., Calif., 50c, 60sc, 65c
Western Devices, Inc., Calif., 20sc, 45sc, 50sc, 55c, 70sc, 75sc
Westlab, Inc., N.Y., 45c
Wharton Unitools, N.Y., 5c
Wickes Engineering & Construction Co., N.J., 5c, 20c, 45c, 50c, 65c
Wilcox Electric Co., Inc., Mo., 65s, 75sc
Wood Steel Co. (Alan), Penco Div., Pa., 10c, 20c
Wright Equipment Corp., N.J., 5c, 70c, 75c
Wyco Metal Products, Stantron Div., Calif., 10s, 20s, 35s, 45s, 50s, 75s
York Body & Equipment Co., Pa., 5c, 20c, 40c, 50sc, 65sc
York Metal Products, Inc., N.Y., 10c, 20c, 35c, 40c, 45c, 55c, 70c, 75c
Zero Mfg. Co., Calif., 10sc, 20c, 35sc, 40sc, 45c, 55c, 70c, 75c

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Stantron's broad line of cabinetry comprises the widest range of modular elements available. It combines unequalled flexibility, accessibility, capacity, and economy with the professional styling and superb workmanship ordinarily associated with expensive custom housings. Over 170 standard modular elements.

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SYRACUSE .....GRanite 4-7409
PHILADELPHIA .....SHerwood 7-9080
WASHINGTON .....OLiver 4-6400
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Cable clips:
See class 97

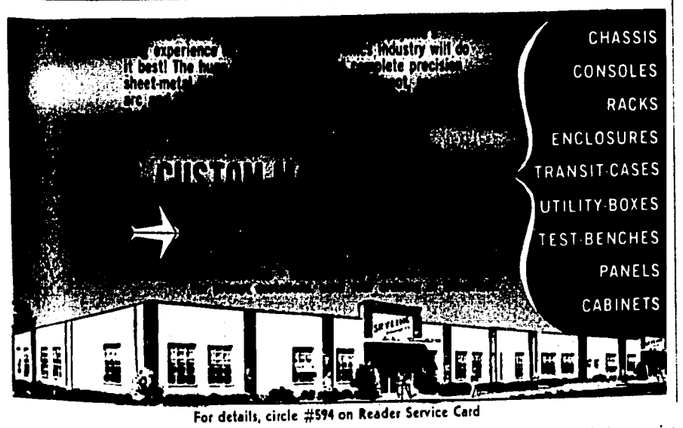
Cable connectors:
See class 52

Cable testers:
See class 41

91. Cable & Wire.

2. Alloy
4. Aluminum
6. Antenna
8. Assemblies
10. Bare
12. Ceramic-insulated
14. Clad
16. Coaxial
18. Copper, bare
20. Cord-sets
22. Enamel-insulated
24. Fine
26. Flat
28. Harnesses
30. High-temperature
32. High-voltage
34. Low-loss, high-frequency
36. Magnet
38. Microphone
40. Molded
42. Multiconductor
44. Plated
46. Precious & rare-metal
48. Resistance
50. Rubber-insulated
52. Shielded
54. Synthetic-insulated
56. Thermocouple
58. Umbilical
60. Wire braid & mesh
62. Wires, lead

AAA Wire Works, Inc., Conn., 10c, 20c, 30c, 38c, 42c, 50c, 52c, 54c
A K Mfg. Co., Inc., Ill., 16sc, 20c, 28c, 38sc, 52sc, 54sc, 60sc
A-T Electronics, Inc., 15 Lawrence St., New Haven 8, Conn., 6sc, 16sc, Tel: 203-STate 7-2131
See ad in this class
Advanced Development Laboratories, Inc., N.H., 34c, 42c
Advanced Electronics, Inc., Conn., 8c, 28c, 56c
Aero Research Instrument Co., Inc., Ill., 12sc, 30sc, 56sc
Aero-Tech Products Co., N.J., 6c, 16c, 34c, 38c, 52c, 54c
Aerolite Electronics Corp., N.J., 8c
Aeronautical Radio Mfg. Co., Fla., 6s, 28s
Aircraft & Electronic Specialties, Ind., 16c, 24c, 28c, 46c, 52c, 60c, 62c
Aircraft Electronics, Ariz., 28c



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Authoritative Reference Data:

How to Specify Electronic Wire and Related Products...

ALPHLEX TUBING: Catalog contains complete description of the entire line of eight Alphlex tubing products. Applications and all pertinent engineering specifications are listed in easy-reading charts. Highlighting the catalog is the Alphlex line of Teflon Tubing — a high temperature tubing (260° C.)

ALPHLEX ZIPPER TUBING: The most up-to-date and complete engineering brochure on the Alphlex line of Zipper Tubing. Featured is complete information on all 5 types of Zipper Tubing, and the unique hand-tool that simplifies closing.

SHIELDING AND BRAIDING: Applications, descriptions and all engineering data on Alpha Shielding and Braiding. Specifications on the 3 different types, Flat Braid, Oval Commercial Braid and Tubular Braid to military spec QQ-B-575 are provided. A special glossary is included.

ALPHLEX LACING CORDS AND TAPES: Types, materials and finishes for Round, Flat Braided, and Government Spec Cords and Tapes are included in the brochure. Alpha stocks a complete line of Lacing Cord for immediate delivery.

ALPHLEX SHRINKABLE TUBING: The newest addition to the Alphlex line of Tubing is Heat Shrinkable Tubing. This tubing, featuring controlled shrinkage, forms a tight mechanical bond seconds after heat is applied. Sizes, physical properties and a complete "How to Use" section are included.

ALL-NEW ALPHA ELECTRONIC WIRE AND CABLE CATALOG: 52 pages of complete engineering information describing the entire Alpha line of over 6000 electronic wire, cable and tubing products. Included in this comprehensive book are Military Specification breakdowns, plus complete descriptions and applications of all Alpha products. The catalog highlights such new products as:

- Retractile Coil Cords and Extension Cord Sets
- Teflon Cables
- Heat Shrinkable Tubing
- Teflon Tubing
- Zipper Tubing
- Shielding and Braiding

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NEW HAVEN, CONN.

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Directory III. Materials & Services

91. Cable & Wire.

Alden Products Co., 10140 N. Main St., Brockton 64, Mass., 8c, 20sc, 28sc, 30sc, 32sc, 40sc, 42sc, 52sc, 58sc, 60sc, Tel: 617-JUniper 3-0160
See ad in class 50

Allegri-Tech, Inc., N.J., 8c, 16c, 18c, 28c

Alloys Unlimited, Inc., N.Y., 2sc, 4sc, 14sc, 30sc, 46sc

Alpha Metals, Inc., N.J., 46sc

Alpha Wire Corp., Subsid. of Loral Electronics Corp., 200 Varick St., New York 14, N.Y., 4s, 6s, 22s, 24s, 28c, 30sc, 32sc, 34s, 36sc, 38sc, 42sc, 50sc, 52sc, 54sc, 60sc, 62s, Tel: 212-ALgonquin 5-5400
See ad in this class

Aluminum Co. of America, Pa., 4sc, 10sc, 24sc, 26sc, 32sc, 36sc

American Avionics, Inc., Div. of Astro-Science Corp., Calif., 8c, 28c

American Brazing Alloys Corp., N.Y., 2s, 4s, 18s, 46s

American Communications Corp., N.Y., 2sc, 8sc, 16sc, 20c, 28c, 34sc, 38sc, 42sc, 44sc, 50sc, 52sc, 54sc, 60sc, 62sc

American Electric Cable Co., Mass., 6s, 8c, 16c, 20c, 28c, 38s, 42c, 48c, 52s, 56s, 60s, 62s

American Machine & Foundry Co., Government Products Group, N.Y., 28c

American Super-Temperature Wires, Inc., Subsid. of Haveg Industries, Inc., 52 W. Canal St., Winooski, Vt., 16c, 30c, 32c, 34c, 36c, 42c, 50c, 52c, 58c, 62c, Tel: 802-UNiversity 2-9636
See ad in this class

Ampco Mfg. Co., N.J., 8c, 20c, 28c, 40c, 58c, 62c

Amperex Electronic Corp., N.Y., 30s, 50s

Amphenol-Borg Electronics Corp., Amphenol Connector Div., 1830 S. 54th Ave., Chicago 50, Ill., 28c, Tel: 312-BIshop 2-1000
See ad on page 114

Anaconda Wire & Cable Co., N.Y., 4s, 6s, 10s, 16s, 18s, 22s, 24s, 30s, 32s, 34s, 36s, 42s, 48c, 50s, 52s, 58s, 62s

Anchor Metal Co., Inc., N.Y., 2c, 24c, 40sc

Andrew Antenna Corp., Ltd., Canada, 6sc, 16sc

Andrew Corp., 363 E. 75th St., P.O. Box 807, Chicago 42, Ill., 6s, 16s, 30s, 32s, 34s, Tel: 312-FIeldbrook 9-3300
See ad on page 86

MILITARY HOOK-UP WIRE

SPECS MIL-W-76B
TYPE MW, MW NYLON, MW SHIELDED
MIL-W-16878D, TYPE B, TYPE C
TYPE E TEFLON®, TYPE EE TEFLON®
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TWX NY 1-488U

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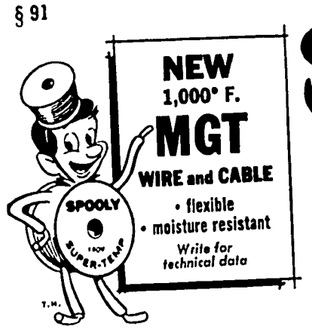

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SUPER-TEMP HIGH TEMPERATURE WIRE AND CABLE CHART
ALL TEMPERATURES ARE CENTIGRADE

PRODUCTS	PRIMARY INSULATION: MATERIAL	COLOR PER MIL STD 104: Solid	Striped	OPERATING TEMPERATURE	JACKET INSULATION: TFE TEFLON TAPE WRAP −90° +260°	FEP TEFLON EXT. −90° +200°	FIBRE GLASS BRAID IMPREG. −90° +260°	PVC EXT. −55° +105°	NYLON EXT. −40° +100°	NYLON BRAID AND LACQUER −55° +125°	DACRON BRAID −55° +100°	POLY-ETHYLENE EXT. −55° +90°	REMARKS
CABLES Single & Multiconductor	TFE Teflon Ext. or Tape	✓	✓	−90°+260°	✓	✓	✓	✓	✓	✓	✓	✓	Any combinations of conductors and shielding available.
	FEP Teflon Extruded	✓	✓	−90°+200°		✓	✓	✓	✓	✓	✓	✓	Conductors and primary insulations per Mil-W-16878.
	Silicone Rubber	✓		−55°+200°		✓	✓	✓	✓	✓	✓	✓	Special conductors and wall thicknesses of insulations available.
	PVC	✓	✓	−55°+105°				✓	✓	✓	✓		Bonding treatment of teflon primary or jacket insulations available.
COAXIAL CABLES	TFE Teflon Extruded	✓		−90°+260°	✓*	✓	✓*	✓	✓	✓	✓	✓	Shielded with Silver Plated or Tinned Copper.
	FEP Teflon Extruded	✓		−90°+200°		✓	✓	✓	✓	✓	✓	✓	*Per Mil-C-17B
	Polyethylene Solid or Foam	✓		−55°+90°			✓	✓*	✓	✓	✓	✓*	Special constructions and jackets available.
AIRFRAME WIRES	TFE Teflon Tape and Imp. Glass	✓		−60°+205°		✓	✓			✓	✓		Shielded with Silver Plated or Bare Copper.
	Silicone Rubber and Dacron	✓		−55°+150°			✓			✓	✓		Per Mil-W-7139A Shields and jackets available.
HOOK-UP WIRES	TFE Teflon Ext. or Tape	✓	✓	−90°+260°	Per Mil-W-16878 type E or EE, or thin wall or extra heavy wall								Per Mil-W-8777A Shields and jackets available.
	FEP Teflon Ext. or Tape	✓	✓	−90°+200°	Produced to physical dimensions of Mil-W-16878 type E or EE								UL APPROVED
	Silicone Rubber	✓		−55°+200°	Per Mil-W-16878 type F or FF, special constructions								Special constructions available.
	PVC	✓	✓	−55°+105°	Per Mil-W-16878 type B, C, or D with or without Nylon Jacket								Twisting of two or more wires available.
	TFE Teflon Film	✓		−90°+260°	Operating voltage 300 RMS—Solid conductors only								Bonding treatment of teflon insulations available.
MAGNET WIRES	TFE Teflon Film	✓		−90°+260°	Per Mil-W-19583 type III single, heavy, triple and quad. wall thickness								Tempering and bonding treatments available.
	Silicone and Isonel	Natural		−55°+155°	Per Mil-W-19583 type II single and heavy wall thickness								
	Mica Magnet Wire	Natural		−90°+350°	A special magnet wire for extremely high temperatures								Available with nickel clad copper conductors.

†DUPONT'S TFE RESIN

TEFLON TAPES: Type B, sintered and bondable; Type B, unsintered; all sizes; Mil. Std. 104 colors.

TEFLON TUBING: Extra flexible, tape wrapped. Mil. Std. 104 colors, solid or striped.

American Super-Temperature Wires, Inc.
A Subsidiary of Haveg Industries, Inc., Wilmington, Del.
52 West Canal Street, Winooski, Vermont • UNiversity 2-9636
General Sales Office: 195 Nassau St., Princeton, N. J. WAlnut 4-4450

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For details, circle #600 on Reader Service Card

Directory III. Materials & Services

91. Cable & Wire.

Anodyne, Inc., North Shore Nameplate Div., Fla., 4sc

Art Wire & Stamping Co., 21 Boyden Pl., Newark 2, N.J., 62c, Tel: 201-HUmboldt 4-2100
See ad in class 105

Artos Engineering Co., Wis., 62c

Asco Wire & Cable Co., Conn., 22s, 24s, 36s

Atlas Wire & Cable Co., Inc., 45 Vesey St., New York 7, N.Y., 16sc, Tel: 212-BArclay 7-6465
See ad in this class

Autotron, Inc., Calif., 28c

Barker Products Co., Mass., 6sc, 28sc, 38sc, 52sc

Barker Sales Co., N.J., 16c, 22c, 34c, 36c, 50c, 52c, 54c

Belden Mfg. Co., Ill., 16s, 18s, 20s, 22s, 32s, 36s, 38s, 50s, 52s, 58s, 60s, 62s

Benco Television Associates, Ltd., Canada, 16s

Bendix Corp., Scintilla Div., Sidney, N.Y., 8c, 16c, 28c, 30c, 32c, 40c, 42c, 48c, 50c, 52c, 54c, 56c, 58c, 60c, 62c, Tel: 607-LOwell 3-9511
See ad on page 90

Berkshire Electric Cable Co., Mass., 16c, 30c, 32c, 34c, 38c, 42c, 48c, 52c, 54c, 56c, 62c

Beryllium Corp., Pa., 2sc

Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 4s, 6s, 8sc, 10s, 14s, 16s, 18sc, 20s, 22s, 24sc, 26sc, 28c, 30sc, 32sc, 34s, 36s, 38sc, 42sc, 50s, 52sc, 54sc, 60sc, 62sc, Tel: 212-WOrth 6-5611
See ad in this class

Bishop & Co. (J.), Platinum Works, Pa., 2sc, 14sc, 24sc, 30sc, 44sc, 46sc, 48sc, 56sc, 60sc

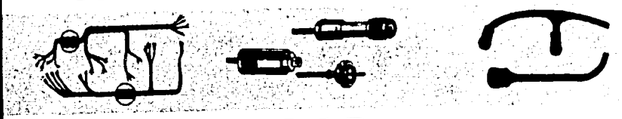
Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 46c

Boston Insulated Wire & Cable Co., Mass., 6c, 16c, 30c, 32c, 34c, 42sc, 50sc, 52c, 54sc, 56c, 62sc

Brainin Corp. (C. S.), N.Y., 14c, 24c, 26c, 44c, 46c

Bram Metallurgical-Chemical Co., Pa., 2c, 4sc, 10sc, 18sc, 22sc, 24sc, 26sc, 30sc, 34sc, 36sc, 44sc, 46sc, 48sc, 56sc, 60sc

cables and harnesses . . .



CENTROID *offering the industry today—*

- **Design and fabrication of laced or braided wired harness systems.**
- **Molded and potted cable assemblies straight and branched.**
- **Special microwave and RF transmission cable.**

CENTROID Engineering & Manufacturing Corp.
126 Jackson Street, Cambridge 40, Mass.

At CENTROID, the latest commercial and military techniques are used in manufacturing to insure positive reliability.

For details, circle #602 on Reader Service Card

TEFLON* INSULATED HIGH TEMPERATURE WIRE & CABLE

SPECIFICATIONS

WIRE OR CABLE	PRIMARY INSULATION	COLORS MIL-STD-104	OPERATING TEMPERATURE	JACKETS	REMARKS
High Temperature Hook-up Wire	Teflon, Extruded Teflon Tape Wrapped	Solid & Striped	−90°C−+260°C	———	Conforms to MIL-W- 16878 C Types E & EE or other special specifications as required.
Cables A	Teflon, Extruded Teflon Tape Wrapped	Solid & Striped	−54°C−+105°C	PVC	Any combinations of conductors and shielding required.
Cables B	Teflon, Extruded Teflon Tape Wrapped	Solid & Striped	−54°C −+105°C	Nylon Braid Nylon Extruded	Any combinations of conductors and shielding required.
Cables CX	Teflon, Extruded Teflon Tape Wrapped	Solid & Striped	−90°C−+200°C	Teflon 100X Extruded	Any combinations of conductors and shielding required.
Cables CT	Teflon, Extruded Teflon Tape Wrapped	Solid & Striped	−90°C− +260°C	Teflon Tape	Any combinations of conductors and shielding required.
Cables H	Teflon, Extruded Teflon Tape Wrapped	Solid & Striped	−90°C− +260°C	Fiber-Glass Silicone Fiber-Glass Teflon Impregnated	Any combinations of conductors and shielding required.
Airframe Wire	Teflon Tape Plus Impregnated Glass	Solid Only	−60°C−+205°C	———	———
Miniature Coaxial Cable	Teflon, Extruded	Jackets Only Solid & Striped	−90°C− +260°C	Teflon Tape Teflon 100X Extruded Fiber-Glass Teflon	Conforms to MIL-C 17B and MIL-C- 8721
Thermo Couple Wire	Teflon, Extruded	Solid & Striped	−90°C− +260°C	———	———

TEFLON TUBING Extruded spaghetti solid MIL- Std-104 colors. Commercial tubing; teflon tubing inner-core for medium pressure to mil-H-25579 (USAF) Extruded fiber-glass reinforced Pipe lining.

BONDING TREATMENT Surface treatment to increase bondability for use with potting compounds.

*REGISTERED DUPONT TRADEMARK

Cimco wire & cable co.
303 W. CRESCENT AVENUE ALLENDALE, N. J. DAVIS 7-2522

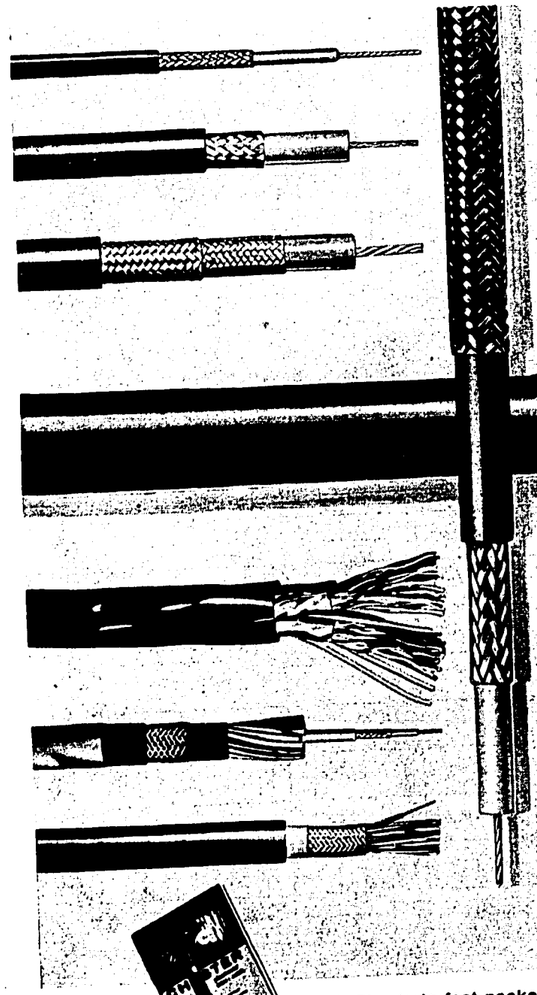
For details, circle #601 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

CHESTER

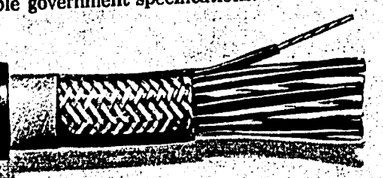
SPECIALISTS IN QUALITY CABLE CONSTRUCTION FOR THE ELECTRONIC INDUSTRY

Single conductors or any number of pairs . . . for coaxial and control applications. As a "specialist in specials" Chester concentrates on meeting the increasing demands of both military and commercial electronics for plastic insulated wire and cable – particularly coaxial cables and multi-conductor constructions. Typical types are shown here. All Chester products may be varied in conducting, insulating, jacketing, shielding or armoring materials to meet your particular needs.



RG TYPE COAXIAL CABLES

Chester RG Type Coaxial Cables are made in both military and non-military versions, single or multi-conductor. Miniature designs are available in a choice of foam and solid polyethylene or in Teflon insulations, and in variations which include double shielding with polyethylene separator and jacket for TV systems or other low loss, all weather, signal transmission applications. Military types meet MIL-C-17 and all other applicable government specifications.



MULTI-CONDUCTOR CABLES

Chester is the recognized leader in the manufacture of multiple-conductor cables for computers and related electronic equipment. These cables can be supplied to *your* design –ranging in size from miniature to large diameters, shielded or unshielded, in a wide selection of thermoplastic insulating and jacketing materials. Any combination of appliance wire, hook-up wire and military approved wires, as well as coaxial cables and shielded conductors can be grouped to meet your specific needs. Send us your requirements for prompt engineering cooperation and price quotation.

NEW, Chester's fact-packed coaxial cable selection guide. Write for your free copy.

CHESTER CABLE CORP., CHESTER, NEW YORK
A SUBSIDIARY OF TENNESSEE CORPORATION

SPECIFY CHESTER WIRE AND CABLE FOR ALL YOUR ELECTRONIC EQUIPMENT NEEDS

Coaxial Cables • Hook-Up Wire • Multi-Conductor Cable • Appliance Wire • Audio Wire • Miniature Wire and Cable • High Voltage Wires • High Frequency Wires • Antenna Loop Wire • Annunciator Wire • Telephone Wires and Cables • Television Transmission Lines

For details, circle #603 on Reader Service Card

Directory III. Materials & Services

91. Cable & Wire.

Brand-Rex Div. (William), American Enka Corp., Mass., 6sc, 8c, 16sc, 26c, 28c, 30sc, 32sc, 34sc, 38c, 40c, 42sc, 52sc, 54sc, 58c, 62sc

Breeze Corporations, Inc., N.J., 28c, 60c

Brookfield Wire Co., Inc., Mass., 2c, 4c, 10c, 14c, 48c, 60c, 62c

Buckbee Mears Co., 245 E. Sixth St., Saint Paul 1, Minn., 26c, 28c, 44c, Tel: 612-CApital 7-7361
See ad in class 105

Burklyn Co., Calif., 8c

Burndy Corp., Omaton Div., Richards Ave., Norwalk, Conn., 8sc, 40c, Tel: 203-TEmple 8-1169
See ad in class 52

CBC Electronics Co., Inc., Pa., 8c, 28c

C-M Mfg. & Machine Co., Inc., N.J., 12c, 14c, 62c

Cable Designs, Inc., N.Y., 8c, 16sc, 22s, 24s, 28c, 30sc, 32c, 34c, 36sc, 40c, 42sc, 52sc, 54sc, 56c, 58c, 60sc, 62s

Cable Specialists of Conn., Conn., 8c, 28c

Cadre Industries Corp., N.Y., 8c, 20c, 28c

Calbest Electronics, Calif., 8c, 16c, 28c, 42c

Camden Wire Co., Inc., N.Y., 10c, 18c, 24c, 44c

Cannon Electric Co., 3208 Humboldt St., Los Angeles 31, Calif., 28c, Tel: 213-CApitol 5-1251
See ad on page 52

Carborundum Co., Refractories Div., N.J., 12c

Carpenter Steel Co., Pa., 24s

Central Dynamics, Ltd., Canada, 56sc

Centroid Engineering & Mfg. Corp., 126 Jackson St., Cambridge 40, Mass., 8c, 28c, 58c, 62c, Tel: 617-TRowbridge 6-7250
See ad on page 111 & in this class

Ceramco, Inc., N.J., 12c, 40c

Chase Brass & Copper Co., Conn., 2sc, 4sc, 10sc, 18s, 26c, 46c, 60s

Chemplast, Inc., N.J., 16s

Chester Cable Corp., Subsid. of Tennessee Corp., Oakland Ave., Chester, N.Y., 16s, 18s, 30c, 32sc, 34c, 38sc, 42sc, 52sc, 54sc, 56c, 58c, 62sc, Tel: 914-HOmestead 9-2141
See ad in this class

Chester-Morton Electronics Corp., Pa., 8sc, 20sc, 28sc, 40sc, 58sc, 62sc

Cicoil Corp., Calif., 8c, 26c, 28c, 30c, 42c

Cimco Wire & Cable Co., 303 W. Crescent Ave., Allendale, N.J., 30sc, Tel: 201-DAvis 7-2522
See ad in this class

Circle F Mfg. Co., N.J., 20s, 28c

Cohn Corp. (Sigmund), 121 S. Columbus Ave., Mount Vernon, N.Y., Exothermic c, Tel: 914-MOunt Vernon 4-5300
See ad in this class

Coleman Cable & Wire Co., Ill., 6s, 8c, 16s, 20s, 28c, 32s, 34s, 36s, 38s, 40s, 42s, 50s, 52s, 54s, 62c

Columbia Wire & Supply Co., Ill., 4s, 6s, 8s, 10s, 14s, 16s, 18s, 20s, 28s, 30s, 32s, 34s, 38s, 42s, 50s, 52s, 54s, 62s

Components for Research, Inc., Calif., 8c, 32c

Computer Equipment Corp., Calif., 8c, 28c, 40c, 58c

Consolidated Reactive Metals, Inc., 115 Hoyt Ave., Mamaroneck, N.Y., 2sc, 4sc, 10sc, 12sc, 14sc, 18sc, 22sc, 24sc, 26sc, 30sc, 36c, 38c, 44sc, 46sc, 48sc, Tel: 914-OWens 8-2300
See ad in this class

Consolidated Wire & Associated Companies, 1637 S. Clinton St., Chicago 16, Ill., 2s, 4s, 6s, 8s, 10s, 16s, 18s, 20s, 22s, 24s, 26s, 28s, 30s, 32s, 34s, 36s, 38s, 42s, 44s, 48s, 50s, 52s, 54s, 56s, 60s, 62s, Tel: 312-HAymarket 1-4441
See ad in this class

Continental Electronics & Sound Co., Ohio, 28c

Cooper & Sons, Inc. (Joseph B.), N.Y., 2sc, 14sc, 24sc, 30sc, 44sc, 46sc, 48c

Copperweld Steel Co., Flexo Wire Div., N.Y., 2sc, 4sc, 6sc, 10sc, 14sc, 18sc, 24sc, 26sc, 30sc, 32sc, 34sc, 44sc, 46sc, 48sc, 52sc, 60sc, 62sc

Copperweld Steel Co., Wire & Cable Div., Pa., 2sc, 6sc, 10sc, 14sc, 18sc, 24sc, 32sc, 34sc, 52sc, 60sc

Cord Specialties, Ill., 8c, 20sc, 28c, 50sc, 62sc

Crescent Co., Inc., R.I., 20sc, 38sc, 50sc

Cush Craft, N.H., 6c

DKE Electronic Bases, Inc., N.J., 14c, 18c, 44c, 62c

Dale Electronics, Inc., Subsid. of Hathaway Instruments, Inc., 1318 28th Ave., P.O. Box 488, Columbus, Nebr., 8c, 28c, 40c, 50c, 58c, Tel: 402-LOcust 4-3131
See ad in class 74

Datronics Engineers, Inc., Md., 6c

Decibel Products, Inc., Texas, 8c, 16c

Dielectric Materials Co., Ill., 14c, 54c

Dielectric Products Engineering Co., Inc., Me., 6c, 16c, 32c

Dittmore-Freimuth Corp., Wis., 8c, 28c

Drexel Dynamics Corp., Pa., 4c

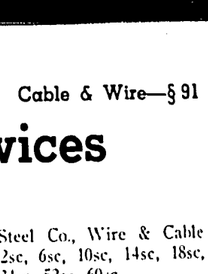
Driver Co. (Wilbur B.), 1875 McCarter Hwy., Newark 4, N.J., 22sc, 24sc, 26sc, 30sc, 48sc, 56sc, 62sc, Tel: 201-HUmboldt 2-5550
See ad on page 134

Eagle Electric Mfg. Co., Inc., N.Y., 8s, 20s, 50s, 54s

SIGMUND COHN CORP.

Specialists in Unusual Products

Since 1901



Precious Metal Wires for Potentiometers and Resistance Thermometers.

Galvanometer Suspension Strip

Gold Alloys doped for semiconductor devices; wire or special shapes.

Plating Solutions – Gold and Rhodium

Small Enamel Insulated Wires

Thermocouple Wires – Precious metal.

Wollaston Process Wire, as small as .000005" diameter.

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SIGMUND COHN CORP. 121 So. Columbus Ave. • Mt. Vernon, N.Y.

SIGMUND COHN CORP. OF CALIFORNIA • 151C N. Maple St., Burbank, Cal.

For details, circle #604 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

HITEMP

A DIVISION OF SIMPLEX WIRE & CABLE CO.

Specialists in High Temperature Mil-Spec Wires and Cables

MIL-C-17B **NAS-703** **MIL-W16878C** **MIL-W-7139A** **MIL-W-19583**

"HITEMP FX" MAGNET WIRE A cross linked polymer with excellent mechanical properties for 260°C and plus continuous operation.

CERAMIC FILM INSULATED MAGNET WIRE—"CERAMATEMP" A flexible magnet wire for operation at 1000oF. Available in sizes 20 to 36 AWG in single and heavy thicknesses.

TEFLON MAGNET WIRE—"TEMPRITE" Sizes 14 to 50 AWG, single, heavy, triple or quadruple thicknesses, conforming to MIL-W-19583 (NAVY). Heavy triple and quadruple coatings. Available in 8 solid colors to conform with MIL Std. 104.

SPECIAL TEFLON MAGNET WIRE—"TEMPRITE X" Same characteristics and sizes as regular Temprite, but specially processed for severe abrasion applications.

MODIFIED RESIN ENAMEL MAGNET WIRE—"THERMISTER-L" Sizes 14 to 42 AWG inclusive. Used for temperatures from −54°C to +155°C. Available in single or heavy thicknesses. Conforms to MIL-W-19583 (NAVY) except for temperature rating.

CABLES Complete cable assemblies and fabrication.

MINIATURE EXTRUDED TEFLON HOOK-UP WIRE—"MX AND MXR" Available in sizes 22 to 32 AWG with standard or reinforced conductor. This special 300 volt thin wall insulated wire is a boon to miniaturization.

TEFLON HOOK-UP WIRE—"TEMPRENE" Fused Teflon tape insulation on wire sizes 8 to 32 AWG. Two or three color striped combinations, plus 10 solid colors. Conforms to MIL-W-16878C (E and EE).

TEFLON EXTRUDED HOOK-UP WIRE—"TEMPREX" Sizes 10 to 32 AWG, in both striped and solid colors. Conforms to MIL-W-16878C (E and EE).

SUB-MINIATURE TEFLON LEAD WIRE—"DQT" Solid copper conductors with Teflon film insulation rated at 300 volts. Available in sizes 20 to 32 AWG, and in 8 solid colors.

TEFLON INSULATED LEAD WIRE—"TEMPCLAD" Teflon insulated lead wire with an outer covering of Teflon impregnated glass fiber braid. Sizes 10 to 28 AWG in 8 solid colors.

100X EXTRUDED HOOK-UP WIRES AND JACKETED CABLES To all applicable military specifications. Sizes 4 to 32 AWG.

FLEXIBLE TEFLON TUBING—"TEMPRENE NON-RIGID" Sizes 10 to 26, solid colors and special striped combinations. Also large diameters ⅛" to 1" in 12" lengths.

"HIWRAP" Unfused, fused and bondable Teflon tape.

TEFLON EXTRUDED TUBING—"TEMPREX TUBING" Sizes 2 to 30 AWG. Fourteen solid colors.

100% SHIELDED WIRES Seamless tube of solid metal (copper, nickel, stainless steel) formed over single or multiple insulated wires to afford 100% shielding for RF or radiation applications

SHIELDED AND JACKETED MINIATURE CABLES Consist of Temprene or Temprex Conductors, shielded and jacketed for high temperature operation. Jackets available in fiberglass braids, teflon or silicone saturated, fused teflon tape, or vinyl insulation.

RIBBON CABLE ASSEMBLIES—"TEMPBRAID" 100% Teflon, flexible, flat ribbon multi-conductor cables. Available in from 2 to 30 conductors in sizes 12 to 32 AWG.

MINIATURE LOW NOISE COAXIAL CABLES Available in 50, 75 and 95 ohm impedances and attenuations of 2β, 20 and 15 db/100 ft. at 400 mc., respectively.

MINIATURE LOW CAPACITANCE COAXIAL CABLES Available in 8.5 or 10.5 mmfd./ft. capacitance ratings.

MINIATURE COAXIAL CABLES Consist of 50, 75 and 95 ohm cables, shielded and jacketed for applications up to +250°C. QPL approved for conformance to MIL-C-17B.

HEATER CABLES Teflon insulated for 600 volt operation. Size 12 to 26 AWG.

HIGH TEMPERATURE AIRCRAFT WIRE For 600 volt service at 400°F. Conforms to MIL-W-7139A (AER). Available in sizes 6 to 22 AWG, in 6 solid colors.

TEFLON MARKING FLUID Teflon printing ink available in black. Can be used for printing codes, etc., on Teflon.

SURFACE TREATED TEFLON WIRES Adherence of varnishes and compounds on Teflon hook-up and magnet wires now practical. Available in 10 solid colors. Conforms with MIL Std. 104.

REINFORCED STANDARD CONDUCTORS—"HIGH STRENGTH" Mechanically improved conductors Teflon insulated to meet all reuirements of MIL-W-16878C. Available in sizes 24 to 32 AWG.

"WRAP-IT" 100% Teflon pipe thread sealer.

NEW YORK—1200 SHAMES DRIVE, WESTBURY, NEW YORK, EDGEWOOD 3-4600

CALIFORNIA—1532 SOUTH CALIFORNIA AVENUE, MONROVIA, CALIFORNIA, ELLIOT 9-8381

Custom Wires and Cables Designed to Your Specifications

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FOR EVERY ELECTRONIC NEED . . . CONSOLIDATED OFFERS THE PROPER WIRE OR CABLE

Aerial Wire
Air Conditioner Cable
Annunciator Wire
Audio Cable
Automotive Cable
Bare Copper Wire
Bonding Strap
Braided Copper
Broadcast Studio Cable
Bronze Wire
But Bar Wire
Cathode Ray Tube Cable
Coaxial Cable
Copper—Bare
Copper—Braided Tinned
Copper—Solid Tinned
Copper—Stranded Bare
Copper—Stranded Tinned
Cord—Power, Service
Cord Sets
Direct Burial Cable
Electrical Cordage
Heavy Formvar Magnet Wire
Hi-Fi Interconnecting Cable
Hi-Temp Wire
Hi Voltage Wire
Hook-up Wire
General Purpose
Plastic
Cotton
Glass
Nylon
Ignition Wire
Inter-Communication Cable
Juke Box Speaker Cable
Lamp Cord
Lead Covered Communication Cable
Lead Sheathed Cable
Magnet Wire
Microphone Cable—Plastic
Microphone Cable—Rubber
Military Specification
Multi-Conductor Cable—Shielded
Multi-Conductor Cable—Unshielded
Neoprene Cable
Phono Pick-up and Grid Wire—Shielded
Phono Pick-up and Grid Wire—Unshielded
Plain Enameled Magnet Wire
Plastic Hook-up Wire
Plastic Jacketed Cable, Shielded
Plastic Jacketed Cable, Unshielded
R.G. Coaxial Cables
Resistance Wire
Rubber Covered Cable, Shielded
Rubber Covered Cable, Unshielded
Telephone Wire and Cables
Television Wire and Cables
Test Lead Wire
Tinned Copper—Solid
Tinned Copper—Stranded
Transmission Line—Shielded
Transmission Line—Unshielded
U/L Lamp Cord—Plastic
U/L Lamp Cord—Rubber
U/L Service Cord—Neoprene
U/L Service Cord—Rubber
Underground—Plastic Covered Cable
Underground—Lead Covered Cable
Service Cord
Shielded Cable
Shielding—Braided Copper
Shielded—Hook-up Wire
Shielded Microphone Cable
Shielded Multi-Conductor Cable
Speaker Cable, Shielded
Speaker Cable, Unshielded
Spiral Wrapped Shielded Cable
S.R.H.V. Type (H.W.)
S.R.I.R. Type (M.W.)
Stereo Phono Pick-up Arm Cable, Shielded
Stereo Phono Pick-up Arm Cable, Unshielded
TEFLON

SEND FOR COMPLETE CATALOG

CONSOLIDATED WIRE AND ASSOCIATED COMPANIES

1637 S. Clinton St.
Chicago 16, Illinois HA 1-4441

For details, circle #606 on Reader Service Card

Directory III. Materials & Services

91. Cable & Wire.

Eagle Signal Co., Div. of Gamewell Co., Ill., 8c
Ecco Electronic Components Corp., N.Y., 8c
Elco Corp., Pa., 8c, 28c
Electramatic, Inc., Minn., 28c
Electri-Cord Mfg. Co., Inc., N.Y., 20sc, 28c
Electric Autolite Co., Wire & Cable Div., Mich., 4c, 10c, 16c, 18c, 22s, 24s, 26s, 30s, 32s, 36s, 40c, 42s, 44c, 48s, 50s, 52s, 54s, 60c, 62s
Electric Cords & Supply Co., Calif., 8c, 16c, 20c, 28c, 40c, 50c, 52c, 54c, 62c
Electro-Mech Engineering Co., Minn., 20sc
Electronic Parts Mfg. Co., Inc., N.J., 2c, 8c, 14c, 24c, 30c, 32c, 44c, 60c, 62c
Electronic Production & Development, Inc., Calif., 28c, 30sc
Electronic Specialty Co., Calif., 8c, 16c, 30c
Electronic Wiring Corp., N.Y., 8c, 28c
Electropac, Inc., N.H., 8c, 16c, 28c, 40c, 58c, 62c
Electrovert, Inc., N.Y., 28c
Elsco Systems, Inc., Wash., 28c
Emerson Electric Mfg. Co., Mo., 28c
Empire Electronics Co., Inc., N.J., 8c, 20c, 28c, 62c
Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 10c, 14c, 46c, 48c, 56c, 62c, Tel: 201-BIgelow 2-2700
See ad on page 140
Engelhard Industries, Inc., American Platinum & Silver Div., N.J., 2sc, 46sc, 62c
Engelhard Industries, Inc., Makepeace Div., Mass., 2c, 10c, 14c, 24c, 26c, 28c, 44c, 46c
Engineering Model Laboratory, Inc., Mass., 28c, 42c
Entron, Inc., Md., 16s
Ericsson Corp., Subsid. of L. M. Ericsson Telephone Co. (Stockholm), 100 Park Ave., New York 17, N.Y., 16c, Tel: 212-MUrray Hill 5-4030
See ad in class 86
Essex Wire Corp., Cords, Ltd. (Div.), Ill., 4s, 20s, 50s
Essex Wire Corp., Magnet Wire Div., Ind., 4s, 18s, 22s, 36s, 54s
Excel Specialty Corp., Ill., 8c, 20c, 28c, 50s, 60s, 62c

FINE WIRE

for

- Semiconductors
- Resistors
- Potentiometers
- Thermocouples
- Electronic Tubes
- Other Electronic Applications

in precious base, exotic and special metals bare or insulated

Custom Melting, Complete Redrawing, Strand and Vacuum Annealing Services for fine wire processing to customers' specifications.

WRITE for valuable brochure containing fine wire compositions, pertinent properties and applications.

CRM

CONSOLIDATED REACTIVE METALS, inc.

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makers of quality fine wire for over 60 years

FILM and FABRIC INSULATED MAGNET WIRES

Film Insulations: Enamel, EZ-Sol (nylon), Hud-Sol (polyurethane), Formvar, Siliclad (silicone), Nyform, Nypoly, Isonel & ML (220°C), each single or heavy. Sizes 14 to 56. Fabric Insulations: Celanese, Nylon, Silk, Cotton & Orlon, each single or double. All solid & tracer colors, Sizes AWG 20 and finer. Combinations of Film & Fabric insulations available.

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FRontier 9-3341
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SPECIALS: High Frequency Litzendraht. Voice Coil. Bifilar & Trifilar. Pig-Tail leads. Braided Wires. Loop Wires. Silver plated Nickel. Aluminum. Special Servings of Nylon & Celanese in colors.

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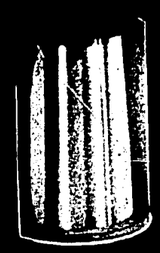
OSSINING DIVISION
Ossining, New York
Wilson 1-8500
TWX — OSING 964

FINE WIRE AT ITS FINEST

Available on Standard Wire Spools
and on the Exclusive
HUD-PAK*
High Speed Wire
Payoff Package

FEATURING:
- High Speed Payoff in excess of 500 ft. per. min.
- Controllable Tensions.
- Large Payoff Packages of 50 and 120 Pounds.
- Instantaneous Starts and Stops.
- Rugged Construction to Protect Wire in Use or Storage.



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Member: Nat'l Security Industrial Assoc.; Nat'l Electrical Manufacturers Assn.

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Directory III. Materials & Services

91. Cable & Wire.

Factory Enterprises, Inc., Pa., 60sc
Fairbanks Wire Co., Inc., N.Y., 24c, 26c, 36c, Textile-Insulated c
Faradyne Electronics Corp., N.J., 30sc, 62sc
Farwest Mfg. Div., Inc., Wash., 28c, 58c
Finney Co., Ohio, 4s, 6s
First Electronics Corp., Mass., 8c, 28c, 40c, 42c, 58c, 62c
Fort Wayne Metals, Inc., Ind., 2s, 24s
Franklin Engineering Design Co., Calif., 32c
Gavitt Wire & Cable Co., Div. of Amerace Corp., Mass., 8c, 16c, 26c, 28c, 38c, 42c, 50c, 52c, 54c, 56c
General Cable Corp., N.Y., 2s, 4s, 6s, 8s, 10s, 12s, 14s, 16s, 18s, 20s, 22s, 24s, 26s, 28s, 30s, 32s, 34s, 36s, 38s, 40s, 42s, 48s, 50s, 52s, 54s, 58s, 60s, 62s
General Cable Corp., Cornish Wire Co., N.Y., 6s, 20sc, 28c, 32c, 38s, 42sc, 50sc, 52sc, 62sc
General Electric Co., Lamp Metals & Components Dept., Ohio, 10s, 12s, 14s, 24s, 30s, 44s, 46s, 60s, 62sc
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 8c, 28c, 30c, 42c, 52c, 60c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 40sc, 42s, 44c
General Insulated Wire Works, R.I., 10sc, 20c, 38c, 50c, 52c, 62c
General Laboratory Associates, Inc., N.Y., 28sc, 62sc
General Motors Corp., Packard Electric Div., Ohio, 4sc, 8sc, 10s, 12c, 22sc, 24sc, 28c, 30sc, 32sc, 36sc, 42sc, 48sc, 50sc, 52sc, 54sc, 56c, 58c, 60sc
General Plastics Corp., N.J., 54c
General Radio Co., 22 Baker Ave., West Concord, Mass., 8s, 16s, Tel: 617-EMerson 9-4400
See ad on Cover 4
Gilfillan Brothers, Inc., Calif., 8c, 28c
Gore & Associates, Inc. (W. L.), Del., 8c, 16c, 24c, 26c, 28c, 30c, 32c, 34c, 42c, 52c, 54c, 56c, 58c, 62c
Gunnar Laboratories, Inc., Fla., 8c, 16c, 32c, 34c, 52c, 60c, 62c
Hackensack Cable Corp., 127 Orchard St., Hackensack, N.J., 6s, 10s, 14s, 52s, 54s, Tel: 201-HUbbard 7-1100
See ad in this class
Haller Mfg. Co., Calif., 8c, 28sc, 40sc, 60sc, 62sc
Hamilton Standard Electronics, Div. of United Aircraft Corp., Conn., 28c
Handy & Harman, 850 Third Ave., New York 22, N.Y., 46c, Tel: 212-PLaza 2-3400
See ad in class 104
Hartwood Glass & Metals Co., W.Va., Glass Tipped c
Hatfield Wire & Cable, Div. of Continental Copper & Steel Industries, Inc., N.J., 4sc, 6sc, 8sc, 10sc, 18sc, 24sc, 28sc, 30sc, 32sc, 38sc, 40sc, 42sc, 50sc, 52sc, 54sc, 58sc, 60sc, 62sc
Haveg Industries, Inc., Del., 62c
Hitachi New York, Ltd., N.Y., 4c, 18c, 22c, 30c, 50c, 54c
Hitemp Wires Co., Div. of Simplex Wire & Cable Co., 1200 Shames Dr., Westbury, L.I., N.Y., 4c, 8c, 12s, 16s, 22s, 28s, 30s, 34s, 36s, 40s, 42s, 52s, 54s, 56c, 62s, Tel: 516-EDgewood 3-4600
See ad in this class
Hoskins Mfg. Co., Mich., 2s, 10sc, 22sc, 30sc, 48sc, 56sc
Hudson Wire Co., Magnet Wire Div., 981 Main St., Winsted, Conn., 36sc, Tel: 203-FRontier 9-3341
See ad in this class
Hudson Wire Co., Ossining Div., 62 Water St., Ossining, N.Y., 4sc, 18sc, 22sc, 36sc, 44sc, 54sc, 60sc, Tel: 914-WIlson 1-8500
See ad in this class
I-T-E Circuit Breaker Co., Special Products Div., Pa., 6c
Ideas, Inc., Wyo., 50sc
Illumitronic Engineering Corp., Calif., 6s, 18s, 22s, 30s
Inso Electronic Products, Inc., 103-B Park Ave., Nutley, N.J., 16c, 30c, 52c, 62c, Tel: 201-NOrth 7-7711
See ad in this class
International Electric Industries, Inc., N.Y., 8c, 20s, 28s, 38s, 40s, 42s, 50s, 52s, 62s
International Nickel Co., Inc., Huntington Alloy Products Div., W.Va., 62s
International Telephone & Telegraph Corp., ITT Distributor Products Div., N.J., 16s, 20s, 50s
International Telephone & Telegraph Corp., Royal Electric Corp. (Div.), R.I., 8sc, 10sc, 20sc, 28c, 30c, 34sc, 42c, 50sc, 52sc, 54sc
International Wire & Cable Co., Ill., 6sc, 8sc, 10sc, 16sc, 18sc, 20sc, 28c, 32sc, 34sc, 38sc, 42sc, 52sc, 60sc, 62sc
International Wire Products Corp., N.J., 14s, 24s, 44s, 48c, 56c
JFD Electronics Corp., 6101 16th Ave., Brooklyn 4, N.Y., 20sc, Tel: 212-DEwey 1-1000
See ad on pages 56-57
Janco Corp., Calif., 8sc
Jasco Aluminum Products, 31 Nassau Terminal Rd., New Hyde Park, L.I., N.Y., 4sc, Tel: 516-FLoral Park 4-8607
See ads in class 105
Jefferson Electronic Products, Div. of Jefferson Electric Co., Calif., 8c, 24c, 26c, 28c, 40c, 52c
Jefferson Wire & Cable Corp., Mass., 16c, 32c, 38c, 42c, 52c, 54c
Jelliff Mfg. Corp. (C. O.), Conn., 2c, 10sc, 22sc, 24s, 26s, 48s, 60s
Jersey Specialty Co., Inc., N.J., 2c, 6c, 8c, 26c, 28c, 62c
Jones & Roy Co., Calif., 62c
Judd Wire Mfg. Corp., Mass., 6c, 16c, 30c, 32c, 34c, 38c, 42c, 52c, 54c, 62c
Kaiser Aluminum & Chemical Sales, Inc., Calif., 2sc, 4sc, 18sc, 24sc, 26sc, 30sc, 32sc, 34sc, 38sc, 40sc, 42sc, 50sc, 52sc, 54sc
Kassel Industries, Inc., N.J., 16c, 20c, 24c, 26c, 42c, 44c, 46c, 60c
Kawecki Chemical Co., Inc., 220 E. 42nd St., New York 17, N.Y., 46s, Tel: 212-MUrray Hill 2-7143
See ads in classes 102, 104
Keiser's Industries, Inc., Pa., 8c, 28c
Koiled Kords, Inc., Conn., 20sc, 38s, 42s, 44s, 50s, 52s, 54s
Kupfrian Mfg. Div., Robinson Technical Products, Inc., 157 Prospect Ave., Binghamton, N.Y., 28c, 58c, Tel: 607-RAymond 3-9561
See ad in class 69
Lab-Tronics, Inc., 3656 N. Lincoln Ave., Chicago 13, Ill., 8sc, 16sc, 20sc, 28c, 38sc, 40sc, 42sc, 52sc, 62sc, Tel: 312-GRaceland 7-7900
See ad in class 62
Leach & Garner Co., Industrial Div., Mass., 2c, 10c, 14c, 18c, 24c, 44c, 46c
Leecraft Mfg. Co., Inc., N.Y., 28c, 62s
Leeds & Northrup Co., Pa., 56s, 62s
Lenz Electric Mfg. Co., Ill., 10sc, 22c, 30sc, 38s, 42sc, 44sc, 52sc, 54sc, 60sc, 62sc
Leviton Mfg. Co., Inc., N.Y., 4s, 6s, 8s, 10s, 20s, 24s, 26s, 28s, 30s, 32s, 36s, 42s, 48s, 50s, 52s, 54s, 56s, 60s, 62s

HACKENSACK

FOR

SPECIAL CABLES

- Dial Cables
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- Antenna strands and cables
- Guy Cables

MADE OF

STAINLESS STEEL
GALVANIZED STEEL
MONEL
PHOSPHOR BRONZE
CADMIUM BRONZE
NYLON COATED
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HACKENSACK Cable CORPORATION
127 Orchard Street — Hackensack, N.J.

For details, circle #609 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

MINIATURE TYPE "E" HOOK-UP WIRE MIL-W-16878
Insulation: 6 Mil (0.006") Wall Fused-Film Teflon
600 Volts RMS service; dielectric strength 2.2 KV;
AC spark test 3.0 KV

INSO PART NO.	AWG and Stranding	Diam. over insulation (nominal)	Weight in lbs. per M ft.
6E-26	26 (19 x 38)	0.033	1.47
6E-24	24 (19 x 36)	0.038	2.20
6E-22	22 (19 x 34)	0.044	3.18
6E-20	20 (19 x 32)	0.052	5.10
6E-18	18 (19 x 30)	0.063	7.40
6E-16	16 (26 x 30)	0.074	10.00
6E-14	14 (37 x 29)	0.092	17.10

MINIATURE TEFLON COAXIAL CABLES (MIL-C-17)
Temperature Rating: −90° C. to +250° C.

	RG-188/U	RG-196/U	RG-187/U	RG-195/U
Impedance (ohms)	50 ±2	50 ±2	75 ±3	95 ±3
Dielectric Strength (Volts RMS, Min.)	2000	2000	2000	2000
Corona (Volts RMS, Min.)	1200	1000	1200	1500
Attenuation (BD/100 ft. Max.)	20	29	21	17
Conductor (S.P. Stranded copperweld)	(7 x 34)	30 (7 x 38)	30 (7 x 38)	30 (7 x 38)
Max. O.D.	0.110"	0.080"	0.110"	0.155"

Teflon jackets are available in solid colors and spiral striped combinations.
Special jacketing materials are available as required.

INSO
INSULATED WITH A FUSED TEFLON LAMINATE
WIRE and CABLE

Made by Teflon specialists for applications demanding highest quality and top reliability

- Maximum space and weight savings.
- Stays put in any position, any form.
- Perfectly concentric Teflon insulation.
- Can be furnished surface-treated for encapsulation with no discoloring, no reduction in dielectric strength.

Other products and services

TYPE "E" and "EE" (MIL-W-16878) wire and cable.

SPECIAL CABLES engineered to your specific environmental and space requirements utilizing INSO miniature or standard wire constructions.

FUSE-FLEX—A flexible thin wall tubing with an insulation of 6 Mil (0.006") wall fused-film Teflon, a dielectric strength of 5000 volts RMS minimum, and a temperature rating of −90° C. to +250° C. Available in sizes from No. 30 AWG through No. 10 AWG. Also available in other wall thicknesses to solve your particular problems.

LIGHTWEIGHT, LOW BULK, POWER CONDUCTORS (MIL-W-16878)
Insulation: 8 Mil (0.008") to 20 Mil (0.020") Wall Fused Teflon Laminate 3-Ply
600 Volts RMS Service; Dielectric Strength 2.2 KV; AC Spark Test 3.0 KV
Temperature Rating: −90° C to +250° C

INSO PART NO.	AWG AND STRANDING	DIAM. OVER INSULATION (NOMINAL)	WEIGHT IN LBS. PER M FT.
10E-14	14(37x29)	0.099"	16.9
10E-12	12(19x25)	0.109"	22.6
10E-10	10(37x26)	0.131"	36.0
10E-8	8(133x29)	0.191"	58.5
12E-6	6(133x27)	0.237"	93.1
16E-4	4(133x25)	0.300"	148.3
20E-2	2(133x23)	0.379"	228.7

MINIATURE SHIELDED AND TEFLON JACKETED CABLES
Insulation: 6 Mil (0.006") Wall Fused-Film Teflon
600 Volts RMS Service; Dielectric Strength 2.2 KV
AC Spark Test 3.0 KV

INSO PART NO.	NO. CONDUCTORS	AWG AND STRANDING	DIAM. OVER JACKET (NOMINAL)	WEIGHT IN LBS. PER M FT.
1C-6E-26-STJ	1	26(19 x 38)	0.063"	5.6
2C-6E-26-STJ	2	26(19 x 38)	0.094"	8.6
1C-6E-24-STJ	1	24(19 x 36)	0.069"	7.2
2C-6E-24-STJ	2	24(19 x 36)	0.104"	11.3
1C-6E-22-STJ	1	22(19 x 34)	0.077"	8.1
2C-6E-22-STJ	2	22(19 x 34)	0.114"	13.6
1C-6E-20-STJ	1	20(19 x 32)	0.085"	10.9
2C-6E-20-STJ	2	20(19 x 32)	0.124"	18.5

Also available in many other AWG sizes and conductor arrangements in both 600 Volt and 1000 Volt Service ratings.

Write, wire or call today for samples and technical data.

INSO ELECTRONIC PRODUCTS, INC.
WIRE AND CABLE DIVISION

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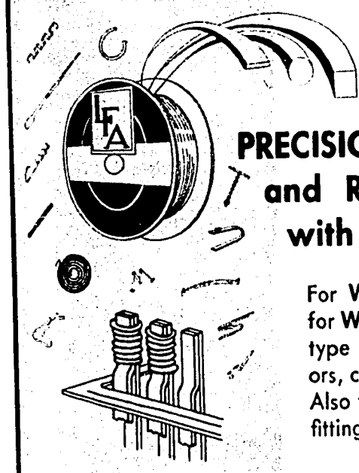

PRECISION - Square, Flat and Rectangular Wire with Controlled Edges

For **WELDED** electronic circuitry, for **WIRE-WRAP** and **PLUG** or **PIN** type **CONNECTORS** for computors, control systems, missiles, etc., Also for springs, terminals, forms, fittings, prongs, contacts and clips.

Silvercoate ® Beryllium Copper — Brass — Bronze — ni-clad-ti Titanium — Aluminum — Hot Solder Dipped — Tinned — etc.

Square and rectangular shaped wires are frequently used in modern "wrapped" terminal and pin or plug type connectors. For this application the edges must be finished quite sharp (usually .003 radius corners or less) but without a burr or flashing. Also required are **closely controlled dimensional tolerances** and smooth finish. Uniformity of temper is essential. Therefore close control of all facets of wire manufacturing is of paramount importance.

LITTLE FALLS ALLOYS, INC. 189 CALDWELL AVENUE, PATERSON 1, NEW JERSEY

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SYMBOL OF THE FINEST and NEWEST DEPENDABLE WIRE and CABLE

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TV twin-leads, coaxial cable, hook-up wire, rotor antenna cable, custom-engineered multi-conductor cable. For prices, samples and technical data, contact your nearest Plastoid representative.

CAA-SIGNAL & CONTROL CABLE
(Thermoplastic Insulation and Jacket)

COAXIAL CABLES
Spec JAN-C-17A & MIL-C-17B Including Low-Temperature, Non-Contaminating Jackets
Double Shielded & Jacketed Coaxial Cable

SPECIAL PURPOSE CABLES
Meteorological Survey Cable
Underwater Sound Equipment Cable
Geophysical Cable
Fire Control Wire & Cable
Electronic Computer Wire & Cable
Inside Telephone Cable
Special Design High Frequency Cable
Thermostat Cable 2-7 conductors (Twisted and Thermoplastic Jacketed)
Microphone Cables
Sound & Intercommunication Wire & Cable
Rotor Antenna Cable

TEFLON INSULATED WIRE & CABLE
MIL-W-16878A TYPES "E" & "EE"
Multi-conductor Cables
Teflon Coaxial Cables
MIL-W-7139A

RADIO AND ELECTRONIC HOOK-UP WIRE
MIL-W-76A (superseding JAN-C-76)
MIL-W-16878B (types B, C & D, with & without nylon jackets)
Underwriters Laboratory — 80°; 90°; 105°
(PVC insulation, nominal walls of .008; .015; .031; .047 & with braided outercovering or extruded nylon jacket)

AIRCRAFT WIRE & CABLE
MIL-W-5086A MIL-W-5274A
MIL-C-7078A MIL-W-7072A
MIL-W-8777A

NAVY SHIPBOARD CABLE
MIL-C-915A & MIL-C-2194B

REA TELEPHONE CABLE
(Spec PE-14)

MULTI PAIR RURAL DISTRIBUTION WIRE

TRAFFIC CONTROL CABLES
(Specs IMSA 19 & 20)

POWER CONTROL CABLES
(Specs IPCEA & IMSA)
(Thermoplastic Insulation and Jacket)

AIRPORT LIGHTING CABLE

PLASTOID Corporation — Synkote Insulated Wire and Cable is "Manufactured by the mile-tested by the inch". Plant: HARRISON, N. J. • Offices: Long Island City, N.Y.

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Directory III. Materials & Services

91. Cable & Wire.

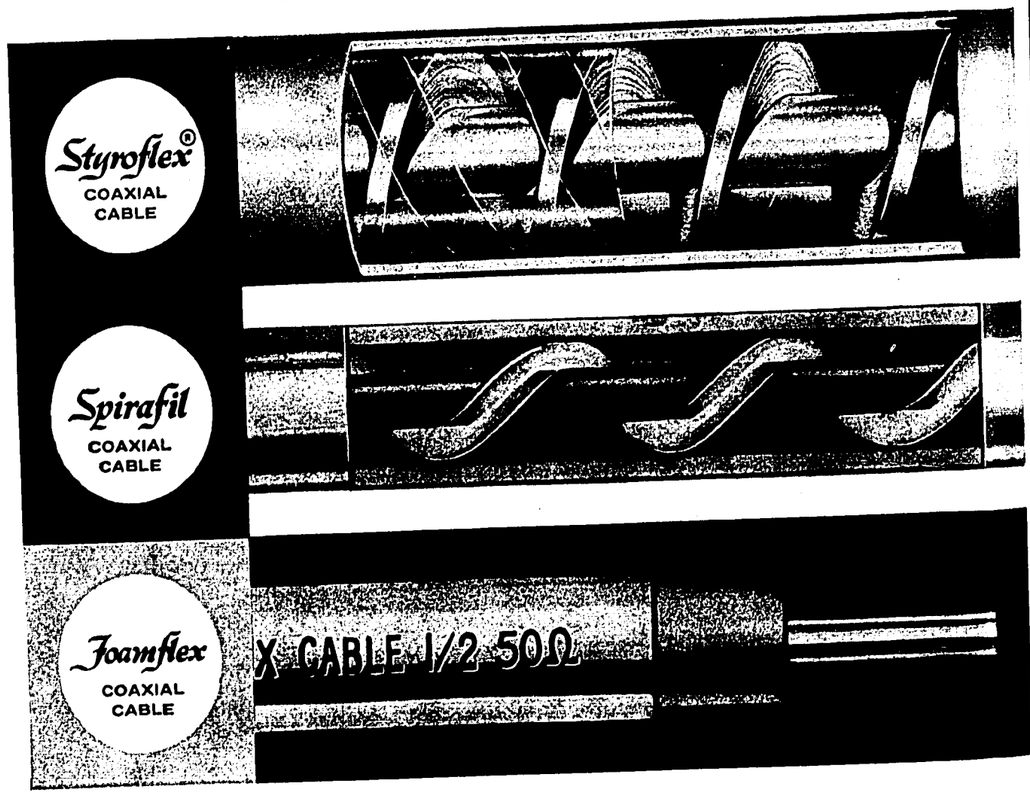
Lewis Engineering Co., Conn., 2s, 8c, 12c, 16sc, 30sc, 42sc, 48c, 50sc, 52sc, 54sc, 56sc, 62sc
Ling Temco Vought, Inc., Texas, 8c, 28c
Ling Temco Vought, Inc., F F & M Electronics, Inc. (Subsid.), Calif., 8c, 28c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 4c, 8c, 38c
Lionel Corp., N.J., 8c, 58c
Lionel Corp., Telerad Div., N.J., 16s
Little Falls Alloys, Inc., 189 Caldwell Ave., Paterson 1, N.J., 2c, 4c, 14c, 44c, Tel: 201-LAmbert 5-1014
See ad in this class
Litton Industries, Inc., Components Group, Airtron Div., N.J., 8c, 28c
M & M Metal Products Corp., N.Y., 4sc
Mandrel Industries, Inc., Calif., 8c
Mandrel Industries, Inc., MEG Products Div., Wash., 8c, 28c, 40c, 42c, 58c
Manger Electric Co., Inc., Conn., 8c, 42c, 62c
Markel & Sons (L. Frank), School Lane, Norristown, Pa., 16sc, 30sc, 52sc, Tel: 215-BRoadway 2-8960
See ad in class 107
Martin Co. (Martin-Marietta Corp.), Md., 8c, 28c
Massey, Inc. (A. H.), Conn., 8sc, 20sc
McMillan Laboratory, Inc., McMillan Industrial Corp., Mass., 16c, 52c
Mech-Tronics Corp., Ill., 8c, 28c
Mectron Co., N.J., 16 Rigid s
Mercury Engineering Corp., Pa., 8c, 28c, 40c, 60c, 62c
Microdot, Inc., Calif., 8s, 16s, 34s, 52s, 58s
Miller Electric Co., R.I., 8c, 20 Coiled c, 28c, 38c, 40c, 54sc
Missile Systems Corp., California Div., Calif., 6c, 8c, 14c, 16c, 20c, 24c, 28c, 30c, 32c, 34c, 36c, 40c, 42c, 50c, 52c, 54c, 56c, 58c, 60c, 62c
Model Engineering & Mfg. Corp., Ind., 28c
Modelectric Products Corp., N.J., 20c, 28c, 36c
Mohawk Wire & Cable Corp., Mass., 16sc, 34c, 38s, 42sc, 52sc, 54sc
Mole-Richardson Co., Calif., 20sc
Molecu-Wire Corp., N.J., 2sc
Montgomery Co., Conn., 2sc, 4sc, 10sc, 18sc, 24sc, 26sc, 44sc, 60sc
Morey Corp., Ill., 8c, 20c, 28c
Morse Co. (Frank W.), Mass., 62sc
Mosley Electronics, Inc., Mo., 6sc
Mutron Corp., Mass., 8c, 16c, 20c, 28c, 32c, 40c, 42c, 52c
National Lead Co., Goldsmith Bros. Div., Ill., 46c
National Multi-Products Co., Ill., 8sc, 20sc, 28c, 62sc
National Radio Co., Inc., Mass., 42s, Flexible s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Finest line of High Frequency Cables in the communications field!

- No radiation
- Low attenuation
- Excellent frequency response
- Uniform electrical properties over wide temperature variations
- Unlimited operating life
- Continuous 1000′ lengths

Matching fittings for all cables are available from Phelps Dodge.



PHELPS DODGE COPPER PRODUCTS
CORPORATION
300 PARK AVENUE, NEW YORK 22, N. Y.

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Directory III. Materials & Services

91. Cable & Wire.

National Research Corp., Mass., 46s
National-Standard Co., Mich., 6sc, 10sc, 14sc, 24sc, 26c, 30c, 44sc, 60sc
National Wire & Cable Corp., Calif., 8c, 10s, 14s, 16s, 24c, 28c, 30s, 32s, 34s, 40c, 42sc, 44c, 46c, 50sc, 52sc, 54sc, 58c, 60sc, 62sc
Neptune Electronics Co., N.Y., 8c, 20c, 28c, 42c
Nesor Alloy Products Co., N.J., 2c, 4c, 10c, 14c, 18c, 24c, 26c, 28c, 30c, 44c, 46c, 48c, 52c, 60c, 62c
Network Industries, Inc., N.J., 8c
New England Electrical Works, Inc., Subsid. of Montgomery Co., N.H., 10c, 18sc, 22s, 24s, 26s, 30c, 34sc, 36sc, 44s, 52c, 54c, 60sc
New Haven Wire & Cable, Inc., Ind., 10c, 18c, 22s, 24s, 36s, 48c, 54s
Newark Wire Cloth Co., N.J., 60sc
Newman Corp. (M. M.), Mass., 28s
Ney Co. (J. M.), Maplewood Ave., Bloomfield, Conn., 4sc, 22sc, 24sc, 46sc, Tel: 203-CHapel 2-2281 (Hartford)
See ad in class 104
Nichols, Ltd. (R. H.), Canada, 28c
Nippert Electric Products Co., Ohio, 10c, 18c
Noel Mfg. Co., Inc., N.Y., 20c, 28c, 40c, 62c
Noesting Pin Ticket Co., Inc., 732 E. 136th St., New York 54, N.Y., 62c, Tel: 212-MO 9-6465
See ad in class 105
Nonotuck Mfg. Co., Mass., 10c, 18c, 24c
Northwest Industries, Ltd., Canada, 8c, 20c
Pacific Electricord Co., Calif., 6s, 8c, 20sc, 28c, 30sc, 32c, 38c, 42sc, 52c, 54sc, 62sc
Paraplegics Mfg. Co., Inc., Ill., 62c
Pearce-Simpson, Inc., Fla., 8c, 28c
Penn Metal Co., Inc., Mass., 60sc
Penn-Union Electric Corp., Pa., 50sc
Perfection Electronics, Inc., N.Y., 8c, 28c
Permaluster, Inc., Calif., 2sc, 4sc, 14sc, 24s, 30sc, 36sc
Phalo Plastics Corp., Mass., 8c, 16c, 20c, 28c, 32c, 38c, 42c, 52c, 54c, 62c
Phelps Dodge Copper Products Corp., 300 Park Ave., New York 22, N.Y., 10s, 14s, 16s, 18s, 22s, 24s, 26s, 30s, 32s, 34s, 36s, 42s, 50s, 52s, 54s, 58s, 62s, Tel: 212-PLaza 1-3200
See ad in this class
Phelps Dodge Copper Products Corp., Inca Mfg. Div., Ind., 36c
Philadelphia Insulated Wire Co., N.J., 16sc, 26c, 30c, 34c, 38c, 42sc, 52sc, 54sc
Philips Elmet Corp., Subsid. of North American Philips Co., Inc., Me., 2c, 4c, 22sc, 24c, 26c, 36s, 44s
Physical Sciences Corp., Affil. of Packard-Bell Electronics, Calif., 4s, 12s, 30s, 36s
Plas-Ties Co., Calif., 54c
Plastic Wire & Cable Corp., Conn., 10sc, 16c, 18s, 20sc, 28sc, 38sc, 40sc, 42sc, 52sc, 54sc, 62sc
Plastoid Corp., 42-61 24th St., Long Island City 1, N.Y., 4c, 6sc, 16sc, 24c, 26s, 30sc, 32c, 34sc, 38c, 42sc, 52sc, 54sc, 62sc, Tel: 212-STillwell 6-6200
See ad in this class
Pomona Electronics Co., Inc., Calif., 28s
Porter Co., Inc. (H. K.), National Electric Div., Pa., 4c, 18c, 30c, 32sc, 42c, 50sc, 52c, 54sc, 62c
Porter Co., Inc. (H. K.), Riverside-Alloy Metal Div., N.J., 2sc, 14c, 24c, 26c, 30c, 48c
Prodelin, Inc., N.J., 16s, 34s, 52s
Pyrometer Co. of America, Inc., Pa., 56sc
Q-max Corp., N.J., 6s, 16s
Quincy Speaker Mfg. Corp., Ill., 8c, 20c, 28c, 62c
R F Products, Div. of Amphenol-Borg Electronics Corp., 33 E. Franklin St., Danbury, Conn., 2c, 4s, 6s, 8c, 16s, 28c, 30s, 32s, 34s, 42c, 52s, 54s, 62s, Tel: 203-PIoneer 3-9272
See ad in class 80
Ram Electronics, Inc., N.J., 8c, 28c
Raychem Corp., Calif., 16sc, 30sc, 32sc, 34sc, 42sc, 52sc, 54sc, 62sc
Raypar, Inc., Ill., 8c, 28c
Rea Magnet Wire Co., Inc., Subsid. of Aluminum Co. of America, Ind., 4s, 10c, 18c, 22s, 24s, 26s, 30s, 36s, 46c
Republic Steel Corp., Ohio, 2s
Reuter-Stokes Electronic Components, Inc., Ohio, 16c, 34c
Revere Copper & Brass, Inc., N.Y., 2s
Revere Corp. of America, Conn., 8c, 28c, 30c, 42c, 52c, 56c, 62c
Reynolds Wire Div., National-Standard Co., Ill., 14c, 60sc
Richards Co., Inc. (Arklay S.), Mass., 56sc, 62sc
Robertson Electric Co., Inc., N.Y., 28c
Robins Industries Corp., N.Y., 38s, 52s
Rockbestos Wire & Cable Co., Div. of Cerro Corp., Conn., 2s, 16c, 30s, 32c, 42s, 52c, 54c, 56c, 58c, 62s
Rockland Insulated Wire & Cable Co., Inc., N.Y., 28c, 42c, 52c, 54c, 62c
Rodale Electronics, Inc., N.Y., 28c
Rome Cable Div., Aluminum Co. of America, N.Y., 4s, 8c, 10s, 18s, 22sc, 24sc, 26sc, 28c, 30sc, 32sc, 36sc, 42sc, 50sc, 52sc, 54sc, 58c, 62sc
Rye Sound Corp., N.Y., 20s, 38s, 52s
Sag Harbor Industries, Inc., N.Y., 28c, 62c
Samuel & Co., Inc. (J. A.), N.Y., 2s, 10s, 14s, 30s, 46s, 48s, 56s, 62s
Sanders Associates, Inc., N.H., 28sc, 42sc, 58sc

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CABLES to "MIL. SPEC."
with Certificate of Compliance and Source Inspection

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- Facilities to cut, strip, lug, notch, slot or perform other operations on various types of wire and cable. Write today for more information.

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4320 PARK AVENUE
NEW YORK 57, N.Y.
WE 3-6400

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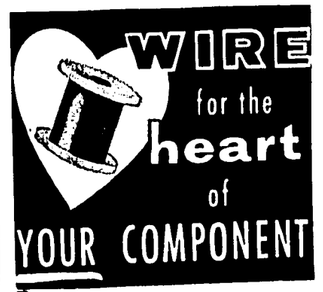

Wire drawn to your specifications (down to .00025″) in base and precious metals and alloys . . . supplied bare, enameled, ceramic insulated for use at 1000° F., or electroplated . . . to close tolerances.

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Write for data on your specific needs.

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7 Intervale St., White Plains, N.Y.
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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

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WIRE AND CABLE

***HOOK-UP WIRE**
MIL Spec & Ultra-Thin Wall.
Teflon – Extruded, Spiral Wrapped, and FLEXOLON wire, Types E-EE-ET-K-KK and KT to MIL-W-16878D and Types C & A to NAS-703 (–90° to +250°C). Teflon–Extruded Wire to MIL-W-27300 (USAF).
Vinyl – Extruded, and parallel wrapped. Types B-C to MIL-W-16878D and Types C & A to NAS-702 (–55° to +105°C). Types LW-MW to MIL-W-76A (–40° to +80°C). Super-flexible wire (–40° to +20°C).

***COAXIAL CABLE**
Solid Teflon Core and Air Dielectric Designed to MIL-C-17C (RG Specs.) (–90° to +250°C).

MULTI-CONDUCTORS
Standard and Custom Designed to Military and Commercial Specs.

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Designed to MIL-W-7139B (–90° to +250°C).

*Immediate shipment from extensive stock.

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Teflon Coated High Strength Conductors
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Asbestos Wire to MIL-C-25038
Ribbon Cable Shielded Unshielded
Teflon Tape
Bondable TeflonWire
Hearing Aid Cordage
Tone Arm Wire
Samples and technical data available

Tensolite
INSULATED WIRE CO., INC.
A subsidiary of Carlisle Corporation
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1516 N. Gardner St., Los Angeles, Calif.
For details, circle #616 on Reader Service Card

Sangamo Electric Co., Springfield, Ill., 28c, Tel: 217-KIngswood 4-6411
See ad on page 142

Saxton Products, Inc., 4320 Park Ave., New York 57, N.Y., 4s, 16s, 22s, 30s, 36s, 38s, 42s, 50s, 52s, 54s, 60s, Tel: 212-WEllington 3-6400
See ad in this class

Schutter Microwave Corp., N.Y., 16c
Schuyler Mfg. Corp., N.J., 60sc

Secon Metals Corp., 7 Intervale St., White Plains, N.Y., 2c, 4c, 10c, 12c, 18c, 22c, 24c, 26c, 30c, 44c, 46c, 48c, 56c, Tel: 914-WHite Plains 9-4757
See ad in this class

Semi-Alloys, Inc., N.Y., 2sc, 4sc, 10sc, 14sc, 18sc, 24sc, 26sc, 30sc, 44sc, 46sc, 56sc

Sequoia Wire & Cable Co., Subsid. of Anaconda Wire & Cable Co., Calif., 2c, 4c, 6c, 8c, 10c, 12c, 14c, 16c, 18c, 20c, 22c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 38c, 40c, 42c, 44c, 46c, 48c, 50c, 52c, 54c, 56c, 58c, 60c, 62c

Seven Associates, Inc., Calit., 8sc, 28c
Siemens New York, Inc., N.Y., 6s, 16s
Sittler Corp., Ill., 20c, 28c, 60s, 62c

Smith, Inc. (Herman H.), Dept. 12, 2326 Nostrand Ave., Brooklyn 10, N.Y., 8sc, 50s, Tel: 212-CLoverdale 3-7900
See ad in class 62

Smith Mfg. Co., Inc. (E. C.), Pa., 12c, 16c
Solatron, Inc., Mass., 8c, 28c, 58c, 62c
South River Metal Products Co., Inc., N.J., 4s, 10s
Southwire Co., Ga., 2c, 4s, 6s, 10s, 18s, 24s, 26s
Spectra-Strip Wire & Cable Corp., Calif., 8sc, 20c, 22sc, 26sc, 28sc, 30sc, 36c, 40c, 42c, 52c, 58c, 62sc
Speed Electronics, N.J., 8c, 28c
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 28c
Stamford Processing Co., Inc., N.Y., 10sc, 18sc, 24sc, 44sc

Standard Metals Corp., 262 Broad St., North Attleboro, Mass., 44c, 46c, Tel: 617-MYrtle 5-9395
See ad in class 104

Standard Telephones & Cables, Ltd., England, 2sc, 4sc, 6sc, 14sc, 16sc, 20sc, 38sc, 42sc, 44sc, 50sc, 54sc, 60sc

Standard Wire & Cable Co., Calif., 6sc, 8sc, 14sc, 16sc, 20sc, 26sc, 30sc, 32sc, 34sc, 38sc, 40sc, 42sc, 46sc, 50sc, 52sc, 54sc, 56sc, 60sc, 62sc
Steel Heddle Mfg. Co., Pa., 26sc

Stewart Corp. (F. W.), 4311-13 N. Ravenswood Ave., Chicago 13, Ill., 8c, Tel: 312-GRaceland 2-6600
See ad in class 97

Stratocon Corp., N.J., 8c, 28c
Supa Insulations, Inc., N.C., 54c

Superior Cable Corp., N.C., 16sc, 30sc, 32sc, 34sc, 38sc, 42sc, 44sc, 52sc, 54sc, 56c, 58c, 60c, 62sc
Surface Conduction, Inc., N.Y., 6sc, 16sc, 54sc

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INSULATED WIRE
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TUBING

All sizes from 000 thru 32 AWG.

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MOLDED CABLE ASSEMBLIES
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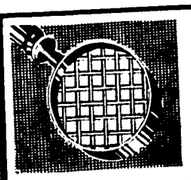

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SCREEN STAR PHOTO EMULSION #71 and (heavy viscosity) #82. The... trouble-free... coating that adheres equally well to all screen fabrics and will develop the sharpest photographic detail into a smooth, tough and insoluble stencil. *Write:*

Wire Cloth ENTERPRISES INC.
3408 PENN AVE., PITTSBURGH 1, PA. • MAYFLOWER 1-3222
For details, circle #617 on Reader Service Card

Directory III. Materials & Services

91. Cable & Wire.

Surprenant Mfg. Co., Subsid. of International Telephone & Telegraph Corp., 172 Sterling St., Clinton, Mass., 2sc, 4sc, 6sc, 8sc, 14sc, 16sc, 26sc, 28sc, 30sc, 32sc, 34sc, 38sc, 40sc, 42sc, 52sc, 54sc, 56sc, 58sc, 62sc, Tel: 617-EMpire 5-6331
See ad in this class

Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 14sc, 46c, 62s
Sylvania Electric Products Inc., Chemical & Metallurgical Div., Pa., 2s, 24s, 44s
Tape Cable Corp., N.Y., 24sc, 26sc, 30c, 42sc, 52c, 54sc
Technical Wire Products, Inc., N.J., 60sc
Techtro-Matic Corp., Vt., 8c, 28c, 40c, 46c, 52c, 60c, 62c

Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 28c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80

Tensolite Insulated Wire Co., Inc., Subsid. of Carlisle Corp., W. Main St., Tarrytown, N.Y., 8c, 16s, 22s, 28c, 30sc, 32c, 36c, 38c, 42c, 52c, 56c, 62c, Tel: 914-MEdford 1-2300
See ad in this class

Tevco Insulated Wire, Calif., 2s, 4c, 6s, 8sc, 10sc, 16s, 20s, 28c, 30s, 34s, 38s, 40s, 42s, 52s, 60s, 62s

Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 2c, Tel: 214-ADams 5-3111
See ad on Cover 3

Thermal Wire of America, Vt., 16sc, 24s, 30s, 36s, 42sc, 52s, 56c, 62s
Thermax Wire Corp., N.Y., 16sc, 28sc, 30sc, 42sc, 52sc, 62sc
Thermo Electric Co., Inc., N.J., 2s, 10s, 12s, 22s, 24s, 42s, 46s, 48s, 56s
Thermo Products Co., Inc., Wis., 56sc
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 2s, 6s, 8s, 10s, 12s, 14s, 16s, 18s, 22s, 24s, 26s, 30s, 32s, 54s
Tri-Dex Co., Calif., 8c, 28c
Triangle Electronic Mfg. Co., Inc., N.Y., 8c, 28c
Tricraft Products Corp., Ill., 8c, 20c, 28c
Trinity Equipment Corp., N.Y., 56s
Tyler Co. (W. S.), Ohio, 60sc
Uniform Tubes, Inc., Pa., 52c
Unique Wire Weaving Co., Inc., N.J., 60s
United States Steel Corp., Pa., 2s, 10s, 14s, 18s, 30s, 32s, 34s, 36s
United States Underseas Cable Corp., D.C., 16sc, 34sc, 42sc, Underwater sc
U.S. Wire & Cable Corp., N.J., 6s, 16s, 18s, 34s, 38s, 42s, 52s, 54s, 60s
Universal Match Corp., Armament Div., Mo., 8c, 28c, 42c
Univox Corp., N.Y., 8c, 16c, 28c, 30c, 32c, 34c, 40c, 56c, 58c
Var-Lac-Oid Chemical Co., N.Y., 46c
Victor Electric Wire & Cable Corp., R.I., 6sc, 8c, 16c, 20c, 30c, 32c, 38c, 42c, 52c, 62c
Viking Wire Co., Inc., Conn., 10sc, 18sc, 22sc, 24sc, 30sc, 36sc
Waber Electronics, Inc., Pa., 8c, 28c
Wade Electric Products Co., Mich., 8c, 62c
Ward Products Corp., N.Y., 6sc, 8sc, 10c, 16c, 52sc, 62sc
Warren Wire Co., Vt., 10s, 12s, 16sc, 18s, 22s, 30sc, 36s, 42sc, 52sc, 54sc, 62sc
Webster Electronics Co., Inc., N.Y., 62c
Welcraft Products Co., Ind., 8c, 28c, 30c, 48sc, 54sc, 62c
Western Insulated Wire Co., Calif., 30sc, 32sc, 38sc, 42sc, 50sc, 52sc, 54c
Westwood Cable Corp., Calif., 6sc, 8sc, 10sc, 14sc, 16sc, 18sc, 20sc, 24sc, 26c, 28c, 30sc, 32sc, 34sc, 38sc, 40sc, 42sc, 46c, 50sc, 52sc, 54sc, 56sc, 60sc, 62sc
Whitney Blake Co., Conn., 20sc, 38s, 42s, 44s, 50s, 52s, 54s
Wildberg Bros. Smelting & Refining Co., Calif., 46c
Williams Gold Refining Co., Inc., N.Y., 46sc
Winslow Co., Inc., N.J., 56c

Wire Cloth Enterprises, Inc., 3408 Penn Ave., Pittsburgh 1, Pa., 60s, Tel: 412-MAyflower 1-3222
See ad in this class

Wire Co. of America, Subsid. of Warren Wire Co., Calif., 10s, 12sc, 18s, 22s, 30sc, 32c, 36sc, 44s, 62sc
Wirecraft Products, Inc., Mass., 16c, 30c, 34c, 42c, 52c, 62c
Wirekraft, Inc., Ind., 8c, 16c, 26c, 28c, 30sc, 32c, 42c, 48sc, 50c, 52c, 54c, 62sc
World Wide Wire, Inc., N.Y., 2c, 22sc, 24c, 28c, 30sc, 36sc, 42sc, 46c, 52sc, 56c, 62sc
Wright Steel & Wire Co. (G. F.), Mass., 6s, 60s
Zippertubing Co., Calif., 60c

Cambric materials:
See classes 101 & 112

Cans:
See class 97

Caps, tube & semiconductor:
See class 105

Castings:
See class 96

Castings, waveguide:
See class 66

Cathode tubing:
See class 105

Centrifuges:
See class 99

Ceramic cores:
See class 55

Ceramic insulation materials:
See class 101

92. Ceramics.

5. Alumina
10. Bobbins
15. Custom fabrication
20. Ferrites
25. Insulators
30. Metallized
35. Proprietary forms

Accurate Specialties Co., Inc., N.J., 30c
Acoustica Associates, Inc., Calif., 15c, 20sc
Advanced Vacuum Products, Inc., Subsid. of Glass-Tite Industries, Inc., Conn., 30sc
Aeronautical Radio Mfg. Co., Fla., 25s
Alloyd Corp., Mass., 5c
Alloys Unlimited, Inc., N.Y., 5sc, 15sc, 25sc, 30sc, 35s
Aluminum Co. of America, Pa., 5sc
American Feldmuehle Corp., N.Y., 5c, 30c

American Lava Corp., Subsid. of Minnesota Mining & Mfg. Co., Cherokee & Manufacturers Rd., Chattanooga 5, Tenn., 5c, 10c, 15c, 25c, 30c, Tel: 615-AMherst 5-3411
See ad on page 98

Avco Research & Advanced Development Div., Mass., 5sc, 15sc, 30sc
B G Corp., N.J., 5c, 25c, 30c
Barium & Chemicals, Inc., Ohio, 20c

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for utmost reliability in

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memory cores, planes & stacks ■ recording heads ■ pot cores ■ E, U & I cores ■ toroidal cores ■ light, temperature & voltage dependent resistive elements ■ "custom-tailored" ferrite parts.

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

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National Beryllia's complete facilities can provide you with a wide range of precision ceramics for your every requirement. Important properties include:

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- Extremely resistant to shock vibration and moisture
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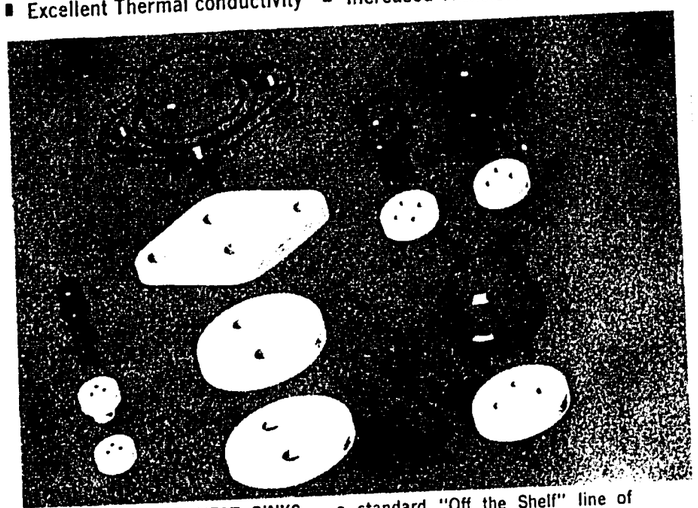

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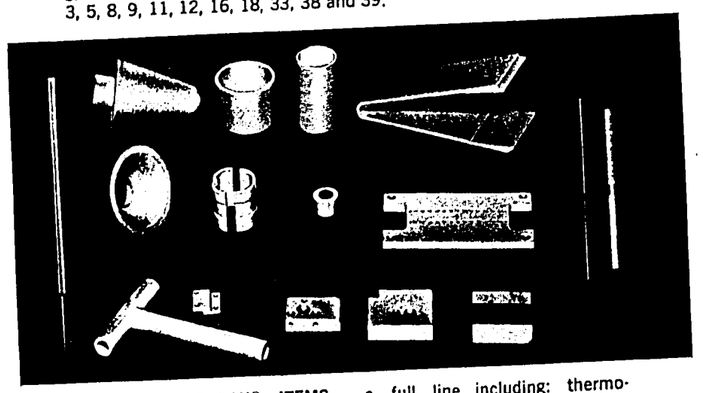

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METALLIZING . . . complete facilities available for high temperature sealing and brazing.

NATIONAL BERYLLIA CORPORATION
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92. Ceramics.

Bel Fuse, Inc., 198 Van Vorst St. at Morris St., Jersey City 2, N.J., 30c. Tel: 201-HEnderson 2-0463
See ad in class 57

Bently Scientific Co., Calif., 35s

Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 25sc, Tel: 212-WOrth 6-5611
See ad in class 91

Brush Beryllium Co., Ohio, 15c, 25c, 30c Beryllia c

CFI Corp., Dept. IRE, Cottage Place, Mineola, L.I., N.Y., 5c, 10c, 15c, 25c, 30sc, Tel: 516-Ploneer 6-0571
See ad in this class

C-M Mfg. & Machine Co., Inc., N.J.,

Caddell-Burns Mfg. Co., Inc., N.Y.,

Carborundum Co., Refractories Div., N.J., 5sc, 15c, 25c, 30c

Carvil Technical Ceramics, Inc., N.Y., 5c, 15c, 25c, 30sc

Centralab, Electronics Div. of Globe-Union, Inc., 900A E. Keefe Ave., Milwaukee 1, Wis., 5c, 15c, 25c, 30c, Tel: 414-WOodruff 2-9200
See ad in class 74

Ceramaseal, Inc., N.Y., 30c

Ceramatronics, Inc., N.J., 5c, 25c, 30c

Ceramco, Inc., N.J., 5c, 10c, 15c, 20c, 25c, 30c

Ceramics International Corp., N.J., 30c

Colber Corp., N.J., 10sc

Consolidated Electrodynamics Corp., Calif., 25s

Cook Electric Co., Ill., 35s

Coors Porcelain Co., Colo., 5sc, 15c, 25c, 30sc, Beryllia sc

Corning Glass Works, Electrical Products Div., N.Y., 5c

Certland Industries, Inc., Ill., 15c

Culbertson Products, Inc., N.J., 10c,

Custom Components, Inc., N.J., 20s

Dell Optics Co., Ltd., N.J., 25c, 30c

Delta Coils, Inc., N.J., 35s

Device Seals, Inc., Calif., 15c, 30c

Diamonite Products Mfg. Co., Div. of U.S. Ceramic Tile, Ohio, 5sc

Du-Co Ceramics Co., Pa., 5c, 10c, 15c, 25c, 30c

Duramic Products, Inc., N.J., 5c, 10c, 15c, 25c, 30c, 35s

Ednalite Optical Co., Inc., N.Y., 15c

Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 30sc, Tel: 415-LYtell 1-1451
See ad on pages 29-32

Electrical Refractories Co., Ohio, I

Electro Assemblies, Inc., Ill., 10s, 3

Electro-Ceramics, Inc., Utah, 5sc, 10sc, 15c, 25sc, 30sc

Electrochemical Industries, Inc., N.Y., 30c

Electronic Mechanics, Inc., N.J., 10sc, 15sc, 25sc, 30sc

Elna Ferrite Laboratory, Inc., N.Y., 15c, 20sc

Emerson & Cuming, Inc., Mass., 15sc, 25sc

Engelhard Industries, Inc., Vitreosil Quartz Div., N.J., 15c, 25c

Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 15c, Tel: 814-GLendale 6-8592
See ad on pages 78-79

Erie Resistor Corp., Ceramic Components Div., Pa., 15c, 20c

Faradyne Electronics Corp., N.J.,

Directory III. Materials & Services

92. Ceramics.

Ferricore, Inc., N.J., 10c, 20c

Ferroxcube Corp. of America, E. Bridge St., Saugerties, N.Y., 10sc, 20sc, Tel: 914-CHerry 6-2811
See ads in classes 10, 34, 55, 74, 92, 100

Franklin Fibre-Lamitex Corp., Del., 15c, 25c

Frenchtown Porcelain Co., N.J., 5c, 15c, 25c, 30c

General Battery & Ceramic Corp., Pa., 5c, 10c, 15c, 20c, 25c, 30c

General Ceramics, Div. of Indiana General Corp., Crows Mill Rd., Keasbey, N.J., 15sc, 20sc, 25sc, Tel: 201-VAlley 6-5100
See ad in class 64

General Instrument Corp., Defense & Engineering Products Group, N.Y., 15sc, 20sc

General Magnetic Corp., Mich., 20sc

General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 5s, 15c, 20s

Geoscience Instruments Corp., N.Y., 5c

Gelbon Industries, Inc., N.J., 5s, 15c, 25sc

Haveg Industries, Inc., Del., 10c, 15c, 25c, 35s

Hitachi New York, Ltd., N.Y., 25c

Illinois Tool Works, Paktron Div., Va., 15c

Irvan Engineering Co., Inc., Calif., 5sc, 10sc, 15sc, 20sc, 25c

Isolantite Mfg. Corp., 337 Warren Ave., Stirling, N.J., 5c, 10sc, 15c, 25sc, 30c, Tel: 201-CRestview 7-3737
See ad in this class

JFD Electronics Corp., 6101 16th Ave., Brooklyn 4, N.Y., 30c, Tel: 212-DEwey 1-1000
See ad on pages 56-57

Jackson Bros. (London), Ltd., N.Y., 25c

Johnson Co. (E. F.), Mass., 25s

Jones Optical Works (A. D.), Mass., 15c, 25c

Keith Co. (W. P.), Calif., 5sc, 15sc, 25sc

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The products produced by Mitronics are backed by years of experience and proprietary techniques. The rapid growth and long list of satisfied customers Mitronics' enjoys is a testimonial to the quality and dispatch with which each order is handled

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- Diode Housings
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- Beryllium Oxide Ceramics
- Ceramic Printed Circuits
- Insulating Mounting Studs
- Metallized Ceramic Terminal Strips
- Rectifier Housings
- Ceramic Transistor Bases
- Insulated Ceramic Discs

mitronics inc.
132 Floral Ave., Murray Hill, N.J.
Phone 277-3400

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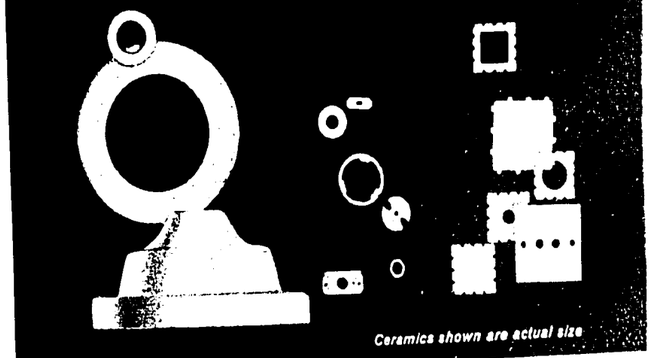
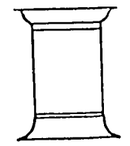
New from **CFI**
ceramics for industry



Ceramics shown are actual size

Precision Technical Ceramics and Composites



CFI Corporation provides integrated [illegible] cally adapted to the design, prototyping [illegible] tion of high-temperature ceramics, composites, ceramic-metal vacuum composites, glass-metal seals and specialized body compositions.

Typical ceramic products include modular forms, spacers and abrasion-resistant elements, metallized parts, multi-terminal composites, compact high-temperature power lead through elements and envelope assemblies.

Body compositions comprise high Alumina, Steatite, Forsterite, and customized materials, such as Series 1000 LOSSY ceramic for microwave attenuation.

For complete details on CFI custom-designed ceramics and ceramic-metal composites to fit your specifications, call CFI today. We're ready to work with you right now!

CFI Corporation
Dept. IRE
Cottage Place
Mineola, N.Y.
PI 6-0571

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Saxonburg

A DEPENDABLE SOURCE FOR LOW-COST HIGH-QUALITY CERAMIC COMPONENTS

INSULATION TUBES

THERMOCOUPLE TUBING

RESISTOR TUBES

"Beads-in-Sleeves" WIRE INSULATORS

COIL FORMS

TERMINAL BLOCKS

TERMINAL CONNECTORS

RHEOSTAT BASES

CAPACITOR SLEEVES

SPACERS

BUSHINGS and END SEALS

and custom-designed parts or assemblies to meet your specifications.

MATERIALS

Alumina • Cordierite
Forsterite • Magnesia • Porcelain
Refractory Ceramics
Steatite • Zirconia
Zirconium

FACILITIES

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Write for complete catalog

SAXONBURG CERAMICS, INC.
400 THIRD AVE., SAXONBURG, PA.

For details, circle #623 on Reader Service Card

92. Ceramics.

Kirchberger & Co., Inc. (M.D. N.J., 15c, 25c

Krystinel Corp., P.O. Box 6, Fox Island Rd., Port Chester, N.Y., 20s, Tel: 914-WEstmore 7-5252
See ad in class 55

Laboratory Equipment Corp., Mich., 5c, 15c

Lapp Insulator Co., Inc., Radio Specialties Div., 150 Sumner St., Le Roy, N.Y., 5c, 15c, 25sc, 30c, Tel: 385
See ad on pages 52-53

Lewis Co., Inc. (E. B.), Conn., 15c

Litton Engineering Laboratories, P.O. Box 949, Grass Valley, Calif., 15c, 30c, 35s, Tel: 916-273-6176
See ad in class 99

Litton Industries, Inc., Components Group, Airtron Div., N.J., 20c

Lockheed Electronics Co., Avionics & Industrial Products Div., Calif., 20c

Louthan Plant Refractories Div., Fe... Corp., Ohio, 15c, 25sc

Martin Co. (Martin-Marietta Corp.), Orlando Div., Fla., 30c

Maryland Lava Co., Md., 10c, 25c

Materials for Electronics, Inc., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc, 35s

Melpar, Inc., Va., 5c, 15c, 30c, 35s

Metalizing Industries, Inc., N.J., 15sc, 25sc, 30sc

Metaplast Co., Inc., N.Y., 30c

Microlectron, Inc., 1547 18th St., Santa Monica, Calif., 30c, Tel: 213-EXbrook 3-0356
See ads in classes 50, 60, 74

Microwave Chemicals Laboratory, ... N.Y., 20sc

Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 25s, 35s, Tel: 617-DAvenport 4-4108
See ad in class 51

Mitronics, Inc., 132 Floral Ave., Murray Hill, N.J., 5sc, 25sc, 30sc, Tel: 201-277-3400
See ad in this class

Molecular Electronics Co., N.J., 30c

Motorola, Inc., Military Electronics Div., Ariz., 20c

Motson Co. (J. Frank), Pa., 30c

Murata Mfg. Co., Ltd., Nagaoka-cho, Otokuni-gun, Kyoto, Japan, 10c, 25s, Tel: Kotari 236
See ad on page 214

Mycalex Corp. of America, 125A Clifton Blvd., Clifton, N.J., 10sc, 15sc, 25sc, 35s, Tel: 201-PRescott 9-8866
See ad in class 101

National Beryllia Corp., First & Haskell Aves., Haskell, N.J., 5sc, 10c, 15c, 25sc, 30c, 35s, Beryllia c, Tel: 201-TEmple 9-1600
See ad in this class

National Ceramic Co., N.J., 5c, 25c, 30c

National Moldite Co., Inc., N.J., 1...

National Radio Co., Inc., Mass., 2...

Norrich Plastics Corp., N.Y., 10c, 15c, 25c

North American Aviation, Inc., Autonetics International Div., Calif., 35c

O & S Research, Inc., N.J., 15c

Permag Corp., 88-06 Van Wyck Expressway, Jamaica 18, N.Y., 20s, Tel: 212-OLympia 7-1818
See ad in class 64

on applications where

TOP QUALITY CERAMICS

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Isolantite

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a few "ISO" PRODUCTS

Bushing, Stand-off and Antenna Insulators
Beads, Washers
Bobbins
Supports, Coil Forms
Sleeves
Standard and Special Designs of all types of Pressed, Extruded or Machined Steatite Components.
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It will pay you to secure quotations from Isolantite.

Isolantite MANUFACTURING CORP.
Stirling, N. J.

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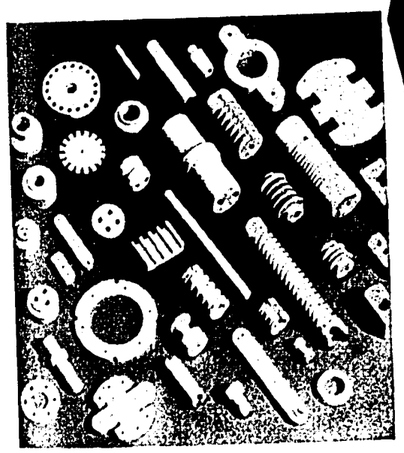
steatite, ceramic & lava insulators



for electrical and electronic applications

Custom-molded, extruded or machined to close tolerances to meet your exact specifications. Prompt delivery at low cost on large or small orders. Over half a century of service is your guarantee of complete satisfaction.

FIND OUT TODAY. Illustrated bulletin with complete technical data will be sent on request.

SUPERIOR STEATITE & CERAMIC CORP.
89 West Forest Avenue, Englewood, N.J.

West Coast Representative:
Yarbrough Sales Co., 192 East Glenarm St., Pasadena, Calif.

For details, circle #625 on Reader Service Card

Directory III. Materials & Services

92. Ceramics.

Physical Sciences Corp., Aml of Pa[and Bell Electronics, Calif., 25c

Planer, Ltd. (G. V.), Fairfield, 15c

Porcelain Products Co., Ohio, 25sc

Precision Metal Products Co., Mass., 25sc

Pyrocrucuts Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 30c, Tel: 516-POrt Washington 7-3949
See ad in class 50

Quartzite Processing, Inc., 9 Holyoke St., Malden 48, Mass., 5c, 15c, 25s, Tel: 617-DAvenport 2-1480
See ad in class 109

Radio Corp. of America, RCA Electron Tube Div., N.J., 15c

Radio Corp. of America, Semiconductor & Materials Div., Route ... Somerville, N.J., 15c, 20sc, Tel: ... RAndolph 2-3900
See ad on pages 54-55

Raytheon Co., Microwave & ... Div., Mass., Fe., 20sc, 25sc

Raytheon Co., Special Materials ... vices Operation, Mass., 30c

Rodale Mfg. Co., I... 25sc

Sampson Chemical & Porcelain ... 15c, 20c

Saxonburg Ceramics, Inc., P.O. Box ... 400 Third Ave., Saxonburg, Pa. ... 10sc, 15c, 25sc, Tel: 412-FI ...
See ad in this class

Semicon of C...rporation ... 25c, 30c

Semiconductor Specialties, Corp., ... Garibaldi Ave., Lodi, N.J., ... Tel: 201-PRescott 8-6001
See ad in class 2...

Shaw Insulator Co., Irvington, ...

Smith Corp., A. O., ... 20s

Smith, Inc. (Herman H.), Dept. ... Nostrand Ave., Brooklyn 26, N.Y. ... Tel: 212-CLoverdale 2-7...
See ad in class 64

Solar Mfg. Corp., ...

Stackpole Carbon Co., ...

Stat Porcelain Co., ...

Steward Mfg. Co., ... 20c, 25c, 30c

Superior Porcelain ...

Superior Steatite & Ceramic Corp., ... W. Forest Ave., Englewood, N.J., ... 15c, 25c, Tel: ... LOxell 3-4555
See ad in this class

Technical Ceramics, ... 5c, Jer...

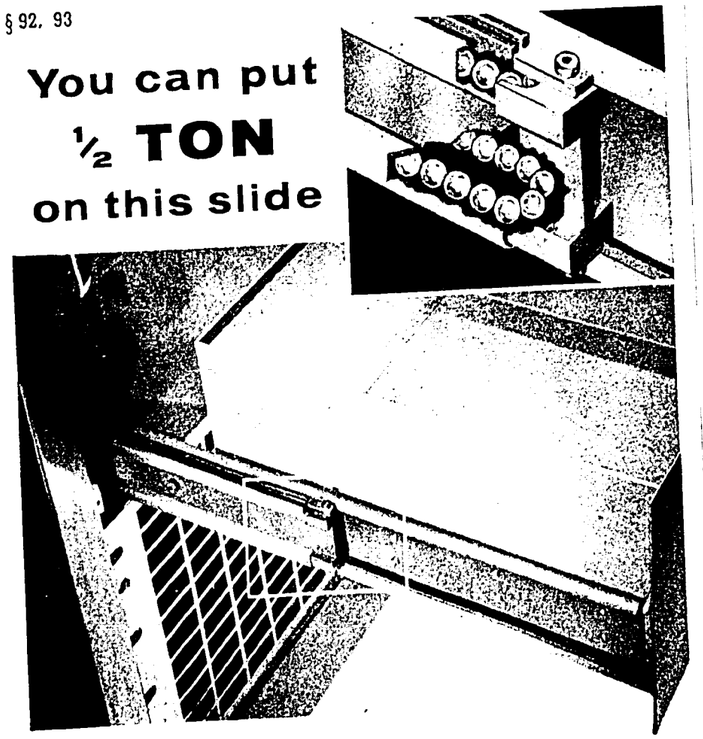
Telecomputing Corp., ... Telefunken, ... Ladd, ... P...

Therm, Inc., N.Y., ...

Thor Ceramics, ... N.Y., Inc., Pa., ... 25sc, 30sc

Topper Mfg. Co., ... N.Y., Pa.

Trans-Tech, Inc., ... 20sc



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New Heavy-Duty Slide from Chassis-Trak

Now you can rack-mount your heaviest electronic gear, yet keep it readily accessible for checking and servicing. A new heavy-duty Circulating Ball Slide, developed by Chassis-Trak, will easily support equipment in the 1000 lb. range, *even under extreme shock and vibration conditions.* Secret of the slide's strength is its Circulating Ball design *(see phantom view above).* Weight is distributed evenly over the balls which rotate in the direction of the pull, resulting in easy sliding action.

The new Circulating Ball Slide is permanently dry-lubricated with Poxylube 75, a bonded molybdenum disulfide film which assures smooth operation for the life of the slide. Easily assembled with standard hardware, the slide is available in lengths from 16" to 24" in two-inch increments and in lengths up to 60" in six-inch increments. Each track is only 1⅝" wide and 3" high, requiring much less chassis space than other slides in this heavy-duty range.

Get full details on the new CB Slide today.

chassis trak inc.

for further information contact:

525 South Webster Ave., Indianapolis. Indiana
For details, circle #626 on Reader Service Card

92. Ceramics.

Transonic, Inc., Calif., 20c, 35s
Trionics Corp., Div. of Nantec Corp., Wis., 5c, 15c, 20c, 30c
Tronex, Inc., Tenth St., Millville, N.J., 30c, Tel: 609-TAylor 5-1750
See ad in class 75
United Mineral & Chemical Corp., 1[illegible] Hudson St., New York 13, N.Y., 5c, 10c, 15c, 25c, Tel: 212-BEekman 3-887[illegible]
See ads in classes 74, 104
United Products Co., N.J., 5c, 10c, 15c, 20c, 25c, 30c, 35s
U.S. Sonics Corp., Mass., 15c, 20sc, 3[illegible]
U.S. Stoneware Co., Alite Div., Ohio, 5sc, 30sc, 35s
Vacuum Ceramics, Inc., Ill., 30c
Valpey Crystal Corp., 1100 Highland St., Holliston, Mass., 15c, Tel: 617-GArden 9-4851
See ads on page 219 and in class 5[illegible]
Var-Lac-Oid Chemical Co., N.Y., 20s
Western Coil & Electrical Co., Wis., 2[illegible]
Western Gold & Platinum Co., Calif., [illegible] 25c, 30c
Wisconsin Porcelain Co., Wis., 25c
Zirconium Corp. of America, Ohio, [illegible] 15c

93. Chassis, Racks & Slides.

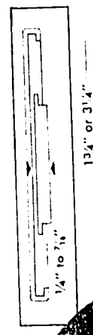
5. Chassis, aluminum
10. Chassis, steel
15. Relay racks & cabinets
20. Slides

A A Metal Products, Inc., Vt., 5c, 10c
ACF Electronics Div., ACF Industries, Inc., Md., 5c, 10c, 15c
A & S Electronic Die Corp., N.Y., [illegible] 10c
Abalon Precision Mfg. Corp., N.Y., [illegible] 10c, 15c, 20c
Abbott-Clark Machine & Tool, Inc., N.J., 5c, 10c, 15c
Aerolab Development Co., Calif., 5c, [illegible] 15c
Albano Co., Inc., Honeycomb Div., 555 W. 54th St., New York 19, N.Y., 15c, Tel: 212-PLaza 7-5887
See ad in class 90
Alden Electronic & Impulse Recording Equipment Co., Inc., Dept. E3D, Alden Research Center, Westboro, Mass., 5s, 10s, 15s, 20s, Tel: 617-FOrest 6-4467
See ad on page 82
Alden Products Co., 10140 N. Main St., Brockton 64, Mass., 10s, 15s, Tel: 617-JUniper 3-0160
See ad in class 50
Allied Fabricating Corp., Ill., 5c, [illegible] 15c
Alpitec, Inc., Conn., 5c, 10c, 15c
Amco Engineering Co., 7333 W. Ainslie St., Chicago 31, Ill., 5c, 10c, 15sc, 20s, Tel: 312-UNderhill 7-8500
See ad in class 90
American Aluminum Co., Inc., Dept. E, 230 Sheffield St., Mountainside, N.J., 5c, 10c, Tel: 201-ADams 3-3500
See ad in class 96
American Communications Corp., [illegible] 10sc, 15c
Anchor Specialty Mfg. Co., Inc., N.J., 5c, 10c, 15c
Anodyne, Inc., North Shore Name Tag Div., Fla., 5sc

Directory III. Materials & Services

93. Chassis, Racks & Slides.

Arrow Machinists & Fabricators, N.Y., 5c, 10c, 15c
Artisan Metal Works Co., Ohio, 5c, 10c, 15c
Avco Corp., Nashville Div., Tenn., 5c, 10c
Axonics, Ltd., Canada, 5c, 10c, 15c
Baltic Metal Products Co., N.Y., 5c, 10c, 15c
Barrie Co., Inc., N.J., 5c, 10c, 15c
Barry Controls, Div. of Barry Wright Corp., Mass., 5sc
Baumker Mfg. Co., Ohio, 5c, 10c, 15c, 20c
Bennett Mfg. Co., Inc., N.Y., 5c, 10c
Bingham Mfg. Co. (J. F.), Mass., 5c, 10c, 15c
Borg-Warner Corp., Ingersoll Products Div., Ill., 15s, 20s
Brooks & Perkins, Inc., Mich., 5c, 15c
Bud Radio, Inc., 2118 E. 55th St., Cleveland 3, Ohio, 5sc, 10sc, 15sc, 20s, Tel: 216-HEnderson 1-7166
See ad in class 90
Cabtron, Div. of Argus Mfg. Co., 1218 S. Western Ave., Chicago 8, Ill., 10s, 15s, Tel: 312-243-2565
See ad in class 90
California Chassis Co., Calif., 5sc, 10sc, 15sc, 20s
Carroll Pressed Metal, Inc., Mass., 5c, 10c
Chassis-Trak Corp., 600 W. Florence Ave., Inglewood 1, Calif., 5sc, 10sc, 15sc, Tel: 312-OREgon 8-4208
See ad in this class
Chassis-Trak, Inc., 525 S. Webster Ave., Indianapolis 19, Ind., 5sc, 10sc, 20sc, Tel: 317-FLeetwood 9-5407
See ad in this class
Christman Industries, Inc., N.Y., 5c, 10c, [illegible], 20sc
Churchill Lighting Corp., Mass., 5sc, 10c, [illegible]
Cinedagraph, Inc., Ill., 5c, 10c
Cinel Electronics Co., Pa., 5c, 10c
Columbia Metal Box Co., N.Y., 5c, 10c
Comm Electric Co., Ill., 5sc, 10sc, 15sc, [illegible]
Comp Systems, Inc., Mass., 15c
Comp Corp., Calif., 5c, 10c
Conti Metal Products Co., N.J., 5c, 10c, [illegible]
Dalt[illegible]rom Mfg. Corp., N.Y., 5c, 10c, 15c, [illegible]
Data Electronics, Inc., Calif., 20s
Decca[illegible]nic Industries Corp., Mich., 5c, 10c, [illegible] 20c
Del[illegible] Metal Products, Inc., N.Y., 10c, [illegible]
Delta[illegible] Electronics, Inc., Okla., 5c, 10c, [illegible] 20c
Dou[illegible]las Aircraft Co., Inc., Calif., 5c
Dre[illegible]l Dynamics Corp., Pa., 5c, 10c, 15c, [illegible]
Eas[illegible] Metalcraft, Inc., N.Y., 5c, 10c, 15c
Eastern Technical Associates, Inc., Mass., 5c
Elkenpreis Engineers (David), N.Y., 5c, 10c, 15c, 20c
Electro-Rack, Inc., Calif., 5s, 10s, 15s, 20s
Electronic Enclosures, Inc., Calif., 5sc, 10sc, 15sc, 20c
Elzee Metal Products Co., Inc., N.Y., 5c, 10c, 15c
Emerson Electric Mfg. Co., Mo., 5c, 15c
Epsco, Inc., Mass., 20sc
Equipto Electronics Corp., Ill., 5sc, 10sc, 15sc, 20s
Eugene Engineering Co., Inc., 1217 Hyde Park Ave., Hyde Park 36, Mass., 5c, 10c, 15c, 20c, Tel: 617-EMpire 1-7000
See ads in classes 96, 105
Falstrom Co., 74A Falstrom Ct., Passaic, N.J., 5c, 10c, 15c, 20c, Tel: 201-PRescott 7-0013
See ad in class 96
Farwell Metal Fabricating, Minn., 5c, 10c, 15c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5c, 10c, 15c, 20c
Feiner & Sons, Inc. (P.), N.Y., 5c, 10c, 15c
Flotron Industries, Inc., Calif., 20s
Formica Metal Products Co., 225 Corporation Way, Medford 55, Mass., 5c, 10c, Tel: 617-EXport 5-5050
See ad in class 90
Formweld Products Co., Ohio, 5c, [illegible] 15c
Forway Industries, Inc., N.J., 5c, 10c, [illegible] 20c
Garrett Co., Inc. (George K.), Pa., [illegible] 10c
General Dynamics Electronics, N.Y., [illegible] 15s
General Metal Products Co., Pa., [illegible] 15c
Gilfillan Brothers, Inc., Calif., 5c, 10c, 15c, 20c
Golden Co., N.Y., 5c, 10c
Goldline Mfg. Co., N.J., 20s, [illegible]
Grant Pulley & Hardware Corp., [illegible] 20sc
Green Rectifier Co., N.J., 5c, 20c
Grumman Aircraft Engineering Corp., N.Y., 5c, 10c, 15c, 20c
H-K Metal Craft Mfg. Corp., N.Y., 10c, 20c
HPI Mfg. Co., Ohio, 5c, 20c
Hammond Mfg. Co., Ltd., Can., 10sc, 15sc, 20s



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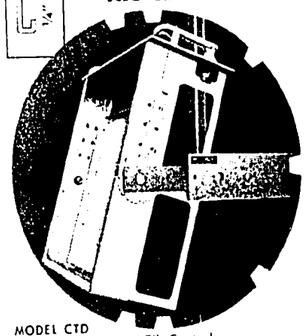
the IDEAL SLIDE... for simple accessibility

Loads 50-275 lbs
the IDEAL SLIDE... for tilting accessibility [illegible]

Loads 50-275 lbs
the IDEAL SLIDE... for choice of 7 locked positions through 210°



MODEL CTD
with Trigger 'Detent' Tilt Control
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APPROVED for MILITARY INSTALLATIONS

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Extra strong construction and wide, solid bearing surfaces assure exceptional rigidity and endurance of high shock loads and vibration. Standard load range 50 to 175 lbs., [illegible] heavy duty units to 275 lbs. 10"-24" long in 2" increments—extension brackets available for deeper cabinets. Slide thickness .25" to .4375" maximum.

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CHASSIS-TRAK CORP.
600 W. FLORENCE AVE. INGLEWOOD 1, CALIF.

For details, circle #627 on Reader Service Card

Formica Metal Products Co., 225 Corporation Way, Medford 55, Mass., 5c, 10c, Tel: 617-EXport 5-5050
See ad in class 90
Formweld Products Co., Ohio, 5c, [illegible] 15c
Forway Industries, Inc., N.J., 5c, 10c, [illegible] 20c
Garrett Co., Inc. (George K.), Pa., [illegible] 10c
General Dynamics Electronics, N.Y., [illegible] 15s
General Metal Products Co., Pa., [illegible] 15c
Gilfillan Brothers, Inc., Calif., 5c, 10c, 15c, 20c
Golden Co., N.Y., 5c, 10c
Goldline Mfg. Co., N.J., 20s, [illegible]
Grant Pulley & Hardware Corp., [illegible] 20sc
Green Rectifier Co., N.J., 5c, 20c
Grumman Aircraft Engineering Corp., N.Y., 5c, 10c, 15c, 20c
H-K Metal Craft Mfg. Corp., N.Y., 10c, 20c
HPI Mfg. Co., Ohio, 5c, 20c
Hammond Mfg. Co., Ltd., Can., 10sc, 15sc, 20s

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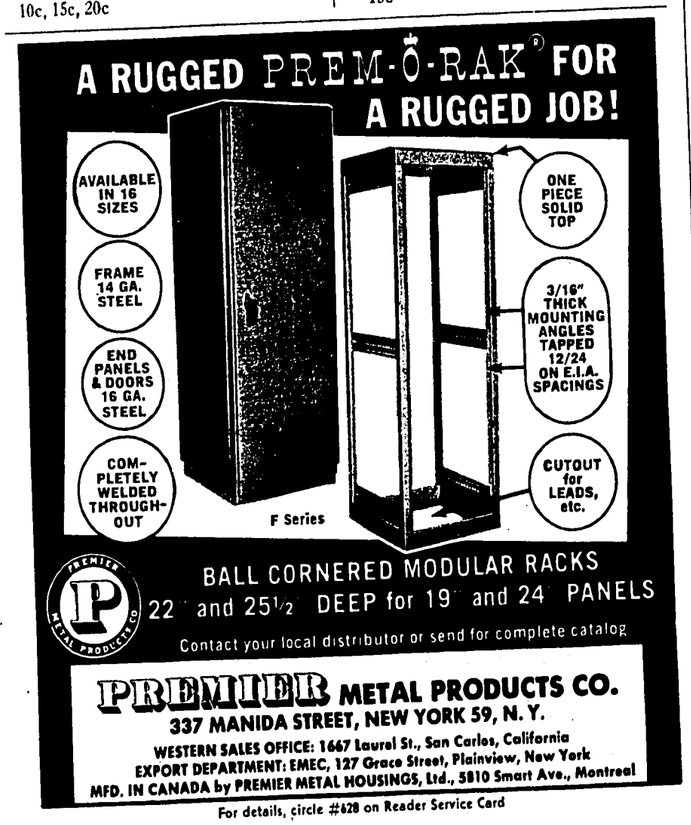
93. Chassis, Racks & Slides.

Hamner Electronics Co., Inc., N.J., 5s, 10s
Heldor Electronics Mfg. Co., N.J., 5sc, 10sc, 15sc, 20sc
Hitachi New York, Ltd., N.Y., 10c
Holden-Massey Corp., N.Y., 5c, 10c, 15c
Hollywood Mfg. & Supply Corp., Calif., 5c, 10c, 15c, 20c
Humble Mfg. Co., Ltd., Canada, 5c, 10c, 15c
IE Mfg., Ill., 5sc, 10sc
International Electronics Mfg. Co., Md., 5c, 10c
International Telephone & Telegraph Corp., ITT Federal Laboratories, N.J., 5c, 10c, 15c
Jandor, Inc., Ohio, 5c, 10c, 15c, 20c
Jasco Aluminum Products, 31 Nassau Terminal Rd., New Hyde Park, L.I., N.Y., 20c, Tel: 516-FLoral Park 4-8607
See ads in class 105
Jonathan Mfg. Co., Calif., 20sc, Cable-Carriers sc
Kaar Engineering Corp., Calif., 5c, 10c
Kaman Aircraft Corp., Conn., 5c
Kibbey Instrument Co., Calif., 5sc
Laminated Shim Co., Inc., Conn., 5c, 10c
Langevin, Div. of Sonotec, Inc., Calif., 10s
Lavelle Aircraft Corp., Pa., 5c
Lehigh Valley Electronics Engineering & Mfg., Inc., Pa., 5c, 15c
Ling Temco Vought, Inc., Texas, 5c, 10c, 15c, 20c
Ling Temco Vought, Inc., F F & M Electronics, Inc. (Subsid.), Calif., 5c, 10c, 15c, 20c
Litton Industries, Inc., Litton Systems, Inc. (Subsid.), Md., 5c, 10c, 15c
Lyman Electronic Corp., Mass., 5c, 10c
Lynch Mfg. Co. (R. H.), Calif., 5c, 10c, 15c
MM Enclosures, Inc., 111 Bloomingdale Rd., Hicksville, L.I., N.Y., 5c, 10c, 15c, Tel: 516-WElls 1-1770
See ad adjacent to Index to Advertisers, back of book
M & M Metal Products Corp., N.Y., 5sc, 10sc
MacDonald & Co., Calif., 10c
Malkin-Illion Co., N.J., 5c, 10c, 15c
Marine View Electronics, Inc., N.Y., 5c, 10c, 15c
Mech-Tronics Corp., Ill., 5c, 10c, 15c, 20c
Meridian Metalcraft, Inc., Calif., 5c
Metal Works, Inc., Mo., 5sc, 10sc, 15sc, 20s
Metalcraft, Inc., N.Y., 5c, 10c, 15c
Metallic Arts of New England, Inc., Mass., 5c, 10c, 15c, 20c
Mid-West Metal Products, Inc., Kans., 5c, 10c, 15c
Minneapolis-Honeywell Regulator Co., Industrial Products Group, Pa., 15s
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 5c, 10c, 15c, 20c
Mobil Electronics, Inc., Ind., 5sc, 10sc, 15sc
Moulic Specialties Co., Ill., 5c, 10c
Multi Products Co., Inc., Mich., 5s, 10s
National Radio Co., Inc., Mass., 20c
Nixon Gear & Machine Co., Inc., N.Y., 15c
North America Electronics, Ala., 5c, 10c
Northern Electronics, Inc., Minn., 5c, 10c
Northwest Industries, Ltd., Canada, 5c, 10c
Nostrand Metal Fabricators Corp., N.Y., 5c, 10c
Nuclear Development Corp. of America, N.Y., 15c
Pabst Engineering Equipment Co., Inc., N.J., 5c, 10c, 15c, 20c
Par-Metal Products Corp., 32-42 49th St., Long Island City 3, N.Y., 5s, 10s, 15s, 20s, Tel: 212-AStoria 8-8905
See ad in class 90
Pearce-Simpson, Inc., Fla., 15c
Pedersen Electronics Corp., Calif., 5c, 10c
Pegasus Laboratories, Inc., Mich., 10sc
Peterson & Neville, Inc., Mass., 5sc, 10sc, 15sc
Plug-In Instruments, Inc., Tenn., 5s, 10s
Premier Metal Products Co., 337 Manida St., New York 59, N.Y., 5s, 10s, 15s, Tel: 212-WYandotte 1-6600
See ads in classes 90, 93
Q-Line Mfg. Corp., N.Y., 5sc, 10sc, 15sc, 20sc
R.N.R. Metal Products, Inc., N.Y., 5c, 10c
Radio Frequency Laboratories, Inc., N.J., 20s
Rauland-Borg Corp., Ill., 15c
Ray, Daisley Co., Inc., N.Y., 5c, 10c, 15c
Remler Co., Calif., 20s
Riester & Thesmacher Co., Ohio, 5c, 10c, 15c
Rimak Electronics, Inc., Calif., 5sc, 10c, 15c, 20c
Rixon Electronics, Inc., Md., 5c, 20c
Robins Industries Corp., N.Y., 20s
Rogers Mfg. Co. (Dayton), Minn., 5c, 10c
Santa Anita Engineering Co., Calif., 15s
Seiscor, Div. of Seismograph Service Corp., Okla., 5c, 10c
Servonics, Inc., Va., 5c, 10c
Sheltered Workshops, Inc., Calif., 5c
Sjoberg & Son (C.), R.I., 5c
Skiatron Electronics & Television Corp., N.Y., 5c
Skyline Electronics, Inc., Colo., 5c, 10c, 15c
Skyline Products, Inc., 819 Grand Blvd., Deer Park, L.I., N.Y., 5c, 10c, Tel: 516-MOhawk 7-8644
See ad in class 90
Slidecraft, Inc., N.Y., 20sc
Sliding Mechanisms, Inc., Ill., 20sc
Solartron Electronic Group, Ltd., England, 5s, 10s
South River Metal Products Co., Inc., N.J., 20s
Specific Products, P.O. Box 425, 21051 Costanso St., Woodland Hills, Calif., 5s, 10s, Tel: 213-DIamond 0-3131
See ad in class 26
Stafford Mfg. Co., Inc., N.Y., 5c, 10c, 15c, 20c
Staples-Hoppmann, Inc., Va., 5c, 10c, 15c, 20c
Steinberg & Son, Inc. (Irving C.), N.J., 5c, 10c, 15c
TMC (Canada), Ltd., Canada, 5s, 20s
Taffet Electronics, Inc., N.Y., 5c, 10c, 15c
Telkor, Inc., Ohio, 5sc, 10sc, 15sc



For details, circle #628 on Reader Service Card

Directory III. Materials & Services

93. Chassis, Racks & Slides.

Thompson, Ltd. (J. Langham), England, 5sc, 10sc, 15sc
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s, 20s
Titchener & Co. (E. H.), N.Y., 10c, 15c
Toeco Metal Products, Inc., N.Y., 5c, 10c, 15c
Tri Metal Works, Inc., N.J., 5c, 10c, 15c, 20c
Trott Electronics, Inc., N.Y., 5c, 10c
Twin Coach Co., Aircraft & Missiles Div., N.Y., 5c, 10c, 15c
Unistrut Products Co., Ill., 15c
Walton Tool & Die Co., Inc., Calif., 20c
Washington Aluminum Co., Inc., Md., 5c, 15c
Watson Mfg. Co., Inc., N.Y., 5c, 10c, 20sc
Western Devices, Inc., Calif., 5sc, 10sc, 15sc, 20s
Wilcox Electric Co., Inc., Mo., 5sc, 10sc, 15sc, 20sc
Wyco Metal Products, Stantron Div., Calif., 5s, 10s, 15s, 20s
York Metal Products, Inc., N.Y., 5c, 10c, 15c, 20c
Zero Mfg. Co., Calif., 5c, 15c

Chemical analysis equipment: See class 40

94. Chemicals & Compounds.

2. Abrasives
4. Chemicals, electronic
6. Chemicals, fluorescent & luminescent
8. Chemicals, fungicidal
10. Chemicals, printed-circuit production
12. Chemicals, semiconductor production
14. Compounds, cleaning
16. Compounds, encapsulation & potting
18. Compounds, insulating
20. Compounds, molding
22. Compounds, sealing & bonding
24. Coatings, conductive
26. Coatings, moisture-proofing
28. Coatings, protective
30. Coatings, salt-spray
32. Coatings, vacuum-metallized
34. Coolants
36. Dope
38. Fluids
40. Gases
42. Solvents, insulation
44. Solvents, production

Aceto Chemical Co., Inc., N.Y., 4s, 8s, 44s
Acheson Colloids Co., Div. of Acheson Industries, Inc., Mich., 24s
Acme Wire Co., Conn., 16s, 18s, 20s, 22s, 26s, 28s, 30s
Adhesive Products Corp., N.Y., 16sc, 18sc, 20sc, 22sc, 24sc, 28s
Adre Co., Wis., 14 Burnishers s
Air Reduction Co., Inc., Pure Carbonic Co. (Div.), N.Y., 38 CO_2 sc, 40 CO_2 sc
All-State Welding Alloys Co., Inc., N.Y., 22sc
Allied Chemical Corp., General Chemical Div., 40 Rector St., New York 6, N.Y., 4s, 10s, 12s, 14s, 44s, Tel: 212-HAnover 2-7300
See ad in this class
Allied Research Products, Inc., Md., 14s, 24s, 28s, 30s
Alloys Unlimited, Inc., N.Y., 4s, 12s
Alpha Metals, Inc., N.J., 10s, 24s, 28s
Alpha Molykote Corp., Conn., Lubricants sc
Aluminum Co. of America, Pa., 2sc
Ambroid Co., Inc., Mass., 22sc, 26sc, 28sc, 36sc, 42sc, 44sc
Amerconda Chemical Co., N.Y., 4sc, 6sc, 10sc, 12sc, 14sc, 16sc, 18sc, 20s, 22s, 24sc, 26s, 28s, 30s, 32s, 42s, 44s
American-Marietta Co. (Martin-Marietta Corp.), Adhesive, Resin & Chemical Div., Wash., 16s, 18s, 20s, 22s
American Potash & Chemical Corp., Calif., 4sc, 12sc
American Products Mfg. Co., La., 18c, 22c, 28c
American Sealants Co., Conn., 22s
Aries Laboratories, Inc., Conn., 4sc, 16s, 18s, 20s, 22s, 28s
Armour Industrial Chemical Co., Ill., 8s, 14s, 28s, 40s
Armstrong Cork Co., Pa., 14s, 18c, 22sc, 28sc
Armstrong Resins, Inc., Ind., 22sc, 28sc
Associated Engineering & Mfg. Corp., N.J., 6sc
Atlas Chemical Industries, Inc., Ordnance Materiel Dept., Del., Explosives sc
Autosonics, Inc., Pa., 14sc
B. B. Chemical Co., Mass., 10s, 22s, 28s, 30s
Bacon Industries, Inc., Mass., 16sc, 18sc, 22sc, 24c, 28c
Baker Chemical Co. (J. T.), N.J., 4sc, 6s, 12sc, 44s
Barco Chemical Products Co., Ill., 4s, 14sc, 20sc, 44sc
Barium & Chemicals, Inc., Ohio, 4sc, 6sc
Barrett Varnish Co., Ill., 22c, 26sc, 28sc, 30sc
Barton Mines Corp., N.Y., 2 Garnet s, Lapping compounds s
Bausch & Lomb, Inc., Instrument Div., N.Y., 32c
Beaver Laboratories, N.Y., 4sc, 14sc, 26sc, 28sc, 42sc
Becker Brothers Carbon Co., Ill., Graphite sc
Bee Chemical Co., Ill., 24c, 26c, 28c, 30c, 32c
Bendix Corp., Pioneer-Central Div., Iowa, 10s, 14sc
Bergen Laboratories, Inc., N.J., 26c, 28c, 30c
Biggs Co., Inc. (Carl H.), Calif., 6sc, 16sc, 18s, 20s, 22s, 24s, 26s, 28s, 30s

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Special "Electronic Grade" chemicals—with metallic and other undesirable impurities held to extremely low limits—for the manufacture of semiconductors, tubes and other electronic devices . . .

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Acetone
Aluminum Nitrate, Crystal and Basic
Ammonia, Aqua
Ammonium Citrate
Ammonium Hydroxide
Ammonium Hydroxide, Reagent, A.C.S.
Barium Nitrate
Calcium Acetate
Calcium Nitrate, Tetrahydrate
Carbon Tetrachloride
Ether, Anhydrous
Fluoborate Plating Solutions for Printed Circuits
Germanium Dioxide
Germanium, First Reduction Metal
Germanium, Intrinsic Metal
Glycerine
Hydrochloric Acid
Hydrofluoric Acid
Hydrogen Peroxide, 3% Solution
Hydrogen Peroxide, 30%
Hydrogen Peroxide, 30% "Stabilized"
Indium Fluoborate, Solution
Manganous Nitrate, Reagent and Electronic
Metallic Compounds for Ferrite Production
Methyl Alcohol, Absolute (Methanol) Acetone Free
Nickel Chloride
Nickel Sulfate
Nitric Acid and Fuming Nitric Acid
Oxalic Acid, Reagent, A.C.S.
Potassium Hydroxide, Solution
Propyl Alcohol, Iso
Sodium Carbonate, Monohydrate
Sodium Hydroxide, Solution
Sodium Hypophosphite
Strontium Nitrate
Sulfur Hexafluoride for Gaseous Insulation
Sulfuric Acid
Toluene
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Xylene
Zinc Sulfide

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Electronic Chemicals
GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N.Y.

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Bischoff Chemical Corp., Riverside Plastics Div., N.Y., 28sc
Biwax Corp., Ill., 16s, 18s, 20s, 22s
Black Light Corp. of America, Calif., 6s
Black Light Eastern Corp., N.Y., 6s
Black Light Products, Ill., 4s, 6s, 28s
Blackburn, Inc. (P. W.), N.Y., 40c
Bloomingdale Rubber Co., Md., 22sc
Borden Chemical Co., N.Y., 16s, 18sc, 20sc, 22sc, 26sc, 28sc, 30s
Borden Chemical Co., Resinite Dept., Mass., 4s, 16s, 18s, 20sc, 22sc, 26sc, 28sc, 30s
Borolite Corp., Pa., 22s, 24s
Branson Instruments, Inc., Conn., 14s
Caig Laboratories, Inc., N.Y., 4s, 14s
Canrad Precision Industries, Inc., N.Y., 6sc
Carborundum Co., Refractories Div., N.J., 2sc, 16s
Catalin Corp. of America, N.Y., 20s
Ceramco, Inc., N.J., 14s, 16c, 18c, 22c, 24c, 26c, 28c, 30c, 32c, 44c
Champion Bronze Powder & Paint Co., Inc., Ill., 4sc, 14sc, 18sc, 22sc, 24sc, 26sc, 28sc, 30sc
Chemical Development Corp., Mass., 14s, 16s, 22s, 24s, 26s, 28s
Chemical Products Corp., R.I., 10c, 16c, 18c, 20c, 22c, 28c, 30c, 32c
Chemtronics, Inc., N.Y., 4sc, 8sc, 10sc, 14sc, 16sc, 18sc, 22sc, 24sc, 26sc, 28sc, 30sc, 34sc, 36sc, 38sc, 42sc, 44sc
Chicago Aerial Industries, Inc., Pacific Optical Corp. (Div.), Calif., 32c
Chrysler Corp., Defense Group, Mich., 22sc
City Chemical Corp., N.Y., 2s, 4s, 6s, 8s, 10s, 12s, 14s, 38s, 44s
Clark Electronic Laboratories, Calif., Pressure-Sensitive Paint sc
Coast Pro-Seal & Mfg. Co., Calif., 16c, 18c, 20c, 22c, 26c, 28c
Cohehn, Inc., N.J., 14sc, 42sc, 44sc
Colonial Alloys Co., Pa., 14sc, 28sc, 30sc, 44sc
Columbia Technical Corp., N.Y., 24c, 26s, 28s, 30s
Columbian Carbon Co., Mapico Iron Oxides Unit, 380 Madison Ave., New York 17, N.Y., 4 Iron-oxide s, Tel: 212-MUrray Hill 7-2300
See ad in class 104
Cominco Products, Inc., Electronic Materials Dept., Wash., 4c, 12c
Compo Shoe Machinery Corp., Special Products Div., Mass., 10s, 14s, 16s
Connecticut Hard Rubber Co., Conn., 22s
Consolidated Electrodynamics Corp., Calif., 28s
Consolidated Mining & Smelting Co. of Canada, Ltd., Canada, 4c, 12c
Cratex Mfg. Co., Inc., Calif., 2sc
Curtiss-Wright Corp., Princeton Div., N.J., 14sc, Temp.-Sensitive Paints sc
Davis Electronics, Inc., Calif., 16sc
Dell Optics Co., Ltd., N.J., 32c
Delta Chemical Works, Inc., N.Y., 2s, 4s, 6s, 8s, 12s, 14s, 22s, 36s, 38s, 40s
Dennis Chemical Co., Mo., 10s, 16s, 18 Lacquer s, 22s, 28s
Division Lead Co., Ill., 42s
Dodge Fibers Corp., John St., Hoosick Falls, N.Y., 18s, 22sc, 28s, Tel: Hoosick Falls 1080
See ad in class 97
Dow Chemical Co., Mich., 8s, 10s, 14s, 16s, 28s, 34s, 44s
Dow Corning Corp., Mich., 4s, 10s, 12s, 16s, 18s, 20s, 22s, 26s, 28s, 34s, 36s, 38s
DuPont de Nemours & Co., Inc. (E. I.), Del., 14s, 44s
Durez Plastics Div., Hooker Chemical Corp., N.Y., 16s, 18s, 20s, 22s, 26s, 28s
Eastern Chemical Corp., N.J., 6c, 8c, 38c, 44c
Electralab Printed Electronics Corp., 175 A St., Needham Heights 94, Mass., Lubricants sc, Tel: 617-HIllcrest 4-3912
See ad in class 50
Electro Chemical Co., N.Y., 4 Desiccant s
Electro-Coatings, Inc., Ill., Lubricants sc
Electrochemical Industries, Inc., Mass., 10c, 24c, 32c
Electrofilm, Inc., Calif., 14s, 24c, 28s, Lubricants c
Electronet Div., Rue Products, Calif., 16c
Electronic Chemical Corp., N.J., 4s, 14s, 24s, 26s, 28s
Electronic Enclosures, Inc., Calif., 28c
Electronic Engineers, Inc., Ill., 14 Head sc
Electronic Production & Development, Inc., Calif., 4sc, 6c, 14s, 16sc, 18sc, 20sc, 22sc, 24c, 26sc, 28sc, 30sc, 32c, 44sc
Emerson & Cuming, Inc., Mass., 16s, 18s, 20s, 22s, 24s, 26s, 28s, 30s, 42s, 44s
Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 38c, 40c, Tel: 201-BIgelow 2-2700
See ad on page 140
Enthone, Inc., Conn., 10s, 14s, 44s
Epoxy Products, Div. of Joseph Waldman & Sons, N.J., 16sc, 18sc, 20sc, 22sc, 24sc
Eraser Co., Inc., N.Y., 44 Eraser sc
Espey Mfg. & Electronics Corp., N.Y., 16c, 18c, 20c
Etchomatic, Inc., Mass., 10s, 14s, 24s
Evra, Inc., Calif., 4sc, 8s, 10sc, 12sc, 16sc, 18sc, 20sc, 22sc, 24sc, 26sc, 28sc
Factory Enterprises, Inc., Pa., Light-sensitive Coatings sc
Felker Mfg. Co., Calif., Lapping Compounds c
Fiberite Corp., Minn., 20s
Fidelity Chemical Products Corp., N.J., 4s, 10s, 12s, 14s, 16s, 28s, 42s, 44s
Fisher Scientific Co., Pa., 4sc, 44s
Flexrock Co., Pa., 20c, 22c, 28c, 36c
Floquil Products, Inc., N.Y., 26s, 28s, 30s
Foote Mineral Co., Pa., 4s, 16s
Foredom Electric Co., Inc., Conn., 2s
Franklin Fibre-Lamitex Corp., Del., 16c, 18c
Furane Plastics, Inc., Calif., 16sc, 18sc, 20sc, 22sc, 28sc, 30s
G C Electronics Co., Div. of Textron Electronics, Inc., Ill., 4s, 6s, 8s, 14s, 24s, 26s, 28s, 30s, 34s, 36s, 38s, 42s, 44s
General Dynamics Corp., Liquid Carbonic Div., Ill., 40 CO_2 c
General Electric Co., Chemical Materials Dept., Mass., 20sc
General Electric Co., Lamp Metals & Components Dept., Ohio, 4s, 40s
General Electric Co., Silicone Products Dept., N.Y., 16 Silicone sc, 18 Silicone sc, 20s, 22s, 26s, 28s, 34s, 38s
General Instrument Corp., Defense & Engineering Products Group, N.Y., 10c, 12sc, 16sc
General Instrument Corp., Harris ASW Div., Conn., 14s
General Mills, Inc., Magnaflux Subsid., Ill., 6s
General Plastics Corp., N.J., 24s, 26s, 28s
Geoscience Instruments Corp., N.Y., 2sc
Glaskyd, Inc., Ohio, 16sc, 18sc, 20sc, 22sc
Gore & Associates, Inc. (W. L.), Del., 22c
Green Rectifier Co., N.J., 16c, 32c
Gulton Industries, Inc., N.J., 28c
Handy & Harman, 850 Third Ave., New York 22, N.Y., 24c, Tel: 212-PLaza 2-3400
See ad in class 104
Hardman Co., Inc. (H. V.), N.J., 16sc, 22sc, 28s
Harshaw Chemical Co., Crystal Div., Ohio, 6sc
Hastings Plastics, Inc., Calif., 16sc, 18sc, 20sc, 22sc
Hellermann Canada, Ltd., Canada, 28s
Hi-Grade Alloy Corp., Ill., 10sc, 14 Ultrasonic sc, 42sc, 44sc
Hi-Test Chemical Corp., N.Y., 16s, 18s, 22s, 26s
Hitachi New York, Ltd., N.Y., 18c, 28c, 40c
Hunt Co. (Philip A.), N.J., 10 Etching s
Hysol Corp., N.Y., 16sc, 18sc, 20s, 22sc, 24s, 28s
Industrial Plastic Fabricators, Inc., Mass., 28c
Infrared Industries, Inc., West Coast Div., Calif., 24c, 28c, 32c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 40 Cryogenic c
Isochem Resins Co., R.I., 4sc, 10sc, 14sc, 16sc, 18sc, 22sc, 24sc, 26sc, 28sc, 30sc, 42sc, 44sc
Isomet Corp., N.J., 6c
Isotopes Specialties Co., Calif., 14sc, 38sc, 40sc
Jefferson Electronic Products, Div. of Jefferson Electric Co., Calif., 16c, 20c, 22c, 44c
Johns-Manville, N.Y., 18s, 22s, 26s, 28s
Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 32c
Kawecki Chemical Co., Inc., 220 E. 42nd St., New York 17, N.Y., 4s, 6s, 12s, Tel: 212-MUrray Hill 2-7143
See ads in classes 102, 104
Keil Eng. Products, Inc., Mo., 10s
Kirsch Music Corp., N.Y., 4sc,
Krylon, Inc., Pa., 26s, 28s, 30s
L & R Mfg. Co., N.J., 14s
Lake Chemical Co., Ill., 22sc, Stick-Lacquer sc
Lawrence Adhesive & Chemical Co., Inc., Mass., 16sc, 18sc, 22sc, 28sc
Levey Laboratories (Harold A.), La., 14c, 22c, 26c, 28c, 36c, 42c
London Chemical Co., Inc., Ill., 4sc, 10sc, 12sc, 14sc, 18sc, 26sc, 42sc, 44sc
MacDermid, Inc., Conn., 10s, 14s, 28s
Mackay, Inc. (A. D.), N.Y., 2s, 4sc, 6s, 12sc

Directory III. Materials & Services

94. Chemicals & Compounds.

Malaker Laboratories, N.J., 4c, 26c, 28c
Mallinckrodt Chemical Works, Mo., 4s, 6s, 8s, 12s, 44s
Markal Co., Ill., 28sc
Marlane Development Co., Inc., N.Y., 24sc, 28sc
Materials for Electronics, Inc., N.Y., 4sc, 6sc, 10sc, 12sc, 24sc
Melpar, Inc., Va., 16c, 24c
Melpar, Inc., Special Products Div., Va., 18sc, 28sc, 30sc
Mereco Products Div., Metachem Resins Corp., R.I., 14s, 16s, 18s, 20s, 22s, 24s, 26s, 28s, 44s
Merix Chemical Co., Ill., 4s, 14s, 24s, 28s, Anti-Static Chemicals s
Metal Finishers, Inc., Md., 18c, 28c
Metal & Thermit Corp., N.J., 8s, 10s, 24s, 26s, 28s
Metaplast Co., Inc., N.Y., 24sc, 32sc
Metavac, Inc., N.Y., 32sc
Michigan Chemical Corp., Mich., 4s, 8s, 12sc
Micro-Circuits Co., Mich., 24s
Minnesota Mining & Mfg. Co., Electrical Products Div., Minn., 2s, 16s, 18s, 28s
Mitchell Co. (E. C.), Mass., 2 Tape sc
Mona Industries, Inc., N.J., 44s
Moore Corp. (John B.), N.J., 10s, 14s, 44s
Morningstar-Paisley, Inc., N.Y., 22sc, 28sc
Motson Co. (J. Frank), Pa., 18sc, 24sc
NRC Equipment Corp., Mass., 32sc
National Lead Co., 111 Broadway, Room 1815, New York 6, N.Y., 4sc, Tel: 212-REctor 2-9400
See ad in class 110
National Lead Co., Titanium Alloy Mfg. Div., N.Y., 4s
National Research Corp., Mass., 24sc, 28sc, 32sc
Naz-Dar Co., Ill., 10sc, 28sc
New York Air Brake Co., Kinney Vacuum Div., Mass., 24s, 28s, 32s
Nopco Chemical Co., Plastics Div., N.J., 16s, 18s
Norton Co., Mass., 2s, 16s, 18s, 28s
Nuclear Science & Engineering Corp., Pa., Radioactive Chemicals sc
Osborne Electronics Corp., Ore., 14c
Pabst Engineering Equipment Co., Inc., N.J., 24c, 26c, 28c, 30c, 32c
Parkway Specialties Co., Mich., 2s, 14s
Penn Rare Metals, Inc., Pa., 12sc
Permacel, N.J., 16s, 18s, 22s, 26s, 28s, 30s
Permaluster, Inc., Calif., 18c, 28c
Pettinos Graphite Corp. (Charles), N.Y., 24s
Philco Corp., Lansdale Div., Pa., 12c
Philips Elmet Corp., Subsid. of North American Philips Co., Inc., Me., 32 Molybdenum & Tungsten c
Phillips Mfg. Co., Ill., 14s, 44 Drying s
Phillips Process Co., Inc., N.Y., Marking Compounds sc
Physical Sciences Corp., Affil. of Packard-Bell Electronics, Calif., 16sc
Pilot Chemicals, Inc., Mass., 6s
Plastic Associates, Calif., 4sc, 10sc, 16sc, 18sc, 20sc, 22sc, 24sc, 26sc, 28sc, 30sc
Plastronic Engineering Co., Mass., 16s, 18s, 20s, 22s
Poly-Kote, Inc., Mass., 24s, 28s, 32s
Polymer Corp., Pa., 18sc, 28sc, 30sc
Polymer Industries, Inc., Conn., 16s, 18s
Powertron Ultrasonics Corp., N.Y., 14 Ultrasonic sc, 44sc
Poxylube, Inc., Ind., Lubricants sc
Pro-Chem, Inc., Ohio, 14sc, 20sc, 26sc, 28sc, 34sc, 38sc, 44sc
Products Research Co., Calif., 16c, 18c, 20c, 22c, 24c, 28c
Pylam Products Co., Inc., N.Y., 6s, Marking Compounds s
Q-max Corp., N.J., 36s
Quietrole Co., S.C., 4s
Radiation Applications, Inc., N.Y., 16s, 22s
Ram Chemicals, Inc., Calif., 4s, 14s, 16s, 20 Release s, 22s, 36s
Raybestos-Manhattan, Inc., Pa., 16s, 22s, 26s, 28s
Reichhold Chemicals, Inc., N.Y., 16s, 22s
Rescon Electronics Corp., Mass., 32c
Rogers Corp., Conn., 20sc
Ross Co. (Milton), Pa., 16sc
Rubber & Asbestos Corp., N.J., 22sc
Sabre International Corp., Minn., 2sc
Sampson Chemical & Pigment Corp., Ill., 6sc, 26c, 28sc, 30c
Santa Barbara Research Center, Subsid. of Hughes Aircraft Corp., Calif., 24sc
Sauereisen Cements Co., Pa., 16s, 18s, 20s, 22s, 28s
Schenectady Chemicals, Inc., N.Y., 8s, 16s, 18s, 26s, 28s, 30s
Schwartz Chemical Co., Inc., N.Y., 12s, 14s, 16s, 18s, 22s, 24s, 26s, 28s, 30s, 32s
Schweitzer Div. (Peter J.), Kimberly-Clark Corp., Mass., 32sc
Sel-Rex Corp., N.J., 10s, 14s, 28s, 44s
Selectrons, Ltd., N.Y., 24sc, 28sc, 30sc
Semi-Alloys, Inc., N.Y., 12sc
Semi-Elements, Inc., Pa., 4s, 6s, 12s, 24s
Semicon of California, Inc., Calif., 22 High-Temp. c
Shannon Luminous Materials Co., Calif., 6sc
Shipley Co., Inc., Mass., 4sc, 10sc, 14sc, 24sc, 28sc, 30sc
Smooth-On Mfg. Co., N.J., 16sc, 22sc
Spectra-Strip Wire & Cable Corp., Calif., 16s, 18s, 22s, 24s, 26s, 28s, Marking Compounds s
Spectronics Corp., N.Y., 6sc
Sprayway, Inc., Ill., 28s
State Testing Laboratory, Inc., Conn., 14s, 44s

for durable marking of electrical and electronic products and components! Costly rejections of components will soon be a thing of the past—thanks to Wornowink, Series M! This brand new epoxy marking ink remains legible under solvent and ultrasonic cleaning conditions. Until its development, it has been necessary to reject components, housings, and assemblies at various production stages when repeated handling, flux removal, and chemical cleaning obliterated their markings. Designed for application by marking machine, stamp pad and roller printing, the inks are supplied in the ten RETMA nominal colors standardized by the Electronic Industries Association. Cured inks conform to militarily-approved specifications. Write today for free samples and literature!

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

94. Chemicals & Compounds.

Stevenson Bros. & Co., Pa., 8sc, 16sc, 18sc, 26 Wax sc, 28sc
Stieh Chemicals, Inc., N.Y., 8s, 14 Decontaminants s
Studebaker-Packard Corp., Gering Plastics Div., N.J., 20sc
Superex Electronics Corp., N.Y., 4s
Swift Textile Metalizing & Laminating Corp., 10 Love Lane, Hartford 1, Conn., 24s, Tel: 203-JAckson 2-1181
See ad in class 103
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 4s, 6s, 12s
Sylvania Electric Products Inc., Chemical & Metallurgical Div., Pa., 4s, 6s, 12s
TRG, Inc. (Technical Research Group), N.Y., 4s, 6s, 16s
Tau Engineering Co., Calif., 16s, 18s, 20s, 22s, 26s, 28s, 30s
Technic, Inc., P.O. Box 965, Providence 1, R.I., 28sc, 32sc, Tel: 401-ST 1-6100
See ad in class 104
Technicraft Co., Mass., 16s, 18s
Telecomputing Corp., Calif., 16s, 22s, 26c, 42c
Telecomputing Corp., Narmco Materials Div. of Narmco Industries, Inc. (Subsid.), Calif., 16sc, 18sc, 20sc, 22 Structural sc, 28sc, 42s
Tempil Corp., N.Y., Temperature-Sensitive Compounds sc
Thiokol Chemical Corp., N.J., 14s, 16s, 18s, 20s, 22s, 26s, 28s
Tickle Engineering Works, Inc. (Arthur), N.Y., 28c, 32c
Topper Mfg. Co., Inc., N.Y., 4c, 6c, 10c, 12c, 16c, 24c
Tracerlab Keleket, Mass., 6sc
Trionics Corp., Wis., 2c, 16c, 20c, 22c, 24c, 26c, 28c, 30c, 32c
Ultra-Violet Products, Inc., Calif., 6s
Ultramotive Co., Calif., 14sc
Ultrasonic Industries, Inc., N.Y., 14s, 44s
Union Carbide Corp., Linde Co. (Div.), N.Y., 2s, 40s
Union Carbide Corp., Silicones Div., N.Y., 16s, 18s, 20s, 22s, 24s, 26s, 28 Silicone s, 30s, 38s
Unit Process Assemblies, Inc., N.Y., 14c, 42c
United States Radium Corp., N.J., 6sc
United States Rubber Co., N.Y., 8s, 28s
United States Rubber Co., Naugatuck Chemical Div., Conn., 16s, 20s
Universal Match Corp., Armament Div., Mo., Pyrochemicals c
Vacuum Technology, Inc., Calif., 24c, 32c
Var-Lac-Oid Chemical Co., N.Y., 2c, 4c, 6c, 10c, 12c
Voltarc Tubes, Inc., Conn., 6c
Walsco Electronics Mfg. Co., Ill., 2s, 4s, 6s, 8s, 10s, 12s, 14s, 24s, 26s, 28s, 30s, 34s, 36s, 38s, 42s, 44s
Wheelabrator Corp., Ind., 2s, 14s
Wildberg Bros. Smelting & Refining Co., Calif., 10s, 12s
Wornow Process Paint Co., Dept. M, 1218 Long Beach Ave., Los Angeles 21, Calif., 10sc, 12s, 24sc, 28sc, 30sc, Marking Compounds sc, Tel: 213-MAdison 7-3773
See ad in this class
Wright Metalcoaters, Inc., 255 West St., South Hackensack, N.J., 26c, 28c, 30c, Tel: 201-HUbbard 7-5136
See ad in class 109
Wye Industries, Mass., 14s, 42s, 44s
Zenith Optical Laboratory, N.Y., 24c, 32c
Zippertubing Co., Calif., 22s
Zophar Mills, Inc., N.Y., 16s, 18s, 22s, 26s, 28s

Clamps, tube & semiconductor:
See class 105

Cleaning compounds:
See class 94

Cleaning equipment, ultrasonic:
See class 99

Clips:
See class 97

Clips, semiconductor:
See class 78

Clips, test:
See class 62

Coating machinery:
See class 99

Coatings:
See class 94

Coil-winding machinery:
See class 99

Coils:
See class 51

Compounds:
See class 94

Computing services:
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Consoles:
See class 90

Consulting engineers:
See class 95

Contract fabrication & assembly:
See class 96

Coolants:
See class 94

Cooling devices:
See class 54

Cord & tape, lacing
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Core, solder:
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Cores:
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Couplings:
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Couplings, microwave:
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Couplings, servo:
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Crimping tools:
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Crystal furnaces:
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Custom builders:
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Custom-fabrication, ceramic:
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Custom-fabrication, metal:
See class 96

Custom-fabrication, plastic:
See class 96

Custom-fabrication, semiconductor materials:
See class 102

Dehydrators:
See class 99

Dials & dial-assemblies:
See class 97

Dielectric heating equipment:
See class 98

Dissipators, heat:
See class 105

Dollies:
See classes 32 & 90

Drills:
See classes 99 & 111

Drying equipment:
See class 99

Dust-free enclosures:
See class 90

Earths, rare:
See class 104

Electro-plating compounds:
See class 94

Electro-plating services:
See class 109

Elements, heating:
See class 98

Encapsulation compounds:
See class 94

Encapsulation services:
See class 109

Enclosures:
See class 90

Enclosures, environmental:
See classes 36 & 90

Directory III. Materials & Services

Enclosures, shielded:
See class 36

Energy conversion devices:
See class 58

95. Engineers, Consulting.

5. Acoustical
10. Automation
15. Electrical
20. Electronic
25. Mechanical
30. Nuclear
35. Radio
40. Television

A.R.F. Products, Inc., Ill., 20
Abacus, Inc., Calif., 10
Ace Engineering & Machine Co., Inc., Pa., 5, 20, 25
Acoustronics, Inc., N.Y., 5, 20
Adair Engineering Co. (George P.), D.C., 10, 20, 35, 40
Adams-Russell Co., Inc., 200 Sixth St., Cambridge 42, Mass., 20, Tel: 617-UNiversity 8-8040
See ads in classes 59, 66
Admiral Corp., Ill., 30
Advance Gear & Machine Corp., Calif., 25
Advanced Development Laboratories, Inc., N.H., 20
Advanced Research Associates, Md., 10, 20, 25, 30
Advancement Devices, Inc., N.Y., 15, 20, 25
Aero Service Corp., Pa., 10
Aerolab Development Co., Calif., 25
Aerospace Research, Inc., 94 Massachusetts Ave., Cambridge 39, Mass., 20, Tel: 617-ELiot 4-7780
See ad in class 26
Affiliated Screw Products Co., Ill., 25
Aidin Automation, Inc., N.Y., 25
Aircraft Armaments, Inc., Md., 20, 25
Aircraft & Missile Consultants, Calif., 25
Allied Research Associates, Inc., Mass., 10, 15, 20, 25, 30, 35
Alpar Mfg. Corp., Calif., 25
Alwac Computer Div., El-Tronics, Inc., Calif., 10, 20, 25
American Brake Shoe Co., Raymond Atchley Div., Calif., 10, 20, 25
American Communications Corp., N.Y., 5, 10, 15, 20, 25, 35, 40
American Hydromath Corp., N.Y., 25
American Machine & Foundry Co., Government Products Group, N.Y., 10, 15, 20, 25, 30
American Measurement & Control, Inc., Mass., 5, 10, 15, 20, 25
American Missile Products Co., Inc., Calif., 20
American Rectifier Corp., N.Y., 15
Amicon Corp., Pa., 5, 10, 15, 20, 25, 30
Amy, Aceves & King, Inc., N.Y., 20, 35
Anderton Electronic Laboratory, Utah, 20, 35, 40
Andrea Radio Corp., N.Y., 20, 35, 40
Antenna Products Co., Div. of All Products Co., Texas, 20
Applied Control Corp., N.J., 10, 20, 25
Applied Dynamics, Inc., Mich., 10, 20
Applied Magnetics Corp., Calif., 20
Applied Technology, Inc., Calif., 20

95. Engineers, Consulting.

Arde Engineering Div., Arde Associates, N.J., 5, 10, 15, 20, 25, 30, 35, 40
Ark Electronics Corp., 624-26 Davisville Rd., Willow Grove, Pa., 15, 20, Tel: 215-OLdfield 9-4121
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Armstrong Cork Co., Pa., 5
Astra, Inc., N.C., 15, 20, 25, 30
Astro-Space Laboratories, Inc., Ala., 15, 20, 25
Astronautics Corp. of America, Wis., 10, 15, 20, 25, 30
Ateliers de Montages Electriques (AME), France, 20, 30, 35
Atlantic Design Co., N.J., 10, 25
Atlantic Research Corp., Jansky & Bailey Div., Va., 35, 40
Atronic Products, Inc., Pa., 10, 20
Atwood Engineering (Wilfrid L.), Ohio, 15, 20
Audiosears Corp., N.Y., 5
Auerbach Electronics Corp., Pa., 10, 20, Computational
Auto-Test, Inc., Ill., 15
Automatic Production Research, N.Y., 10
Automation Dynamics Corp., N.J., 10, 20
Automation Engineering Laboratory, Inc., Conn., 10, 25
Automation Management, Inc., Mass., 10, 15, 20, 25
Automation Research & Design Associates, N.J., 10, 15, 20, 25
Avco Research & Advanced Development Div., Mass., 5
Bacon Industries, Inc., Mass., 15, 20
Bar-Ray Products, Inc., N.Y., 5
Barnes & Reinecke, Inc., Ill., 10, 15, 20, 25
Basic & Experimental Physics, Mass., 5, 10, 15, 20, 25, 30, 35
Batcher Engineering (Ralph R.), N.Y., 10, 20, 25
Bell Aerosystems Co., Avionics Div., N.Y., 5, 10, 15, 20, 25, 30, 35
Bendix Corp., Industrial Controls Section, Mich., 10
Bendix Corp., Sheffield Corp. (Subsid.), Ohio, 10
Bergen Laboratories, Inc., N.J., 20, 25
Berkshire Laboratories, N.H., 20
Berry Associates, Inc., Pa., 15, 20, 25, 35
Blonder-Tongue Laboratories, Inc., N.J., 40
Bludworth Marine Div., States Electronics Corp., N.Y., 20, 35
Boonshaft & Fuchs, Inc., Pa., 10
Booz Allen Applied Research, Inc., Ill., 10, 15, 20, 25, 30
Briggs Associates, Inc., Pa., 20

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Burdick, George, Parmenter Rd., R.F.D., Hudson, Mass., 10, 20, Tel: 617-JOrdan 2-6705
See ad in this class
Burnett Radio Laboratory (Wm. W. L.), Calif., 15, 20, 35
Calbest Electronics, Calif., 20, 35
Capehart Corp., N.Y., 20, 25, 35, 40
Centroid Engineering & Mfg. Corp., 126 Jackson St., Cambridge 40, Mass., 20, 25, Tel: 617-TRowbridge 6-7250
See ads on page 111 and in class 91
Chance Vought Corp., Vought Electronics Div. of Ling Temco Vought, Inc., Texas, 10, 20
Cinaudagraph, Inc., Ill., 5
Cinematic Developments, Ark., 20, 25
Cole Instrument Co., Calif., 15, 20
Components Corp., N.J., 20
Comptometer Corp., Radiation Electronics Co. (Div.), Ill., 20
Comptron Corp., Mass., 10, 20
CompuDyne Corp., Mass., 10
CompuDyne Corp., Pa., 10, 15, 20, 25
Computer Control Co., Inc., Eastern Div., 983 Concord St., Framingham, Mass., 20, Tel: 617-TRinity 5-6185
See ad in class 8
Computer Sciences, Inc., N.Y., 10, 30
Computer Techniques, Inc., N.Y., 15
Connecticut Technical Corp., Conn., 10, 15, 20, 25
Continental Consultants, Inc., Pa., 10, 15, 20, 25, 35, 40
Continental Electronics Corp., N.Y., 5, 20
Continental Electronics Mfg. Co., Subsid. of Ling Temco Vought, Inc., 4212 S. Buckner Blvd., Dallas 27, Texas, 20, 35, Tel: 214-EVergreen 1-1135
See ad on page 120
Continental Technical Service, Inc., Ohio, 10, 15, 20, 25, 30
Control Technology Co., Inc., N.Y., 10, 15, 20
Controlomag Laboratories, Pa., 20
Controls for Radiation, Inc., Mass., 30
Contronics, Inc., Mass., 10, 20
Cook Electric Co., Cook Technological Center, Ill., 15, 20
Cooke Engineering Co., Va., 20, 35
Cool Fin Electronics Corp., Calif., 20
Corona Engineering Service, N.Y., 10, 15, 20
Crowhurst Engineering (Norman H.), N.Y., 5, 20
Crown Engineering, N.M., 20
Curtiss-Wright Corp., Princeton Div., N.J., 30
Cybernetics, Inc., Mass., 10
Datronics Engineers, Inc., Md., 20, 35
Daven Co., Subsid. of General Mills, Inc., N.J., 20
Davidson Electronic Development Co., Pa., 10, 15
Davis Engineering (George C.), D.C., 20, 35, 40
Decker Corp., Pa., 20, 25, 30

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Delcon Corp., Calif., 20, 35
Delta Coils, Inc., N.J., 15, 25
DeRyder Engineering (Herbert), N.J. 20
Designers for Industry, Inc., Ohio, 10, 15, 20, 25, 35
Develop-Amatic Engineering, Calif., 25
Development Engineering Co., Inc., Conn., 25
Developmental Electronics Corp., Calif., 10, 15, 20
Developmental Engineering Corp., Va., 20, 35, 40
Devol Research Corp., Conn., 10, 25
Dewey Corp. (G. C.), N.Y., 10, 20, 30
Diamond Electronics, Div. of Diamond Power Specialty Corp., Ohio, 40
Dicon Corp., N.Y., 15, 20, 25
Dikewood Corp., N. M., 30
Dimensions, Inc., N.Y., 10, 15, 20, 25
Djeco, Div. of Djordjevic Engineering Co., Ill., 5, 10, 15, 20, 25, 30, 35, 40
Donmar Products, Inc., Colo., 20
Door-Man Mfg. Co., Mich., 10, 15, 20
Dorsey & Associates (J. G.), Calif., 10, 15, 20, 25
Drexel Dynamics Corp., Pa., 10, 15, 20, 25
Dyna Magnetic Devices, Inc., N.Y., 5
Dynamic Gear Co., Inc., N.Y., 25
Dynamics Corp. of America, N.Y., 35, 40
Dynex, Inc., N.Y., 15, 20, 25
Eberline Instrument Corp., N.M., 30
Egan Laboratory, N.Y., 10, 15, 20, 30, 35, 40
Ehrenpreis Engineers (David), N.Y., 5, 10, 15, 20, 25, 30, 35
Eichwald & Co., Inc. (B.), N.Y., 10, 15, 20, 35, 40
Electrac, Inc., Calif., 10, 20
Electro-Craft Corp., Minn., 20, 25
Electro Logic Corp., Calif., 10
Electro-Mech Engineering Co., Minn., 10, 40
Electro-Neutronics, Inc., Calif., 10, 30
Electro-Rack, Inc., Calif., 25
Electro Radiation, Inc., Calif., 20
Electro-Solid Controls, Inc., Div. of General Electronic Control, Inc., Minn., 20, 25
Electrodynamic Instrument Corp., Texas, 5
Electromagnetic Technology Corp., Calif., 20, 35
Electronetics Corp., Fla., 20
Electronic Enclosures, Inc., Calif., 25
Electronic Engineering Co., Ohio, 5, 35
Electronic Engineering Co. of California, Calif., 20
Electronic Engineers, Inc., Ill., 5, 20
Electronic Research Associates, Inc., N.J., 5, 20
Electronic Specialty Co., Calif., 15, 20, 30
Electronics Research, N.J., 15, 20, 25
Elliott-Automation, Ltd., England, 10, 30, 35
Ellis Engineering (David O.), Calif., 20
Emerson Electric Mfg. Co., Mo., 10, 15, 20, 25
Engineering Information Associates, Inc., Conn., 5, 10, 15, 20, 25, 35, 40
Engineering Model Laboratory, Inc., Mass., 10, 20
Engineering Specialties, Ohio, 15, 20, 30
Ensco, Inc., Utah, 20

Ercolino, M. D., Route 35 & Rutherford Ave., Asbury Park, N.J., 15, 20, Tel: 201-PRospect 5-7252
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Asbury Park, N.J. PRospect 5-7252

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Erwood, Inc., Ill., 20, 25
Eugene Engineering Co., Inc., 1217 Hyde Park Ave., Hyde Park 36, Mass., 25, Tel: 617-EMpire 1-7000
See ads in classes 96, 105
Everard Tap & Die Corp., N.Y., 25
Falstrom Co., 74A Falstrom Ct., Passaic, N.J., 25, Tel: 201-PRescott 7-0013
See ad in class 96
Farrall Instrument Co., Nebr., 20
Ferro Magnetics Co., Calif., 20
Filtron Co., Inc., N.Y., 20
First Electronics Corp., Ind., 20, 35, 40
Ford Instrument Co., N.Y., 15, 20, 25, 30
Fortiphone, Ltd., Components & Transformer Divs., England, 5
Frankel & Associates (S.), Calif., 10, 15, 20
Franklin Engineering Design Co., Calif., 15, 25
Franklin Systems, Inc., 2734 Hillsboro Rd., P.O. Box 3250, West Palm Beach, Fla., 30, Tel: 305-TEmple 3-4602
See ad in class 22
Frederick Research Corp., Md., 15, 20, 25, 35, 40
Fried Engineering (Walter), N.Y., 15, 20, 25
Friend, Dr. A. W., 5903 City Ave., Philadelphia 31, Pa., 5, 10, 15, 20, 25, 30, Tel: 215-TEnnyson 9-3098
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Frontier Electronics Co., 4614 Memphis Ave., Cleveland 9, Ohio, 20, Tel: 216-SHadyside 9-0700
See ad in class 50
GP Engineering Services, Pa., 5, 10, 15, 20, 25, 30, 35, 40
General Atronics Corp., Pa., 5, 10, 15, 20, 25
General Automatics, Inc., Calif., 10, 15, 20, 25
General Instrument Corp., Harris ASW Div., Conn., 5
General Instrument Corp., F. W. Sickles Div., 165 Front St., P.O. Box 330, Chicopee, Mass., 40, Tel: 413-LYceum 4-4781
See ad in class 57
General Meters, Inc., Colo., 15, 20, 25
General Precision Equipment Corp., Kearfott Semiconductor Corp. (Subsid.), Mass., 20, 35
General Television Network, Mich., 40
Gilfillan Brothers, Inc., Calif., 20
Godley Co. (Paul), N.J., 35, 40
Good Electronic Corp., Fla., 20, 25
Goodfriend & Associates (Lewis S.), N.J., 5
Gordon Associates, Inc., N.J., 20
Gossland Engineering (John K.), Calif., 20
Graef Engineers, Inc., Calif., 25
Graf-Tek, Inc., N.J., 10, 20
Greenberg, Earl, 11-16 154th St., Whitestone 57, N.Y., 20, Tel: 212-HIckory 5-2459
See ad in this class

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Gresham Transformers, Ltd., England, 10, 20
Griffiths Electronics, Inc., N.J., 40
Gulton Industries, Inc., N.J., 5, 20
HRB-Singer, Inc., Pa., 10, 15, 20, 25
Hadfield Engineering (Bertram M.), Mass., 20
Hallmark & Associates (Clyde E.), Ind., 10
Hamilton Electronics Corp., Ill., 20
Hamner Electronics Co., Inc., N.J., 30
Hampshire Engineering Co., Mass., 20
Harristahl Laboratories, N.Y., 20
Hehn Engineering (Lester C.), N.Y., 25
Hillman, Leon, 255 County Rd., Tenafly, N.J., 10, 20, Tel: 201-LOwell 7-3232
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Himmelstein & Co. (S.), Ill., 10, 15, 20, 25
Hoberman Engineering (Max), N.J., 10, 20, 25
Hoffman Engineering Corp., Conn., Photometric
Hollywood Mfg. & Supply Corp., Calif., 20
Houston Fearless Corp., Westwood Div., Calif., 15, 20, 25
Hoyles, Niblock & Assoc., Canada, 15, 20
Hughes Aircraft Co., Nuclear Electronics Laboratory, Calif., 30
Hughes Research Div. (J. Willis), Miss., 5, 15, 20, 35, 40
IE Mfg., Ill., 25
Image Instruments, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 40, Tel: 617-WOodward 9-8440
See ads in classes 9, 10, 21, 86

Directory III. Materials & Services

95. Engineers, Consulting.

Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif., 10, 20, 25, Tel: 213-TRiangle 7-1144
See ads on page 162 & in class 63
Industrial Instruments, Inc., N.J., 10
Industrial Research Products, Inc., Ill., 5, 20
Instrument Corp. of Florida, Fla., 20, 25
Instrument Laboratories, Ill., 15, 20
Intectron, Inc., 2300 Washington St., Newton Lower Falls 62, Mass., 10, 20, Tel: 617-WOodward 9-9311
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Interference Testing & Research Laboratory, Inc., Mass., 20
International Electronics Mfg. Co., Md., 20
International Telephone & Telegraph Corp., ITT Kellogg, Ill., 10
Isotopes Specialties Co., Calif., 30
Jacobs Instrument Co., Md., 20
Johnson & Associates, Inc. (Wm. B.), N.J., 30
Johnson Co., Inc. (K. W.), Ohio, 5
Kahle Engineering Co., 3319 Hudson Ave., Union City, N.J., 10, 20, 25, Tel: 201-UNion 7-6500
See ad in class 99
Kahlenberg Bros. Co., Wis., 25
Kahn, Leonard R., 81 South Bergen Place, Freeport, L.I., N.Y., 5, 15, 20, 25, Tel: 516-FReeport 9-8800
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Kahn Research Laboratories, Inc., N.Y., 5, 15, 20, 25
Kall, Albert R., P.O. Box 172, Willow Grove, Pa., 15, 20, Tel: 215-OLdfield 9-4121
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Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 10, 20, 30
Kentron Hawaii, Ltd., Hawaii, 20, 35
Kin Tel, Div. of Cohu Electronics, Inc., Calif., 40
Kinn Engineering (Theodore P., Sr.), Md., 20
Knopp, Inc., Calif., 15, 20
Kulicke & Soffa Mfg. Co., Pa., 10
Land-Air, Inc., Ill., 20, 30
Las-Lab, Inc., Md., 25
Lear, Inc., Calif., 10
Lebell Associates (Don), Calif., 10
Leesona Corp., Leesona Moos Laboratories Div., N.Y., 20, 25, 30
Lehigh Design Co., Inc., N.J., 5, 10, 15, 20, 25, 30, 35, 40
Lehigh Valley Electronics Engineering & Mfg., Inc., Pa., 20
Lessells & Associates, Inc., Mass., 5, 15, 20, 25
Levey Laboratories (Harold A.), La., 15, 25
Levi, Leo, 452 Fort Washington Ave., New York 33, N.Y., 20, Tel: 212-WAdsworth 7-7617
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Ling Temco Vought, Inc., Altec Service Co. (Div. of Altec Companies, Inc.), N.Y., 20, 25
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5, 15, 20, 25
Little, Inc. (Arthur D.), Mass., 10, 15, 20, 25, 30, 35, 40
Loyola Laboratories, Calif., 20
Lubcke Engineering (Harry R.), Calif., 15, 20
Lyons Engineering (Leonard), Calif., 25
MacLeod Instrument Corp., 4250 N.W. Tenth Ave., Fort Lauderdale, Fla., 10, 20, Tel: 305-LOgan 4-8518
See ad in class 4
Madigan Electronic Corp., N.Y., 20, 25
Magnalectric Corp., 2635 N. Iroquois, P.O. Box 6008, Tulsa 6, Okla., 20, Tel: 918-FIllmore 5-7278
See ad in class 84
Magnetic Industries, Inc., Texas, 15, 20
Malaker Laboratories, N.J., 10, 15, 20, 25, 30
Manhattan Physical Research Group, Inc., N.Y., 5, 10, 20, 30
Marstan Electronics Corp., N.Y., 20, 25
Mast Development Co., Iowa, 10, 15, 25
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McKenna Labs., Calif., Ultrasonic
McKiernan-Terry Corp., N.J., 15, 25
McMillan Laboratory, Inc., McMillan Industrial Corp., Mass., 20, 35
Measurements, McGraw-Edison Div., N.J., 15, 20, 35
Menlo Research Laboratory, Calif., 15, 20, 25
Microsecond Electronics, Inc., Ariz., 20, 25
Microwave Services International, Inc., U.S. Route 46 & Cisco Rd., Denville, N.J., 5, 10, 15, 20, 25, 35, 40, Tel: 201-OAkwood 7-7400
See ad in this class
Midwest Automatic, Inc., Iowa, 10, 15, 20, 25
Milgo Electronic Corp., 7620 N.W. 36th Ave., Miami 47, Fla., 20, Tel: 305-OXford 1-1220
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Milro Controls Co., Inc., N.J., 10, 15, 20, 25, 30
Minneapolis-Honeywell Regulator Co., Military Products Group, Minn., 20
Minnesota Engineering Co., Minn., 10, 15, 20, 25
Minshall Organ & Electronics, Inc., Vt., 5, 15, 20, 25
Mittelmann Engineering (Eugene), Ill., 10, 15, 20
Modern Design, Div. of H. C. Schloer, Inc., 20, 25
Morris Engineering & Management Consultants (Fred W., Jr.), Calif., 15, 20, 35
Moulic Specialties Co., Ill., 20
NRC Equipment Corp., Mass., Vacuum
National Co., Inc., Mass., 20
National Missile & Electronics, Inc., Calif., 10, 15, 20, 25, 35
National Radiac, Inc., N.J., 30
National Scientific Laboratories, Inc., D.C., 5, 20, 25, 35
New London Instrument Co., Conn., 20, 35
New York Air Brake Co., Feedback Controls Subsid., Mass., 10, 15, 20, 25
New York Testing Laboratories, Inc., N.Y., 15, 20, 25
Nexon & Co., N.J., 5, 10, 15, 20, 25, 35, 40
Nichols Products Co., N.J., 25
North America Electronics, Vt., 35

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95. Engineers, Consulting.

North American Aviation, Inc., Atomics International Div., Calif., 30
North Electric Co., Ohio, 10
Northern Research & Engineering Corp., Mass., 10, 25, 30
Northwest Industries, Ltd., Canada, 15, 20, 25
Nuclear Development Corp. of America, N.Y., 15, 20, 25, 30
Nuclear Science & Engineering Corp., Pa., 30
Omega Dynamics Corp., Calif., 5, 25
Ostlund, E. M., Andover, N.J., 15, 20, 25, Tel: 201-PArkway 9-6635
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PTM Technical Consultants, 120 Liberty St., New York 6, N.Y., 5, 10, 15, 20, 25, 30, 35, 40, Tel: 212-BArclay 7-2063
See ad in this class
Pacific Electro Magnetics Co., Inc., Calif., 20
Page Communications Engineers, Inc., D.C., 20, 35, 40
Par Products Corp., Calif., 25
Parisier & Co. (Maurice I.), N.Y., 15, 20

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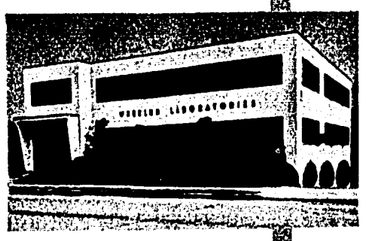

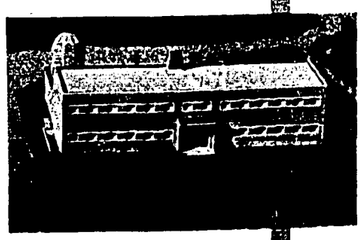

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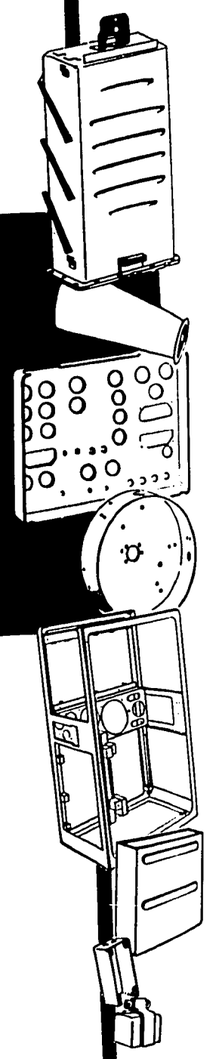

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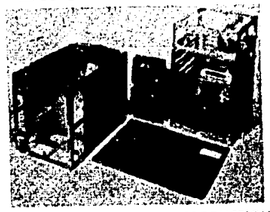

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Directory III. Materials & Services

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Electramatic, Inc., Minn., 5
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Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., 5, 10, Tel: 301-HAmilton 6-1268
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Emeloid Co., Inc., Subsid. of Addressograph-Multigraph Corp., N.J., 30
Emerson Electric Mfg. Co., Mo., 5, 10, Field Engineering (Radar)
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Etchomatic, Inc., Mass., 10 PC
Ethylene Corp., N.J., 25, 30
Eugene Engineering Co., Inc., 1217 Hyde Park Ave., Hyde Park 36, Mass., 5, 10, 15, 20, 25, Tel: 617-EMpire 1-7000
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Fox Products Co., Pa., 5, 15
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Franklin Systems, Inc., 2734 Hillsboro Rd., P.O. Box 3250, West Palm Beach, Fla., 5, 10, Tel: 305-TEmple 3-4602
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General Electric Co., Lamp Metals & Components Dept., Ohio, 15, 30
General Findings, Inc., Industrial Div., Mass., 5, 15

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Graef Engineers, Inc., Calif., 10
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Greenberg, Earl, 11-16 154th St., Whitestone 57, N.Y., 10, Tel: 212-HIckory 5-2459
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Greene Electronics, Inc., 1844 Cranston St., Cranston 9, R.I., 5, 10, Tel: 401-WIlliams 2-3800
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Hawley Products Co., 333 N. Sixth St., Saint Charles, Ill., 30, Tel: 312-JUno 4-3130
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MM Enclosures, Inc., 111 Bloomingdale Rd., Hicksville, L.I., N.Y., 15, Tel: 516-WElls 1-1770
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National Tel-Tronics Corp., 52 Saint Casimir Ave., Yonkers, N.Y., 5, 10, Tel: 914-YOnkers 8-6400
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Navigation Computer Corp., Valley Forge Industrial Park, Norristown, Pa., 5, 10, Tel: 215-GLendale 2-6531
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Neptune Electronics Co., N.Y., 5, 10
Nevada Air Products Co., Nev., 5, 10
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Oki & Willadsen, Ltd., Canada, 5, 10, 25
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Omega Laboratories, Inc., Haverhill St., Rowley, Mass., 5, 10, 30, Tel: 617-WHitney 8-7757
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Photomechanisms, Inc., 15 Stepar Pl., Huntington Station, L.I., N.Y., 10, Tel: 516-HAmilton 3-4411
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Pic Design Corp., Subsid. of Benrus Watch Co., Inc., N.Y., 5, 10
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Rainier Co., Inc., N.Y., 5, 10
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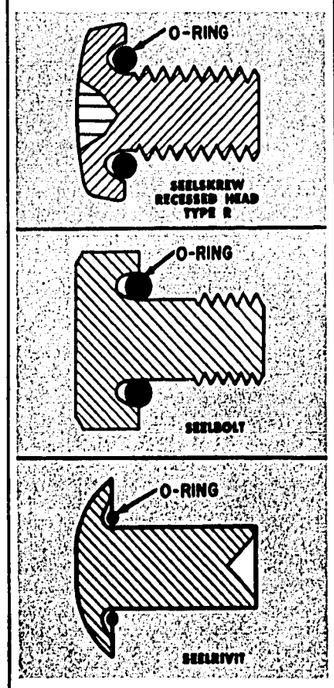

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Republic Steel Corp., Ohio, 15
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Skiatron Electronics & Television Corp., N.Y., 5, 10
Skyline Electronics, Inc., Colo., 5, 10, 15, 20
Skyline Products, Inc., 819 Grand Blvd., Deer Park, L.I., N.Y., 5, 10, Tel: 516-MOhawk 7-8644
See ad in class 90
Slidecraft, Inc., N.Y., 5, 10
Smith-Meeker Engineering Co., N.Y., 10
Solatron, Inc., Mass., 5, 10, 20
Sonex, Inc., 20 E. Herman St., Philadelphia 44, Pa., 5, 10, 15, 20. Tel: 215-VIctor 3-6400
See ad in class 34
Sorensen Industrial Electronic Co., N.J., 5, 10, 20, 25
South River Metal Products Co., Inc., N.J., 15
Space Electronics Corp., Calif., 5, 10
Space Products, Calif., 30
Sparta Mfg. Co., Div. of U.S. Ceramic Tile Co., Ohio, 25, 30
Spaulding Fibre Co., Inc., 310 Wheeler St., Tonawanda, N.Y., 25, Tel: 716-NX 2-2000
See ad in class 107
Specialty Electronics Development Corp., N.Y., 5
Specific Electronics, Inc., Calif., 5, 10
Speed Electronics, N.J., 5, 10, 15, 25
Sperry Rand Corp., Sperry Piedmont Co. (Div.), Va., 5, 10
Spruce Pine Mica Co., Inc., N.C., 25
Stainless, Inc., Pa., 5, 10
Standard Electronics Research Corp., N.J., 10
Stanwyck Coil Co. (E.), 75 Carson Ave., Newburgh, N.Y., 30, Tel: 914-JOhn 1-3030
See ad in class 51
Staples-Hoppmann, Inc., Va., 5, 10, 20
State Testing Laboratory, Inc., Conn., 5, 10
Staver Co., Inc., N.Y., 15
Steinberg & Son, Inc. (Irving C.), N.J., 5, 15
Stelon, Inc., N.J., 10, 25
Stevens Products, Inc., N.J., 30
Stewart Stamping Co., N.Y., 15
Stokes Corp. (F. J.), Pa., 5
Stone City Products Co., Ind., 15
Stone Laboratories, Inc., Mass., 5, 10
Stratocon Corp., N.J., 5, 10
Straza Electronics, Div. of Straza Industries, Calif., 5, 10
Sturrup, Inc., Conn., 5, 10
Sun Dial Corp., N.J., 25
Sun Electric Corp., Instrumentronics Div., Ill., 5, 10
Supreme Process Corp., N.Y., 25
Synthane Corp., Pa., 25
Systems Development, Inc., N.Y., 5, 10
Systems Research Corp., Calif., 5, 10
Taffet Electronics, Inc., N.Y., 5, 15
Tang Industries, Inc., Mass., 10
Taylor Fibre Co., Pa., 25, 30
Technicraft Co., Mass., 5
Techtro-Matic Corp., Vt., 5, 10, 30
Teiner Co., Inc. (Roland), Mass., 5, 15
Telechrome Mfg. Corp., N.Y., 5
Telecomputing Corp., Calif., 5, 10, 25
Telecomputing Corp., Advanced Structures Div., Calif., 5, 10, 25, 30
Television Associates, Inc., Div. of Melpar, Inc., Ind., 5, 10, 20, 25
Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 5, Tel: 612-MIdway 6-7211
See ads in classes 79, 80
Telkor, Inc., Ohio, 5, 10
Teltronics, Inc., 23-27 Main St., Nashua, N.H., 5, 10, Tel: 603-TUxedo 2-6264
See ad in class 38
Temperature Engineering Corp., N.J., 5, 10
Templet Industries, Inc., N.Y., 15
Ten Bosch, Inc. (M.), N.Y., 5, 10

Directory III. Materials & Services

96. Fabricators & Custom Builders.

Tenco Electronics, Inc., Mass., 5
Textron, Inc., Sheffco Mfg. Corp. (Div. of Townsend Co.), N.J., 5, 15, 25
Therm, Inc., N.Y., 5, 10
Thermovolt Instruments, Ltd., Canada, 5, 10
Thomas & Sons, Inc. (William), N.J., 15
Thompson Fibre Glass Co. (H. I.), Calif., 25, 30
Tipptronic, Inc., Ohio, 5, 10
Titchener & Co. (E. H.), N.Y., 5
Topper Mfg. Co., Inc., N.Y., 5, 10, 25
Topping Electronics, Ltd., Canada, 10
Torngren Co., Inc. (C. W.), Mass., 15
Torres Engineering Co., Inc. (C.), N.J., 5, 10, 25
Torrington Co., Conn., 5, 15
Tower Construction Co. (Tower Communications Co.), 2700 Hawkeye Dr., Sioux City 2, Iowa, 5, Tel: 2-3631
See ad in class 44
Tracerlab Keleket, Mass., 5, 10
Trancoa Chemical Corp., Mass., 30
Transistor Applications, Inc., Mass., 5, 10, 20
Trepac Corp. of America, N.J., 5, 10
Tri-Dex Co., Calif., 5, 10, 20, 25
Tri Metal Works, Inc., N.J., 5, 10
Triangle Electronic Mfg. Co., Inc., N.Y., 5
Trionics Corp., Div. of Nautec Corp., Wis., 10
Trott Electronics, Inc., N.Y., 5, 10
Ty-Car Mfg. Co., Inc., Mass., 5, 15
Ultra Electroforming & Mfg. Co., N.J., Electroforming
Ultramotive Co., Calif., 5, 15
Unison Products, Inc., Mich., 25, 30
United Aircraft, Inc., Ohio, 5, 10
United-Carr Fastener Corp., Carr Fastener Co. (Div.), Mass., 15, 30
United International Dynamics Corp., Mass., 5, 25
United Products Co., N.J., 5, 10, 15, 20, 25
U.S. Controls, Inc., N.Y., 5, 10
U.S. Dielectric Products, Inc., Mass., 25, 30
U.S. Magnet & Alloy Corp., Dept. 62, 266 Glenwood Ave., Bloomfield, N.J., Castings, Tel: 201-PIlgrim 3-1222
See ad in class 64
U.S. Precision Lens & Plastics, Inc., Ohio, 25, 30
Universal Instruments Corp., N.Y., Machining
Universal Mfg. Co., Inc., N.J., 5, 10, 15, 20
Univox Corp., N.Y., 5, 10
Utah Radio Products Corp., Ind., 5
Utilities Service Co., Pa., 5
Vector Associates, Inc., N.Y., 5, 10, 20, 25
Versa-Tronics, Ill., 10
Virginia Electronics Co., Inc., D.C., 5, 10, 20
Vlchek Tool Co., Ohio, 30
Vue-Tronics, Inc., Div. of Prescott Television Co., Calif., 5, 10
Waber Electronics, Inc., Pa., 5, 10, 20
Walton Tool & Die Co., Inc., Calif., 5
Washington Aluminum Co., Inc., Md., 5, 10, 20
Webster Electronics Co., Inc., N.Y., 15
Weckesser Co., Inc., 5713-17 Northwest Hwy., Chicago 46, Ill., 30, Tel: 312-ROdney 3-6688
See ad in class 97
Welcraft Products Co., Ind., 5
Wells Electronics Co., Ind., 5, 30
Werner Co., Inc. (R. D.), Pa., 5
Wesbar Stamping Corp., Wis., 15
Westfield Metal Products Co., Inc., Mass., 15
Westgate Laboratory, Inc., Ohio, 5, 10, 20
Westinghouse Electric Corp., Materials Mfg. Dept., Pa., 20
Westlab, Inc., N.Y., 5, 10
Wheeler Laboratories, Inc., Subsid. of Hazeltine Corp., 122 Cutter Mill Rd., Great Neck, L.I., N.Y., 10, Tel: 516-HUnter 2-7876
See ad in class 95
Wilmington Fibre Specialty Co., Del., 25
Winslow Co., Inc., N.J., 5, 10, 15, 30
Wintronics, Calif., 10
Wood Steel Co. (Alan), Penco Div., Pa., 15
Worcester Pressed Steel Co., Mass., 15
Wright Equipment Corp., N.J., 5, 10
York Metal Products, Inc., N.Y., 5, 10, 15
Zero Mfg. Co., Calif., 5, 15
Zimmey Corp., Calif., 5

Fasteners:
See class 97

Ferrimagnetic materials:
See class 100

Ferrite cores:
See class 55

Ferrites:
See classes 92 & 104

Fiberglas materials:
See classes 101 & 112

Film, plastic:
See class 107

Filters, air:
See class 90

Fluids:
See class 94

Fluxes, solder:
See class 110

Foils:
See class 104

Fungus & moisture-proofing services:
See class 109

Furnaces:
See class 98

Gases:
See class 94

Gaskets:
See class 97

Getters:
See class 105

Glass bobbins:
See class 97

Glass tubing:
See class 112

Grids & grid-wire:
See class 105

Grilles:
See class 97

Grommets:
See class 97

Guns & gun-parts:
See class 105

Hand tools:
See class 111

Handles:
See class 97

Hardening & heat-treating services:
See class 109

97. Hardware & Findings.

2. Bearings
4. Bobbins, glass
6. Bobbins, metal
8. Bobbins, paper
10. Breadboards
12. Brushes, motor
14. Bushings
16. Cans
18. Clips
20. Clips, cable
22. Cord & tape, lacing
24. Couplings
26. Couplings, flexible shaft
28. Couplings, rigid shaft
30. Dials & dial assemblies
32. Fasteners
34. Gaskets
36. Grilles
38. Grommets
40. Handles
42. Jewels & shunts
44. Knobs, metal
46. Labels & tapes, adhesive
48. Markers & tags
50. Mirrors
52. Nameplates
54. Nuts
56. Packaging materials
58. Retainers
60. Rings, retaining
62. Rivets
64. Screw-machine products
66. Screws
68. Screws, self-sealing
70. Seals, switch & shaft
72. Springs
74. Strain reliefs
76. Washers

A.P.M. Corp., 41 Honeck St., Englewood, N.J., 32 Self-Sealing s, 34s, 62s, 68s, 70s, Tel: 201-LOwell 9-5700
See ads in classes 75, 97 (page 698)
A & S Electronic Die Corp., N.Y., 18c, 34c, 36c, 76c
Abalon Precision Mfg. Corp., N.Y., 14c, 16c, 36c, 40c, 64c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Get Rocket-Fast Shipment from world's largest STOCK of Stainless Steel Fasteners

No long countdowns here. Allmetal stainless fasteners are stockpiled in advance—ready to go on your order. Fasteners in Commercial, AN, MS specs. You get fast delivery, precision quality, plus mass production economy when buying direct from stock.

Special fasteners also fabricated to your exact requirements on extremely short notice. Full range of raw materials assures prompt service. Simply send blueprint or specifications.

Pins • Bolts • Nuts • Screws (including slotted and Phillips—magnetic and non-magnetic) • Washers • Cotters • Rivets • Rods • Studs • etc.

PHONE OR WRITE for prompt quotation or shipment. Send for catalog.

ALLMETAL®

SCREW PRODUCTS COMPANY, INC.

Manufacturers of Stainless Fasteners Since 1929

821 Stewart Avenue, Garden City, L.I., N.Y.
Phone: Pioneer 1-1200 TWX GCY 603

Midwest Division
6424 W. Belmont Avenue, Chicago 34, Illinois
Phone: AVenue 2-3232 TWX CG 3185

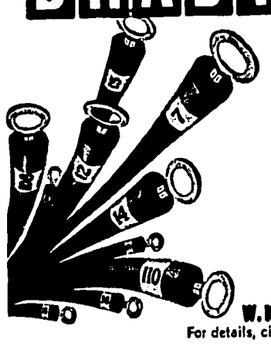
West Coast Division—Office and Warehouse
5822 West Washington Blvd., Culver City, Calif.
Phone: WEbster 3-9595 TWX LA 1472

For details, circle #653 on Reader Service Card

97. Hardware & Findings.

Abbott-Clark Machine & Tool, Inc., N.J., 24 Graphite & Carbon c, 28c
Abbott Products, Inc., N.Y., 6c, 14c, 64c, 66c
Abbott Screw & Mfg. Co., Ill., 32sc, 34s, 38c, 44c, 54sc, 62sc, 64sc, 66sc, 68sc, 76sc
Accurate Electronics Corp., Ohio, 28sc, 64sc
Accurate Spring Mfg. Co., Ill., 32c, 72c
Ace Fabricators, Ill., 76c
Ace Spring Mfg. Co., Inc., N.Y., 72c
Ackerman Engravers, Inc., N.Y., 30sc, 44s
Acme Mfg. & Gasket Co., Pa., 34c, 76c
Acme Model Engineering Co., N.Y., 18 Battery c, 20c, 34c, 72c, 76c
Acromark Co., N.J., 30c, 48c, 52c
Actioncraft Products, N.Y., 48sc
Adams Rite Mfg. Co., Calif., 32sc, 40sc
Advance Electronics Co., Mich., 50s
Advance Gear & Machine Corp., Calif., 24c, 26c, 28c
Advanced Development Laboratories, Inc., N.H., 52c
Advanced Products Co., Conn., 34s
Aero Bolt & Screw Co., Calif., 32sc, 34sc, 38sc, 54sc, 66sc
Aeroquip Corp., Mich., 24 Fluid Quick-Disconnect sc, 70sc
Aeroquip Corp., Marman Div., Calif., 24sc
Affiliated Screw Products Co., Ill., 14c, 24c, 28c, 32c, 40c, 54c, 58c, 60c, 62c, 64c, 66c, 76c
Air Born Connectors, Inc., Texas, 64s
Akron Metallic Gasket Co., Ohio, 34sc, 76sc
Alden Products Co., 10140 N. Main St., Brockton 64, Mass., 10s, 18s, 32s, Tel: 617-JUniper 3-0160
See ad in class 50
Aldrich Mfg. Co. (C. G.), Pa., 18c, 40c, 64c, 76c
Allen Mfg. Co., Conn., 32s, 66s
Allied Decals, Inc., Ohio, 52sc
Allied Fabricating Corp., Ill., 76c
Allied Plastics Supply Corp., N.Y., 2c, 16c, 30c, 34c, 38c, 40c, 44c, 46c, 48c, 52c, 64c, 76c
Allison Associates, Mass., 30c
Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, L.I., N.Y., 32sc, 54sc, 62sc, 64sc, 66sc, 76sc, Tel: 516-PIoneer 1-1200
See ad in this class
Alloys Unlimited, Inc., N.Y., 16sc, 70sc
Alpine Electronic Components, Conn., 24c, 40sc, 44c, 54sc, 60c, 62c, 64sc
Alpitec, Inc., Conn., 16c, 18c
Aluminum Co. of America, Pa., 32sc, 54sc, 62sc, 64sc, 66sc, 76sc
Alvo Nut & Bolt Co., Inc., Calif., 32s, 54s, 66s, 68s, 76s
Amatom Electronic Hardware Co., Inc., N.Y., 2sc, 14sc, 18sc, 20sc, 24sc, 26sc, 28sc, 30sc, 32sc, 38sc, 40sc, 44sc, 54sc, 62sc, 64sc, 68sc, 70sc, 72sc, 76sc
American Communications Corp., N.Y., 16sc, 24sc, 36sc, 44s, 52s
American Development Electronics Co., N.J., 24c
American Felt Co., Conn., 34s, 56s, 70s, 76s
American Hinge Corp., N.Y., 64c
American Hoist & Derrick Co., Minn., 20s
American Latex Fibre Corp., Mass., 56sc
American Machine & Foundry Co., N.Y., 32s
American Machine & Foundry Co., Thompson-Bremer Co. (Div.), Ill., 18c, 20c, 32sc, 66sc, 68sc, 76sc
American Molded Products Co., 2721 W. Chicago Ave., Chicago 22, Ill., 74s, Tel: 312-ARmitage 6-3235
See ad in class 106
American Nut & Bolt Fastener Co., Pa., 18sc, 32sc, 54sc, 76sc
American Screw Co., Div. of Noma Lites, Inc., Conn., 32sc, 54s, 66sc, 68sc
Ampco Mfg. Co., N.J., 18c, 20c, 70c
Anchor Metal Co., Inc., N.Y., 34c
Anderson & Sons, Inc., Mass., 30c, 48c, 52c
Angler Industries, Inc., N.J., 64c
Anodyne, Inc., North Shore Nameplate Div., Fla., 52sc
Anti-Corrosive Metal Products Co., Inc., N.Y., 32sc, 54sc, 62sc, 64sc, 66sc, 76sc
Apahouser Corp. of N.E., Mass., 30c, 52c
Apex Coated Fabrics Co., Inc., N.Y., 56sc
Arber Mfg. Co., Inc., Conn., 16c
Armour Alliance Industries, Ohio, 56s
Armstrong Cork Co., Pa., 34c
Art Wire & Stamping Co., 21 Boyden Pl., Newark 2, N.J., 40c, 72c, Tel: 201-HUmboldt 4-2100
See ad in class 105

BRADY Self-Sticking PERMA-CODE WIRE MARKERS



Positive "around-the-wire" identification for the electronic industry. Brady markers tell which wire goes where—quickly . . . increase production, cut costs . . . conform to NEMA-ASA, and MIL specifications. 3 stock sizes: 1½", ¾" and ½". 9 job tested materials.

- MINIATURE MARKERS permanently identify wires under 3/32" dia.
- BLUE-STREAK® RELEASE COATING assures fast distortion-free application.
- WRITE FOR FREE WORKING SAMPLES!

W. H. BRADY CO. 734 West Glendale Avenue Milwaukee 9, Wis. • Est. 1914 73

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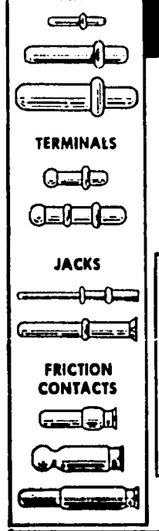
Directory III. Materials & Services

97. Hardware & Findings.

Artisan Metal Works Co., Ohio, 36c
Associated Mfg. Co., Ill., 64c
Atlas Screw & Specialty Co., Inc., N.Y., 54s, 64s, 66s, 76s
Atlee Corp., Atlas Div., Mass., 18sc, 20sc
Auburn Mfg. Co., Conn., 34sc, 38sc, 40c, 70c, 76sc
Augat Brothers, Inc., 33 Perry Ave., Attleboro, Mass., 18s, Clamps s, Tel: 617-CAstle 2-2202
See ad in class 105
Austin Craft Co., Ariz., 18 Battery sc
Austin Screw Products, Ill., 32sc, 54sc, 66sc, 68sc
Avdel, Inc., Calif., 32s, 62s
Avery Label Co., Div. of Avery Adhesive Products, Inc., Calif., 46sc, 52c
Bach-Simpson, Ltd., Canada, 14s, 40s, 64s
Bache & Co. (Semon), N.Y., 4c, 50sc
Bacon Industries, Inc., Mass., 34 Rubber c
Balcrank, Inc., Ohio, 40s, 44s
Barden Corp., Conn., 2 Ball sc
Barker Products Co., Mass., 64s
Barre Co., Inc., N.J., 16c
Barwood Mfg. Co., Inc. (L. J.), Mass., 32sc, 34c, 68sc, 76 Sealing sc
Baumker Mfg. Co., Ohio, 10c, 16c, 28c, 40c
Bausch & Lomb, Inc., Instrument Div., N.Y., 50sc
Bead Chain Mfg. Co., 11 Mountain Grove St., Bridgeport 5, Conn., 32s, Tel: 203-EDison 4-4124
See ad in this class
Bearing Inspection, Inc., Calif., 2sc
Beauchaine & Sons, Inc., N.H., 74c
Becker Brothers Carbon Co., Ill., 12sc
Beckman Instruments, Inc., Helipot Div., Calif., 30sc
Bell, Inc. (F. W.), Ohio, 44s
Bendix Corp., Friez Instrument Div., Md., 40s
Bendix Corp., Utica Div., N.Y., 2 Pivot sc, 26sc
Besteraft Products Co., Inc., N.Y., 34c, 36c, 56c, 76c
Bethlehem Instrument Co., Inc., Pa., 42c
Bird & Co., Inc. (Richard H.), Mass., 2sc, 42sc
Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 2s, 14sc, 18sc, 20sc, 22s, 24sc, 28sc, 30s, 32sc, 40s, 54s, 64sc, 66s, 70s, 74s, 76s, Tel: 212-WOrth 6-5611
See ad in class 91
Birtcher Corp., Industrial Div., Calif., 18c, 58c
Bishop Mfg. Corp., N.J., 46c
Blaco Mfg. Co., Ohio, 18s, 20s, Clamps s
Blinn Co. (Delbert), Calif., 18s, 20s, 54 Nylon c, 66c, 76c
Bodnar Products Corp., 238 Huguenot St., New Rochelle 7, N.Y., 30c, Tel: 914-NEw Rochelle 6-4664
See ad in class 90
Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 32c, 54c
Bolsey Corp. of America, N.Y., 50sc, 64sc
Bonny Mfg. Corp., Mass., 2c, 4c, 14c, 34c, 38c, 64c, 70c, 76c
Boots Aircraft Nut Corp., Div. of Townsend Co., Conn., 32sc, 54sc
Brady Co. (W. H.), 734 W. Glendale Ave., Milwaukee 9, Wis., 38sc, 46sc, 48sc, 52sc, Tel: 414-EDgewood 2-8100
See ad in this class
Brainin Corp. (C. S.), N. Y., 12c
Braun Tool & Instrument Co., Inc., 143 Fifth Ave., Hawthorne, N.J., 18sc, 60c, 72sc, 76c, Tel: 201-HAwthorne 7-1773
See ad in class 78
Breeze Corporations, Inc., N.J., 24c, 54c
Bristol Co., Conn., 32sc, 66sc, 68sc
Brooks & Perkins, Inc., Mich., 16c
Brown-Bridge Mills, Inc., Ohio, 46 Acid-Free sc
Buchanan Electrical Products Corp., N.J., 14c, 18c, 20c
Buckbee Mears Co., 245 E. Sixth St., Saint Paul 1, Minn., Microminiature Sieves sc, Tel: 612-CApital 7-7361
See ad in class 105
Bud Radio, Inc., 2118 E. 55th St., Cleveland 3, Ohio, 26s, 36s, 40sc, Tel: 216-HEnderson 1-7166
See ad in class 90
Burklyn Co., Calif., 32 Hinges c
Burndy Corp., Omaton Div., Richards Ave., Norwalk, Conn., 20s, Tel: 203-TEmple 8-1169
See ad in class 52
Bushings, Inc., Mich., 2c, 14c, 26c
By-Buk Co., Calif., Pressure-Sensitive Tapes sc
Calumet & Hecla, Inc., Flexonics Div., Ill., 26c
Cambridge Thermionic Corp., Mass., 6sc
Camloc Fastener Corp., N.J., 32 Latches s
Canrad Precision Industries, Inc., N.Y., 30c, 48c, 52c
Carborundum Co., Refractories Div., N.J., 70c
Carmody Corp., N.Y., 64c
Carroll Pressed Metal, Inc., Mass., 16c, 30c, 38c, 40c, 48c, 52c, 60c, 72c, 76c
Central Screw Co., Ill., 32sc, 54sc, 62sc, 66sc, 68sc
Ceramaseal, Inc., N.Y., 14sc
Ceramco, Inc., N.J., 4c, 6c, 66c, 68c
Chart-Pak, Inc., Mass., 46 Pressure-Sensitive PC Symbols sc
Chase Brass & Copper Co., Conn., 2s, 14s, 32s, 36s, 38s, 54s, 62s, 66s, 70s
Chem-Ionics Corp., Wash., 10c
Chemplast, Inc., N.J., 14c, 34c, 76c

50% SAVINGS with BEAD CHAIN® Multi-Swage Parts

CONTACT PINS
TERMINALS
JACKS
FRICTION CONTACTS



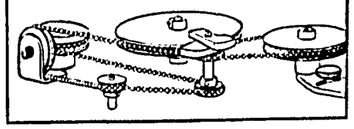
also PRINTED CIRCUIT MINIATURE PARTS

Contact pins, terminals, jacks or any small tubular parts. Maximum ¼" diameter x 1¼" length.

Send sketch for quotations.

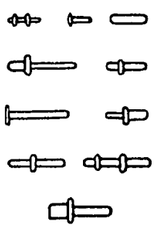
BEAD CHAIN DRIVES

Low-speed positive drives or motion transfer . . . at far less cost!



Send for Multi-Swage or Bead Chain Drive Catalogs!

MINIATURE PINS



QUALIFIED BEAD CHAIN

No. 3—3/32" Dia.
No. 6—⅛" Dia.
No. 10—3/16" Dia.
No. 13—¼" Dia.

THE BEAD CHAIN MFG. CO.

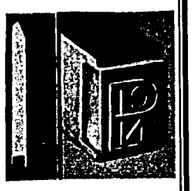
11 Mountain Grove St., Bridgeport, Conn.
For details, circle #655 on Reader Service Card

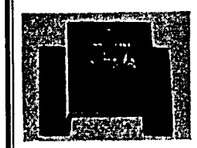
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

CLEAN, EASY READING
STAMPS

SCHEMATIC STAMPS
Lines, figures and numbers are sharp and easy-to-read. Schematics are quickly positioned in the proper location. Stamps are accurately made to your requirements. Send blueprint or drawing for quotation.

VINYLITE PIN AND PEG STAMPS
Inspection, detail, salvage, test and acceptance stamps precision made to fit your applications. Pin design provides for positive holding. Vinylite stamps for marking with acids, opaque oil-base inks.





STENCIL MASKS
Precision engraved stencil masks provide for speedy, clear spray-gun markings on chassis, parts and sub-assemblies. Send either parts or blueprint for quotation.

CITY MARKING DEVICES CORP

For details, circle #656 on Reader Service Card

97. Hardware & Findings.

Chicago Aerial Industries, Inc., Pacific Optical Corp. (Div.), Calif., 50sc
Chicago-Allis Mfg. Corp., Ill., 34sc, 70sc, 76sc
Chicago Rivet & Machine Co., Ill., 32sc, 62sc
Chicago Thrift-Etching Corp., Ill., 30c, 52c
Chicopee Mills, Inc., Lumite Div., N.Y., 36s
Chrysler Corp., Mich., 2sc
Churchill Lighting Corp., Mass., 40sc
Cinaudagraph, Inc., Ill., 14c, 16c, 18c, 36c, 64c
Cinch Mfg. Co., 1026 S. Homan Ave., Chicago 24, Ill., 32sc, Tel: 312-NEvada 2-2000
See ad on pages 64-65
Circon Component Corp., Santa Barbara Municipal Airport, Goleta, Calif., 32s, 54s, 62s, 66s, 76s, Tel: 805-WOodland 7-1113
See ad in class 63
City Marking Devices Corp., 69 Murray St., New York 7, N.Y., 48c, 52c, Tel: 212-BEekman 3-8720
See ad in this class
Clipper Gear & Machine Co., Mich., 2c, 14c, 16c, 24c, 26c, 28c, 30c, 32c, 40c, 54c, 62c, 64c, 66c, 68c, 72c, 76c
Clover Industries, Inc., N.Y., Closures sc
Co Engineering Co., N.J., 26c, 70c
Commercial Plastics Co., Ill., 18sc, 20sc, 32c, 76c, Plastic Clamps sc
Components for Research, Inc., Calif., 14c
Con-Torq, Inc., Div. of North & Judd Mfg. Co., Conn., 38s, 54s
Conductorlab, Inc., Main St., Groton, Mass., 10 PC c, Tel: 617-GIlbert 8-5140
See ad in class 50
Conn-Craft Co., Conn., 48c, 52sc
Connecticut Hard Rubber Co., Conn., 34s, 46 Pressure-Sensitive s, 56 Silicone s
Continental-Diamond Fibre Corp., Del., 14c, 24c, 38c, 76c
Continental Precision Products, N.Y., 32sc, 54sc, 62c, 64c, 66sc, 76sc
Continental Screw Co., Mass., 32sc, 66sc, 68c
Controls Co. of America, Ill., 30c
Corkpak Co., Inc., N.Y., 46 Pressure-Sensitive s
Cornell Mfg. Co., Inc., N.Y., 32sc, 54sc
Corning Glass Works, Electrical Products Div., N.Y., 50c
Cortland Industries, Inc., Ill., 14c, 64c, 76c
Cosmo Plastics Co., Ohio, 76c
Cox Mfg. Co., Texas, 6c, 32c, 44c, 54c, 62c, 64c, 66c
Croname, Inc., Ill., 30sc, 36c, 46c, 48c, 52c
Crucible Steel Co. of America, Pa., 72sc
Cryogenerators, Inc., R.I., 20sc, 32sc, 74sc
Culberston Products, Inc., N.J., 14c
Culver-Stearns Mfg. Co., Mass., 16s, 44sc, 64sc, 72sc
Curtis Development & Mfg. Co., Wis., 10c
Curtis Universal Joint Co., Inc., Mass., Universal Joints sc
Dante Electric Mfg. Co., Conn., 18sc, Lugs sc
Davies Molding Co. (Harry), Ill., 30s, 40s
Davis & Hemphill, Md., 64c
Davis Plastics Co. (Joseph), N.J., 56sc
Defiance Machine & Tool Co., Mo., 48sc, 52sc
DeLandri Precision Elements Co., Inc., N.Y., 64c
Delta Coils, Inc., N.J., 14c
Deutsch Co., Electronic Components Div., Calif., 32s, 62s, 64s
Deutsch Fastener Corp., Calif., 32s, 40s, 62s
Dial Products Co., N.J., 24s, 26s, 28s
Diamond Tool Engineering Co., Mass., 42c, 66 Jewel-Tipped c
Dietz Co., Inc. (Henry G.), N.Y., 30c, 52c
Dietz Design, Inc., Mo., 16 Plug-In sc
Dimco-Gray Co., 212 E. Sixth St., Dayton 2, Ohio, 32s, Tel: 513-BAldwin 2-6703
See ad in this class
Dimick Mfg. Co., Ore., 38c
Dittmore-Freimuth Corp., Wis., 6c, 24c, 26c, 28c, 30c, 32c, 34c, 36c, 40c, 44c
Division Lead Co., Ill., 34c, 76 Lead c
Dixon Corp., R.I., 2c, 14c, 34c, 38c, 64c, 70c, 76c
Dodge Fibers Corp., John St., Hoosick Falls, N.Y., 22 Teflon-glass sc, 46sc, Tel: Hoosick Falls 1080
See ad in this class
Dorsey & Associates (J. G.), Calif., 10c
Dow Chemical Co., Mich., 56s
Dri-Clave Corp., N.Y., 50s

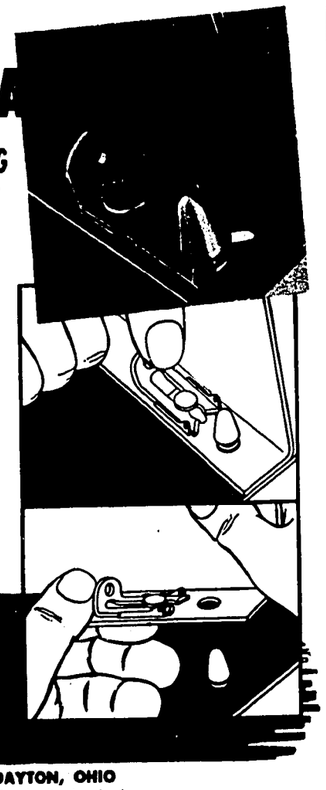
DIMCO-GRAY
SNAPSLIDE FA

PROVIDE VIBRATION-PROOF HOLDING AND QUICK, FOOL-PROOF RELEASE!

APPROVED UNDER ARMY-NAVY STANDARDS

Here's a simple, easy means of securely fastening assemblies to withstand shock or vibration, *and yet allow quick removal for inspection or repair.* Instant snap action engages or releases fastener . . . no tools are required! After installation, fasteners never need adjustment . . . even with repeated use.

Three sizes available for different load requirements. Large and medium sizes are made of corrosion-resistant *stainless steel.* Small size is made of nickel-plated brass. Stock parts fit various thicknesses of flanges and mounting plates . . . special parts can also be supplied.



WRITE FOR

212 E. SIXTH ST., DAYTON, OHIO
For details, circle #657 on Reader Service Card

Directory III. Materials & Services

97. Hardware & Findings.

Dura Plastics of New York, Inc., N.Y., 52c
Duramark, Inc., N.Y., 48 Vinyl c, 52c
Dynamic Gear Co., Inc., N.Y., 24s
Dzus Fastener Co., Inc., N.Y., 32s, 38s, 72s
E-Kay Mfg. Co., Inc., N.J., 18c, 64c, 72c
E T C, Inc., Ohio, Lugs sc
E-Z-Hook Test Products, 1536 Woodburn Ave., Covington, Ky., 18sc, Tel: 513-COlonial 1-1495
See ad in this class
Eagle Electric Mfg. Co., Inc., N.Y., 12s, 38s
Eastern Foilcal Nameplate Corp., N.J., 30c, 52c
Eder Instrument Co., Inc., Ill., 50c
Ehrenpreis Engineers (David), N.Y., 56sc
Elastic Stop Nut Corp. of America, N.J., 32sc, 54sc
Electric Cords & Supply Co., Calif., 38s, 74s
Electrical Insulation Co., Inc., N.Y., 52c
Electro Chemical Co., N.Y., 56s
Electro Chemical Engraving Co., Inc., N.Y., 30c, 52c
Electro-Coatings, Inc., Ill., 30c, 36c, 40c, 44c

FLUORGLAS*
LACING TAPES & TIE-DOWN CORDS
For Electronic Harnesses and Small Motors

TEFLON** THREAD SEAL TAPE
For Pipe & Electric Connector Threads

TEFLON EXTRUDED TAPE AND FLUORGLAS YARN
For Coil and Wire Wrapping

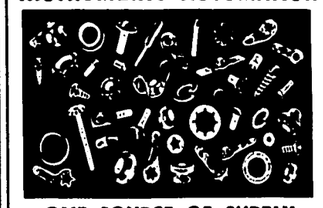
TEFLON ELECTRICAL INSULATION, SPACERS, GASKETS
Also Etched and with Adhesives

DODGE FIBERS CORPORATION
HOOSICK FALLS, N.Y.
* FLUORGLAS is Dodge Fibers Reg. Name for Teflon Coated Glass.
** Teflon Reg. Du Pont Co.

For details, circle #658 on Reader Service Card

Electro Development Co., Calif., Brush-Holders s
Electro-Mechanical Instrument Co., Eighth & Chestnut Sts., Perkasie, Pa., 52c, Tel: 215-ALpine 7-6561
See ad in class 61
Electro-Rack, Inc., Calif., 16c, 36c, 40s
Electronic Enclosures, Inc., Calif., 40s
Electronic Metals & Alloys, Inc., Mass., 76c
Electronic Parts Mfg. Co., Inc., N.J., 64c, 72c, 76c
Electronic Plastics Corp., Mass., 40sc, 52c, 64c
Electronic Production & Development, Inc., Calif., 16sc
Electrovert, Inc., N.Y., 20s, 48s
Elgin Micronics, Div. of Elgin National Watch Co., Ill., 64c
Ellisco, Inc., Pa., 16sc
Elm Laboratories, N.Y., 64c
Emerson Electric Mfg. Co., Mo., 64s
Emerson Plastics Corp., N.Y., 4c, 8c, 34c, 38c, 60c, 70c, 76c
Emmco Plastics Corp., 68 Vine St., Everett 49, Mass., 64c, Tel: 617-DUnkirk 9-1660
See ad in class 81
Empire Precision Metal Parts, N.Y., 64c, 66c, 76c
Enflo Corp., N.J., 2 Plastic c, 14c, 34c, 38c, 60c, 76c
Engelhard Industries, Inc., Amersil Quartz Div., N.J., 22c
Engelhard Industries, Inc., Makepeace Div., Mass., 12c
Engineered Electronics Co., Calif., 10sc
Epoxy Products, Div. of Joseph Waldman & Sons, N.J., 56sc, 64sc
Erwood, Inc., Ill., 26c, 28c, 40c, 64c, 72c
Etching Corp. of California, Div. of Allegri-Tech, Inc., Calif., 52c
Eugene Engineering Co., Inc., 1217 Hyde Park Ave., Hyde Park 36, Mass., 14c, 16c, 30c, 34c, 36c, 40c, 44c, 52c, 54c, 64c, 76sc, Tel: 617-EMpire 1-7000
See ads in classes 96, 105
Everard Tap & Die Corp., N.Y., 2c, 14c, 30c, 32c, 54c, 64c
Excel Specialty Corp., Ill., 20c, 48c
Fae Instrument Corp., N.Y., 24sc, 26sc, Clamps sc
Falcon Div., General Thermodynamics Corp., 211 Concord Turnpike, Cambridge 40, Mass., 24sc, 26sc, 28sc, Tel: 617-TRowbridge 6-3269
See ad in class 41
Federal-Mogul Div., Federal-Mogul-Bower Bearings, Inc., Mich., 2c, 14c, 76c

HARDWARE for ELECTRONICS INSTRUMENTS-AUTOMATION



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We carry in stock thousands of Standard and Special Items essential to the INSTRUMENT • ELECTRONIC • AUTOMATION Manufacturing Industry
SPECIAL COLD HEADED PRODUCTS
STAMPINGS — SCREW MACHINE PRODUCTS
Made to order in all metals
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3917 N. Kedzie Ave. Chicago 18, Ill.
IRving 8-5744

For details, circle #660 on Reader Service Card

NEW! HARNESS CABLE BOARD CONNECTOR

Saves up to 30% in Construction Time

Drives Into Wood Like a "Nail"!!

- Drives into place in seconds. Eliminates hole drilling, screws, nuts and washers. Saves time in processing and construction.
- Holds wire ends in a firm vise-like grip. Patented E-Z-HOOK won't cut, nick or kink them. Reduces rejects and salvage.
- Easy finger-tip operation. E-Z-HOOK "Nail" Clips speed wire placing—makes it easier. Increases production—improves morale.
- Save time—money—material. Use "Nail" Clips to cut cable costs. To improve quality and production. To reduce rejects and salvage.

E-Z-HOOKs

Value Engineered for Maximum Efficiency, Performance and Savings

E-Z-Hook Test Products, 1536 Woodburn Avenue
Covington, Ky., U.S.A. In Canada, Len Finkler Ltd., Toronto 12, Ontario
For details, circle #659 on Reader Service Card

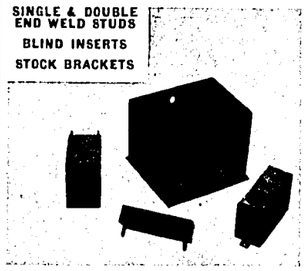
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

GEMP

CUSTOM BUILT

FABRICATED SHEET METAL CASES

SINGLE & DOUBLE END WELD STUDS
BLIND INSERTS
STOCK BRACKETS



STANDARD & NON-STANDARD MIL-T-27A FABRICATED CASES & COVERS IN STOCK

- Piercing & Metal Stampings
- Bracket Fabrication and Assembly
- Insert and Stud Assembly
- Terminal Assembly
- Base Cover Assembly
- Special Cases
- Special Sample Service
- Machining of Special Parts

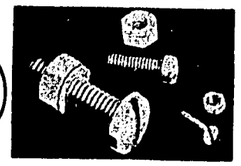
Your Inquiry Invited
SAMPLES GLADLY PRODUCED

GREAT EASTERN METAL PRODUCTS CO.
Div. of GEMP Mfg. Corp.
22 Woodworth Ave., Yonkers, N.Y.
GReenleaf 6-7300 TWX Yonkers, N.Y. 5358

For details, circle #661 on Reader Service Card

28 years of progress in tiny parts

GRC



NYLON & DELRIN THREADED FASTENERS

SCREWS
HEX NUTS
WASHERS
INSULATORS & BUSHINGS
COIL BOBBINS
WIRE-TIES
WIRE CLAMPS

- GRC's complete line of high quality, close tolerance molded screws and hex nuts include screws in standard commercial heads—Phillips or slotted types—in sizes from #4 thru ¼"; hex nuts in ten sizes (#2 thru 5/16") GRC molded miniature machine screws—half the weight of aluminum—in sizes as small as #0 make more compact designs possible. GRC's single cavity molding technique adds exceptional uniformity accuracy, economy to Nylon's & Delrin's high strength-to-weight ratio, built-in electrical insulating qualities, stability, resilience and elasticity. GRC's molded fasteners are available from stock in a wide range of types, sizes and lengths.

WRITE, WIRE, PHONE NOW for samples & GRC's new detailed industrial fastener catalog.

GRIES

GRIES REPRODUCER CORP.
World's Foremost Producer of Small Die Castings
168 Beechwood Ave. • New Rochelle, N. Y.
Phone: NEw Rochelle 3-8600

For details, circle #662 on Reader Service Card

97. Hardware & Findings.

Federal Screw Products, Inc., 3917 N. Kedzie Ave., Chicago 18, Ill., 18s, 32s, 38s, 44s, 54s, 62s, 64s, 66s, 68s, 76s, Tel: 312-IRving 8-5744
See ad in this class
Fischer Special Mfg. Co., Ohio, 54sc
Fisher & Crome, Pa., 30c, 52c, 76c
Flexrock Co., Pa., 34c, 58c, 60c, 76c
Flock Process Co., Inc., Conn., 36c
Fluorulon Labs., Inc., N.J., 34sc, 76sc
Form-It Products, Inc., Ill., 8sc
Formsprag Co., Mich., 28s
Fourdee, Inc., Fla., 24c, 26c, Universal Joints c
Fourjay Industries, Ohio, 36sc
Fox Products Co., Pa., 14c, 30c, 54c, 64c
Franklin Fibre-Lamitex Corp., Del., 32c, 34c, 38c, 40c, 46c, 52c, 54c, 64c, 66c, 76c
Freeway Washer & Stamping Co., Ohio, 2sc, 64c, 76sc
Fryling Mfg. Co., Pa., 72c, 76c
G C Electronics Co., Div. of Textron Electronics, Inc., Ill., 30s, 32s, 36s, 38s, 50s, 54s, 66s, 74s, 76s
Galaxy Engineering Co., Calif., 40sc
Garlock, Inc., Garlock Electronic Products, N.J., 38s
Garrett Co., Inc. (George K.), Pa., 18c, 20c, 32sc, 54sc, 72c, 76sc
Geartronics Corp., Actuator Products Div., Mass., 26sc
Gemex Precision Metals, Inc., N.J., 4c, 6c, 8c, 16c, 18c, 20c, 24c, 26c, 28c, 30c, 32c, 34c, 38c, 40c, 44c, 60c, 70c
General Ceramics, Div. of Indiana General Corp., Crows Mill Rd., Keasbey, N.J., 14sc, Tel: 201-VAlley 6-5100
See ad in class 64
General Components, Inc., N.Y., 26s, 28s, 40sc, 64sc
General Electric Co., Instrument Dept., 40 Federal St., Lynn, Mass., 42s, Tel: 617-LYnn 3-3400
See ad in class 61
General Findings, Inc., Industrial Div., Mass., 18c, 38c, 62c, 64c, 72c
General Gaskets, Inc., Conn., 34c, 38c, 76c
General Hermetic Sealing Corp., Subsid. of Electrospace Corp., N.Y., 70c
General Mfg. Co., Calif., 38c, 40sc, 64sc
General Motors Corp., New Departure Div., Conn., 2 Ball sc
General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 2c
General Radio Co., 22 Baker Ave., West Concord, Mass., 30s, Tel: 617-EMerson 9-4400
See ad on Cover 4
Gillen Co. (John), Subsid. of Stanray Corp., Ill., 28sc, 32sc, 64sc
Glastic Corp., Ohio, 14c
Gleason-Avery, Inc., N.Y., 64c
Glenair, Inc., Calif., 20c
Globe Electrical Mfg. Co., Calif., 52c
Goodrich Co. (B. F.), B. F. Goodrich Aviation Products Div., Ohio, 62s
Goodrich Industrial Products Co. (B. F.), Ohio, 46s
Graef Engineers, Inc., Calif., 2c, 34c, 38c
Graphite Metallizing Corp., 1057 Nepperhan Ave., Yonkers, N.Y., 2sc, 12 Holders sc, 14sc, 70sc, Tel: 914-YOnkers 8-8400
See ad in class 52
Great Eastern Metal Products Co., Div. of GEMP Mfg. Corp., 22 Woodworth Ave., Yonkers 2, N.Y., 16sc, 32s, 66s, Tel: 914-GReenleaf 6-7300
See ad in this class
Green Rectifier Co., N.J., 36c, 50c
Greene Electronics, Inc., 1844 Cranston St., Cranston 9, R.I., 30s, Tel: 401-WIlliams 2-3800
See ad in class 50
Gries Reproducer Corp., 168 Beechwood Ave., New Rochelle, N.Y., 14sc, 32sc, 44sc, 54sc, 62 Nylon sc, 66 Nylon sc, 68sc, 76sc, Clamps sc, Tel: 914-NEw Rochelle 3-8600
See ad in this class
Groov-Pin Corp., N.J., 32 Threaded Inserts sc
Gudebrod Bros. Silk Co., Inc., 225 W. 34th St., New York 1, N.Y., 22sc, Tel: 212-LAckawanna 4-5858
See ad in this class
Gwilliam Co., N.Y., 2sc
H & H Machine Co., Inc., Pa., 6c
H K Metal Craft Mfg. Corp., N.Y., 16c, 18c, 20c, 52c, 58c, 60c, 76sc
Hadlock & Temte, Inc., Ill., 6c, 14c, 24c, 32c, 40c, 44c, 52c
Hall-Barkan Instruments, Inc., N.Y., 24c, 30c, 64sc
Hallett Mfg. Co., Calif., 38s
Hamilton Watch Co., Industrial Products Div., Pa., 42c, 64c, 66c, 72c
Hammond Mfg. Co., Ltd., Canada, 36s, 40s, 66s
Hardware Specialty Co., Inc., N.Y., 34s, 38s, 54sc, 62sc, 66s, 68sc, 72sc, 76sc
Harper Co. (H. M.), Ill., 32sc, 54sc, 62sc, 64sc, 66sc, 76sc
Hartford Steel Ball Co., Conn., 2sc
Hartwell Corp., Calif., 32sc, 40sc, Clamps sc
Harwood Electronics Co., Ill., 16sc, 18sc, 20sc, 24c, 26sc, 40c, 76sc
Hassall, Inc. (John), N.Y., 32c, 62c, 66c
Haveg Industries, Inc., Taunton Div., Mass., 70 Silicone c
Hecht Rubber Co., Inc., Fla., 34 Rubber & Plastic c, 76c
Heli-Coil Corp., Conn., 14sc, 32sc, 54sc
Hellermann Canada, Ltd., Canada, 22s, 38s, 40s, 48s
Helwig Carbon Products, Inc., Wis., 12c
Heminway & Bartlett Mfg. Co., N.Y., 22s
Hercules Fastener Co., Ill., 32s, 54s, 62s, 66s, 68s, 76s
Hermes Plastics, Inc., N.Y., 52c
Heyman Mfg. Co., 147 N. Michigan Ave., Kenilworth 7, N.J., 14sc, 38sc, 74sc, Tel: 201-CHestnut 5-2345
See ad in this class
Hitachi New York, Ltd., N.Y., 2c, 12c, 20c, 24c
Hobbs Mfg. Co., Mass., 32s, 72s
Hoffman Engineering Corp., Conn., 38s
Hollander Co., Inc. (Allen), N.Y., 46 Pressure-Sensitive sc
Holub Industries, Inc., Ill., 74s
Howard Precision, Inc., N.J., 16sc, 18c, 38c, 76c
Huck Mfg. Co., Mich., 32sc, 62sc
Hudson Tool & Die Co., Inc., N.J., 16sc
Hunter Spring Co., Div. of American Machine & Metals, Inc., Pa., 6c, 18s, 60c, 72c, Clamps c

Directory III. Materials & Services

97. Hardware & Findings.

Hydro Molding Co., Inc., N.Y., 18c, 24c, 26c, 32c, 34c, 36c, 38c, 40c, 54c, 66c
IE Mfg., Ltd., 18sc, 20sc, 34sc, 64sc, 72sc, 76sc
Illinois Tool Works, Fastex Div., Ill., 18c, 20c, 32c, 38c, 42c, 58c, 60c, 74c
Illinois Tool Works, Shakeproof Div., Ill., 32sc, 54sc, 66sc, 68sc, 76sc
Industrial Electronic Rubber Co., Ohio, 34c
Industrial Engravers, Inc., N.Y., 30c, 52c
Industrial Retaining Ring Co., N.J., 60s
Industrial Tectonics, Inc., Calif., 2c
Injection Plastic Corp., Ill., 30c, 36c, 40c
Instru-Lee Corp., N.Y., 64c
Instrument Specialties Co., Inc., N.J., 72sc
Instrument Systems Corp., N.Y., 64c
International Powder Metallurgy Co., Inc., Pa., 76c
International Telephone & Telegraph Corp., ITT Kellogg, Ill., 20s
Ippolito & Co., Inc. (James), N.Y., 58sc, 64sc, 76c
Isolantite Mfg. Corp., 337 Warren Ave., Stirling, N.J., 14sc, Tel: 201-CRestview 7-3737
See ad in class 92
Jackson Bros. (London), Ltd., N.Y., 24s, 26s
Jacobson Nut Mfg. Corp., N.J., 32s
Jadow, Inc. (B.), N.Y., 42sc
Jan Hardware Mfg. Co., Inc., N.Y., 14sc, 24s, 26s, 28s, 30s, 34s, 44s, 60s
Jandor, Inc., Ohio, 34c, 44c, 64c, 76c
Jasco Aluminum Products, 31 Nassau Terminal Rd., New Hyde Park, L.I., N.Y., 18c, 40c, 52c, Tel: 516-FLoral Park 4-8607
See ads in class 105
Jodee Plastics, Inc., N.Y., 2c, 14c, 34c, 38c, 52c, 76c
Johns-Manville, N.Y., 46 Pressure-Sensitive sc
Johnson Bronze Co., Pa., 2sc, 14sc, 64c, 76c
Johnson & Hoffman Mfg. Corp., N.Y., 16c, 38c
Jonathan Mfg. Co., Calif., 40sc
Jones & Roy Co., Calif., 18c, 20c, 32c, 72c
K-D Mfg. Co., Pa., 60sc, 76sc
K-W Engineering Works, Wis., 64c
Kaddis Mfg. Corp., N.Y., 32c, 44c, 54c, 64c
Kaydon Engineering Corp., Mich., 2sc
Kaynar Mfg. Co., Inc., Kaylock Div., Calif., 54sc
Keil Engineering Products, Inc., Mo., 52c
Keller Engineering (Hugo P., Jr.), N.Y., 2 Jewel sc
Keystone Bolt & Nut Corp., N.Y., 54sc, 62sc, 64sc, 66sc, 68sc, 76sc
Kibbey Instrument Co., Calif., 10sc
Kickhaefer Mfg. Co., Wis., 18sc, 20sc, 32c, 76c
Kilo Engineering Co., Calif., 30s, 44s
Klann Organ Supply Co., Va., 52c
Knopp, Inc., Calif., 10c, 18c
Knob Corp. of America, N.Y., 44sc
Kost Products Co., Inc., Ill., 18sc, 20sc, 32sc, 36sc
Krengel Mfg. Co., Inc., N.Y., 48sc, 52sc
Kupfrian Mfg. Div., Robinson Technical Products, Inc., 157 Prospect Ave., Binghamton, N.Y., 24sc, 26sc, Universal Joints sc, Tel: 607-RAymond 3-9561
See ad in class 69
Kurz-Kasch, Inc., Ohio, 30sc
Labelon Corp., N.Y., 46sc
Laminated Shim Co., Inc., Conn., 34c, 76c
Lamson & Sessions Co., Ohio, 64c, 66s, 68c, 76s
Landis & Gyr, Inc., N.Y., 2s
Lansky Die Cutting Corp., N.Y., 48c, 56c
Lawrence Laboratory, Calif., 24sc, 40c
Lee Electric, Inc., N.J., Buzzers sc

Heyco Nylon BUSHINGS

STRAIN RELIEFS
The insulating bushing that anchors a cord set to an electrically operated machine or appliance.

JUNCTION-TERMINAL BUSHINGS
Eliminate "pig-tails"—Miniature size. Snap-in assembly, color or number coded. Can be used as plug-in receptacle. Simple quick disconnect.

ACCORDIAN TYPE
Fit curved surfaces
Nylon bushing — brass tab

HEYCO NYLON Snap Bushings

10 Sizes for holes from ⅜" to 1¾" dia.—various inside diameters. Snap locks into panels up to ⅜" thick.

FREE SAMPLES! BUSHINGS OF YOUR CHOICE

HEYMAN MANUFACTURING COMPANY
KENILWORTH 7, NEW JERSEY

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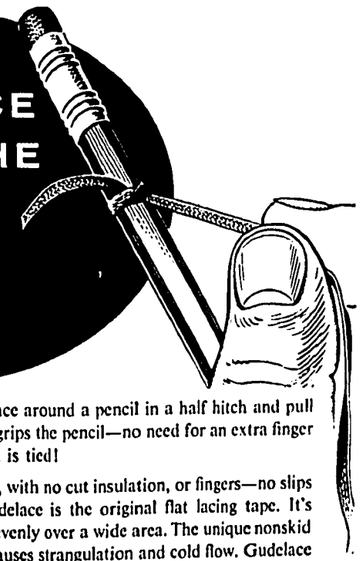
GUDELACE TAKES THE SLIPS OUT OF LACING



Try this simple test. Tie a piece of Gudelace around a pencil in a half hitch and pull one end. Gudelace's flat, nonskid surface grips the pencil—no need for an extra finger to hold Gudelace in place while the knot is tied!

Gudelace makes lacing easier and faster, with no cut insulation, or fingers—no slips or rejects—and that's *real* economy. Gudelace is the original flat lacing tape. It's engineered to *stay* flat, distributing stress evenly over a wide area. The unique nonskid surface eliminates the too-tight pull that causes strangulation and cold flow. Gudelace is made of sturdy nylon mesh, combined with special microcrystalline wax, for outstanding strength, toughness, and stability.

Write for a free sample and test it yourself. See how Gudelace takes the slips—and the problems—out of lacing.

GUDEBROD BROS. SILK CO., INC.

Electronic Division
225 West 34th Street
New York 1, N.Y.

Executive Offices
12 South 12th Street
Philadelphia 7, Pa.

For details, circle #664 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

NEW | COMPRESSION CATCHES ADJUSTABLE CATCHES HANDLES and GRAPPLES

(all to Armed Forces qualifications)

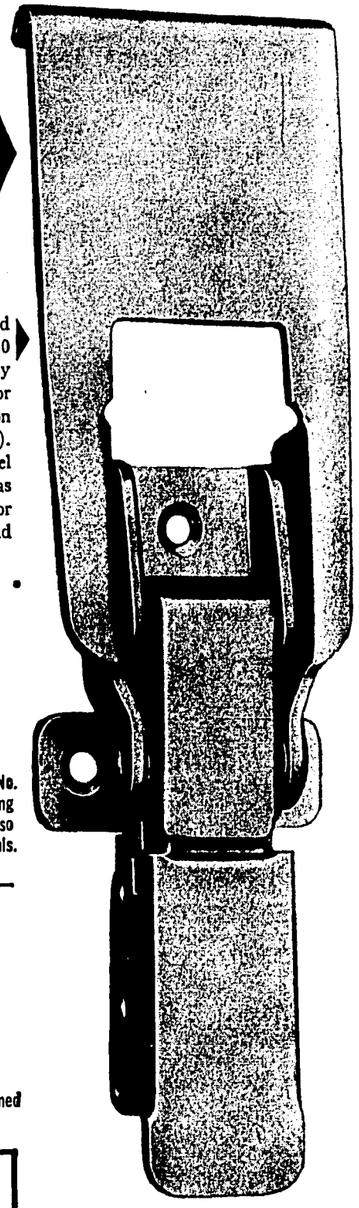
FOR INSTRUMENT CASES • TRANSIT CASES • CONTAINERS

No. VHC 340-2 (actual size)

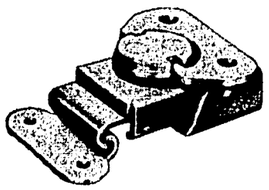
A WIDE RANGE of STYLES and SIZES from junior..... to GIANT

COMPRESSION SPRING CATCHES, No. 340 series, are miniature in size. Preloaded to 12 lbs. Standard 18 lb. holding tension. Cold rolled steel, plated or finished to specifications, or stainless steel. Styles with lever straight, as illustrated, or with up-sweep or down-sweep.

ADJUSTABLE CATCHES for varied applications (also recessed), No. 250 series, provide secure holding, easy engagement, rapid release. Steel or aluminum base. Designed to function up to 1,000 lbs. (manual operation). Stress strength to 3,000 lbs. (steel base). Styles with lever straight, as illustrated, or with up-sweep or down-sweep. Hole for wire seal and slot for 3/8" "Navy" seal.

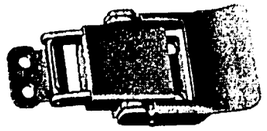


No. VHC 250-65 (actual size)

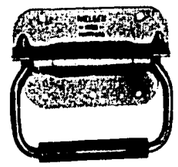


TURN CATCH No. HC-360 designed for manual pull-down operation of 100 lbs. Ultimate strength 1,000 lbs.

HEAVY-DUTY PULL-DOWN CATCH No. HC201 with holes for fastening or for welding applications. Available in plated finishes; also of brass, stainless steel, or aluminum materials.



COMPRESSION SPRING DRAW PULL CATCH No. SC-B-83314-42 with springs concealed. Provides 70 lbs. holding tension on standard specification.



SURFACE HANDLE No. H945 to meet Armed Forces Specification MIL-T-945.

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Directory III. Materials & Services

97. Hardware & Findings.

Lee Spring Co., N.Y., 72sc
Leyse Aluminum Co., Wis., 30c, 52c
Litton Industries, Inc., Components Group, Triad Transformer Corp., Calif., 16sc
Litton Industries, Inc., Components Group, U. S. Engineering Co. Div. (USECO), Calif., 40sc, 44sc, 54sc, 58sc, 64sc, 66 Captive sc, 68sc
Litton Industries, Inc., Monroe Calculating Machine Co. (Subsid.), N.J., 46sc, 48sc
Lone Star Plastics Co., Inc., Texas, 56c
Long, Inc. (Thomas J.), N.Y., 34c, 52c
Long-Lok Corp., Calif., 66sc, 68sc
Lord Mfg. Co., Pa., 26sc, 38sc
Ludlow Corp., Plastics & Textile Products Divisions, Mass., 22s
Lyn-Tron, Inc., Calif., 14sc, 64c
M & M Metal Products Corp., N.Y., 36s
Malaker Laboratories, N.J., 40sc, 66sc, 68s, 76sc
Malco Mfg. Co., Ill., 18s, 74s
Mallory Controls Co., Div. of P. R. Mallory & Co., Inc., Ind., 54c, 76c
Marine View Electronics, Inc., N.Y., 18c, 20c, 64c
Marlin-Rockwell Corp., N.Y., 2s
Maryland Etching Co., Inc., Md., 30c, 48c, 52c
Masonware Co., R.I., 6c, 16c
Master Engraving Studios, N.Y., 30sc
Master Etching Corp., N.J., 30c, 52c
Master Mechanics Mfg. Co., Inc., N.Y., 64c
Master Tape Printers, Inc., Ill., 46 Pressure-Sensitive sc
Materials for Electronics, Inc., N.Y., 18s, 20s
Mattatuck Mfg. Co., Conn., 16c, 32c, 40c, 64c, 72c
McNally Bros. Machine & Gear Co., Inc., Wis., 64c
Mech-Tronics Corp., Ill., 16c, 18c
Mechanical Engraving Co., Inc., N.Y., 30c, 46c, 48c, 52c
Mechtronics Corp., Subsid. of Mechmetal-Tronics, Inc., Calif., 26c, 70 Rotary-Axial c
Mercury Air Parts Co., Inc., Calif., 32s, 54s, 64sc, 66s, 76s
Merlang Mfg. Corp., N.Y., 36 Cloth c
Metallic Plastics Corp., N.Y., 30sc, 36sc, 52sc
Metavac, Inc., N.Y., 50sc
Metron Instrument Co., Colo., 26s
Meyercord Co., Ill., 52 Decal sc
Micarta Fabricators, Inc., Ill., 52c
Microdot, Inc., Calif., 44s
Mid-West Spring Mfg. Co., Ind., 18c, 20c, 60c, 72c, 76c
Midget Louver Co., Conn., Louvers sc
Midwest Foam Products Co., Ill., 56 Foam c
Milford Rivet & Machine Co., Conn., 62sc
Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 14sc, 16s, 18s, 24s, 26s, 28s, 30s, 44c, Tel: 617-DAvenport 4-4108
See ad in class 51
Miller Dial & Name Plate Co., Calif., 30c, 52c
Minerals & Insulation Co., N.J., 14s, 34s, 52s, 76s
Miniature Precision Bearings, Inc., N.H., 2sc
Minnesota Mining & Mfg. Co., Electrical Products Div., Minn., 46 Pressure-Sensitive sc
Minnesota Rubber Co., Minn., 38c, 70c
Minor Rubber Co., Inc., N.J., 34sc, 38sc, 70sc, 76sc
Minshall Organ & Electronics, Inc., Vt., 16sc, 34sc, 54sc, 56sc, 64sc, 66sc
Mirro Aluminum Co., Wis., 16sc
Mobay Chemical Co., Subsid. of Monsanto Chemical Co., Pa., 56c
Modern Mfg. Co., Inc., Pa., 74c
Molly Corp., Pa., 32s, 54s, 62s, 68s
Monadnock Mills, Calif., 18s, 20s, 32s, 38s
Moody Machine Products Co., Inc., R.I., 64c
Moran Co., Calif., 54sc, 64sc, 66sc
Morey Corp., Ill., Cable Reels s
Morris Co. (J. I.), Mass., 32sc, 54sc, 62sc, 64sc, 66sc, 76sc
Morse Co (Frank W.), Mass., 18s
Moxness Products, Inc., Wis., 14 Silicone sc
Mueller Brass Co., Mich., 64c
Mueller Electric Co., Ohio, 18s
Muirhead & Co., Ltd., England, 30s
Mundt & Sons (Charles), N.J., 36c
Mystik Adhesive Products, Inc., Ill., 46 Pressure-Sensitive s
Nameplates, Inc., N.Y., 52c
Narrow Fabric Co., Pa., 22 Nylon sc
National Co., Inc., Mass., 24s, 28s, 30s, 44s, 54s
National Gasket & Washer Mfg. Co., N.Y., 34sc, 38c, 76sc
National Lead Co., 111 Broadway, Room 1815, New York 6, N.Y., 66s, Tel: 212-REctor 2-9400
See ad in class 110
National Moldite Co., Inc., N.J., 6c
National Multi-Products Co., Ill., 48c
National Radiac, Inc., N.J., 40sc
National Radio Co., Inc., Mass., 14s, 18s, 24s, 26s, 28s, 30s, 32s, 40s, 44s, 54s, 68s
National Rivet & Mfg. Co., Wis., 62c
National Tel-Tronics Corp., 52 Saint Casimir Ave., Yonkers, N.Y., 14c, 72c, Tel: 914-YOnkers 8-6400
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Naugler Engineering, Inc., Mass., 26s
Neal Feay Co., Calif., 30c, 44c, 48c, 52c
Nelson Electric Mfg. Co., Okla., 52c

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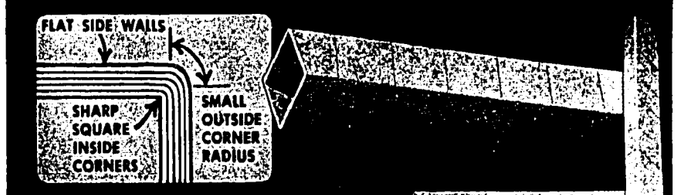

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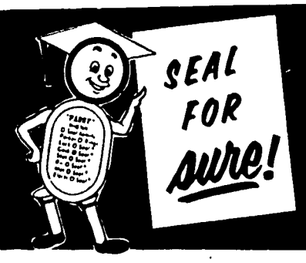

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Culver City California and Cleveland Ohio

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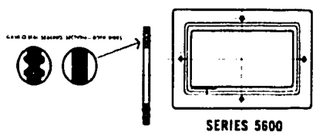
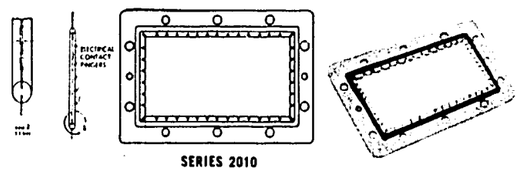
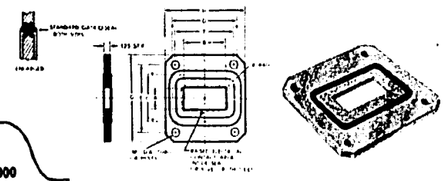
Parker Seal Company's metal retained seals are based upon controlled confinement of a seal "gland" that has a "memory", either induced or inherent. All tolerance factors of the seal are taken care of in the design and manufacture, thus obtaining significant benefits and considerable savings. This unique application of the proven theory that rubber resists deformation result in a far superior seal. These seals have all been laboratory and field tested. They are in use in many hundreds of applications throughout industry, military as well as commercial. Electro-O-Seals are especially designed to provide the ultimate in sealing effectiveness, plus complete electrical continuity for prevention of R/F leakage in wave guide or micro-wave applications—equipment, guides, "clean rooms", data machines, etc.



SERIES 5600

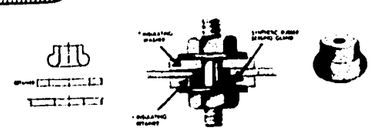


SERIES 2010



SERIES 5620

TERMINAL SEALS SERIES 5000



Specially designed to seal the style of terminal illustrated, these seals provide sealing effectiveness with good anti-arcing conditions. The gland only is furnished and they are available as standards in sizes 4, 6, and 10, for both general purposes and extreme temperature usage.

BOLT AND STUD SEALS

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BOLT AND STUD SEALS

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Series 600 Stat-O-Seals® provide the finest mechanical sealing for bolts, studs, rivets and some other fasteners and fittings. The seal is mechanically bonded, one-piece construction with proven sealing effectiveness. They are very economical and easy to assemble. Available in sizes —8 thru 2" for nearly all types of fluids and uses from —80° to +375°F. (500° intermittent)

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97. Hardware & Findings.

Nelson Products, Div. of Finn-Jaske, Inc., Ohio, 46 Pressure-Sensitive c
Neumade Products Corp., N.Y., 16s
New England Etching Co., Inc., Mass., 30sc, 52sc
New Hampshire Ball Bearing, Inc., N.H., 2sc
New Hermes Engraving Machine Corp., 154 W. 14th St., New York 11, N.Y., 52s, Tel: 212-WAtkins 4-7373
See ad in class 99
Newcomb Spring Corp., N.Y., 18c, 60c, 72c, 76c
Newman Corp. (N. M.), Mass., 22s
Ney Co. (J. M.), Maplewood Ave., Bloomfield, Conn., 12sc, Tel: 203-CHapel 2-2281 (Hartford)
See ad in class 104
Nichols Products Co., N.J., 14c, 30c, 40c, 44c, 54c, 64c, 66c, 76c
Nielsen Hardware Corp., 770 Wethersfield Ave., Hartford 1, Conn., 32s, 40s, Tel: 203-JAckson 2-8145
See ad in this class
Nilsen Mfg. Co., Fla., 26sc
Noble & Westbrook Mfg. Co., Conn., 52c
Noesting Pin Ticket Co., Inc., 732 E. 136th St., New York 54, N.Y., 32c, Tel: 212-MO 9-6465
See ad in class 105
Norrich Plastics Corp., N.Y., 2c, 4c, 6c, 8c, 14c, 16c, 24c, 28c, 34c, 36c, 38c, 40c, 44c, 54c, 60c, 62c, 64c, 66c, 68c, 74c, 76c
Northern Engraving & Mfg. Co., Wis., 30c, 52c
Northfield Precision Instrument Corp., N.Y., 2s, 14s, 28c
Nutt-Shel, Calif., 32s, 54s, 66s
Nylogrip Products, Mass., 2c, 20sc, 32sc, 54sc, 62sc, 64c, 66sc, 68c, 76sc
Nylok Corp., N.J., 32sc, 54sc, 66sc, 68sc
O & S Research, Inc., N.J., 50c
Ohio Carbon Co., Ohio, 2c, 12sc, 14c, 70c
Oki & Willadsen, Ltd., Canada, 14c, 20s, 30c, 34c, 44c, 52c, 54s, 76c
Olympic Plastics Co., Inc., Calif., 38sc, 48sc
On Mark Couplings, Inc., Calif., 24sc
Orange Roller Bearing Co., Inc., N.J., 2sc
Otis Elevator Co., Defense & Industrial Div., N.Y., 10c
PRD Electronics, Inc., 202 Tillary St., Brooklyn 1, N.Y., 54s, Tel: 212-ULster 2-6800
See ad in class 37
Pabst Engineering Equipment Co., Inc., N.J., 64c
Pacific Transducer Corp., Calif., 44s
Panduit Corp., Ill., 20s, Clamps s
Panob Corp., N.Y., 30c, 44c
Paramount Paper Tube Corp., 618 S. Lafayette St., Fort Wayne 2, Ind., 8c, Tel: Anthony 4197
See ad in this class
Park Electrochemical Corp., N.Y., 30c, 46c, 52c
Parker-Hannifin Corp., Parker Fittings & Hose Div., Ohio, 24s
Parker-Hannifin Corp., Parker Seal Co. (Div.), 10567 Jefferson Blvd., Culver City, Calif., 32sc, 34sc, 56sc, 62sc, Tel: 213-VErmont 9-1161
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Parker-Kalon, Div. of General American Transportation Corp., N.J., 32s, 66s
Parkway Specialties Co., Mich., 36s, 52s
Peck Spring Co., Conn., 14c, 18c, 32c, 54c, 58c, 60c, 62c, 64c, 66c, 72c, 76c
Pee Wee Molding Corp., N.Y., 2c, 14c, 38c, 76c
Penn Engineering & Mfg. Corp., Pa., 2s, 32 Self-Cleaning s, 54s, 66s
Penn Fibre & Specialty Co., Inc., Pa., 8c, 32c, 34c, 38c, 48c, 58c, 70c, 74c, 76c
Penn-Union Electric Corp., Pa., 64sc
Pennsylvania Tool & Mfg. Co., Pa., 14c
Perfecting Service Co., N.C., 24 Disconnect s
Perkins Machine & Gear Co., Mass., 72c
Permacel, N.J., 50s
Permali, Inc., Pa., 32c
Pheoll Mfg. Co., Inc., Ill., 32sc, 54sc, 64c, 66sc, 68sc, 76sc
Philadelphia Handle Co., N.J., 40s
Pic Design Corp., Subsid. of Benrus Watch Co., Inc., N.Y., 2s, 10s, 14s, 24s, 26s, 28s, 30s, 32s, 40s, 52s, 54s, 58s, 60s, 66s, 72s, 76s
Picco Industries, Calif., 2c, 14c
Plas-Ties Co., Calif., 22sc, 32sc
Plasteck, Inc., Okla., 52c
Plastic Associates, Calif., 10sc
Plastronic Engineering Co., Mass., 16sc, 64c, PC Boards sc
Plug-In Instruments, Inc., Tenn., 10s, 52sc
Poly-Scientific Corp., Va., 12c
Polymer Corp., Pa., 2sc, 14c, 34c, 60c, 68c, 76sc
Pomona Electronics Co., Inc., Calif., 10s
Precise Instrument Parts Co., Calif., 14c, 44c, 54c, 62c, 64c, 66c, 76c
Precision Engraving Co., N.J., 30c, 52c
Precision Mechanisms Corp., N.Y., 24s
Precision Metal Products Co., Mass., 10sc, 40sc, 52sc, 54c, 64sc
Premier Metal Etching Co., N.Y., 30c, 52c
Preservation Packaging, Inc., N.J., 56s
Prestole Corp., Ohio, 18sc, 20sc, 32sc, 54sc
Pure Carbon Co., Inc., Pa., 2c, 12c, 14c
Pylon Co., Inc., Mass., 32sc, 62sc, 66c
Quality Name Plate, Inc., N.J., 30c, 52c
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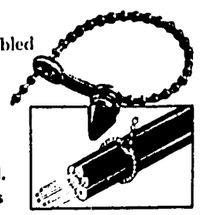

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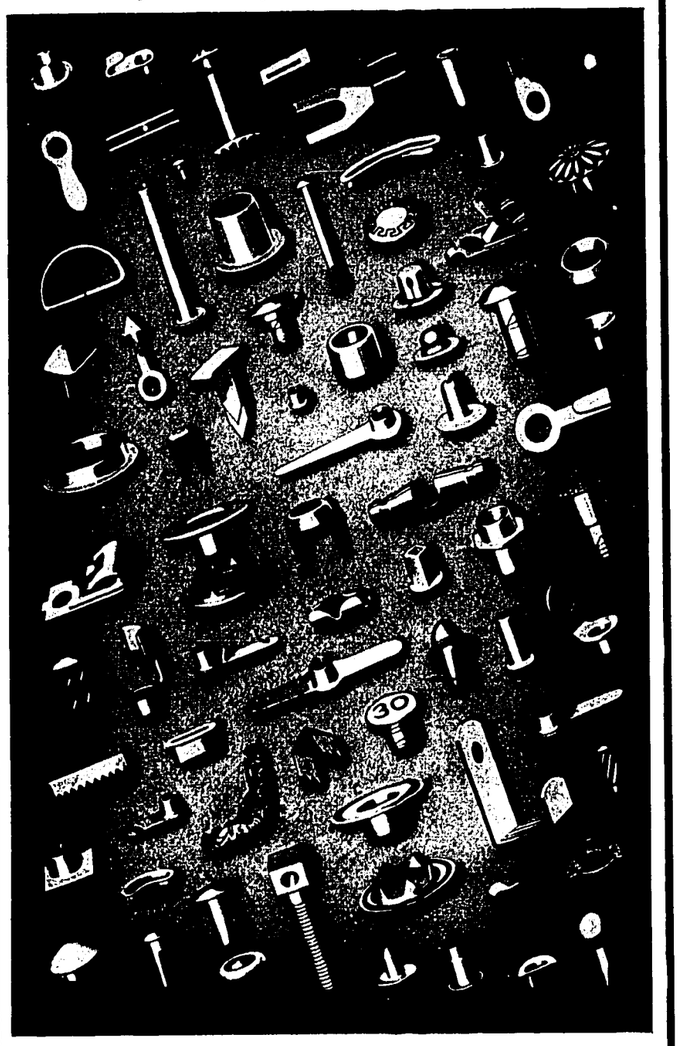

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Rainier Co., Inc., N.Y., 6c, 20c, 28c, 64c, 66c
Ram Meter, Inc., Mich., 42 Shunts sc
Rampe Mfg. Co., Ohio, 24s, 26s
Raway Bearing Co., Inc., 141-5 Chrystie St., New York 2, N.Y., 2sc, Tel: 212-WAlker 5-8150
See ad in this class
Raytheon Co., Industrial Components Div., Mass., 40s
Red Devil Mfg. Co., Ill., 6c, 14c, 24c, 26c, 28c, 32c, 44c, 54c, 64c, 66c, 76c
Reed Instrument Bearing Co., Div. of SKF Industries, Calif., 2sc
Reed & Prince Mfg. Co., Mass., 32sc, 54sc, 62sc, 66sc, 76sc
Reeves Instrument Corp., Subsid. of Dynamics Corp. of America, N.Y., 10s, 24s, 26s, 30s
Remler Co., Calif., 18c, 60c, 64c
Renbrandt, Inc., Mass., 26s
Republic Steel Corp., Ohio, 32s, 54s, 62s, 66s
Research Development Manufacture, Inc., Pa., 14c, 54c, 64c
Richardson Co., Ill., 14c, 40c
Richco Plastic Co., Dept. I.R. 3722 W. North Ave., Chicago 47, Ill., 18s, 20sc, 32sc, Tel: 312-BElmont 5-2646
See ad in this class
Rimak Electronics, Inc., Calif., 6c, 10sc, 16sc, 40sc, 44c, 64sc, 68sc
Robins Industries Corp., N.Y., 40s
Robinson Machine Works, Inc., Ind., 64c
Rockwell Products Corp., N.J., 32s, 54s
Rodale Mfg. Co., Inc., Pa., 14s, 18s
Rogan Brothers, Inc., 8009 N. Monticello, Skokie, Ill., 40s, Tel: 312-ORchard 5-1233
See ad in class 106
Rogers Corp., Conn., 2c, 14c, 34c, 70c, 76c
Rondo of America, Inc., Conn., 56sc
Rosan, Inc., Calif., 32sc, 54c
Ross Co. (Milton), Pa., 16sc, 38sc, 40sc, 52sc, 64sc, 66sc, 74sc, 76sc
Russell Gasket Co., Ohio, 34c
Saint Marys Carbon Co., Pa., 12sc, 14sc, 70c
Saxton Products, Inc., 4320 Park Ave., New York 57, N.Y., 16s, Tel: 212-WEllington 3-6400
See ad in class 91
Schutter Microwave Corp., N.Y., 24c, 26c, 28c, 34s, 64sc
Schuyler Mfg. Corp., N.J., 34sc
Seager Standard Carbon Co., N.Y., 12c
Sealol, Inc., R.I., 70sc
Semi-Alloys, Inc., N.Y., 6c, 76sc
Semrow Products Co., Inc., Ill., 34c
Servotronics, Inc., N.Y., Static Seals sc
Serwell Products Co., Ohio, 20s
Sessions & Son (J. H.), Conn., 32s, 40sc
Sexton Can Co., Inc., Mass., 16s
Sheridan-Gray, Inc., Calif., 18c, 34c, 52c, 60c, 76c
Shur-Lok Corp., Calif., 14sc, 18sc, 32sc, 38sc, 40sc, 54sc, 58s, 60s, 64c
Sier-Bath Gear & Pump Co., Inc., N.J., 26sc, 28sc
Sierra Electric Corp., Calif., 36s, 38s, 40s, 52s, 66s
Silicone Insulation, Inc., N.Y., 2c, 4c, 8c, 14c, 16c, 34c, 38c, 70c, 76c

Directory III. Materials & Services

97. Hardware & Findings.

Sillcocks Miller Co., N.J., 52sc
Simmonds Precision Products, N.Y., 32c
Simmons Fastener Corp., N.Y., 32sc, 40c
Sinclair Mfg. Co., Mass., 64c
Singer-Bridgeport, Div. of Singer Mfg. Co., Conn., 50c
Sjoberg & Son (C.), R.I., 18s, 20s, 32s, 48s, 58s, 60s, 74s
Smith, Inc. (Herman H.), Dept 12, 2326 Nostrand Ave., Brooklyn 10, N.Y., 20s, 22s, 24s, 26s, 28s, 30s, 38s, 40s, 52s, 54s, 64s, 66s, 74s, 76s, Tel: 212-CLoverdale 3-7900
See ad in class 62
Southco Div., South Chester Corp., Pa., 32sc
Southco Div., South Chester Corp., Lion Fastener Co., Inc. (Subsid.), N.Y., 32sc, 62sc
Spaulding Fibre Co., Inc., 310 Wheeler St., Tonawanda, N.Y., 2c, 14c, 16c, 34c, 38c, 64c, Tel: 716-NX 2-2000
See ad in class 107
Spectrol Electronics Corp., Subsid. of Carrier Corp., Calif., 30s
Speed Electronics, N.J., 14c, 30c, 34c, 38c, 64c, 66c, 76c
Spiron, Inc., Md., 32s
Stackpole Carbon Co., Pa., 12c
Stafford Mfg. Co., Inc., N.Y., 20c, 30c, 44c, 48c, 52c
Stahlin Brothers, Inc., Mich., Wiring Panels sc
Stake Fastener Co., Calif., 32sc
Standard Insert Co., Calif., 32sc, 64sc
Standard Pressed Steel Co., Pa., 32sc, 54sc, 64sc
Standard Screw Co., Ill., 32sc, 64c, 66sc
Stanley-Humason, Inc., Conn., 16c, 18c, 20c, 24c, 32c, 58c, 60c, 64c, 72c, 76c
Stanpat Co., N.Y., 46c, 52c
Stanwyck Coil Co. (E.), 75 Carson Ave., Newburgh, N.Y., 16c, Tel: 914-JOhn 1-3030
See ad in class 51
Star Stainless Screw Co., N.J., 54s, 62s, 64c, 66s, 68c, 76s
Staver Co., Inc., N.Y., 16sc, 18sc, 34sc, 38c
Steel Co. (Herman D.), Pa., 54c, 64c, 66c, 76c
Steel Heddle Mfg. Co., Pa., 6c, 16c, 64c
Stelon, Inc., N.J., 44c, 62c, 64c, 76c
Sterling Instrument Div., Designatronics, Inc., N.Y., 2s, 10sc, 14s, 16s, 24sc, 26sc, 28sc, 30sc, 40sc, 52sc, 54sc, 60sc, 66sc, 72sc, 76sc
Stevens Products, Inc., N.J., 4c
Stevens Walden, Inc., Mass., 64c
Stewart Corp. (F. W.), 4311-13 N. Ravenswood Ave., Chicago 13, Ill., 26c, Tel: 312-GRaceland 2-6600
See ad in this class
Stewart Stamping Co., N.Y., Clamps c
Stimpson Co., Inc. (Edwin B.), 77 Franklin Ave., Brooklyn 5, N.Y., 32sc, 38s, 62sc, 76sc, Eyelets sc, Tel: 212-ULster 5-3131
See ad in this class
Stone City Products Co., Ind., 16c, 32sc
Sun Dial Corp., N.J., 30c
Superite Gear & Instrument Corp., N.Y., 26c, 28c
Supreme Process Corp., N.Y., 30c
Swiss Jewel Co., Pa., 2sc, 42c
Synthane Corp., Pa., 38c, 52c, 64c, 76c
TA Mfg. Corp., Calif., 20s, 32s, 40s
TV Development Corp., N.Y., 44sc
Tanko Screw Products Corp., Ill., 24c, 54c, 62c, 64c, 66c
Taylor Instrument Companies, N.Y., 30c
Teale Machine Co., Inc., N.Y., 2s, 14s, 32sc, 38s, 44sc, 54sc, 62sc, 64sc, 66sc, 68sc
Technical Wire Products, Inc., N.J., 34sc
Technicraft Co., Mass., 30s
Technology Instrument Corp., Mass., 24sc, 26sc, 44sc

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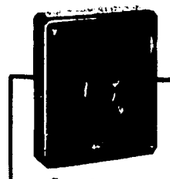

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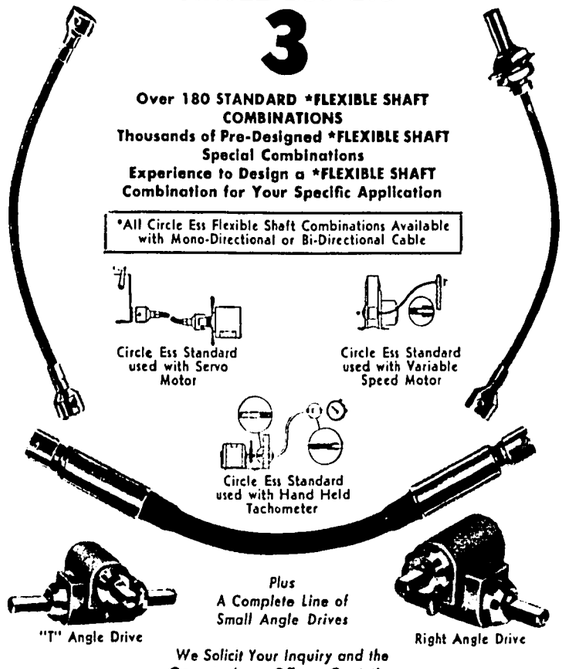

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For details, circle #672 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

4 WAYS TO END ALL CORD AND CABLE SERVICE FAILURES Economically

PROTECT YOUR PRODUCT at point of strain

Protect product salability too—by insuring long life for cords, cables and conductors. Genuine "GRIPMASTER" Strain Reliefs provide these vital features—

- ★ Anchor cords to housing
- ★ Eliminate taping or threading
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- ★ Easy to apply
- ★ Inexpensive

Gripmaster Strain Reliefs are "tremendous trifles" that make good products better!

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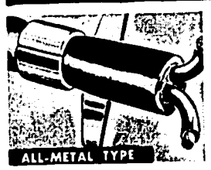

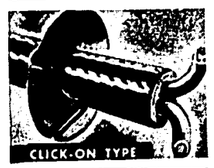

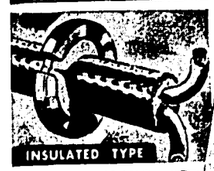

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Interruptions due to cable and cord connection failures are eliminated because they anchor the cord to the product at the point of strain. GRIPMASTER Strain Reliefs can withstand pulls up to 100 lbs., and are acceptable to Underwriters Laboratories. All types Reg. U. S. Pat. Off.

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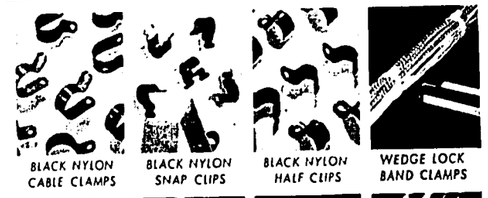

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97. Hardware & Findings.

Telkor, Inc., Ohio, 16sc, 52sc, 64c
Templeman Co. (D. R.), Conn., 6c, 72c
Textron, Inc., Sheffco Mfg. Corp. (Div. of Townsend Co.), N.J., 76c
Thermolloy Co., Texas, 18sc
Theta Instrument Corp., 520 Victor St., Saddle Brook, N.J., 30s, Tel: 201-HUbbard 7-3508
See ad in this class
Thomas & Betts Co., Inc., N.J., 20sc
Thompson Ramo Wooldridge Inc., Ramsey Corp. (Subsid.), Mo., 60sc
Thor Cermaics, Inc., N.J., 14sc, 76sc
Timber-Top, Inc., N.Y., 32s, Clamps s
Tinnerman Products, Inc., Ohio, 18s, 20s, 32s, 54s, 60s, 74s, 76s
Titan Metal Mfg. Co., Div. of Cerro Corp., Pa., 64c
Titchener & Co., (E. H.), N.Y., 30c, 40c
Topflight Corp., Pa., 46c, 48c, 52c
Torrington Co., Conn., 2s
Trimount Plastic Co., Inc., Mass., 48c
Tubular Rivet & Stud Co., Mass., 32sc, 54c, 62sc
Ty-Car Mfg. Co., Inc., Mass., 16c, 18c, 20c, 30c, 40c, 64c
Ultramotive Co., Calif., 16c, 18c, 36c
United Aircraft Products, Inc., Ohio, 10c
United-Carr Fastener Corp., Carr Fastener Co. (Div.), Mass., 18sc, 20sc, 32sc, 38sc, 54sc
United-Carr Fastener Corp., Palnut Co. (Div.), N.J., 32s, 54s, 58s, 60s
United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 16c, 56c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104
United Products Co., N.J., 34c, 64c, 76c
United Shoe Machinery Co., Mass., 62c
U.S. Expansion Bolt Co., Pa., 18s, 20s, 32s
U.S. Mineral Wool Co., N.J., 56s
United States Radium Corp., N.J., 30c, 48c, 52c
United States Rubber Co., N.Y., 14s, 34s, 38s, 46s
United States Steel Corp., Pa., 16sc, 72s
U.S. Stoneware Co., Alite Div., Ohio, 14sc
Vactric (Control Equipment), Ltd., England, 10s
Vector Electronic Co., Inc., 1100 Flower St., Glendale 1, Calif., 10sc, 16s, 18s, 32s, 54s, 60s, 62s, 66s, 76s, Tel: 213-CHapman 5-1076
See ad in class 50
Vemaline Products Co., N.J., 24sc, 26sc, 28sc, 30sc, 40sc, 44sc
Victor-Bernard Industries, Inc., P[illegible] 20c, 32c, 56c, 62c, 66c
Virginia Electronics Co., Inc., D.C., 10c
Vokar Products, Inc., Mich., 48s
Wade Electric Products Co., Mich., 18c
Waldes Kohinoor, Inc., N.Y., 32s, [illegible]s
Waldom Electronics, Inc., Ill., 24s, 30s, 32s, 34s, 38s, 52s, 54s, 66s, 76s
Walker Co. (George), 118 Amsterdam Ave., Passaic, N.J., 74sc, Tel: 201-PRescott 7-3337
See ad in this class
Walsco Electronics Mfg. Co., Div. of GC Textron Electronics, Inc., Ill., 36s, 38s, 46s, 48s, 54s, 66s, 72s, 74s, 76s
Waltham Precision Instrument Co., Mass., 54s
Walton Tool & Die Co., Inc., Calif., 40c

Directory III. Materials & Services

97. Hardware & Findings.

Washington Mfg. Co., Inc., Iowa, 32c
Webster Electronics Co., Inc., N.Y., 18c, 20c, 42c, 72c
Weckesser Co., Inc., 5713-17 Northwest Highway, Chicago 46, Ill., 20sc, 32sc, 54 Plastic s, 66 Plastic s, Tel: 312-RODney 3-6688
See ad in this class
Wenco Mfg. Co., Ill., 32s
Western Devices, Inc., Calif., 30s, 40s
Western Sky Industries, Calif., 32 Stand-Off s, 38s
Westfield Metal Products Co., Inc., Mass., 32s, 54s, 64s, 66s
Westline Products, Div. of Western Lithograph Co., Calif., 46sc, 48 Cable sc, 52c
Wharton Unitools, N.Y., 10sc
Whitehead Stamping Co., Mich., 18c, 20c, 34c, 38c, 76c
Wilkens, Inc. (Alwin Fr.), N.Y., 30c, 52c
Wilkinson Co., Calif., 64c
Wilmad Glass Co., Inc., N.J., 4c
Wilmington Fibre Specialty Co., Del., 14c, 34c, 38c
Winslow Co., Inc., N.J., 32s
Wollam Aircraft & Marine Products Co., Ohio, Clamps sc
Wrought Washer Mfg. Co., Wis., 14c, 76sc
York Co., Inc. (Otto H.), N.J., 34c, 76c
Zenith Optical Laboratory, N.Y., 50c
Zero Mfg. Co., Calif., 64c
Zierick Mfg. Corp., N.Y., 18s, 20s

Harnesses:
See class 91

Heat exchangers:
See class 54

Heat sinks & dissipators:
See class 105

98. Heating Equipment.

5. Dielectric
10. Elements, heating
15. Furnaces, crystal
20. Furnaces, electric
25. Furnaces, vacuum
30. Induction
35. Infrared
40. Ovens
45. Pots
50. Refining Equipment

Acme Electric Heating Corp., Mass., 10s, 40s, 45s
Ajax Magnethermic Corp., Ohio, 25c, 30sc, 50c
Alden Systems Co., Mass., 45s
Alloyd Electronics Corp., Mass., 50 Electron-Beam c
Alpine, Inc. (A. D.), Calif., 10sc, 20sc, 40sc
American Gas Furnace Co., N.J., 40sc, 45sc, 50sc, Brazing Furnaces sc
American Missile Products Co., Inc., Calif., 10sc, 40sc
Ampere Industries, N.J., 10s, 35s, 40s
Associated Electrical Industries (Rugby), Ltd., England, 5s, 30s
Associated Testing Laboratories, Inc., 115 Route #46, Wayne, N.J., 40sc, Tel: 201-CLifford 6-2800
See ad in class 36
Atlantis Electronics Corp., Texas, 40sc
Atwood Engineering (Wilfred L.), Ohio, 5c, 30c
BTU Engineering Corp., Mass., 10c, 20c, 25c, 40c
Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass., 20sc, 35s, 40sc, Tel: 617-UNiversity 4-7420
See ad in class 86
Baker Co., Inc., Me., 25c, 40sc
Barnes Engineering Co., Conn., 35c
Benmar Heater Div., Test Institute Corp., Ohio, 30c
Bethlehem Corp., Environmental Engineering Div., 225 W. Second St., Bethlehem, Pa., 25c, 50c, Tel: 215-UNiversity 7-4605
See ad in class 36
Blue M Electric Co., Ill., 10s, 20s, 40s, 45s
Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 35c
Borolite Corp., Pa., 10s
Braun-Knecht-Heimann Co., Calif., 35s
Briscoe Mfg. Co., Ohio, 10sc
C-M Mfg. & Machine Co., Inc., N.J., 10c, 20c, 40c
Carborundum Co., Refractories Div., N.J., 10sc
Cavitron Electron Oscillator Co., Calif., 5s, 10s, 25c, 30c
Central Scientific Co., Div. of Cenco Instruments Corp., Ill., 40s
Cincinnati Cleaning & Finishing Machinery Co., Ohio, 40c
Cole Electric Co., Calif., 10 Aircraft c
Compo Shoe Machinery Corp., Special Products Div., Mass., 45s
Control Indicating Corp., Conn., 40c
Controlled Atmosphere Enclosures Mfg. Co., Inc., Fla., 20c, 25s, 40s
Cox & Co., Inc., N.Y., 10c, 40c
Curtiss-Wright Corp., Princeton Div., N.J., 20sc
Cutler-Hammer, Inc., Wis., 10s
Dampp-Chaser, Inc., N.C., Thermoelectric Dehumidifiers c
Dee Electric Co., 1708 W. Belmont Ave., Chicago 13, Ill., 45sc, Tel: 312-EAstgate 7-6622
See ad in this class
Delta Design, Inc., Calif., 20s, 40s
Despatch Oven Co., Minn., Combustion Tube Furnaces sc
DeVilbiss Co., Ohio, 40sc
Dittmore-Freimuth Corp., Wis., 5sc, 45sc
Djeco, Div. of Djordjevic Engineering Co., Ill., 5c, 30c
Dominion Electrohome Industries, Ltd., Canada, 5s
Dri-Clave Corp., N.Y., 40s
Eagle Electric Mfg. Co., Inc., N.Y., 10s
Edwards High Vacuum (Canada), Ltd., Canada, 25s
Electric Hotpack Co., Inc., Pa., 10s, 20s, 25s, 35s, 40s, 50s
Electric Soldering Iron Co., Conn., 45s
Electro-Flex Corp., Calif., 10c
Electro-Flex Heat, Inc., Conn., 10sc, 40c
Electrofilm, Inc., Calif., 10c
Electromagnetic Technology Corp., Calif., 5c, 30c
Electromode, N.Y., 10s, 20s, 35s
Electronica Industrial S.A., Brazil, 5sc, 25sc, 30sc, 35sc
Electronics Development, Inc., Pa., 5sc, 30sc
Emerson Electric Mfg. Co., Mo., 10s
Fisher Scientific Co., Pa., 40s
Forma Scientific, Inc., Ohio, 40c
Fostoria Corp., Ohio, 35sc, 40sc
Galbraith-Pilot Marine Corp., Div. of Marine Electric Corp., N.Y., 10c
General Electric Co., Apparatus Sales Dept., N.Y., 10s, 20c, 25s, 30c
General Electrodynamics Corp., Texas, 5c, 30c
General Vacuum Corp., Mass., 25c, 30c
Graef Engineers, Inc., Calif., 40c
Grieve-Hendry Co., Inc., Ill., 20sc, 25c, 35c, 40sc, 45sc
Gruenberg Electric Co., Inc., N.Y., 20c, 25c, 40sc

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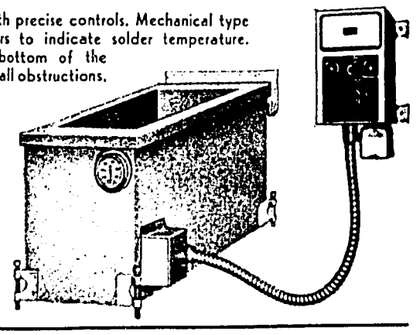
Proven design with precise controls. Mechanical type dial thermometers to indicate solder temperature. Hydraulic thermostats. Walls and bottom of the solder cavities are smooth and free of all obstructions.

Temperature range 300° to 600° F. Temperature swing ±2°. Wide variety of sizes up to eight feet long. All voltages.



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1708 W. Belmont Ave.
Chicago 13, Illinois

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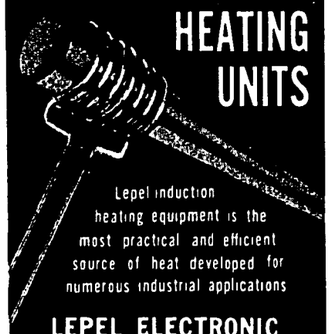
High Frequency

INDUCTION HEATING UNITS



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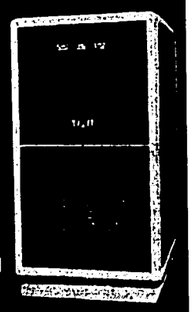

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CHICAGO OFFICE 6246 WEST NORTH AVE

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98. Heating Equipment.

Harrel, Inc., N.Y., 10c
Harris Mfg. Co., Inc., Mass., 40c
Hathaway Instruments, Inc., Induction Heating Corp. (Subsid.), N.Y., 5s, 30s
Hayes, Inc. (C. I.), R.I., 10s, 15c, 20c, 25c, 30c, 40c, 50c, Atmosphere Equip. c, Separators c
Hevi-Duty Electric Co., Div. of Basic Products Corp., Wis., 10sc, 15sc, 20sc, 25c, 40sc, 45sc
High Vacuum Equipment Corp., Mass., 15sc, 25sc
Hitachi New York, Ltd., N.Y., 35c, 40c
Hotwatt, Inc., Mass., 10sc
Hudson Bay Co., Div. of Labline, Inc., Ill., 40s
Hull Corp., Hatboro, Pa., 25sc, Tel: 215-OSborne 5-5000
See ad in class 99
Huppert Co. (K. H.), Ill., 10sc, 20sc, 25sc, 40sc, 45c
Industrial Engineering & Equipment Co., Inc., Mo., 10sc
Industron Corp., Mass., 5c, 30c
Infrared Industries, Inc., West Coast Div., Calif., 20sc, 35c, 40c
Instron Engineering Corp., Mass., 20sc, 25sc
International Pump & Machine Works, 81 Dorsa Ave., Livingston, N.J., 25s, Tel: 201-WYman 2-5900
See ad in class 99
Ionic Electrostatic Corp., N.J., 5s, 30s
Kahle Engineering Co., 3319 Hudson Ave., Union City, N.J., 15c, 20c, 25c, 40c, 45c, 50c, Tel: 201-UNion 7-6500
See ad in class 99
Kanthal Corp., Conn., 10s, 20s
Keith Co. (W. P.), Calif., 10sc, 15sc, 20sc, 25sc, 30sc, 40sc
Kewaunee Scientific Equipment Co., Mich., 25c
Kinn Electronics Corp., Md., 5c, 30c
Kost Products Co., Inc., Ill., 20sc, 35sc, 40sc
L & L Mfg. Co., Pa., 20c
Labline, Inc., Ill., 40s
Laboratory Equipment Corp., Mich., 20s, 30s
Lakeshore Industries Div., Aitken-Reed, Inc., Wis., 10c
Lennard Co., Inc. (P. M.), Fla., 20sc, 25sc, 40sc
Lepel High Frequency Laboratories, Inc., 54-18 37th Ave., Woodside 77, N.Y., 30sc, 50sc, Tel: 212-HAvemeyer 6-4580
See ad in class 98
Lindberg Engineering Co., Ill., 15c, 20c, 25c, 30c, 40c, 50c
Litton Engineering Laboratories, P.O. Box 949, Grass Valley, Calif., 20 Brazing s, 40s, Tel: 916-273-6176
See ad in class 99
Materials Research Corp., N.Y., 15s, 20s, 25s
McDowell Electronics, Inc., N.J., 5sc, 30sc, Induction-Test sc
Mech-Tronic Equipment Co., Md., 20sc
Merco Products, Inc., Ore., 35c, 40c
Minco Products, Inc., Minn., 10sc
Minerals & Insulation Co., N.J., 5s, 10s
Minneapolis-Honeywell Regulator Co., Precision Meter Div., N.H., 30s
Miskella Infra-Red Co., Ohio, 10s, 35sc, 40c
Mittelmann Eng. (Eugene), Ill., 5c, 30c
Modern Laboratory Equipment Co., N.Y., 10sc, 20sc, 25sc, 40sc
Munzig International, Inc., Calif., 25s
Mytron Mfg. Co., Calif., 5s
NRC Equipment Corp., Mass., 15sc, 25sc, 50sc
National Research Corp., Mass., 15s, 25s
Needco Cooling Semiconductors, Ltd., Canada, 25c, 50c
New Rochelle Thermatool Corp., N.Y., 5c, 30c
New York Air Brake Co., Kinney Vacuum Div., Mass., 15s, 25s, 40s, 50s
New York Engineering Co., N.Y., 25c
Nichols, Ltd. (R. H.), Canada, 5c
Ohio Crankshaft Co., Tocco Div., Ohio, 25sc, 30sc
Ohio Semiconductors, Div. of Tecumseh Products Co., 1205 Chesapeake Ave., Columbus 12, Ohio, Thermoelectric c, Tel: 614-HUdson 6-9561
See ad on page 45
Pabst Engineering Equipment Co., Inc., N.J., 40c
Pacific Scientific Co., Calif., 10s, 20s, 25s, 40s
Pacific Scientific Instrument Laboratory, Calif., 40s
Peck Spring Co., Conn., 10c
Peeco Corp., Calif., 5sc
Pereny Equipment Co., Inc., Ohio, 15c, 20 Kilus c, 40c
Perrott Engineering Laboratories, Inc., Subsid. of Federated Electronics, Inc., Va., 20c, 40c
Philco Corp., Lansdale Div., Pa., 25sc, 40sc
Philips Electronic Instruments, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 5s, 30s
Philips Electronics Industries, Ltd., Canada, 5s, 25s, 30s
Philips Elmet Corp., Me., 10sc
Pitt Precision Products, Inc., N.Y., 10c, 15c, 20c, 25c, 35c, 40c, 50c
Precision Scientific Co., Ill., 40s
Quartz Radiation Corp., N.J., 35c
Radio Development & Research Corp., N.J., 30c
Radio Engineering Laboratories, Inc., N.Y., 5c
Randall Mfg. Co., Inc., N.Y., 20sc, 40sc
Ray, Daisley Co., Inc., N.Y., 40c, 50c
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 5sc
Red Point Corp., Calif., 25c, 40c
Redifon, Ltd., England, 5sc, 30sc
Reeve Electronics, Inc., Ill., 5sc, 30sc
Research, Inc., Minn., 10sc, 20sc, 35sc
Safeway Heat Elements, Inc., Conn., 10c
Sampson Chemical & Pigment Corp., Ill., 15c, 25c
Santa Barbara Research Center, Subsid. of Hughes Aircraft Co., Calif., 35sc
Scientific Electric, Inc., N.J., 5s, 30s
Scientific Electronic Laboratories, Inc., N.J., 20s
Scientific Engineering Laboratories, Calif., 25sc
Sealomatic Electronics Corp., N.Y., 5s, 30s
Sel-Rex Corp., N.J., 50sc
Selas Corp. of America, Pa., 40 Ceramic c, Gas-Fired Furnaces c, Plasma-Torches c

Directory III. Materials & Services

98. Heating Equipment.

Sentry Co., Mass., 20sc
Seven Associates, Inc., Calif., 30s
Shampaine Scientific Co., Div. of Shampaine Industries, Inc., N.J., 20sc, 40sc
Smith Mfg. Co., Inc. (E. C.), Pa., 10c
Speck Electronics, Inc., Calif., 10c, 15c, 40c
Sta-Warm Electric Co., Ohio, 45sc
Standard Telephones & Cables, Ltd., England, 5sc, 30sc
Statham Instruments, Inc., Calif., 20sc, 40sc
Steiner-Ives Co., Pa., 20sc, 25sc, 35sc, 40sc
Stewart Engineering Co., Santa Cruz 12, Calif., 10sc, 20sc, Tel: 408-GArden 6-4100
See ad in class 86
Stokes Corp. (F. J.), Pa., 25sc, 40s
Sylvania Electric Products Inc., Lighting Products Div., Mass., 35s
Temperature Engineering Corp., N.J., 20s, 25s, 35s, 40s
Thermal Circuits, Inc., Mass., 10 Laminations sc
Thermal Dynamic Products, Inc., Div. of Waltham Precision Instrument Co., N.Y., 20s
Thermalic Electronics Corp., Calif., 10sc, 40sc
Thermo Electric Co., Inc., N.J., 10sc
Thermovolt Instruments, Ltd., Canada, 20c, 25c, 30c, 40c
Topper Mfg. Co., Inc., N.Y., 10c, 20c
Tri Metal Works, Inc., N.J., 25sc, 40sc
Ulmer Co. (H. W.), Calif., 25c, 30c
United Carbon Products Co., Mich., 10sc
Vacuum-Electronics Corp., N.Y., 20s
Vacuum Specialties Co., Inc., Mass., 25sc, 30c
Valpey Crystal Corp., 1100 Highland St., Holliston, Mass., 40c, Tel: 617-GArden 9-4851
See ads on page 219 & in class 56
Vap-Air Div., Vapor Corp., Ill., 40c, 45sc
Vulcan Electric Co., Mass., 10s, 45s
Waage Electric, Inc., N.J., 10c, 45c
Wade Electric Products Co., Mich., 10s
Wall Mfg. Co., Erie St., Grove City, Pa., 10sc, Tel: 910
See ad in class 111
Watlow Electric Mfg. Co., Mo., 10sc
Webber Mfg. Co., Inc., Ind., 40c
Welcraft Products Co., Ind., 10c
Weldotron Corp., N.J., 5sc, 30sc
Wiegand Co. (Edwin L.), Pa., 10sc, 20c, 35sc, 40s, 45s
Wirekraft, Inc., Ind., 10sc
Woodwelding, Inc., Calif., 5s, 10s
Wright Equipment Corp., N.J., 25c, 40c
Young Brothers Co., Ohio, 5c, 40c

Hermetic-sealing services:
See class 109

Hermetic seals:
See class 75

Huts & shelters, mobile:
See class 90

Infrared heating equipment:
See class 98

Inspection, optical:
See class 14

Insulating compounds:
See class 94

Insulation materials:
See classes 101, 107 & 112

Insulation solvents:
See class 94

Insulation testers:
See class 41

Insulators, ceramic:
See class 92

Insulators, plastic:
See class 106

Insulators, tube & semiconductor:
See class 105

Irons & guns, soldering:
See class 111

Jacks & plugs:
See class 62

Jewels:
See classes 63 & 97

Knobs, metal:
See class 97

Knobs, plastic:
See class 106

Labels & tapes:
See class 97

Laminated cores:
See class 55

Laminations:
See class 107

Lead wires:
See class 91

Leads, wire:
See class 105

Lubricants:
See class 94

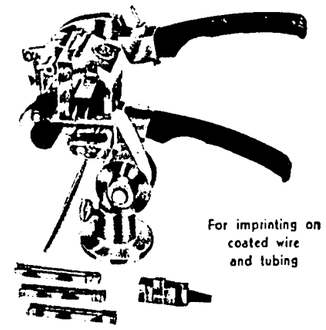
Use the Reader Service Card at the back of this book for further information on advertised products.

99. Machinery.

2. Air-conditioning & pressurization
4. Baths
6. Battery-chargers
8. Centrifuges
10. Coating machinery
12. Coil-winding machinery
14. Cutting machinery
16. Dehydrators & evaporators
18. Drying equipment
20. Electron-tube machinery
22. Magnetizers & demagnetizers
24. Marking & engraving machinery
26. Molding machinery
28. Plating machinery
30. Printed-circuit machinery
32. Pumps, metering
34. Pumps, vacuum
36. Semiconductor-device machinery
38. Ultrasonic cleaning equipment
40. Vacuum machinery & accessories
42. Valves
44. Water-treatment equipment
46. Welders & brazers

ATR Electronics, Inc., 300 E. Fourth St., Saint Paul 1, Minn., 6s, Tel: 612-CApital 2-3791
See ad in class 53
Abbeon, Inc., N.Y., 16c, 18c
Abbott-Clark Machine & Tool, Inc., N.J., 12c, 14c, 20c, 36c
Accessory Controls & Equipment Corp., Conn., 2sc, 16sc, 18c, 40c, 44sc
Ackerman Gould Co., Inc., 10 Neil Ct., Oceanside, L.I., N.Y., 24sc, 30c, Tel: 516-ORiole 8-4110
See ad in this class
Acoustica Associates, Inc., Calif., 38sc, 46c
Acro Tool & Die Works, Ill., 24s
Aeromark Co., N.J., 24sc

The New Model HTT Portable Wire Marking Tool



For imprinting on coated wire and tubing

This small portable wire marking tool is sold complete, electrically heated, marking tapes type and wire guides. To operate, simply set type in holder, push or pull coated wire through guide, press and mark the wire where you want.

This tool is guaranteed by ACKERMAN GOULD, manufacturers of marking equipment for 35 years.

For Production Requirements we offer three models . . . MM-2—MM-4—MM-6 . . . as well as specials to meet your marking needs.

For further information contact:

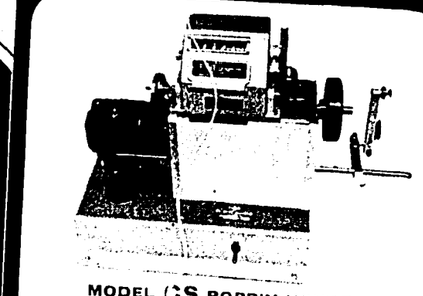
ACKERMAN GOULD CO., INC.

10 Neil Court, Oceanside, L.I., N.Y., ORiole 8-4110

For details, circle #677 on Reader Service Card

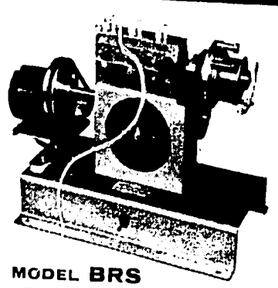
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

The most advanced coil winding equipment in the world today!



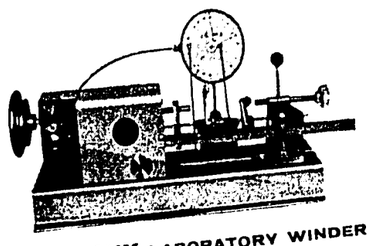
MODEL CS BOBBIN WINDER

Pictured is the current version of our most popular bobbin winder having increased capacities. A complete line of single and multiple units is available.



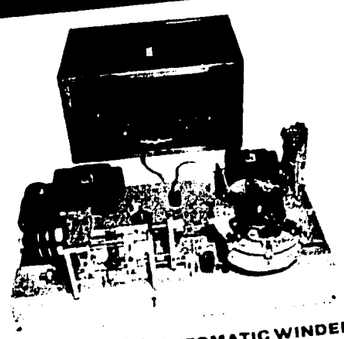
MODEL BRS
PRECISION STRIP WINDER

This is one of a group of single-layer machines to wind on continuous or precut strips or mandrels of various shapes.



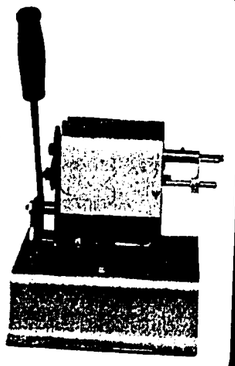
MODEL WX LABORATORY WINDER

The world's most versatile winding machine for all types of radio frequency coils as well as bobbins, transformers, resistors, etc. Features continuous gain or feed adjustment and our exclusive adjustable cam.



MODEL CK-SL AUTOMATIC WINDER

The machine illustrated produces more than 20 completed coils a minute without operator attention. This is one of a large family of completely automatic or semi-automatic machines.



MODEL MP
HAND WINDER

Coils with up to 60 turns produced in a single stroke of the lever.

Write today for complete literature

Representatives in all major electronic market areas throughout the country

COIL WINDING EQUIPMENT CO.

OYSTER BAY, NEW YORK – WAlnut 2-5660

COWECO

For details, circle #678 on Reader Service Card

Directory III. Materials & Services

99. Machinery.

Affiliated Manufacturers, Inc., N.J., 36sc
Air Control, Inc., Pa., 18s, 34s
Aircraft Electronics, Ariz., 6c, 22c
Airdesign Corp., Pa., 6sc
Airflow Co., Md., 2sc, 16c
Airmatic Valve, Inc., Ohio, 32sc, 40sc, 42sc
Alcar Instruments, Inc., N.J., 38sc
Alden Systems Co., Mass., 26s
All American Engineering Co., Commercial Products Div., Del., 6s
All American Tool & Mfg. Co., Ill., 14 Filing s
Allen-Jones, Inc., Calif., 40c
Alliance Motor Div., General Steel Wares, Ltd., Canada, 2sc
Allied Control Co., Inc., 2 East End Ave., New York 21, N.Y., 42sc, Tel: 212-BUtterfield 8-7403
See ad in class 73
Alloyd Corp., Mass., 36sc, 40c
Alloyd Electronics Corp., Mass., 16c, 46
Electron-Beam c
American Instrument Co., Inc., Md., 4sc, 34s, 42s
American Machine & Foundry Co., Government Products Group, N.Y., 44c, 46sc
American Machine & Foundry Co., Greenwich Engineering Div., Conn., 12c
American Machine & Foundry Co., Leland Airborne Products Div., Ohio, 6c
American Speedlight Corp., N.Y., Flash-Equipment sc
American Time Products, Div. of Bulova Watch Co., Inc., 61-20 Woodside Ave., Woodside 77, N.Y., 38sc, Tel: 212-OLympia 1-7800
See ad in class 31
Annis Co. (R. B.), Ind., 22sc, 24sc
Antares Instruments, Inc., N.Y., 24s
Apex Machine Co., N.Y., 24sc
Armstrong Resins, Inc., Ind., 10sc
Artos Engineering Co., Wis., 24 Wire sc, Wire & Lead Machinery sc
Associated American Winding Machinery, Inc., N.Y., 12s
Associated Engineering & Mfg. Corp., N.J., 12sc, 34c
Associated Testing Laboratories, Inc., 115 Route #46, Wayne, N.J., 8c, Tel: 201-CLifford 6-2800
See ad in class 36
Atlantis Electronics Corp., Texas, 12s
Atwood Engineering (Wilfrid L.), Ohio, 40c, 42c, 46c
Automatic Production Research, N.Y., 30c
Autosonics, Inc., Pa., 18sc, 38sc
Avo, Ltd., England, 12s
Bar-Ray Products, Inc., N.Y., 30c
Barbour Stockwell Co., Mass., 8c
Barnstead Still & Sterilizer Co., 2-R Lanesville Terrace, Boston 31, Mass., 4sc, 44sc, Tel: 617-JAmaica 2-8490
See ad in this class
Barrett Co. (Leon J.), Mass., 4sc, 8 Impregnation sc, 10sc, 18sc
Beach-Russ Co., N.Y., 16sc, 34 Airborne sc, 40sc
Bearing Inspection, Inc., Calif., 22s, 38s
Bendix Corp., Bendix-Pacific Div., Calif., 42sc
Bendix Corp., Pioneer-Central Div., Iowa, 38sc
Bendix Corp., Utica Div., N.Y., 32sc, 42sc
Bethlehem Corp., Environmental Engineering Div., 225 W. Second St., Bethlehem, Pa., 18c, 40c, Tel: 215-UNiversity 7-4605
See ad in class 36
Black & Webster, Inc., Mass., 30sc
Blackstone Corp., N.Y., 38sc
Boesch Mfg., Div. of Waltham Precision Instrument Co., Inc., Conn., 12sc
Bogue Electric Mfg. Co., N.J., 2c, 6c, 44c
Bon-De Electronic Laboratories, Inc., Mass., 34s, 40s

BARNSTEAD

ONE STATION-ONE LOCATION TRANSISTOR WASHER

Eliminates need to maintain large "clean" areas thus reducing operating costs. Reduces transporting and handling. Cleaning and rinsing costs are sharply reduced because unit is largely regenerative.

Both ultra pure hot water and Freon rinsing systems are designed for continuous recirculation and repurification. 3-gallon per hour Still supplies make-up water. Freshly distilled Freon is continuously fed into Freon rinse chamber. Contaminated Freon returns by gravity to a Freon Recovery Still.

COOLING WATER REPURIFYING SYSTEM

Adds thousands of hours to UHF transmitting tube life. Saves additional hours of maintenance ordinarily spent in citric acid cleaning procedures within the cooling system.

Write for Bulletin #166 on complete line of Barnstead Transistor Washers, and Bulletin #149 on Cooling Loops.

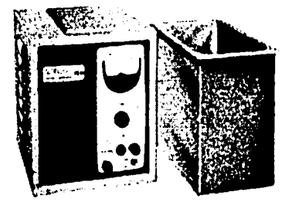
Barnstead
STILL AND STERILIZER CO.
2-R Lanesville Terrace
Boston 31, Mass.

For details, circle #679 on Reader Service Card

ultrasonics Cleans parts in seconds

CIRCOSONIC® Multi-Purpose cleaning units pay for themselves in quick order by radically cutting costs and saving labor. They are ideal for removing excess solder flux, fingerprints, lint, waxes, polishing compounds from such parts as gears, bearings, instruments and hundreds of other applications.

CIRCOSONIC units are available in a wide range of sizes to serve your every cleaning need. CIRCO engineers will be pleased to offer technical assistance and recommend the specific units to fit your needs.



with CIRCOSONIC® cleaners

Send for our new booklet "Tips on Ultrasonic Cleaning."

CIRCO CORPORATION
Subsidiary of BRANSON INSTRUMENTS
51 TERMINAL AVENUE, CLARK, NEW JERSEY

For details, circle #680 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

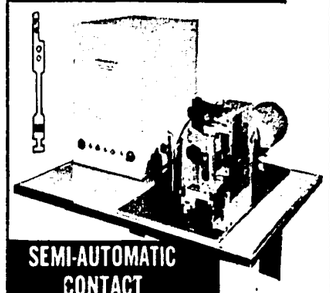
PRECISION RESISTANCE WELDING EQUIPMENT

TWEEZER WELD

SMALL PARTS BY THE MILLIONS

Special Purpose Welding Machines

- SEMI-CONDUCTOR EQUIPMENT
- BUTT WELDERS
- CONTACT WELDERS
- ASSEMBLY MACHINES



SEMI-AUTOMATIC CONTACT WELDING MACHINE

. . . which feeds, welds and cuts off contact material automatically — all in one operation. Tweezer Weld has complete design facilities for special purpose welding equipment, and facilities available for producing parts for your special needs on a production basis at our plant.

BENCH MOUNTED STORED ENERGY WELDER

- TW5 low friction welding head
- Stored energy panel of 80 Watt second capacity
- Discharge time of 0.0008 to 0.0012 second
- Permits welding of difficult materials . . . copper, silver, tungsten, etc.
- Reliable welds without discoloration, deformation, metallurgical change
- Welding head interchangeable for increased pressure (TW3 head), or for hard-to-get-to assemblies (Plier type electrode)

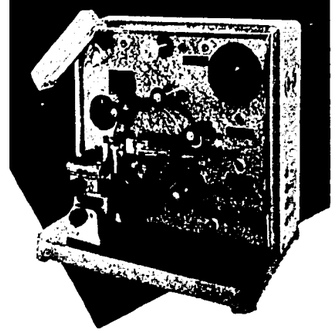
Complete line of bench heads and controls available for varied purposes

FEDERAL TOOL ENGINEERING CO.
1400 Pompton Ave.
Cedar Grove, New Jersey

For details, circle #681 on Reader Service Card

electro devices

FASTER AND IMPROVED MEANS OF WINDING TOROIDAL CORES



Due to the unique method of winding from the bottom or the top of the patented shuttle, the only changes required are adjustment for core size and selection of a shuttle. (There are no heads to buy or change over.) All setups are accomplished by the operator. The Model D-6 will load and wind simultaneously from the wire spool, through the shuttle, to the toroid, a decided time saver.

SPECIFICATIONS FOR MODEL D-6

Finished Core Size: O.D. 2"; I.D. .055"; Height 2 inches. **Wire Sizes:** #22 A.W.G. to #50 A.W.G. (any type insulation or combinations such as Litz, Trifilar, Teflon, Niobian). **Shuttles:** Cross Section .055" — .093" — .125" — .186" — .250". All 6" dia. **Sliders:** New patented slider, factory adjusted for tension remains in shuttle, both loading and winding. Finished toroid removed and new toroid installed without removing shuttle or slider. **Core Rotation:** Automatic 360 degree or any segment thereof. Forward and Reverse Precise winding control. Automatic progressive bank winding feature (available as an optional accessory). **Counting:** Positive transistorized electronic counter. True turn count. Also used as wire footage counter. Predetermined electronic counters available (as an optional accessory). **Shuttle Speed:** Adjustable 0-1000 R.P.M. **Core Speed:** Core speed synchronized with shuttle speed for precision layer winding. **Dimensions:** 17"l., 14" w., 15½" h.

For Mag. Amp. work large diam. shuttles allow as much as 2" wound height with a .055" diam. I.D. Shuttle is driven and controlled by outside rollers that permit winding from bottom of shuttle. The Model D-6 winds Niobian wire successfully.

It is not necessary to remove the shuttle or slider for loading, winding, removing or installing the core. .055" shuttle winds wire as large as A.W.G. #30 on a very small size core.

Wind to Inductance.
Adapter available to use your comparator or bridge in winding to inductance directly on EDI Toroid Winder Model D 6.
Write, sending your requirement for information and pricing.

ELECTRO DEVICES INC.
580 MAIN STREET
WILMINGTON, MASSACHUSETTS

For details, circle #682 on Reader Service Card

99. Machinery.

Branson Instruments, Inc., Conn., 3-s
Budd Electronics, Inc., N.Y., 2c, 16c
Caltron Products Co., Calif., 22c, 42 Solenoid s
Carma Mfg. Co., Calif., 42sc, 44sc
Cavitron Electron Oscillator Co., Calif., 18 UHF c, 26c
Central Engineering Co., Minn., 46c
Centre Circuits, Inc., Pa., 30sc
Chicago Pneumatic Tool Co., N.Y., 14s, 34s
Chrysler Corp., Defense Group, Mich., 2sc
Cincinnati Cleaning & Finishing Machinery Co., Ohio, 4c, 18c

Circo Corp., Subsid. of Branson Instruments, Inc., 51 Terminal Ave., Clark, N.J., 38s, Tel: 201-FUlton 8-8600
See ad in this class

City Marking Devices Corp., 69 Murray St., New York 7, N.Y., 24sc, Tel: 212-BEekman 3-8720
See ad in class 97

Clary Corp., Calif., 42sc
Clipper Gear & Machine Co., Mich., 14c, 42 Servo c
Cohehn, Inc., N.J., 10c, Cleaning Equip. c

Coil Winding Equipment Co., Railroad Plaza, Oyster Bay, L.I., N.Y., 12sc, Tel: 516-WAlnut 2-5660
See ad in this class

Coleman Machine Co., Inc., N.J., 14 Drilling c
Compo Shoe Machinery Corp., Special Products Div., Mass., 10sc, 30sc, 36c, Soldering Machinery c
Conforming Matrix Corp., Ohio, 10sc, Lead-Handling Machinery sc
Consolidated Controls Corp., Conn., 42c
Consolidated Electrodynamics Corp., Calif., 34s, 40s
Consolidated Vacuum Corp., N.Y., 34s, 40sc
Continental Technical Service, Inc., Ohio, 10c, 12c, 14c
Control Data Corp., Control Corp. Subsid.), Minn., 6c
Controlomag Laboratories, Pa., 12sc
Controls Co. of America, Ill., 42 Solenoid sc
Cook Electric Co., Ill., 6sc
Corkpak Co., Inc., N.Y., 26s
Cosa Corp., N.Y., 24sc
Cosmodyne Corp., Calif., Cryogenic Pumps sc
Crompton & Knowles Packaging Corp., Mass., Packaging Machinery c
Crown Tool, Inc., Ind., 12sc
Crucible Steel Co. of America, P. 22sc
Crystal Research Laboratories, Inc., Conn., 44 Demineralizers c
Curtiss-Wright Corp., Princeton Div., N.J., 38sc
Custom Scientific Instruments, Inc., N.J., 8s
Davis Electronics, Inc., Calif., 1. c
Dawe Instruments, Ltd., England, 38s

Dee Electric Co., 1708 W. Belmont Ave., Chicago 13, Ill., Soldering Machinery sc, Tel: 312-EAstgate 7-6622
See ad in class 98

Defiance Machine & Tool Co., M. 24sc
Delta Design, Inc., Calif., 34s, 40

Directory III. Materials & Services

99. Machinery.

Design Tool Co., Div. of Federal Mfg. & Engineering Corp., N.Y., 14s, 30s, 36s, Lead Machinery s, Inversion Machinery s
Develop-Amatic Engineering, Calif., 30 Board-Drillers sc, Lead-Handling Machinery sc
Device Seals, Inc., Calif., 42c
DeVilbiss Co., Ohio, 10sc, 18sc
Dielectric Products Engineering Co., Inc., Me., 16sc
Dirigo Compass & Instrument Co., Wash., 14s
DoAll Co., Ill., 14c, Slicing Machinery c
Dorsey & Associates (J. G.), Calif., 30c, 40c, Soldering Machinery c
Dry Screen Process, Inc., Pa., 30sc
Dryomatic Corp., Va., 2s, 16s, 18s
Dumore Co., Wis., 14s, 30s
Eastern Industries, Div. of Laboratory For Electronics, Inc., Conn., 34c
Eckel Valve Co., Calif., 42 Solenoid sc
Edwards High Vacuum (Canada), Ltd., Canada, 34s, 40s
Edwards High Vacuum, Inc., N.Y., 40s

Eisler Engineering Co., Inc., 753 S. 13th St., Newark 3, N.J., 12c, 14sc, 20c, 26c, 46sc, Tel: 201-BIgelow 3-5310
See ad in this class

Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 34sc, 40sc, 42c, Tel: 415-LYtell 1-1451
See ad on pages 29-32

Electralab Printed Electronics Corp., 175 A St., Needham Heights 94, Mass., 30c, Tel: 617-HIllcrest 4-3912
See ad in class 50

Electro Chemical Co., N.Y., 16s

Electro Devices, Inc., 580 Main St., Wilmington, Mass., 12s, Tel: 617-PArkview 9-2851
See ad in this class

Electron Arc Div., Ionics, Inc., 244 Broad St., Lynn, Mass., 6c, 22c, 38c, Tel: 617-LYnn 8-2100
See ad in class 69

Electronic Brazing Co., N.J., 22sc
Electronic Production & Development, Inc., Calif., 6c, 12c
Electronic Specialty Co., Calif., 6c
Electronica Industrial S.A., Brazil, 20c, 46sc
Electrovert, Inc., N.Y., Soldering Machinery s, 24 Wire-Markers s, 30s
Ellis & Watts Products, Inc., Ohio, 2sc
Emerson Electric Mfg. Co., Mo., 2c, 16s, 46s

Ericsson Corp., Subsid. of L. M. Ericsson Telephone Co. (Stockholm), 100 Park Ave., New York 17, N.Y., 26c, Tel: 212-MUrray Hill 5-4030
See ad in class 86

Etchomatic, Inc., Mass., 30c
Eubanks Engineering Co., Calif., Wire-Stripping Machinery s
Everlast Refrigeration Co., N.Y., 2c, 4c

Ewald Instruments, Route 7H, Kent, Conn., 22s, 46s, Tel: 203-WAlker 7-3278
See ad in this class

Ewen Knight Corp., Mass., 20c, 36c
Eyelet Tool Co., Inc., Mass., Automatic Inserting Machinery c
Fairfield Controls, Inc., Conn., 22c, 36c
Federal Electronic Products, Inc., N.J., 46sc
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 30c

Federal Tool Engineering Co., 1400 Pompton Ave., Cedar Grove, N.J., 14c, 20sc, 36sc, 46sc, Tel: 201-CLifford 6-5300
See ad in this class

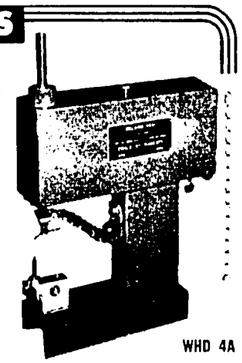
Felker Mfg. Co., Calif., 14s

MINIATURE WELDERS

- **BENCH WELDING HEAD WHD 4A** • Pressure adjustable with calibrated scale 1 to 25 lbs. Foot or air operation. Linear motion in ball bushings. Stroke 2". Low inertia. Easy to set up and to fix up.
- **MINIATURE HEAD WHD 5A** • For very small work. Wire welds used to .010" dia., other very small work. Pressure 1 ounce to 4 lbs. Ball bearing operation, ultra low inertia. Electrodes ⅛ or 1/16 dia.
- **STORED ENERGY POWER SUPPLIES** • Models from 3.6 to 150 watt-second capacity.
- **AC POWER SUPPLIES** • Synchronous and non synchronous timed power supplies, ½ to 5 KVA, ½ to 10 cycle or .05 to 2 seconds timer.

Tapwelders for potentiometers—Portable Thermocouple welders and tackers—Handwelding tools—Pulse magnet chargers—Stripping machines for shielded cable.

Submit parts for sample welds and ask for data sheet

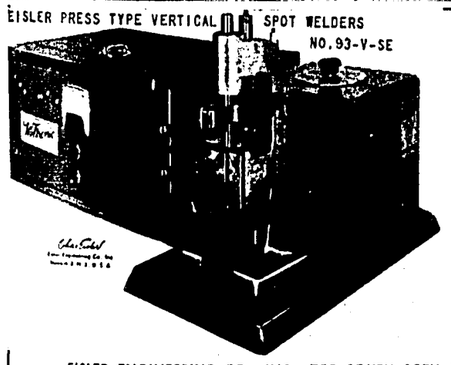


WHD 4A

EWALD INSTRUMENTS ROUTE 7H KENT, CONN.

For details, circle #683 on Reader Service Card

EISLER PRESS TYPE VERTICAL SPOT WELDERS NO. 93-V-SE

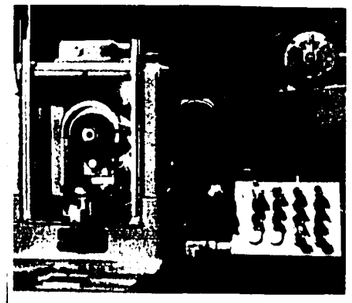


Eisler makes precision press type bench spot welders, foot or air operated Made up to 150 K.V.A. supplied with synchronous or non-synchronous timers and stored energy units. For the manufacturing of electronic tubes and miniature parts. We also make a complete line of glass working equipment for the electronic industry.

(WRITE FOR CATALOG)

EISLER ENGINEERING CO., INC., 753 SOUTH 13TH STREET, NEWARK, N.J.

For details, circle #684 on Reader Service Card



SLICE CRYSTALS
with the fully automatic
FITCHBURG
SEMICONDUCTOR SLICING MACHINE

- Automatic back-off mechanism prevents surface imperfections.
- Wafer thickness adjustable from 0.025 to 0.007 ± 0.0005".
- Spindle speed controlled up to 9,200 rpm by a Variac.
- Ingot sections easily mounted.
- New orienting table with accuracy ± 1' of arc available.

FOR DATA AND PHOTO, WRITE DEPT. D-17

FITCHBURG ENGINEERING CORPORATION
FITCHBURG MASSACHUSETTS

For details, circle #685 on Reader Service Card

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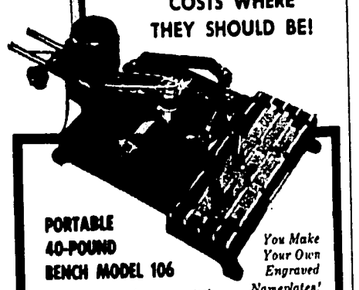
GREEN PANTOGRAPH ENGRAVERS

● ELIMINATE DELAYS!

● KEEP YOUR OPERATING COSTS WHERE THEY SHOULD BE!



PORTABLE 40-POUND BENCH MODEL 106

You Make Your Own Engraved Nameplates!

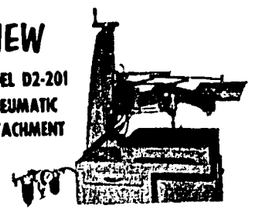
Here is a speedy, economical 2 or 3-dimensional engraver used by thousands of dollar-conscious companies. It features 5 positive, accurate pantographic ratios; ball bearing spindle with 3 speeds up to 14,000 rpm. Is supplied with one copy carrier that accepts all standard master type sizes. Will actually work up to 10" by any width Height of pantograph and position of cutter are continuously adjustable.

MODEL D-2 HEAVY-DUTY 2-DIMENSIONAL

Pantograph for milling, drilling and engraving.

Vertical adjustment of copy table automatic with Pantograph. Features: unobstructed on 3 sides to take large work; micrometer adjustment for depth of cut; ball bearing construction throughout; spindle speeds up to 26,000 rpm for engraving or machining; vertical range over 10", ratios 2 to 1 to infinity — master copy area 26" x 10"

NEW MODEL D2-201 PNEUMATIC ATTACHMENT



for use with Model D2 Pantograph Engraver to rapidly drill holes in printed circuits by tracing templates. Drills as many as 100 holes per minute. Equipped with foot switch; spindle air cylinder; regulating valve and pressure gauge; filter and oiler. It's ready to use as soon as it's attached to an air compressor

Write or call for full details and prices.

GREEN INSTRUMENT COMPANY, INC.

Dept. 91, 295 Vassar St., Cambridge 39, Mass. Tel. ELiot 4-2989

For details, circle #686 on Reader Service Card

Fen-Thread Machine Co., Inc., 1910 N. Marshall St., Philadelphia 22, Pa., 14sc, Thread-Milling Machinery sc, Tel: 215-CEnter 6-7717
See ad in this class

Fidelity Chemical Products Corp., N.J., 38s

Fisher Co., Inc. (Oscar), N.Y., 18c

Fitchburg Engineering Corp., Dept. D-17, Cleghorn St., Fitchburg, Mass., 14c, Crystal-Slicing Machinery c, Tel: 617-DIamond 3-7416
See ad in this class

Foredom Electric Co., Inc., Conn., 14s, 24s

Forma Scientific, Inc., Ohio, 18c, 40c

Fox Products Co., Pa., 6sc, 42c, 46c

Friend Engineering (Albert W.), Pa., 22c

Fuller Brush Co., Conn., 18c, 30 PC-Board Cleaning sc

Galbraith-Pilot Marine Corp., Div. of Marine Electric Corp., N.Y., 6c

Gardner-Denver Co., Ill., 34s, Wiring Machinery s

Garrett Corp., AiResearch Mfg. Co., Calif., 2sc

Gemex Precision Metals, Inc., N.J., 24c

General Automatics, Inc., Calif., 42 Solenoid c

General Instrument Corp., Defense & Engineering Products Group, N.Y., 36sc, 38sc

General Kinetics, Inc., Va., 38c

General Mills, Inc., Magnaflux Subsid., Ill., 22sc

General Nuclear Corp., N.Y., 6sc, 38c

General Precision, Inc., Subsid. of General Precision Equipment Corp., N.Y., 42c

General Vacuum Corp., Mass., 10 Thin-Film c, 16c, 34c, 40c

Genisco, Inc., Calif., 8sc

Geoscience Instruments Corp., N.Y., 14c, 38s

Gillies Co., Inc. (Duncan M.), Mass., 24sc

Gleason-Avery, Inc., N.Y., 12c

Gorman Machine Corp., 480 S. Main St., Randolph, Mass., 12sc, Tel: 617-WOodlawn 3-7333
See ad in this class

Graef Engineers, Inc., Calif., 26 Extruders c

Great Lakes Mfg. Corp., Ohio, 2c, 16c, 32c, 34c, 42c

Green Instrument Co., Inc., Dept. 91, 295 Vassar St., Cambridge 39, Mass., 24s, 30s, Tel: 617-ELiot 4-2989
See ad in this class

Green Rectifier Co., N.J., 6c, 34c, 40c

Gulton Industries, Inc., N.J., 38sc

Gyrex Corp., Calif., 8sc

H & H Machine Co., Inc., Pa., 14c

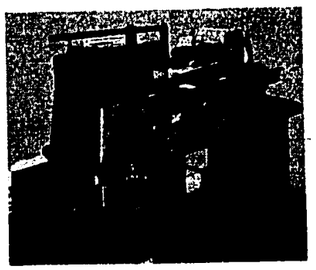
Halm Instrument Co., Inc., N.Y., 8c, 10c, 12sc, 14c, 26c, 36c, 40c, Resistor Machinery c

Hannifin Co., Div. of Parker-Hannifin Corp., Ill., 42s

NOW AVAILABLE!

FEN-LATHE-THREAD-MILLER PORTABLE

Reduces Production Time—Provides Closer Tolerances



SPECIAL FEATURES

- Retains Tool Shape
- Works Thread Cutting Closer to Shoulders Within .001"
- Provides Full, Clean Cut Threads at End of Cut, Eliminating Undercut
- Stops Automatically at End of Desired Length of Thread Cut

THIS HIGHLY EFFICIENT THREAD CUTTER—offers many advantages. It reduces set up and cutting time—increases accuracy of thread work—an average worker, using the *same cutter* can obtain close tolerances in the cutting of difficult materials—(★) from brittle plastics and fibre glass, Beryllium, to tough stainless steel and the newer metals like TITANIUM.

Its versatility is demonstrated by its ability to fit 9" to 20" Screw Cutting Engine Lathes . . . Ranges from: 4 to 200 threads per inch . . . Ideal for cutting Multiple Threads . . . Mills 60° Acme and Square Threads.

ALUMINUM, STEEL & BRASS CONSTRUCTION. (U.S. PATENT NUMBER 2776604—other patents pending.) MANY, MANY USES: the making of special Taps and Dies when they are not available . . . for all Tool Rooms where occasion Threads are needed . . . for Instrument and Machine Shops and all Moldmakers . . . for Mechanical & Research Laboratories . . . as portable equipment for ships, submarines, and mobile units of all types.

FEN-THREAD MACHINE CO., INC.

1910 N. Marshall St., Phila. 22, Pa.

For details, circle #687 on Reader Service Card

Directory III. Materials & Services

Harder Co. (Donald C.), Calif., 12s

Hardman Co., Inc. (H. V.), N.J., 32sc

Harris Mfg. Co., Inc., Mass., 16c, 18c

Hathaway Instruments, Inc., Induction Heating Corp. (Subsid.), N.Y., 36c

Hayes, Inc. (C. I.), R.I., 16c, 18 Gas & Liquid c

Hays Mfg. Co., Automatic Controls Div., Pa., 42 Solenoid sc

Heath Co., Subsid. of Daystrom, Inc., Mich., 6s

Hermes Plastics, Inc., N.Y., 24sc

Hermes-Sonic Corp., N.Y., 38c

High Speed Hammer Co., Inc., N.Y., Punching Machinery sc

High Vacuum Equipment Corp., Mass., 10sc, 34sc, 40sc, 46 Electron-Beam Welding sc

Hillyer Corp., N.J., 30sc

Hirschmann Co., Inc. (Carl), 30 Park Ave., Manhasset, L.I., N.Y., 12s, 38s, Electrical-Discharge Machinery s, Tel: 516-MAnhasset 7-5300
See ad in this class

Hitachi New York, Ltd., N.Y., 4c, 8c, 12c, 16c, 18c, 34c, 42c, 44c, 46c

Hobbs Mfg. Co., Mass., 14sc

Hoffman Co. (P. R.), 321 Cherry St., Carlisle, Pa., 14sc, Lapping Machinery sc, Tel: 717-CHapel 3-2011
See ad in this class

Hollis Engineering, Inc., Mass., Soldering Machinery c

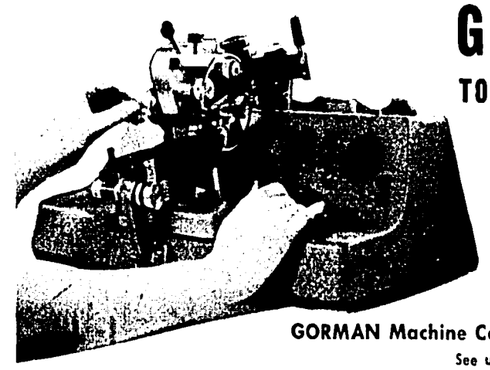
Hudson Bay Co., Div. of Labline, Inc., Ill., 4s, 8s

Hughes Aircraft Co., Vacuum Tube Products Div., Calif., 34sc, 40sc, 46sc

Hull Corp., Hatboro, Pa., 18c, 26sc, 32s, 34s, 36sc, 40 Encapsulation sc, Tel: 215-OSborne 5-5000
See ad in this class

IMC Magnetics Corp., Eastern Div., N.Y., 42c

Ideal-Aerosmith, Div. of Royal Industries, Inc., Wyo., 42sc



GORMAN

TOROIDAL WINDER

Model 600

√ Toroids .055" I.D. to 2 in. O.D.

√ Wire sizes #46 to #26

GORMAN Machine Corp., Randolph, Mass.

See us at IRE, Wescon & NEREM!

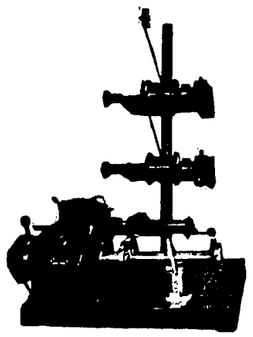
For details, circle #689 on Reader Service Card

CUT WINDING COSTS *automatically*

WITH THE MOST COMPLETE LINE OF AUTOMATIC COIL WINDING EQUIPMENT EVER OFFERED TO THE ELECTRICAL ELECTRONICS INDUSTRIES

MICAFIL

TWO EXAMPLES FROM THE MICAFIL LINE

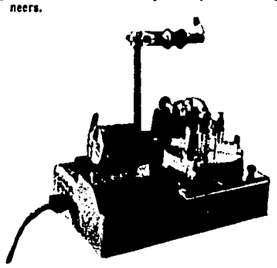


Type OFA series of coil winders

▲ Stepless adjustable traverse feed – no cams – no change gears – just DIAL your wire size even while machine is running.
▲ Wire feed ranges in 5 groups from #56 up to #9 AWG
▲ Winding speeds up to 18,000 rpm.
▲ Accurate micrometer adjustment of layer width – no cams.
▲ Constant-distance wire guide, adjusts automatically to increasing coil diameter.
▲ The MICAFIL Building Block System – buy what you need – nothing more – add other functional attachments later on.
▲ Single and multiple winding.
▲ Automatic paper interleaving attachments.
▲ World-renowned Swiss workmanship.
▲ Installed and serviced by factory-trained engineers.

Type RW-P Toroidal Winding Machine for automatic winding of precision potentiometers.

▲ Smallest wire size to be wound – .0004 inches.
▲ Automatic winding for sectors up to 300° or 360° continuous.
▲ Core feed adjustable from .00004 inches to .024 inches per turn.
▲ Adjustable wire tension.
▲ World-renowned Swiss workmanship.
▲ Installed and serviced by factory-trained engineers.



1001 *Call us* and let our experienced engineers solve your winding problems.

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Swiss precision with American service

CARL HIRSCHMANN COMPANY, INC.
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Branches: 6015 N. Cicero Ave., Chicago 46, Ill.
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Accelerate production with

KĀHLE

EXPERIENCED-DESIGNED

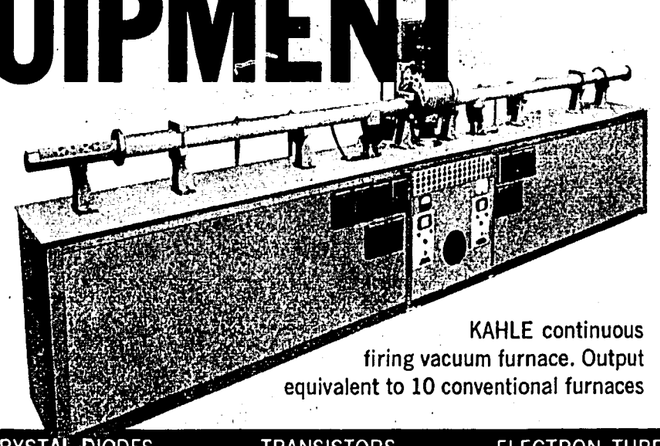
AUTOMATION EQUIPMENT

Lower your costs with high volume KAHLE precision production machines for . . . .

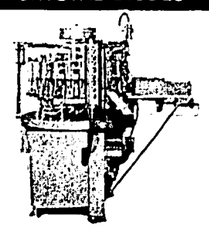
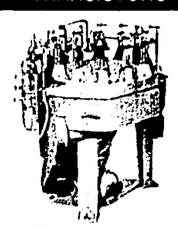
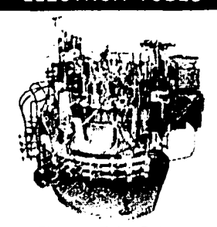
CRYSTAL DIODES
- Tube Cutting
- Lead Beading
- Crystal Growing
- Crystal Refining
- Crystal Mounting
- Body Forming
- Welding
- Final Sealing

TRANSISTORS
- Header Forming
- Crystal Mounting
- Welding
- Exhausting
- Sealing

ELECTRON TUBES
- Stem Forming
- Bulb Making
- Tubulating
- Lead Welding
- Lead Beading
- Grid Winding
- Heat Treating
- Degassing
- Exhausting
- Sealing
- Bombarding
- Testing
- Flaring



KAHLE continuous firing vacuum furnace. Output equivalent to 10 conventional furnaces

CRYSTAL DIODES	TRANSISTORS	ELECTRON TUBES
		
Crystal Diode Final Seal Machine No. 3117	Transistor Header Machine No. 2707	Electron Tube Button Stem Machine No. 3017

Complete Engineering, Design and Machine Building Services—

KAHLE engineers have built well over 1,000 performance-proven machines for high speed, low cost production in the electronic, electrical and glass working industries.

For example, the latest KAHLE continuous firing vacuum furnace provides uninterrupted operation and an output equal to 10 conventional furnaces.

KAHLE experience in raising production quality and reducing costs is available to help solve your fabrication problems. For recommendations on specific applications, just call or write outlining your requirements.

KĀHLE ENGINEERING COMPANY

General Offices: 3319 HUDSON AVENUE, UNION CITY, NEW JERSEY, U. S. A.

WORLD'S LARGEST EXCLUSIVE BUILDER OF PRODUCTION AND SPECIAL PURPOSE MACHINES FOR THE ELECTRONIC INDUSTRY

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SOMETHING NEW HAS BEEN ADDED

For your Hoffman planetary lapping machine—A thickness controller with automatic shutoff—Enables lapping consecutive loads to the same thickness with controlled uniformity.

TO HELP YOUR PRODUCTION

We offer our line of cutting and lapping machines for processing silicon, germanium, quartz, glass, ceramics and many metals.

AND WHEN YOU NEED

More production—our facilities are available for custom cutting or lapping of your material. Plus—we have a fully equipped machine shop and offer our services on design and manufacture of parts or equipments.

QUARTZ CRYSTAL BLANKS

There are no better anywhere. Cut from the best quality quartz to your most exacting specs. May we quote you on any cut, angle and tolerance, size, shape, quantity, etc. We will meet your delivery requirements.

CALL

P.R. HOFFMAN CO.
CARLISLE PA. U.S.A.

Manufacturers of Quartz Crystals and Machinery since 1938

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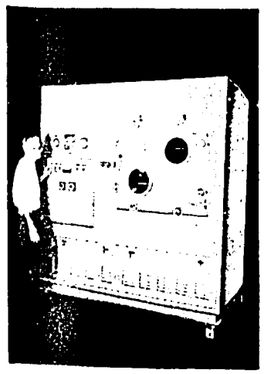
GET THE HULL STORY

FOR YOUR LABORATORY OR PRODUCTION EQUIPMENT NEEDS, AND FOR APPLICATION ENGINEERING ASSISTANCE IN THE FOLLOWING BROAD AREAS:

- Compression and Transfer Molding
- Vacuum Impregnation and Potting
- Encapsulation
- Vacuum Metallizing
- Relay Drying and Filling
- Liquid Resin Metering, Mixing, Dispensing
- Vacuum Casting
- Vacuum Heat Treating
- Freeze Drying



UP-TO-DATE SYSTEMS — BOTH STANDARD & CUSTOM

HULL CORPORATION
Hatboro, Pennsylvania

Export Division: 1505 Race St., Philadelphia 2, Penna.

For details, circle #692 on Reader Service Card

Directory III. Materials & Services

99. Machinery.

Ideal Stitcher Co., Div. of W. R. Pabich Mfg. Co., Inc., Ill., Wire-Stitching Machinery c

Illinois Water Treatment Co., Ill., 44sc

Indiana Steel Products, Div. of Indiana General Corp., 405 Elm St., Valparaiso, Ind., 22sc, Tel: 219-HOward 2-3131
See ad in class 64

Industrial Nucleonics Corp., Ohio, 16c, 26c

Industrial Winding Machinery Corp., N.Y., 12sc

Instrument Systems Corp., N.Y., 22sc

International Eastern Co., 801 Sixth Ave., New York 1, N.Y., 24s, 30s, Tel: 212-ALgonquin 5-5222
See ad in this class

International Equipment Co., Mass., 8sc

International Pump & Machine Works, 81 Dorsa Ave., Livingston, N.J., 34s, 40s, Tel: 201-WYman 2-5900
See ad in this class

International Rectifier Corp., Dallons Laboratories, Inc. (Subsid.), Calif., 36sc

International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 18 Cryogenic c

Invengineering, Inc., N.J., 12 Potentiometer-Winding c

Ionic Electrostatic Corp., N.J., 10 Electrostatic-Spray c

Isotronics, Inc., N.J., 28 Vacuum s

Jefferson Electronic Products, Div. of Jefferson Electric Co., Calif., 12c, Soldering Machinery c

Jennings Machine Corp., Pa., 10c, Plastic-Processing Machinery c

Johnson & Bassett, Inc., Mass., 24s

Jones & Lamson Machine Co., Vt., 30c

Joy Mfg. Co., Pa., 34s

Kahle Engineering Co., 3319 Hudson Ave., Union City, N.J., 10c, 12c, 14 Glass c, 18c, 20c, 36c, 40c, 42c, 46c, Wire Machinery c, Tel: 201-UNion 7-6500
See ad in this class

Kahn & Co., Inc., Conn., 16c

Kane Engineering Laboratories, Calif., 34sc, 40sc, 42sc

Kato Engineering Co., 1420 First Ave., Mankato, Minn., 6c, Tel: 8-2941
See ad in class 67

Kemp Mfg. Co. (C. M.), Md., 16sc

Kenn Equipment Co., Pa., 10c, 18c, 30sc

Kingsley Machine Co., 850 Cahuenga Blvd., Hollywood 38, Calif., 24sc, Wire & Tube Marking Machinery sc, Tel: 213-HOllywood 9-7243
See ad in this class

Klann Organ Supply Co., Va., 26c

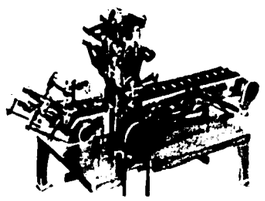
Kochring Co., H-P-M Div., Ohio, 26sc, 42sc

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

SPECIALIZED PRINTING EQUIPMENT
For
The ELECTRONIC INDUSTRY

- TERMINAL BOARDS
- CIRCUIT BOARDS
- TRANSFORMERS
- METER SCALES
- CONDENSERS
- CAPACITORS
- TUBES
- ETC.

MODEL RG3
CAPACITOR, RESISTOR & DIODE MARKING MACHINE

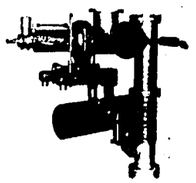


Hand, Semi-Automatic
Automatic
1 & 3 color models

INTERNATIONAL EASTERN CO.
801 SIXTH AVENUE NEW YORK 1, N. Y
ALgonquin 5-5222

For details, circle #693 on Reader Service Card

HIGH VACUUM SYSTEM
Air or Manually operated from 2-6 inch



These units provide a complete vacuum pumping system integrally mounted with all necessary connections for instrumentation. This includes a non-corrosive full opening, air operated solenoid controlled or manual high vacuum valve with roughing line connection, a low loss liquid cold trap with a quick coupling vacuum seal connection for the high vacuum gauge tube, a water cooled stainless steel diffusion pump, a noncorrosive high capacity ballast tank, non-corrosive bellows sealed roughing and foreline valves. Connections for measuring foreline and roughing pressures plus solenoid controlled pump vent valve and chamber vent backfill valve are included. The automatic system features short and large vacuum lines which provide for excellent performance and continued trouble-free operation.

- HIGH VACUUM PUMPS
- HIGH VACUUM SYSTEMS
- HIGH VACUUM COMPONENTS

INTERNATIONAL PUMP & MACHINE WORKS
81 Dorsa Avenue • Livingston, New Jersey

For details, circle #694 on Reader Service Card

How to cut coil winding costs

With the super-precise, fully automatic LEESONA No. 107 Coil Winder for paper-insulated coils. Speeds up to 2500 rpm . . . short paper attachment (1⅜" insert) . . . paper miss detector . . . space wind attachment for high voltage coils. 1 operator for 2 or more machines.

With today's most productive hand-fed coil winder — the LEESONA No. 108. Ideal for short runs . . . standard machine handles wire from No. 19 to No. 42 (B&S), *finger tip control*, quick, simple, set-ups.

LEESONA CORPORATION
P.O. Box 6088 • Providence 4, Rhode Island

LEESONA

For details, circle #695 on Reader Service Card

99. Machinery.

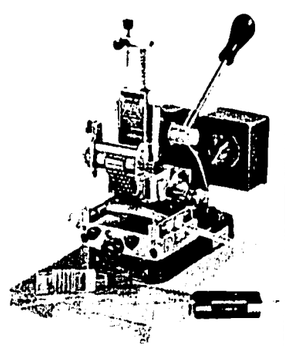
Krengel Mfg. Co., Inc., N.Y., 24sc
Kulicke & Soffa Mfg. Co., Pa., 14sc, 26sc, 30c, 36sc, 40 Pencils c, Thermocompression Bonders sc
L & R Mfg. Co., N.J., 22s, 38s
Labline, Inc., Ill., 4s, 8s
Laboratory Furniture Co., Inc., N.Y., 42s
LaCesa Engineering Corp., Ill., 12sc
Lear, Inc., Lear-Romec Div., Ohio, 34sc
Leesona Corp., P.O. Box 6088, Providence 4, R.I., 12s, Tel: 401-WIlliams 1-5200
See ad in this class
Leiman Brothers, Inc., N.J., 34s
Lemert Engineering Co., Inc., Ind., Riveting Machinery c
Lepel High Frequency Laboratories, Inc., 54-18 37th Ave., Woodside 77, N.Y., 26 Heat-Treating c, 36sc, Tel: 212-HAvemeyer 6-4580
See ad in class 98
Ling Temco Vought, Inc., Texas, 38c
Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 38c
Litton Engineering Laboratories, P.O. Box 949, Grass Valley, Calif., 20s, 34s, 40s, 46s, Tel: 916-273-6176
See ad in this class
Luma Electric Equipment Co., Ohio, 22s, 24s
Lundy Mfg. Corp., N.Y., 42sc
Macarr, Inc., N.Y., 28c
MacDonald & Co., Calif., 14sc
Magnetic Corp., Calif., 42 Solenoid c
Manning, Maxwell & Moore, Inc., Conn., 42sc
Markem Machine Co., N.H., 24c
Marlane Development Co., Inc., N.Y., 28sc
Martindale Electric Co., Ohio, 22s, 24s
Mason, Shaver & Rhoades, Inc., Pa., 12c
Matthew Laboratories, N.Y., 6s
Matthews & Co. (Jas. H.), Pa., 24c
McGraw-Edison Co., Pittsburgh Lectrodryer Div., Pa., 16c, 18sc
McKenna Laboratories, Calif., 38sc
McKiernan-Terry Corp., N.J., 8c
Measurements Research Co., Pa., 36sc
Mech-Tronic Equipment Co., Md., 30s
Mectron Co., N.J., 16s
Melpar, Inc., Special Products Div., Va., 30sc
Metal Processing Co., Inc., N.J., 28sc
Metalcraft, Inc., N.Y., 46c
Mico Instrument Co., Mass., 12s, 24s, 30 Drill-Press c
Micro Balancing, Inc., N.Y., Dynamic-Balancing Machinery c
Micromech Mfg. Corp., N.J., 14sc, 36sc, Crystal-Slicing Machines sc
Miller Electric Mfg. Co., Wis., 46 Welders sc
Miller-Trojan Co., Inc., Ohio, 34sc
Milman Engineering Co., Inc., Calif., Tapping Machinery sc
Miskella Infra-Red Co., Ohio, 18s
Missimers, Inc., Calif., 16sc
Model Engineering & Mfg. Corp., Ind., 42c
Modern Laboratory Equipment Co., N.Y., 4sc
Morris Co. (Robert E.), Conn., 14sc, 30s, 36sc
Motor Generator Corp., Ohio, 6s

Directory III. Materials & Services

99. Machinery.

Mfg. Eng. International, Inc., Calif., 16s, 18s, 36s
Micron Mfg. Co., Calif., 26c, 40c
NRC Equipment Corp., Mass., 16sc, 18sc, 34sc, 36sc, 40sc, 42sc, 46 Electron-Beam Welding c
National File Co., Mich., 28sc
National Research Corp., Mass., 34s, 40s
National Ultrasonic Corp., N.J., 38sc
National Video Corp., Ill., 20c
Nationwide Engineering Service, Inc., Calif., Drilling Machinery sc
Nat-Dar Co., Ill., 24c, 30c
Needles of America, Inc., N.J., 40sc
Nelson Vacuum Pump Co., Calif., 34s, 40c
New Hermes Engraving Machine Corp., 154 W. 14th St., New York 11, N.Y., 24s, 38s, Tel: 212-WAtkins 4-7373
See ad in this class
New Rochelle Thermatool Corp., N.Y., 46 Welders s
New York Air Brake Co., Kinney Vacuum Div., Mass., 10s, 18s, 34s, 40s, 42 Vacuum s
New York Engineering Co., N.Y., 40c
Newbury Industries, Inc., Ohio, 26s
Nichols, Ltd. (R. H.), Canada, 6c
Noble & Westbrook Mfg. Co., Conn., 24c
Northern Electronics, Inc., Minn., 6s
Ohio Crankshaft Co., Tocco Div., Ohio, 46c
Oilgear Co., Servocontrol Div., Mass., 42sc
Oiljak Mfg. Co., Inc., N.J., 2c
Olympic Instruments, Inc., Wash., Wire-Length Meters s
Omega Dynamics Corp., Calif., 8c
Opad Electric Co., 43-8 Walker St., New York 13, N.Y., 6c, 28c, Tel: 212-WOrth 6-0380
See ad in class 69
Ozalid Div., General Aniline & Film Corp., N.Y., Printing Machinery s, Drafting Equip. s
Pabst Engineering Equipment Co., Inc., N.J., 10c, 12c, 26c, 42c, 46c

SIMPLIFY WIRE ASSEMBLY



CODE MARK YOUR OWN WIRE WITH A KINGSLEY WIRE-MARKING MACHINE

Now you can permanently mark each wire with its own individual circuit number, at any desired spacing. You can reduce wire inventories because only one color of wire is necessary for as many codes as desired.

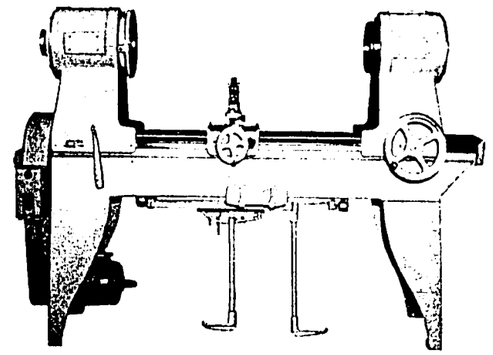
Simplify your assembly methods and speed production with the same machine that has proved so successful in the aircraft industry. Special machines are available for marking flexible vinyl sleeves.

Write for complete information.

KINGSLEY MACHINE CO.
850 Cahuenga, Hollywood 38, Calif.

For details, circle #696 on Reader Service Card

GLASS WORKING
LATHES



MODEL ESA

STANDARD EQUIPMENT

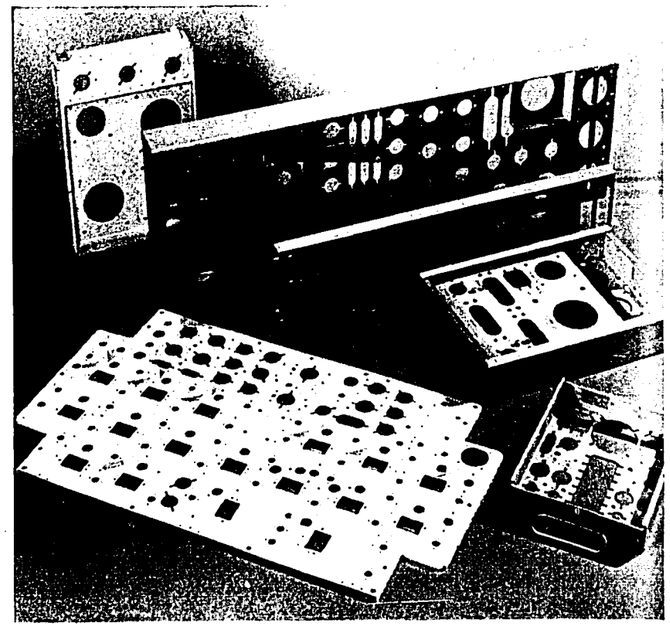
- Two face plates
- One collet draw-in bar
- One 6-fire seven jet burner assembly
- Hand carburetion control
- Foot pedal control of air or nitrogen supply and of oxygen-gas volume
- Main air valve controlling air in either or both spindles
- ½ h.p. Motor, 230 volt, three phase, single speed, 60 cycle, AC
- Face plate wrench
- One motor belt
- One motor pulley

General Specifications
Variable Speed Drive — Electronic Control (As shown) Available at extra cost

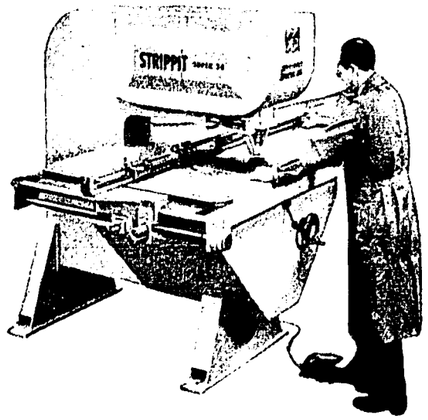
Maximum length overall	84"	Spindle hole diameter	7¼"
Maximum width overall	24"	Radial clearance above apron	13¾"
Maximum length spindle nose to spindle nose	47"	Net weight	Approx. 1250 pounds
		Approx. shipping weight	1500 pounds

Litton Engineering Laboratories
Grass Valley, California • P. O. Box 949
5173
For details, circle #697 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

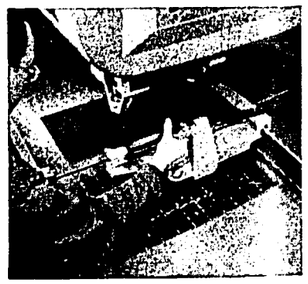


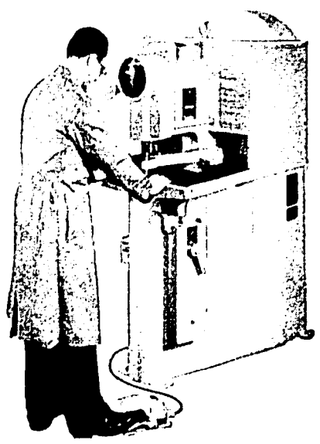
PUNCH COMPLICATED PATTERNS FAST WITH STRIPPIT FABRICATORS



SUPER 30. Handles flat or formed workpieces 60" wide...any length. Both the Super 30 and the 15A punch round and shaped holes up to 3½" diameter, to ¼" thick material...notch 90° corners—rectangular, radii, vee and special shape edge notches —up to ⅛" capacity...nibble straight line or contour shear up to 38" diameter circle, at 165 strokes a minute in ⅛" material.

STRIPPIT DUPLICATOR
For low cost production runs on the Super 30 or 15A, the STRIPPIT Duplicator functions like a pantograph to reproduce any hole pattern from a drilled or punched template. No custom dies needed to turn out precision sheet metal parts.





NEW 15A. Designed for workpieces up to 30" wide...any length...the new 15A Fabricator offers all the speed and accuracy of the Super 30. Each machine, with its own universal tool holder, makes it possible to interchange standard and special tools in seconds to minimize down-time. Flat punched parts produced require no deburring. Multi-stop micrometric gaging system positions work rapidly to exact layout specifications.

WALES **STRIPPIT** INC.
246 Buell Road • Akron, New York

UNIT HOUDAILLE INDUSTRIES

In Canada: Strippit Tool & Machine Company, Brampton, Ont.; In Continental Europe: Raskin S.A., Lausanne, Switzerland; In the British Isles: E. H. Jones (Machine Tools) Ltd., Hove, Sussex, England.

For details, circle #698 on Reader Service Card

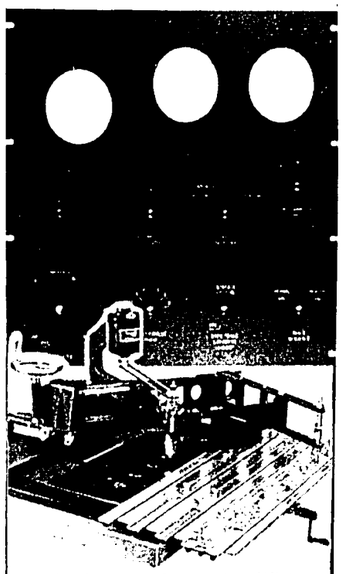
Directory III. Materials & Services

99. Machinery.

Parker-Hannifin Corp., Parker Hydraulics Div., Ohio, 42s
Peck, Stow & Wilcox Co., Conn., 14s
Pegasus Laboratories, Inc., Mich., 42 servo c
Penfield Mfg. Co., Inc., Conn., 4c, 44c
Penn Transformer Corp., Pa., 22 Degaussing Coils s
Perkin Electronics, Inc., Calif., 6c
Perkins Machine & Gear Co., Mass., 12 spring sc
Perrott Engineering Laboratories, Inc., subsid. of Federated Electronics, Inc., Va., 6sc
Pfaudler Permutit, Inc., N.Y., 44sc
Philco Corp., Pa., 28s, 36s
Philco Corp., Lansdale Div., Pa., 14 Wafer-Dicers sc, 18 Boxes sc, 34sc, 40sc
Phillips Mfg. Co., Ill., 18sc, 38sc
Pioneer Gen-E-Motor Corp., Ill., 6s
Pioneer Machine Works, Inc., N.J., 20 CRT s
Pneu Hydro Valve Corp., N.J., 42sc
Popper & Sons, Inc., N.Y., 24s
Powertron Ultrasonics Corp., N.Y., 38sc
Precision Scientific Co., Ill., 4s, 8s, 16s, 18s, 34s, 44s
Preis Engraving Machine Co. (H. P.), N.J., 24 Engraving s
Pyrocircuits Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 12c, 14c, 20c, 28c, 30c, Tel: 516-POrt Washington 7-3949
See ad in class 50
Q-Line Mfg. Corp., N.Y., 18sc
Queens Tool Mfg. Co., Inc., N.Y., Punching Machinery c
Radio Corp. of America, RCA Electron Tube Div., N.J., 20s, 40c
Radio Development & Research Corp., N.J., 6c, 44c
Radio Frequency Laboratories, Inc., N.J., 22s
Ramyr Mfg. Co., Calif., 6sc, 28sc, 30sc
Randall Mfg. Co., Inc., N.Y., 18sc, 28sc, 38sc, Degreasers sc
Rapid Electroplating Process, Inc., Ill., 28sc
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 6s, 22s, 46s
Rea Magnet Wire Co., Inc., Subsid. of Aluminum Co. of America, Ind., 12c
Red Point Corp., Calif., 34s, 40s
Redford Corp., N.Y., 36c
Reeve Electronics, Inc., Ill., Soldering Machinery c, 18c, 26c, 44sc
Reid Brothers Co., Inc., Mass., 14 Crystal Slicing sc
Republic Aviation Corp., N.Y., 6sc
Research Industrial Laboratory of Electronics, Pa., 12sc
Rex Rheostat Co., N.Y., 12s
Rinat Electronics, Inc., Calif., 12sc
Robbins Aviation, Inc., Calif., 16sc, 42sc
Robins Industries Corp., N.Y., 22s
Robinson Machine Co., Inc., N.J., 32sc
Rogers Mfg. Co. (Dayton), Minn., 14c
Roy Co. (Milton), Pa., 32sc, 42sc, 44sc
Royal Zenith Corp., N.Y., 30s
Rucker Co., Calif., 8sc
Sabre International Corp., Minn., 38sc, Tumblers sc
Schauer Mfg. Corp., Ohio, 6sc
Schutter Microwave Corp., N.Y., 46sc
Sciaky Bros., Inc., Ill., 46c
Scientific Electric, Inc., N.J., 10s, 20s, 46s
Scientific Electronic Laboratories, Inc., N.J., 34s, 40s, 42s, 46s
Scientific Engineering Laboratories, Calif., 40sc
Scopes Co., Inc., N.Y., 12s
Segal Machinery (Edward), N.Y., 30 Eyelet sc
Sel-Rex Corp., N.J., 4sc, 6sc, 10sc, 12sc, 18sc, 28sc, 44sc
Selas Corp. of America, Pa., 16c, 18c, 46c
Selectrons, Ltd., N.Y., 28sc
Servo-Tek Products Co., Inc., N.J., 20s
Setheo Mfg. Corp., N.Y., 44c
Seven Associates, Inc., Calif., 10s
Sheltered Workshops, Inc., Calif., 6c
Siemens New York, Inc., N.Y., 16s
Sifco Metachemical, Inc., Ohio, 28sc
Sigma Engineering Service, Inc., Pa., Resistor Machinery c
Sippican Corp., Mass., 46 Electrodes sc
Skinner Electric Valve Div., Conn., 42 Solenoid s
Sonobond Corp., Subsid. of Aeroprojects, Inc., Pa., 46 Ultrasonic sc
Sperry Rand Corp., Vickers, Inc. (Div.), Electric Products Div., Mo., 46s
Sta-Warm Electric Co., Ohio, 10 Melters c, 42c
Statham Instruments, Inc., Calif., 2sc
Steiner-Ives Co., Pa., 18sc, 40sc
Stelon, Inc., N.J., 30c, 46c
Stevens Mfg. Co., Inc. (George), Pulaski Rd. at Peterson, Chicago 46, Ill., 12s, Tel: 312-JUniper 8-1300
See ad in this class
Stewart Engineering Co., Santa Cruz 12, Calif., 20sc, 46sc, Tel: 408-GArden 6-4100
See ad in class 86
Stewart & Stevenson Services, Inc., Texas, 6sc
Stokes Corp. (F. J.), Pa., 18sc, 26sc, 28s, 34s, 36s, 40sc, 42s
Stratos Div., Fairchild Stratos Corp., N.Y., 2c, 8c
Sunshine Scientific Instrument, Pa., 22s, 30c, 40c
Sylvania Electric Products Inc., Lighting Products Div., Mass., 12c, 40c

any size panels

engraved in your own plant



Engrave 1-inch nameplates or 6-foot panels by unskilled labor.

Spindle covers 18¼" x 6" in one set-up — more than any other machine of its kind.

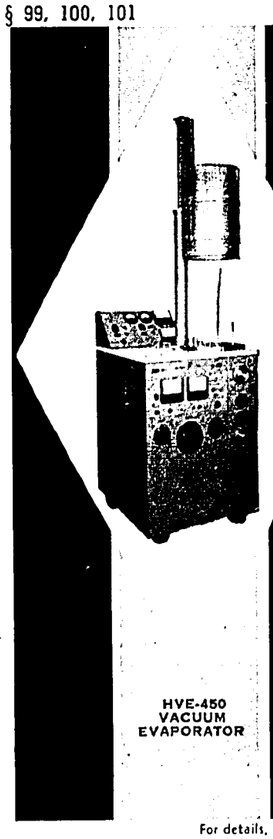
Bench type model I-R—$685.

Send for complete catalog YR-1 illustrating other models from $325 up

new hermes **ENGRAVING MACHINE CORP.**
154 WEST 14th STREET, NEW YORK 11, N.Y. IN CANADA: 359 St. James Street West, Montreal, P.Q.

For details, circle #699 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-276.



HVE-450 VACUUM EVAPORATOR

Outstanding... IN EVERY RESPECT

THE Vactronic 450 LINE

Specially designed for high vacuum applications in research, production and testing.

Kingpin of the Vactronic 450 Line, the HVE-450, the most compact evaporator now available... providing clean, convenient and effective control of varied high vacuum operations.

Also available from Vactronic... the HVS-450 precision-built, high efficiency Vacuum Station and the dependable HVBS-450 Basic Vacuum System, furnishing Manual or Pneumatic control... a complete complement of the following high vacuum components separately available:

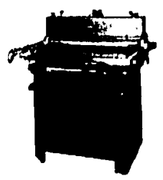
HVP-450 Oil Vapor Diffusion Pump, CBF-450 Baffle, CVP-450 Cold Trap, CVS-450 and AVS-450 High Vacuum Valves, and RGH-450-NP Roughing Manifold.

Experienced Engineering . . . Advanced Design . . . Critical Construction

Send for special brochure describing the 450 Line

Vactronic
LAB. EQUIPMENT, INC.
East Northport, Long Island, New York

For details, circle #700 on Reader Service Card



Wyrco CIRCUIT BOARD PRINTER

- Completely automatic machine cycle with optional manual control for setup procedures
- Precision design and rigid construction assure consistently accurate alignment of screen with circuit board
- Fully adjustable to accommodate wide size ranges of screen frames and circuit patterns
- Controlled wiper travel, wiper speed, and wiper pressure result in a uniform deposition of resist coating
- Requires only ac power—no external air or vacuum connections

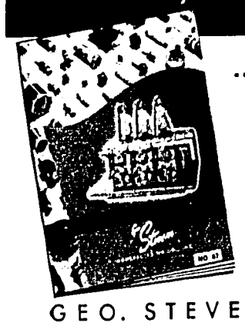
Wyrco Automatic

MANUAL MODELS ALSO AVAILABLE

Wyrco PROJECTS, INC. OWEGO, N. Y. MU 7-3950

For details, circle #701 on Reader Service Card

The Most Complete Line of Coil Winding Machines Made



...is illustrated and described in GEO. STEVENS Catalog #62

Listed are: 65 coil winding machines—one for every coil winding job; 17 tensions; 7 counters; 5 tailstocks; various cams, gears and accessories and a full page of winding formulas.

Virtually Every Firm in the World Which Winds Coils Uses One or More Geo. Stevens Machines.

GEO. STEVENS MFG. CO., INC.
Pulaski Road at Peterson, Chicago 46

For details, circle #702 on Reader Service Card

99. Machinery.

Tanko Screw Products Corp., Ill., 42c
Taylor Instrument Companies, N.Y., 42c
Technical Apparatus Builders, 6 Church St., New York 6 BG, N.Y., 6c, Tel: 212-REctor 2-6245
See ad in class 69
Technical Devices Co., Calif., 14 Wire c, Lead Machinery c
Technicraft Co., Mass., 24c
Telecomputing Corp., Calif., 2c
Telecomputing Corp., Advanced Structures Div., Calif., 2c
Telex, Inc., 1633 Eustis St., Saint Paul 1, Minn., 6c, 12c, Tel: 612-MIdway 6-7211
See ads in classes 79, 80
Temperature Engineering Corp., N.J., 4s, 18s, 34s, 40s
Terado Co., Minn., 6c
Thomas & Skinner, Inc., Ind., 22sc
Thomson Electric Welder Co., Mass., 36sc, 46sc
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 34s
Tickle Engineering Works, Inc. (Arthur), N.Y., 12c
Tri Metal Works, Inc., N.J., 34sc, 40sc
Trinity Equipment Corp., N.Y., 16sc, 18sc
Trionics Corp., Div. of Nautec Corp., Wis., 22c
Ulmer Co. (H. W.), Calif., 34sc, 40sc, 46sc
Ultek Corp., Calif., 34c, 40c
Ultramotive Co., Calif., 38sc, 40sc
Ultrasonic Industries, Inc., N.Y., 26 Ultrasonic-Welder sc, 38sc
Union Carbide Corp., Linde Co. (Div.), N.Y., 46sc
Union Ultra-Sonics Corp., Mass., 38sc
Unit Process Assemblies, Inc., N.Y., 10c, 28c
United Fabricators & Electronics, Inc., Minn., 26s
United Shoe Machinery Co., Mass., 30 Board-Assembly c, 42c
United States Dynamics, Mass., 18sc
United States Instrument Corp., Va., 12c
U.S. Science Corp., Subsid. of United Industrial Corp., Calif., 2c
U.S. Sonics Corp., Mass., 38c
U.S. Tool Co., N.J., Metal-Stamping Machinery sc
Unitek Corp., Weldmatic Div., Calif., 46s
Universal Instruments Corp., N.Y., Lead-Handling Machinery sc
Universal Mfg. Co., Inc., N.J., 12sc
Universal Motor Co., Wis., 6sc
Vactronic Lab. Equipment, Inc., 21 Monmouth Court, East Northport, L.I., N.Y., 16c, 34s, 40sc, 42s, Tel: 516-ANdrew 1-2660
See ad in this class
Vacuum-Electronics Corp., N.Y., 34s, 36s, 40sc, 42s
Vacuum Instrument Corp., N.Y., 34s, 40s
Vacuum Specialties Co., Inc., Mass., 34sc, 40sc
Vacuum Technology, Inc., Calif., 40sc
Valcor Engineering Corp., N.J., 42sc
Vap-Air Div., Vapor Corp., Ill., 6c, 42sc
Varian Associates, Instrument Div., Calif., 34s
Varian Associates, Tube Div., Calif., 34s, 40s

Directory III. Materials & Services

99. Machinery.

Victory Engineering Corp., 118 Springfield Ave., Springfield, N.J., 4 Constant-Temperature c, Tel: 201-MUrdock 8-7150
See ad in class 74
Virginia Electronics Co., Inc., D.C., Soldering Machinery c
Voltare Tubes, Inc., Conn., 40c
Wales-Strippit, Inc., A Unit of Houdaille Industries, Inc., 246 Buell Rd., Akron, N.Y., 30sc, Punching Machinery sc, Tel: 716-LH 2-5441
See ad in this class
Wallace & Tiernan, Inc., N.J., 32s, 44s
Waltham Precision Instrument Co., Mass., 12sc
Warren Components Div., El-Tronics, Inc., Pa., 26sc
Warren Mfg. Co., Inc., Mass., 6c
Welch Scientific Co., Ill., 40s
Wellington Electronics, Inc., N.J., Capacitor-Winding Machinery c
Wells Industries Corp., Calif., 2sc, 16sc
Western Coil & Electrical Co., Wis., 26c
White Dental Mfg. Co. (S. S.), N.Y., 14 Abrasive c
Whitney Metal Tool Co., Ill., 14sc, Punching Machinery sc
Wiedemann Machine Co., Punching Machinery sc
Wilkens, Inc. (Alwin Fr.), N.Y., 24sc
Woodwelding, Inc., Calif., 18s, Bonding Machinery s
Wright Equipment Corp., N.J., 36c
Wyrco Projects, Inc., Forsythe Ave., Owego, N.Y., 30s, Tel: 607-MUtual 7-3950
See ad in this class
Zagar, Inc., Ohio, 30 Drillers c
Zippertubing Co., Calif., 12c

Magnetizers & demagnetizers:
See class 99

Markers & tags:
See class 97

Marking machinery:
See class 99

Marking services:
See class 109

Materials, ceramic:
See class 92

100. Materials, Ferrimagnetic.

5. Polycrystalline 10. Single crystal

Alloyd Corp., Mass., 5c, 10c
Alloys Unlimited, Inc., N.Y., 5s, 10s
Autometric Corp., N.Y., 5c, 10c
Bell, Inc. (F. W.), Ohio, 5s
Clevite Corp., Clevite Electronic Components Div., Ohio, 5sc, 10sc
Custom Components, Inc., N.J., 5sc, 10sc
Diotron, Inc., Pa., 10sc
Federated Electronics, Inc., N.Y., 10c
Ferroxcube Corp. of America, E. Bridge St., Saugerties, N.Y., 5sc, Tel: 914-CHerry 6-2811
See ads in classes 10, 34, 55, 74, 92, 100
Geoscience Instruments Corp., N.Y., 10c
Irvan Engineering Co., Inc., Calif., 5sc
Kirchberger & Co., Inc. (M.), N.J., 10c
Krystinel Corp., P.O. Box 6, Fox Island Rd., Port Chester, N.Y., 5sc, Tel: 914-WEstmore 7-5252
See ad in class 55
Leyman Corp., Magnetics Div., Ohio, 5sc, 10sc
Litton Industries, Inc., Components Group, Airtron Div., N.J., 5c, 10c
Melabs, Calif., 5c, 10c
Microwave Chemicals Laboratory, Inc., N.Y., 5sc, 10sc
NRC Equipment Corp., Mass., 10sc
Perrott Engineering Laboratories, Inc., Subsid. of Federated Electronics, Inc., Va., 10c
Quartzite Processing, Inc., 6 Holyoke St., Malden 48, Mass., 5c, Tel: 617-DAvenport 2-1380
See ad in class 109

meeting the need for utmost reliability in

FERRITE COMPONENTS

memory cores, planes & stacks ■ recording heads ■ pot cores ■ E, U & I cores ■ toroidal cores ■ light, temperature & voltage dependent resistive elements ■ "custom-tailored" ferrite parts.

WRITE FOR COMPLETE DETAILS INDICATING THE PRODUCT CATEGORY YOU ARE INTERESTED IN.

FOREMOST IN THE FIELD OF FERRITE

FERROXCUBE

CORPORATION OF AMERICA ■ SAUGERTIES, N. Y.

For details, circle #703 on Reader Service Card

Sampson Chemical & Pigment Corp., Ill., 5c, 10c
Semi-Elements, Inc., Pa., 5s, 10s
Smith Corp. (A. O.), Crowley Div., N.J., 10c
Solid State Materials Corp., Mass., 10sc
Standard Telephones & Cables, Ltd., England, 5sc, 10sc
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 10sc, Tel: 214-ADams 5-3111
See ad on Cover 3
Trans-Tech, Inc., Md., 5sc, 10c
Trionics Corp., Div. of Nautec Corp., Wis., 5c
Union Carbide Corp., Linde Co. (Div.), N.Y., 10sc
U.S. Sonics Corp., Mass., 5sc

Materials, insulating; plastic:
See class 107

Materials, insulating; tubing:
See class 112

101. Materials, Insulation.

5. Cambric
10. Ceramic
15. Cotton
20. Fiberglas
25. Mica
30. Mica, glass-bonded
35. Paper
40. Resins
45. Rubber
50. Silicone
55. Synthetic

Acme Wire Co., Conn., 5s, 20s, 35s, 40s
Actionecraft Products, N.Y., 20s 50s
Aero-Tech Products Co., N.J., 55c
Allied Plastics Supply Corp., N.Y., 20c, 25c, 30c, 35c, 40c, 50c, 55c
American Feldmuehle Corp., N.Y., 10c
American Felt Co., Conn., 55s
American Lava Corp., Subsid. of Minnesota Mining & Mfg. Co., Cherokee & Manufacturers Rd., Chattanooga 5, Tenn., 10c, Tel: 615-AMherst 5-3411
See ad on page 98
American-Marietta Co. (Martin-Marietta Corp.), Adhesive, Resin & Chemical Div., Wash., 40s
American Printed Circuits Co., N.J., 20c
American Quartz Laboratories, Inc., N.Y., 20c, 50c
American Super-Temperature Wires, Inc., Subsid. of Haveg Industries, Inc., 52 W. Canal St., Winooski, Vt., 20c, 50c, Tel: 802-UNiversity 2-9636
See ad in class 91
Apex Coated Fabrics Co., Inc., N.Y., 35c, 45c
Arlin Mfg. Co., Mass., 55sc
Asheville-Schoonmaker Mica Co., Va., 25c
Associated Commodity Corp., N.Y., 25s
Atkins & Merrill, Inc., Mass., 20c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

For the most **critical** design applications...

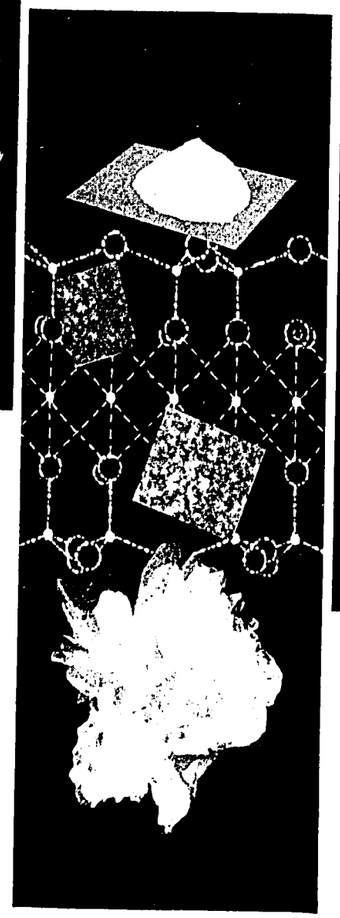
the MYCALEX family

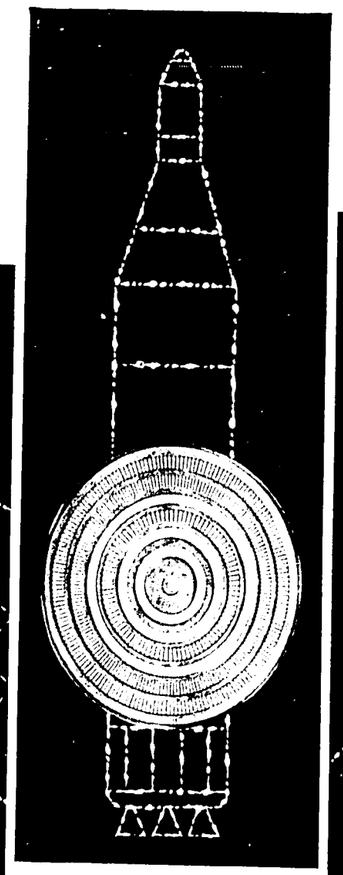
SUPRAMICA® ceramoplastics: exclusive formulations of synthetic mica and special electrical-grade glasses. **New** — SUPRAMICA 620"BB" ceramoplastic for true high-temperature hermetic seals (helium leakage less than 2 x 10^{-10} after severe environmental tests).

MYCALEX®glass-bonded mica: quality natural mica and electrical-grade glasses. Offer high dielectric strength, high arc resistance, high-temperature capabilities.

Both formulations offer total dimensional stability in precision-molded and precision-fabricated grades.

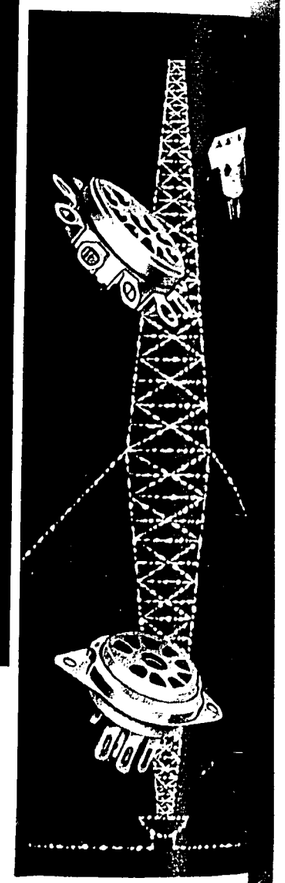
SYNTHAMICA® synthetic mica: a fusion of silica, alumina, magnesia, and alkali fluorides . . . chemically pure, offering a wide range of superior properties for the most demanding dielectric applications.





MYCALEX commutation switches and plates: high-reliability, miniaturized electromechanical devices for missiles, multiplexing, telemetering, timing, time-division and control switching. Now up to 540 contacts on a 3" O.D. plate!

MYCALEX tube and transistor sockets: a line of precision-molded, glass-bonded mica and ceramoplastics for UHF, VHF, and similar high-reliability applications.



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General Offices and Plant: 125A Clifton Boulevard, Clifton, N. J.
Executive Offices: 30 Rockefeller Plaza, New York 20, N. Y.

World's largest manufacturer of ceramoplastics, glass-bonded mica and synthetic mica products

THE FIRST SYNTHAMICA® SYNTHETIC MICA — SINCE 1919 MYCALEX® THE INVENTOR — THE FIRST SUPRAMICA® CERAMOPLASTIC

MYCALEX
CORPORATION OF AMERICA

For details, circle #704 on Reader Service Card

Directory III. Materials & Services

101. Materials, Insulation.

Aubrum Mfg. Co., Conn., 5sc, 20c, 35sc, 40s, 45sc, 50sc, 55sc
Bacon Industries, Inc., Mass., 40sc
Bantley-Harris Mfg. Co., Pa., 20s
Beryllium Corp., Pa., 10sc
Bestcraft Products Co., Inc., N.Y., 5c, 15c, 20c, 35c, 45c, Asbestos c
Birtcher Co., Inc. (Carl H.), Calif., 40s, 55s
Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 10sc, 20sc, 50sc, 55sc, Tel: 212-WOrth 6-5611
See ad in class 91
Bischoff Chemical Corp., Riverside Plastics Div., N.Y., 20c
Bishop Mfg. Corp., N.J., 45c
Biwax Corp., Ill., 40s
Borden Chemical Co., N.Y., 40sc, 45s, 55sc
Brand Rex Div. (William), American Enka Corp., Mass., 5sc, 15sc, 20sc, 50sc
Brush Beryllium Co., Ohio, 10sc, 25 Synthetic c
CFI Corp., Dept IRE, Cottage Pl., Mineola, L.I., N.Y., 10c, Tel: 516-PIoneer 6-0571
See ad in class 92
C-M Mfg. & Machine Co., Inc., N.J., 10c
Carborundum Co., Refractories Div., N.J., 10sc, 20s, 35sc
Catalin Corp. of America, N.Y., 40s, 55s
Centralab, Electronics Div. of Globe-Union, Inc., 900A E. Keefe Ave., Milwaukee 1, Wis., 10c, Tel: 414-WOodruff 2-9200
See ad in class 74
Ceramatronics, Inc., N.J., 10c
Ceramco, Inc., N.J., 10c, 30c
Chase-Foster, Inc., R.I., 30sc, 55sc
Chemical Development Corp., Mass., 40s
Chicago-Allis Mfg. Corp., Ill., 45sc, 50sc, 55sc
Ciba Products Corp., N.J., 40s
Coast Pro-Seal & Mfg. Co., Calif., 40c, 55c
Components for Research, Inc., Calif., 40c
Connecticut Hard Rubber Co., Conn., 20s, 50s
Continental-Diamond Fibre Corp., Del., 15c, 20c, 25c, 30c, 35c, 50c
Coors Porcelain Co., Colo., 10sc
Cottrell Paper Co., Inc., N.Y., 35s
D & R Pilot Plants, Inc., Conn., 55 Foam c
Daniels, Inc. (C. R.), Md., 15sc, 55sc
Deutsch Co., Electronic Components Div., Calif., 45s, 50s
Dodge Fibers Corp., John St., Hoosick Falls, N.Y., 55 Teflon-glass sc, Tel: Hoosick Falls 1080
See ad in class 97
Dow Chemical Co., Mich., 40s, 55s
Dow Corning Corp., Mich., 40s, 45s, 50s, 55s
Du-Co Ceramics Co., Pa., 10c
DuPont de Nemours & Co., Inc. (E. I.), Fabrics & Finishes Dept., Ill., 55s
DuPont de Nemours & Co., Inc. (E. I.), Film Dept., Del., 55s
Duramic Products, Inc., N.J., 10sc
Durez Plastics Div., Hooker Chemical Corp., N.Y., 40s, Foam s
Eagle-Picher Co., Ohio, 20s
Ehrenpreis Engineers (David), N.Y., 45c
Electrical Insulation Co., Inc., N.Y., 20sc, 40sc, 45sc, 50sc, 55sc
Electrical Refractories Co., Ohio, 10c
Electro-Ceramics, Inc., Utah, 10c, Ferro-Electric c
Electro Technical Products, Div. of Sun Chemical Corp., N.J., 5sc, 20sc
Electronet Div., Rue Products, Calif., 45c, 50c, 55c
Electronic Mechanics, Inc., N.J., 25 Synthetic sc, 30sc
Electronic Production & Development, Inc., Calif., 20sc, 40sc
Emerson & Cuming, Inc., Mass., 10s, 40s, 50s
Emerson Plastics Corp., N.Y., 20c, 50c
Engelhard Industries, Inc., Amersil Quartz Div., N.J., 10sc
Epoxy Products, Div. of Joseph Waldman & Sons, N.J., 40s, 55s
Evra, Inc., Calif., 20s, 40sc
Fiberite Corp., Minn., 15s, 20s, 35s, 40s
Fibrous Glass Products, Inc., N.Y., 20c
Ford Radio & Mica Corp., N.Y., 25sc
Franklin Fibre-Lamitex Corp., Del., 5c, 10c, 15c, 20c, 35c, 45c, 50c, 55c
Frenchtown Porcelain Co., N.J., 10c
Furane Plastics, Inc., Calif., 40sc, 50s
Garlock, Inc., Garlock Electronic Products, N.J., 50sc
General Ceramics, Div. of Indiana General Corp., Crows Mill Rd., Keasbey, N.J., 10sc, Tel: 201-VAlley 6-5100
See ad in class 64
General Electric Co., Chemical Materials Dept., Mass., 40s
General Electric Co., Silicone Products Dept., N.Y., 40s, 45s, 50s, 55s
General Gaskets, Inc., Conn., 45c, 50c, 55c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 10sc
General Plastics Corp., N.J., 20c
Glastic Corp., Ohio, 20sc, 55sc
Green Rectifier Co., N.J., 40c
Hardman Co., Inc. (H. V.), N.J., 40sc, 45s
Haveg Industries, Inc., Taunton Div., Mass., 30c, 50c
Hellermann Canada, Ltd., Canada, 55s
Hess, Goldsmith & Co., Inc., Div. of Burlington Industries, N.Y., 20s
Hitachi New York, Ltd., N.Y., 20c, 25c, 40c, 50c, 55c
Industrial Accessories, Inc., N.J., 50sc
Industrial Electronic Rubber Co., Ohio, 45c, 50c, 55c
Insl-X Products Corp., N.Y., 40s, 45s, 50s, 55s
Insulation Manufacturers Corp., Ill., 5sc, 20sc, 25sc, 35sc, 40sc, 45sc, 50sc, 55sc
Irvan Engineering Co., Inc., Calif., 10c
Isochem Resins Co., R.I., 40sc, 45sc, 50sc, 55sc
Isolantite Mfg. Corp., 337 Warren Ave., Stirling, N.J., 10sc, 50sc, Tel: 201-CRestview 7-3737
See ad in class 92
Jodee Plastics, Inc., N.Y., 20c, 30c
Johns-Manville, N.Y., 5s, 15s, 20s, 35s, 45s, 55s
Jonesville Paper Tube Corp., Mich., 35c
Keith Co. (W. P.), Calif., 10sc
Lapp Insulator Co., Inc., Radio Specialties Div., 150 Sumner St., Le Roy, N.Y., 10c, Tel: 385
See ad on pages 52-53
Lawrence Adhesive & Chemical Co., Inc., Mass., 40sc
Long, Inc. (Thomas J.), N.Y., 15c, 20c, 35c, 50c
Macallen Co., Inc., N.H., 20c, 25sc, 30sc, 35c
Mansol Ceramics Co., N.J., 10sc
Markel & Sons (L. Frank), School Lane, Norristown, Pa., 50sc, Tel: 215-BRoadway 2-8960
See ad in class 107
Maryland Lava Co., Md., 10c, 40c
Materials for Electronics, Inc., N.Y., 10sc
Melpar, Inc., Special Products Div., Va., 10sc
Mereco Products Div., Metachem Resins Corp., R.I., 40sc, 50c, 55c
Metallized Products Co., Inc., Conn., 35 Metallized c, 55 Metallized c
Mica Fabricating Co., N.J., 10c, 20sc, 25sc
Micacraft Products, Inc., N.J., 25c
Midwest Foam Products Co., Ill., 55 Foam sc
Minerals & Insulation Co., N.J., 5s, 10s, 20s, 25s, 30s
Minnesota Mining & Mfg. Co., Electrical Products Div., Minn., 15s, 20s, 35s, 40s, 50s, 55s
Minnesota Mining & Mfg. Co., Mica Insulator Div., N.Y., 20sc, 25sc, 35sc
Minnesota Mining & Mfg. Co., Paper Products Div., 900 Bush Ave., Saint Paul 6, Minn., 35sc, Tel: 612-PRospect 6-8511, Ext. 5145
See ad in this class
Minnesota Rubber Co., Minn., 45c, 50c
Minor Rubber Co., Inc., N.J., 45sc, 50sc, 55sc
Minshall Organ & Electronics, Inc., Vt., 55sc
Monsanto Chemical Co., Plastics Div., Mass., 40s, 55s
Morey Corp., Ill., 25c
Morningstar-Paisley, Inc., N.Y., 40sc
Mosinee Paper Mills Co., Wis., 35c
Moxness Products, Inc., Wis., 45sc, 50sc
Mycalex Corp. of America, 125A Clifton Blvd., Clifton, N.J., 10sc, 25sc, 30sc, Tel: 201-PRescott 9-8866
See ad in this class
Mystik Adhesive Products, Inc., Ill., 20s, 45s, 50s, 55s
Mystik Tape Products of California, Calif., 20s, 35s, 50s

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

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Minnesota Mining and Manufacturing Company
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101. Materials, Insulation.

National Beryllia Corp., First & Haskell Aves., Haskell, N.J., 10sc, Tel: 201-TEmple 9-1600
See ad in class 92
National Ceramic Co., N.J., 10c
National Gasket & Washer Mfg. Co., N.Y., 5c, 10c, 20c, 35c, 40c, 45c, 50c, 55c
National Vulcanized Fibre Co., Del., 15sc, 20sc, 35sc, 50sc, 55sc
Natvar Corp., N.J., 5sc, 20sc, 35sc, 50sc, 55sc
New Jersey Wood Finishing Co., N.J., 5sc, 20sc, 50sc
Norrich Plastics Corp., N.Y., 20c, 40c
North American Aviation, Inc., Atomics International Div., Calif., 10c
Norton Co., Mass., 10s
Oki & Willadsen, Ltd., Canada, 30s
Pac-Tron, Inc., Mass., 55sc
Paterson Parchment Paper Co., Pa., 35s
Penn Fibre & Specialty Co., Inc., Pa., 35sc, 40sc, 50sc, 55sc
Perfection Mica Co., Magnetic Shield Div., 1322 N. Elston Ave., Chicago 22, Ill., 25sc, 30sc, Tel: 312-EVerglade 4-2122
See ad in class 103
Permacel, N.J., 35s, 50s, 55s
Permaluster, Inc., Calif., Aluminum-Oxide sc
Physical Sciences Corp., Calif., 10sc
Plastronic Engineering Co., Mass., 40s
Polymer Corp., Pa., 40sc, 55sc
Polymica & Insulation Co., Inc., Conn., 25sc
Porcelain Products Co., Ohio, 10sc
Presray Corp., N.Y., 45c, 50c
Pyrocircuits Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 10c, Tel: 516-POrt Washington 7-3949
See ad in class 50
Radiation Applications, Inc., N.Y., 55c
Ram Chemicals, Inc., Calif., 40s
Raybestos-Manhattan, Inc., Pa., 40c, 45c, 50c, 55c
Raytheon Co., Microwave & Power Tube Div., Mass., 10sc
Reichhold Chemicals, Inc., N.Y., 40s
Richards Co., Inc. (A. S.), Mass., 10s
Richardson Co., Ill., 55sc
Robins Industries Corp., N.Y., 20s
Rogers Corp., Conn., 10s, 35s, 40sc, 45sc, 55s
Rubatex, Div. of Great American Industries, Inc., Va., 45s
Russell Gasket Co., Ohio, 35c, 45c, 50c
Saint Regis Paper Co., Panelyte Div., N.J., 20s
Saxonburg Ceramics, Inc., P.O. Box 157, 400 Third Ave., Saxonburg, Pa., 10sc, Tel: 412-FL 2-1566
See ad in class 92
Schwartz Chemical Co., Inc., N.Y., 40s, 45s, 55s
Schweitzer Div. (Peter J.), Kimberly-Clark Corp., Mass., 35sc
Semicon of California, Inc., Calif., 10c
Shaw Instrument Corp., Pa., 10c
Silicone Insulation, Inc., N.Y., 20c, 50c
Southern Plastics Co., S.C., 40c, 55c
Spaulding Fibre Co., Inc., 310 Wheeler St., Tonawanda, N.Y., 15c, 20c, 35c, Tel: 716-NX 2-2000
See ad in class 107
Spruce Pine Mica Co., Inc., N.C., 25sc, 30c
Star Porcelain Co., N.J., 10sc
Stevens Products, Inc., N.J., 55 Glass c
Steward Mfg. Co. (D. M.), Tenn., 10c
Superior Porcelain Co., W.Va., 10sc
Superior Steatite & Ceramic Corp., 89 W. Forest Ave., Englewood, N.J., 10c, Tel: 201-LOwell 8-4555
See ad in class 92
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 25sc
Synthane Corp., Pa., 20s, 35s, 50s, 55s
Taylor Fibre Co., Pa., 20sc, 40sc, 50sc
Technical Ceramics & Lava Corp., N.J., 10sc
Technical Tape Corp., N.Y., 15s, 20s, 35s, 50s
Technicraft Co., Mass., 55s
Telecomputing Corp., Calif., 10c, 20c, 40s
Telecomputing Corp., Narmco Materials Div. of Narmco Industries, Inc. (Subsid.), Calif., 20sc, 40sc
Telegraph Condenser Co., Ltd., England, 10s
Thompson Fibre Glass Co. (H. I.), Calif., 20sc
Thor Ceramics, Inc., N.J., 10sc, 40sc, 55sc
Travis Fabrics, Inc., N.Y., 55sc
Trionics Corp., Div. of Nautec Corp., Wis., 10c, 40c, 50c
Union Carbide Corp., Silicones Div., N.Y., 40s, 45s, 50s

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SELENIUM

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Directory III. Materials & Services

101. Materials, Insulation.

United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 10c, 20c, 25c, 30c, 55c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104
United Products Co., N.J., 10sc, 20sc, 45sc, 50c
U.S. Mineral Wool Co., N.J., 20s, 55s
United States Rubber Co., N.Y., 45s
Varflex Corp., N.Y., 15s, 50s, 55s
Victory Mica Mfg. Co., Inc., N.Y., 25c
Western Gold & Platinum Co., Calif., 10c
Wilmington Fibre Specialty Co., Del., 35s
Wire Cloth Enterprises, Inc., 3408 Penn Ave., Pittsburgh 1, Pa., 55c, Tel: 412-MAyflower 1-3222
See ad in class 91
Wirekraft, Inc., Ind., 50sc

Materials, optical:
See classes 17, 105 & 112

Materials, packaging:
See class 97

102. Materials, Semiconductor.

5. Gallium
10. Germanium
15. Indium antimonide
20. Indium arsenide
25. Silicon

Accurate Specialties Co., Inc., N.J., 5c, 10c, 15c, 20c
Aceto Chemical Co., Inc., N.Y., 5s, 10s, 25s
Allegheny Electronic Chemicals Co., Pa., 10sc, 25sc
Allen-Jones, Inc., Calif., Custom Fabrication
Allied Chemical Corp., General Chemical Div., 40 Rector St., New York 6, N.Y., 10s, Tel: 212-HAnover 2-7300
See ad in class 94
Alloys Unlimited, Inc., N.Y., 5s, 10s, 15s, 20s, 25s
Aluminum Co. of America, Pa., 5s
Amerconda Chemical Co., N.Y., 10s, 15s, 20s, 25s
American Metal Climax, Inc., N.Y., 10sc
American Smelting & Refining Co., N.Y., Selenium sc
Bell, Inc. (F. W.), Ohio, 20s
Belmont Smelting & Refining Works, Inc., N.Y., 5s, 10s, 25s
Block Associates, Inc., Mass., 15sc, 20sc
Bram Metallurgical-Chemical Co., Pa., 5sc, 10sc, 15sc, 20sc, 25sc
City Chemical Corp., N.Y., 5s, 10s, 15c, 20c, 25s
Cominco Products, Inc., Electronic Materials Dept., Wash., 15sc, 20c
Consolidated Aluminum Corp., N.Y., 5sc
Consolidated Mining & Smelting Co. of Canada, Ltd., Canada, 15c, 20c
Cooper & Sons, Inc. (J. B.), N.Y., 5c
Custom Components, Inc., N.J., 5sc, 10sc, 15sc, 20sc, 25sc
Diotron, Inc., Pa., 5 Arsenide sc, 15sc, 20sc
Dow Corning Corp., Mich., 25s
Eagle-Picher Co., Ohio, 5sc, 10sc
Federated Electronics, Inc., N.Y., 10c, 25c
General Instrument Corp., Defense & Engineering Products Group, N.Y., 5sc, 10sc, 15sc, 20sc, 25sc
General Precision Equipment Corp., Kearfott Semiconductor Corp. (Subsid.), Mass., 10c, 25c
General Thermoelectric Corp., P.O. Box 253, Princeton, N.J., Bismuth-Telluride sc, Tel: 609-DAvis 9-4545
See ad in class 54
Geoscience Instruments Corp., N.Y., 10s, 15c, 20c, 25s
Grace Electronic Chemicals, Inc., Md., 25s

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WHERE SHARING PAYS OFF

SOME YEARS AGO we pointed out in "Proceedings of the IRE" that an amazing and unique characteristic of scientific men is their sense of responsibility to the past and to the future, expressed in their sharing with one another the new findings and discoveries of their science. The fact that engineers share information is a major contribution to the amazing growth of industrial progress and to our high standard of living.

Design Engineers seem to have an impelling need to publish. It is important and fortunate that they have had magazines *in which to publish*. Of course, their articles make these magazines possible, just as the publishing organization's faith and courage gives them the vehicle for communication. A magazine is a three-way team of author, medium, and reader—mutually dependent.

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These are generalities! But "Proceedings of the IRE" *is specific*. The Superheterodyne circuit, FM, TV, radar, the computer, color TV, the transistor, scatter propagation, solid state electronics (stereatronics) all were presented and developed *article by article* in the history-making issues of "Proceedings of the IRE." The impact on industry of this broad exchange of information among engineers has been enormous, creating new markets and even new ways of life.

FM is an excellent illustration of this "sharing." Consider particularly the "lead out time" needed in FM. In December 1935, an article by Armstrong (an IRE Member) in "Proceedings of the IRE" proved conclusively to the engineering world that frequency modulation was an improvement *and practical*. (Today, FM is the audio side of every TV receiver.) This was the fourteenth article on frequency modulation *that had appeared in "Proceedings of the IRE,"* eight of them by Armstrong. It is now known that some of these articles which defined the weakness that had to be corrected, as well as some that amplified the discovery by further independent research, all helped make the final perfection possible.

At that time, in all the world, only four other articles on the subject had appeared. These were condensations of the "discussion" in "Proceedings of the IRE." Yet the final "Proceedings" article was published six years before the first FM broadcasting station went on the air. Engineers needed every bit of this "lead-out time" to do their work. The early publication in "Proceedings of the IRE" gave them just that; and thousands of engineers, who had followed this series, knew in December, 1935 that a great change had come and that they must design and tool up for it. Armstrong shared, "Proceedings" published, and an industry profited!

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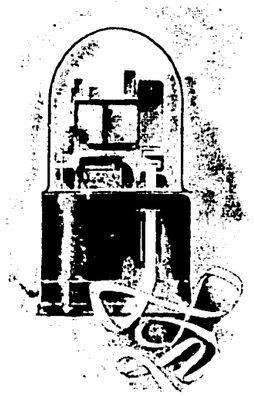

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PRescott 3-6933
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Directory III. Materials & Services

102. Materials, Semiconductor.

Harshaw Chemical Co., Crystal Div., Ohio, 10c, 25c
High Purity Metals, Inc., N.J., 10s
Hoffman Co. (P. R.), 321 Cherry St., Carlisle, Pa., 10c, 25c, Tel: 717-CHapel 3-2011
See ad in class 99
Indium Corp. of America, 1678 Lincoln Ave., Utica 4, N.Y., 5s, 15c, 20c, Tel: 315-SWift 7-1630
See ad in class 104
Kawecki Chemical Co., Inc., 220 E. 42nd St., New York 17, N.Y., 5s, 10s, Selenium s, Tellurium s, Tel: 212-MUrray Hill 2-7143
See ads in classes 102, 104
Kemet Co., Ohio, 25s
Knapic Electro-Physics, Inc., Calif., 10c, 25sc
Lignes Telegraphiques et Telephoniques, France, 10s, 25s
Mackay, Inc. (A. D.), N.Y., 5s, 10s, 15s, 20s, 25s
Materials for Electronics, Inc., N.Y., 5sc, 25s
Merck & Co., Inc., Electronic Chemicals Div., Lincoln Ave., Rahway, N.J., 5c, 10 Epitaxial-Wafers c, 20c, 25 Epitaxial-Wafers c, Tel: 201-FUlton 1-5000
See ad on page 126
Monsanto Chemical Co., Mo., 25c
Monsanto Chemical Co., Plastics Div., Mass., 20sc, 25sc
Munzig International, Inc., Calif., 5s, 15s, 20s
Ohio Semiconductors, Div. of Tecumseh Products Co., 1205 Chesapeake Ave., Columbus 12, Ohio, 5s, 15s, 20s, Bismuth-Telluride s, Tel: 614-HUdson 6-9561
See ad on page 45
Penn Rare Metals, Inc., Pa., 5s, 10s
Perrott Engineering Laboratories, Inc., Va., 5c, 10sc, 15c, 20c, 25sc
Philco Corp., Lansdale Div., Pa., 5c, 10sc, 15c, 20c, 25sc
Republic Lens Co., Inc., 31 E. 169th St., New York 52, N.Y., 10c, Tel: 212-CYpress 3-2790
See ad in class 17
Samuel & Co., Inc. (J. A.), N.Y., 5s, 10s, 15s, 20s, 25s
Semi-Alloys, Inc., N.Y., 5c, 10c, 15c, 20c, 25c
Semi-Elements, Inc., Pa., 5s, 10s, 15s, 20s, 25s
Semiconductor Specialties Corp., 252 Garibaldi Ave., Lodi, N.J., Custom Fabrication, Tel: 201-PRescott 3-6933
See ad in this class
Semimetals, Inc., N.Y., 10c, 25c
Semitronics, Inc., 163 Swanson St., P.O. Box 46, Winchester, Mass., 5sc, 15sc, 20sc, Tel: 617-PArkview 9-4558
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Solid State Materials Corp., Mass., 5sc, 10sc, 15sc, 20sc, 25sc
Solitron Devices, Inc., N.J., 25sc
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 10s, 25s
Sylvania Electric Products Inc., Chemical & Metallurgical Div., Pa., 5s, 10s, 25s
TRG, Inc. (Technical Research Group), N.Y., 10c
Tang Industries, Inc., Mass., 10sc, 25sc
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 25sc, Tel: 214-ADams 5-3111
See ad on Cover 3
Trancoa Chemical Corp., Mass., 25sc
Tung-Sol Electric, Inc., East Orange Plant, N.J., 10sc
United Carbon Products Co., Mich., Graphite sc
United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 5c, 10c, 15c, 20c, 25c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104
Var-Lac-Oid Chemical Co., N.Y., 5c, 10c, 15c, 20c, 25c

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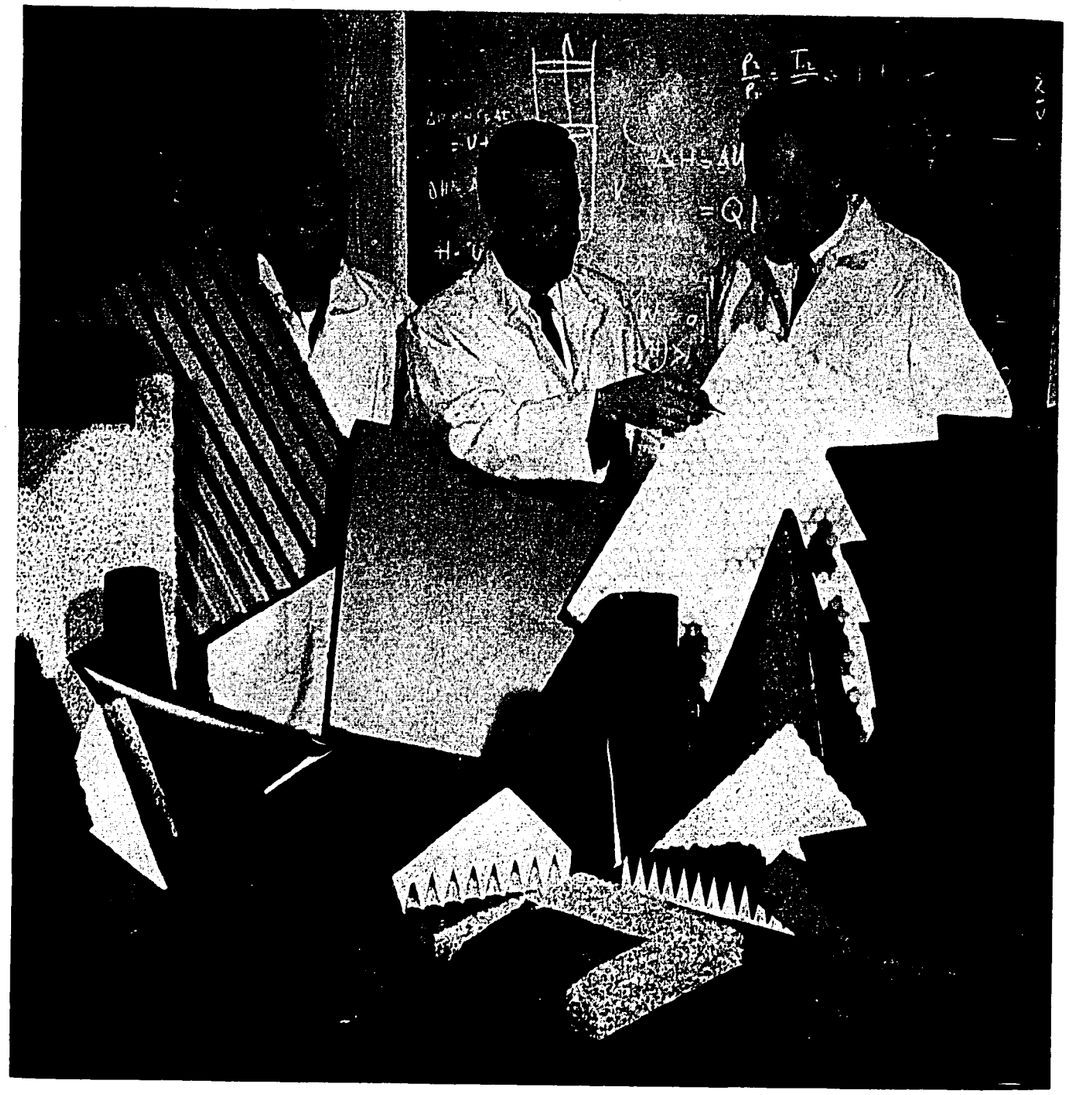
Exclusive Sales Agents for: Penn Rare Metals, Inc., Revere, Pa.

KAWECKI CHEMICAL COMPANY INCORPORATED
220 East 42nd Street New York 17 N.Y.

For details, circle #710 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.



New B. F. Goodrich microwave absorber facilities improve testing reliability

Complete range of absorbers now available for accurate testing of components and systems

New facilities, recently completed by B.F.Goodrich, now offer a variety of broadband absorbers, resonant types tuned to desired frequency, and even complete anechoic chamber installations.

With these advanced products, plus the technical assistance of BFG specialists, you can now simulate free space conditions without leaving your location, provide year-round all-weather antenna testing, and eliminate undesirable reflections on antenna test ranges.

B.F.Goodrich microwave absorbers are made to exacting military specifications, and are carefully tested in our laboratory prior to shipment. For specifics on how we can help you improve radar performance, write *B. F. Goodrich Sponge Products, 239 Derby Place, Shelton, Conn.*

MICROWAVE ABSORBENTS BY B.F.Goodrich

For details, circle #711 on Reader Service Card

Directory III. Materials & Services

103. Materials, Shielding.

5. Acoustic
10. Magnetic
15. Microwave
20. Nuclear
25. RF
30. Thermal

Ad-Vance R/D Co., Calif., 10c, 15c, 20c, 25c

Albano Co., Inc., Honeycomb Div., 555 W. 54th St., New York 19, N.Y., 15c, Tel: 212-PLaza 7-5887
See ad in class 90

Allied Research Associates, Inc., Mass., 20c

American Felt Co., Conn., 5s, 30s

American Smelting & Refining Co., N.Y., 20sc

Ark Electronics Corp., 624-26 Davisville Rd., Willow Grove, Pa., 25c, Tel: 215-OLdfield 9-4121
See ad in class 109

Armco Steel Corp., Ohio, 10s

Auburn Mfg. Co., Conn., 15c, 25sc

Bar-Ray Products, Inc., N.Y., 5s, 20sc

Barry Controls, Div. of Barry Wright Corp., Mass., Damping sc

Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 25sc, Tel: 212-WOrth 6-5611
See ad in class 91

Bischoff Chemical Corp., Riverside Plastics Div., N.Y., 30c

Bishop & Co. (J.), Platinum Works, Pa., 20sc

Borolite Corp., Pa., 20s

CFI Corp., Dept. IRE, Cottage Place, Mineola, L.I., N.Y., 15c, Tel: 516-Ploneer 6-0571
See ad in class 92

Capehart Corp., N.Y., 15c, 25c

Ceramco, Inc., N.J., 20c, 30c

Chemical Development Corp., Mass., 5s, 20s

Connecticut Hard Rubber Co., Conn., 25s

Controls Co. of America, Ill., 25c

Cool Fin Electronics Corp., Calif., 25s

Custom Components, Inc., N.J., 15sc

DBM Research Corp., Fla., 15s, 20s, 25s

Division Lead Co., Ill., 20sc

Douglas Microwave Co., Inc., 252 E. Third St., Mount Vernon, N.Y., 15c, Tel: 914-MOunt Vernon 8-6900
See ad in class 66

DuPont de Nemours & Co. (E. I.), Film Dept., Del., 30s

Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 25s, Tel: 415-LYtell 1-1451
See ad on pages 29-32

Emerson & Cuming, Inc., Mass., 15sc, 20sc, 25sc

Emerson Electric Mfg. Co., Mo., 30s

Engelhard Industries, Inc., Amersil Quartz Div., N.J., 30c

Epoxy Products, Div. of Joseph Waldman & Sons, N.J., 10s

Fansteel Metallurgical Corp., Ill., 20c

Fibrous Glass Products, Inc., N.Y., 5c, 30c

Franklin Fibre-Lamitex Corp., Del., 15c, 20c

General Dynamics/Electronics, Information Technology Div., Calif., 10sc

General Electric Co., Silicone Products Dept., N.Y., 30s

Goodrich Sponge Products (B. F.), 239 Derby Place, Shelton, Conn., 15sc, 25sc, Tel: 203-REgent 5-4661
See ad in this class

Hallett Mfg. Co., Calif., 25sc

Hamilton Watch Co., Industrial Products Div., Pa., 10sc

Harshaw Chemical Co., Crystal Div., Ohio, 20c

Hitachi New York, Ltd., N.Y., 20c, 30c

Industrial Acoustics Co., Inc., N.Y., 5c

Instrument Specialties Co., Inc., N.J., 25sc

Isotopes Specialties Co., Calif., 20sc

Jan Hardware Mfg. Co., Inc., N.Y., 10sc

Jasco Aluminum Products, 31 Nassau Terminal Rd., New Hyde Park, L.I., N.Y., 30c, Tel: 516-FLoral Park 4-8607
See ads in class 105

Johns-Manville, N.Y., 30s

Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 15c

Lindgren & Associates, Inc. (Erik A.), Ill., 25c

Ling Temco Vought, Inc., Texas, 5c

Ling Temco Vought, Inc., University Loudspeakers, Inc. (Div.), N.Y., 5c

Magnetic Metals Co., 2200 River Rd., Camden 1, N.J., 10c, Tel: 609-WOodlawn 4-7842
See ads in class 55

Magnetics, Inc., Pa., 10sc, 25c

Mallory & Co., Inc. (P. R.), Ind., 20sc

McMillan Laboratory, Inc., McMillan Industrial Corp., Mass., 15sc, 25sc

Mesa Plastics Co., Calif., 10sc

Metallic Arts of New England, Inc., Mass., 10c

Metavac, Inc., N.Y., 25sc

Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 10sc, Tel: 617-DAvenport 4-4108
See ad in class 51

Mundt & Sons (Charles), N.J., 5c

Mycalex Corp. of America, 125A Clifton Blvd., Clifton, N.J., 20c, Tel: 201-PRescott 9-8866
See ad in class 101

National Beryllia Corp., First & Haskell Aves., Haskell, N.J., 15c, Tel: 201-TEmple 9-1600
See ad in class 92

National Lead Co., 111 Broadway, Room 1815, New York 6, N.Y., 20sc, Tel: 212-REctor 2-9400
See ad in class 110

National Moldite Co., Inc., N.J., 10c, 25c

Needco of America, Inc., N.J., 30 Vacuum c

Nuclear Development Corp. of America, N.Y., 20c, 25c, 30c

Nuclear Science & Eng. Corp., Pa., 20s

Paul & Stein Bros., Inc. (F. H.), N.Y., 20c

Perfection Mica Co., Magnetic Shield Div., 1322 N. Elston Ave., Chicago 22, Ill., 10sc, Tel: 312-EVerglade 4-2122
See ad in this class

Permali, Inc., Pa., 20c

Presray Corp., N.Y., 10c, 20c

Radar Design Corp., N.Y., 10s, 15sc

Ray, Daisley Co., Inc., N.Y., 25c

Ray Proof Corp., Conn., 20sc, 25sc

Reynolds Wire Div., National-Standard Co., Ill., 25c

Rimak Electronics, Inc., Calif., 5c, 10c, 15c

Rogers Corp., Conn., 30s

Saint Regis Paper Co., Panelyte Div., N.J., 20c

Saxton Products, Inc., 4320 Park Ave., New York 57, N.Y., 10s, Tel: 212-WEllington 3-6400
See ad in class 91

Schutter Microwave Corp., N.Y., 15c

Schuyler Mfg. Corp., N.J., 15sc, 20sc, 25sc

Semi-Elements, Inc., Pa., 15s, 20s

Shieldair Co., Pa., 25c

Shielding, Inc., N.J., 15s, 25sc

Smith Corp. (A. O.), Crowley Div., N.J., 10s, 15s, 25s

Southern Plastics Co., S.C., 20c

Steward Mfg. Co. (D. M.), Tenn., 10c

Swift Textile Metalizing & Laminating Corp., 10 Love Lane, Hartford 1, Conn., 15s, 25s, Tel: 203-JAckson 2-1181
See ad in this class

Electrically Conductive Cloth

RADAR REFLECTION
STATIC DISCHARGE
ATTENUATORS
R.F. SHIELDING
WARNING SYSTEMS
MICROWAVE GASKETING.

Many Applications in Electronics.

Sew On Any Sewing Machine.

Swift Textile Metalizing & Laminating Corp.
10, Love Lane, Hartford 1. Conn.

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FABRICATING MICROMODULES TO MOBILE ROOMS

Magnetic Shields Custom Fabricated to Any Size or Shape

The industry's widest range of production facilities . . . in 3 factories:
PRESS FORMING AND DRAWING • HYDROFORMING • SPINNING • HAND FABRICATION OF PROTOTYPES

Already Tooled for Samples or Production

- Simple designs to elaborate complexes.
- Single or multiple laminae constructions.
- Micromodule size to a completely prefabricated mobile shielded room weighing 5 tons which can be transported anywhere — an achievement unique with Magnetic Shield Division.*

ALSO AVAILABLE
- Processed stock for fabrication in your own plant.
- Co-operative design facilities.

Use this SINGLE CONVENIENT SOURCE for all magnetic shielding requirements. Saves you countless design hours . . . helps speed your project . . . lowers your costs.

We recommend NETIC and CO-NETIC magnetic shielding materials because they are non-shock sensitive, non-retentive, do not require periodic annealing and provide completely effective shielding for optimum results.

NETIC and CO-NETIC are widely specified for satellite, missile, protecting recording tapes, data processing and for innumerable other military, scientific and laboratory applications as well as for commercial applications.

*

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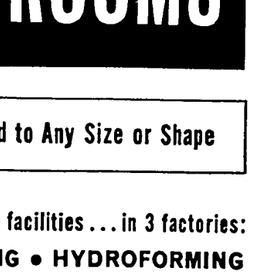
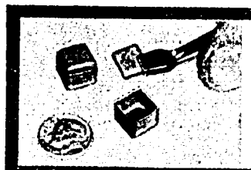
BALTIMORE, MARYLAND HOpkins 7-3766
UNION CITY, NEW JERSEY UNion 4-9577
MERIDEN, CONNECTICUT BEverly 7-9232
MIAMI, FLORIDA Highland 4-1118
WESTMOUNT, MONTREAL, QUEBEC WEllington 7-1167
DALLAS, TEXAS FLeetwood 1-1615
LOS ANGELES, CALIFORNIA WEbster 1-1041
PALO ALTO, CALIFORNIA DAvenport 1-5064
SAN DIEGO, CALIFORNIA ACademy 4-1717
SEATTLE, WASHINGTON EAst 3-8545
PHOENIX, ARIZONA AMhurst 4-4934
HOUSTON, TEXAS HOmestead 5-7780

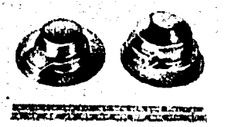


MAGNETIC SHIELD DIVISION
Perfection Mica Company
1322 N. ELSTON AVENUE, CHICAGO 22, ILLINOIS



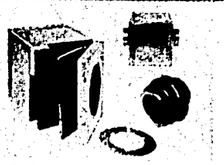
Micro miniature shield and cover, punch press operation.

Sequence of shield cans, punch press or spinning.

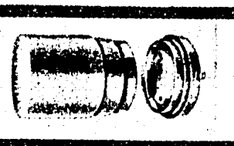


Complex configuration multi-lamina shield, hydroformed.

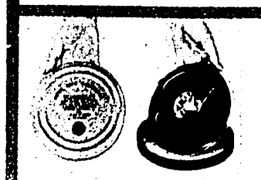
CRT shield illustrating combination of hand fabrication, spinning and sizing.



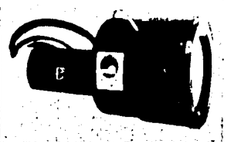
Backward wave tube shield assembly design, involving hand fabrication and hydroform or spinning.



Special purpose shield, hand fabrication (levitated gyro).

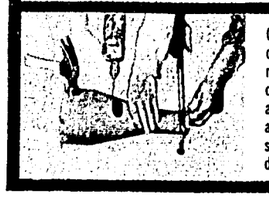


Tape preserver can be spun, hydroformed or punch press fabricated.



Data storage tube shield, hydroform or spinning, plus hand fabrication.

Large fabricated special structure (shaker table shield), approx. 60" dia. and 57" high.



Composite photo demonstrating that magnetic shielding qualities of NETIC alloy material are not affected by vibration, shock, (including dropping), etc.

For details, circle #713 on Reader Service Card

Directory III. Materials & Services

103. Materials, Shielding.

TRG, Inc. (Technical Research Group), N.Y., 15c, 20c, 25c
Technical Wire Products, Inc., N.J., 25sc
Telecomputing Corp., Advanced Structures Div., Calif., 5c, 10c, 15c, 25c, 30c
Telectro Industries Corp., N.Y., 20sc
Thompson Fibre Glass Co. (H. L.), Calif., 30sc
Topatron, Inc., Calif., 10s, 15s, 25s
Trans-Tech, Inc., Md., 15c
Trionics Corp., Div. of Nautec Corp., Wis., 30c
United Products Co., N.J., 15c, 25c
U.S. Mineral Wool Co., N.J., 5s
Wells Electronics Co., Ind., 25c
Westinghouse Electric Corp., Materials Mfg. Dept., Pa., 10sc
York Co., Inc. (Otto H.), N.J., 25c
Zippertubing Co., Calif., 10c, 25c, 30c

Materials, thermoelectric:
See class 104

Metal stamping & spinning:
See class 96

Metal tubing:
See class 112

104. Metals.

5. Alloys
10. Columbium
15. Copper
20. Earths, rare
25. Ferrous
30. Foils
35. Indium
40. Molybdenum
45. Non-ferrous, excluding copper
50. Oxides
55. Powdered
60. Precious & rare
65. Tantalum
70. Tungsten

A.L.G. Metals, Inc., Subsid. of Consolidated Aluminum Corp., Tenn., 30c
Accurate Specialties Co., Inc., N.J., 30c, 35c, 60c, 65c, 70c
Aceto Chemical Co., Inc., N.Y., 20s, 50s
Ad-Vance R/D Co., Calif., 5s, 25c
All-State Welding Alloys Co., Inc., N.Y., 5 Brazing & Welding sc
Allen-Jones, Inc., Calif., 40sc, 65sc, 70sc
Allied Chemical Corp., General Chemical Div., 40 Rector St., New York 6, N.Y., 20s, 50s, Tel: 212-HAnover 2-7300
See ad in class 94
Alloyd Corp., Mass., 5c, 40c, 70c
Alloys Unlimited, Inc., N.Y., 5sc, 35s, 60sc
Alpha Metals, Inc., N.J., 5sc, 30c, 35c, 45c, 55c, 60sc, Coated c
Aluminum Co. of America, Pa., 30c, 45sc, 55sc
Ameronda Chemical Co., N.Y., 20s, 50s, 55s, 70s
American Brazing Alloys Corp., N.Y., 5s, 15s, 45s, 55s, 60s
American Metal Climax, Inc., N.Y., 15sc, 40sc, 45sc, 55sc
American Potash & Chemical Corp., Calif., 20sc
American Silver Co., Inc., 36-06 Prince St., Flushing 54, N.Y., 5sc, 10c, 15sc, 25sc, 30sc, 35sc, 40sc, 45sc, 55sc, 60sc, 65sc, Tel: 212-FLushing 3-8012
See ad in this class
American Smelting & Refining Co., N.Y., 5sc, 15s, 35sc, 45sc, Antimony sc
Anaconda Aluminum Co., Ky., 30 Aluminum sc, Aluminum sc
Anaconda American Brass Co., Conn., 5sc, 15sc, 25sc, 45sc
Anchor Metal Co., Inc., N.Y., 5c, 15c, 30c, 35s, 40c, 45c, 55c, 60s, 65c
Anodyne, Inc., North Shore Nameplate Div., Fla., 30sc, 45sc
Antara Chemicals, Div. of General Aniline & Film Corp., N.Y., 25s, 55s
Anthony & Co. (J.L.), R.I., 5c, 15sc, 30c, 45s, 60c, 65sc
Armco Steel Corp., Ohio, 5s, 25s, 30s
Associated Engineering & Mfg. Corp., N.J., 30s, 40s, 55s, 65s, 70s
Attleboro Refining Co., Mass., 60s
Avco Research & Advanced Development Div., Mass., 55sc
Barium & Chemicals, Inc., Ohio, 50sc
Belmont Smelting & Refining Works, Inc., N.Y., 5s, 15s, 20s, 30s, 35s, 40s, 45s, 50s, 55s, 60s, 65s, 70s
Beryllium Corp., Pa., 5sc, 45sc, 50sc, 55sc, Beryllium sc
Bishop & Co. (J.), Platinum Works, Pa., 45sc, 60sc
Borolite Corp., Pa., 55s
Brainin Corp. (C. S.), N.Y., 60c
Bram Metallurgical-Chemical Co., Pa., 5sc, 10sc, 15sc, 20sc, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc, 65sc, 70sc
Bridgeport Brass Co., Conn., 5sc, 15sc, 45sc, Aluminum sc
Brooks & Perkins, Inc., Mich., 5c, 45c
Brush Beryllium Co., Ohio, 5sc, 45sc, 50sc, 55sc, Beryllium sc
C-M Mfg. & Machine Co., Inc., N.J., 40c, 50c, 55c, 70c
Carborundum Co., Refractories Div., N.J., 5s
Carpenter Steel Co., Pa., 5s, 25s
Ceramco, Inc., N.J., 60c
Chase Brass & Copper Co., Conn., 5sc, 15sc, 25sc, 45sc, 55c, 60c
Chemalloy Electronics Corp., Calif., 5sc
City Chemical Corp., N.Y., 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s, 65s, 70s
Cleco Air Tools, Div. of Reed Roller Bit Co., Texas, 70c

METALS FOR EXACTING ELECTRONIC REQUIREMENTS

FOR TAPE RECORDING
All-Metal Recording Tape
Gap Foils (non-magnetic) in 18K White Gold and Platinum (as thin as .00004")

FOR TRANSISTORS
Hyper-Pure Gold .99999 Fine
Doped Gold Alloys Solid or Clad
Tin-Clad Nickel Strip
Silver Brazing Alloys
Hyper-Pure Potassium Gold Cyanide

FOR TRANSFORMERS AND TUBES
Glass Sealing Alloys
High Permeability Alloys Strip-Tape-Foil
Nickel and Nickel Alloys
Copper Tape and Foil
Brazing Alloys (Gold, Silver, Platinum)

Applying Science to Craftsmanship
INDUSTRIAL DIVISION
AMERICAN SILVER COMPANY, Inc.
36-06 PRINCE ST. FLUSHING 54, N.Y.

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CESIUM RUBIDIUM

METAL and SALTS
99%, 99.7%, 99.9%

Carbonate
Hydroxide
Fluoride
Chloride
Nitrate
Bromide
Iodide
Sulfate
Dichromate
Azide
Cyanide
Acetate

Exclusive Sales Agents for: Penn Rare Metals, Revere, Pa.

KAWECKI CHEMICAL COMPANY INCORPORATED
220 East 42nd Street New York 17 N.Y.

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Make your Ferrites with

HIGH PURITY

MAPICO

FERRIC OXIDES

for TOP performance

These reactive synthetic MAPICOS, some especially developed for ferrite manufacture, are over 99% pure Fe_2O_3. Choice of suitable characteristics is made easy—many variations in particle-size and shape are available. Careful control contributes to uniformity of packing and shrinkage. Our iron oxide production experience and our ferrite research can help you accomplish best results. Manufactured in modern plants by modern methods. Experienced Columbian technicians are ready to cooperate in any problem involving the use of iron oxides for ferrite manufacture. For full data write today. Samples for testing provided on request.

COLUMBIAN CARBON COMPANY
MAPICO IRON OXIDES UNIT
380 MADISON AVENUE, NEW YORK 17, N. Y.

For details, circle #716 on Reader Service Card

104. Metals.

Cohn Corp. (Sigmund), 121 S. Columbus Ave., Mount Vernon, N.Y., 5c, Tel: 914-MOunt Vernon 4-5300
See ad in class 91

Columbian Carbon Co., Mapico Iron Oxides Unit, 380 Madison Ave., New York 17, N.Y., 50s, Tel: 212-MUrray Hill 7-2300
See ad in this class

Cominco Products, Inc., Electronic Materials Dept., Wash., 5c, 35sc, 45sc, 50sc, 55sc, 60c, Aluminum c, Cadmium c, Antimony c

Composite Industrial Metals, R.I., 5c, 15c, 30c, 35c, 40c, 60c, 65c, Clad c

Consolidated Aluminum Corp., N.Y., Aluminum sc

Consolidated Mining & Smelting Co. of Canada, Ltd., Canada, 5c, 35c, 45c, 55c

Consolidated Reactive Metals, Inc., 115 Hoyt Ave., Mamaroneck, N.Y., 5c, 60sc, Tel: 914-OWens 8-2300
See ad in class 91

Cooper & Sons, Inc. (Joseph B.), N.Y., 5sc, 20c, 30c, 60sc

Cross Co. (H.), 3229 Bergenline Ave., Union City, N.J., 40c, 65c, 70c, Tel: 201-UNion 3-1134
See ad in this class

Crucible Steel Co. of America, Pa., 5sc, 25sc

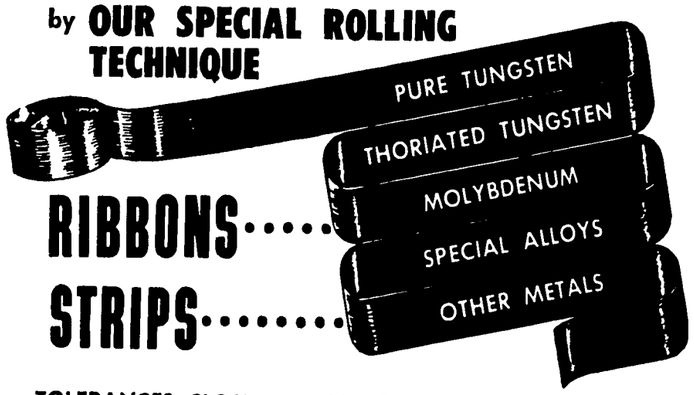
Custom Components, Inc., N.J., 35sc

Dalweld Co., Inc., N.Y., 5sc, 15s, 25s, 45s, 55s, 60s

Division Lead Co., Ill., 5sc, 30sc, 45sc, 55sc

METALS for ELECTRONIC APPLICATION rolled ULTRA THIN

by **OUR SPECIAL ROLLING TECHNIQUE**



RIBBONS.....
STRIPS.....

TOLERANCES CLOSER THAN COMMERCIAL STANDARDS
Note: for highly engineered applications—strips of TUNGSTEN and some other metals can be supplied
rolled down to .0003 thickness
- Finish: Roll Finish—Black or Cleaned
- Ribbons may be supplied in Mg. weights if required

Developed and Manufactured by

H.CROSS CO. 3229 BERGENLINE AVE., UNION CITY, NEW JERSEY
Tele Union City, N.J. UN 3-1134
N.Y.C. N.Y. BR 9-4425

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COLUMBIUM
(Niobium)

Columbium Metal
- Powder
- Bars
- Ingots
- Sheet
- Foil
- Wire
- Porous Sintered Pellets

Columbium Carbide
Columbium Oxalate
Columbium Oxide
Potassium Columbate
Potassium Columbium Fluoride

KAWECKI CHEMICAL COMPANY
INCORPORATED
220 East 42nd Street, New York 17, N.Y.

For details, circle #718 on Reader Service Card

Directory III. Materials & Services

104. Metals.

Dodge Fibers Corp., John St., Hoosick Falls, N.Y., 5sc, 10sc, 15sc, 25sc, 30sc, 35sc, Tel: Hoosick Falls 1080
See ad in class 97

Dow Chemical Co., Mich., 5s, 45s

Driver Co. (Wilbur B.), 1875 McCarter Highway, Newark 4, N.J., 5sc, 25sc, 45sc, Tel: 201-HUmboldt 2-5550
See ad on page 134

Driver-Harris Co., 201 Middlesex St., Harrison 24, N.J., 5sc, 45sc, Tel: 201-HUmboldt 3-4800
See ad on page 131

Eagle-Picher Co., Ohio, 45sc, 50sc, 55sc, 60sc

Eastern Smelting & Refining Corp., Mass., 60sc

Eisler Engineering Co., Inc., 753 S. 13th St., Newark 3, N.J., 40sc, 70sc, Tel: 201-Bigelow 3-5310
See ad in class 99

Electro-Tec Corp., N.J., 60sc

Electronic Metals & Alloys, Inc., Mass., 5sc, 15sc, 30sc, 35sc, 40sc, 45sc, 60sc

Electronic Parts Mfg. Co., Inc., N.J., 40c, 70c

Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 5c, 40c, 60c, 70c, Tel: 201-BIgelow 2-2700
See ad on page 140

Engelhard Industries, Inc., American Platinum & Silver Div., N.J., 5sc, 45sc, 50c, 60sc

Engelhard Industries, Inc., Makepeace Div., Mass., 5c, 10c, 45c, 60c

Fansteel Metallurgical Corp., Ill., 10s, 30s, 40s, 55s, 65s, 70s

Faradyne Electronics Corp., N.J., 40sc, 70sc

Federal-Mogul Div., Federal-Mogul-Bower Bearings, Inc., Mich., 55c

Foote Mineral Co., Pa., 45s, Lithium s, Manganese s

General Ceramics, Div. of Indiana General Corp., Crows Mill Rd., Keasbey, N.J., 55sc, Tel: 201-VAlley 6-5100
See ad in class 64

General Electric Co., Lamp Metals & Components Dept., Ohio, 40s, 70s

Gibson Electric Co., Pa., 15c, 40c, 45c, 55c, 60c, 70c

Grifliths Electronics, Inc. N.J., 60sc

Hamilton Watch Co., Industrial Products Div., Pa., 5sc, 15sc, 20sc, 30sc, 40c, 45sc

Handy & Harman, 850 Third Ave., New York 22, N.Y., 60c, Tel: 212-PLaza 2-3400
See ad in this class

High Purity Metals, Inc., N.J., 5c, 45s, 60s

Hitachi New York, Ltd., N.Y., 5c, 15c, 55c

Horton-Angel Co., Mass., 5sc, 15sc, 45sc, 60sc

Hoskins Mfg. Co., Mich., 5sc, 45sc, 65c, 70c

Hikon Corp., Mass., 5c

Indium Corp. of America, 1678 Lincoln Ave., Utica 4, N.Y., 30c, 35s, 55c, Tel: 315-SWift 7-1630
See ad in this class

International Nickel Co., Inc., Huntington Alloy Products Div., W.Va., 5s, 45s, 55s, Nickel s

Johnson Matthey & Mallory, Ltd., Canada, 60c

Kaiser Aluminum & Chemical Sales, Inc., Calif., 5sc, 30sc, 45sc

Kanthal Corp., Conn., 5s, Clad s

Kassel Industries, Inc., N.J., 40sc, 70sc

Kawecki Chemical Co., Inc., 220 E. 42nd St., New York 17, N.Y., 5s, 10s, 50s, 55s, 60s, 65s, Cesium s, Rubidium s, Thermoelectric Materials s, Tel: 212-MUrray Hill 2-7143
See ads in classes 102, 104

Laminated Shim Co., Inc., Conn., Shims sc

AIDS LUBRICATION
UNIQUE STABILIZATION
ALLOYS READILY

25 YEARS OF EXPERIENCE INDIUM

Metal, wire, foil
ribbon, pellets, spheres,
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INDIUM

- Indium metal (99.999% pure)
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Also: other high-purity metals

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Silver—and its alloys—are available from Handy & Harman at a moment's notice in a wide choice of forms and compositions...in standard types or prepared to your specifications.

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SILVER-COPPER ALLOYS ..... BULLETIN A-2
SIVER-MAGNESIUM-NICKEL ..... BULLETIN A-3
SILVER CONDUCTIVE COATINGS ..... BULLETIN A-4
SILVER POWDER AND FLAKE ..... BULLETIN A-5

HANDY & HARMAN
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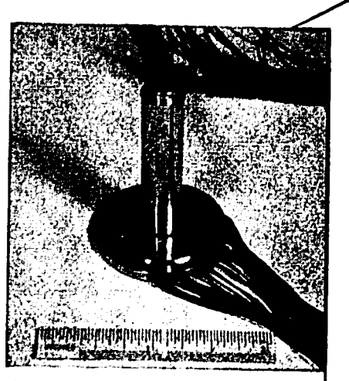
Offices and Plants: Bridgeport, Conn. ☐ Chicago, Ill. ☐ Cleveland, Ohio ☐ Dallas, Tex. ☐ Detroit, Mich. ☐ Los Angeles, Calif. ☐ Providence, R.I. ☐ Montreal, Quebec ☐ Toronto, Ontario.

For details, circle #720 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

NEY OFFERS

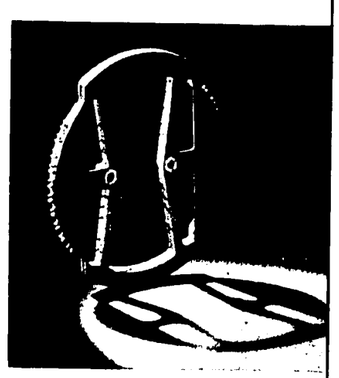


COMPLETE ASSEMBLIES

This 32-ring slip ring assembly was developed for the Instrumentation Laboratory, M.I.T., for use in the Navy's Polaris Missile Development Program. On such projects, Ney can work to customers' specifications or will go further and undertake the complete design and manufacturing functions.

PRECIOUS METALS AND PARTS

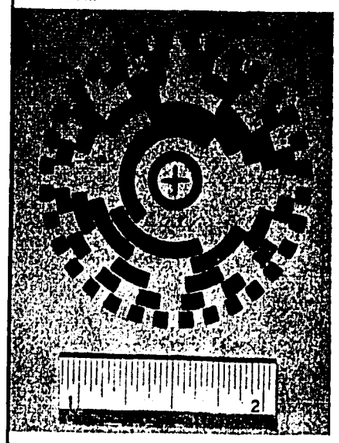
Ney manufactures its own precious metal alloys which are available as strips, wire or fine wire. Ney also manufactures precious metal parts, stamped, machined, formed or welded. Here again, Ney will work to customers' specifications or supply the design engineering function.



MOLDED ASSEMBLIES

Ney molded assemblies save tremendously in handling time and expense of assembly operations. A series of brushes molded into a single assembly at the desired angle minimize the cost of lining up, and the desired gram pressure can be assured by deflection of straight wires. Three types of molding are used, injection, transfer and casting.

Write Dept. P for detailed information, or call our Engineering Department (Hartford, CHapel 2-2281).



NEYBOND AND NEYETCH

NEYBOND is a new development in which thin sheets or stamped patterns of precious metal alloys are bonded to a rigid insulator. NEYBOND gives the advantages of solid, homogeneous, proven precious metal alloys, exceptional peel strength, absence of porosity and base metal migration and surface contamination, and elimination of rejects due to pits, inclusions and flaky plating. It is also now possible to fabricate flat Neyoro G NEYBOND patterns by an etching process called NEYETCH, thus eliminating expensive machining or stamping operations, and allowing manufacture of complex configurations for commutators almost unlimited in shape.

THE J. M. NEY COMPANY
MAPLEWOOD AVENUE, BLOOMFIELD, CONN.

NEY

For details, circle #721 on Reader Service Card

104. Metals.

Leach & Garner Co., Industrial Div., Mass., 5c, 15c, 30c, 45c, 60c

Little Falls Alloys, Inc., 189 Caldwell Ave., Paterson 1, N.J., 5c, 15c, 45c, Tel: 201-LAmbert 5-1014
See ad in class 91

Mackay, Inc. (A.D), N.Y., 5s, 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s, 65s, 70s

Magnetic Powders, Inc., Pa., 55 Iron s
Mallory & Co., Inc. (P.R.), Ind., 5sc
Master Etching Corp., N.J., 30c
Materials for Electronics, Inc., N.Y., 60sc
Materials Research Corp., N.Y., 5s, 10s, 40s, 65s, 70s
Mechtronics Corp., Subsid. of Mechmetal-Tronics, Inc., Calif., 5 Nickel c
Metal Hydrides, Inc., Affil. of Ventures, Ltd., Mass., 20sc, 55sc, 60sc
Metalphoto Corp., Ohio, Photosensitive-Aluminum sc
Metz Refining Co., N.J., 5c, 20c, 50sc, 55sc, 60sc
Michigan Chemical Corp., Mich., 5s, 20s, 60s
Mideast Aluminum Corp., N.J., 45 Aluminum sc
Molecu-Wire Corp., N.J., 45sc
Monsanto Chemical Co., Plastics Div., Mass., 50s
Mueller Brass Co., Mich., 5c, 15c, 45c, 55c, Aluminum c
Munzig International, Inc., Calif., 5s, 35s
NRC Equipment Corp., Mass., 65sc

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Tantalum Metal

- Powder
  - "Hi Cap"
  - "Lo Cap"
- Bars
- Ingots
- Sheet
- Foil
- Wire
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Tantalum Oxalate
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Potassium Tantalum Fluoride

KAWECKI CHEMICAL COMPANY
INCORPORATED
270 East 42nd Street New York 17 N.Y.

For details, circle #722 on Reader Service Card

Directory III. Materials & Services

104. Metals.

National Beryllia Corp., First & Haskell Aves., Haskell, N.J., 50c, Tel: 201-TEmple 9-1600
See ad in class 92

National Lead Co., 111 Broadway, Room 1515, New York 6, N.Y., 5sc, 45sc, 50sc, 55sc, 60sc, Tel: 212-REctor 2-9400
See ad in class 110

National Lead Co., Goldsmith Bros. Div., Ill., 35c, 55c, 60c
National Moldite Co., Inc., N.J., 55c
National Research Corp., Mass., 65s
Nuclear of America, Inc., N.J. Thermoelectric sc
Newco Alloy Products Co., N.J., 5c, 15c, 25c, 35c, 40c, 45c, 60c, 70c
New Jersey Zinc Co., N.Y., 5s, 45s, 50s, 55s

Ney Co. (J. M.), Maplewood Ave., Bloomfield, Conn., 60sc, Tel: 203-CHapel 2-2281 (Hartford)
See ad in this class

Nippert Electric Products Co., Ohio, 15c, 45c
Nuclear Corp. of America, Research Chemicals Div., Calif., 20s, 50s
Nuclear Development Corp. of America, N.Y., 10c, 40c, 50c, 55c, 65c, 70c

Ohio Semiconductors, Div. of Tecumseh Products Co., 1205 Chesapeake Ave., Columbus 12, Ohio, 35s, Tel: 614-HUdson 6-9561
See ad on page 45

Paul & Stein Bros., Inc. (F. H.), N.Y., 5c, 10c, 30c, 35c, 40c, 65c
Penn Rare Metals, Inc., Pa., 60 Cesium s
Perfection Mica Co., Magnetic Shield Div., 1322 N. Elston Ave., Chicago 22, Ill., 5sc, Tel: 312-EVerglade 4-2122
See ad in class 103
Perrott Engineering Laboratories, Inc., Subsid. of Federated Electronics, Inc., Va., 65s
Phelps Dodge Copper Products Corp., 300 Park Ave., New York 22, N.Y., 5s, 15s, Tel: 212-PLaza 1-3200
See ad in class 91
Philips Elmet Corp., Subsid. of North American Philips Co., Inc., Me., 5c, 30c, 40sc, 55sc, 70sc
Philips Metalonics, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 70 Custom-Fabrication
Picco Industries, Calif., 25c, 55c
Porter Co., Inc. (H. K.), Riverside-Alloy Metal Div., N.J., 5sc, 25c
Precision Tube Co., Inc., Pa., 5c, 15c, 45c
Pyrometer Co. of America, Inc., Pa., 60s
R.E.C., Inc., Calif., 25c
Republic Foil, Inc., Conn., 30 Aluminum sc
Revere Copper & Brass, Inc., N.Y., 5s, 15s, 30s, 45s
Rodney Metals, Inc., Mass., 5sc, 10c, 25sc, 30sc, 40c, 45sc, 60c
Ronson Metals Corp., Cerium Metals & Alloys Div., N.J., 20s
Samuel & Co., Inc. (J. A.), N.Y., 5s, 10s, 20s, 30s, 35s, 40s, 45s, 50s, 55s, 60s, 65s, 70s
Sel-Rex Corp., N.J., 60sc
Semi-Alloys, Inc., N.Y., 5sc, 10c, 15sc, 20sc, 25s, 30sc, 35sc, 40sc, 45sc, 50sc, 55sc, 60sc, 65sc, 70sc
Semi-Elements, Inc., Pa., 20s, 25s, 35s, 45s, 50s, 55s, 60s
Semicon of California, Inc., Calif., 70sc
Shieldalloy Corp., N.J., 5s, 10s, 25s, 40s, 50s, 55s, 65s, 70s
Simonds Saw & Steel Co., N.Y., 5 Magnetic sc
Somers Brass Co., Inc., Conn., 5 Thin-Strip c, 15c, 30c, 45c
Standard Metals Corp., 262 Broad St., North Attleboro, Mass., 15c, 30c, 45c, 60c, Clad c, Tel: 617-MYrtle 5-9395
See ad in this class

UNITED MINERAL & CHEMICAL CORPORATION
Specialists in insulation-, conductor-, semiconductor-materials

SEMICONDUCTOR MATERIALS

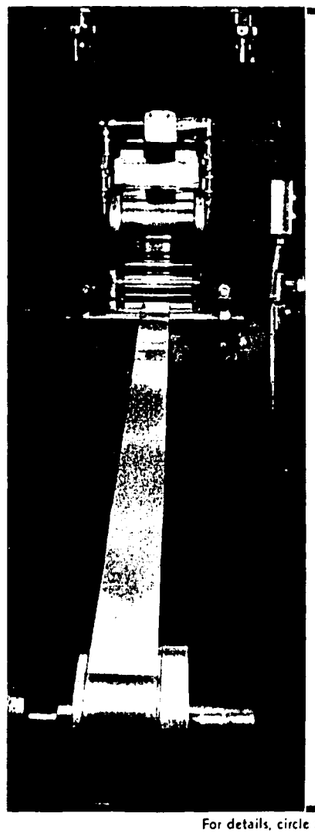
Germanium	Antimonides Arsenides	Selenides Sulphides	Tellurides and other	Intermetallic Compounds

HIGH PURITY ELEMENTS

Aluminum	Cesium	Lead	Rhenium	Tellurium
Antimony	Chromium	Magnesium	Rhodium	Thallium
Arsenic	Cobalt	Manganese	Rubidium	Thorium
Barium	Copper	Mercury	Ruthenium	Tin
Beryllium	Gallium	Molybdenum	Scandium	Titanium
Bismuth	Germanium	Nickel	Selenium	Tungsten
Boron	Hafnium	Osmium	Silver	Vanadium
Cadmium	Indium	Palladium	Sulphur	Zinc
Calcium	Iridium	Platinum	Tantalum	Zirconium
Cerium	Iron	Rare Earth Metals		Oxides and salts

UNITED MINERAL & CHEMICAL CORP., *Metals Division*
16 Hudson Street; New York 13, New York
BEekman 3-8870

For details, circle #723 on Reader Service Card



STANDARD METALS

Ultra precision metals featuring—

✓ Thin metal strip rolled to precision tolerances.

✓ Taper tubing used as cathode supports & general use.

✓ Precision waveguide tubing—coin silver and coin silver lined, aluminum, brass & special metals.

Let us quote to your engineering specifications

STANDARD Metals Corp.
North Attleboro, Mass.

See us at the IRE Show!

For details, circle #724 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

The BEST SOLUBLE PRECIOUS METALS for ELECTROPLATING

TECHNIC, INC
PRODUCTS OF RESEARCH

OROTHERM HT . . . Heat resistant 24Kt Acid Bright Gold, extremely low porosity, hard and ductile.

OROSENE 999 . . . 24Kt Acid Bright Gold, tight grain, superior throwing and leveling power.

OROMERSE . . . A neutral Immersion Gold. Plates direct on copper, brass, nickel, iron, lead and solder.

HG BRIGHT GOLD . . . 23+Kt Low Stress, Hard and Bright operates at room temperature, without free cyanide.

INDUSTRIAL 24KT GOLD . . . Ultra Pure Aqueous Potassium Gold Cyanide for soft stressless pure gold electroplates.

RHENIUM-A . . . Highest melting point of any platable metal, very low arc erosion, fair electrical conductivity and very stable contact resistance.

RHODIUM SULPHATE T.P. . . . For High Purity, Low Stress fine grain Rhodium electroplating.

PLATINUM T.P. . . . The first practical bright hard and pore-free platinum plating bath.

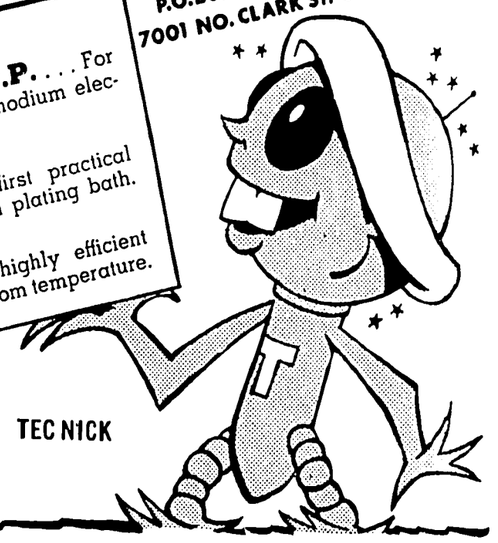
PALLADIUM R.T. . . . A highly efficient soluble Palladium for plating at room temperature.

Information on these products, or on any problem involving the electrodeposition of precious metals, are available without obligation.

Write, wire, phone or TWX.

Technic inc ST 1-6100

P.O. BOX 965 PROVIDENCE, 1 R.I.
7001 NO. CLARK ST. CHICAGO 26 ILL.



TEC NICK

For details, circle #725 on Reader Service Card

Directory III. Materials & Services

104. Metals.

Steel Heddle Mfg. Co., Pa., 15c, 25c, 30c, 45c

Stelco, Inc., N.J., 60c

Stich Chemicals, Inc., N.Y., Mercury c

Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 40s, 65s, 70s

Sylvania Electric Products Inc., Chemical & Metallurgical Div., Pa., 5s, 40s, 55 Pressed & Sintered s, 70s

Technic, Inc., P.O. Box 965, Providence 1, R.I., 60sc, Tel: 401-ST 1-6100
See ad in this class

Temped Steel Co., Ill., 25 Magnetic-Laminations sc

Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 5c, 15c, 30c, 40c, 45c, 60c, 65c, Clad c, Tel: 214-ADams 5-3111
See ad on Cover 3

Titan Metal Mfg. Co., Div. of Cerro Corp., Pa., 45c

Trancoa Chemical Corp., Mass., Thermoelectric sc

Tricon Mfg. Co., Ill., 60c

Union Carbide Corp., Linde Co. (Div.), N.Y., 55sc, 70s

Union Carbide Corp., Union Carbide Metals Co. (Div), N.Y., 5s, 10s, 45s, 65s, 70s

United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 10c, 15c, 20c, 30c, 35c, 45c, 55c, 60c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104

U.S. Magnet & Alloy Corp., Dept. 62, 266 Glenwood Ave., Bloomfield, N.J., 5c, 25c, Tel: 201-PIlgrim 3-1222
See ad in class 64

United States Steel Corp., Pa., 5sc, 25sc

Vacuum Technology, Inc., Calif., 40c, 65c, 70c

Var-Lac-Oid Chemical Co., N.Y., 5c, 10c, 20c, 30c, 35c, 40c, 50c, 55c, 60c, 65c, 70c

Vitro Chemical Co., N.Y., 20sc

Wallingford Steel Co., Conn., 5c, 30c

Waterbury Rolling Mills, Inc., Conn., 5 Copper c

Wellington Electronics, Inc., N.J., 30 Aluminum sc

Werner Co., Inc. (R. D.), Pa., 45sc

Western Gold & Platinum Co., Calif., 30c, 35c, 55c, 60c

Westinghouse Electric Corp., Lamp Div., N.J., 40sc, 70sc

Westinghouse Electric Corp., Materials Mfg. Dept., Pa., 5sc, 10c, 40sc, 55c, 65c, 70sc

Wildberg Bros. Smelting & Refining Co., Calif., 60c

Wilkinson Co., Calif., 5c, 35c, 40c, 55c, 60c

Williams & Co. (C. K.), Pa., 50s

Williams Gold Refining Co., Inc., N.Y., 5sc, 30sc, 60sc

Zirconium Corp. of America, Ohio, 50sc

Mica:
See class 101

Microwave absorbers:
See class 103

Microwave hardware:
See class 66

Mirrors:
See class 97

Molders:
See class 96

Molding compounds:
See class 94

Molding machinery:
See class 99

Moldings, plastic:
See class 106

Mounts, vibration:
See class 89

Nameplates:
See class 97

Nuts:
See class 97

Optical inspection equipment:
See class 14

Ovens:
See class 98

Ovens, crystal:
See class 56

Oxides:
See class 104

Packaging materials:
See class 97

Packaging services:
See class 109

Panels:
See class 90

Panels, electroluminescent:
See class 63

Paper materials:
See classes 97, 101 & 112

Complete addresses are supplied in the product sections of this directory for those firms who have placed advertisements in this issue. For addresses and phone numbers of non-advertisers, see the Alphabetical Directory, pages 81-226.

105. Parts, Tube & Semiconductor.

5. Anodes
10. Bases
15. Caps
20. Cathode tubing
25. Clamps
30. Envelopes, ceramic
35. Envelopes, glass
40. Envelopes, metal
45. Getters
50. Grids & grid-wire
55. Guns & gun-parts
60. Heat sinks & dissipators
65. Leads, wire
70. Phosphors
75. Pins & prongs
80. Shaft-locks
85. Spacers & insulators
90. Stampings
95. Shields

AMP, Inc., Capitron Div., Pa., 65 High Voltage c

A. & S. Lead Wire Corp., N.J., 65c

Abbott Screw & Mfg. Co., Ill., 75s, 90sc

Ace Spring Mfg. Co., Inc., N.Y., 90c

Acme Model Engineering Co., N.Y., 15c, 90c

Advanced Vacuum Products, Inc., Subsid. of Glass-Tite Industries, Inc., Conn., 30c

Aircraft & Electronic Specialties, Ind., 65c

Allied Plastics Supply Corp., N.Y., 85c

Alloys Unlimited, Inc., N.Y., 10sc, 35sc, 40sc, 90sc

Amatom Electronic Hardware Co., Inc., N.Y., 80sc, 85sc, 90sc, 95sc

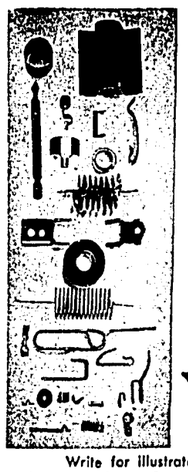
American Feldmuehle Corp., N.Y., 85c

Priced Right! WIRE FORMS
& Metal Stampings

STRAIGHTENING & CUTTING
Perfect straight lengths to 12 ft.
.0015 to .125 diameter

WIRE FORMS
.0015 to .125 diameter

SMALL METAL STAMPINGS
.0025 to .035 thickness—.062 to 3 inches wide



High-speed, quality production with custom-made precision. Wire formed to any shape for every need.

Specializing in Production of Parts for Electronic and Cathode Ray Tubes, and Transistors.

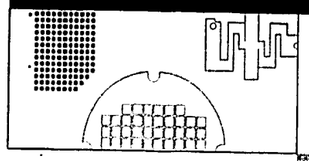
Write for illustrated folder,
Send Blueprints or Samples for Estimate.

ART WIRE & STAMPING CO.
21 BOYDEN PLACE NEWARK 2, N.J.
For details, circle #726 on Reader Service Card

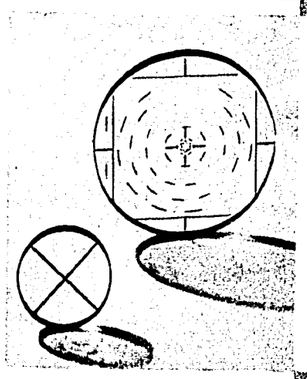
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

BUCKBEE MEARS

PHOTO-MECHANICAL REPRODUCTION to tolerances of ±.000039



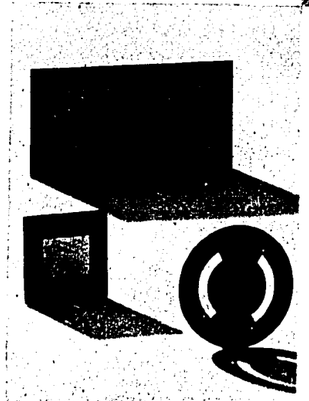
Anything that can be drawn in line can be reproduced on glass or in metal. Sizes up to 20 feet have been produced to tolerances of ±.015. Small quantities are practical at moderate cost because no dies are required.



GLASS ETCHING DATA

Calibrated dials, straight and cross line rulings, scales, special purpose reticles and prisms suggest a few of the items produced. Glass may be coated or lines filled permanently with a choice of compounds.

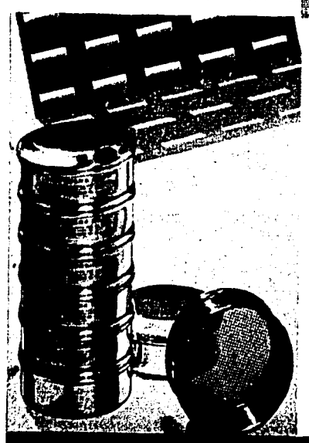
DESIGN VERSATILITY	GLASS TYPES	LINEAR & ANGULAR TOLERANCES	LINE WIDTH TOLERANCES	FILLING MEDIA
Fire Control Reticles	Polished Ordinary Plate	Up to 3" ±.0001	.0005 to .001 ±.0001	Titanium Dioxide
Test Fixture Reticles	Water White Plate	Up to 6" ±.0005	.001 to .002 ±.0002	Ferric Oxide Red
Concave or Convex Reticles	Optical Crown	Up to 12" ±.002	.002 to .005 ±.0004	Ferric Oxide Black
Reticles for Guidance Systems Resolution Targets	Boro-Silicate Crown	Up to 24" ±.004	.005 to .010 ±.0005	Ferric Oxide Yellow
Calibrated Dials	Baryta Flint	Angles ±0° 0' 30"	.010 to .050 ±.001	Conductive Metallic Silver
Light Chopper Disks	Pyrex			



METAL ETCHING DATA

Etching does not change the molecular structure, leaves no burrs to remove. Round, square, oval or slotted holes may be etched. Patterns are etched through metal of these thicknesses: Copper to .030, nickel and alloys to .020, stainless steel to .025, molybdenum to .008. Surface etching on any thickness.

DESIGNS AND TYPES	METALS	DIMENSIONAL TOLERANCES
Fire Control Reticles	Copper and Copper Alloys	Linear to 3" ±.0002
Reticles for Optical Instruments	Nickel and Nickel Alloys	Linear to 12" ±.001
Scales	Cupro Nickel	Linear to 24" ±.003
Calibrated Dials	Spring Steel	Angular ±0° 0' 30"
Reticles for Guidance Systems	Stainless Steel	Line Widths to .002 ±.0001
Micro Component Parts for Control Systems	Aluminum	Line Widths to .005 ±.0005
Curved Surface Etched Parts	Cold Rolled Steel	Line Widths to .010 ±.001
Cylindrical Surface Etching	Molybdenum	Line Widths over .010 15% of Metal Thickness
Mechanical Parts Too Complicated for Die Stamping	Tungsten, Lead, Inconel	



ELECTRO FORMED MESH DATA

Evaporation masks for mesa transistors in miniature and subminiature sizes. Micro mesh sieves and screens are standard production. For all work a special ruling engine draws up to 2,000 lines per inch (straight or cross line, calibrated dials, scales and reticles), to linear and concentric circle accuracies of ±.000039.

MESH LINES PER INCH	SIZE In INCHES	MESH LINES PER INCH	SIZE In INCHES
1,000	4½ x 4½	120	4½ x 5
750	4⅛ x 4⅛	100	9 x 9⅛
500	5¼ x 5¼	100	6 x 6⅛
500	8 x 8	100	4½ x 4¼
400	8 x 8	100 x 30	13¾ x 16¼
300	8½ x 8½	80	11½ Dia
300	3¼ x 3¼	80	5⅛ x 5⅛
250	10 x 10	80	4 x 3⅞
250	9½ x 9½	50	4¼ x 4½
200	10 x 11	50	6 x 5⅞
200	5 x 5	40	5⅞ x 5⅞
200 x 60	2½ x 3¼	40	4¼ x 4¼
150 H.T.	14¼ x 16⅛	20	4¼ x 4¼
120	6½ x 6⅞	5	6 x 5⅛
120	5 x 5		

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AUGAT

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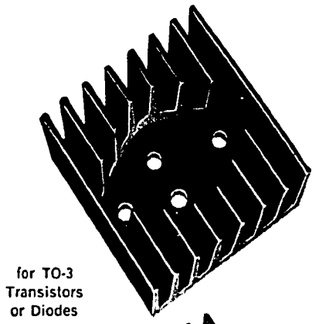
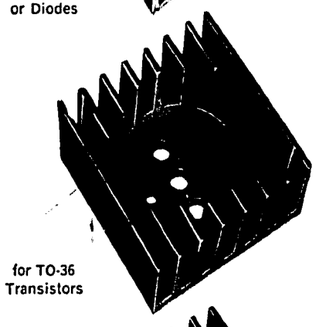
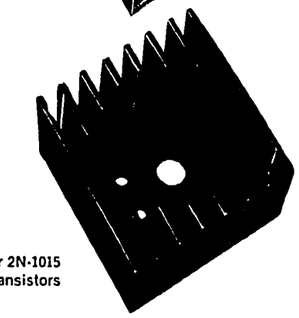


for TO-3 Transistors or Diodes



for TO-36 Transistors



for 2N-1015 Transistors

Augat's new Heat Dissipators utilize a minimum of space and still offer the large radiating surfaces needed for maximum transfer of heat. All Augat dissipators feature a parallel, open-fin construction assuring low thermal resistance. They are readily adaptable to forced air cooling for even lower resistance.

Augat Heat Dissipators are manufactured in three styles to accommodate the TO-3, TO-36 and 2N-1015 transistors or their equivalent.

Write for Bulletin No. HD-261 which describes this new line in full detail.

AUGAT BROS., INC.

33 Perry Avenue, Attleboro, Mass.

For details, circle #729 on Reader Service Card

Directory III. Materials & Services

105. Parts, Tube & Semiconductor.

American Lava Corp., Subsid. of Minnesota Mining & Mfg. Co., Cherokee & Manufacturers Rd., Chattanooga 5, Tenn., 30c, 85c, Tel: 615-AMherst 5-3411
See ad on page 98

Anchor Metal Co., Inc., N.Y., 10c, 65c, 90c

Anton Machine Works, N.Y., 5c, 10c, 15c, 20c, 50c, 90c

Apex Electronics, Inc., N.J., 55sc

Art Wire & Stamping Co., 21 Boyden Pl., Newark 2, N.J., 5c, 55c, 65c, 75c, 85c, 90c, Tel: 201-HUmboldt 4-2100
See ad in this class

Artos Engineering Co., Wis., 65c

Associated Engineering & Mfg. Corp., N.J., 10s, 55s, 65s

Astro Dynamics, Inc., Mass., 60sc

Atlee Corp., Atlas Div., Mass., 25sc, 60sc, 95sc

Auburn Mfg. Co., Conn., 85c, 90c

Augat Brothers, Inc., 33 Perry Ave., Attleboro, Mass., 25s, 60s, Tel: 617-CAstle 2-2202
See ad in this class

Auto-Swage Products, Inc., Conn., 75s

Bead Chain Mfg. Co., 11 Mountain Grove St., Bridgeport 5, Conn., 75s, Tel: 203-EDison 4-4124
See ad in class 97

Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 85s, Tel: 212-WOrth 6-5611
See ad in class 91

Birtcher Corp., Industrial Div., Calif., 25s, 60s, 95s

Blinn Co. (Delbert), Calif., 60s

Braun-Knecht-Heimann Co., Calif., 35c

Braun Tool & Instrument Co., Inc., 143 Fifth Ave., Hawthorne, N.J., 60c, 90sc, 95sc, Tel: 201-HAwthorne 7-1773
See ad in class 78

Brooks & Perkins, Inc., Mich., 90c

Buckbee Mears Co., 245 E. Sixth St., Saint Paul 1, Minn., 50c, 90 Evaporation-Masks sc, Tel: 612-CApital 7-7361
See ad in this class

Bud Radio, Inc., 2118 E. 55th St., Cleveland 3, Ohio, 15s, 60s, Tel: 216-HEnderson 1-7166
See ad in class 90

CFI Corp., Dept. IRE, Cottage Place, Mineola, L.I., N.Y., 30c, 60sc, 85sc, Tel: 516-PIoneer 6-0571
See ad in class 92

C-M Mfg. & Machine Co., Inc., N.J., 50c, 65c, 90c

Cadre Industries Corp., N.Y., 65c

Carborundum Co., Refractories Div., N.J., 30c, 85sc

Carroll Pressed Metal, Inc., Mass., 90c

Ceramaseal, Inc., N.Y., 30c, 85c

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

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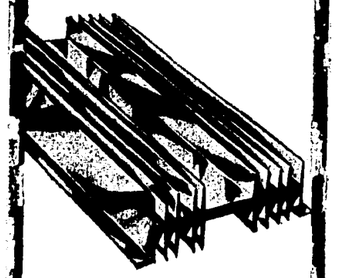

Transistors perform with maximum efficiency when mounted on Jasco Heat Sinks. Designed to bleed off the heat, as needed, Jasco Heat Sinks increase the reliability of your electronic gear... assure top performance of your product.
Within easy calling distance ... Jasco's staff of expert designers and engineers ... complete research and production facilities... fast service and delivery.

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Manufacturers of Irvin Auto Seat Belts
31 NASSAU TERMINAL ROAD
NEW HYDE PARK L I N Y
Floral Park 4-8607

For details, circle #730 on Reader Service Card

105. Parts, Tube & Semiconductor.

Ceramco, Inc., N.J., 30c
Chart-Pak, Inc., Mass., 50c

Cinch Mfg. Co., 1026 S. Homan Ave., Chicago 24, Ill., 75sc, 90sc, 95sc, Tel: 312-NEvada 2-2000
See ad on pages 64-65

Cohn Corp. (Sigmund), 121 S. Columbus Ave., Mount Vernon, N.Y., 50c, 65c, Tel: 914-MOunt Vernon 4-5300
See ad in class 91

Cole Instrument Co., Calif., 60c
Composite Industrial Metals, R.I., 40c, 90c

Consolidated Reactive Metals, Inc., 115 Hoyt Ave., Mamaroneck, N.Y., 50sc, 65c, 90c, Tel: 914-OWens 8-2300
See ad in class 91

Continental Electronics & Sound Co., Ohio, 60sc
Cool Fin Electronics Corp., Calif., 10s, 25s, 60s, 95s
Cooper & Sons, Inc. (Joseph B.), N.Y., 90c
Corning Glass Works, Electrical Products Div., N.Y., 15c, 20c, 35c
Cryogenerators, Inc., R.I., 15c, 90c
DKE Electronic Bases, Inc., N.J., 5c, 10c, 15c, 25c, 65c, 90c, 95c
Demuth Glass Works, Inc., W.Va., 35c
Dittmore-Freimuth Corp., Wis., 90c
Edwards High Vacuum (Canada), Ltd., Canada, 45s

Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif., 30c, 35c, 50sc, 55sc, 60sc, Tel: 415-LYtell 1-1451
See ad on pages 29-32

Elco Corp., Pa., 95s
Electro-Ceramics, Inc., Utah, 30c
Electro Radiation, Inc., Calif., 70c

Electronic Manufacturing Co., 670-72 S. 17th St., Newark, N.J., 10sc, 65sc, Tel: 201-ESsex 4-7600
See ad in this class

Electronic Metals & Alloys, Inc., Mass., 5sc, 45sc, 50sc, 55c, 60c, 65c, 90sc, 95c
Electronic Parts Mfg. Co., Inc., N.J., 65c, 90c
Elliott-Automation, Ltd., England, 55sc
Ellisco, Inc., Pa., 90c
Engelhard Industries, Inc., American Platinum & Silver Div., N.J., 90c
Engelhard Industries, Inc., Amersil Quartz Div., N.J., 30c, 85c
Engelhard Industries, Inc., Makepeace Div., Mass., 5c, 20c, 50c, 65c
Epoxy Products, Div. of Joseph Waldman & Sons, N.J., 60c, 75c

Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa., 65c, 90c, Tel: 814-GLendale 6-8592
See ad on pages 78-79

Eugene Engineering Co., Inc., 1217 Hyde Park Ave., Hyde Park 36, Mass., 60sc, Tel: 617-EMpire 1-7000
See ads in classes 96, 105

Fairfield Controls, Inc., Conn., 60 Rectifier c
Fansteel Metallurgical Corp., Ill., 5s, 10s, 15s, 20c, 45c, 50c, 60c, 65c, 85c, 90c, 95c
Faradyne Electronics Corp., N.J., 65sc
Federal Electronic Products, Inc., N.J., 55sc, 65sc, 75sc

Federal Tool Engineering Co., 1400 Pompton Ave., Cedar Grove, N.J., 55sc, 90sc, Tel: 201-CLifford 6-5300
See ad in class 99

Federal Tool & Mfg. Co., Minn., 90c
Ford Radio & Mica Corp., N.Y., 85sc, 90sc
Fox Products Co., Pa., 85c, 90c
Freeway Washer & Stamping Co., Ohio, 90c
Garlock, Inc., Garlock Electronic Products, N.J., 85sc
Gemex Precision Metals, Inc., N.J., 10c, 15c, 25c, 40c, 50c, 55c, 75c, 80c, 85c, 90c, 95c
General Electric Co., Lamp Metals & Components Dept., Ohio, 10sc, 45s, 50s, 65sc, 70s, 90sc
General Electric Co., Precision Parts Section, N.J., 5c, 20c, 90c, 95c
General Electric Co., Receiving Tube Dept., Ky., 5c
General Findings, Inc., Industrial Div., Mass., 90c
George Products Co., Inc., N.J., 90c
Getters Electronics, Inc., N.Y., 45s
Gleason-Avery, Inc., N.Y., 90c
Griffiths Electronics, Inc., N.J., 10s
Groov-Pin Corp., N.J., 75c

Handy & Harman, 850 Third Ave., New York 22, N.Y., 5c, Tel: 212-PLaza 2-3400
See ad in class 104

Harwood Electronics Co., Ill., 90sc
Hermaseal Co., Inc., Ind., 10c
Hi-Grade Alloy Corp., Ill., 5c
Hobson Bros., Inc., Ill., 15sc

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- Tungsten Lead Wires, Hard Glass
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NEWARK, N.J.
ESSEX 4-7600

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Directory III. Materials & Services

105. Parts, Tube & Semiconductor.

Holub Industries, Inc., Ill., 25s
Howard Precision, Inc., N.J., 10sc, 15sc, 40c, 90c
Hunter Spring Co., Div. of American Machine & Metals, Inc., Pa., 25c, 90c
Hunter Tool Co., Calif., 60c
IE Mfg., Ill., 25sc, 75sc, 90sc
Industrial Mica Corp., N.J., 85c
Insulation Products Co., Pa., 85c
International Electronic Research Corp., IERC Div., Calif., 25s, 60s, 95s
International Powder Metallurgy Co., Inc., Pa., 85c
International Telephone & Telegraph Corp., ITT Labs., Components & Instrumentation Laboratory, Ind., 55c, 70c
Ippolito & Co., Inc. (James), N.Y., 60c, 80sc, 90sc

Isolantite Mfg. Corp., 337 Warren Ave., Stirling, N.J., 10sc, Tel: 201-CRestview 7-3737
See ad in class 92

Jan Hardware Mfg. Co., Inc., N.Y., 60s, 90sc, 95sc

Jasco Aluminum Products, 31 Nassau Terminal Rd., New Hyde Park, L.I., N.Y., 60sc, 90c, Tel: 516-FLoral Park 4-8607
See ads in this class

Jet Electronics Corp., Calif., 55c

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Our Design Services available to you almost immediately through our unique Air Taxi Team.

EUGENE Engineering Co., Inc.
1217 Hyde Park Ave., Hyde Park 36, Mass.

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Jettron Products, Inc., N.J., 5sc, 60c, 90c
Johnson & Hoffman Mfg. Corp., N.Y., 5c, 15c, 20c, 50c, 55c, 90c
Jones Electronics (Hiram), Calif., 75s, 85s
Jones & Roy Co., Calif., 75c, 90c

Kahle Engineering Co., 3319 Hudson Ave., Union City, N.J., 35c, 65c, Tel: 201-UNion 7-6500
See ad in class 99

Kaman-Nuclear, Div. of Kaman Aircraft Corp., Colo., 55c
Kassel Industries, Inc., N.J., 35c, 45s
Kemet Co., Div. of Union Carbide Corp., Ohio, 45s, 50s
Kentucky Electronics, Inc., Ky., 50s, 90c
Kimble Glass Co., Subsid. of Owens-Illinois, Ohio, 35s
Kirchberger & Co., Inc., (M.), N.J., 15c
Kost Products Co., Inc., Ill., 25s
Lancaster Glass Corp., Ohio, 35c
Lee Spring Co., Div. of Leetronics, Inc., N.Y., 90c

Litton Enginering Laboratories, P.O. Box 949, Grass Valley, Calif., 30c, 90c, Tel: 916-273-6176
See ad in class 99

Litton Industries, Inc., Components Group, U.S. Engineering Co. Div., (USECO), Calif., 60sc, 80sc, 85sc, 95sc
Mackay, Inc. (A. D.), N.Y., 70s
Manger Electric Co., Inc., Conn., 65c
Mansol Ceramics Co., N.J., 55sc
Marine View Electronics, Inc., N.Y., 65c, 85c, 90c
Master Mechanics Mfg. Co., Inc., N.Y., 90c
Materials for Electronics, Inc., N.Y., 30s, 45sc, 70s, 85sc
Mattatuck Mfg. Co., Conn., 15c, 75c, 90c, 95c
Metallic Arts of New England, Inc., Mass., 95c
Micacraft Products, Inc., N.J., 40c, 85c
Minerals & Insulation Co., N.J., 85s
Mirro Aluminum Co., Wis., 90c, 95sc
Molecu-Wire Corp., N.J., 50c
Mueller Brass Co., Mich., 10c, 60c
Murray Plastics Co., N.Y., 85c

National Beryllia Corp., First & Haskell Aves., Haskell, N.J., 30c, 60sc, 85sc, Tel: 201-TEmple 9-1600
See ad in class 92

National Lead Co., Goldsmith Bros. Div., Ill., 5c
National Radio Co., Inc., Mass., 15s, 25s, 80s

National Tel-Tronics Corp., 52 Saint Casimir Ave., Yonkers, N.Y., 10c, 85c, Tel: 914-YOnkers 8-6400
See ad in class 62

National Video Corp., Ill., 55s
Nippert Electric Products Co., Ohio, 10sc

Noesting Pin Ticket Co., Inc., 732 E. 136th St., New York 54, N.Y., 65c, Tel: 212-MO 9-6465
See ad in this class

Norrich Plastics Corp., N.Y., 10c, 15c, 75c
North America Electronics, Ala., 10c
Olympic Plastics Co., Inc., Calif., 25s
Owens-Illinois Glass Co., Ohio, 10sc, 35sc
Pabst Engineering Equipment Co., Inc., N.J., 55c, 90c
Paramount Products Co., Inc., N.J., 90c
Pek Laboratories, Inc., Calif., 5sc, 35sc, 45c, 55c
Penn Engineering & Mfg. Corp., Pa., 85s
Penn Fibre & Specialty Co., Inc., Pa., 85c, 90c

Perfection Mica Co., Magnetic Shield Div., 1322 N. Elston Ave., Chicago 22, Ill., 95sc, Tel: 312-EVerglade 4-2122
See ad in class 103

Perrott Engineering Laboratories, Inc., Subsid. of Federated Electronics, Inc., Va., 50c
Philco Corp., Lansdale Div., Pa., 55sc
Philips Elmet Corp., Subsid. of North American Philips Co., Inc., Me., 5c, 10c, 50sc, 65c, 90c, 95c
Philips Metalonics, Div. of Philips Electronics & Pharmaceutical Industries Corp., N.Y., 55 Dispenser-Cathodes c
Pix Mfg. Co., N.J., 65c, 90c
Plastronic Engineering Co., Mass., 10c

TERMINAL LEADS
for
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- capacitors
- transistors
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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Pyrocircuits Div., Microtron, Inc., 6 Manhasset Ave., Port Washington, L.I., N.Y., 10c, 20c, 30c, 35c, Tel: 516-POrt Washington 7-3949
See ad in class 50

R.I. Metpro, Inc., R.I., 15c, 90c
Radio Corp. of America, RCA Electron Tube Div., N.J., 5s, 15s, 30s, 45s, 50s, 55s, 70s, 85s
Raychem Corp., Calif., 15 Shrinkable sc
Remler Co., Calif., 25s
Resinite Corp., Ill., 85c
Richfield Coined Products Co., N.J., 60sc, 90sc
Rimak Electronics, Inc., Calif., 60sc, 80sc, 90c, 95c
Romac Products Co., N.Y., 5c, 10c, 15c, 25c, 30c, 35c, 40c, 45c, 50c, 55c, 90c, 95c
Ronson Metals Corp., Cerium Metals & Alloys Div., N.J., 45s
Ross Co. (Milton), Pa., 5c, 10c, 15c, 45c, 50c, 60c, 75c, 90c
Sampson Chemical & Pigment Corp., Ill., 70sc
Samuel & Co., Inc. (J. A.), N.Y., 65s
Santa Barbara Research Center, Subsid. of Hughes Aircraft Co., Calif., 35c, 40c
Schuyler Mfg. Corp., N.J., 60sc
Scientific Electronic Laboratories, Inc., N.J., 10s, 35s
Semi-Alloys, Inc., N.Y., 5c, 10c, 15c, 40c, 50c, 65c, 75c, 85c, 90sc
Semi-Elements, Inc., Pa., 70s
Semicon of California, Inc., Calif., 30c, 55c
Shaw Instrument Corp., Pa., 30c
Sheridan-Gray, Inc., Calif., 90c
Stanley-Humason, Inc., Conn., 65c, 75c, 85c, 90c
Staver Co., Inc., N.Y., 15sc, 25c, 50c, 55c, 60c, 85c, 90c, 95sc
Stelon, Inc., N.J., 75c, 85c
Superior Electronics Corp., 208-212 Piaget Ave., Clifton, N.J., 55sc, Tel: 201-772-2500
See ad in this class
Superior Steatite & Ceramic Corp., 89 W. Forest Ave., Englewood, N.J., 15c, Tel: 201-LOwell 8-4555
See ad in class 92
Superior Tube Co., Pa., 5c, 20c
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 10sc, 50sc, 55s, 65s, 70s, 75s, 85s, 90s, 95s
Sylvania Electric Products Inc., Chemical & Metallurgical Div., Pa., 70s
Sylvania Electric Products Inc., Electronic Tubes Div., N.Y., 55s
Textron, Inc., Sheffco Mfg. Corp. (Div. of Townsend Co.), N.J., 10c, 60c, 65c, 90c
Thermolloy Co., Texas, 60sc
Thomas & Sons, Inc. (William), N.J., 90c
Thomson-Houston (Compagnie Francaise), Groupe Electronique, France, 5s, 10s, 15s, 20s, 30s, 35s, 40s, 45s, 55s
Thor Ceramics, Inc., N.J., 10c, 85sc, 90sc
Torrington Co., Conn., 65c, 75c, 85c, 90c
Trionics Corp., Div. of Nautec Corp., Wis., 30c, 45c
Trought Associates, Inc., N.J., 60s
Union Carbide Corp., Linde Co. (Div.), N.Y., 45s
United-Carr Fastener Corp., Carr Fastener Co. (Div.), Mass., 10c, 15c, 90c
United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 15c, 35c, 85c, 90c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104
U.S. Dielectric Products, Inc., Mass., 15 Synthetic c
United States Radium Corp., N.J., 70sc
U.S. Stoneware Co., Alite Div., Ohio, 30c
Universal Mfg. Co., Inc., N.J., 90c
Vacuum Technology, Inc., Calif., 10c, 90c
Vector Electronic Co., Inc., 1100 Flower St., Glendale 1, Calif., 10s, Tel: 213-CHapman 5-1076
See ad in class 50
Vemaline Products Co., N.J., 25sc, 60sc
Vitro Electronics, Div. of Vitro Corp. of America, Md., 95 Miniature s
Volkert Stampings, Inc., N.Y., 55sc, 90sc
Voltarc Tubes, Inc., Conn., 20c, 70c
Wakefield Engineering, Inc., Mass., 60c
Western Gold & Platinum Co., Calif., 30c, 50c, 60c
Westinghouse Electric Corp., Electronic Tube Div., N.Y., 5s, 10s, 15s, 50s, 55s
Westinghouse Electric Corp., Lamp Div., N.J., 10sc, 50sc, 65sc
Westrex Co., Div. of Litton Systems, Inc., 540 W. 58th St., New York 19, N.Y., 25s, Tel: 212-JUdson 2-3030
See ad on page 224
Whitehead Stamping Co., Mich., 25c, 90c
Wilmad Glass Co., Inc., N.J., 35c
York Research Corp., Kip Electronics Div., Conn., 35c, 50c

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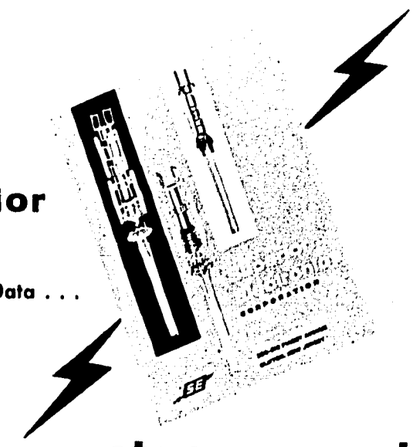

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at your request

A 34-page color catalog of electron guns for all types of cathode ray tubes is available. Included is a cross reference chart specifying the correct gun mounts for tubes of domestic and foreign manufacture.

Superior Electronics Corporation
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For details, circle #734 on Reader Service Card

Phosphors:
See class 105

Pilot-run plants:
See class 96

Pins & prongs:
See class 105

Plastic fabricators & molders:
See class 96

Plastic materials:
See classes 101, 107 & 112

106. Plastic Moldings.

5. Bobbins
10. Insulators
15. Knobs
20. Proprietary moldings

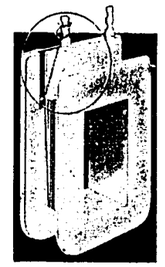
A C Electronics, Inc., Calif., 20s
Acor, Inc., Calif., 10c
Akro-Mils, Inc., Ohio, 20s
Allied Plastics Supply Corp., N.Y., 10c, 15c
Amatom Electronic Hardware Co., Inc., N.Y., 15c
Amerconda Chemical Co., N.Y., 10s, 15s, 20s
American Agile Corp., Ohio, 20s

Directory III. Materials & Services

106. Plastic Moldings.

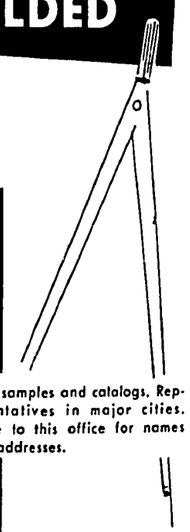
American Molded Products Co., 2721 W. Chicago Ave., Chicago 22, Ill., 5s, 20s, Tel: 312-ARmitage 6-3235
See ad in this class
Anchor Plastics Co., Inc., N.Y., 10c
Astatic Corp., Ohio, 20s
Audiosears Corp., N.Y., 5s
Bach-Simpson, Ltd., Canada, 20s
Belelere Co., Ltd., England, 5sc, 10c
Biggs Co., Inc. (Carl H.), Calif., 20s
Blinn Co. (Delbert), Calif., 10 Mica s, 15s, 20s
Bodnar Products Corp., 238 Huguenot St., New Rochelle 7, N.Y., 15c, Tel: 914-NEw Rochelle 6-4664
See ad in class 90
Bolsey Corp. of America, N.Y., 5sc, 10sc, 15sc
Bonny Mfg. Corp., Mass., 5c, 10c
Boonton Molding Corp., N.J., 5c, 10c, 15c
Borden Chemical Co., Resinite Dept., Mass., 20s
Brilhart Electronics Corp., N.Y., 5c, 10c, 15c
CBC Electronics Co., Inc., Pa., 5c, 10c, 15c
Caddell-Burns Mfg. Co., Inc., N.Y., 5s
Chemtronics, Inc., N.Y., 10sc
Chicago Gasket Co., Ill., 5c, 10c
Clear Beam Antenna Corp., Calif., 10s
Collectron Corp., 304 E. 45th St., New York 17, N.Y., 5c, 10c, 15c, Tel: 212-MUrray Hill 9-7120
See ad in class 80
Components for Research, Inc., Calif., 10sc, 20s
Continental-Diamond Fibre Corp., Del., 10c
Cosmo Plastics Co., Ohio, 5sc, 10sc, 20s
Davies Molding Co. (Harry), Ill., 5c, 10c, 15sc, 20s
Davis Plastics Co. (Joseph), N.J., 20s
Deutsch Co., Electronic Components Div., Calif., 20s
Dimco-Gray Co., 212 E. Sixth St., Dayton 2, Ohio, 15sc, Tel: 513-BAldwin 2-6703
See ad in class 97
Dimick Mfg. Co., Ore., 5c, 10c, 15c, 20s
Dittmore-Freimuth Corp., Wis., 15c
Dixon Corp., R.I., 5c, 10c
Electro Assemblies, Inc., Ill., 5s
Electronic Plastics Corp., Mass., 5c, 10c, 15c
Elliott-Automation, Ltd., England, 20s
Elna Ferrite Laboratory, Inc., N.Y., 5s
Emeloid Co., Inc., Subsid. of Addressograph-Multigraph Corp., N.J., 5c, 15c
Empire Precision Metal Parts, N.Y., 5c, 10c, 15c
Enflo Corp., N.J., 20s
Epoxy Products, Div. of Joseph Waldman & Sons, N.J., 5c, 10c, 20s
Erwood, Inc., Ill., 5c, 10c, 15c
Fawn Plastics Co., Inc., Md., 5c, 10c, 15c
Fluorulon Laboratories, Inc., N.J., 5c, 20s
Form-It Products, Inc., Ill., 5sc, 10sc, 20s
Fortiphone, Ltd., Components & Transformer Divs., England, 5sc
Fourjay Industries, Ohio, 20s
Garde Mfg. Co., R.I., 5sc, 10sc
Garlock, Inc., Garlock Electronic Products, N.J., 10c, 15c
General Motors Corp., Packard Electric Div., Ohio, 10sc
General Radio Co., 22 Baker Ave., West Concord, Mass., 15s, Tel: 617-EMerson 9-4400
See ad on Cover 4
Globe Electrical Mfg. Co., Calif., 15s, 20s
Gries Reproducer Corp., 168 Beechwood Ave., New Rochelle, N.Y., 5sc, 10sc, 20s, Tel: 914-NEw Rochelle 3-8600
See ad in class 97
Haveg Industries, Inc., Del., 5c, 10c, 15c, 20s
Haveg Industries, Inc., Taunton Div., Mass., 10c, Sealing Caps & Tubes c
Hellermann Canada, Ltd., Canada, 10s, 20s
Hitachi New York, Ltd., N.Y., 5c, 10c
Hydro Molding Co., Inc., N.Y., 5sc, 10sc, 15sc, 20s
Industrial Devices, Inc., N.J., 10c, 15sc, 20s
Industrial Electronic Rubber Co., Ohio, 10c
Injection Plastic Corp., Ill., 15sc
Insulation Products Co., Pa., 5c, 10c, 15c
Isolantite Mfg. Corp., 337 Warren Ave., Stirling, N.J., 10c, Tel: 201-CRestview 7-3737
See ad in class 92
Jan Hardware Mfg. Co., Inc., N.Y., 15sc, 20s
Janco Corp., Calif., 15sc
Jodee Plastics, Inc., N.Y., 5c, 10c, 15c
Jones Electronics (Hiram), Calif., 10sc
Kelsey-Hayes Co., Mich., 10c
Kerreo, Inc., Nebr., 5c, 10c, 15c
Kirchberger & Co., Inc. (M.), N.J., 5c
Kuhn & Jacob Molding & Tool Co., N.J., 5c, 10c, 15c
Kurz-Kasch, Inc., Ohio, 5c, 10c, 15sc
Lawrence Adhesive & Chemical Co., Inc., Mass., 5c, 10c, 15c
Litton Industries, Inc., Components Group, U.S. Engineering Co. Div. (USECO), Calif., 20s
Lone Star Plastics Co., Inc., Texas, 10c, 15c
Lyn-Tron, Inc., Calif., 20s
Mallory & Co., Inc. (P. R.), Ind., 20s

NYLON—Bobbins & Coil Forms

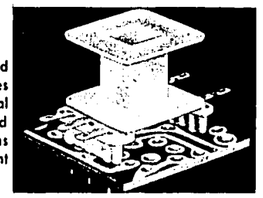


AMERICAN MOLDED

INSULATED LEAD SLOT
Automatically insulates lead and eliminates washers and taping. This revolutionary bobbin speeds up automatic winding.



PRINTED CIRCUIT TRANSFORMER BOBBIN
Complete with lugs, for printed circuit transformers. Eliminates cost and assembly of terminal board! The lugs are embedded in nylon for permanent locations especially designed to prevent wire breakage.



ONE PIECE COIL FORM
Complete with lugs, for printed circuit I. F. and oscillator coils. Integral construction, the tube and base cannot come apart—constant core torque . . . designed to prevent wire breakage.

FREE samples and catalogs. Representatives in major cities. Write to this office for names and addresses.

NO TOOL COST ON STOCK BOBBINS—SPECIAL BOBBINS TO YOUR SPECIFICATIONS

American Molded Products Company
2721 WEST CHICAGO AVENUE • CHICAGO 22, ILLINOIS

For details, circle #735 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

106. Plastic Moldings.

Marine View Electronics, Inc., N.Y., 15c
Marstan Electronics Corp., N.Y., 10c
Maryland Lava Co., Md., 5c
Massey, Inc. (A. H.), Conn., 20s
Mel-Rain Corp., Ind., 5c, 10c, 15c
Millen Mfg. Co., Inc. (James), 150 Exchange St., Malden 48, Mass., 15sc, 20s, Tel: 617-DAvenport 4-4108
See ad in class 51
Montek, Inc., Utah, 15sc, 20s
Muirhead & Co., Ltd., England, 15s
National Moldite Co., Inc., N.J., 5c
National Radio Co., Inc., Mass., 15s
Norrich Plastics Corp., N.Y., 5c, 10c, 15c
Northwest Plastics, Inc., Minn., 5c, 10c, 15c
Olympic Plastics Co., Inc., Calif., 15sc, 20s
Osborne Electronics Corp., Ore., 20s
Pacific Electricord Co., Calif., 20s
Panduit Corp., Ill., Duct sc
Parkway Specialties Co., Mich., 10s
Patent Button Co. of Tennessee, Inc., Tenn., 5c, 10c, 15c
Pearce-Simpson, Inc., Fla., 5c, 10c, 15c, 20s
Pee Wee Molding Corp., N.Y., 5c, 10c, 15c
Perrott Engineering Laboratories, Inc., Subsid. of Federated Electronics, Inc., Va., 15c
Photo Chemical Products, Inc., N.Y., 15c
Plasteck, Inc., Okla., 15sc, 20s
Plastronic Engineering Co., Mass., 5c, 15c, 20s
Polymer Corp., Pa., 10c
Pomona Electronics Co., Inc., Calif., 20s
Precision Paper Tube Co., 2062 W. Charleston St., Chicago 47, Ill., 5c, Tel: 312-ARmitage 6-5200
See ad in class 112
Quality Components, Inc., Pa., 5c, 10c, 20s
Raytheon Co., Industrial Components Div., Mass., 15sc
Remler Co., Calif., 15sc
Resdel Corp., N.J., 5sc, 10sc
Reynolds Industries, Inc., Calif., 10c, 15c
Rogan Brothers, Inc., 8009 N. Monticello, Skokie, Ill., 15s, Tel: 312-ORchard 5-1233
See ad in this class
Rogers Mfg. Co. (Dayton), Minn., 5c, 10c, 15c
Romar Plastics, Inc., Ill., 5c, 10c, 15sc, 20s
Ross Co. (Milton), Pa., 5sc, 10sc, 15sc, 20s
Saint Regis Paper Co., Panelyte Div., N.J., 15c, 20s
Saxton Products, Inc., 4320 Park Ave., New York 57, N.Y., 10s, 20s, Tel: 212-WEllington 3-6400
See ad in class 91
Shaw Insulator Co. & Shasta Mfg. Co., N.J., 5c, 10c, 15c
Silicone Insulation, Inc., N.Y., 5c, 10c
Sillcocks Miller Co., N.J., 15s
Smith, Inc. (Herman H.), Dept. 12, 2326 Nostrand Ave., Brooklyn 10, N.Y., 15s, Tel: 212-CLoverdale 3-7900
See ad in class 62
Space Products, Calif., 5sc, 20s
Stevens Products, Inc., N.J., 5c, 10c
Stratocon Corp., N.J., 15c
Superior Steatite & Ceramic Corp., 89 W. Forest Ave., Englewood, N.J., 5c, Tel: 201-LOwell 8-4555
See ad in class 92
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 15c, 20s
TV Development Corp., N.Y., 15sc
Tapeswitch Corp. of America, N.Y., 20s
Taylor Electric, Inc., Mich., Wiring-Ducts sc
Tech Art Plastics Co., N.J., 5c, 10c, 15c, 20s
Technology Instrument Corp., Mass., 15sc
Techtro-Matic Corp., Vt., 5c, 10c, 15c
Thermech Engineering Corp., Calif., 10c
Thor Ceramics, Inc., N.J., 5sc, 10sc, 20s
Trancoa Chemical Corp., Mass., 20s
Tri-Point Industries, Inc., N.Y., 10c
United-Carr Fastener Corp., Carr Fastener Co. (Div.), Mass., 15c
United Fabricators & Electronics, Inc., Minn., 5sc, 10c, 15c
United Mineral & Chemical Corp., 16 Hudson St., New York 13, N.Y., 10c, Tel: 212-BEekman 3-8870
See ads in classes 74, 104
United Products Co., N.J., 5c, 10sc
U.S. Dielectric Products, Inc., Mass., 10c, 20s
U.S. Electronics Corp., N.J., 5c, 10c
U.S. Precision Lens & Plastics, Inc., Ohio, 5c, 15c, Lenses & Windows c
United States Rubber Co., N.Y., 5s
Vector Electronic Co., Inc., 1100 Flower St., Glendale 1, Calif., 20s, Tel: 213-CHapman 5-1076
See ad in class 50
Wade Electric Products Co., Mich., 10c
Waldom Electronics, Inc., Ill., 15s
Warren Components Div., El-Tronics, Inc., Pa., 5c, 10c, 15c
Waterbury Companies, Inc., Conn., 5c, 10c, 15sc
Weckesser Co., Inc., 5713-17 Northwest Hwy., Chicago 46, Ill., 20s, Tel: 312-ROdney 3-6688
See ad in class 97
Wells Electronics Co., Ind., 15c, 20s
Western Coil & Electrical Co., Wis., 5c, 10c, 15c, Battery-Closures sc
Wilmington Fibre Specialty Co., Del., 10c
Winslow Co., Inc., N.J., 5s, 15s

For details, circle #736 on Reader Service Card

Plastic tubing:
See class 112

Use the Reader Service Card for further information on advertised products.

Directory III. Materials & Services

107. Plastics.

5. Extrusions
10. Film
15. Laminations
20. Powders, raw
25. Reinforced
30. Rods & tubing
35. Sheets

Ace Fabricators, Ill., 15c, 35s
Ace Plastics Co., N.Y., 5sc, 30 Balls sc
Acme Mfg. & Gasket Co., Pa., 35c
Acme Model Engineering Co., N.Y., 5c, 30c
Actioncraft Products, N.Y., 15c, 30s, 35s
Aero-Tech Products Co., N.J., 5c, 30c, 35c
Allied Chemical Corp., General Chemical Div., 40 Rector St., New York 6, N.Y., 10s, Tel: 212-HAnover 2-7300
See ad in class 94
Allied Plastics Supply Corp., N.Y., 5c, 10c, 15c, 25c, 30c, 35c
Alpha Wire Corp., Subsid. of Loral Electronics Corp., 200 Varick St., New York 14, N.Y., 30sc, Tel: 212-ALgonquin 5-5400
See ad in class 91
Amerconda Chemical Co., N.Y., 20s, 30sc, 35s
American Agile Corp., Ohio, 5c, 30s, 35s
American-Marietta Co. (Martin-Marietta Corp.), Adhesive, Resin & Chemical Div., Wash., 20s
American Printed Circuits Co., N.J., 15c, 25c, 35c
American Quartz Laboratories, Inc., N.Y., 15sc, 25sc, 30sc
Anchor Plastics Co., Inc., N.Y., 5c, 30c
Apex Coated Fabrics Co., Inc., N.Y., 5c, 10c, 15c
Arlin Mfg. Co., Mass., 5sc, 10sc, 15sc
Armstrong Resins, Inc., Ind., 20s
Arvey Corp., Ill., 15c
Associated Electrical Industries (Rugby), Ltd., England, 15s, 20s, 25s, 30s, 35s
Atkins & Merrill, Inc., Mass., 25c
Auburn Mfg. Co., Conn., 10c, 30c, 35c
Baer Co. (N. S.), N.J., 15s, 30s, 35s
Baker Chemical Co. (J. T.), N.J., 5s
Besteraft Products Co., Inc., N.Y., 15c
Biggs Co., Inc. (Carl H.), Calif., 15sc
Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 30sc, Tel: 212-WOrth 6-5611
See ad in class 91
Bischoff Chemical Corp., Riverside Plastics Div., N.Y., 10sc, 15c, 25c, 35c
Blinn Co. (Delbert), Calif., 5s
Blum & Co., Inc. (Julius), N.J., 30s, 35s
Bo Myte Co., Pa., 15sc
Bonny Mfg. Corp., Mass., 5c, 30c, 35c
Boonton Molding Corp., N.J., 30c, 35c
Borden Chemical Co., N.Y., 5sc
Borden Chemical Co., Resinite Dept., Mass., 5sc, 20sc
Brand-Rex Div. (William), American Enka Corp., Mass., 30sc
CTS Corp., 1142 W. Beardsley Ave., Elkhart, Ind., 15sc, Tel: 219-JAckson 3-0210
See ad on page 12
Cable Designs, Inc., N.Y., 10c, 30c
Carmer Industries, Inc., N.J., 5sc, 30sc, 35sc
Catalin Corp. of America, N.Y., 20s
Celanese Plastics Co., Div. of Celanese Corp. of America, N.J., 10s
Chase-Foster, Inc., R.I., 15sc, 25sc
Chemplast, Inc., N.J., 5sc, 10s, 25c, 30s, 35s
Chicago Gasket Co., Ill., 5sc, 30sc, 35s
Chu Associates, Mass., 25c
Clevite Corp., Clevite Ordnance Div., Ohio, 25c, 30c
Columbia Products Co., S.C., 30c
Comco Plastics, Inc., N.Y., 25c
Commercial Plastics Co., Ill., 5c
Commercial Plastics & Supply Corp., N.Y., 5s, 10s, 15s, 25s, 30s, 35s
Continental-Diamond Fibre Corp., Del., 15c, 25c, 30sc, 35sc
Cortland Industries, Inc., Ill., 15c, 30c, 35c
Crane Packing Co., Ill., 5c, 25c, 30s, 35s
Daniels, Inc. (C. R.), Md., 15sc
Davis Plastics Co. (Joseph), N.J., 5sc, 10sc, 15c, 20c, 30sc, 35sc
Dielectric Materials Co., Ill., 5sc, 30sc
Dilectrix Corp., N.Y., 10sc
Dixon Corp., R.I., 5s, 10s, 25s, 30s, 35s
Dodge Fibers Corp., John St., Hoosick Falls, N.Y., 5sc, 10sc, 15sc, 25sc, 30sc, 35sc, Tel: Hoosick Falls 1080
See ad in class 97
Dow Chemical Co., Mich., 10s, 20s
Dow Corning Corp., Mich., 20s
Driver-Harris Co., 201 Middlesex St., Harrison 24, N.J., 5sc, Tel: 201-HUmboldt 3-4800
See ad on page 131
DuPont de Nemours & Co., Inc. (E. I.), Del., 20s
DuPont de Nemours & Co., Inc. (E. I.), Fabrics & Finishes Dept., Ill., 15s
DuPont de Nemours & Co. (E. I.), Film Dept., Del., 10s, 35s
Dura Plastics of New York, Inc., N.Y., 30c, 35c
Durez Plastics Div., Hooker Chemical Corp., N.Y., 20s, 25s
Eastman Kodak Co., 343 State St., Rochester 4, N.Y., 10s, 35s, Tel: 716-LOcust 2-6000
See ad in class 17
Electric Storage Battery Co., Jessall Plastics Div., Conn., 5sc, 30sc
Electrical Insulation Co., Inc., N.Y., 15sc, 25sc, 30sc, 35sc
Electronic Mechanics, Inc., N.J., 25sc, 30sc, 35sc
Electronic Plastics Corp., Mass., 30sc, 35sc

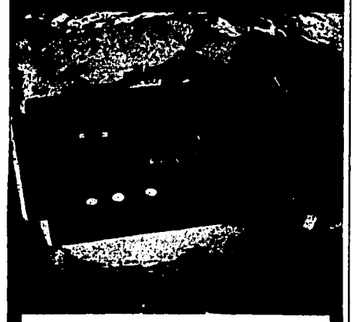
NEW..Sample File and Select-it Chart
HYGRADE
Fabric Base Sleevings
FLEXITE
Extrusions—Tubing & Tape
FLEXLEAD
High Temperature Wire & Cable
The new Sample File contains test lengths of 18 different HYGRADE and FLEXITE tubings arranged by temperature classifications, together with applicable specifications and data. Phone, write, or wire . . . you'll get one free, fast!
L. FRANK MARKEL & SONS
NORRISTOWN, PA.
Broadway 2-8960
MARKEL
SINCE 1922
For details, circle #737 on Reader Service Card

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

107. Plastics.

Emeloid Co., Inc., Subsid. of Addressograph-Multigraph Corp., N.J., 15c
Emerson & Cuming, Inc., Mass., 15s, 20s, 25s, 30s, 35s
Emerson Plastics Corp., N.Y., 5c, 15c, 25c, 30c, 35c
Emmco Plastics Corp., 68 Vine St., Everett 49, Mass., 30s, 35s, Tel: 617-DUnkirk 9-1660
See ad in class 81
Enflo Corp., N.J., 5sc, 10sc, 25sc, 30sc, 35sc
Epoxy Products, Div. of Joseph Waldman & Sons, N.J., 20s, 35s
Essex Wire Corp., Carolina Industrial Plastics Div., N.C., 5s, 30s
Ethylene Corp., N.J., 5s, 15s, 25s, 30s, 35s
Evra, Inc., Calif., 20s
FMC Corp., Dapon Dept., N.Y., 20s
Fairchild Stratos Corp., Md., 15sc, 25sc
Fiberite Corp., Minn., 20s, 25s
Fischer & Porter Co., Pa., 15c, 25c
Fisher & Crome, Pa., 15c, 30s, 35s
Flexrock Co., Pa., 5c, 30c, 35c
Fluorulon Laboratories, Inc., N.J., 5sc, 10sc, 25sc, 30sc, 35sc
Fluro Plastics, Inc., Pa., 5s, 30s, 35s
Formica Corp., Subsid. of American Cyanamid Co., Ohio, 15s, 25s, 30s, 35s
Fourjay Industries, Ohio. 25c
Franklin Fibre-Lamitex Corp., Del., 5c, 10s, 15sc, 30s, 35s
Furane Plastics, Inc., Calif., 30s, 35s

FREE BROCHURE OF SPAULDING COPPER CLAD GRADES



Complete specifications for Spaulding paper and glass base phenolic and epoxy copper clads. Send for your copy today.

SPAULDING FIBRE CO., INC.
310 WHEELER STREET
TONAWANDA, NEW YORK
5 PLANTS—31 BRANCHES

For details, circle #738 on Reader Service Card

Garlock, Inc., Garlock Electronic Products, N.J., 30s, 35s
General Aniline & Film Corp., Ansco Div., N.Y., 10sc
General Circuits, Inc., N.Y., 15s, 30s, 35s
General Electric Co., Chemical Materials Dept., Mass., 20s
General Electric Co., Laminated Products Dept., Ohio, 15s, 25s, 30s, 35s
General Gaskets, Inc., Conn., 10c, 35c
General Plastics Corp., N.J., 15c, 25c, 30c, 35c
Glaskyd, Inc., Ohio, 5sc, 25sc
Glasply Corp., N.Y., 25c
Glastic Corp., Ohio, 5sc, 15s, 25sc, 30s, 35s
Goodrich Industrial Products Co. (B. F.), Ohio, 5c, 10s, 30s, 35s
Goodyear Aircraft Corp., Arizona Div., Ariz., 15c, 25c
Graef Engineers, Inc., Calif., 5c, 30c, 35c
Hackensack Cable Corp., 127 Orchard St., Hackensack, N.J., 5s, Tel: 201-HUbbard 7-1100
See ad in class 91
Halogen Insulator & Seal Corp., Ill., 5sc, 30sc, 35s
Hastings Plastics, Inc., Calif., 10sc
Haveg Industries, Inc., Del., 5c, 15c, 25c
Hecht Rubber Co., Inc., Fla., 30c, 35s
Hellermann Canada, Ltd., Canada, 5s
Hercules Powder Co., Inc., Del., 20sc
Hermes Plastics, Inc., N.Y., 35s
Hitachi New York, Ltd., N.Y., 10c, 15c, 30c, 35c
Hoover Co., Ltd., Canada, 5c
Hysol Corp., N.Y., 30sc, 35sc
I. H. Mfg. Corp., N.Y., 5s, 15s
Illumitronic Engineering Corp., Calif., 5s, 10s, 15s, 25s, 30s, 35s
Industrial Plastic Fabricators, Inc., Mass., 30s, 35s
Isotopes Specialties Co., Calif., 20s
Jodee Plastics, Inc., N.Y., 5c, 15c, 30c, 35c
Johns-Manville, N.Y., 5s, 25s, 30s, 35s
Kassel Industries, Inc., N.J., 10sc
Kelsey-Hayes Co., Mich., 15c, 25c
Kerrco, Inc., Nebr., 25c
Kinn Electronics Corp., Md., 25c
Koch & Sons (H.), Calif., 25sc
Koppers Co., Inc., Pa., 10s, 20s
Laminair, Inc., Calif., 15c
Laminated Sheet Products Corp., Mass., 5sc, 10sc, 15sc, 30sc, 35sc
Lamtex Industries, Inc., N.Y., 5c, 15sc, 25sc, 30sc
Lone Star Plastics Co., Inc., Texas, 25c
Long, Inc. (Thomas J.), N.Y., 30c, 35c
Ludlow Corp., Plastics & Textile Products Divisions, Mass., 10sc, 15sc
Marine View Electronics, Inc., N.Y., 30c, 35c
Markel & Sons (L. Frank), School Lane, Norristown, Pa., 5sc, 30sc, Tel: 215-BRoadway 2-8960
See ad in this class
Maryland Lava Co., Md., 30c, 35c
Mereco Products Div., Metachem Resins Corp., R.I., 30c
Mesa Plastics Co., Calif., 20sc, 25sc, 30sc, 35sc
Metallic Plastics Corp., N.Y., 15sc, 25sc
Mica Corp., Calif., 15 Glass sc, 25sc, 35sc
Mica Fabricating Co., N.J., 30s, 35s
Micarta Fabricators, Inc., Ill., 15sc, 30sc, 35sc
Midwest Plastic Products Co., Ill., 35sc
Minerals & Insulation Co., N.J., 30s, 35s
Minnesota Mining & Mfg. Co., Electrical Products Div., Minn., 5c, 15c, 25c
Minnesota Mining & Mfg. Co., Mica Insulator Div., N.Y., 10sc, 15sc, 25sc, 30sc, 35sc
Minshall Organ & Electronics, Inc., Vt., 25sc
Monadnock Mills, Calif., 5s
Monsanto Chemical Co., Plastics Div., Mass., 20s
Murray Plastics Co., N.Y., 30c
Mycalex Corp. of America, 125A Clifton Blvd., Clifton, N.J., 30sc, 35sc, Tel: 201-PRescott 9-8866
See ad in class 101
Mystik Tape Products of California, Calif., 10s
National Vulcanized Fibre Co., Del., 5sc, 15sc, 25sc, 30sc, 35sc
Natvar Corp., N.J., 5sc, 10sc, 30sc, 35sc
Neal Feay Co., Calif., 15c
New England Laminates Co., Inc., Conn., 15sc, 25c, 35sc
New Hermes Engraving Machine Corp., 154 W. 14th St., New York 11, N.Y., 35s, Tel: 212-WAtkins 4-7373
See ad in class 99
New Jersey Wood Finishing Co., N.J., 5sc, 10sc
Newage Industries, Inc., Pa., 30s
Nopco Chemical Co., Plastics Div., N.J., 35 Foam s
Norrich Plastics Corp., N.Y., 30c, 35c
Northern Plastics Corp., Wis., 15sc, 25sc, 35sc
Ogilvie Press, Inc., N.Y., 10s
Oki & Willadsen, Ltd., Canada, 15s, 30s, 35s
Pac-Tron, Inc., Mass., 15sc, 25sc, 35sc
Pacific Electricord Co., Calif., 5sc
Penn Fibre & Specialty Co., Inc., Pa., 15sc, 30sc, 35sc
Permali, Inc., Pa., 15c, 25c, 30s, 35c
Plasteck, Inc., Okla., 15sc
Plastronic Engineering Co., Mass., 5c
Polymer Corp., Pa., 5sc, 10sc, 20s, 30sc, 35sc
Precision Paper Tube Co., 2062 W. Charleston St., Chicago 47, Ill., 30c, Tel: 312-ARmitage 6-5200
See ad in class 112
Printloid, Inc., N.Y., 15c
REF Dynamics Corp., N.Y., 25c
Radiation Applications, Inc., N.Y., 5c, 10c, 30c, 35c
Raybestos-Manhattan, Inc., Pa., 25c, 30s, 35s
Raychem Corp., Calif., 30 Shrinkable sc
Reichhold Chemicals, Inc., N.Y., 20s
Republic Aviation Corp., N.Y., 25c
Resdel Corp., N.J., 30sc
Resinite Corp., Ill., 30c
Resistoflex Corp., N.J., 30s, 35s
Richardson Co., Ill., 15sc, 30sc, 35sc
Richco Plastic Co., Dept. I.R., 3722 W. North Ave., Chicago 47, Ill., 5c, 30c, Tel: 312-BElmont 5-2646
See ad in class 97
Rogers Corp., Conn., 20s, 25s
Rosenberg Bros. & Co., N.Y., 5c, 20s, 30sc

Directory III. Materials & Services

107. Plastics.

Ross Co. (Milton), Pa., 30c
Saint Regis Paper Co., Panelyte Div., N.J., 5c, 15sc, 30sc, 35sc
Sampson Chemical & Pigment Corp., Ill., 5c
Shamban & Co. (W. S.), Calif., 5sc, 30s, 35s
Sierra Electric Corp., Calif., 20s
Silicone Insulation, Inc., N.Y., 5c, 15c, 25c, 30c, 35c
Sillcocks Miller Co., N.J., 15sc
Skydyne, Inc., River Rd., Port Jervis, N.Y., 25c, Tel: 3-2241
See ad on page 128
Southern Plastics Co., S.C., 5c, 10c, 30c, 35c
Sparta Mfg. Co., Div. of U.S. Ceramic Tile Co., Ohio, 5c, 10c, 15c, 30s, 35s
Spaulding Fibre Co., Inc., 310 Wheeler St., Tonawanda, N.Y., 15c, 25c, Tel: 716-NX 2-2000
See ad in this class
Spruce Pine Mica Co., Inc., N.C., 25c, 35c
Stanpat Co., N.Y., 10c
Stevens Products, Inc., N.J., 15c, 25c, 30sc
Studebaker-Packard Corp., Gering Plastics Div., N.J., 5c, 10sc, 20sc, 30c, 35sc
Supa Insulations, Inc., N.C., 5sc, 30sc
Superior Cable Corp., N.C., 5sc, 30sc
Surprenant Mfg. Co., Subsid. of International Telephone & Telegraph Corp., 172 Sterling St., Clinton, Mass., 5sc, Tel: 617-EMpire 5-6331
See ad in class 91
Sylvania Electric Products Inc., Subsid. of General Telephone & Electronics Corp., N.Y., 5c
Synthane Corp., Pa., 15s, 25s, 30s, 35s
Tape Cable Corp., N.Y., 15c
Taylor Electric, Inc., Mich., 5sc, 30sc
Taylor Fibre Co., Pa., 15sc, 25c, 30sc, 35sc
Telecomputing Corp., Calif., 5c, 15c, 25c, 30c
Telecomputing Corp., Advanced Structures Div., Calif., 15c, 25c, 35c
Telecomputing Corp., Narmco Materials Div. of Narmco Industries, Inc. (Subsid.), Calif., 25s
Tensolite Insulated Wire Co., Inc., Subsid. of Carlisle Corp., W. Main St., Tarrytown, N.Y., 5c, 10c, Tel: 914-MEdford 1-2300
See ad in class 91
Thermax Wire Corp., N.Y., 5c
Thompson Fibre Glass Co. (H. I.), Calif., 15c, 25c
Thor Ceramics, Inc., N.J., 30sc, 35sc
Tri-Point Industries, Inc., N.Y., 5s, 30s, 35s
Trimount Plastic Co., Inc., Mass., 10c, 15c, 35s
Uni-Tel, Inc., N.Y., 25c
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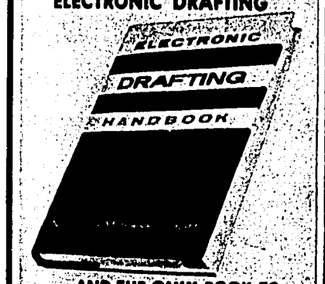

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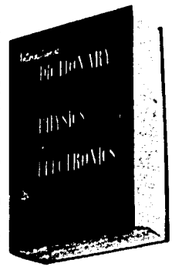

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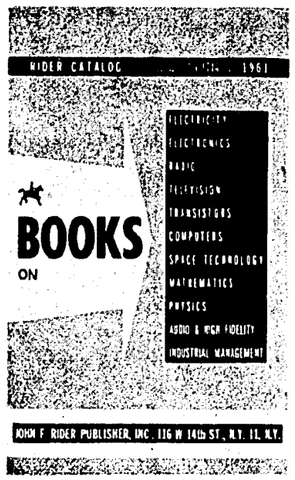

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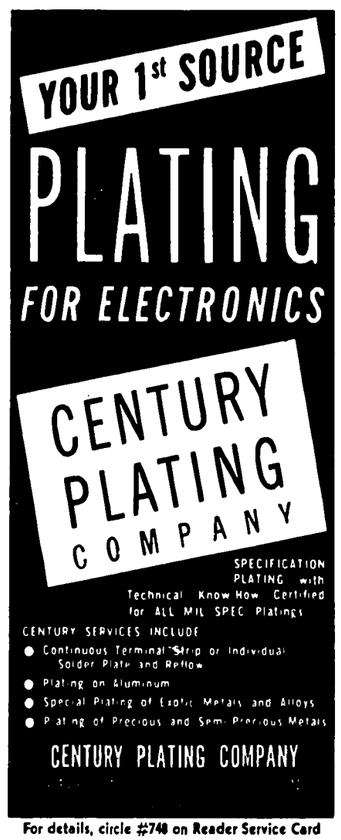

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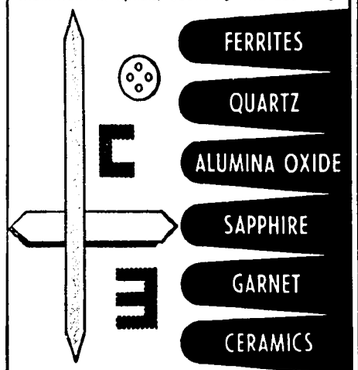

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109. Services.

Universal Toroid Coil Winding, Inc., N.J., 20
Varian Associates, Tube Div., Calif., 55
Vemaline Products Co., N.J., 25
Versa-Tronics, Ill., 55
Virginia Electronics Co., Inc., D.C., 20
Wabash Magnetics, Inc., Miniature Products Div., 812 Manchester Ave., Wabash, Ind., 20, 55, 60, Tel: 219-563-2191
See ad in class 51
Waber Electronics, Inc., Pa., 55
Walkirt Co., Calif., 20, 60
Wallin Optical Systems, Inc., Calif., 55
Electro-Optical
Wallson Associates, Inc., 912-914 Westfield Ave., Elizabeth, N.J., 65, Tel: 201-FLanders 1-0700
See ad in class 41
Waltham Precision Instrument Co., Mass., 55, 60
Wang Laboratories, Inc., Mass., 55
Warren Components Div., El-Tronics, Inc., Pa., 40
Washington Aluminum Co., Inc., Md., 5
Waveline, Inc., N.J., 5
Weinschel Engineering Co., Inc., 10503 Metropolitan Ave., Kensington, Md., 55, Tel: 301-LOckwood 4-0121
See ad in class 45
Weitermann Electronics, Wis., 55
Wells Electronics Co., Ind., 20, 30, 60
Western Coil & Electrical Co., Wis., 25, 45, 50
Western Electro-Acoustic Laboratory, Inc., Calif., 65
Western Radiation Laboratory, Calif., 55
Westgate Laboratory, Inc., Ohio, 55
Westinghouse Electric Corp., Materials Mfg. Dept., Pa., 35
Wheeler Laboratories, Inc., Subsid. of Hazeltine Corp., 122 Cutter Mill Rd., Great Neck, L.I., N.Y., 55, Tel: 516-HUnter 2-7876
See ad in class 95
Wilcox Electric Co., Inc., Mo., 20, 55
Wilkens, Inc. (Alwin Fr.), N.Y., 25, 45
Wilkinson Co., Calif., 35
Wiltron Co., Calif., 55
Wind Turbine Co., E. Market St., West Chester, Pa., 55, Tel: 215-OWen 6-3110
See ad adjacent to Index to Advertisers, back of book
Wright Metalcoaters, Inc., 255 West St., South Hackensack, N.J., 15, Tel: 201-HUbbard 7-5136
See ad in this class
Wyle Laboratories, Calif., 65
York Research Corp., Kip Electronics Div., Conn., 20, 55, 65
Zero Mfg. Co., Calif., 50, 55
Zimney Corp., Calif., 5, 10, 55, 60
Zippertubing Co., Calif., 55

Shaft-locks:
See class 105

Sheets, plastic:
See class 107

Shielding materials:
See class 103

Shields, tube & semiconductor:
See class 105

Shunts:
See class 97

Silicon:
See class 102

Silicone:
See class 101

Sinks, heat:
See class 105

Slides:
See class 93

Sockets:
See class 78

Solderers, ultrasonic:
See class 111

Soldering irons & guns:
See class 111

110. Solder.

5. Core, acid
10. Core, rosin
15. Fluxes
20. Plain
25. Precious-metal
30. Preforms

Accurate Specialties Co., Inc., N.J., 5c, 10c, 25c, 30c
All-State Welding Alloys Co., Inc., N.Y., 15sc, 25sc
Alloys Unlimited, Inc., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc

CORE SOLDER

FLOWS AT IDEAL RATE, LEAVES NO SOLDERING RESIDUES

Non-corrosive HYDRAZINE FLUX,* used industry-wide in liquid form, has now been incorporated into core solder. This fast, efficient flux vaporizes completely at soldering temperatures. It leaves no residue which would support fungus growth. Will not corrode. Conforms to strict military requirements.

In H-32 core solder for the first time, HYDRAZINE FLUX offers more advantages than ever. When flux is normally applied, far more than is actually needed is used. Now, the exact ratio of flux to solder provides for proper wetting. Thereafter the flux decomposes and is eliminated. Cleaning and production time are saved.

TEST HYDRAZINE FLUX AND CORE SOLDER in your own plant. Write for samples of either H-Series Fluxes or H-32 core-solder form and technical literature.

*U.S. Patent No. 2,612,459

Available only from Fairmount and its sales agents

Fairmount
CHEMICAL CO., INC.
136 Liberty St., N. Y. 6, N. Y.

For details, circle #752 on Reader Service Card

Directory III. Materials & Services

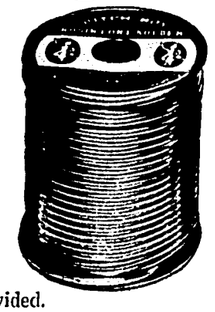
110. Solder.

Alpha Metals, Inc., N.J., 5c, 10c, 15s, 20c, 25c, 30c
Aluminum Co. of America, Pa., 15s, 20s
American Brazing Alloys Corp., N.Y., 15s, 25s, 30s
American Silver Co., Inc., 36-06 Prince St., Flushing 54, N.Y., 15s, 25sc, 30c, Tel: 212-FLushing 3-8012
See ad in class 104
American Smelting & Refining Co., N.Y., 5sc, 10sc, 20sc
Anchor Metal Co., Inc., N.Y., 5s, 10s, 15s, 20s, 25sc, 30sc
Art Wire & Stamping Co., 21 Boyden Pl., Newark 2, N.J., 30c, Tel: 201-HUmboldt 4-2100
See ad in class 105
Belmont Smelting & Refining Works, Inc., N.Y., 5s, 10s, 15s, 20s, 25s, 30s
Blackstone Corp., N.Y., 15sc
Bow Solder Products Co., Inc., N.Y., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc
Brainin Corp. (C. S.), N.Y., 25c, 30c
British Industries Corp., N.Y., 10s
Burnley Battery & Mfg. Co., Pa., 15s
Chase Brass & Copper Co., Conn., 15s, 20s
Chemalloy Electronics Corp., Calif., 20s
Chemtronics, Inc., N.Y., 5s, 10s, 15s
Cominco Products, Inc., Electronic Materials Dept., Wash., 30sc
Composite Industrial Metals, R.I., 20c, 25c, 30c
Consolidated Mining & Smelting Co. of Canada, Ltd., Canada, 30c
Consolidated Reactive Metals, Inc., 115 Hoyt Ave., Mamaroneck, N.Y., 25sc, Tel: 914-OWens 8-2300
See ad in class 91
Cooper & Sons, Inc. (Joseph B.), N.Y., 25sc, 30c
Dalweld Co., Inc., N.Y., 15s, 25s, 30sc
Division Lead Co., Ill., 5s, 10s, 15s, 20s, 30s
Dunton Co. (M. W.), R.I., 5sc, 10sc, 15sc, 20sc
Eagle Electric Mfg. Co., Inc., N.Y., 15s
Eastern Smelting & Refining Corp., Mass., 25sc
Electronic Metals & Alloys, Inc., Mass., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc
Electrovert, Inc., N.Y., 5s, 10s, 15s, 20s
Emerson & Cuming, Inc., Mass., 25s
Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 15c, 25c, Tel: 201-Bigelow 2-2700
See ad on page 140
Engelhard Industries, Inc., American Platinum & Silver Div., N.J., 15c, 25sc, 30c
Engelhard Industries, Inc., Makepeace Div., Mass., 25c
Eutectic Welding Alloys Corp., N.Y., 5s, 10s, 15s, 20s, 25s, 30s
Fairmount Chemical Co., Inc., 136 Liberty St., New York 6, N.Y., 10s, 15s, Tel: 212-BArclay 7-6375
See ad in this class
Farrelloy Co., Pa., 5sc, 10sc, 15sc, 20sc, 25sc, 30sc
General Electric Co., Lamp Metals & Components Dept., Ohio, 15s
General Findings, Inc., Industrial Div., Mass., 30c
Griffiths Electronics, Inc., N.J., 15sc, 25sc
Handy & Harman, 850 Third Ave., New York 22, N.Y., 15c, 25c, 30c, Tel: 212-PLaza 2-3400
See ad in class 104
Hi-Grade Alloy Corp., Ill., 15sc, 20sc, 25sc, 30sc
Horton-Angell Co., Mass., 25sc
Indium Corp. of America, 1678 Lincoln Ave., Utica 4, N.Y., 20sc, 30c, Tel: 315-SWift 7-1630
See ad in class 104

HOW TO CUT YOUR SOLDERING COSTS

-use Dutch Boy® Cored Solder and the new VICI Electric Iron with Replaceable Tips

Replaceable Tips available in all popular shapes and in plain and processed, coated types.



Take the shackles off your soldering lines . . . get profit-boosting productivity . . . equip your operators with this precisely engineered, ruggedly built, long-life "VICI" tool . . . teamed up with fast melting, free-flowing "Dutch Boy" solder.

"VICI" irons are supplied in all wanted wattages and are designed to take replaceable tips of all shapes and sizes.

Nice balance, absence of vibration, comfortably cool handles—these are some of the features of "VICI" irons that earn the admiration of operators . . . that promote faster, better work, hour after hour, day after day.

To match the superlative performance of "VICI" irons, a full line of replaceable plain and coated tips has been provided.

Write for catalog giving complete performance data on "VICI" Electric Irons and information on "Dutch Boy" Solders and Fluxes.

National Lead Company

111 Broadway • Room 1815 • New York 6, N.Y. • Branches in all Principal Cities

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Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Johnson Mfg. Co., Inc., Iowa, 5s, 10s, 15s, 20s, 30c
Johnson Matthey & Mallory, Ltd., Canada, 15s, 25sc
Kester Solder Co., 4219 Wrightwood Ave., Chicago 39, Ill., 5s, 10s, 15s, 20s, 30s, Tel: 312-BElmont 5-1601
See ad in this class
Lake Chemical Co., Ill., 15sc
Leach & Garner Co., Industrial Div., Mass., 25c, 30c
Lenk Mfg. Co., Ky., 5s, 10s, 15s, 20s
London Chemical Co., Inc., Ill., 15sc
Metz Refining Co., N.J., 25s
Mico Instrument Co., Mass., 15s
Munzig International, Inc., Calif., 15s, 25s, 30s
National Lead Co., 111 Broadway, Room 1815, New York 6, N.Y., 5s, 10s, 15s, 20s, 25s, 30c, Tel: 212-REctor 2-9400
See ad in this class
National Lead Co., Goldsmith Bros. Div., Ill., 15s, 25sc, 30c
New York Solder Co., Inc., N.Y., 5s, 10s, 20s
Paul & Stein Bros., Inc. (F. H.), N.Y., 25c
Rayline, Inc., N.Y., 5sc, 10sc, 20sc
Ruby Chemical Co., Ohio, 15s
Samuel & Co., Inc. (J. A.), N.Y., 25s
Semi-Alloys, Inc., N.Y., 20sc, 25sc, 30sc
Shannon Luminous Materials Co., Calif., 15c
Standard Metals Corp., 262 Broad St., North Attleboro, Mass., 25c, Tel: 617-MYrtle 5-9395
See ad in class 104
Staver Co., Inc., N.Y., 30c
Superior Flux & Mfg. Co., Ohio, 15s
Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 25c, 30c, Tel: 214-ADams 5-3111
See ad on Cover 3
Western Gold & Platinum Co., Calif., 25sc, 30sc
Wildberg Bros. Smelting & Refining Co., Calif., 25c
Wilkinson Co., Calif., 25c
Williams Gold Refining Co., Inc., N.Y., 25sc, 30c

Solvents:
See class 94

Spacers:
See class 105

Spinning, metal:
See class 96

Springs:
See class 97

Stamping, metal:
See class 96

Stampings, tube & semiconductor:
See class 105

Strain reliefs:
See class 97

Strippers, wire:
See class 111

Subminiaturization:
See class 109

Synthetic materials:
See classes 101, 107 & 112

Tapes:
See class 97

Tension devices:
See class 111

Terminals:
See class 81

Testers:
See class 41

Testing services:
See class 109

Thickness testers:
See class 41

111. Tools.

5. Alignment
10. Brazing & welding
15. Crimping & removal
20. Drills, ultrasonic
25. Hand-tools
30. Irons & guns, soldering
35. Solderers, ultrasonic
40. Strippers, wire
45. Tension-devices

Abbott-Clark Machine & Tool, Inc., N.J., 5c, 25c
Ace Drill Corp., Mich., PC-Board Drills sc
Air Born Connectors, Inc., Texas, 15s
Air-O-Tronics Engineering Co., N.Y., 5c
Alloyd Corp., Mass., 10c
American Electrical Heater Co., Mich., 30sc, 40sc
American Hydromath Corp., N.Y., Slide-Rules sc
American Missile Products Co., Inc., Calif., 40 Thermal s
American Pamcor, Inc., Pa., 15c
Amphenol-Borg Electronics Corp., Amphenol Connector Div., 1830 S. 54th Ave., Chicago 50, Ill., 15s, Tel: 312-BIshop 2-1000
See ad on page 114
Arkay International, Inc., N.Y., 25c
Armstrong Bros. Tool Co., Ill., 25 Wrenches s
Arrow Fastener Co., Inc., N.Y., 25 Fastening s
Artos Enginering Co., Wis., 40sc
Atocon Co., Ohio, Lamp Injector-Extractor sc
Basic & Experimental Physics, Mass., 35c
Beauchaine & Sons, Inc., N.H., 25s
Bendix Corp., Sheffield Corp. (Subsid.), Ohio, 20c
Black & Webster, Inc., Mass., 15sc
Blonder-Tongue Laboratories, Inc., N.J., 15s
Bruno-New York Industries Corp., N.Y., Lead-Wrapping c
Buchanan Electrical Products Corp., N.J., 15s, 25s
Burndy Corp., Omaton Div., Richards Ave., Norwalk, Conn., 15sc, Tel: 203-TEmple 8-1169
See ad in class 52

Rely on
KESTER "SOLDERFORMS" for TOP PERFORMANCE

Kester "Solderforms" are engineered for soldering single- or multi-phase components. Kester "Solderforms" are:

- fabricated to exacting customer specifications and requirements relative to size, shape and alloy; from high and ultra-high purity metals, available in flux-filled or solid.

Kester "Solderforms" are the answer to efficient and economical assembly line soldering. For top performance, always use Kester "Solderforms."

***FREE*—Sample assortment of Kester "Solderforms" and complete details.**

Write today!

KESTER SOLDER

KESTER SOLDER COMPANY
4219 Wrightwood Ave. • Chicago 39, Ill.
Newark 5, N. J.
Anaheim, Calif. • Brantford, Ont., Canada

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Directory III. Materials & Services

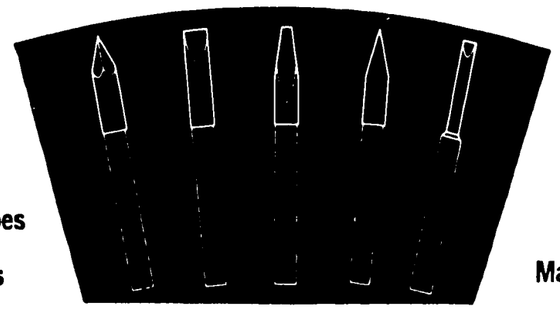
111. Tools.

By-Buk Co., Calif., 25 Lead-Benders s
Cadre Industries Corp., N.Y., 40 Shielding c
Caig Laboratories, Inc., N.Y., 30s
Cannon Electric Co., 3208 Humboldt St., Los Angeles 31, Calif., 15s, Tel: 213-CApitol 5-1251
See ad in class 52
Carpenter Mfg. Co., Inc., N.Y., 40s
Cavitron Electron Oscillator Co., Calif., 35c
Central Engineering Co., Minn., 10c
Champion DeArment Tool Co., Pa., 15c, 25 Pliers s
Chicago Pneumatic Tool Co., N.Y., 15s, 25s, Pneumatic s
Cinch Mfg. Co., 1026 S. Homan Ave., Chicago 24, Ill., 15sc, Tel: 312-NEvada 2-2000
See ad on pages 64-65
Circon Component Corp., Santa Barbara Municipal Airport, Goleta, Calif., 5s, 25s, Tel: 805-WOodland 7-1113
See ad in class 63
Clauss Cutlery Co., Ohio, 15c, 25 Cutting c
Cleco Air Tools, Div. of Reed Roller Bit Co., Texas, 25 Drill c, Pneumatic c
Clipper Gear & Machine Co., Mich., 5c
Coaxial Components Co., Inc., Conn., 15c, 25c
Continental Technical Service, Inc., Ohio, 5c, 25c, 45c
Desco Mfg. Co., Calif., 25s
Desmond-Stephan Mfg. Co., Ohio, 25 Diamond-Tipped sc
Deutsch Co., Electronic Components Div., Calif., 15s
Diamond Tool & Horseshoe Co., Minn., 25s, 40s
Dittmore-Freimuth Corp., Wis., 5c
Dorsey & Associates (J. G.), Calif., 25 PC-Board s
Dreier Brothers, Inc., Ill., 25sc
Dri-Clave Corp., N.Y., 25 Grinders s
Duramic Products, Inc., N.J., 5c, 10c
Duro Specialty Co., Inc., Mass., 5c, 25sc
Dymo Industries, Inc., Calif., Tape-Marking sc
Eagle Electric Mfg. Co., Inc., N.Y., 30s
Electric Soldering Iron Co., Conn., 30s
Electro Engineering Products Co., Inc., Ill., 25s
Electronic Production & Development, Inc., Calif., 40c
Era Research, Inc., Calif., 25 Sealers sc
Eraser Co., Inc., N.Y., 40sc
Erikson Specialized Tool Co., Calif., 5s, 25s
Eubanks Engineering Co., Calif., 40s
Everard Tap & Die Corp., N.Y., 5c, 25c
Ewald Instruments, Route 7H, Kent, Conn., 10s, 40s, Tel: 203-WAlker 7-3278
See ad in class 99
Fairchild Stratos Corp., Md., 5sc
Federal Electronic Products, Inc., N.J., 10sc
Federal Machine Co., Inc., N.J., 5c, 10c
Federal Mfg. & Engineering Corp., Subsid. of Victoreen Instrument Co., N.Y., 5c, 15c
Fedtro, Inc., Federal Electronics Sales Div., N.Y., 30s
Felker Mfg. Co., Calif., Abrasive c
First Electronics Corp., Mass., 40c
Foredom Electric Co., Inc., Conn., 25 Power s
G C Electronics Co., Div. of Textron Electronics, Inc., Ill., 5s, 40s
Gardner-Denver Co., Ill., 25s
Gardner-Denver Co., Wire-Wrap Div., Mich., 25 Wire-Wrap s, 40s
General Electric Co., Apparatus Sales Dept., N.Y., 30s
General-Electro Mechanical Corp., N.Y., 45c
General Hardware Mfg. Co., Inc., N.Y., 25s, 40s
General Radio Co., 22 Baker Ave., West Concord, Mass., 15s, Tel: 617-EMerson 9-4400
See ad on Cover 4
Greenlee Tool Co., Ill., 25 Punches s
Gulton Industries, Inc., N.J., 10 Ultrasonic c, 20c, 35c
Handicraft Tools, Inc., Div. of X-Acto, Inc., N.Y., 25 Pliers s, 40s
Hardware Specialty Co., Inc., N.Y., 15s, 25s, 40s
Heath Co., Subsid. of Daystrom, Inc., Mich., 25s, 30s
Hellermann Canada, Ltd., Canada, 15s, 40s
Hexacon Electric Co., 181 W. Clay Ave., Roselle Park, N.J., 30sc, Tel: 201-CHestnut 5-6200
See ad in this class
High Speed Hammer Co., Inc., N.Y., 40s
Hirschmann Co., Inc. (Carl), 30 Park Ave., Manhasset, L.I., N.Y., 45s, Tel: 516-MAnhasset 7-5300
See ad in class 99
Hitachi New York, Ltd., N.Y., 10c, Drills s
Holub Industries, Inc., Ill., 40s
Hudson Pacific, Inc., Calif., 5 Soldering c
Hunter Spring Co., Div. of American Machine & Metals, Inc., Pa., 45c
Hunter Tool Co., Calif., 5s, 15s, 25s, 30s, 40s, 45sc
IE Mfg., Ill., 5sc
Ideal-Aerosmith, Div. of Royal Industries, Inc., Wyo., 25s
Ideal Industries, Inc., Ill., 10s, 30s, 40sc
Imtra Corp., Mass., 45s

ANOTHER IMPORTANT BREAKTHRU!

DUROTHERM
Non-freezing Long-Life SOLDERING TIPS

In ALL Shapes and Sizes



Fit ALL Makes

HI-PERFORMANCE Tips for use in HI-PERFORMANCE, HI-TEMPERATURE Irons. Tips positively cannot stick or freeze in any iron—easily removed after months of service. No need to remove tips daily. Minimum loss of heat delivery. Tip shank immunized from solder, except on working surface at end of tip—prevents creeping of solder into element tip hole and spilling of solder on components.

HEXACON

SEND FOR CATALOG—showing the most complete line of industrial Soldering Irons and Long-Life Clad Tips.

HEXACON ELECTRIC COMPANY
181 West Clay Ave., Roselle Park, New Jersey

SERVING INDUSTRY FOR OVER A QUARTER OF A CENTURY

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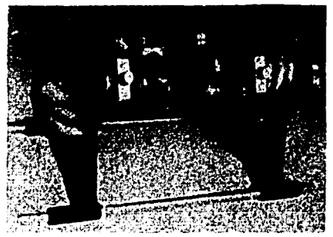
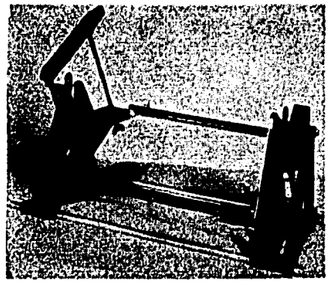
Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

PRODUCTION FIXTURES

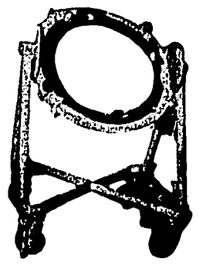


Attention Methods Engineers

Production Tool and Fixture assemblies *save you time and money* in your wiring and assembly departments. "Tiny-Fix," your third hand, positions miniature chassis, terminal boards and connectors in proper alignment which results in quicker and more efficient work.



The S-12-W above differs from our standard friction and index models in that it offers worm drive that gives positive positioning even under heavy stress. The PF-20-C floor model precision fixture is designed to level and rigidly support the bulky but delicate chassis assemblies required by recent developments in the missile and related industries. 36 inch height at pivotal centers permits the rotation of assemblies as wide as 50 inches through 360 degrees in two planes.



Adapters similar to those shown in the assembly fixtures above are designed by our engineering staff to meet your specific requirements.

Write us for our catalog and current list of firms now using our equipment in the electronic industry. For technical information consult with Lester George, Chief Engineer.

PRODUCTION TOOL AND FIXTURE CO.

37 WEST MAIN STREET
OYSTER BAY, N.Y.
Telephone: WAlnut 2-4334
Area Code 516

For details, circle #756 on Reader Service Card

Industrial Winding Machinery Corp., N.Y., 45sc

JFD Electronics Corp., 6101 16th Ave., Brooklyn 4, N.Y., 5s, Tel: 212-DEwey 1-1000
See ad on pages 56-57

Jadow, Inc. (B.), N.Y., 25c
Jo-Line Tools, Inc., Calif., 25s, 45s
K-D Mfg. Co., Pa., 25sc
Kedman Co., Utah, 25s
Kelsey-Hayes Co., Mich., 25sc, 35sc, 40sc
Kelsey-Hayes Co., Utica Drop Forge & Tool Div., N.Y., 25sc, 40sc
Klein & Sons, Inc. (Mathias), Ill., 5sc, 15sc, 25sc, 40sc
Kraeuter & Co., Inc., N.J., 25 Pliers s
Kwikheat Mfg. Co., Calif., 30sc
LaCesa Engineering Corp., Ill., 45sc
Lenk Mfg. Co., Ky., 30s
Luma Electric Equipment Co., Ohio, 10s, 30s
M & G Metal Products Co., Ill., 10c
MacDonald & Co., Calif., 15s, 25s, 40s
Magnetic Corp., Calif., 15sc
Martindale Electric Co., Ohio, 40s
Millen Mfg. Co., Mass., 40s
Miller Tool & Mfg. Co., Inc. (K.), Mass., 40s
Mitchell Industries, Inc., Texas, 30c
Modern Mfg. Co., Inc., Pa., 25c
Moody Machine Products Co., Inc., R.I., 25s
Moran Instrument Corp., Calif., Punches sc

National Lead Co., 111 Broadway, Room 1815, New York 6, N.Y., 30s, Tel: 212-REctor 2-9400
See ad in class 110

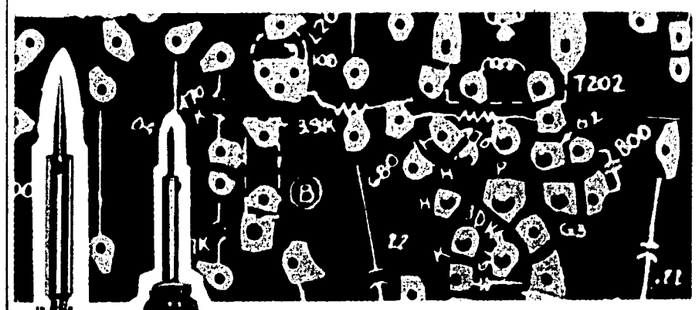
National Missile & Electronics, Inc., Calif., 40s
National Specialties Co., Inc., Ind., 30s
Neuses, Inc. (P. K.), Ill., 45s
Newman Corp. (M. M.), Mass., 30s

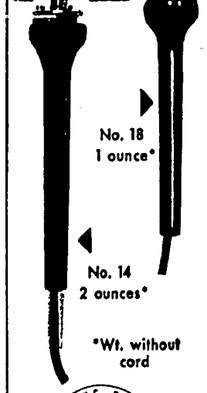
Nikon, Inc., Dept. IR-62, 111 Fifth Ave., New York 3, N.Y., 5 Optical s, Tel: 212-OREgon 4-7970
See ad in class 14

Oryx Co., Calif., 30s
Owatonna Tool Co., Minn., 5s, 25s
Pacific Scientific Instrument Laboratory, Calif., 10s
Peck, Stow & Wilcox Co., Conn., 25s
Pennsylvania Tool & Mfg. Co., Pa., 5c
Precision Metal Products Co., Mass., 25sc

Production Tool & Fixture Co., 37 W. Main St., Oyster Bay, L.I., N.Y., 5sc, Positioning-Fixtures sc, Tel: 516-WAlnut 2-4334
See ad in this class

Proto Tool Co., Div. of Pendleton Tool Industries, Inc., Calif., 25sc, 40s
Ray, Daisley Co., Inc., N.Y., 10c, 30c
Raytheon Co., Commercial Apparatus & Systems Div., Mass., 10sc, 20sc, 35sc
Richmont, Inc., Calif., 45sc
Rollan Electric Co., Ill., 45c
Rosenberg Bros. & Co., N.Y., 25s





WALL PENCIL IRONS

(IDEAL FOR PRINTED CIRCUITS)

with exclusive "Thermostatic Brain" are built for "Production Line Punishment"

Wall irons think for you . . . act for you! Thermostatic "Brain" heats 4 times faster . . . controls heat . . . prevents tip burning. Built for punishment with triple life, precision wound elements guaranteed for the life of the iron. No fragile or moving parts. Ideal for delicate, precision work.

No. 18
1 ounce*

No. 14
2 ounces*

*Wt. without cord

WALL — The Safety Line — SOLDERING PRODUCTS SINCE 1864

WALL MANUFACTURING CO.
Grove City, Pennsylvania

OVER [illegible] SOLDERING PRODUCTS SINCE 1864

For details, circle #757 on Reader Service Card

Directory III. Materials & Services

111. Tools.

Rye Sound Corp., N.Y., 25s
Selas Corp. of America, Pa., 30c
Servonics, Inc., Va., 10c, 15c, 25c, 30c, 40c

Smith, Inc. (Herman H.), Dept. 12, 2326 Nostrand Ave., Brooklyn 10, N.Y., 5s, 15s, Tel: 212-CLoverdale 3-7900
See ad in class 62

Snap-On Tools Corp., Wis., 25sc, 45sc
Sonobond Corp., Subsid. of Aeroprojects, Inc., Pa., 35sc
Standard Telephones & Cables, Ltd., England, 10sc, 30sc
Stanley Tools, Conn., 25s
Stevens Walden, Inc., Mass., 5s, 25sc, 40s

Stewart Engineering Co., Santa Cruz 12, Calif., 10s, Tel: 408-GArden 6-4100
See ad in class 86

Sturtevant Co. (P. A.), Ill., Torque sc
Taffet Electronics, Inc., N.Y., 5c
Taylor-Winfield Corp., Ohio, 10sc
Tech Industries, Inc., Mass., 40s
Technical Devices Co., Calif., 15 Lead s, 40s, Fixtures & Positioners s
Tensitron, Inc., Mass., 45sc
Terry Co. (George A.), N.Y., 25 Drills s
Thomas Instrument Co., N.Y., 40sc
Thomas & Skinner, Inc., Ind., 45 Banding s
Thomson Electric Welder Co., Mass., 10 Resistance sc

Tower Construction Co., (Tower Communications Co.), 2700 Hawkeye Dr., Sioux City 2, Iowa, 45s, Tel: 2-3631
See ad in class 44

Tuck Mfg. Co., Mass., 25sc
Ulmer Co. (H. W.), Calif., 10sc
Ultramotive Co., Calif., 10 Electron-Beam Type c
Ultrasonic Industries, Inc., N.Y., 20sc
Ungar Co., Inc. (Sid), Calif., 30s
Ungar Electric Tools, Div. of Eldon Industries, Inc., Calif., 30s, 40s
Uni-Tel, Inc., N.Y., 5c
Union Carbide Corp., Linde Co. (Div.), N.Y., 10s
United Carbon Products Co., Mich., Graphite sc
U.S. Expansion Bolt Co., Pa., 25s
Vaco Products Co., Ill., 15s, 25s, 40s
Vichek Tool Co., Ohio, 25s
Vulcan Electric Co., Mass., 30s
Waldes Kohinoor, Inc., N.Y., 25 Pliers sc
Waldom Electronics, Inc., Ill., 15s

Wall Mfg. Co., Erie St., Grove City, Pa., 30s, Tel: 910
See ad in this class

Walsco Electronics Mfg. Co., Div. of GC Textron Electronics, Inc., Ill., 5s, 40s
Weller Electric Corp., Pa., 30s
Wen Products, Inc., Ill., 25 Drills s, 30s
Wenco Mfg. Co., Ill., 40s
Western Electronic Products Co., Calif., 40s, Positioners s
Whitney Metal Tool Co., Ill., 25sc
Wilder Mfg. Co., Inc., N.Y., 30 Holders sc
Wybar Electronics, Inc., N.Y., 40c
Wyzenbeek & Staff, Inc., Ill., 25 Grinders s
Xcelite, Inc., N.Y., 25sc

Torque testers:
See class 41

Tube parts:
See class 105

Tubing, cathode:
See class 105

Tubing, plastic:
See classes 107 & 112

112. Tubing.

5. Cambric
10. Fiberglas
15. Glass
20. Metal
25. Paper
30. Plastic
35. Quartz

Ace Plastics Co., N.Y., 30sc
Acme Model Engineering Co., N.Y., 30c
Actioncraft Products, N.Y., 30s
Aero-Tech Products Co., N.J., 30c
Aeroquip Corp., Mich., 30 Fluid-System-Hose sc
Allied Plastics Supply Corp., N.Y., 10c, 25c, 30c

Alpha Wire Corp., Subsid. of Loral Electronics Corp., 200 Varick St., New York 14, N.Y., 10s, 30 Shrinkable s, Tel: 212-ALgonquin 5-5400
See ad in class 91

Aluminum Co. of America, Pa., 20sc
Amerconda Chemical Co., N.Y., 10sc, 30sc
American Agile Corp., Ohio, 30s
American Cystoscope Makers, Inc., N.Y., 30s
American Quartz Laboratories, Inc., N.Y., 10sc, 30sc

American Silver Co., Inc., 36-06 Prince St., Flushing 54, N.Y., 20c, Tel: 212-FLushing 3-8012
See ad in class 104

American Super-Temperature Wires, Inc., Subsid. of Haveg Industries, Inc., 52 W. Canal St., Winooski, Vt., 10c, 30c, Tel: 802-UNiversity 2-9636
See ad in class 91

Anchor Plastics Co., Inc., N.Y., 30c
Associated Engineering & Mfg. Corp., N.J., 35sc
Atkins & Merrill, Inc., Mass., 10c
Auburn Mfg. Co., Conn., 30c
Avon Tube Div., Higbie Mfg. Co., Mich., 20sc
B & C Insulation Products, Inc., N.J., 5s, 10s
Bache & Co. (Semon), N.Y., 15sc

112. Tubing.

Belmont Smelting & Refining Works, Inc., N.Y., 20s
Bentley-Harris Mfg. Co., Pa., 10s, Silicone s

Birnbach Radio Co., Inc., 145 Hudson St., New York 13, N.Y., 10s, 30sc, 35sc, Tel: 212-WOrth 6-5611
See ad in class 91

Bischoff Chemical Corp., Riverside Plastics Div., N.Y., 10c
Bishop & Co. (J.), Platinum Works, Pa., 20sc
Black Light Corp. of America, Calif., 35s
Blackburn, Inc. (P. W.), N.Y., 35sc
Blaco Mfg. Co., Ohio, 30s
Blum & Co., Inc. (Julius), N.J., 30s
Bon-De Electronic Laboratories, Inc., Mass., 15s
Bonny Mfg. Corp., Mass., 30c
Boonton Molding Corp., N.J., 30c
Borden Chemical Co., Resinite Dept., Mass., 30sc
Bram Metallurgical-Chemical Co., Pa., 20sc, 35sc
Braun-Knecht-Heimann Co., Calif., 15s, 35s
Bridgeport Brass Co., Conn., 20sc
Cable Designs, Inc., N.Y., 10c, 30c
Carborundum Co., Refractories Div., N.J., 10sc, 20c
Carpenter Steel Co., Pa., 20s
Chase Brass & Copper Co., Conn., 20sc
Chemplast, Inc., N.J., 30s
Chicago Gasket Co., Ill., 30sc

Cimco Wire & Cable Co., 303 W. Crescent Ave., Allendale, N.J., 30s, Tel: 201-DAvis 7-2522
See ad in class 91

Cleveland Container Co., Ohio, 25c, 30c
Clevite Corp., Clevite Ordnance Div., Ohio, 10c
Columbia Products Co., S.C., 10c
Continental-Diamond Fibre Corp., Del., 10sc, 15sc, 25sc, 30sc
Continental Electronics & Sound Co., Ohio, 10s

Corning Glass Works, Corning Electronic Components Div., 750 High St., Bradford, Pa., 15sc, Tel: 814-FOrest 2-5571
See ads in classes 48, 49, 74

Corning Glass Works, Electrical Products Div., N.Y., 15c
Cortland Industries, Inc., Ill., 30c
Croname, Inc., Ill., 20c
Crucible Steel Co. of America, Pa., 20sc
Davis Plastics Co. (Joseph), N.J., 30c
Dell Optics Co., Ltd., N.J., 15c, 30 Fused c

DeMornay-Bonardi Corp., 780 S. Arroyo Parkway, Pasadena, Calif., 20 Waveguide s, Tel: 213-SYcamore 2-4142
See ad on pages 68-69

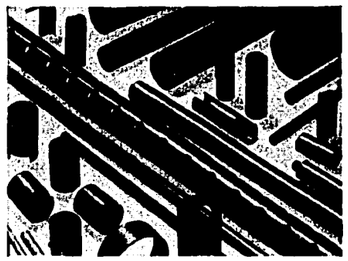
Demuth Glass Works, Inc., W.Va., 15sc
Dielectric Materials Co., Ill., 5sc, 10sc, 30sc
Division Lead Co., Ill., 20sc

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

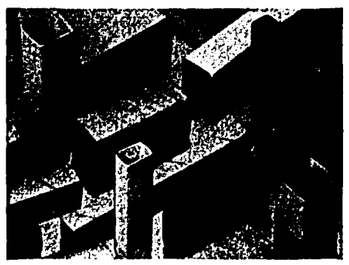
A Complete Line of Coil Forms And Tubing For Any Requirement

- **Any shape, I.D., O.D. or length—threaded, notched or punched.**
- **All dielectric materials, including kraft, fish paper, DuPont Mylar, phenol impregnated, fiber glass and combinations.**
- **Stock delivery on over 2000 arbor list sizes . . . fast delivery on others and specials.**

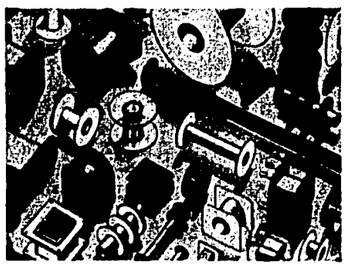
PLUS expert mandrel and fabricating service.



Round Tubes: widest variety available . . . any decimal size to 8" I.D. . . . specials of all types.



Square and Rectangular Tubes, also other shapes . . . any decimal size to 8" I.D. . . . fabricated to any specification.



Bobbins fabricated or molded . . . any shape or size spool or flange . . . specials of all types.

Request catalog, arbor list and prices.

PRECISION PAPER TUBE CO.

2082 West Charleston St., Chicago 47, Ill.
Eastern Plant: 1 Flower St., Hartford, Conn.
Representatives Throughout United States and Canada
For details, circle #758 on Reader Service Card

Dixon Corp., R.I., 30s

Dodge Fibers Corp., John St., Hoosick Falls, N.Y., 15 Teflon-glass sc, 30 Teflon-glass sc, Tel: Hoosick Falls 1080
See ad in class 97

DuPont de Nemours & Co., Inc. (E. I.), Fabrics & Finishes Dept., Ill., 15 Synthetic-Coated s

Dura Plastics of New York, Inc., N.Y., 30c

Electric Storage Battery Co., Jessall Plastics Div., Conn., 30 Flexible sc

Electrical Insulation Co., Inc., N.Y., 10sc, 25sc, 30sc

Electronic Parts Mfg. Co., Inc., N.J., 20c

Electronic Plastics Corp., Mass., 30sc

Emerson & Cuming, Inc., Mass., 30s

Emmco Plastics Corp., 68 Vine St., Everett 49, Mass., 30s, Tel: 617-DUnkirk 9-1660
See ad in class 81

Enflo Corp., N.J., 30sc

Engelhard Industries, Inc., 113 Astor St., Newark 2, N.J., 20c, 35c, Tel: 201-BIgelow 2-2700
See ad on page 140

Engelhard Industries, Inc., Amersil Quartz Div., N.J., 35sc

Engelhard Industries, Inc., Makepeace Div., Mass., 20c

Ethylene Corp., N.J., 30 Teflon s

Fischer & Porter Co., Pa., 15s, 35s

Fish-Schurman Corp., N.Y., 15sc

Fisher & Crome, Pa., 30s

Fisher Scientific Co., Pa., 15c

Flexrock Co., Pa., 30c

Fluorulon Laboratories, Inc., N.J., 30sc

Fluro Plastics, Inc., Pa., 30s

Form-It Products, Inc., Ill., 25sc, 30sc

Franklin Fibre-Lamitex Corp., Del., 10s, 30s

G C Electronics Co., Div. of Textron Electronics, Inc., Ill., 30s

Garlock, Inc., Garlock Electronic Products, N.J., 30s

General Electric Co., Laminated Products Dept., Ohio, 30s

General Plastics Corp., N.J., 10c

Glasply Corp., N.Y., 10c, 30c

Goodrich Industrial Products Co. (B. F.), Ohio, 30s

Graef Engineers, Inc., Calif., 30c

Halogen Insulator & Seal Corp., Ill., 30sc

Haveg Industries, Inc., Del., 10c, 30c

Hecht Rubber Co., Inc., Fla., 30s

Hitachi New York, Ltd., N.Y., 30c

Hitemp Wires Co., Div. of Simplex Wire & Cable Co., 1200 Shames Dr., Westbury, L.I., N.Y., 30s, Tel: 516-EDgewood 3-4600
See ad in class 91

Horton-Angell Co., Mass., 20sc

Illumitronic Engineering Corp., Calif., 10s, 30s

Indium Corp. of America, 1678 Lincoln Ave., Utica 4, N.Y., 20c, Tel: 315-SWift 7-1630
See ad in class 104

Insulation Manufacturers Corp., Ill., 5sc, 10sc, 30sc

International Nickel Co., Inc., Huntington Alloy Products Div., W.Va., 20s

Isolantite Mfg. Corp., 337 Warren Ave., Stirling, N.J., 5sc, Tel: 201-CRestview 7-3737
See ad in class 92

JFD Electronics Corp., 6101 16th Ave., Brooklyn 4, N.Y., 15s, 35c, Tel: 212-DEwey 1-1000
See ad on pages 56-57

Jodee Plastics, Inc., N.Y., 10c, 25c, 30c

Johns-Manville, N.Y., 30s

Jonesville Paper Tube Corp., Mich., 25c

Kahl Scientific Instrument Corp., Calif., 15sc

Kanthal Corp., Conn., 20s

Kassel Industries, Inc., N.J., 15c

Kimble Glass Co., Subsid. of Owens-Illinois, Ohio, 15s

Laminated Sheet Products Corp., Mass., 30sc

Lamtex Industries, Inc., N.Y., 10sc, 30sc

Lancaster Glass Corp., Ohio, 15c

LaPointe Industries, Inc., Conn., 20c

Leach & Garner Co., Industrial Div., Mass., 20c

Long, Inc. (Thomas J.), N.Y., 30c

Mark Products Co., Ill., 10sc

Markel & Sons (L. Frank), School Lane, Norristown, Pa., 10sc, 30sc, Silicone sc, Tel: 215-BRoadway 2-8960
See ad in class 107

Maryland Lava Co., Md., 30c

Micarta Fabricators, Inc., Ill., 30sc

Middlesex Paper Tube Co., Mass., 25c

Minerals & Insulation Co., N.J., 10s, 30s

Minnesota Mining & Mfg. Co., Electrical Products Div., Minn., 30c

Minnesota Mining & Mfg. Co., Mica Insulator Div., N.Y., 30sc

Minnesota Rubber Co., Minn., Silicone c

Minor Rubber Co., Inc., N.J., 30sc, Rubber sc, Silicone sc

Monsanto Chemical Co., Plastics Div., Mass., 35s

Mosaic Fabrications, Inc., Mass., 15c

Moxness Products, Inc., Wis., Silicone sc

Mueller Brass Co., Mich., 20c

Murray Plastics Co., N.Y., 30c

National Vulcanized Fibre Co., Del., 25sc, 30sc

Natvar Corp., N.J., 10sc, 30sc

New Jersey Wood Finishing Co., N.J., 30sc

Newage Industries, Inc., Pa., 30s

Norrich Plastics Corp., N.Y., 5c, 20c, 25c, 30c

Northern Plastics Corp., Wis., 30sc

Oki & Willadsen, Ltd., Canada, 30s

Owens-Illinois Glass Co., Ohio, 15sc

Pan American Trade Development Corp., N.Y., 35c

Paramount Paper Tube Corp., 618 S. Lafayette St., Fort Wayne 2, Ind., 25c, Tel: ANthony 4197
See ad in class 97

Penn Fibre & Specialty Co., Inc., Pa., 25sc

Pfister Aluminum Corp., N.J., Aluminum sc

Phelps Dodge Copper Products Corp., 300 Park Ave., New York 22, N.Y., 20s, Tel: 212-PLaza 1-3200
See ad in class 91

Directory III. Materials & Services

Polymer Corp., Pa., 30s

Precision Paper Tube Co., 2062 W. Charleston St., Chicago 47, Ill., 10c, 20c, 25c, 30c, Tel: 312-ARmitage 6-5200
See ad in this class

Precision Tube Co., Inc., Pa., 20c

Raybestos-Manhattan, Inc., Pa., 30s

Raychem Corp., Calif., 30sc

Republic Steel Corp., Ohio, 20s

Resdel Corp., N.J., 30sc

Resinite Corp., Ill., 10c, 20c, 30c

Resistoflex Corp., N.J., 30s

Revere Copper & Brass, Inc., N.Y., 20s

Richards Co., Inc. (Arklay S.), Mass., 35sc

Richardson Co., Ill., 30sc

Richco Plastic Co., Dept. I.R., 3722 W. North Ave., Chicago 47, Ill., 30c, Tel: 312-BElmont 5-2646
See ad in class 97

Rohn Mfg. Co., P.O. Box 2000, Peoria, Ill., 20s, Tel: 309-637-8416
See ad in class 44

Rome Cable Div., Aluminum Co. of America, N.Y., 20s, 30sc

Ross Co. (Milton), Pa., 30c

Saint Regis Paper Co., Panelyte Div., N.J., 30c

Samuel & Co., Inc. (J. A.), N.Y., 20s

Schutter Microwave Corp., N.Y., 20sc

Scientific Electronic Laboratories, Inc., N.J., 15s

Semi-Alloys, Inc., N.Y., 20sc

Southern Plastics Co., S.C., 30c

Sparta Mfg. Co., Div. of U.S. Ceramic Tile Co., Ohio, 30s

Spaulding Fibre Co., Inc., 310 Wheeler St., Tonawanda, N.Y., 10c, 25c, 30c, Tel: 716-NX 2-2000
See ad in class 107

Spectra-Strip Wire & Cable Corp., Calif., 30s

Standard Metals Corp., 262 Broad St., North Attleboro, Mass., 20c, Tel: 617-MYrtle 5-9395
See ad in class 104

Stevens Products, Inc., N.J., 10sc, 25sc

Studebaker-Packard Corp., Gering Plastics Div., N.J., 30c

Supa Insulations, Inc., N.C., 30sc

Superior Cable Corp., N.C., 30sc

Superior Tube Co., Pa., 20c

Surprenant Mfg. Co., Subsid. of International Telephone & Telegraph Corp., 172 Sterling St., Clinton, Mass., 30sc, Tel: 617-EMpire 5-6331
See ad in class 91

Synthane Corp., Pa., 10s, 25s, 30s

Taylor Electric, Inc., Mich., 30sc

Taylor Fibre Co., Pa., 10sc, 30sc

Tech Art Plastics Co., N.J., 30s

Texas Instruments Incorporated, Semiconductor-Components Div., 13500 N. Central Expressway, P.O. Box 5012, Dallas 22, Texas, 20c, Tel: 214-ADams 5-3111
See ad on Cover 3

Thermal American Fused Quartz Co., Inc., N.J., 35s

Thermax Wire Corp., N.Y., 30c

Thor Ceramics, Inc., N.J., 30sc

Tri-Point Industries, Inc., N.Y., 30s

Ultra-Violet Products, Inc., Calif., 35s

Uni-Tel, Inc., N.Y., 5c, 30c

Uniform Tubes, Inc., Pa., 20c

United Carbon Products Co., Mich., Graphite sc

United States Rubber Co., N.Y., 30s

United States Steel Corp., Pa., 20s, 30s

Valpey Crystal Corp., 1100 Highland St., Holliston, Mass., 15c, 35c, Tel: 617-GArden 9-4851
See ads on page 219 & in class 56

Varflex Corp., N.Y., 5s, 10s, 30s

Voltube Corp., N.J., 5s, 10s, Asbestos s

Wallingford Steel Co., Conn., 20c

Walsco Electronics Mfg. Co., Div. of GC Textron Electronics, Inc., Ill., 30s

Welcraft Products Co., Ind., 30c

Wells Electronics Co., Ind., 10sc

Werner Co., Inc. (R. D.), Pa., 20sc

Westinghouse Electric Corp., Lamp Div., N.J., 15s, 35s

Westinghouse Electric Corp., Materials Mfg. Dept., Pa., 20c

Westlake Plastics Co., Pa., 30sc

Westline Products, Div. of Western Lithograph Co., Calif., 10c, 30c

Wilkinson Co., Calif., 20c

Wilmad Glass Co., Inc., N.J., 15sc

Wirekraft, Inc., Ind., 30sc

Zippertubing Co., Calif., 10s, 30s

Zirconium Corp. of America, Ohio, 5sc

Ultrasonic cleaning equipment:
See class 99

Ultrasonic control equipment:
See class 4

Ultrasonic drills:
See class 111

Ultrasonic generators:
See class 40

Ultrasonic services:
See class 109

Ultrasonic solderers:
See class 111

Ultrasonic testers:
See class 41

Vacuum control equipment:
See class 4

Vacuum furnaces:
See class 98

Vacuum gages:
See class 40

Vacuum machinery, pumps & accessories:
See class 99

Vacuum-metallized coatings:
See class 94

Valves:
See class 99

Vibration exciters:
See class 36

Washers:
See class 97

Water-treatment equipment:
See class 99

Weighing equipment:
See class 40

Welding equipment:
See classes 99 & 111

Welding services:
See class 109

Wire:
See class 91

Wire braid & mesh:
See class 91

Wire leads:
See class 105

Wire strippers:
See class 111

Wires, lead:
See class 91

Classifications with a System!

The IRE Directory Product Classifications have both a pattern and a purpose. They differ widely from most product indexes, deliberately. They aim to organize the hundreds of products and services of a complex technical industry according to the way engineers think. The result is a division of all products and services into three fundamental indexes into which 112 basic classifications have been organized.

For detailed identification, these 112 products and services, grouped in 3 indexes, are further defined into over 1000 named products. We have tried to avoid oversimplification, and a tremendous amount of information is given by our product number system. But, the basic indexing adds speed. Purely alphabetical directories are as slow and cumbersome as a telephone book. IRE engineers have liked our system better!

Code numbers shown after each firm refer to product or service sub-classes listed at the beginning of each product classification. "s" indicates stock items; "c" indicates custom-built items. Complete addresses will be found in the Alphabetical Directory, pages 81-226.

Distribution

1. Export & Import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales and service
5. Surplus dealers

This section of the IRE DIRECTORY is the complement to manufacturing, which is distribution. It has proved to be a real service to IRE member engineers and executives to put into this book a list of annually checked jobbers, wholesalers, manufacturers representatives, and distributors. Many of these firms are identified further by the initials ERA, as members of the Electronic Representatives Association, NEDA as members of the National Electronic Distributors Association. Permission from these organizations to use their membership lists in order to make this section of the IRE DIRECTORY as complete as possible is gratefully acknowledged. For convenience in locating distributional firms, the listings are arranged geographically under individual state names, the listings within each state being grouped by city names in alphabetical order, so that all firms located in any one city may be grouped together for quicker reference. Listings for foreign firms follow the listings for the United States.

ALABAMA

Anniston
(Telephone Area Code—205)

Radio Distributing & Supply Co., Inc., 125-27 W. Tenth St., Anniston, Ala., 2, Tel: ADams 6-0671 (NEDA)

Birmingham
(Telephone Area Code—205)

Adair Co. (Clark), 2257 Fourth Pl., Circle N.E., Birmingham 15, Ala., 3, Tel: VErnon 6-8497, Main Office: Decatur, Ga.

Chapman & Co. (Cary), 2516 Eighth Court N., Birmingham, Ala., 3, Tel: FAirfax 3-5235, Main Office: Atlanta, Ga.

Emory Design & Equipment Co., P.O. Box 9013, Birmingham 9, Ala., 3, Tel: TR 1-1369 (ERA)
Instruments, components, raw materials.

Forbes Distributing Co., Inc., 2610 Third Ave. S., Birmingham 5, Ala., 2, Tel: ALpine 1-4104 (NEDA)

Hayden Associates (Paul), P.O. Box 1931, Birmingham, Ala., 3, Main Office: East Point, Ga.

Jesse Associates (George O.), 104 Broadway, Birmingham 9, Ala., 3, 4, Tel: 205-TRemont 9-6015
Raytheon Co.

McCorvey Co. (V. Avis), 2248 Third St. N.W., Birmingham 15, Ala., 3, Main Office: Decatur, Ga.

Smith, Inc. (Maitland K.), 2805½ Cahaba Rd., Birmingham 13, Ala., 3, Tel: TRemont 1-9341, Main Office: Atlanta, Ga.

Wallace Associates, Inc. (Stanley K.), 1453 Linda Vista Dr., Birmingham, Ala., 3, Tel: TRinity 1-8266, Main Office: Charlotte, N.C.

Dothan
(Telephone Area Code—205)

Carmichael Wholesale Supply Co., 140 S. Foster St., Dothan, Ala., 2, Tel: SYcamore 2-2212 (NEDA)

Huntsville
(Telephone Area Code—205)

Brown & Associates (W. A.), 3405 Lookout Dr. S.E., Huntsville, Ala., 3, Tel: JEfferson 6-8393, Main Office: Alexandria, Va.

Highsmith & Co. (James L.), 1002 Meridian St. N., Huntsville, Ala., 3, Tel: JEfferson 9-6734, Main Office: Charlotte, N.C.

Lee Associates, Inc. (S. S.), Rm. 300, Utilities Bldg., Huntsville, Ala., 3, Tel: JEfferson 6-0631, Main Office: Orlando, Fla.

Murphy & Cota, 112 Gallatin St. S.W., Huntsville, Ala., 2, 3, Tel: JEfferson 6-9121, Main Office: Winston-Salem, N.C.

Montgomery
(Telephone Area Code—205)

Wamble Sales Co. (Fred), 3745 Marie Cook Dr., Montgomery 9, Ala., 3, Tel: 205-272-4600 (ERA)
Alco Electronic Products, Inc., American Electronics Co., Autotron, Inc., Birnbach Radio Co., Britton Electronics Corp., Caddell-Burns Mfg. Co., Cesco, Drake Mfg. Co., Duotone Co., Editors & Engineers, Ltd., Gam Electronics, Inc., General Crystal Co., Ideal Precision Meter Co., International Electronics Corp., Middletown Mfg. Co., Multi-Products Co., Parker Metal Goods Co., Plastic Capacitors, Inc., Rek-O-Kut Co., Robins Industries Corp., Waldom Electronics, Inc.

Opelika
(Telephone Area Code—205)

Southern Electronics Corp., 309 S. Tenth St., Opelika, Ala., 2, Tel: SHerwood 5-5298 (NEDA)

ALASKA

Anchorage
(Telephone Area Code—907)

Arva, Inc., P.O. Box 171, Anchorage, Alaska, 3, Tel: BR 2-6731, Main Office: Seattle, Wash.

Merritt Co. (Ron), P.O. Box 171, Anchorage, Alaska, 3, Tel: BR 2-6731, Main Office: Seattle, Wash.

Yukon Radio Supply, Inc., 645 I St., Anchorage, Alaska, 2, Tel: BRoadway 2-7964 (NEDA)

Fairbanks
(Telephone Area Code—907)

Polar Electronic Supply, Inc., 231 Illinois St., Fairbanks, Alaska, 2, Tel: GLobe 6-5423 (NEDA)

ARIZONA

Phoenix
(Telephone Area Code—602)

Berman Co., Inc. (Jack), 8146 N. First Ave., Phoenix, Ariz., 3, Tel: WH 5-9321, Main Office: Los Angeles, Calif.

Edwards Co. (Jackson), P.O. Box 10025, 3336 E. Colter St., Phoenix 16, Ariz., 3, Main Office: North Hollywood, Calif.

Emmet Co. (Frank A.), 335 Maryland Ave., Phoenix, Ariz., 3, Tel: AM 4-0013, Main Office: Los Angeles, Calif.

French Co. (Gene), Phoenix, Ariz., 3, Tel: ENterprise 673, Main Office: Albuquerque, N.M.

Henschen Co. (W. G.), 4438 E. Marion Way, Phoenix 18, Ariz., 3, Tel: WHitney 6-7477 (ERA)
Electro-mechanical components

Hyde Electronics Co., Inc., 2902 W. Villa St., Phoenix, Ariz., 3, Tel: APplegate 8-2266, Main Office: Denver, Colo.

Hytronic Measurements, Inc., Suite 21, Crandall Bldg., 1017 N. 3rd St., Phoenix 4, Ariz., 3, Tel: AL 3-7452, Main Office: Denver, Colo.

Knight Co. (W. Bert), P.O. Box 11394, Phoenix, Ariz., 3, Tel: YEllowstone 7-2060, Main Office: Los Angeles, Calif.

Neely Enterprises, 641 E. Missouri Ave., Phoenix, Ariz., 3, Tel: CRestwood 4-5431, Main Office: North Hollywood, Calif.

Nelson Co., P.O. Box 13546, Phoenix, Ariz., 3, Main Office: Denver, Colo.

O'Halloran Associates, 3, Tel: ENterprise 1200, Main Office: North Hollywood, Calif.

Perlmuth Electronic Associates, Inc., 2859 E. Thomas Rd., Suite B, Phoenix, Ariz., 3, Tel: AMherst 4-4934, Main Office: Los Angeles, Calif.

Premmco, Inc., 3300 N. Central Ave., Suite 206, Phoenix, Ariz., 3, Tel: 264-3213, Main Office: Los Angeles, Calif.

Radio Parts of Arizona, 214 S. 11th Ave., Phoenix, Ariz., 2, Tel: ALpine 8-6476 (NEDA)

Southwest Wholesale Radio, Inc., Second at Madison Sts., Phoenix, Ariz., 2, Tel: ALpine 2-1743 (NEDA)

Williams & Associates, Inc., 3033 N. Central Ave., Phoenix, Ariz., 3, Tel: CR 7-7477, Main Office: Denver, Colo.

Scottsdale
(Telephone Area Code—602)

Foley & Associates (E. J.), 3840 N. Jokake Dr., Scottsdale, Ariz., 3, Tel: 602-WHitney 5-2666 (ERA)
Accurate Specialties, Inc.: Solder performs, clad metal parts. **Advance Stamping Co.:** Cans, clips, eyelets. **Duramic Products, Inc.:** High temperature tooling. **Eltee Mfg. Co., Inc.:** Wire forms. **Epoxy Products, Inc.:** Encapsulation cases, preforms. **HK Metal Craft Mfg. Co., Inc.:** Washers. **Kern Co., Inc.:** Semiconductor grade chemicals. **Lenz Electric Mfg. Co.:** Braid, insulated cable. **Metalizing Industrier, Inc.:** Ceramic components. **Newcomb Spring of Conn., Inc.:** Wire forms, leads. **Screw Corp.:** Cold headed parts. **Tang Industries, Inc.:** Single crystal silicon & germanium. **United Components, Inc.:** Glass to metal seals. **Waldman & Sons, Inc.:** Screw machine parts. **Williams Gold Refining Co., Inc.:** Precious metals & alloys.

Jewett Co., 32B First St., P.O. Box 172, Scottsdale, Ariz., 3, Main Office: North Hollywood, Calif.

Marshall Co. (G. S.), 30 Pima Pl., Scottsdale, Ariz., 3, 4, Tel: WHitney 6-5521, Main Office: San Marino, Calif.

Michael, Inc. (Claude), 7412 Bonita Dr., Scottsdale, Ariz., 2, Tel: WHitney 6-0931, Main Office: GLendale, Calif.

Tucson
(Telephone Area Code—602)

Barstow & Doran, Inc., 647 Avenida Feliz, Tucson, Ariz., 3, Main Office: Los Angeles, Calif.

Elliott Electronics, Inc., 418 N. Fourth Ave., Tucson, Ariz., 2, Tel: MAin 4-2474 (NEDA)

Neely Enterprises, 232 S. Tucson Blvd., Tucson, Ariz., 3, Tel: MAin 3-2564, Main Office: North Hollywood, Calif.

Standard Radio Parts, Inc., 827 S. Park Ave., Tucson, Ariz., 2, Tel: MAin 3-4326 (NEDA)

ARKANSAS

Blytheville
(Telephone Area Code—501)

Teague Electronics, S. Hwy. 61, Blytheville, Ark., 2, Tel: POplar 3-4466, (NEDA)

El Dorado
(Telephone Area Code—501)

Bellew Sales Co. (Dick), 314 Melrose, El Dorado, Ark., 3, Tel: UN 3-8325 (ERA)
Components and raw materials.

Little Rock
(Telephone Area Code—501)

Crockett Sales Co., 6115 Markham, Plaza Towers, Little Rock, Ark., 3, Tel: MOhawk 6-0773, Main Office: Dallas, Tex.

White Electronics, Inc. (David), 1222 Main St., P.O. Box 408, Little Rock, Ark., 2, Tel: FRanklin 6-1391 (NEDA)

Paragould
(Telephone Area Code—501)

Martin Wholesale Radio Supply, Inc., 1207 W. Kingshighway, Paragould, Ark., 2, Tel: CEdar 6-4049 (NEDA)

Distribution
1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

CALIFORNIA

Alameda
(Telephone Area Code—415)

Premmco, Inc., 2406 Lincoln Ave., Alameda, Calif., 3, Tel: LAkehurst 3-9495, Main Office: Los Angeles, Calif.

Alhambra
Telephone Area Code—213)

Moye Co. (Robert G.), 116 S. Stoneham Ave., Alhambra, Calif., 3, Tel: 213-CUmberland 3-1669
Bridgeport Insulated Wire Co., Davenport Mfg. Co., Electro-Ceramics, Inc., Federal Screw Products, Inc., Freed Transformer Co., Inc., Scherma Mfg. Co., Inc.

Anaheim
(Telephone Area Code—714)

Federated Purchaser, Inc., 266 N. Manchester Ave., Anaheim, Calif., 2, Tel: PRospect 2-5840, Main Office: Mountainside, N.J.

Foley & Associates (E. J.), 1128 N. Adair Pl., Anaheim, Calif., 3, Tel: PRospect 2-7165, Main Office: Scottsdale, Ariz.
Components & raw materials.

Arcadia
(Telephone Area Code—213)

Wood Co. (Ash M.), P.O. Box 1158, Arcadia, Calif., 3, Tel: 213-CUmberland 3-1201 (ERA)
General Products Corp., Kilo Engineering Co., Langevin Div., Littelfuse, Inc., Microlectron, Inc., New England Instrument Co., Nugent Electronics Co., Reeves-Hoffman Div., Syncro Corp., Syntronic Instruments, Inc., Tansitor Electronics, Inc.

Bakersfield
(Telephone Area Code—805)

Valley Radio Supply, 1134 33rd St., Bakersfield, Calif., 2, Tel: FAirview 7-4811 (NEDA)

Berkeley
(Telephone Area Code—415)

Electronics Suppliers, 2428 Shattuck Ave., Berkeley 4, Calif., 2, Tel: THornwall 8-6965 (NEDA)

Beverly Hills
(Telephone Area Code—213)

Goodheart Co. (R. E.), P.O. Box 1220, Beverly Hills, Calif., 3, 4, Tel: 213-CRestview 5-5342
Test & communications equipment, voltage regulators, frequency standards.

Harmon Co. (W. S.), 121 N. Robertson Blvd., Beverly Hills, Calif., 3, Tel: OLympia 2-5616 (ERA)
Advance Ross Electric Co.; Aetna Mfg. Co.; Air-O-Tronics Engineering Co.; Anchor Industrial Co.; Centralab: Controls, switches, ceramic capacitors, printed circuits, insulators. **Electric Mfg. Co.:** Plastic molds. **Felsenthal & Sons, Inc.:** Edge-lighted panels. **Gavitt Wire & Cable Co.:** Hook-up wire. **General Electric Co., Telechron Div.:** Timers & motors. **Hobson Bros., Inc.; Mel-Rain Corp.:** Sensitivity controls, circuit breakers. **Methode Mfg. Corp.:** Sockets, tube

shields, connectors, boards. **Planet Mfg. Corp.:** Dry electrolytic capacitors. **Resistors, Inc.:** Power type wire-wound resistors. **Rohden Mfg. Co.:** Knobs. **Russell Speaker Co.; Speer Resistor Div.:** Fixed composition resistors, phenolic coil forms. **Wirecraft Products, Inc.:** Teflon.

Hyatt Co. (Walter J.), P.O. Box 943, Beverly Hills, Calif., 3, Tel: TRiangle 3-2361
Aqualite Corp.: Solenoids. **Neushal Mfg. Co.:** Cabinets, chassis, dollies. **Topping Models:** Scale & display models.

Moxon Electronics Corp., 489 S. Robertson Blvd., Beverly Hills, Calif., 3 (ERA)
Alfred Electronics, Autonetics, Clairex Corp., Computer Measurements Corp., De-Mornay-Bonardi, Epsco, Inc., Epsco-West, Harrison Labs., Marconi Instrument, Optron, Rutherford Electronics, Vidar Corp.

Mueller Electronic Sales, 9306 Santa Monica Blvd., Beverly Hills, Calif., 3, Tel: BRadshaw 2-8227 (ERA)
Arco Electronics: Capacitors. **Colman Electric Products:** Knobs, chemicals. **Component Specialists, Inc.:** Transistors. **Eric Electronics:** Tuners & amplifiers. **Fairchild Recording Equipment:** Turntables, arms, cartridges. **Globe Electronics:** Citizen-band & ham gear. **Vaco Products:** Hand tools & terminals.

Burbank
(Telephone Area Code—213)

Cain & Co., 2615 W. Magnolia Blvd., Burbank, Calif., 3, Tel: 213-VIctory 9-6781
Alloyd Electronics Corp.: Electron-beam welders. **Auto Data:** Voltage & resistance comparators. **Behlman Engineering Co.:** AC power sources **Clary Corp.:** Digital recorders, paper-tape perforators. **Electrada Corp.:** Microwave & communication systems. **Neff Instruments:** DC amplifiers. **Remanco, Inc.:** Radar simulators, beacon test sets. **Royco Instruments:** Particle counters. **Tucor, Inc.:** Duplexers, beam-sw.tching tubes.

Stern & Co., Inc. (I. R.), 4109 Burbank Blvd., Burbank, Calif., 3, Tel: 213-VIctoria 9-1195 (ERA)
Electro-Voice: Loudspeakers, microphones, PA, cartridges & needles, amateur receivers, citizen transceivers. **Ferrodynamics:** Magnetic-recording tape. **Gl:ser-Steers:** Record changers. **Harman-Kardon:** Tuners, amplifiers, receivers, PA systems. **Koss:** Stereo head-phones. **Langevin:** Amplifiers, equalizers, mixers, studio equipment. **Rek-O-Kut:** Disc recorders, turntables, arms. **Viking of Minneapolis:** Tape recorders, amplifiers.

Weightman & Associates, Inc., 4029 Burbank Blvd., Burbank, Calif., 3, Tel: 213-VIctoria 9-2435 (ERA)
Chicago Dynamic Industries: Rotary & thumbwheel switches. **Columbus Electronics Corp.:** Silicon rectifiers. **Computer Diode Corp.:** Silicon diodes. **Hughes Aircraft Co.:** Magnetic amplifiers, transformers. **Instrument Development Labs., Inc.:** High-speed switches. **Instruments For Industry, Inc.:** IF & wide-band amplifiers, tube sockets. **J-V-M Div., Fidelitone Microwave, Inc.:** Microwave components. **Johanson Mfg. Co.:** Variable air capacitors. **Sloan Co.:** Lamp holders, pushbutton & lighted switches. **Stevens-Arnold, Inc.:** Choppers & high-speed relays. **Valor Instruments, Inc., Delay** lines, pulse transformers. **Wright Machinery, Div. of Sperry-Rand Corp.:** Servo motors.

Burlingame
(Telephone Area Code—415)

Kolans & Co. (Bill), 219 California Ave., Burlingame, Calif., 3, Tel: DIamond 4-7111 (ERA)

Long & Associates, Inc., 1210 Canterbury Dr., Burlingame, Calif., 3, Main Office: Redwood City, Calif.

Calexico
(Telephone Area Code—714)

Radio Parts Co., Div. of Electronic Components, Inc., 116 Second St., Calexico, Calif., 2, Tel: ELliot 7-3148, Main Office: San Diego, Calif.

Calistoga
(Telephone Area Code—707)

Space Communication, Inc., Calistoga, Calif., 2, 4, Tel: WHitehall 2-4212
Budelman Electronics Corp.: Microwave. **Ericsson:** Communication systems.

Costa Mesa
(Telephone Area Code—714)

Xytan Co., 1755 Placentia Ave., Costa Mesa, Calif., 3, Tel: MIdway 6-5097
Hughes Aircraft Co.: Semiconductors.

Covina
(Telephone Area Code—213)

Relay Sales, Inc., 776 W. Front St., Covina, Calif., 2, Tel: EDgewood 1-2223, Main Office: West Chicago, Ill.

Culver City
(Telephone Area Code—213)

Gee Associates, Inc. (Harry), 5333 S. Sepulveda Blvd., Culver City, Calif., 3, Tel: EXmont 1-5515
Analogue Controls Inc.: Precision potentiometers, potentiometer checkers. **Electronic Transistors Corp.:** Germanium transistors. **General Applied Science Labs., Inc.:** Pulse & square wave generators, double pulse adapters, spectrum analyzers (VLF), logic modules. **Harco Labs., Inc.:** Thermocouple probes & wire, pressure probes. **Harowe Servo Controls, Inc.:** Servo motors, synchros, servo assemblies. **National Resistance Corp.:** Precision wire wound resistors. **Pace Engineering Co.:** Transducers, oscillators, thermocouple reference junctions. **Scaico Controls, Inc.:** Temperature switches. **Syracuse Electronics Corp.:** Time delay relays, solid state controls. **Wacline Inc.:** Ruggedized panel meters.

JSH Electronics Co. & Harwit International, Inc., 8549 Higuera Ave., Culver City, Calif., 1, 2, 3, 5, Tel: 213-UPton 0-4616
Electronic tubes, semiconductors.

Landis Associates, 8588 W. Washington Blvd., Culver City, Calif., 3, Tel: UPton 0-8697 (ERA)
Balco Research Labs, Inc.: Capacitors. **Del Electronics Corp.:** DC power supplies. **Elasco, Inc.:** DC power supplies. **Gyrex Corp.:** Frequency standards. **Industrial Test Equipment Co.:** Power oscillators & phase meters. **Parabam, Inc.:** Digital clocks & function generators. **Ridgefield Instrument Group:** DC amplifiers & counters. **Waveforms, Inc.:** Oscillators, VTVM's.

Sodaro Co., 3753 S. Robertson Blvd., Culver City, Calif., 3, Tel: 213-UPton 0-6001
Advanced Measurement Instruments, Inc.; Asquith Co.: Multi-turn counting dials, potentiometers. **EMI/US:** Klystrons, magnetrons, CRT's. **Ford Instrument Co.:** Servo motors, synchros. **Industrial Control Corp.:** Servomechanisms, null detectors, analog modulators & demodulators, automatic capacitance bridges. **Sanders Electronics, Ltd.:** Attenuators, crystal mixers & detectors, phase shifters, signal generators, wavemeters. **TT Electronics, Inc.:** Filters, DC regulated transistorized power supplies.

Westates Electronics Corp., 11334 Playa St., Culver City, Calif., 2, Tel: EXmont 1-6201 (NEDA)

Cupertino
(Telephone Area Code—408)

Geist Co. (W. K.), P.O. Box 643, Cupertino, Calif., 3, Tel: YOrkshire 8-1608, Main Office: Los Angeles, Calif.

Daly City
(Telephone Area Code—415)

Delbucchia & Associates (R.), 179 S. Mayfair Ave., Daly City, Calif., 3 (ERA)

El Segundo
(Telephone Area Code—213)

Double E Products Co., 208 Standard St., El Segundo, Calif., 3, Tel: 213-OR 8-1368 (ERA)
Genalex: Toroid cores. **Gorman Machine:** Toroid winding machines.

Encino
(Telephone Area Code—213)

Spraggins Co. (S. L.), 16042 Ventura Blvd., Encino, Calif., 3, Tel: STate 8-6661
Dinion Coil Co., Forbes & Wagner, Inc., Lenz Electric Mfg. Co., Midland Mfg. Co., Moloney Electric Co., Ovenaire, Inc., Stackpole Carbon Co.

Eureka
(Telephone Area Code—707)

Dealers' Electronic Supply Co., 800 Broadway St., Eureka, Calif., 2 (NEDA)

Fresno
(Telephone Area Code—209)

DeJarnatt Wholesale Co., Inc. (B. J.), 223 Fulton St., Fresno 21, Calif., 2, Tel: ADams 7-2153 (NEDA)

Garden Grove
(Telephone Area Code—714)

Freeman Sales Co., 11422 Tobie St., Garden Grove, Calif., 3, Tel: 714-LEhigh 9-5574 (ERA)
Crosby Electronics, Inc.: Tuners, amplifiers, speakers. **Dyna-Empire, Inc.:** Turntables. **Neshaminy Electronic Corp.:** Speakers. **Precision Electronics:** PA amplifiers. **Robins Industries, Inc.:** Tape splicers. **Stephens Trusonic, Inc.:** Speakers.

Gardena
(Telephone Area Code—213)

Aerotron Supply Co., Inc., 13611 S. Normandie, Gardena, Calif., 2, 3, Tel: FAculty 1-5911
Bristol Co.: Socket screws. **Cook Screw Products:** Screw machine products. **H&H Plastics:** Injection molding. **Pylon Co., Inc.:** Fasteners.

Glendale
(Telephone Area Code—213)

Gates Co. (Howard A.), 1819 Harmon Pl., Glendale 8, Calif., 3, Tel: CHurchill 9-5360
Formica Metal Products Co.: Laboratory furniture. **Fortiphone, Ltd.:** Subminiature transformers, hearing aids, microphones.

Michael, Inc. (Claude), 703 W. Ivy St., Glendale 4, Calif., 2, Tel: CHapman 5-8401
American Electrical Heater Co.: Soldering irons. **American Solder & Flux Co.:** Fluxes. **Belmont Smelting & Refining Works, Inc.:** Solders. **Bruno-New York Industries Corp.:** Resistor benders. **CBS-Hytron Sales Corp.:** Soldering. **Contact, Inc.:** Wire strippers. **Dee Electric Co.:** Pots. **Division Lead Co.:** Fluxes. **Dixon, Inc.:** Hand tools. **Dunton Co.:** Fluxes. **Electric Soldering Iron Co.:** Pots. **Engineering & Electronic Devices, Inc.; Erikson Specialized Tool Co.:** Soldering. **Fidelity Chemical Products Corp.:** Chemical wire strippers. **G.E. Co., Apparatus Sales Div.:** Soldering irons. **Grieve-Hendry Co., Inc.:** Ovens. **Handicraft Tools, Inc.:** Hand tools. **Handy & Harman:** Alloys & fluxes. **Hexacon Electric Co.:** Soldering irons. **Hysol of Calif.:** Epoxy-patch kits. **Ideal Industries, Inc.:** Wire strippers. **Johnson Mfg. Co.:** Fluxes. **Kemode Mfg. Co., Inc.:** Irons. **Kester Solder Co.:** Solder. **Kirk & Son, Inc.:** Lead wire. **Klein & Sons (Mathias):** Hand tools. **Kraeuter & Co.:** Hand tools. **Kwikheat Mfg. Co.:** Irons. **Linemaster Switch Corp.:** Footswitches. **London Chemical Co., Inc.:** Chemical wire strippers. **Luma Electric Equipment Co.:** Resistance soldering. **Marshall Instruments, Inc.:** Dial thermometers. **Master Appliance Corp.:** Heat guns. **McDowell Electronics, Inc.:** Induction generators. **Metal Mending Products:** Fluxes. **Miller Tool & Mfg. Co., Inc.:** Wire strippers. **Mitchell Industries, Inc.:** Irons. **Moody Machine Products Co., Inc.:** Hand tools. **Multicore Sales Corp.:** Solder. **Oryx Sales Co.:** Irons. **Peck-Lewis Corp.:** Alloys. **Portable Electric Tools, Inc.:** Irons. **Robinson Co. (Ralph C.):** Hand tools. **Ruby Chemical Co.:** Fluxes. **Superior Flux & Mfg. Co.:** Fluxes. **Swiss American Precision Imports:** Hand tools. **Swiss Lab.:** Cold solder. **Taca Cable Stripper Mfg. Corp.:** Cable strippers. **Triton Mfg. Co., Inc.:** Resistance soldering. **Ultra-Violet Products, Inc.:** Ultra-violet lamps. **Ungar Co., Inc. (Sid):** Irons. **Ungar Electric Tools, Inc.:** Irons. **United Welding Service Co.:** Fluxes. **Utica Drop Forge & Tool Co.:** Hand tools. **Vulcan Electric Co.:** Irons. **Waage Electric, Inc.:** Pots. **Wall Mfg. Co.:** Irons. **Wassco Electric Products Corp.:** Resistance soldering. **Weller Electric Corp.:** Soldering guns. **Wilder Mfg. Co., Inc.:** Iron holders. **Xcelite, Inc.:** Hand tools. **Zephyr Mfg. Co., Inc.:** Resistance soldering.

Weatherford Co. (R. V.), 6921 San Fernando Rd., Glendale 1, Calif., 2, Tel: 213-THornwall 5-3551 (NEDA)

Western Electronic Supply Corp., 229 S. Orange, Glendale 4, Calif., 2, Tel: CItrus 1-0721 (NEDA)

Hollywood
(Telephone Area Code—213)

Heim & Scheer, Inc., 3360 Barham Blvd., Hollywood 28, Calif., 3, Tel: HOllywood 2-7357 (ERA)
Alloys Unlimited, Inc.: Solder preforms. **Crocker Burbank Papers, Inc.:** Capacitor tissue. **Glass Components, Inc.:** Semiconductor glass parts. **Mitronics, Inc.:** Metallized ceramics. **Molecu-Wire Corp.:** Resistance wire. **Monosilicon, Inc.:** Silicon crystals. **Secon Metals, Inc.:** Precious metal wire. **Stewart Stamping Co.:** Stampings & wire forms. **Veritron West, Inc.:** Glass-to-metal seals.

Hollywood Radio & Electronics, 5250 Hollywood Blvd., Hollywood 27, Calif., 2, Tel: HOllywood 4-8321 (NEDA)

Instruments for Measurements, 3455 Cahuenga Blvd., Hollywood, Calif., 3, Tel: HOllywood 9-7294
Alford Mfg. Co.: Slotted lines, loads, matching networks, impedance plotters. **Communication Measurements Lab.:** AC power supplies. **Hughes Aircraft Co.:** Welding equipment. **Jerrold Electronics Corp.:** Sweep generators, marker generators. **Judson-Bigelow Sales Co.:** Chart paper. **Lumatron Electronics, Inc.:** Diode test equipment, pulse generators, oscilloscopes. **Perkin Electronics:** Power supplies, converters, AC line regulators. **Photocircuits Corp.:** Tape readers. **Radio Frequency Labs.:** Variable power supplies, AC & DC calibration standards, magnetics equipment, impedance meters. **Sanders Associates:** Strip transmission line modules. **T.I.C. of Acton:** Impedance measuring instruments, phase meters & standards, potentiometer test. **Technical Products Co.:** AF spectrum analyzers, spectral density analysis equipment. **Waveline, Inc.:** Waveguide bending, microwave test equipment.

Miller Co. (Gerald B.), 1619 N. Cherokee Ave., Hollywood 28, Calif., 3, Tel: HOllywood 2-1195 (ERA)
Electronic Control Products: Digital modules, control systems. **Microwave Semiconductor & Instruments, Inc.:** Microwave gear. **Sela Electronics Co.:** Elapsed time devices. **Vibrasonics, Inc.:** Small vibration shakers. **Voltronics, Inc.:** Precision potentiometers.

Shephard-Winters Co., 3193 Cahuenga Blvd., Hollywood 28, Calif., 3, Tel: 213-HOllywood 6-2171 (ERA)
Amperex Electronic Corp., Analogue Controls, Inc., Astron Corp., Automatic Metal Products, Bulova Watch Co., Digital Deveopment Corp., ESC Electronic Corp., Ferroxcube Corp., GB Components, Inc., Harman-Kardon, Inc., Premier Microwave Corp., Shockley Transistor Corp., Superior Mfg. & Instrument Corp.

Snyder Co. (Lee Grant), 1418 N. Highland Ave., Hollywood 28, Calif., 3, Tel: 213-HOllywood 9-6278 (ERA)
Allard Instrument Corp.: Annunciators, alpha-numeric readouts. **Gamewell Co.:** Potentiometers. **Interlab, Inc.:** Printed circuit coil meters. **James Electronics, Inc.:** Instrument choppers, transformers. **Keystone Carbon Co.:** Thermistors. **Lindgren & Associates, Inc.:** Shielded rooms. **Lome Electronics, Inc.:** Telemeter oscillators. **National Connector Corp.:** Connectors. **Penn Resistor Corp.:** Carbon film resistors. **Smith Corp. (A. O.), Crowley Div.:** Ferrites, cores, ceramic magnets. **Victory Electronics, Inc.:** Power supplies.

Inglewood
(Telephone area code—213)

Ault Associates, 1635 Centinela, Inglewood, Calif., 3, Tel: OREgon 8-6144, Main Office: Menlo Park, Calif.

Cook Electronics, Inc., 210 E. Hardy, Inglewood 1, Calif., 2, Tel: OREgon 8-7644 (NEDA)

Newark Electronics Co., Inc., 4747 W. Century Blvd., Inglewood, Calif., 2, Tel: OREgon 8-0441 (NEDA)

La Jolla
(Telephone Area Code—714)

Hafstrom-Thompson Associates, 7460 Girard Ave., LaJolla, Calif., 3, Tel: GL 4-4271 (ERA)
Components & instruments.

Pacific Electro-Sales, Inc., 1465 Deer Hill Court, La Jolla, Calif., 3, Tel: BElmont 3-3341, Main Office: Los Angeles, Calif.

Snitzer Co. (T. Louis), 7814 Ivanhoe Ave., La Jolla, Calif., 3, Tel: GLencourt 4-2191, Main Office: Los Angeles, Calif.

Long Beach
(Telephone Area Code—213)

Hall of California (R. C. & L. F.), 4686 Long Beach Blvd., Long Beach 5, Calif., 2, Tel: GArfield 3-0927 (NEDA)

Kierulff Electronics, Inc., 415 Long Beach Blvd., Long Beach, Calif., 2, 3, Tel: 213-HEmlock 5-9582, Main Office: Los Angeles, Calif.
See ad on page 593

Scott Audio Corp., 266 Alamitos Ave., Long Beach 2, Calif., 2, Tel: HEmlock 6-1452 (NEDA)

Los Altos
(Telephone Area Code—415)

Cain & Co., 22331 Holt Ave., Los Altos, Calif., 3, Tel: YO 8-0995, Main Office: Burbank, Calif.

Rupp Co. (V. T.), 1182 Los Altos Ave., Los Altos, Calif., 3, Tel: WHitecliff 8-1483, Main Office: Los Angeles, Calif.

Strassner Co. (Richard A.), 126 Third St., P.O. Box 927, Los Altos, Calif., 3, Tel: WHitecliff 8-3334, Main Office: Los Angeles, Calif.

Van Groos Co., 1178 Los Altos Ave., Los Altos, Calif., 3, Tel: WHitecliff 8-7266, Main Office: Woodland Hills, Calif.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Los Angeles
(Telephone Area Code—213)

Alderson Co. (Wes), 3050 Overland Ave., Los Angeles 34, Calif., 3, Tel: TE 0-1030 (ERA)

Avnet Corp., 5877 Rodeo Rd., Los Angeles 16, Calif., 2, 3, Tel: 213-UPton 0-6141 (NEDA)
Babcock Relays, Inc.: Relays. **Bendix-Scintilla:** Connectors. **Control Switch Div.:** Switches. **Lerco Electronics, Inc.:** Hardware. **Mechanical Products:** Circuit breakers. **Microdot, Inc.:** Connectors & coaxial cable. **Rheem Semiconductor Corp.:** Semiconductors. **Robertson Electric Co.:** Splice cases. **Technology Instrument Corp.:** Potentiometers. **U.S. Semiconductor Products:** Semiconductors.

Barstow & Doran, Inc., 1408 S. Grand Ave., Los Angeles 15, Calif., 3, Tel: RIchmond 8-6191 (ERA)
James Electronics, Inc.: Vibrators, choppers, transformers. **Nortronics Co., Inc.:** Recording heads. **Quincy Products Co.:** Speakers. **Tenna Mfg. Co.:** Antenna equipment, coaxial connectors. **United Electronic Mfg. Co.:** Capacitors.

Becker Co., Inc. (Herb), 1140 Crenshaw Blvd., Los Angeles 19, Calif., 3, Tel: WEbster 1-1257 (ERA)
Eitel-McCullough, Inc., Gonset Div. of Young Spring & Wire Corp., Ohmite Mfg. Co.

Bell Co. (Arvin), 7012 N. Figueroa St., Los Angeles 42, Calif., 3, Tel: 213-CLinton 4-3901 (ERA)
Collins Electronics, Inc.: Choppers & vibrators. **GOE Engineering Co.:** Hardware. **Instrument Specialties Co., Inc.:** Beryllium Copper strips & rings. **Shallcross Mfg. Co.:** Resistors, switches, delay lines, instruments. **Universal Circuit Controls:** Key switches. **Warren Components, Div. of ElTronics, Inc.:** Glass-metal seals, humidity sensors.

Berman Co., Inc. (Jack), 1141 S. LaCienega Blvd., Los Angeles 35, Calif., 3 (ERA, NEDA)
British Industries Corp.; Bud Radio, Inc.: Metal cabinets. **Central Resistor Co.:** Resistors. **Dialight Corp.:** Pilot lights. **Dialtron Corp.:** Thermal time delay relays. **Elco Corp.:** Sockets, connectors, circuit boards. **J.B. Electronics:** Transformers. **Jerrold Electronics Corp.:** Antennas, converters, adapters, amplifiers. **Keystone Electronics:** Ovens, crystals. **Leecraft Corp.:** Sockets. **National Radio Co., Inc.:** Ham receivers, chokes, coils, hardware. **Pyramid Electric Co.:** Capacitors. **Radio Materials Corp.:** Discaps. **Shure Bros., Inc.:** Microphones, cartridges. **Silicon Transistor Corp.:** Transistors, diodes. **Solar Systems:** Crystals, solar cells. **Tru-Ohm Products:** Resistors, rheostats.

California Electronics Supply, Inc., 11201 W. Pico Blvd., Los Angeles 64, Calif., 2, Tel: BRadshaw 2-2124 (NEDA)

Carter Associates (Jack), 336 S. LaBrea Ave., Los Angeles 36, Calif., 3, Tel: WEbster 6-8201 (ERA)
Astron Sales Corp., Clevite-Brush Electronics, Continental Mfg., JFD Electronics, Light Electric Corp., Milwaukee Relays, Oaktron Industries, Walco Electronics, Wald, Inc., Walsco Electronics, Wen Products.

Cohn Sales Co. (S. H.), 920 S. Mansfield, Los Angeles 36, Calif., 3, Tel: WE 3-8617 (ERA)
Components & raw materials.

Colman & Associates (Eddie), 1503 S. Maple, Los Angeles 15, Calif., 3, Tel: RI 9-6591 (ERA)
Components & raw materials.

Continental Components, Inc., 332 N. LaBrea Ave., Los Angeles 34, Calif., 2, Tel: WEbster 7-1555
International Instruments, Inc., U.S. Semiconductor Products, Western Semiconductor.

Costello & Co., 2740 S. LaCienega Blvd., Los Angeles 34, Calif., 3, Tel: 213-UPton 0-8537 (ERA)
Barnes Engineering Co.: Infrared. **Bradley Semiconductor Corp.:** Rectifiers. **Electro-Flex Corp.:** Heating elements & blankets. **Electro-Flex Heat, Inc.:** Heating elements, power resistors. **Fabri-Tek, Inc.:** Magnetic core memories. **Fabricast, Inc.:** Slip ring assemblies. **Gore & Associates, Inc. (W. L.):** Teflon ribbon cable. **Inland Motor Corp.:** Torque motors. **Kollmorgen Corp.:** Periscopes, borescopes, collimators. **Penn-Keystone Corp.:** Aircraft panel instruments, annunciators. **Thermax Wire Corp.:** Insulated hook-up wire & cable. **Transistor Electronics Corp.:** Computer control panel components.

Davis Sales Co. (George), 2119 S. Atlantic Blvd., Los Angeles 22, Calif., 3, Tel: AN 8-7231 (ERA)
Communications, components, test equip.

Delmonico International, 5015 Hampton St., Vernon, Los Angeles 58, Calif., 1, 2, 3, 4, Tel: LU 3-3301, Main Office: Corona, N.Y.

DynaSales Co., 1226 S. Atlantic Blvd., Los Angeles 22, Calif., 3, Tel: ANgelus 8-1175
Digitronics Corp.: Computer accessories. **Dynapar Corp.:** Counters, totopulsers. **Magnavox Research Labs.:** Data scanning relays. **Mar-Cone Corp.:** Modular power supplies. **Mnemotron Corp.:** Tape recorders. **Photomechanisms, Inc.:** Cameras, processors. **Photron Instrument Co.:** Oscillographic & event recorders. **Servo Development Corp.:** Servo indicators. **Westinghouse Instrument Div.:** Panel, portable recording instruments.

Emmet Co. (Frank A.) 315-325 N. Hoover St., Los Angeles 4, Calif., 3, Tel: NOrmandy 5-5952 (ERA)
ATR Electronics: Vibrators, inverters. **Bodnar Products Corp.:** Illuminated panels. **Imtra Corp.:** Stepping switches. **Lumen, Inc.:** Magnetic amplifiers. **Marstan Electronics:** Wirewound resistors. **Midwec Sales Co.:** Mylar capacitors. **Phaostron Instrument & Electronic Co.:** Panel meters. **Plastold Corp.:** Coaxial cable, teflon lead wire. **Wright Electronics, Inc.:** Quartz frequency crystals.

Erlanger Sales Co., 4217 W. Jefferson, Los Angeles 16, Calif., 3, Tel: REpublic 1-2238 (ERA)
Antenna Designs, Elco, Fiberglass Evercoat, Jersey Specialty Co., Tennatronics, Ltd.

Federated Purchaser, Inc., 11275 W. Olympic Blvd., Los Angeles 64, Calif., 2, Tel: GRanite 7-8274 (NEDA)

Feldman Co. (Henry), P.O. Box 66367, Los Angeles 66, Calif., 3, Tel: 213-RIchmond 9-8803 (ERA)
Acoplan Technical Co., Barker Products Co., Dech & Co., DeWald, Gurian & Co., Oneida Electronic Co., Rogers Electronics, Inc., Weller Electric Co.

California

Freeman Sales Co., 3, Tel: NOrmandy 4-1004, Main Office: Garden Grove, Calif.

Geist Co. (W. K.), 3177 Glendale Blvd., Los Angeles 39, Calif., 3, Tel: NOrmandy 5-1195 (ERA)
Barnes Development Co.: Test sockets, component test equipment. **Burr-Brown Research Corp.:** Solid state amplifiers & oscillators, voltmeters. **Crosby-Teletronics Corp.:** Frequency meters, diode testers. **Curtiss-Wright Corp.:** Electrometers. **Eppley Lab., Inc.:** Standard cells, thermopiles. **Frontier Electronics Co.:** Airborne frequency standards. **Holt Instrument Labs.:** AC calibration standards. **Navigation Computer Corp.:** Digital modules. **Physics Research Labs., Inc.:** DC calibration standards, resistors. **Rohde & Schwarz Sales Co.:** Time & frequency standards, audio & RF test equipment. **Scott, Inc. (H. H.):** Sound measuring instruments, power amplifiers.

Gilbert Co., Inc. (M. B.), P.O. Box 45824, Los Angeles 45, Calif., 3, Tel: OR 8-3418 (ERA)

Hafstrom-Thompson Associates, 5603 N. Figueroa, Los Angeles 42, Calif., 3, Tel: CL 4-3995, Main Office: La Jolla, Calif.

Hamilton Electro Sales, 11965 Santa Monica Blvd., Los Angeles 25, Calif., 3, Tel: BRadshaw 2-9154
Fairchild Semiconductor Corp.: Semiconductors. **General Electric Co.:** Tantalum capacitors, relays, meters. **Motorola, Inc.:** Semiconductors. **Philco Corp.:** Semiconductors. **Westinghouse Electric Corp.:** Semiconductors.

Hansen Co. (Charles A.), 1406 S. Grand Ave., Los Angeles 15, Calif., 3, Tel: RIchmond 8-6191 (ERA)
Components.

Heeger, Inc., 2528 W. 9th St., Los Angeles 6, Calif., 3, Tel: 714-DUnkirk 7-6995
H.M.H. Industries: Coolants. **Hascol Enterprises:** Fluxes, potting compounds.

Holmes Co. (Carl E.), 107 N. Ave. 64, Los Angeles 42, Calif., 3 (ERA)
American-Standard Controls Div.: Switches. **Contacts, Inc.:** Silver contacts. **Electro-Mechanical Instruments:** Meters. **Fenwal Electronics, Inc.:** Thermistors & probes. **Isotronics, Inc.:** Glass-to-metal seals. **Kidco, Inc.:** Resistors. **Philips Elmet Corp.:** Tungsten & molybdenum. **Scientific Radio Products, Inc.:** Quartz crystals. **Syntron Co.:** Selenium & silicon rectifiers. **Union Switch & Signal:** Miniature relays & readout instruments.

Hughes Co., Inc. (R. S.), 4515 Alger St., Los Angeles 39, Calif., 2, Tel: 213-CHapman 5-6621
Armstrong Products Co., Doré Co. (John L.), Penna. Fluorocarbon Co., Saunders Engineering Corp.

Jurin Co. (Syd), 1628 S. Bentley Ave., Los Angeles 25, Calif., 3, Tel: 213-GRanite 7-7768 (ERA)
Audax, Inc.: Speakers. **B & K Mfg. Co.:** Test equipment. **Cadre Industries:** Citizen band receivers. **Carron Mfg. Co.:** Phonographs. **Midwest Audio:** Paging systems. **Semitronics, Inc.:** Semiconductors. **Space Communications Co.:** Closed-circuit TV. **Webster Productmatic Corp.:** Intercommunication systems.

K-Tronics: See Kierulff Electronics, Inc.

Kershner Co. (Wendell T.), 6534½ Whittier Blvd., Los Angeles 22, Calif., 3, Tel: 213-RAymond 3-5600 (ERA)
Electronic Mechanics, Inc.: Mica. **General Electric Co.:** Special purpose tubes. **Goat Electronic, Inc.:** Telephone-type relays. **Metronics, Inc.:** Tungsten & moly. wire & rods. **Prototype Transformer Corp.:** Transformers, pulse networks.

Kierulff Electronics, Inc., 820 W. Olympic Blvd., Los Angeles 15, Calif., 2, 3, Tel: 213-RIchmond 8-2444, TWX L.A. 46 (NEDA)
See ad on page 593
Advance: Relays. **Alpha:** Wire. **Amperex:** Tubes. **Amperite:** Relays. **Ampex:** Recording equip. **Amphenol:** Connectors & sockets. **Arco:** Capacitors. **Arrow-Hart & Hegeman:** Switches. **Augat:** Hardware. **Belden:** Wire & cable. **Bourns:** Potentiometers. **Bud:** Cabinets. **Burgess:** Batteries. **California Chassis:** Cabinets. **Centralab:** Controls, switches. **Chatham Electronics:** Tubes. **Chicago-Stancor:** Transformers. **Cinch-Jones:** Connectors & strips. **Clarostat:** Controls & resistors. **Cornell-Dubilier:** Capacitors. **Daven:** Resistors. **Dialco:** Lamps & sockets. **Elco:** Sockets & hardware. **Electra:** Resistors. **Eveready:** Batteries. **General Electric:** Tubes & semiconductors. **Grayhill:** Switches. **Heathkit:** Test equip. **Hickok:** Test equip. & meters. **Hoffman:** Semiconductors. **Hughes:** Semiconductors. **International Rectifier:** Semiconductors. **JBT Instruments:** Switches. **E. F. Johnson:** Hardware. **Keystone:** Battery holders. **Kings:** Connectors. **Littelfuse:** Fuses. **Machlett:** Tubes. **Mallory:** Capacitors and batteries. **Microdot:** Connectors & wires. **J. W. Miller:** Coils. **Minneapolis-Honeywell:** Semiconductors **Motorola:** Semiconductors. **Mueller:** Clips & insulators. **National Electronics:** Power tubes. **National Radio:** Semiconductors. **Ohmite:** Resistors & rheostats. **PSI:** Transistors & diodes. **Pomona:** Test leads & sockets. **Philco-Lansdale:** Transistors. **Potter & Brumfield:** Relays. **Raytheon:** Tubes & knobs. **RCA:** Semiconductors, tubes. **R-D Instruments:** Testers. **Resistance Products:** Resistors. **Sarkes Tarzian:** Silicon rectifiers. **Sigma:** Relays. **Simpson:** Test equip. & meters. **H. H. Smith:** Components. **Sola:** Transformers. **Spectrol:** Controls, potentiometers. **Superior:** Powerstats & binding posts. **Switchcraft:** Switches. **Triad:** Transformers. **Triplett:** Meters & test equip. **Tung-Sol:** Transistors & tubes. **USECO:** Hardware. **Ungar:** Soldering irons. **Vector:** Sockets. **Weller:** Soldering guns. **Weston:** Meters & test equipment.

King Engineering Co., 5321½ Hollywood Blvd., Los Angeles 27, Calif., 3 **Electro-Product Laboratories, Inc., Electrovert, Inc., Natel Engineering, Inc., Rese Engineering, Inc., White Avionics.**

Kittleson Co., 416 N. LaBrea Ave., Los Angeles 36, Calif., 3, Tel: WEbster 3-7371 (ERA)
Aetna Electronics Corp.: Ultrasonic transducers. **Cedar Engineering:** Components, digital instrumentation. **Hermes Electronics Co.:** Oscillators. **Integron, Inc.:** Sonar, transducers, amplifiers, receivers. **International Instruments, Inc.:** Meters, multitesters. **Itek Electro-Products Co.:** Crystal filters. **Lavoie Labs., Inc.:** Spectrum analyzers, oscilloscopes, signal generators. **Librascope Div.:** X-Y plotters. **Melabs:** Components, RF-Microwave instruments. **Packard-Bell Computer Corp.:** On-line digital & analytic computers. **Rotek Instrument Corp.:** Voltage reference. **Spencer-Kennedy Labs., Inc.:** Wide-band amplifiers. **U.S. Semiconductor Products, Inc.:** Diodes, rectifiers, tantalum capacitors.

Knight Co. (W. Bert), 10377 W. Pico Blvd., Los Angeles 64, Calif., 3, Tel: BRadshaw 2-0101 (ERA)
Resistors, capacitors, transformers, crystals, antennas, rectifiers.

Koessler Sales Co., 818 N. Fairfax Ave., Los Angeles 46, Calif., 3, Tel: 213-OLive 3-1605 (ERA)
American Microphone Mfg. Co.: Microphones & cartridges. **Apparatus Development Co., Inc.:** Antennas. **Audio Devices, Inc.:** Tape & discs. **Barker Products Co.:** Cable. **Bozak Sales Co.:** Speakers & enclosures. **Electro-Sonic Laboratories, Inc.:** Stereo arms & cartridges. **Fisher Berkeley:** Intercommunication equip. **Four-Jay Industries:** Baffles. **McIntosh Laboratory, Inc.:** Tuners, preamplifiers. **Magnecord Div., Midwestern Instruments, Inc.:** Tape recorders. **Meissner Laboratory:** Monaural & stereo mixers. **Transistor Devices, Inc.:** Transistorized announcing systems. **Vega Electronics Corp.:** Wireless microphones. **Waveforms, Inc.:** Miniaturized instrumentation. **Worner Electronic Devices:** Alarm equip.

Lynch & Son (C. R.), 3307 Glendale Blvd., Los Angeles 39, Calif., 3, Tel: NO 3-8236 (ERA)

Marsh Co. (J. W.), 4216 W. Jefferson Blvd., Los Angeles 16, Calif., 3, Tel: RE 2-0145 (ERA)
Chester Cable Corp.: Coaxial cable. **DeJur-Amsco Corp.:** Potentiometers, panel instruments. **Eby, Inc.:** Binding posts. **Electronic Plastics Corp.:** Terminal boards. **Gudeman Co.:** Capacitors, delay lines, pulse transformers. **Hanell, Inc.:** Industrial relays, solenoids, key switches. **International Telephone & Telegraph Corp.:** Rectifiers, tantalum capacitors. **Jeffers Electronics, Div. of Speer Carbon Co.:** RF coils, solenoids, chokes, capacitors. **Northern Metal Products Co.:** Cans. **Sonotone Corp:** Sub-miniature tubes, nickel-cadmium batteries. **Sterling Precision Corp.:** Gear trains, differentials. **U.S. Transistor Corp.:** Transistors, tunnel diodes. **V-M Corp.:** Record changers.

Marshank Sales Co., 7422 Melrose Ave., Los Angeles 46, Calif., 3, Tel: WEbster 8-2591 (ERA)
Barco, Inc.: Capacitors. **Bogen-Presto Co.:** Amplifiers. **Bramco, Inc.:** Relays. **H & M Research & Development Corp.:** Capacitors. **Kemtron Electron Products:** Diodes. **Spectrol Electronics Corp.:** Potentiometers. **Ungar Co. (Sid):** Soldering irons.

Olander & Co. (Roland), 6313 Santa Monica Blvd., Los Angeles 38, Calif., 3, Tel: 213-HOllywood 9-6313 (ERA)
Consolidated Avionics Corp.: Transistorized power supplies. **Ferranti Electric, Inc.:** Delay lines, punched tape readers, storage drums, cathode-ray tubes. **Offner Electronics, Inc.:** Direct writing oscillographs, amplifiers, encephalographs. **OPTOmechanisms, Inc.:** Micro-positioning equip., recording cameras. **Post Machinery Co.:** Sorters & counters. **Scott & Co., Ltd. (James):** Microwave noise generators, spectrum analyzers. **Varo, Inc.:** Wow & flutter meters.

Pacific Electro-Sales, Inc., 6053½ Whittier Blvd., Los Angeles 22, Calif., 3, Tel: RAymond 3-3396 (ERA)
Carter Parts Co., Con-Elco, Cook Electric Co., Exact Engineering & Mfg., Inc., Hermetite Corp., Poly-Scientific Corp.

Perlmuth Electronic Associates, Inc., 5057 W. Washington Blvd., Los Angeles 16, Calif., 3, Tel: WEbster 1-1041 (ERA)
Alpha Wire Corp., Amco Engineering Co., Applied Electronics, Autotronics, Inc., California Technical Industries, Capitol Machine Co., Clarostat Mfg. Co., Dearborn Electronic Laboratories, Inc., Donner Scientific Co., Eastern Air Devices, Fanon Transistor Corp., Fifth Dimension, Inc., Greibach Instruments Corp., Gombos Co., Hudson Wire Co., Magnetic Shield Div. of Perfection Mica Co., Manson Laboratories, Inc., R-Tronics, Inc., Sangamo Electric Co., Schjeldahl Co., Slip Ring Corp. of America, Speidel Corp., Waterman Products Co.

Premmco, Inc., 5470 Valley Blvd., Los Angeles 32, Calif., 3, Tel: 213-CApitol 2-0167
Ace Engineering & Machine Co., Inc.: RF shielded enclosures. **Airflow Co.:** Air conditioners. **Arnold Magnetics Co.:** Power supplies, transformers, inductors, magnetic amplifiers, toroidal winding machines. **Components Engineering & Mfg. Co.:** Fasteners. **Empire Spring Co.:** Miniature parts. **Heli-Coil Corp.:** Inserts. **Lindsay Structures Div.:** Modular housings. **Pacific Coast Electronics, Inc.:** Shock absorbing terminals. **RF Products Div. of Amphenol-Borg Corp.:** RF products. **Temptron, Inc.:** Temperature sensing elements, thermocouples. **Wincharger Corp.:** Power supplies.

Progress Electronics Co., Inc., 11924 Santa Monica Blvd., Los Angeles, Calif., 2, Tel: 213-BRadshaw 2-0369, Main Office: New York, N.Y.
See ad on page 824

Radio Products Sales, Inc., 1501 S. Hill St., Los Angeles 15, Calif., 2, Tel: RIchmond 8-1271 (NEDA)

Roberts & Associates, Inc. (E. V.), 5068 W. Washington Blvd., Los Angeles 16, Calif., 3, Tel: 213-WEbster 8-2541 (ERA)
ADC, Inc.: Filters, transformers, inductors. **Cambridge Thermionic Corp.:** Coils, hardware, encapsulated computer plug-in circuits. **Circo Corp.:** Ultrasonic cleaners. **Daco Instrument Co.:** Rotary solenoids. **Daystrom, Inc., Potentiometer Div.:** Trimming potentiometers. **Daystrom, Inc., Transicoil Div.:** Servo motors, generators, synchros. **Electrical Industries:** Glass-to-metal seals. **Glentronics, Inc.:** Transistorized power supplies. **Industrial Timer Corp.:** Timers. **Pesco Products Div., Borg-Warner Corp.:** Static inverters, axial flow fans, electronic cooling packages. **Precision Meter Div., Minneapolis-Honeywell Regulator Co.:** Panel meters. **Rustrak Instrument Co., Inc.:** Strip-chart recorders. **Sigma Instruments:** Relays, motors & switches. **Stereotronics Corp.:** Television equip. **Telex, Inc., Special Products Div.:** Headsets, neon indicator lights, push-button switches **Tepro Electric Corp.:** Power resistors.

Ross & Co. (Malcolm), 1623 S. La-Cienega Blvd., Los Angeles 35, Calif., 3, Tel: BR 2-3103 (ERA)
Components, Inc.: Tantalum capacitors. **Escon, Inc.:** Connectors. **Essex Electric:** RF chokes & delay lines. **Industro Transistor Corp.:** Transistors. **Semicon, Inc.:** Silicon rectifiers. **Signalite, Inc:** Pilot lamps. **Subminiature Instruments:** Potentiometers & trimmers. **Tyco Semiconductor Corp.:** Microwave diodes. **United Components:** Silicon diodes.

Rupp Co. (V. T.), 307 Parkman Ave., Los Angeles 26, Calif., 3, Tel: 213-DUnkirk 7-8224 (ERA)
Analab Instrument Corp.: Oscilloscopes. **Beckman/Berkeley Div.:** Analog computers, counters & timers. **E-H Research Laboratories, Inc.:** Pulse generators. **Kepco, Inc.:** Power supplies. **Precision Instrument Co.:** Tape recorder/reproducers, discriminators.

Rush & Key Electronics, Inc., 3376 W. First St., Los Angeles 4, Calif., 3, Tel: DUnkirk 8-7111 (ERA)
Components & instruments

Saul & Associates (Howard M.), 5015 San Vicente Blvd., Los Angeles 19, Calif., 3, Tel: WEbster 8-3591 (ERA)
JBT Instruments, Inc., Shurite Meters, Triplett Electrical Instrument Co.

Shallway International Corp., 1301 Angelus Ave., Los Angeles 26, Calif., 1, 3
Monitor Products Co.: Quartz crystals. **Southern Electronics Corp.:** Capacitors.

Snitzer Co. (T. Louis), 5354 W. Pico Blvd., Los Angeles 19, Calif., 3, Tel: WEbster 8-2073 (ERA)
Antenna Systems, Inc.: Antenna systems. **Behlman Engineering Co.:** Power sources. **Communications Control Corp.:** Digital data acquisition systems. **Franklin Electronics, Inc.:** Digital voltmeters & multipliers. **General Communication Co.:** Radar test sets. **Keithley Instruments, Inc.:** D-C VTVM's, microammeters, megohmmeters, amplifiers. **Microwave Associates, Inc.:** TR & ATR tubes, duplexers, ferrite devices, magnetrons. **Pacific Electro Magnetics Co.:** Magnetic tape recorders. **Polarad Electronics Corp.:** Microwave signal generators. **Sierra Electronic Corp.:** Frequency-selective voltmeters, wave-analyzers. **Telonic Industries, Inc.:** Sweep generators, radar IF test sets, RF detectors. **Trygon Electronics, Inc.:** Regulated DC power supplies.

Stolaroff Co. (M. A.), 4622 W. Slauson Ave., Los Angeles 43, Calif., 3, Tel: 213-AXminster 3-6226 (ERA)
Anodyne, Inc.: Nameplates, panels, wire markers. **Beattie-Coleman, Inc.:** Instrumentation & scope cameras. **Birtcher Corp.:** Tube & transistor clamps. **Comar Electric Co.:** Relays, solenoids. **Dakota Engineering, Inc.:** Cable clamps. **Daven Co.:** Resistors, rotary switches, attenuators, filters, R-C networks. **G-V Controls, Inc.:** Thermal relays, thermostats, timers. **Merkle-Korff Gear Co.:** Turntables, FHP motors. **Sage Electronics Corp.:** Miniature power resistors. **Unimax Switch:** Snap-acting switches. **Wells Industries Corp.:** Trimming potentiometers.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Stone Associates, Inc. (Carl A.), 8971 National Blvd., Los Angeles 34, Calif., 3, Tel: 213-UPton 0-7771 (ERA)
Ad-Yu Electronics Lab., Inc.: Phase meters, delay lines, mag. amp. relays. **Ballantine Laboratories, Inc.:** AC Vacuum Tube voltmeters. **Empire Devices Products Corp.:** Noise & field intensity meters. **Equipto Electronics Corp.:** Enclosures. **Franklin Systems, Inc.:** Proximity scorer, nuclear radiation survey. **Kaiser Electronics, Inc.:** Transistorized DC power supplies. **Panoramic Electronics, Inc.:** Spectrum analyzers, telemetering indicators & calibrators. **Radio Condenser Co.:** Variable air condensers, tuning elements. **Shielding, Inc.:** RF Shielded enclosures, anechoic chambers

Stone Sales Co. (R. L.), 8971 National Blvd., Los Angeles 34, Calif., 3, Tel: UP 0-5973, (ERA)

Strassner Co. (Ellard E.), 1865 N. Western Ave., Los Angeles 27, Calif., 3, Tel: HOllywood 2-0916, (ERA)
Benjamin Electronic Sound Corp.: Record changers. **Nuclear Products Co.:** Anti-static brushes. **Pace Electrical Instruments Co.:** Panel meters. **Paco Electronics Corp.:** Kit test equipment. **Precision Apparatus Co.:** TV test equipment. **Smith, Inc. (Herman H.):** Hardware. **Soundolier, Inc.:** Baffles. **United Transformer Corp.:** Transformers.

Strassner Co. (Richard A.), 1557 N. Western Ave., Los Angeles 27, Calif., 3, Tel: HOllywood 3-5694, (ERA)
IMC Magnetics Corp.: Fractional HP motors. **Kulka Electric Corp.:** Terminal blocks & toggle switches. **Microtran Co., Inc.:** Miniature transformers. **National Union Electric Corp.:** Special purpose tubes. **Plastic Capacitors, Inc.:** Capacitors, hi-voltage power packs. **Sealectro Corp.:** RF connectors, terminals & patchboards. **Star Connectors:** RF connectors.

Thorson Co., 7361 Melrose Ave., Los Angeles 46, Calif., 3, Tel: 213-WEbster 4-1191 (ERA)
Autronics Corp.: Solid-state time delay relays. **Dalmo-Victor Co.:** Airborne radar scanners, antennas. **Kinetics Corp.:** Transfer switches, solid-state commutators & inverters. **Lind Instruments, Inc.:** Rotary commutators. **Sage Laboratories, Inc.:** Microwave components. **Vari-L Co., Inc.:** Variable inductors.

Ungar Sales Associates, 9925 Venice Blvd., Los Angeles 34, Calif., 3, (ERA)
American Elite: Telefunken tubes. **Milwaukee Resistor Co.:** Wirewound resistors. **Osborne Electronic Sales:** Citizen-band radios. **Raypar, Inc.:** Transformers. **Rimak, Inc.:** Chassis. **Standard Condenser Corp.:** Tubular capacitors **Steel-Heddle:** Tinned copper tab material, memory cores. **Ungar Electric Tools, Inc.:** Soldering irons. **United Mineral & Chemical Corp.:** Mica, carbon resistors. **Volta Mfg. Co.:** Coils **Waldom Electronics:** Components

Universal Radio Supply Co., 1729 S. Los Angeles St., Los Angeles 15, Calif., 2, Tel: RIchmond 9-5241 (NEDA)

Van Leeuwen & Associates, Inc., 7122 Melrose Ave., Los Angeles 46, Calif., 2, Tel: 213-WEbster 3-5683
Audio Devices, Cousino, Inc., Minnesota Mining & Mfg., Mohawk Business Machines, Norelco, Robins Industries, Uher Recorders.

California

Wallace & Wallace, Bendix Bldg., 1206 Maple Ave., Los Angeles 15, Calif., 3, Tel: RI 7-0401 (ERA)

Wedge Weber Co., 1217 Venice Blvd., Los Angeles 6, Calif., 3, Tel: 213-DUnkirk 7-2111 (ERA)
Blonder-Tongue Laboratories, Inc., Finney Co., Quietrole Co., Resisco Corp., Shell Electric Mfg. Co., Thordarson-Meissner Mfg. Co., Utah Radio & Electronic Corp.

Wesrep Corp., 2022 S. Sepulveda Blvd., Los Angeles 25, Calif., 3, Tel: 213-BRadshaw 2-3757 (ERA)
American Scale Co., Inc.: Torque testers. **Dial Products Co.:** Servomechanisms. **Duro-Matic Products Co.:** Solenoid coils. **Lowell Industries, Inc.:** Vibration & shock-mounts. **M. & M. Machine Shop:** Cans. **Precision Specialties, Inc.:** Tape recorders.

Westron Sales & Engineering, 7407 Melrose Ave., Los Angeles 46, Calif., 3, Tel: 213-OLive 1-4050 (ERA)
Acromag, Inc.: Amplifiers. **Aero Mechanism, Inc.:** Meters. **Collins Radio Co.:** Filters. **E & M Laboratories:** Waveguides & accessories. **Hart Manufacturing Co.:** Relays. **Microtech, Inc.:** Waveguides & accessories **Philamon Laboratories, Inc.:** Audio frequency test equip. **Radar Measurements Corp.:** Microwave test equip. **Rheem Electronics Div.:** Computers & accessories. **Victory Engineering Corp.:** Resistors. **Walkirt Co.:** Printed & packaged circuits.

Wiley Co. (Paul F.), 1632 Silverlake Blvd., Los Angeles 26, Calif., 3, Tel: NO 3-8028 (ERA)

Menlo Park
(Telephone Area Code—415)

Ault Associates, 120 Santa Margarita, Menlo Park, Calif., 3, Tel: DAvenport 6-1760 (ERA)
Abacus, Abtronics, Cascade Research, Donner Scientific, Intellux, Invar Electronics, PRD Electronics Co., Inc., Potter & Brumfield, Ryan Transdata, Shockley Transistor, Solartron, Systron-Donner.

Holmes Co. (Carl E.), P.O. Box 543, Menlo Park, Calif., 3, Tel: DAvenport 6-3762, Main Office: Los Angeles, Calif.

McCarthy Associates, Inc., 635 Oak Grove Ave., Menlo Park, Calif., 3, Tel: DAvenport 6-7937, Main Office: Pasadena, Calif.

McKnight Co., 1436 El Camino Real, Menlo Park, Calif., 3, Tel: DA 6-3762 (ERA)
Components & hardware.

Weightman & Associates, Suite 5, 1436 El Camino Real, Menlo Park, Calif., 3, Tel: DAvenport 6-3797, Main Office: Burbank, Calif.

Modesto
(Telephone Area Code—209)

Inland Electronic Suppliers, 1518 Ninth St., Modesto, Calif., 2, Tel: LAmbert 4-1498 (NEDA)

Monterey
(Telephone Area Code—408)

Zackit Corp. of Monterey, 259 Alvarado, Monterey, Calif., 2, Tel: FRontier 2-7642 (NEDA)

"Distribution" listings are arranged alphabetically by states and by cities within each state.
For names and addresses of manufacturing firms, see Alphabetical Directory, pages 81-226.

California

Mountain View
(Telephone Area Code—415)

Ellis Sales Co. (G. B.), 2316 El Camino Real, Mountain View, Calif., 3, Tel: YOrkshire 7-5531 (ERA)
Amphenol-Borg Corp., Blackhawk Engineering Co., Borg Equipment Div., Guardian Electric Corp., Gudeman Co., ITT Distributor Products Div., ITT Components Div., Jonathan Mfg. Co., Northern Engineering Labs., Sightmaster Corp., U.S. Engineering Co., Div. of Litton Industries.

National City
(Telephone Area Code—714)

Radio Parts Co., Div. of Electronic Components, Inc., 639 National Ave., National City, Calif., 2, Tel: GRidley 7-9305, Main Office: San Diego, Calif.

North Hollywood
(Telephone Area Code—213)

Bassett & Moore, 12045 Magnolia Blvd., North Hollywood, Calif., 3, Tel: TRiangle 7-7129 (ERA)

Edwards Co. (Jackson), 4101 Lankershim Blvd., North Hollywood, Calif., 3, Tel: TRiangle 7-9603 (ERA)
Ace Electronic Associates, Aladdin Electronics, Cox & Co., Filtors, Inc., Intellux, Inc., Kanthal Corp., Microlab, Sanders Associates, Schaevitz Engineering, Seal-A-Matic, Sealtron Corp., Servo Dynamics, Unitrode Transistor Products, Welwyn International, Whitso, Inc.

Gordon Enterprises, 5362 N. Cahuenga Blvd., North Hollywood, Calif., 3, Tel: POplar 6-3725
Arriflex Corp.: Cameras. **Canadian Applied Research, Ltd.:** Cameras. **Fairchild Camera & Instrument Corp.:** Cameras. **Hulcher Co.:** Cameras. **Kenyon Products:** Stabilizers.

Jewett Co., 13111 Ventura Blvd., North Hollywood, Calif., 3, Tel: STate 9-8103 (ERA)
Bowmar Instrument Corp.: Counting devices & gearheads. **Bowmar-Pacific, Inc.:** Motor GH assemblies. **Cascade Research:** Microwave attenuators. **Communication Accessories Co.:** Toroids, filters, etc. **Dage Electric Co.:** RF connectors. **Good-All Electric Co.:** Capacitors. **Hastings-Raydist, Inc.:** Vacuum indicators. **Land-Air, Inc.:** Relays & stepper motors. **Lewis & Kaufman:** Klystrons. **Printronics Corp.:** Printed circuits. **Roanwell Corp.:** Microphones, headsets. **Sherold Crystals, Inc.:** Quartz crystals. **Viking Industries:** Connectors.

Markman Co., (R. Mark), 4260 Lankershim Blvd., North Hollywood, Calif., 3
Acousti-Craft: Enclosures. **Chemtronics, Inc.:** Electronic chemicals. **Chicago Miniature Lamp Works:** Miniature lamps. **Collaro:** Record changers. **Dynaco, Inc.:** Tuner kits, transformers. **Goodman:** Speakers. **Gray Mfg. Co., Inc.:** Turntables & arms. **I. H. Mfg. Co., Inc.:** Sockets. **International Electronic Sales Corp.:** Mullard tubes. **Scott, Inc. (H.H.):** Amplifiers, speakers, tuners. **Sencore, Inc.:** Test equip. **Webster Mfg.:** Antennas, citizen-band, marine electronics.

Neely Enterprises, 3939 Lankershim Blvd., North Hollywood, Calif., 3, Tel: POplar 6-3811 (ERA)
Baldwin-Lima-Hamilton Corp.: Strain gages & transducers. **Bomac Laboratories, Inc.:** Instrumentation. **Boonton Radio Corp.:** Electronic instruments. **Dymec:** Instrumentation. **Hewlett-Packard Co.:** Instrumentation. **Kin-Tel:** Instrumentation. **Moseley Co. (F.L.):** Instrumentation. **Sanborn Co.:** Instrumentation. **Varian Associates:** Components.

O'Halloran Associates, 11636 Ventura Blvd., North Hollywood, Calif., 3, Tel: 213-TRiangle 7-0173 (ERA)
Boonton Electronics Corp.: Voltmeters, null detectors, bridges. **Electromagnetics, Inc.:** Magnetic recording heads. **Electronic Measuerments Co., Inc.:** Solid state programmable power supplies. **Genesy's Corp.:** Disc-Magnetic memories, tape & card readers. **Huggins Laboratories, Inc.:** Travelling wave tubes. **Laboratory For Electronics, Inc.:** Stalos, MTI radar testers. **Magnetic Amplifiers Div., Siegler Corp.:** Servo amplifiers, computers. **Menlo Park Engineering:** Packaged TWT's & BWO's. **Narda Microwave Corp.:** Microwave instrumentation, modulators. **Optimized Devices, Inc.:** Automatic test equip. **Radiation at Stanford:** Radar, communications & tube-design equip. **Tel-Instrument Electronics Corp.:** Frequency converters, video sweep generators. **Wiltron Co.:** Switching time test sets

Simonite-Lewis & Associates, 10623 Burbank Blvd., North Hollywood, Calif., 3, Tel: TRiangle 7-1674 (ERA)
Electro Labs. (L.I.), Prestole Corp., Rytel Electronics, Shriro, Inc., Transis-Tronics, Waber Electronics, Workman TV Products.

North Sacramento
(Telephone Area Code—916)

Pantages Electronics, Inc., 2537 Del Paso Blvd., North Sacramento 15, Calif., 2, Tel: WAbash 2-6531 (NEDA)

Oakland
(Telephone Area Code—415)

Brill Electronics, 610 E. Tenth St., Oakland 6, Calif., 2, Tel: TEmplebar 2-6100 (NEDA)

Elmar Electronics, 140 11th St., Oakland 7, Calif., 2, Tel: TEmplebar 4-3311 (NEDA)

Moulthrop Co. (F. W.), 1530 E. 12th St., Oakland 6, Calif., 3, Tel: ANdover 1-7676 (ERA)

Wenger Co. (E. C.), 1450 Harrison St., Oakland 12, Calif., 2, Tel: GLencourt 1-1020 (NEDA)

Oceanside
(Telephone Area Code—714)

Electronic Products Supply Co., 1023 S. Cleveland, Oceanside, Calif., 2, (NEDA)

Orange
(Telephone Area Code—714)

Kierulff Electronics, Inc., 430 Main St., Orange, Calif., 2, 3, Tel: 714-KEllog 2-4714, Main Office: Los Angeles, Calif.
See ad on page 593

Palo Alto
(Telephone Area Code—415)

Belchamber & French, 3944 El Camino Real, Palo Alto, Calif., 3, Tel: 415-DAvenport 1-6953 (ERA)

Brainard Co. (Bill), 715 Hamilton, Palo Alto, Calif., 3, Tel: DA 6-5421 (ERA)
Components & raw materials.

Costello & Co., 535 Middlefield Rd., Palo Alto, Calif., 3, Tel: DAvenport 1-3745, Main Office: Los Angeles, Calif.

Hamilton Electro Sales, 882 Emerson St., Palo Alto, Calif., 3, Tel: DAvenport 1-7541, Main Office: Los Angeles, Calif.

Hughes Co., Inc. (R. S.), 564 College Ave., Palo Alto, Calif., 2, Tel: DA 6-2922, Main Office: Los Angeles, Calif.

Kittleson Co., 809 San Antonio Rd., Palo Alto, Calif., 3, Tel: DAvenport 6-7410, Main Office: Los Angeles, Calif.

Mauldin Co., 441 W. California Ave., Palo Alto, Calif., 3, Tel: DAvenport 6-5291 (ERA)
Atlantis Electronics Corp.: Transistor & diode testers, sorting mechanisms. **Daven Co.:** Attenuators, resistors, switches. **Daystrom, Inc., Potentiometer Div.:** Potentiometers. **Ferro-Magnetics Co.:** Transformers, filters, & toroids. **Iron Fireman Mfg. Co., Elex Div.:** Relays & gyros. **Non-Linear Systems, Inc.:** Digital voltmeters, ohmmeters, data logging systems **Smith-Florence, Inc.:** Micro-voltmeters, ohmmeters, DC power supplies, line fault finders, multi-meters. **Trans Electronics Corp.:** Power supplies, semiconductor test equipment.

Michael, Inc. (Claude), 499 Hamilton St., Palo Alto, Calif., 2, Tel: DAvenport 6-6884, Main Office, Glendale, Calif.

Nickerson-Gray & Associates, Inc., P.O. Box 11295, Palo Alto, Calif., 3, Tel: 415-DAvenport 6-0152 (ERA)
Britton Electronics Corp.: Silicon diodes & selenium rectifiers. **Grayhill, Inc.:** Rotary tap & push button switches. **Grayhill Moldtronics, Inc.:** Transformer cases. **Industrial Condenser Corp.:** Electrolytic paper capacitors. **JFD Electronics Corp.:** Miniature capacitors, L-C tuners, coils & delay lines.

O'Halloran Associates, 825 San Antonio Rd., Palo Alto, Calif., 3, Tel: DAvenport 6-1493, Main Office: North Hollywood, Calif.

Perlmuth Electronic Associates, Inc., 941 Charleston Rd., Palo Alto, Calif., 3, Tel: DAvenport 1-5064, Main Office: Los Angeles, Calif.

Stone Associates, Inc. (Carl A.), 825 N. San Antonio Rd., Palo Alto, Calif., 3, Tel: DAvenport 1-2724, Main Office: Los Angeles, Calif.

Thorson Co., 2443 Ash St., Palo Alto, Calif., 3, Tel: DAvenport 1-2414, Main Office: Los Angeles, Calif.

Tompkins & Co. (Wm. W.), 3944 El Camino Real, Palo Alto, Calif., 3, Tel: 415-DAvenport 6-7940 (ERA)
Anton Electronic Laboratories, Inc.: Connectors, voltage regulator tubes. **Arnhold Ceramics Co.:** Resistors. **Collins Electronics:** Choppers. **Cook Electric Co.:** Relays, switches, bellows, inverters, power supplies. **Dage Electric Co.:** Connectors, glass-to-metal seals, headers, transistor bases. **GOE Engineering Co.:** Terminals, hardware. **Lionel Corp.:** Motors. **Mamco Corp.:** Motors, blowers. **National Beryllia Corp.:** Heat sinks. **National Coil Co.:** RF Coils, inductors, transformers. **Resistors, Inc.:** Resistors. **Rotary Devices:** Switches. **Siemon Mfg. Co.:** Motors. **Triwec Transformer Co.:** Transformers, amplifiers. **Weckesser Co.:** Cable clamps, screws.

Vaughan Co. (G. H.), P.O. Box 1253, Palo Alto, Calif., 3, Tel: DAvenport 1-1347, Main Office: Pasadena, Calif.

Westron Sales & Engineering, 201 Town & Country Village, Palo Alto, Calif., 3, Tel: 415-DAvenport 1-7041, Main Office: Los Angeles, Calif.

White & Co., 788 Mayview Ave., Palo Alto, Calif., 3, Tel: 415-DAvenport 1-3350 (ERA)
Ameray Corp.: Nuclear shielding. **Dynamic System Electronics Corp.:** Digital to analog conversion. **Eckel Corp.:** Anechoic rooms, portable chambers. **Empire Devices:** Noise & field intensity meters, attenuators, coaxial components. **E.M.I./U.S. Ltd.:** Photomultipliers, klystrons, magnetrons. **Impact-O-Graph Corp.:** Graphs. **Lind Custom Products:** Miniature sequence timers. **Oregon Electronics Mfg. Co.:** DC power supplies. **Radiation Counter Laboratories, Inc.:** Nucleonic instrumentation. **Technology Instrument Corp. of Acton:** Phase meters & standards, envelope delay meters.

Palos Verdes Estates
(Telephone Area Code—213)

Moore & Co. (C. C.), 405 Via Corta, P.O. Box 58, Palos Verdes Estates, Calif., 3, Tel: 213-FRontier 8-5204
Branson Instruments, Inc., Daedalus Co., Kewaunee Scientific, Skycrafters, Inc.

Pasadena
(Telephone Area Code—213)

A-F Sales Engineering, Inc., 94 S. Los Robles, Pasadena, Calif., 3, Tel: MUrray 1-5631 (ERA)
Diodes, Inc.: Silicon diodes. **Duncan Electronics, Inc.:** Precision potentiometers. **Iron Fireman Mfg. Co., Electronics Div.:** Microminiature relays, gyroscopes. **Pendar, Inc.:** Illuminated switchlights. **Quan-Tech Laboratories, Inc.:** Power supplies, noise measuring instruments. **Transistor Specialties, Inc.:** Solid state counter timers. **Trio Laboratories, Inc.:** Vacuum tube voltmeters, voltage comparators.

Allied Radio Corp. (Electronic Supply Corp.), 2085 E. Foothill Blvd., Pasadena, Calif., 2, Tel: 213-MUrray 1-5291, Main Office: Chicago, Ill.
See ad on page 793

Bray Co. (Bob), 18 N. Mentor Ave., Pasadena, Calif., 3, Tel: MU 1-3751 (ERA)
Components

Electronic Supply Corp., 2085 E. Foothill Blvd., Pasadena, Calif., 2, Tel: MUrray 1-5291 (NEDA)

Empire Electronic Distributors, Inc., 37 E. Union St., Pasadena 1, Calif., 2
Aerovox, Amphenol, Cinch-Jones, General Electric Co., Gremar, Miller Co. (J.W.), Raytheon Co., Smith Co. (H.H.), Sprague Electric Co., Thordarson-Meissner Mfg. Co., United Transformer Co., Ward Leonard Co.

Luscombe Engineering Co., 1020 S. Arroyo Pkwy., Pasadena, Calif., 3, Tel: 213-MUrray 2-3386 (ERA)
Astrosystems, Inc., Cunningham Son & Co., Inc., Diehl Mfg. Co., International Resistance Co., Julie Research Laboratories, Moore Associates, Omnitronics, Radio Frequency Laboratories, Inc., Theta Instrument Corp., Voltron Products.

McCarthy Associates, Inc., 1055 E. Walnut St., Pasadena, Calif., 3, Tel: 213-MUrray 1-7411 (ERA)
Carad Corp.: Power supplies, pulse modulators. **Daytronic Corp.:** Linear motion transducers. **Ditran Corp.:** Semiconductor testers, power oscillators. **Fluke Mfg. Co. (John):** Power supplies, voltmeters, wattmeters, bridges, potentiometers. **Frequency Standards:** Microwave instruments **Hamner Electronics Co.:** Nuclear test instrumentation. **Massa Div. of Cohu Electronics:** Recording systems, hydrophones, accelerometers. **Newport Scientific Co.:** Graphic recorders. **Sensitive Research Instrument Corp.:** Meters, precision, potentiometers, reference standards. **Sorensen & Co., Inc.:** Power supplies, voltage regulators, inverters, converters.

Nurches Co. (Paul), 2396 E. Foothill Blvd., Pasadena, Calif., 3, Tel: 213-MUrray 1-8957 (ERA)
Aetna Electronics Corp.: Servo analyzers. **Bell, Inc. (F.W.):** Gaussmeters. **Bliss Electronic Corp.:** Communication & test equip. **Conrad-Carson Electronics, Inc.:** Precision wire-wound resistors. **Electronic Applications Co.:** Millivoltmeters. **Gordos Corp.:** Magnetic reed & mercury switches. **Molecular Electronics, Inc.:** Transistor frequency response meters. **Pomona Electronics Co., Inc.:** Test leads. **Power Designs, Inc.:** Transistorized power supplies. **Transistor Devices, Inc.:** Transistorized power supplies. **Western Electronic Products Co.:** Thermal wire strippers.

Radio Parts Co., Div. of Electronic Components, Inc., 1759 E. Colorado Blvd., Pasadena, Calif., 2, Tel: SYcamore 3-1196, Main Office: San Diego, Calif.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Vaughan Co. (G. H.), 2366 E. Foothill Blvd., Pasadena, Calif., 3, Tel: MU 1-4511 (ERA)
Dynatran Electronics Corp.: Transistor & diode checkers. **Dytronics Co.:** Phase meters, shifters, band-pass filters. **Electro-Techniques:** Potentiometers. **Flow Corp.:** Anemometers & RMS voltmeters. **Hexem, Inc.:** Differential voltmeters. **Industrial Instruments, Inc.:** Conductivity test equip. **Merrimac Research & Development:** Microwave attenuators. **Mid-Eastern Electronics, Inc.:** Power supplies & megohmmeters. **North Hills Electronics, Inc.:** Power supplies. **Solid State Electronics Co.:** Choppers & oscillators.

Wesco Electronics, 1715 E. Colorado Blvd., Pasadena, Calif., 2, Tel: MUrray 1-4861 (NEDA)

Yarbrough Sales Co., 192 E. Glenarm St., Pasadena, Calif., 3, Tel: MUrray 2-3331 (ERA)
Accurate Paper Tube Co.: Coil winding tubes. **American Molded Products Co.:** Bobbins. **Cooper & Sons, Inc.:** Metals. **Dorco Electronics:** Fiberglas products. **Industrial Mica Corp.:** Mica. **Mohawk Mfg. Co.:** Threaded stampings. **Niemand Brothers:** Tubular paper packaging. **Noesting Pin Ticket Co., Inc.:** Wire specialties. **Semimetals, Inc.:** Germanium. **Sexton Can Co.:** Metal cases. **Superior Steatite & Ceramic Corp.:** Steatite parts. **Thermal Wire of America:** Teflon wire products. **Thomas & Skinner, Inc.:** Magnetic materials. **Zierick Mfg. Corp.:** Lugs, clips, & terminals. **Zophar Mills, Inc.:** Insulating waxes.

Redwood City
(Telephone Area Code—415)

Cerruti & Associates, 116 Cypress St., P.O. Box 509, Redwood City, Calif., 3, Tel: 415-EMerson 9-3354 (ERA)
Aero Research Instrument Co., Cubic Corp., Delta Design, Inc., Eldema Corp., Electronic Enclosures, Exact Engineering, IMC Magnetics Corp., Langevin, Perkin Electronics, Spectrol Electronics, Topatron, Inc., Transistor Specialties, Inc., Trio Laboratories, Westronics, Inc.

Heaton Co. (James S.), 413 Lathrop St., Redwood City, Calif., 3, Tel: EMerson 9-5277 (ERA)
Ampex Magnetic Tape Products, Armour Stabivolt Div., Dale Electronics, Inc., Eastern Air Devices, Elco Corp., Elgin Electronics, Genistron, Inc., Hitemp Wires Co., Texas Capacitor Co.

Heaton-Marco Associates, 413 Lathrop St., Redwood City, Calif., 3, Tel: EMerson 8-2866 (ERA)
Audio Empire, Fleetwood Div. of Conrac, Lansing International, Sargent-Rayment Co., Superscope Inc. (Sony) Tape-Athon, Inc.

Long & Associates, Inc., 505 Middlefield Rd., Redwood City, Calif., 3, Tel: 415-EMerson 9-3324 (ERA, NEDA)
Alto Scientific Co., Curtiss-Wright Electronics, Globe Industries, IRC, Phillips Control Co., Warren Wire, Winchester Electronics, Inc.

Marshall Co. (G. S.), 801 Woodside Rd., Suite 9, Redwood City, Calif., 3, 4, Tel: EMerson 6-8214, Main Office: San Marino, Calif.

Peninsula Associates, 1345 Hancock St., P.O. Box 148, Redwood City, Calif., 3, Tel: 415-EMerson 9-1226
Ad-Yu Electronic Labs, Angler Industries, Chatillon & Sons, Eckstrom Electric Co., Elasco, Inc., General Meters, Geoscience Instrument Co., Harris Mfg. Co., Pettinos Co. (Charles), Rapid Electric Co., Slaughter Co., Somerset Radiation, Sonex, Inc., Trepac Co. of America, Zacharias Electric.

Riverside
(Telephone Area Code—714)

Electronic Supply Riverside, Inc., 2486 Third St., Riverside, Calif., 2, Tel: OVerland 3-8110 (NEDA)

Kierulff Electronics, Inc., 3827 Main St., Riverside, Calif., 2, 3, Tel: 714-OVerland 6-7031, Main Office: Los Angeles, Calif.
See ad on page 593

Sacramento
(Telephone Area Code—916)

Moulthrop Co. (F. W.), P.O. Box 9197, Fort Sutter Sta., Sacramento, Calif., 3, Main Office: Oakland, Calif.

Neely Enterprises, 1317 15th St., Sacramento, Calif., 3, Tel: GIlbert 2-8901, Main Office: North Hollywood, Calif.

White & Co., 3, Tel: ENterprise 1-0208, Main Office: Palo Alto, Calif.

San Carlos
(Telephone Area Code—415)

Deere Electronics, Inc., 1575 Laurel St. #3, San Carlos, Calif., 3, Tel: LY 1-4423 (ERA)
Components.

Eichorn & Melchior, Inc., 932 Terminal Way, San Carlos, Calif., 3, Tel: LYtell 1-7383 (ERA)
American Electronics, Inc., Amphenol-Borg Electronics Corp., Hevi-Duty Electric, Hopkins Engineering Co., International Rectifier Corp., R-B-M Controls Div., Essex Wire Co., Stackpole Carbon Co., Struthers-Dunn, Ti-Tal, Inc.

Hill Co. (J. T.), 1682 Laurel St., San Carlos, Calif., 3, Tel: LYtell 3-7693, Main Office: San Gabriel, Calif.

Howard & Associates (G. M.), 727 Industrial Rd., San Carlos, Calif., 3, Tel: LY 1-5736 (ERA)
Components.

Lebell-Warren Associates, 1667 Laurel St., San Carlos, Calif., 3, Tel: LYtell 3-7688 (ERA)
Austin Craft Co.: Battery holders. **Beede Electrical Instrument Co.:** Meters. **Birtcher Corp.:** Heat radiators, tube hold-downs. **Chicago Condenser Corp.:** Capacitors. **Executone Printact Div.:** Relays. **Premier Metal Products:** Racks, panels, chassis. **Smith, Inc. (Herman H.):** Hardware. **United Transformer Corp.:** Transformers, filters.

Neely Enterprises, 501 Laurel St., San Carlos, Calif., 3, Tel: LYtell 1-2626, Main Office: North Hollywood, Calif.

Newman, Rudat & Ewing, 915 Terminal Way, San Carlos, Calif., 3, Tel: LYtell 1-0309 (ERA)
Aladdin Electronics, Carter Motor Co., Continental-Wirt Electronics, GC Electronics, Garlock Electronic Products, Lenz Wire Co., Line Electric Co., Merit Coil & Transformer Co., Rhodes, Inc. (M.H.), Wyco Metal Products Co.

Pflieger Co., Inc. (R. L.), 1652 Laurel St., San Carlos, Calif., 3, Tel: LY 1-0395 (ERA)

Roberts & Associates, Inc. (E. V.), 1560 Laurel St., San Carlos, Calif., 3, Tel: LYtell 3-7878, Main Office: Los Angeles, Calif.

Ross Co. (David H.), 534 El Camino Real, San Carlos, Calif., 3, Tel: 415-LYtell 1-4411 (ERA)
Augat Brothers, Inc.: Tube clamps, transistor clips. **Bud Radio, Inc.:** Racks, cabinets, panels. **Camblock Corp.:** Terminal block connectors. **Cinema Engineering Div.:** Equalizers, attenuators, degaussers, toroids, filters. **Comar Electric Co.:** Relays & solenoids, stepping switches. **Erie Resistor Corp.:** Ceramic capacitors, germanium diodes, carbon resistors, glass capacitors, **Fansteel Metallurgical Corp.:** Tantalum capacitors, rectifiers. **Foster Transformer Co.:** Custom transformers & chokes. **Gavitt Wire & Cable Co.:** Hook-up wire, loop antennas. **Girard-Hopkins:** Capacitors. **Gremar Mfg. Co.:** Connectors, coax custom assemblies. **Howard Industries, Inc.:** Motors. **LMB:** Chassis. **Lerco Electronics, Inc.:** Lugs, stand-offs, knobs. **Switchcraft, Inc.:** Plugs, jacks, switches, connectors, cable assemblies. **Technical Appliance Corp.:** Parabolic & helical antennas. **Tru-Ohm Div.:** Wirewound resistors, rheostats.

Strassner Co. (Ellard E.), 1667 Laurel St., San Carlos, Calif., 3, Tel: LYtell 3-7688, Main Office: Los Angeles, Calif.

Stridal Corp., 1037 Laurel St., San Carlos, Calif., 3, Tel: 415-LYtell 1-2654
Aero Electronics Corp.: Potentiometers. **Burnell & Co., Inc.:** Filters, toroids. **Christie Electric Corp.:** Power supplies, battery chargers. **Control Switches, Inc.:** Stepping switches. **Crescent Engineering:** Transducers, translators, indicators. **Dressen-Barnes Corp.:** Power supplies. **Grant Pulley & Hardware:** Chassis slides. **Gray & Kuhn Div. of Burnell & Co.:** Delay lines. **Holtzer-Cabot Div. of National Pneumatic, Inc.:** Motors. **Hudson Tool & Die Co.:** Closures. **Janette Div. of National Pneumatic, Inc.:** Motors. **Ledex, Inc.:** Stepping motors, rotary solenoids. **Mark Products Co.:** Antennas. **Metal Cabinet & Fixture Co.:** Consoles. **Omnitronics, Inc.:** Power resistors. **Sweeney Mfg. Co. (B.K.):** Electrostatic voltmeters. **Technical Wire Products, Inc.:** RF gaskets. **Temptron, Inc.:** Insulating wire, thermocouples, temperature standards. **Vernistat Div.:** AC potentiometers. **Viking Industries, Inc.:** Connectors. voltage reference standards.

San Diego
(Telephone Area Code—714)

Cain & Co., 1135 Garnet Ave., San Diego 9, Calif., 3, Tel: HU 8-0665, Main Office: Burbank, Calif.

Instruments For Measurements, 2420 University Ave., San Diego, Calif., 3, Tel: JU 3-1972, Main Office: Hollywood, Calif.

Hamilton Electro Sales, 2196 Cable, San Diego 7, Calif., 3, Tel: ACademy 4-3451, Main Office: Los Angeles, Calif.

Hill Co. (J. T.), 1864 Bacon St., San Diego, Calif., 3, Tel: ACademy 3-7133, Main Office: San Gabriel, Calif.

Kierulff Electronics, Inc., 1106 Morena Blvd., San Diego 10, Calif., 2, 3, Tel: 714-BRowning 6-3334, Main Office: Los Angeles, Calif.
See ad on page 593

Kittleson Co., 3, Tel: ZEnith 2-1983, Main Office: Los Angeles, Calif.

Luscombe Engineering Co., 3150 El Cajon Blvd., San Diego, Calif., 3, Tel: ATwater 2-5006, Main Office: Pasadena, Calif.

Marshall Co. (G. S.), 3525 5th Ave., San Diego 3, Calif., 3, 4, Tel: CYpress 8-8234, Main Office: San Marino, Calif.

McCarthy Associates, Inc., 3460 Ingraham St., San Diego, Calif., 3, Tel: BRoadway 4-1100, Main Office: Pasadena, Calif.

Moxon Electronics Corp., 4434 Ingraham St., San Diego, Calif., 3, Tel: BR 4-6525, Main Office: Beverly Hills, Calif.

Neely Enterprises, 1055 Shafter St., San Diego 6, Calif., 3, Tel: ACademy 3-8103, Main Office: North Hollywood, Calif.

Nystrom Brothers Co., 2426 Fourth Ave., San Diego 3, Calif., 2, Tel: BElmont 4-7231 (NEDA)

O'Halloran Associates, 3, Tel: BRoadway 3-5500, Main Office: North Hollywood, Calif.

Perlmuth Electronic Associates, Inc., 1021 Scott Ave., Suite 146, San Diego, Calif., 3, Tel: ACademy 4-1717, Main Office: Los Angeles, Calif.

Premmco, Inc., 2547 San Diego Ave., San Diego 10, Calif., 3, Tel: CYpress 8-7019, Main Office: Los Angeles, Calif.

Radio Parts Co., Div. of Electronic Components, Inc., 2060 India St., San Diego 1, Calif., 2, Tel: 714-BElmont 2-8951 (NEDA)
Alpha Wire Corp. Amphenol-Borg Electronics Corp., Belden Mfg. Co., Bud Radio Inc., California Chassis Co., Centralab, Cornell-Dubilier, Daven, Inc., Daystrom-Pacific, Elco Sales Corp., General Instrument Co., Good-All Electric Mfg. Co., Grayhill, Hoffman Electronics Corp., JFD Mfg. Co., Ohmite Mfg. Co., Potter & Brumfield, Inc., Radio Corp. of America, Raytheon Co., Sangamo Electric Co., Sarkes-Tarzian, Inc., Sigma Instruments, Inc., Stancor, Sylvania Electric Products Inc., Texas Instruments Inc., Ungar Electric Tools, Inc., United Transformer Co., Vitramon, Weston Instruments.

Roberts & Associates, Inc. (E. V.), 4379 13th St., San Diego 4, Calif., 3, Tel: ATwater 3-2149, Main Office: Los Angeles, Calif.

Rupp Co. (V. T.), 3445 5th Ave., San Diego 3, Calif., 3, Tel: CYpress 8-9835, Main Office: Los Angeles, Calif.

Rush & Key Electronics, Inc., 2853 Worden St., San Diego 10, Calif., 3, Main Office: Los Angeles, Calif.

Southland Electronics, Inc., 3610 University Ave., San Diego 4, Calif., 2, Tel: ATwater 3-3941 (NEDA)

Tel-Rad Electronics, 3453 University, San Diego 4, Calif., 2, Tel: ATwater 1-7754 (NEDA)

Thorson Co., 444 Olive St., San Diego 3, Calif., 3, Tel: CYpress 8-8385, Main Office: Los Angeles, Calif.

San Francisco
(Telephone Area Code—415)

Berman Co. (E. L.), Div. of Hodges & Glomb, Inc., 921 Bryant St., San Francisco 3, Calif. 3, Tel: UNderhill 3-0317

Brandt Co. (E. W.), 1122 Folsom St., San Francisco 3, Calif., 3 (ERA)
American Elite, Inc.: Tubes. **Chicago Lamps:** Miniature lamps. **Gray Research:** Broadcast equip. **Perma Power:** Radio control systems. **Sencore:** Test equip. **Vocaline Corp.:** Transceivers. **Wen Products:** Soldering tools.

Eber Electronics Supply, Inc., 2355 Market St., San Francisco, Calif., 2, Tel: MArket 1-4332 (NEDA)

Edisco, Inc., 5901 Mission St., San Francisco 12, Calif., 2, Tel: JUnipero 6-7087 (NEDA)

Fargo Co., 1162 Bryant St., San Francisco, Calif., 1, 2

Fortune Electronics Corp., 1321 Mission St., San Francisco 3, Calif., 2, Tel: UNderhill 1-2434 (NEDA)

Koessler Sales Co., 2803 Geneva Ave., San Francisco 24, Calif., 3, Tel: JUniper 4-0818, Main Office: Los Angeles, Calif.

Logan & Associates (Jack), 1485 Bayshore Blvd., San Francisco 24, Calif., 3, Tel: DElaware 4-1200 (ERA)
CTS Corp., Columbus Electronics, Continental Connector Corp., Illumitronic Engineering Co., International Resistance Co., Micamold Electronic Mfg. Corp., Radio Receptor Co., Silicon Transistor Corp.

Logan Sales Co., 150 8th St., San Francisco 3, Calif., 3, Tel: HEmlock 1-0692 (ERA)
American Television & Radio Co., California Chassis Co., Centralab, Inc., Cletron Electronics, Duotone Co., Inc., Fanon Electronic Sales Corp., Globe Electrical Mfg. Co., Johnson Co. (E.F.), Lectrohm, Inc., Miller Co. (J. W.), Pacotronics, Inc., Rohn Mfg. Co., Triad Transformer Mfg. Co., Trio Mfg. Co., Turner Co., U.S. Components, Inc.

Marsh Co. (J. W.), 1485 Bayshore Blvd., San Francisco 24, Calif., 3, Tel: JUniper 7-4270, Main Office: Los Angeles, Calif.

Meyer & Ross, 113 10th St., San Francisco, Calif., 3, Tel: HE 1-0652 (ERA)
Capacitors, resistors, microphones, speakers, amplifiers.

Moulthrop & Hunter, 165 11th St., San Francisco 3, Calif., 3, Tel: UNderhill 3-7880 (ERA)
Components.

Nott & Co. (L. A.), 1061 Howard St., San Francisco 3, Calif., 3, Tel: 415-HEmlock 1-4738
Airborne Accessories, Alac, Inc., Automatic Metal Products, Consolidated Electrodynamics Corp., Midland Mfg. Corp., Ovenaire, Inc., Phaostron Instrument & Electronic Corp., Premier Microwave Corp., Sangamo Electric Co., Wright Electronics, Inc.

Pacific Wholesale Co., 1850 Mission St., San Francisco, Calif., 2, Tel: UNderhill 1-4843 (NEDA)

Purdy Co. (William J.), 312 Seventh St., San Francisco 3, Calif., 3, Tel: UN 3-4321 (ERA)

Radio Parts Supply Co., 281 Ninth St., San Francisco, Calif., 2, Tel: MArket 1-0552 (NEDA)

San Francisco Radio & Supply Co., 1282-84 Market St., San Francisco 2, Calif., 2, Tel: UNderhill 3-6000 (NEDA)

Sinai-Johnson, Inc., 845 Jessie St., San Francisco 3, Calif., 3, Tel: UN 1-6259 (ERA)
Arco Electronics: Capacitors. **B & K Mfg. Co.:** TV test equip. **Birnbach Radio Co.:** Wire, cable. **Consolidated Wire Co.:** Wire, cable. **Harman Kardon, Inc.:** Components. **Jensen Industries, Inc.:** Cartridges. **Jensen Mfg. Co.:** Speakers. **Lance Antenna Mfg. Co.:** Antennas. **Sampson Co.:** Tubes. **Space Communications Corp.:** Closed-circuit TV. **Terado Co.:** Converters, chargers. **Tevco Insulated Wire Co.:** TV wire. **Waldom Electronics, Inc.:** Parts. **Weller Electric Corp.:** Soldering guns. **Workman TV, Inc.:** Resistors.

Smith & Co., Inc. (Harold G.), 1645 Market St., San Francisco 3, Calif., 2, Tel: UNderhill 3-2045 (NEDA)

Sodaro Co., 329 Clay St., San Francisco 11, Calif., 3, Tel: DOuglas 2-0616, Main Office: Culver City, Calif.

Wresco, 1116 Folsom St., San Francisco, Calif., 2, Tel: HEmlock 1-3680 (NEDA)

Zack Electronics, 1422 Market St., San Francisco 2, Calif., 2, Tel: MArket 1-1422 (NEDA)

San Gabriel
(Telephone Area Code—213)

Hill Co. (J. T.), 420 S. Pine St., San Gabriel, Calif., 3, Tel: CUmberland 3-6555
American Optical Co.: Direct writing recording systems. **American-Standard Controls Div.:** Strain gage transducers. **Associated Engineering Corp.:** Connecting leads. **Du Mont Div.:** Cathode-ray tubes, multiplier phototubes, storage tubes, planar triodes, & oscilloscopes. **Dynamics Instrumentation Co.:** Amplifiers, filters, microvoltmeters. **Edgerton, Germeshausen & Grier:** Scopes, pulse generators, thyratrons, dosimeters. **Hathaway-Denver:** Oscillators, VTVM's, resistance meters. **Scientific-Atlanta, Inc.:** Antenna plotters, receiving systems, positioners, towers. **Sperry Microwave Electronics Co.:** Instruments, klystron power supplies. **Technibilt Corp.:** Scope carts.

Rissi Co. (Al J.), 8417 E. Las Tunas Dr., San Gabriel, Calif., 3, Tel: CUmberland 3-7614 (ERA)

San Jose
(Telephone Area Code—408)

Peninsula Electronic Supply, 656 S. First St., San Jose 13, Calif., 2, Tel: CYpress 4-8781 (NEDA)

Quement Electronics, 161 W. San Fernando St., San Jose, Calif., 2, Tel: CYpress 4-0464 (NEDA)

Schad Electronic Supply, Inc., 499 S. Market St., San Jose 13, Calif., 2, Tel: CYpress 7-5858 (NEDA)

San Marino
(Telephone Area Code—213)

Marshall Co. (G. S.), 2065 Huntington Dr., San Marino, Calif., 3, 4, Tel: MUrray 1-6781 (ERA)
Advanced Instrument Corp.: Digital handling systems. **Beckman/Systems Div.:** DC amplifiers, timing equip. **Electric Indicator Co., Inc.:** Instrument motors & generators. **Green Instrument Co.:** Pantograph engravers. **Helipot Div. of Beckman Instruments, Inc.:** Precision potentiometers, rotating components, monitoring & control instruments. **Iconix, Inc.:** Transistorized digital instrumentation. **IERC Div. of International Electronics Research Corp.:** Heat dissipating tube shields. **Kemet Co., Div. of Union Carbide Corp.:** Tantalum capacitors. **James Knights Co.:** Plug-in reference oscillators. **Mepco, Inc.:** Wire-wound resistors. **NJE Corp.:** Regulated DC power supplies. **Penta Labs, Inc.:** Transmitting type tubes. **Schmidt Engineering Co.:** Automatic production equip. **Solid State Products, Inc.:** Silicon PNPN controlled switches & silicon controlled rectifiers. **Tensolite Insulated Wire Co.:** Insulated magnet & hookup wire. **Vitramon, Inc.:** Stable porcelain capacitors.

San Mateo
(Telephone Area Code—415)

Allan-Cochrane Co., 2215 S. El Camino Real, San Mateo, Calif., 3, Tel: FIreside 5-7981 (ERA)
Components.

Harriss Co. (L. H.), 204 E. Hillsdale Blvd., San Mateo, Calif., 3, Tel: FIreside 1-2909 (ERA)
Antronic Corp., Grigsby Co., I. E. Mfg. Co., Milwaukee Resistor Co., Seco Mfg. Co., Utah Electronics, Winegard Co.

Koetke & Associates (Norm), 28 37th Ave., San Mateo, Calif., 3, Tel: FI 1-8161 (ERA)

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Luscombe Engineering Co., 130 N. "B" St., San Mateo, Calif., 3, Tel: DIamond 2-7057, Main Office: Pasadena, Calif.

Moxon Electronics Corp., 15 W. 41st Ave., San Mateo, Calif., 3, Tel: FI 5-7961, Main Office: Beverley Hills, Calif.

Sinai-Johnson, Inc., 895 W. Hillsdale Blvd., San Mateo, Calif., 3, Tel: FIreside 5-5084, Main Office: San Francisco, Calif.

San Rafael
(Telephone Area Code—415)

Abbett Co. (E. B.), 345 Francisco Blvd., San Rafael, Calif., 2, Tel: GLenwood 3-1130 (NEDA)

Santa Ana
(Telephone Area Code—714)

Airtronic Sales, Inc., 2685 Halladay St., Santa Ana, Calif., 2, Tel: KImberly 5-9441 (NEDA)

Santa Clara
(Telephone Area Code—408)

Stevens Co. (Thomas L.), 2231 De Paul Pl., Santa Clara, Calif., 3, Main Office: Sun Valley, Calif.

Santa Monica
(Telephone Area Code—213)

Wadsworth Mfg. Associates, Inc., P.O. Box 887, Santa Monica, Calif., 2, 3, Tel: GL 4-5209, Main Office: Liverpool, NY.

Sherman Oaks
(Telephone Area Code—213)

Components Sales California, Inc., 4626 Van Nuys Blvd., Sherman Oaks, Calif., 3, Tel: STate 8-4550 (ERA)
Accurate Instrument Co.: Frequency standards, frequency dividers & power inverters. **Aircom, Inc.:** Microwave components. **Computer Instruments Corp.:** Precision potentiometers & pressure transducers. **Digitronics Corp.:** Tape readers & digital indexing clutches. **Mepco, Inc.:** Wire-wound resistors. **NJE Corp.:** Regulated DC power supplies. **Penta Labs, Inc.:** Transmitting type tubes. **Schmidt Engineering Co.:** Automatic production equip. **Solid State Products, Inc.:** Silicon PNPN controlled switches & silicon controlled rectifiers. **Tensolite Insulated Wire Co.:** Insulated magnet & hookup wire. **Vitramon, Inc.:** Stable porcelain capacitors.

Mitchell Co. (C. H.), 13804 Ventura Blvd., Sherman Oaks, Calif., 3 (ERA)
Aerolite Electronics Corp.: Hardware & components. **Alpar Mfg. Co.:** Aluminum towers. **Anchor Metal:** Solder. **Fedtro; Illinois Condenser Co.:** Capacitors. **Kreckman Co. (Herb):** Ground-plane antennas **Kurman Electric Co.:** Relays **Maryland Ceramic:** Lava parts. **Oryx Co.:** Soldering irons. **Petersen Radio Co.:** Crystals

Western Control Equipment Co., 14615 Ventura Blvd., Sherman Oaks, Calif., 3, Tel: TRiangle 3-3040 (ERA)
Allied Control Co.: Relays, toggle switches. **Electron Div., Controls Co. of America:** Semiconductors. **Heppner Mfg. Co.:** Speakers & magnetic devices. **McMillan Laboratory, Inc.:** Microwave absorbing material, free space rooms, radomes. **Oak Mfg. Co.:** Switches, solenoids, choppers, vibrators, tuners. **Techno-Components Corp.:** Trimpots. **Tronex, Inc.:** Glass-to-metal seals. **Watlow Electric Mfg. Co.:** Heaters.

South Gate
(Telephone Area Code—213)

Mac's Radio Supply, 8320 Long Beach Blvd., South Gate, Calif., 2, Tel: LUdlow 8-4111 (NEDA)

South Pasadena
(Telephone Area Code—213)

Osborne Co. (R. E. "Dick"), 1757 Garfield Ave., South Pasadena, Calif., 3, Tel: 213-MUrray 2-3175 (ERA)
International Rectifier Corp.: Semiconductors. **Miller Co. (J. W.):** RF coils. **Philmore Mfg. Co.:** Components. **Weathers Industries:** Arms, turntables, speakers.

Stridal Corp., 720 Mission St., South Pasadena, Calif., 3, Tel: MUrray 2-2841, Main Office: San Carlos, Calif.

Stockton
(Telephone Area Code—209)

Dunlap Electronics, 27 S. Grant St., Stockton, Calif., 2, Tel: HOward 6-3373 (NEDA)

Studio City
(Telephone Area Code—213)

Kierulff Electronics, Inc., 12123 Ventura Blvd., Studio City, Calif., 2, 3, Tel: 213-POplar 3-7315, Main Office: Los Angeles, Calif.
See ad on page 593

Sun Valley
(Telephone Area Code—213)

Stevens Co. (Thomas L.), 7648 San Fernando Rd., Sun Valley, Calif., 3
Atohm Electronics: Potentiometers. **Cal-Met Connections:** Printed circuit connectors. **Corson Electric:** Capacitors. **Deltronics, Inc.:** Band-pass filters. **Etchomatic Inc.:** Chemicals. **Metal Textile Corp.:** RF gaskets. **Pacific Resistor:** Resistors. **Torwico Electronics:** Transformers, relays, ammeters. **Winn, Inc. (J.H.):** Dial-hands.

Sunnyvale
(Telephone Area Code—408)

Avnet Corp., 1264 N. Lawrence Sta. Rd., Sunnyvale, Calif., 2, 3, Tel: RE 6-0300, Main Office: Los Angeles, Calif.

Instruments For Measurements, 251 S. Murphy Ave., Sunnyvale, Calif., 3, Tel: RE 6-8680, Main Office: Hollywood, Calif.

King Engineering Co., 662 E. Duane St., Sunnyvale, Calif., 3, Tel: CH 8-6240, Main Office: Los Angeles, Calif.

Snitzer Co. (T. Louis), 510 S. Mathilda Ave., Sunnyvale, Calif., 3, Tel: REgent 6-6733, Main Office: Los Angeles, Calif.

Stone & Associates (Jay), P.O. Box 583, Sunnyvale, Calif., 3 (ERA)
Accurate Instrument Co.: Tuning-fork-controlled oscillators. **Antlab, Inc.:** Antenna pattern range equip. **Bogart Mfg. Corp.:** Microwave components. **Datafilter Corp.:** Wave filters. **Glass-Tite Industries, Inc.:** Glass-metal headers. **Kauke & Co.:** Telemetering equip. **Microwave Dynamics Corp.:** Microwave test equip., power supplies & modulators. **Microwave Electronics Corp.:** Traveling wave tubes. **Quan-Tech Laboratories, Inc.:** Power supplies, noise measuring instruments.

Sunnyvale Electronics Corp., 534 S. Murphy Ave., Sunnyvale, Calif., 2 (NEDA)

Temple City
(Telephone Area Code—213)

Milo Electronics Corp., 5770 N. Rosemead Blvd., Temple City, Calif., 1, 2, 4, Tel: ATlantic 7-9777, Main Office: New York, N.Y.

Van Nuys
(Telephone Area Code—213)

Crane Associates, 15419 Keswick St., Van Nuys, Calif., 3, Tel: STate 0-7972
Applied Dynamics Corp., Electro-Impulse Laboratory, Inc., Microphase Corp.

Tim-Co Sales, 6845 Louise Ave., Van Nuys, Calif., 3, Tel: DI 4-7803 (ERA)

West Los Angeles
(Telephone Area Code—213)

Kierulff Electronics, Inc., 12024 Wilshire Blvd., West Los Angeles, Calif., 2, 3, Tel: 213-GRanite 7-8847, Main Office: Los Angeles, Calif.
See ad on page 593

Woodland Hills
(Telephone Area Code—213)

Van Groos Co., 21051 Costanso St., P.O. Box 425, Woodland Hills, Calif., 3, Tel: DIamond 0-3131 (ERA)
Bird Electronic Corp., Krohn-Hite Corp., Northeastern Engineering, Inc., Owen Laboratories, Specific Products, Stone & Smith, Inc.

COLORADO

Aurora
(Telephone Area Code—303)

Golliher Co. (W. B.), 1559 Chester St., Aurora 8, Colo., 3, Tel: EMpire 6-0208 (ERA)
Accurate Instruments Co., Globe Electronics, Hammarlund Mfg. Co., Inc., Perma Power Co., Pomona Electronics Co., Inc., Rohn Mfg. Co., Saxton Wire Products, Walsco Electronics Mfg. Co

Colorado Springs
(Telephone Area Code—303)

D & M Electronic Supply, 717 N. Weber St., Colorado Springs, Colo., 2, Tel: MElrose 3-0902 (NEDA)

Inland Associates, 1003 Saturn Dr., Colorado Springs, Colo., 3, Tel: MElrose 3-2050, Main Office: Mission, Kans.

Peyser & Co., 1501 N. Weber St., Colorado Springs, Colo., 3, Tel: MElrose 5-4836 (ERA)

Denver
(Telephone Area Code—303)

Blinn Co. (James H.), 841 Delaware St., Denver 4, Colo., 3, Tel: KEystone 4-8131 (ERA)
Tubes, transistors, panel-lamps, timers.

Bowen Co., Inc. (R. G.), 721 S. Broadway, Denver 9, Colo., 3, Tel: RAce 2-4641 (ERA)
Amphenol-Borg Electronics Corp., Audio Devices, Inc., Bud Radio, Inc., International Rectifier Corp., Miller Co. (J. W.), Potter & Brumfield, Inc., Simpson Electric Co., Sprague Electric Co., Stancor Electronics, Inc.

Cathey Co. (R. E.), 1789 Fulton St., Denver 8, Colo., 3, Tel: FRemont 7-3740 (ERA)
Components, plastics, instruments.

Cluphf & Associates (Stan), 75 S. Cody St., Denver, Colo., 3, Tel: BE 2-6025 (ERA)

Connors Inc., 5403 E. Evans, Denver 22, Colo., 3, Tel: 303-SKyline 6-9417 (ERA)
Aerovox Corp., Astatic Corp., Clarostat Corp., C.B.S., Merit Transformer, Waldom Electronics, Ward Products, Weller Electric.

Electronic Components Sales, Inc. ELCOM), 2149 S. Clermont St., Denver 22, Colo., 3, Tel: 303-SKyline 7-1261 (ERA)
Acromag, Inc.: Magnetic amplifiers. **Air Marine Motors, Inc.:** Motors & blowers. **Birtcher Corp.:** Heat sinks. **CTS Corp.:** Variable resistors. **Electrical Windings, Inc.:** Custom transformers. **General Products Corp.:** Terminal boards. **Gudeman Co.:** Capacitors. **International Resistance Co.:** Resistors, plastic cable, transducers. **Licon Switch & Control Div. of Illinois Tool Works:** Switches. **Mason Electric Corp.:** Power switches. **Union Switch & Signal Div. of Westinghouse Air Brake:** Relays. **Viking Industries, Inc.:** Connectors.

Electronic Parts Co., 20 W. 13th Ave., Denver 4, Colo., 2, Tel: AMherst 6-3755 (NEDA)

Fistells Electronics Supply Co., 1001 Bannock St., Denver 4, Colo., 2, Tel: MAin 3-3197 (NEDA)

French Co. (Gene), P.O. Box 15275, Denver, Colo., 3, Tel: MAin 3-1458, Main Office: Albuquerque, N.M.

Golliher Co. (W. B.), 1514 S. Meade St., Denver 19, Colo., 3, Tel: WEst 5-4243, Main Office: Aurora, Colo.

Hughes Co., Inc. (R. S.), 2811 W. Ninth Ave., Denver 4, Colo., 2, Tel: CHerry 4-4267, Main Office: Los Angeles, Calif.

Hyde Electronics Co., Inc., 888 S. Lipan St., Denver 23, Colo., 3, Tel: 303-WEst 6-3456 (ERA)

Hytronic Measurements, Inc., 1295 S. Bannock St., Denver 22, Colo., 3, Tel: PEarl 3-3701 (ERA)
Airborne Instruments Laboratory: Microwave instruments. **American Optical Co.:** Direct writing recorders. **Analab Instrument Corp.:** Oscilloscopes. **Computer Engineering Associates, Inc.:** Amplifiers. **Computer Measurements Co.:** Digital instrumentation. **Epsco, Inc.:** Secondary voltage references, digital data acquisitions. **Exact Electronics, Inc.:** Waveform synthesizers. **FXR, Inc.:** Microwave instruments & hardware. **Gertsch Products, Inc.:** Ratio frequency instruments. **Ingersoll Products Div. of Borg-Warner Corp.:** Modular enclosure systems. **Keithley Instruments, Inc.:** Electrometers. **McLean Engineering Laboratories:** Blowers. **Philbrick Researches, Inc. (George A.):** Analog computing components. **Shockley Transistor:** Diodes. **Thomas Electronics, Inc.:** Cathode-Ray tubes. **Trio Laboratories, Inc.:** Meters. **Wayne Kerr Corp.:** Bridges, oscillators

Koether-Cox Co., 1325 S. Inca St., Denver 23, Colo., 3 (ERA)
Amco Engineering Co., Antenna Specialists Co., Electro-Mechanical Instrument Co., Hallicrafters Inc., Mallory & Co., Inc. (P. R.), Radio Materials Co., Smith, Inc. (H. H.), Technical Appliance Co., Ungar Electric Tools, Inc., V-M Corp.

Lahana & Co., 1886 S. Broadway, Denver 10, Colo., 3, 4, Tel: 303-PEarl 3-3791 (ERA)
Allison Labs, Inc.: Filters & sound level analyzers. **Delta Design, Inc.:** Temperature chambers. **Dymec, Div. of Hewlett-Packard:** Digital data systems. **Hewlett-Packard:** Test equip. **MB Electronics:** Vibration equip. **Massa Laboratories:** Recorders & translators. **Moseley Co. (F. L.):** Recorders. **Sensitive Research Instrument Corp.:** Indicating meters. **Sorensen & Co.:** Power supplies. **Varian Associates:** Microwave tubes, amplifiers, recorders. **Weinschel Engineering:** RF test equip.

Longstreet-Smith Associates, Inc., 1013 15th St., Denver 2, Colo., 3, Tel: 303-KEystone 4-5091 (ERA)
Abrams Instrument Corp.: Timing systems. **Aemco, Inc.:** Relays & timers. **Diebel Die & Mfg.:** Custom parts. **Edcliff Instruments:** Transducers, potentiometers. **Fabricast, Inc.:** Slip rings. **ITT Components:** Semiconductors, tantalities. **JFD Electronics:** Capacitors, delay lines, filters. **Malco Mfg.:** Stampings, lugs. **Mid-Eastern Electronics:** Power supplies, instruments, ceramic capacitors. **Mucon Corp.:** Ceramic capacitors. **Perfect Gear & Instrument:** Gears. **Photocircuits:** Printed circuits. **Pyrofilm Resistor Co.:** Resistors. **RCL Mfg. Co.:** Resistors. **Southern Electronics Corp.:** Capacitors. **Winchester Electronics Corp.:** Connectors.

McLoud & Raymond Co., 2151 S. Grape St., Denver 22, Colo., 3, Tel: 303-SKyline 6-1589 (ERA)
Ampex Audio Co.: Tape recorders. **British Industries Corp.:** Changers, speakers, tubes. **Centralab:** Switches, controls, ceramics, capacitors, circuits. **Cubic Corp.:** Digital test equip. **Eitel-McCullough, Inc.:** Tubes. **Elco Corp.:** Sockets, shields, & connectors. **Electro-Voice, Inc.:** Microphones, speakers, cartridges. **Gavitt Wire & Cable Co.:** Wire. **Illumitronic Engineering Co.:** Coils. **Jackson Electrical Instrument Co.:** Test equip. **Johnson Co. (E. F.):** Insulators. dial-lights, variable capacitors. **Lerco Electronics, Inc.:** Terminals, hardware **Littelfuse:** Fuses. **Lowell Mfg. Co.:** Speakers. **Microdot, Inc.:** Coax. cable, cable assemblies. **Northeastern Engineering, Inc.:** Counters, frequency meters. **Ohmite Mfg. Co.:** Variable transformers, diodes, resistors. **Petersen Radio Co.:** Crystals. **Polarad Electronics Corp.:** Microwave signal generators. **Reeves Soundcraft Corp.:** Instrumentation tapes. **Scott, Inc. (H. H.):** Sound level meters, decade amplifiers. **Silicon Transistor Corp.:** Power transistors, diodes. **Standard Rectifier Corp.:** Silicon rectifiers, diodes. **Telex, Inc.:** Headsets & acoustical equip. **Triad Transformer Corp.:** Transformers, toroids. **Waterman Products, Inc.:** Oscilloscopes. **Wyco Metal Products:** Chassis, cabinets

Nelson Co., 710 E. Louisiana Ave., Denver 10, Colo., 3, Tel: PEarl 3-5528 (ERA)

Parrish Electronics, 2130 S. Albion, Denver 22, Colo., 3 (ERA)

Pearson & Co. (Mel), 1860 S. Acoma St., Denver 23, Colo., 3

Premmco, Inc., 651 S. Jason St., Denver 23, Colo., 3, Tel: SHerman 4-2311, Main Office: Los Angeles, Calif.

Terry & Co. (Ward), 90 Rio Grande Blvd., Denver 23, Colo., 2, Tel: AMherst 6-3181 (NEDA)

Walker Radio Co. (L. B.), 300 Bryant St., Denver 19, Colo., 2, Tel: WEst 5-2401 (NEDA)

Williams & Associates, Inc., 2263 S. Albion St., Denver 22, Colo., 3, Tel: SKyline 6-9403 (ERA)
Balwin-Lima-Hamilton: Strain gages, load cells. **Beckman/Berkeley:** Counters. **Beckman/Helipot:** Potentiometers, meters, motors. **Cannon Electric:** Plugs. **Corning Glass:** Resistors, capacitors. **Empire Devices:** RF interference measurements. **Globe Industries, Inc.:** Blowers, motors. **Hastings-Raydist:** Air meters, vacuum gages. **KinTel:** Amplifiers, closed-circuit TV. **Sanborn:** Recorders, oscillographic. **Shielding, Inc.:** RF shielding. **Sierra:** RF equipment.

Englewood
(Telephone Area Code—303)

Gates Co. (F. Y.), 3395 S. Bannock, Englewood, Colo., 3, Tel: SUnset 1-8566, Main Office: Salt Lake City, Utah

Thorson Co., 3600 S. Lincoln St., Englewood, Colo., 3, Tel: SU 9-1841, Main Office: Los Angeles, Calif.

Greeley
(Telephone Area Code—303)

Moss Electronics, Inc. (Gordon), 1530 13th Ave., P.O. Box 428, Greeley, Colo., 3, Tel: 303-ELgin 3-1452 (ERA)
Allied Decals, Inc.: Name-plates. **Alpha Metals, Inc.:** Solders, fluxes, alloys. **Atlas Sound Corp.:** Speakers. **Augat Brothers, Inc.:** Component clamps, transistor clips, heat sinks. **Bell Inc. (F. W.):** Gaussmeters, digimeters. **Continental-Wirt Electronics Corp.:** Resistors, wire-wound controls. **Cornell-Dubilier Electronics Div.:** Fixed capacitors, vibrators, converters, relays. **Cousino Electronics Corp.:** Cartridges. **Fanon Electronic Industries, Inc.:** Intercoms. **Forest City Products:** Panels & nameplates, packaging protective materials. **Franklin Co. (Bernard):** Steel shelving. **General Industries Co.:** Motors. **Hickok Electrical Instrument Co.:** Test equip., panel meters. **Impact-O-Graph Corp.:** Shock recorders. **Manger Electric Co.:** Custom wire-stripping. **Moffat Products, Inc.:** Bench & machine lights. **Premax Products:** Industrial marking equip., antennas. **Rek-O-Kut/Audax:** Turntables, speakers. **Switchcraft, Inc.:** Lever & push switches. **Turner Co.:** Microphones. **Vasco Div.:** Soldering irons. **Ward-Leonard Electric Co.:** Wire-wound resistors, controls, relays, rheostats. **Worner Electronic Devices:** Photoelectric relays, counters.

Pueblo
(Telephone Area Code—303)

Walker Radio Co. (L. B.), 100 N. Victoria, Pueblo, Colo., 2 (NEDA)

CONNECTICUT

Avon
(Telephone Area Code—203)

Coldwell, Inc. (Michael S.), 195 W. Main St., Avon, Conn., 3, Tel: 203-ORchard 7-9797 (ERA)
Barnes Development Co., Coleman Electronics, Inc., Computer Engineering Associates, Embree Electronics Corp., Hexem Corp., Kistler Instrument Corp., Korfund Co., Lavoie Laboratories, Inc., Mid-Eastern Electronics, Inc., Moore Associates, Inc., Presin Co., Ramage & Miller, Spectrol Electronics Corp., Truco Engineering Co.

Berlin
(Telephone Area Code—203)

White Sales Co., Inc., P.O. Box 122, Berlin, Conn., 3, Tel: BAldwin 4-0423, Main Office: Needham, Mass.

Branford
(Telephone Area Code—203)

Boeing Co., Inc. (John E.), P.O. Box 151, Branford, Conn., 3, Tel: STate 7-0115, Main Office: Lexington, Mass.

Bridgeport
(Telephone Area Code—203)

Representatives Corp., 797 Washington Ave., Bridgeport, Conn., 3, Tel: EDison 5-6772, Main Office: Boston, Mass.

Westconn Electronics, Inc., 195 Colorado Ave., Bridgeport 5, Conn., 2, Tel: FOrest 7-7747 (NEDA)

Yewell Associates, Inc., 1101 E. Main St., Bridgeport, Conn., 3, Main Office: Burlington, Mass.

Canaan
(Telephone Area Code—203)

Hathaway Electronics, Inc. (Glenn M.), Ducillo Bldg., Canaan, Conn., 3, Tel: TAylor 4-7215, Main Office: Cambridge, Mass.

Danbury
(Telephone Area Code—203)

Hooker Inc. (Samuel C.), P.O. Box 322, Danbury, Conn., 3, Tel: PIoneer 8-1776, Main Office: Winchester, Mass.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Kaelber & Mack, Inc., 11 Ridge Rd., West Terrace, Danbury, Conn., 3, Tel: 203-PIoneer 8-7677, Main Office: Manhasset, L.I., N.Y.

Essex
(Telephone Area Code—203)

Connecticut Marine Instrument Co., Essex, Conn., 2, 3, 4, Tel: SAybrook 7-8960
Applied Electronics, Bendix Corp., La Marche Mfg., Pearce-Simpson, Radio Corp. of America, Wilfred O. White & Sons.

Fairfield
(Telephone Area Code—203)

Akeroyd Co. (Arthur E.), Fairfield, Conn., 3, Tel: EDison 3-6252, Main Office: Chestnut Hill, Mass.

Granby
(Telephone Area Code—203)

De Veer Sales Engineering Co., Inc., P.O. Box 224, Granby, Conn., 3, Tel: OLdfield 8-9813, Main Office: Needham, Mass.

Greenwich
(Telephone Area Code—203)

Hammond Co. (John S.), 34 Lincoln Ave., Greenwich, Conn., 3, Tel: 203-NOrmandy 1-9410
Hamlin, Inc.: Switches, potentiometers.

Guilford
(Telephone Area Code—203)

Whitehead Co. (John F.), P.O. Box 177, Guilford, Conn., 3, Tel: GLendale 3-3855 (ERA)
Electro-Craft Corp.: Custom devices. **Kanthal Corp.:** Resistance wire. **Olsen M & T Co.:** Shaded pole motors. **Sprague Electric Co.:** Magnet wire.

Hamden
(Telephone Area Code—203)

Eltron Engineering Sales, Inc., 2341 Whitney Ave., Hamden 18, Conn., 3, Tel: ATwater 8-9276, Main Office: Newtonville, Mass.

Purinton, Inc. (Richard), 2331 Whitney Ave., Hamden, Conn., 3, Tel: ATwater 8-3386, Main Office: Lexington, Mass.

Hartford
(Telephone Area Code—203)

Hatry Electronics, Inc., 100 High St., Hartford 3, Conn., 2, Tel: JAckson 7-1881 (NEDA)

Instrument Associates, Inc., 734 Asylum Ave., Hartford 6, Conn., 3, Main Office: Arlington, Mass.

Sceli Electronics, Inc., 78 Maple Ave., Hartford 14, Conn., 2, Tel: JAckson 2-1144 (NEDA)

Mancnester
(Telephone Area Code—203)

Macdonald-Wadman Co., Inc., Manchester, Conn., 3, Tel: MItchell 3-4207, Main Office: Newton Upper Falls, Mass.

Meriden
(Telephone Area Code—203)

Lavin Associates, Inc. (Henry), P.O. Box 921, Meriden, Conn., 3, Tel: 203-BEverly 7-5527 (ERA)
Dage Electric Co.: Connectors, hermetic seals. **Elco Corp.:** Tube sockets, shields. **G-L Electronics Co.:** Tape-wound cores, bobbin cores, laminations. **Mallory Controls Co. Div.:** Controls, switches, resistors, jacks & plugs. **Phaostron Instrument & Electronic Co.:** Panel meters, sensitive relays. **Plastic Capacitors, Inc.:** HV packs, pulse networks. **Premier Metal Products Co.:** Housings. **Radio Materials Corp.:** Ceramicdise capacitors. **Torotel, Inc.:** Toroids, filters, magnetic amplifiers.

Milford
(Telephone Area Code—203)

Sturgeon, Inc. (Paul R.), P.O. Box 170, Milford, Conn., 3, Tel: TRinity 4-6080, Main Office: Boston, Mass.

Monroe
(Telephone Area Code—203)

Wadsworth Mfg. Associates, Inc., Barn Hill Rd., Rt. 1, Monroe, Conn., 2, 3, Tel: AM 8-1160, Main Office: Liverpool, N.Y.

New Haven
(Telephone Area Code—203)

Ammrad Co., 226 Congress Ave., New Haven 11, Conn., 2, Tel: UNiversity 5-4508
Aerovox: Condensers. **Belden Wire:** Wire. **Clarostat:** Resistors. **Cletron:** Speakers. **Elco:** Kits & testers. **Electro-Voice:** Cartridges. **RMS:** TV antennas. **Radiart:** Vibrators, rotators. **Shure:** Mikes. **South River:** TV hardware. **Tung-Sol:** Tubes. **Union Carbide:** Batteries.

Broger Instrument Sales Co., Inc., P.O. Box 2917, 31 Broadway, New Haven, Conn., 3, Tel: SPruce 7-6279, Main Office: Brookline, Mass.

Edcom, Inc., P.O. Box 4074, New Haven 14, Conn., 3, Main Office: Newtonville, Mass.

Equipment Sales Co., Inc., P.O. Box 6098, New Haven 17, Conn., 3, Tel: 203-CHestnut 8-5581
American Machine & Foundry Co.: Centrifuges. **Avco, Research & Development Div.:** Acoustic noise & shock machines. **California Technical Industries:** Cable harness testers. **Chadwick-Helmuth Co.:** Vibration monitoring equip. **Columbia Research Laboratories:** Accelerometers **Lindgren & Assoc. (Erik A.):** RF screen rooms. **MB Electronics:** Vibration test equip. **Strong Electric Corp.:** Solar simulators.

Gerber Sales Co., Inc., 31 Broadway, New Haven, Conn., 3, Tel: SPruce 7-6279, Main Office: Brookline, Mass.

Radio Shack Corp., 230 Crown St., New Haven, Conn., 2, 4, Tel: STate 7-7121, Main Office: Boston, Mass.

Schuft Co., Inc. (Howard J.), P.O. Box 4035, New Haven, Conn., 3, Main Office: Newtonville, Mass.

New London
(Telephone Area Code—203)

Aikins Electronic Suppliers, Inc., 531 Broad St., New London, Conn., 2, Tel: GIbson 2-4407 (NEDA)

Newtown
(Telephone Area Code—203)

Milo Electronics Corp., 18 Buttonball Dr., Newtown, Conn., 1, 2, 4, Tel: GA 6-2546, Main Office: New York, N.Y.

Sales Engineering Co., Sugar Lane, Newtown, Conn., 3, Tel: GArden 6-4434 (ERA)
Airtron, Inc.: Microwave components. **Bristol Motors:** Synchronous motors. **Eby Co. (Hugh H.):** Hardware. **Guardian Electric Mfg. Co.:** Relays, solenoids, switches. **Howard Industries, Inc.:** Sub-fractional HP motors. **I.R.C.-Plastics Div.:** Polystrip & etched circuits. **M.E.C., Inc.:** Electrolytic capacitors. **Milwaukee Transformer Co.:** Transformers. **Philadelphia Insulated Wire Co.:** Wire & cable. **Precision Metal Products Co.:** Terminals. **Sealectro Corp.:** Terminals, RF connectors. **Wright Motors:** Servos, synchros, tachometers.

North Madison
(Telephone Area Code—203)

New England Area Representatives, Inc. (NEAR, Inc.), P.O. Box 52, North Madison, Conn., 3, Tel: CIrcle 5-9411, Main Office: Somerville, Mass.

Norwalk
(Telephone Area Code—203)

Light Metals Associates, Inc., P.O. Box 936, Norwalk, Conn., 3, Tel: 203-VIctor 7-2750
Standard Metals Corp.: Waveguides, slip rings, laminated contact materials.

Norwich
(Telephone Area Code—203)

Aikins Electronic Suppliers, Inc., 499 N. Main St., Norwich, Conn., 2, Tel: TUrner 9-8427 (NEDA)

Old Greenwich
(Telephone Area Code—203)

Hoffman Engineering Corp., 183-R Sound Beach Ave., Old Greenwich, Conn., 3, 4
Chicago Miniature Lamp Works: Incandescent lamps. **Photo Research Corp.:** Photometers, colorimeters.

Ridgefield
(Telephone Area Code—203)

Abbett & Hustis, P.O. Box 52, Ridgefield, Conn., 3, Tel: IDlewood 8-3200, Main Office: Needham, Mass.

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Stamford
(Telephone Area Code—203)

Radio Shack Corp., 29 High Ridge Rd., Stamford, Conn., 2, 4, Tel: DAvis 5-4371, Main Office: Boston, Mass.

Sun Radio & Electronics Co., Inc., 308 Bedford St., Stamford, Conn., 2, Tel: 203-DAvis 5-4336, Main Office: New York, N.Y.
See ad on page 825

Stratford
(Telephone Area Code—203)

Instrument Dynamics, Inc., 2385 Main St., Stratford, Conn., 3, Tel: DRexel 8-0435, Main Office: Wakefield, Mass.

Tolland
(Telephone Area Code—203)

Stockwell Technical Sales Co., Box 118, Tolland, Conn., 3, Tel: TRemont 5-5414 (ERA)
Components.

Trumbull
(Telephone Area Code—203)

Perron & Co., Inc. (Ray), 36 Louis St., Trumbull 6, Conn., 3, Tel: AMherst 8-9631, Main Office: Boston, Mass.

Vernon
(Telephone Area Code—203)

Stockwell Technical Sales Co., R.F.D. #3, Overbrook Dr., Vernon, Conn., 3, Tel: 203-TRemont 5-5414 (ERA)
Bentley Harris Mfg. Co.: Insulated sleevings. **Globe Industries, Inc.:** Motors, blowers, motorized devices. **Rotiform Co.:** Gear test equip.

Wallingford
(Telephone Area Code—203)

Adams-McGregor Associates, 16 Ridgewood Circle, Wallingford, Conn., 3, Main Office: Lincoln, R.I.

Waterbury
(Telephone Area Code—203)

Anderson Sales Co., 6 Gaywood Dr., Waterbury, Conn., 3, Tel: PLaza 3-6645, Main Office: Boston, Mass.

Bond Radio, Inc., 439 W. Main St., Waterbury 2, Conn., 2, Tel: PLaza 3-1184 (NEDA)

Watertown
(Telephone Area Code—203)

Gray, Inc. (Robert W.), 47 DeForest St., Watertown, Conn., 3, Tel: 203-CRestwood 4-2363, Main Office: Wellesley, Mass.

West Hartford
(Telephone Area Code—203)

Hatton Associates, Inc. (Arthur), 1000 Farmington Ave., West Hartford 7, Conn., 3, Tel: 203-Adams 3-3613 (ERA)
Barton Electronics, Inc.: Instruments. **Branson Corp.:** Relays. **Capitol Machine Co.:** Switches. **Decco, Inc.:** Transformers. **Dial Products:** Clutches. **Hopkins Engineering:** Capacitors. **Owen Laboratories:** Instruments. **Panduit Corp.:** Wiring duct. **Penn Resistor:** Carbon resistors. **Resitron:** Wire wound resistors. **Schmidt Enginering:** Production machinery. **Tritronics:** Photo-controls.

Pettigrew & Co., Inc. (R. S.), 10 N. Main St., West Hartford 7, Conn., 3, Tel: 203-ADams 3-8533 (ERA)
Advanced Vacuum Products Co.: Metallized ceramics. **Brook Molding Co.:** Molded plastics. **Cleveland Container Co.:** Phenolic coil forms. **Escon, Inc.:** Hermetic connectors. **Furane Plastics, Inc.:** Epoxy resins & adhesives. **Hammarlund Mfg. Co.:** Variable capacitors, ham receivers. **Krystinel Corp.:** Ferrite rods, toroids, cores. **Malco Tool & Mfg. Co.:** Terminals, solder lugs. **National Beryllia Corp.:** Beryllium oxide parts. **Quality Components, Inc.:** Phenolic & powdered coil forms. **Sibley Co.:** Printed circuits.

Radio Shack Corp., 39 S. Main St., West Hartford, Conn., 2, 4, Tel: ADams 6-5441, Main Office: Boston, Mass.

Todino Engineering Sales, Inc., P.O. Box 291, 1007 Farmington Ave., West Hartford, Conn., 3, Tel: 203-ADams 2-9532, Main Office: Needham Heights, Mass.

Westport
(Telephone Area Code—203)

Nief Associates (Paul W.), 8 Oak St., Westport, Conn., 3, Tel: CA 7-3834 (ERA)

Woodbridge
(Telephone Area Code—203)

Bahr Sales Co., Spring Valley Rd., Woodbridge, Conn., 3 (ERA)
Ace Electronics: Precision potentiometers. **Atlantic Transformer:** Transformers. **CTS Corp.:** Rotary switches. **Gavitt Wire & Cable Corp.:** Wire. **Jeffers Electronics:** RF coils. **Speer Resistor:** Resistors. **Wirecraft Products:** Teflon wire.

DELAWARE

Newark
(Telephone Area Code—302)

Carmine Co. (Ferrell S.), 14 Knickerbocker Dr., Newark, Del., 3, Tel: EN 8-7603 (ERA)

Wilmington
(Telephone Area Code—302)

Delaware Electronics Supply Co., Inc., 220 W. 4th St., Wilmington 1, Del., 2, Tel: 302-OLympia 4-7932
Alpha Metals, Inc., Alpha Wire, American Microphone, Amphenol Electronics Corp., Astatic Corp., Birnbach Radio Co., Conant Laboratories, Elmenco Products Co., G. C. Electronics Mfg. Co., Hoyt Electrical Instrument Works, International Resistance Corp., Jackson Electrical Instrument Co., Johnson Co. (E. F.), Kester Solder Co., Krueter & Co., Inc., L. M. B., Littelfuse, Inc., Miller Co. (J. W.), Minnesota Mining & Mfg. Co., Mosley Electronics, Inc., Mueller Electric Co., National Radio Co., Petersen Radio Co., Sarkes Tarzian, Inc., Sprague Electric Co., Switchcraft, Telrex Laboratories, Triad Transformer Co., Ungar Electric Tools, Inc., Xcelite, Inc.

Radio Electric Service Co., 3rd & Tatnall Sts., Wilmington, Del., 2, Tel: 302-OLympia 5-4401 (NEDA)

Wholesale Electronics, Inc., 901 W. 5th St. at Adams, Wilmington 6, Del., 2, Tel: 302-OLympia 6-9988 (NEDA)

DISTRICT OF COLUMBIA

Washington
(Telephone Area Code—202)

A & M Associates, Inc., 1145 19th St. N.W., Washington 6, D.C., 4, Tel: 202-FEderal 8-5116
Eldorado Electronics: Nuclear instrumentation. **Era, Inc.:** Solid state power supplies. **FXR, Inc.:** Microwave instrumentation. **Hughes Aircraft Corp., Electronic Tube Div.:** Welding equip. **Micromega Corp.:** Microwave devices. **West Instrument Corp.:** Temperature control instrumentation.

Arco Engineering Co., 1000 16th St. N.W., Washington 6, D.C., 3, Tel: 202-EXecutive 3-5991, (ERA)
See ad on this page
Components, test equipment, systems, aerospace.

Bartlett & Co. (Fred F.), 734 15th St. N.W., Washington, D.C., 3, Tel: EXecutive 3-6242, Main Office: Wayne, Pa.

Brimberg Associates, Inc., 1343 H St. N.W., Washington 5, D.C., 3, Tel: DIstrict 7-4234 (ERA)
Delta Design, Inc.: Temperature chambers. **Don-Lan Electronics Co.:** Tuners, switches. **Erie-Pacific:** Counters. **Ferrotec, Inc.:** Microwave components. **Harrison Laboratories, Inc.:** Power supplies. **Ling Electronics Div.:** Vibration test systems. **Microwave Development Laboratories, Inc.:** Waveguide components. **Pitometer-Log Corp.:** Stalo testers, stalos. **Polarad Electronics Corp.:** Microwave signal generators, microwave test antennas, servo analyzers. **Scanwell Laboratories, Inc.:** Filters & switches. **Sierra Electronic Corp.:** Monitor oscilloscopes. **Strand Laboratories, Inc.:** Microwave generators. **United Aerotronics Corp.:** Accelerometers.

Burlingame Associates, 8218 Wisconsin Ave., Washington, D.C., 3, Tel: 202-OLiver 4-6400, Main Office: Mount Vernon, N.Y.
See ads on pages 251, 270, 293, 294, 322, 325, 333, 339, 356, 358, 359, 362, 363, 365, 366, 477, 527, 643, 659

Cain & Co., 734 15th St. N.W., Washington 5, D.C., 3, Tel: EX 3-7587, Main Office: Burbank, Calif.

Electronic Wholesalers, Inc., 2345 Sherman Ave., N.W., Washington 1, D.C., 2, Tel: HUdson 3-5200 (NEDA)

Engineering Associates, Washington, D.C., 3, Tel: STerling 3-7319, Main Office: Baltimore, Md.

Houser Associates, 734 15th St. N.W., Washington, D.C., 3, Main Office: Perth Amboy, N.J.

Jeffries Inc. (Samuel A.), 3, Tel: REpublic 7-2295, Main Office: Narberth, Pa.

Lienau Co. (Charles), 5121 Westridge Ave., Washington, D.C., 3, Tel: OL 4-2333, Main Office: Wheaton, Md.

Macdonald, Inc. (Samuel K.), 217 Riggs Bank Bldg., 14th St. & Park Rd. N.W., Washington 10, D.C., 3, Main Office: Philadelphia, Pa.

Mount Co. (Warren), National Press Bldg., Washington 4, D.C., 3, Tel: 202-MEtropolitan 8-0221 (ERA)
Gulton Industries: Ceramic capacitors, thermistors, transducers. **Microdot, Inc.:** Micro-miniature coax cable, connectors, switches. **Thermatics, Inc.:** Insulated wire, cable, & tubing. **Valor Instruments, Inc.:** Pulse transformers, delay lines, power supplies.

Rocke International Corp., Suite 1010, 1625 Eye St. N.W., Washington, D.C., 1, Tel: STerling 3-5358, Main Office: New York, N.Y.

Satterthwaite Co. (W. F.), 1343 Connecticut Ave. N.W., Washington 6, D.C., 3, Tel: 202-NOrth 7-6660, Main Office: Havertown, Pa.

Shilt Co. (Noble C.), 3308 14th St., Washington 10, D.C., 3, Tel: 202-COlumbia 5-3938 (ERA)
Centralab, Cinch-Jones, Johnson Co. (E. F.), Ohmite Mfg. Co., Shure Brothers, Inc., Simpson Electric Co., Stancor Electronics, Inc.

Silberne Radio & Electronics Co., 3400 Georgia Ave. N.W., Washington 10, D.C., 2, Tel: TUckerman 2-7800 (NEDA)

Whitcomb Associates, 3, Tel: 202-REpublic 7-0763, Main Office: Baltimore, Md.

FLORIDA

Anna Maria
(Telephone Area Code—813)

Fausett & Co. (Floyd), Anna Maria, Fla., 3, Main Office: Atlanta, Ga.

Clearwater
(Telephone Area Code—813)

Smith, Inc. (Maitland K.), 117 N. Keystone Dr., Clearwater, Fla., 3, Tel: 39-8021, Main Office: Atlanta, Ga.

Wimberly Co. (W. Ben), 532 S. Fort Harrison Ave., Clearwater, Fla., 3, Tel: 446-7072 (ERA)
Clare & Co. (C.P.): Relays, stepping switches, keys. **Conrad, Inc.:** Environmental test chambers. **Dearborn Electronic Laboratories:** Capacitors, pulse forming networks. **Delta Design Engineers:** Temperature chambers. **Eastern Air Devices:** Motors, blowers, generators. **Equipto Electronics Corp.:** Enclosures. **Fansteel Metallurgical Corp.:** Tantalum, molybdenum, tungsten, columbium, capacitors, rectifiers. **Frequency Standards:** Frequency meters, band-pass filters. **General Resistance, Inc.:** Resistors, networks. **Grant Pulley & Hardware Co.:** Slides. **Magnetics Research Co.:** Memory systems, cores, shift registers, modules. **Microwave Associates, Inc.:** Waveguide components & test equip., magnetrons, diodes. **R. F. Products:** RF connectors, coax cable & switches. **Technical Devices Co.:** Wire cutters & strippers. **Transformer Technicians, Inc.:** Transformers, reactors. **Unison Products Co.:** Slip-ring assemblies, rotary switches. **Vacuum Ceramics, Inc.:** Glass-to-metal seals, headers.

Hialeah
(Telephone Area Code—305)

Chapman & Co. (Cary), 301 E. Tenth Ave., Hialeah, Fla., 3, Tel: TUxedo 5-2519, Main Office: Atlanta, Ga.

Wallace Associates, Inc. (Stanley K.), 3761 E. 8th Ave., Hialeah, Fla., 3, Tel: TUxedo 5-3247, Main Office: Charlotte, N.C.

Hollywood
(Telephone Area Code—305)

Sharaf Associates (Ted), 4100 Lincoln St., Hollywood, Fla., 3, Tel: 305-YUkon 9-8200 (ERA)
Atlantic Wire & Cable, Crown International, Dutrex Industries, Film Capacitors, Greentree Electronics, I. H. Mfg. Co., Mercury Electronics, Rek-O-Kut Corp., Transistronics, United Condenser Corp., United Electronics Mfg. Co., Wuerth Surgistor Co.

Jacksonville
Telephone Area Code—305)

Barnhart Co. (L. E.), 1003 Gunka Rd., Jacksonville 16, Fla., 3, Tel: RAymond 4-0987 (ERA)
Birnbach Radio Co., Inc., Federated Industries, Inc., Kedman Co., Klenk Epoxy Corp., Milwaukee Resistor Co.

Peard Electronic Supply Co., 535 Washington St., Jacksonville 2, Fla., 2, Tel: ELgin 5-3473 (NEDA)

Lutz
(Telephone Area Code—813)

Wallace Associates, Inc. (Stanley K.), P.O. Box 67, Lutz, Fla., 3, Tel: WEbster 9-3241, Main Office: Charlotte, N.C.
Components & instruments.

Maitland
(Telephone Area Code—813)

Hollingsworth & Still, Inc., 638 Magnolia Dr., Maitland, Fla., 3, Tel: TE 8-1351, Main Office: Atlanta, Ga.

Nickerson Co. (Frank C.), P.O. Box 956, Maitland, Fla., 3, Tel: TErrace 8-3782, Main Office: Decatur, Ga.

Raymund & Associates, Inc. (C. E.), P.O. Box 656, Maitland, Fla., 3, Main Office: Saint Petersburg, Fla.

Melbourne
(Telephone Area Code—305)

Adams Associates (Joseph A.), P.O. Box 1322, Melbourne, Fla., 3, 4, Tel: PArkway 3-1931
Aladdin Electronics: Inductors. **Biggs Co. (Carl):** Potting & bonding compounds. **Kemet Co.:** Tantalum capacitors. **Markel & Sons:** Insulating tubing, lead wire. **Mica Corp.:** Epoxy glass laminates. **Motion Control Machines:** Printed-circuit drill presses.

Electronic Wholesalers, Inc., 1301 Hibiscus Blvd., Melbourne, Fla., 2, Tel: PArkway 3-1441 (NEDA)

Schweber Electronics, 333 New Haven Ave., Melbourne, Fla., 2, Tel: 305-PArkway 3-4461, Main Office: Mineola, L.I., N.Y.
See ad on page 820

Miami
(Telephone Area Code—305)

Baldwin, Inc. (Vance), 7700 N.W. 7th Ave., Miami, Fla., 2, Tel: PLaza 7-5767 (NEDA)

Certified Radio TV Supply, Inc., 675 N.W. 11th St., Miami 38, Fla., 2, Tel: FRanklin 1-1637 (NEDA)

East Coast Radio & Television Co., Inc., 1900 N.W. Miami Ct., Miami 36, Fla., 2, Tel: FRanklin 1-4636 (NEDA)

Florida Precision Instrument Corp., 1221 Biscayne Blvd., Miami, Fla., 2, 3, Tel: FR 1-0105
Marine instrumentation.

Hemminger Co., Inc. (William F.), 624 N.E. 79th St., Miami 38, Fla., 3, Tel: 305-PLaza 9-0300 (ERA)
Airtron: Waveguide components & accessories. **Blonder-Tongue Laboratories:** Closed-circuit television. **Crowley:** Ferrous materials. **Electra Mfg. Co.:** Resistors. **Iron Fireman Mfg. Co.:** Relays. **National Radio Co.:** Communications equip. & components. **Plastoid Corp.:** Wire & cable **Princeton Electronics:** Semiconductors

Herman Electronics, Inc., 1365 N.W. 23rd St., Miami 42, Fla., 2, Tel: NEwton 4-6591 (NEDA)

Neal & Co. (J.), 3931 S.W. 5th Terr., Miami, Fla., 3, Tel: HIghland 4-1118 (ERA)
Instruments & components.

Nickerson Co. (Frank C.), 3, Tel: PLaza 1-4692, Main Office: Decatur, Ga.

Radio Television Parts Distributors, Inc., 2611 N.W. 21st Terr., Miami 42, Fla., 2, Tel: NEwton 5-0626 (NEDA)

Walder Radio & Appliance Co., 1809 N.E. 2nd Ave., Miami 32, Fla., 2, Tel: FR 9-4794 (NEDA)

Miami Beach
(Telephone Area Code—305)

Geartner Co. (Jack), 235 Lincoln Rd., Miami Beach, Fla., 3, Tel: JEfferson 1-0200 (ERA)

Babcock Relays, Inc. Eby Co., Inc. (Hugh H.), Eldema Corp., Electrical Industries, Gavitt Wire & Cable Co., Indiana Steel Co., Kings Electronics Co., Inc., Microtran Co., Inc., Slip Ring Co. of America, Spectrol Electronics Corp., U. S. Components, Inc., U. S. Engineering Co.

North Miami
(Telephone Area Code—305)

Mark Electronic Sales Co., P.O. Box 291, 410 N.E. 147th Terr., North Miami 61, Fla., 3, Tel: WIlson 7-5080 (ERA)

Barco, Inc.: Capacitors. **Bergen Laboratories, Inc.:** Power supplies, converters. **Connolly & Co. (Wallace E.):** Toroidal cores. **Dakota Engineering, Inc.:** Cable clamps. **Davenport Mfg. Co.:** Power supplies. **Electronic Products Corp.:** Timers. **Magnecraft Electric Co.:** Relays. **Midland Mfg. Co.:** Crystals & filters. **Omtronics Mfg. Co.:** Resistors. **Plastic Capacitors, Inc.:** Capacitors. **Pyrofilm Resistor Co.:** Resistors. **Techno-Components Corp.:** Trimmer potentiometers. **Wright Electronics, Inc.:** Crystals.

Winfield Electronic Sales Co., 666 N.E. 125th St., North Miami, Fla., 3, Tel: PL 1-5566 (ERA)
Components & raw materials.

North Miami Beach
(Telephone Area Code—305)

Cartwright & Bean, 20100 N.E. 25th Court, North Miami Beach, Fla., 3, Tel: 945-2962, Main Office: Memphis, Tenn.

Components Sales Corp., P.O. Box 178, North Miami Beach 62, Fla., 1, 2, 3 (ERA)

Beede Electrical Instruments Co.: Panel meters. **C.T.S. Corp.:** Potentiometers. **Computer Diode Corp.:** Silicon glass diodes. **Dickson Electronics:** Zener diodes **Duncan Electronics, Inc.:** Precision potentiometers. **Fischer Electric Co.:** Transformers. **Northern Engineering Labs.:** Quartz crystals. **Radio Materials Corp.:** Ceramic capacitors. **Speer Carbon Co.:** Composition resistors. **Terminal Design, Inc.:** Teflon terminals. **Trak Microwave Corp.:** Amplifiers. **Unimax Switch Co.:** Snap-action switches. **Vernistat Div., Perkin-Elmer Corp.:** Potentiometers.

Milo Electronics Corp., 1140 N.E. 163rd St., North Miami Beach, Fla., 1, 2, 4, Tel: WIlson 7-7503, Main Office: New York, N.Y.

Orlando
(Telephone Area Code—813)

Atcheson & Adams, P.O. Box 138, Fern Park, Orlando, Fla., 3, Tel: TErrace 8-4796, Main Office: Greensboro, N.C.

Bohman Co. (George F.), 1239 Newcastle Dr., Orlando, Fla., 3 (ERA)

Brown & Associates (W. A.), 104 E. Gore Ave., Orlando, Fla., 3, Tel: GArden 5-5682, Main Office: Alexandria, Va.

Buchanan & Abrams Associates, Inc., 1224 E. Colonial Dr., P.O. Box 6026, Orlando, Fla., 3 (ERA)

Aemco, Inc.: Relays. **Aircon, Inc.:** Microwave components. **Arco Electronics, Inc.:** Capacitors. **Capitol Machine Co.:** Switches. **Curtis Development & Mfg.:** Terminal blocks. **Electro Switch Corp.:** Switches, slip rings. **Fusite Corp.:** Glass-to-metal seals. **Giannini Controls Corp.:** Precision potentiometers. **Hermetic Seal Corp.:** Transformers, filters, chokes. **Heyman Mfg. Co.:** Strain reliefs, bushings. **Lundey Associates, Inc.:** Ceramic terminals. **Magnetic Metals Co.:** Laminations, cores, shields. **Rawco Instruments, Inc.:** Choppers. **Secoa Electric Corp.:** Transistors. **Sigma Instruments, Inc.:** Relays, stepping devices. **Sterling Precision Corp.:** Magnetic clutches & brakes. **U.S. Semiconductor Products, Inc.:** Rectifiers, diodes, capacitors. **Warren Wire Co.:** Magnet wire.

Cartwright & Bean, 2505 Nancy St., Orlando, Fla., 3, Tel: 425-8284, Main Office: Memphis, Tenn.

Geartner Co. (Jack), 3524 Devondwood Dr., Orlando, Fla., 3, Tel: GArden 4-3926, Main Office: Miami Beach, Fla.

Hammond Electronics, Inc., 533 W. Central Ave., Orlando, Fla., 2, Tel: GArden 5-0511 (NEDA)

Hayden Associates (Paul), 27 E. Underwood St., Orlando, Fla., 3, Tel: GArden 5-8273, Main Office: East Point, Ga.

Jones Co., Inc. (William M.), 1402 W. Howard, Orlando, Fla., 3, Main Office: Towson, Md.

Lee Associates, Inc. (S. S.), 718 W. Smith Ave., Orlando, Fla., 3, Tel: CHerry 1-4445

Airborne Instruments Laboratory: Noise figure measurements, radar performance monitors. **Avco:** Shock machines, sound generators. **Bruel & Kjaer:** Sound measuring equip. **Columbia Research Lab.:** Accelerometers. **Computer Measurements Co.:** Counters, decades. **Edgerton, Germeshausen & Grier:** Thyratrons, diodes, TWT oscilloscopes. **Electronic Associates, Inc.:** X-Y recorders, converters, digital voltmeters, analog computers. **Giannini Plasmodyne Corp.:** Plasma generators & mixers. **Hughes:** Memoscopes & crystal filters **Kepco:** Power supplies. **MB Mfg. Co.:** Vibration shakers. **Marconi Instruments:** Line test equip. **Norwood Controls:** Strain gage pressure pickups. **PTF Div.:** Omnienvironmental facilities. **Packard-Bell Computer Corp.:** Logic modules, digital computers. **Rutherford:** Pulse & delay generators. **Sperry Microline:** Microwave instruments, klystron power supplies. **Vidar:** Frequency converters.

Lehmann Co. (William R.), 222 Magnolia Ave., P.O. Box 1224, Orlando, Fla., 3, Tel: GArden 2-9848 (ERA)

Allied Control Co.: Relays. **Collins Radio Co.:** Filters. **Communications Accessories Co.:** Communications accessories. **Electro-Physics Laboratories:** Connectors. **International Instruments, Inc.:** Instrumentation. **Precision:** Metal products. **Sioux Radio Products:** Coils. **Tronex, Inc.:** Headers.

McCorvey Co. (V. Avis), 708 San Juan Blvd., Orlando, Fla., 3, Main Office: Decatur, Ga.

Murphy & Cota, 2319 E. South St., Orlando, Fla., 2, 3, Tel: GArden 4-2167, Main Office: Winston-Salem, N.C.

Proctor Co. (Charles), 1229 Newcastle Dr., P.O. Box 3185, Orlando, Fla., 3, Tel: GArden 5-7603 (ERA)
Components.

Shulan & Co., Inc. (Wally), Orlando, Fla., 3, Main Office: Jersey City, N.J.

Wallace Associates, Inc. (Stanley K.), 2705 Catalina Dr., Orlando, Fla., 3, Tel: GArden 4-0294, Main Office: Charlotte, N.C.

Wimberly Co. (W. Ben), 203 N. Lucerne Circle, #4B, Orlando, Fla., 3, Tel: GArden 5-3083, Main Office: Clearwater, Fla.

Ormond Beach
(Telephone Area Code—305)

Smith, Inc. (Maitland K.), 322 Riverside Dr., Ormond Beach, Fla., 3, Tel: ORange 7-2298, Main Office: Atlanta, Ga.

Pensacola
(Telephone Area Code—305)

Grice Electronics, Inc., 300 E. Wright St., Pensacola, Fla., 2, Tel: HEmlock 3-4616 (NEDA)

Pompano Beach
(Telephone Area Code—305)

Hollingsworth & Still, Inc., 2770 N.E. 53rd St., Pompano Beach, Fla., 3, Tel: WH 1-4000, Main Office: Atlanta, Ga.

Saint Petersburg
(Telephone Area Code—813)

Cain & Co., 410 150th Ave., Madeira Beach Professional Bldg., St. Petersburg 8, Fla., 3, Tel: WA 1-0151, Main Office: Burbank, Calif.

Components Sales Corp., P.O. Box 7087, St. Petersburg, Fla., 1, 2, 3, Tel: 7-7904, Main Office: North Miami Beach, Fla.

Cooper Radio Co., 165 13th St. N., St. Petersburg, Fla., 2, Tel: 5-7607 (NEDA)

Raymund & Associates, Inc. (E. C.), P.O. Box 8215, Madeira Beach, St. Petersburg 8, Fla., 3, Tel: WAverly 1-9735 (ERA)
Components, instrument systems.

Sarasota
(Telephone Area Code—813)

Henry Associates (Bill), 2187 Sunny Side Lane, Sarasota, Fla., 3, Tel: RIngling 6-4637, Main Office: Charlotte, N.C.

Radio Accessories Co. of Sarasota, Inc., P.O. Box 3590, 607 School Ave., Sarasota, Fla., 2, Tel: RIngling 6-0294 (NEDA)

Tampa
(Telephone Area Code—813)

Kinkade Radio Supply, Inc., 1719 Grand Central Ave., Tampa 6, Fla., 2, Tel: 8-6043 (NEDA)

Leader Electronic Distributors, Inc., 3411 S. Dale Mabry Hwy., Tampa 11, Fla., 2, Tel: TAmpa 65-1891 (NEDA)

Taylor Co. (Morris F.), 4304 Corona St., Tampa 9, Fla., 3, Tel: 62-4071, Main Office: Silver Spring, Md.

Thurow Electronics, Inc., 121 S. Water St., Tampa 1, Fla., 2, Tel: 2-1885 (NEDA)

West Palm Beach
(Telephone Area Code—305)

Goddard, Inc., 1309 N. Dixie, West Palm Beach, Fla., 2, Tel: TEmple 3-5701 (NEDA)

Winter Haven
(Telephone Area Code—813)

Taylor Co. (Morris F.), 940 Lake Elbert Dr., Winter Haven, Fla., 3, Tel: CYpress 4-2941, Main Office: Silver Spring, Md.

Winter Park
(Telephone Area Code—813)

Aironic Accessory Co., Inc., 191 W. Fairbanks, Winter Park, Fla., 3, Tel: MIdway 7-2251, Main Office: Brightwaters, L.I., N.Y.

Electro Air Corp., 1740 W. Fairbanks Ave., Winter Park, Fla., 2, Tel: MIdway 7-5921, Main Office: Atlanta, Ga.

Hemminger Co., Inc. (William F.), 2727 Aloma Ave., Winter Park, Fla., 3, Tel: MIdway 7-4697, Main Office: Miami, Fla.

Hollingsworth & Still, Inc., 1211 Oaks Blvd., Winter Park, Fla., 3, Tel: MI 7-4150, Main Office: Atlanta, Ga.

Millar Associates (James), P.O. Box 1603, Winter Park, Fla., 3, Tel: MIdway 7-7407, Main Office: Atlanta, Ga.

GEORGIA

Atlanta
(Telephone Area Code—404)

Aironic Accessory Co., Inc., 3179 Maple Dr., Atlanta 5, Ga., 3, Tel: CEdar 7-0788, Main Office: Brightwaters, L.I., N.Y.

Atcheson & Adams, P.O. Box 4867, Atlanta, Ga., 3, Tel: DRake 8-2807, Main Office: Greensboro, N.C.

Burwell Co. (Henry W.), 422 Ponce de Leon Ave. N.E., Atlanta 8, Ga., 3 (ERA)

Johnson Co. (K. W.): Shock & vibration isolation equip. **New England Trawler Equipment Co.:** Shock & vibration testing.

Cartwright & Bean, 3223 Cain's Hill Pl. N.W., Atlanta 5, Ga., 3, Tel: 237-2273, Main Office: Memphis, Tenn.

Chapman & Co. (Cary), 600 Trusco Way, Atlanta 10, Ga., 3 (ERA)

Gudeman Co., ITT Distributor Products Div.

Duckett Sales Co. (Grady), P. O. Box 11529, Atlanta 5, Ga., 3 (ERA)

Advance Relay: Relays. **Ampex Audio Co.:** Tape recorders. **Amphenol-Borg Corp.:** Precision potentiometers, dials & motors. **Eastern Precision Resistor Co.:** Resistors. **Elco Corp.:** Printed circuit connectors, sockets & shields. **Electro-Circuits, Inc.:** Printed-circuit boards. **JFD Electronics:** Precision trimmer capacitors, delay lines. **Mallory:** Capacitors, potentiometers, resistors, switches, rectifiers, welding electrodes. **Micro-Semiconductor Corp.:** Diodes. **Minneapolis-Honeywell Regulator Co.:** Panel meters. **Torotel, Inc.:** Toroids, filters, magnetic amplifiers.

Electro Air Corp., 645 Antone St. N.W., Atlanta 18, Ga., 2, Tel: TRinity 3-1651

Bourns, Cutler-Hammer, Cannon Electric Co., Mechanical Products, Sprague Electric.

Fausett & Co. (Floyd), 777 Pinehurst Terr. S.W., Atlanta 10, Ga., 3, Tel: 753-3104 (ERA)
OEM components.

Hayden Associates (Paul), 1226 Franklin Circle N.E., Atlanta 5, Ga., 3, Tel: MElrose 4-0798, Main Office: East Point, Ga.

Hollingsworth & Still, Inc., 508 Whitehead Bldg., Atlanta 3, Ga., 3 (ERA)

Amphenol-Borg, Audio Devices, Inc., Astatic Corp., Bogen-Presto Corp., Hickok Electrical Instrument Co., International Resistance Co., Sams & Co. (Howard W.), Stancor Electronics Corp., University Loudspeakers, Inc., Weller Electric Corp

Jackson Electronic Supply Co., Inc., 840 Marietta St. N.W., Atlanta 18, Ga., 2, Tel: TRinity 3-2277 (NEDA)

Jones Co., Inc. (William M.), 1437 Kenilworth Dr. S.W., Atlanta, Ga., 3, Main Office: Towson, Md.

Joyner & Associates, Inc. (J. E.), P. O. Box 10821, Sta. A, Atlanta 10, Ga., 3, Tel: 758-7496 (ERA)
Communications.

Kennon Co. (W. H.), 7 Camden Rd. N.E., Atlanta 9, Ga., 3, Tel: 404-TRinity 4-5566 (ERA)

All Channel Products Co., Craig-Panorama Co., Elco, Inc., Fairbanks Morse Co.

Marchbanks Co. (Ray), 4824 Northside Dr. N.W., Atlanta 5, Ga., 3, Tel: BL 5-0251 (ERA)
Phonographs, tape-recorders.

Millar Associates (James), 1036 Peachtree St. N.E., Atlanta 9, Ga., 3, Tel: TRinity 6-0919 (ERA)

Alpha Wire, Amperex Electronic, British Industries, Clarostat, Cornell-Dubilier, J-B-T Instruments, Johnson Co. (E. F.), Miller Co (J. W.), Par-Metal, Shure Brothers, Sola Electric, Trimm, Triplett, United Transformer.

Murphy & Cota, 2110 Peachtree Rd., N.W., Atlanta 9, Ga., 3, Tel: 404-TRinity 6-3020 (ERA)

Berkeley Div., Beckman Instruments, Inc., Daven Co., Dressen-Barnes Corp., DuMont Labs. Div. of Fairchild Camera & Instrument Corp., Filtron Co., Inc., General Communications Co., Good-All Electric Mfg. Co., Gulton Industries, Inc., Holt Instrument Labs., Kurman Electric Co., Ling Electronics Div. of Ling Temco Vought, North Atlantic Industries, Inc., Offner Electronics, Inc., Polarad Electronics Corp., Stackpole Carbon Co., Theta Instrument Corp.

Smith, Inc. (Maitland K.), 208 14th St. N.W., Atlanta 13, Ga., 3, Tel: 404-TRinity 5-8031 (ERA)

B & K Mfg. Co., Chassis-Trak, Electro-Voice, Koss, Inc., Magnecord, Oxford, Phaostron Instrument & Electronic, Rauland Corp., Setchell-Carlson, Sherwood Electronic Laboratories, Sprague Products, Superior Cable, Thordarson-Meissner, Ward Products, Wyco Metal Products.

Southeastern Radio Parts Co., 400 W. Peachtree St. N.W., Atlanta, Ga., 2, Tel: JAckson 1-7536 (NEDA)

Specialty Distributing Co., Inc., 763 Juniper St. N.E., Atlanta 8, Ga., 2, Tel: TRinity 3-2521 (NEDA)

Wallace Associates, Inc. (Stanley K.), 715 Flamingo Dr., Atlanta 11, Ga., 3, Tel: PLaza 3-8463, Main Office: Charlotte, N.C.

Augusta
(Telephone Area Code—404)

Prestwood Electronics Co., 1445 Greene St., Augusta, Ga., 2, Tel: 4-5444 (NEDA)

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Distribution

Florida
Georgia

Columbus
(Telephone Area Code—404)

Radio Sales & Service Co., 2000 12th Ave., Columbus, Ga., 2, Tel: FAirfax 7-3296 (NEDA)

Decatur
(Telephone Area Code—404)

Adair Co. (Clark), 1882 Silvastone Dr., Decatur, Ga., 3, Tel: 404-HIckory 3-4321 (ERA)

American Microphone, Anderson Electronics, Audiotex, Booth Co. (T R.), Electrocraft, Federated Industries, G. C. Electronics, International Wire, Osborne Electronics, Racon Electric, Telco, Visu-All, Walco Electronics, Walsco.

McCorvey Co. (V. Avis), 2469 N. Decatur Rd., Box 606, Decatur, Ga., 3, Tel: 404-636-2502 (ERA, NEDA)

Air-Marine Motors, Inc., Bourns, Inc., Cletron, Inc., Cosmo Plastics Co., Decco, Inc., Diamonite Products Mfg. Co., Jerrold Electronics, Inc., Linemaster Switch Corp., National Radio Co., Pomona Electronics Co., Scott, Inc. (H. H.), Sealtron Corp., Times Wire & Cable Co.

Nickerson Co. (Frank C.), 626 Medlock Rd., Decatur, Ga., 3, Tel: MElrose 6-2752 (ERA)

Autotronics: Clutches & brakes. **Centralab:** Capacitors, switches, ceramics. **Filtors:** Hermetically sealed relays. **G/V Controls:** Relays. **Gamewell Co.:** Precision potentiometers. **Licon Div.:** Snap-action switches. **Littelfuse, Inc.:** Glass fuses, holders, & circuit breakers.

Raymund & Associates, Inc. (E.C.), P.O. Drawer 150, Decatur, Ga., 3, Main Office: Saint Petersburg, Fla.

East Point
(Telephone Area Code—404)

Hayden Associates (Paul), Box 331, East Point, Ga., 3, Tel: 404-POplar 6-0261 (ERA)

Astron Corp., Atlas Sound Corp., Continental-Wirt Electronics Corp., Dynaco, Inc., General Control Co., Gramer-Halldorson Transformer Corp., North Electric Co., Sarkes Tarzian, Vaco Products Co.

Little Co. (Sam), 2396 Connally Dr., P.O. Box 308, East Point, Ga., 3, Tel: 761-5353 (ERA)

Arkay Products, Inc., Erikson Tool Co., Hamilton Electronics, Hunt Corp., I. H. Mfg. Co., Kings Electronics, Microtran Co., Polytronics, Semi-Elements, Inc., Sidco Co., Westinghouse Electric Corp. Electronic Tube Div.

Southern Electronics Corp., 216 N. Main St., East Point, Ga., 2 (NEDA)

Elberton
(Telephone Area Code—404)

McCorvey Co. (V. Avis), 211 Highland Dr., Elberton, Ga., 3, Main Office: Decatur, Ga.

Savannah
(Telephone Area Code—912)

Kings Appliance & Electronics, Inc., 666 Indian St., P.O. Box 548, Savannah, Ga., 2 (NEDA)

Smyrna
(Telephone Area Code—404)

Fausett & Co. (Floyd), 441 Pinedale Dr., Smyrna, Ga., 3, Tel: HE 5-7068, Main Office: Atlanta, Ga.

HAWAII

Honolulu
(Telephone Area Code—808)

Arva, Inc., P.O. Box 2845, Honolulu, Hawaii, 3, Tel: 269-781, Main Office: Seattle, Wash.

Barstow & Doran, Inc., 1253 S. King St., Honolulu, Hawaii, 3, Main Office: Los Angeles, Calif.

Burcham Co. (Don H.), P.O. Box 2845, Honolulu 3, Hawaii, 3, Main Office: Portland, Ore.

Easy Appliance Co., Div. of Service Motor Co., Ltd., 91 S. King St., Honolulu, Hawaii, 2, Tel: 5-9521 (NEDA)

Electrical Equipment Co., Ltd., 656 S. Queen St., Honolulu, Hawaii, 2, Tel: 50-3884 (NEDA)

Hastin Sales Corp., 235 Cooke St., Honolulu 13, Hawaii, 3, Tel: 50-7171 (ERA)
Advance Relay, American Microphone, Amphenol Electronics, Audiotex Mfg., British Industries, Centralab, Eitel-McCullough, Fisher Radio, Granger Associates, Hammarlund Mfg., J-B-T Instrument, Jerrold Electronics, Kaar Engineering, Littelfuse, Merit Coil & Transformer, Ohmite Mfg., Reeves Soundcraft, Sams & Co. (Howard), Triplett Electrical Instrument Co., Walco Electronics, Walsco Electronics, Xcelite Tools.

Hill Co. (J. T.), Box 2845, Honolulu, Hawaii, 3, Tel: 269-781, Main Office: San Gabriel, Calif.

Honolulu Electronics, 819 Keeaumoku St., Honolulu 14, Hawaii, 2, Tel: 99-5466 (NEDA)

Kentron Hawaii, Ltd., 1140 Waimanu, Honolulu 14, Hawaii, 1, 2, 3, 4, Tel: 53-975 (NEDA)
Ampex Instrumentation Products Co.: Tape recorders. **Ampex Magnetic Tape Products:** Magnetic tapes. **Andrew Corp.:** Antenna systems. **Collins Radio Co.:** SSB microwave & broadcast equip. **Dage Television Div.:** CCTV systems. **Harrison Laboratories, Inc.:** Transistorized power supplies. **Hewlett-Packard Co.:** Test equip. repair & calibration service station. **Motorola Communications & Electronics, Inc.:** Mobile radio & microwave systems, CCTV for classroom use. **Offner Electronics, Inc.:** Oscillographs & electroencephalographs. **RCA Service Co.:** Shipboard radio, radar & loran maintenance & repair service. **Radiation Instrument Development Lab., Inc.:** Nuclear radiation measurement. **Radio Frequency Labs., Inc.:** Frequency standards, magnet chargers, power supplies. **Thompson Ramo Wooldridge Inc.; Educational Electronics Div.:** Language labs, CCTV, teaching machines. **Westrex Corp.:** Radio, teletype, facsimile, & monitoring systems.

Nylen Brothers & Co., Ltd., 820 S. Beretania St., Honolulu 13, Hawaii, 2 (NEDA)

Piety Factors, Inc. (Gene), P.O. Box 2903, 160 Mokauea St., Honolulu, Hawaii, 3 (ERA)

Precision Radio, Ltd., 1160 S. King St., Honolulu 14, Hawaii, 2, Tel: 58-291 (NEDA)

Radio-Television Corp., Ltd., 777 Ala Moana, Honolulu 13, Hawaii, 2, Tel: 50-2901 (NEDA)

Radio Wholesale & Supply Co., 610 Ward Ave., Honolulu 14, Hawaii, 2, Tel: 58-3831 (NEDA)

Technical Factors, Ltd., Honolulu, Hawaii, 1, 3, Main Office: Tokyo, Japan

IDAHO

Boise
(Telephone Area Code—208)

Kopke Electronics Co., 3113 Rose Hill St., Boise, Idaho, 2, Tel: 2-2371 (NEDA)

Idaho Falls
(Telephone Area Code—208)

Drake Associates, Inc. (Rush S.), P.O. Box 2126, Idaho Falls, Idaho, 3, 4, Tel: JAckson 2-7992, Main Office: Seattle, Wash.

Schwendiman's Wholesale Distributors, 910 E. Lincoln Rd., Idaho Falls, Idaho, 2, Tel: JAckson 2-2492 (NEDA)

Seatronics, Inc., P.O. Box 2126, Idaho Falls, Idaho, 3, Tel: JAckson 2-7992, Main Office: Seattle, Wash.

Twin Falls
(Telephone Area Code—208)

United Electronic Wholesale, Div. of United Automotive, Inc., 328 3rd St. E., Twin Falls, Idaho, 2, Tel: REdwood 3-7324 (NEDA)

ILLINOIS

Aurora
(Telephone Area Code—312)

Chauncey's, Inc., 105 S. LaSalle St., Aurora, Ill., 2, Tel: TWinoaks 7-8471 (NEDA)

Smith & Associates (Dwight), 32 S. River St., Aurora, Ill., 3, Tel: 312-TWinoaks 7-5752 (ERA)
Amperex: Tubes. **Dyna-Empire:** Instruments. **Equipto:** Enclosures. **General Crystal:** Antennas. **Gyra Electronics:** Instruments. **Mark Mobile:** Antennas. **Noreico:** Sound. **Tri-Tronics:** Electric-eye systems.

Belleville
(Telephone Area Code—618)

Knaggs Co. (Herbert W.), 7503 Melba Lane, Belleville, Ill., 3, Tel: EX 7-2398 (ERA)

Lurtz Electric Co., 219 N. Illinois St., Belleville, Ill., 2, Tel: ADams 3-0942 (NEDA)

Benton
(Telephone Area Code—618)

Lampley Electronic Supply, 452 E. Church St., Benton, Ill., 2, Tel: GEneral 5-8194 (NEDA)

Berwyn
(Telephone Area Code—312)

B-B & W, Inc., 6634 W. Cermak Rd., Berwyn, Ill., 2, Tel: PIoneer 9-1710 (NEDA)

Bloomington
(Telephone Area Code—309)

Alverson Sales Co., 217 E. Front St., Bloomington, Ill., 2, Tel: 822-8380 (NEDA)

Suter TV Supply, Inc., 1009 N. Park, Bloomington, Ill., 2, Tel: 823-7585 (NEDA)

Blue Island
(Telephone Area Code—312)

Delta Distributing, 2357 W. York St., Blue Island, Ill., 2, Tel: FUlton 8-4500 (NEDA)

Champaign
(Telephone Area Code—217)

Electronic Parts Co., 905 S. Neil St., Champaign, Ill., 2, Tel: FLeetwood 6-1896 (NEDA)

Chicago
(Telephone Area Code—312)

Allied Electronics, Subsid. of Allied Radio Corp., Dept 928-2, 100 N. Western Ave., Chicago 80, Ill., 2, Tel: 312-HAymarket 1-6800 (NEDA)
See ad on page 793
AMP, Acme, Acoustic Research, Acoustone, Acro Switch, Advance, Aerovox, Agastat, Akro-Mils, All-Channel, Alliance, Alpha Wire, Altec, American Beauty, American Radio & Television, Amglo, Amperex, Amperite, Ampex, Amphenol, Arco, Astatic, Atlas, Audio Devices, Audiotape, Autotron, B & K, Barber-Colman, Barker-Williamson, Belden, Bliley, Blonder-Tongue, Bogen, Borg, Bozak, Brown, Bud, Burgess, Buss, CTS-IRC, Camblock, Cambridge Thermionic, Cannon, Centralab, Century, Chemtronics, Chicago Transformer, Cinch-Jones, Clairex, Clare, Clarostat, Clevite, Collins Radio, Conant, Condenser Products, Consolidated Wire, Continental Carbon, Continental Electric, Cornell-Dubilier, Croname, Cutler-Hammer, Dalohm, Daven, Dialco, Dow-Key, Drake Electric Drake Mfg., DuMont, Duotone, Dutch Brand, Eby, Echo Wire, Elco, Elmac, Elco, Electro-Products, Electro-Voice, Electrostrip, Electrons, Emerson & Cuming, Equipto, Ersin, Eveready, E-Z Way, Fairchild, Fanon, Federal Electronics, Federal Switch, Federal Telephone & Radio, Fedtro, Fenwal, Fisher, Fisher-Pierce, Flexo, Garrard, Genalex, General Cement, General Control, General Electric, General Radio, Gonset, Goodman, Guardian, Hallicrafters, Hamilton, Hammarlund, Harman-Kardon, Harvey Hubbell, Harvey-Wells, Hickok, Hoffman, Hughes, Hunter, I.D.E.A., ITT-FTR, Illinois Condenser, Illumitronic, Industrial Timer, International Rectifier, JBT, Jensen Industries, Jensen Mfg., Jerrold, Johnson (E. F.), Jones (M. C.), Kepco, Knight, Knight-Kit, Knights, Krylon, KTV Towers, Mallory, Marantz, Meissner, Microcircuits, Microtran. Millen, Miller (J. W.), Minnesota Mining & Mfg., Monitoradio, Moody, Moseley, Mueller, Mullard, National Co., National Electronics, National Union, North American Philips, Ohmite, Oryx, Pacific Semiconductor, Peco, Penta, Pentron, Perma-Power, Phaostron, Philco, Potter & Brumfield, Precise Development, Precision Apparatus, Pyramid, Quam-Nichols, Radio Corp. of America, Raypar, Raytheon, Reeves, Remcon, Rider, Rome Cable, Sams Publishers, Sangamo, Sarkes-Tarzian, Seco, Sigma, Simpson, Smith (H. H.), Sola, Sonotone, Sony, Spaulding, Specific, Sprague, Stackpole, Stancor, Standard Coil, Standard Electric, Superex, Superior, Switchcraft, Sylvania, Taco, Tandberg, Tapemaster, Telex, Telrex, Terado, Texas Instruments, Thermosen, Thomas & Betts, Thor, Thordarson-Meissner, Thorens, Transistor Electronics, Triad, Trimm, Triplett, Tung-Sol, Ungar, Unimax, United Electronics, United Transformer, University, Vector, Vibroplex, Victoreen, Viking, Vitramon, Vocaline, Walco, Waldom, Walsco, Ward, Waterman Products, Webcor, Weller, Wen, Westinghouse, Weston, Wheeler, Wirt, Xcelite.

Anderson & Associates, Inc. (Burt), 6414 W. Higgins, Chicago 31, Ill., 3, Tel: 312-SPring 4-4174 (ERA)
American Machine & Foundry: Meters. **Autotronics:** Clutches & brakes. **Computer Engineering Associates:** DC amplifiers. **Cook Electric Co.:** Relays. **Fairchild Controls:** Potentiometers. **JFD Electronics:** Antennas, trimmer capacitors. **Kelvin Sales:** Wire-wound resistors. **Laboratory For Electronics:** Microwave test equip. **Slater Electric:** Silicon rectifiers. **Superior Mfg.:** Gears. **Transformer Technicians:** Transformers.

Angel & Co. (Jay C.), 2743 W. Peterson Ave., Chicago 25, Ill., 3 (ERA)
ADC, Inc.: Transformers, plugs, jacks, filters. **Bristol Motors:** Timers. **Chatham:** Thermostats. **Chatillon:** Springs. **Gries:** Die-castings. **Hughes:** Spot welding equip. **Kupfrian:** Couplings. **Omega:** Relays. **Shallcross Mfg.:** Wire-wound resistors. **Taylor Electric:** Wire duct. **Technical Wire Products:** RF shielding.

Arpio Sales, Inc., 4305 Lincoln Ave., Chicago 18, Ill., 2, Tel: WEllington 5-7781 (NEDA)

Bacher & Associates (Lou), 4216 W. Division St., Chicago 51, Ill., 3, Tel: 312-BElmont 5-6601 (ERA)
Bar-Don Fabricators: Non-metallic fabricators. **Emerald Mfg. Co.:** Panels. **Gremar Mfg. Co., Inc.:** RF connectors. **Oaktron Industries, Inc.:** Speakers. **Syncro Corp.:** Dry electrolytic capacitors. **U.S. Sonics Corp.:** Ceramic transducer elements.

Beier Co. (Leroy W.), 6518 W. North Ave., Chicago 35, Ill., 3, Tel: 312-BErkshire 7-2420 (ERA)
Conant Laboratories, Dale Electronics, Glass-Tite Industries, Leach Relay, Minneapolis-Honeywell Precision Meter Div., Mueller Electric, National Radio Co., Pendar, Inc., Pickering & Co., Victory Engineering.

Berndt & Associates, 6322 N. Milwaukee, Chicago 46, Ill., 3, Tel: SP 5-2488 (ERA)
Components, computer instrumentation.

Bierhaus-Balhorn Sales, Inc., 7185 Armitage, Chicago 35, Ill., 3, Tel: 312-TU 5-9011 (ERA)
Consolidated Electrodynamics Corp.: Connectors. **G-V-Controls, Inc.:** Thermal, time delays relays, timers, & thermostats. **Hurst:** Synchronous motors. **Ledex, Inc.:** Solenoids, selector switches, stepping motors. **Nytronics, Inc.:** RF Coils, delay lines. **Planet Mfg. Corp.:** Electrolytic capacitors. **Potter & Brumfield, Inc.:** Relays. **Transco Products, Inc.:** Microwave components. **Welwyn International, Inc.:** Resistors.

Blaker Co. (S. C.), 2353 N. California Ave., Chicago 47, Ill., 3, Tel: 312-BRunswick 8-1220 (ERA)
Advanced Electronics Corp.: Telemetry supplies. **Carter Mfg. Corp.:** Wirewound potentiometers. **Dearborn Electric Laboratories:** Capacitors. **Forest Electric Co.:** Transformers. **Frenchtown Porcelain Co.:** Alumina & beryllium oxide parts. **Kidco, Inc.:** Resistors. **Valor Instruments, Inc.:** Pulse transformers, delay lines, power supplies. **Westinghouse Electric Corp.:** Cores.

Bluzat Co. (Claude R.), 5306 Lawrence Ave., Chicago 30, Ill., 3, Tel: 312-KIldare 5-0244 (ERA)
Carbonneau Industries: Speakers. **Wells Co. (Gary):** Resistors, thermostats.

Booth & Associates (Claude), 4000 W. North Ave., Chicago 39, Ill., 3, Tel: 312-CApitol 7-2810 (ERA)
A. T. Electronics, Inc.: Phelps Dodge coaxial cable. **All States Plastic Mfg. Co.:** Cable clamps. **Antenna & Radome Research Associates:** Microwave components. **Brockway Pressed Metals:** Powdered-metal bearings. **Burnell & Co., Inc.:** Toroids, filters. **Glass Beads Corp.:** Glass preforms. **Gray & Kuhn, Inc.:** Delay lines. **Impact Extensions, Inc.:** Extruded aluminum parts. **Jakel Mfg. Inc.:** Shaded pole motors. **Methode Electronics, Inc.:** Printed-circuit panels, connectors, harnesses, sockets, shields, & plugs. **Shaw Instrument Corp.:** Ceramic-to-metal assemblies. **Thermatics, Inc.:** Wire, cable & tubing. **Thermo-Ceram Mfg. Corp.:** Hermetic seals.

Bowman & Co., Inc. (J. G.), 221 W. 79th St., Chicago 20, Ill., 2, Tel: TRiangle 4-8070 (NEDA)

Bruning Co. (A. H.), 4120 W. Peterson Ave., Chicago 46, Ill., 3, Tel: 312-AVenue 2-5171 (ERA)
Alpha Wire Corp., Astron Corp., Drake Mfg. Co., Eby Sales Co., Luxo Lamp Corp., Technical Appliance Corp., Thordarson-Meissner.

Burgoyne Co. (William E.), 7001 N. Clark St., Chicago 26, Ill., 3, Tel: 312-HOllycourt 5-2112 (ERA)
Aerovox Corp.: Capacitors, RF filters. **Alphaloy Corp., Div. of Alpha Metal, Inc.:** Fluxes. **Bodnar Products Corp.:** Illuminated panels. **Chester Morton Electronics Corp.:** Cable harnesses & assemblies. **Electronic Research Co.:** Quartz crystals & ovens. **Grigsby Co., Inc.:** Rotary slide switches & switch wafers. **Scherma Mfg. Co. (F. A.):** Relays.

Distribution

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4. Sales & service
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Cain & Co., 3508 Devon Ave., Chicago 45, Ill., 3, Tel: OR 6-9500, Main Office: Burbank Calif.

Caine Electronic Sales Co., 4120 W. Lawrence Ave., Chicago 30, Ill., 3, Tel: 312-SPring 7-4022 (ERA)
Airflyte Electronics Co.: Slip rings, brushes, commutators, rotary switches, analog-digital converters. **Epic Resins Corp.:** Epoxy resins. **Rattray & Co. (George):** Precision potentiometers.

Carlson Electronic Sales, 6677 Northwest Hwy., Chicago 31, Ill., 3, Tel: SP 4-0430 (ERA)
Components.

Carrier Co. (G. R.), 10340 S. Western Ave., Chicago 43, Ill., 3, Tel: 312-HIlltop 5-6300 (ERA)
Hunt Valve Co., Rees, Inc. (Mackworth G.) Div. of Avis Industrial Corp., Wiggens Oil Tool Co., Inc.

Claeson & Associates (Lang), 6733 N. Olmsted Ave., Chicago 31, Ill., 3, Tel: 312-SPring 4-3610 (ERA)

Cole Co. (G. McL.), 6514 W. Higgins Rd., Chicago 31, Ill., 3, Tel: 312-SPring 4-3535 (ERA)
Argos Products Co., Inc., Bureau of Engraving, Inc., Continental-Wirt Electronics Corp., E-Z Way Towers, Eastern Air Devices, Inc., Filtron Co., Inc., Hallicrafters Co., Illinois Condenser Co., Phaostron Instrument & Electric Co.

Crossley Associates, Inc., 2501 W. Peterson, Chicago 45, Ill., 3, Tel: BRoadway 5-1600 (ERA)
Baldwin-Lima-Hamilton: Strain gages, transducers. **Bomac:** Microwave tubes & components. **Boonton Radio:** Signal generators, Q meters. **Dymec:** Digital equipment, microwave test sets. **Electro Products Laboratories:** Transducers. **Hewlett-Packard Co.:** Electronic test equip. **Kin Tel:** Amplifiers & digital voltmeters. **Moseley Co. (F. L.):** XY recorders & digital system components. **Sanborn:** Oscillographic recorders & transducers. **Varian Associates:** Microwave tubes, strip chart recorders.

Cumming & Associates, Inc. (Bruce), 6029 W. Belmont Ave., Chicago 34, Ill., 3, Tel: 312-MErrimac 7-3770 (ERA)
Atlas Sound Corp.: Paging speakers. **Bud Radio, Inc.:** Sheet metal. **Clarostat Mfg. Co., Inc.:** Potentiometers, resistors. **Control Products, Inc.:** Thermal switches. **Illumitronic Engineering Corp.:** Plastic tubing. **Quam-Nichols Co.:** Speakers. **Radio Receptor Co.:** Rectifiers. **Resistance Products Co.:** Resistors. **Weller Electric Corp.:** Soldering guns & irons. **Xcelite, Inc.:** Hand tools.

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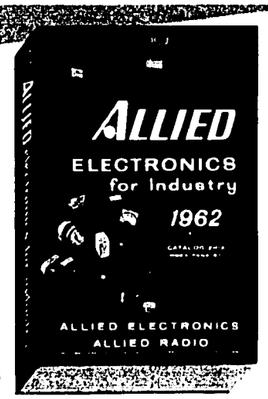

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Materials.

Dolin Sales Co. (D.), 3553 W. Peterson Ave., Chicago 45, Ill., 3, Tel: 312-JUniper 8-3738 (ERA)
Ashland Electric Products, Inc.: Motors & fans. **Elcor:** Converters, power supplies, generators, DC motors. **Elco Corp.:** Sockets, tube shields, connectors, posts. **Electri-Cord Mfg. Co., Inc.:** Cords. **Excellex Electronics, Inc.:** Miniature connectors, strips. **Jefferson Wire & Cable Corp.:** Coaxial cables, ribbon cables. **Kemet Co.:** Tantalum capacitors. **Kings Electronics Co., Inc.:** RF connectors. **Magnecraft Electric Co.:** Relays. **Milwaukee Transformer Co.:** Transformers, reactors, filter networks. **Network Industries, Inc.:** Toggle switches. **Plastic Capacitors, Inc.:** Capacitors, HV power packs. **Sealtron Corp.:** Hermetically sealed connectors. **Sherold Crystal Co.:** Quartz crystals. **Silicon Transistor Corp.:** Power transistors & glass diodes. **Solar Systems, Inc.:** Silicon photocells, readout cells, solar energy converters. **ThermoCal, Inc.:** Miniature switches. **U.S. Engineering Co.:** Hardware. **Webster Electronics Co., Inc.:** Sockets & switches.

Doyle Co. (William J.), 2600 W. Touhy Ave., Chicago 45, Ill., 3, Tel: 312-BRoadway 4-6685 (ERA)
Antenna Specialists: Antennas. **Astatic Corp.:** Cartridges, microphones. **Bell Sound Div.:** Public address systems. **Combined Electronics:** Printed-circuit boards. **Electro-Laminates, Inc.:** Test connectors. **Executone, Inc.:** Relays. **ITT Distributor Products Div.:** Rectifiers, contact protectors, packaged power. **Kaar Engineering Corp.:** Radio-telephones. **Midwec Corp.:** Capacitors. **Portable Electric Tools, Inc.:** Soldering irons & guns. **United Audio Products, Inc.:** Turntables/changers. **Utah Radio & Electronic Corp.:** Speakers, baffles.

Ellinger Sales Corp., 6540 N. Northwest Hwy., Chicago 31, Ill., 3, Tel: 312-ROdney 3-1570 (ERA)
Aerovox Corp.: Capacitors. **Atlee Corp.:** Component holders. **GOE Engineering Co.:** Terminals. **Ideal Precision Meter Co.:** Panel meters. **Johnson Co. (E. F.):** Variable capacitors, amateur equip., pilot lights. **Ken-Tron Corp.:** RF connectors, plugs. **Triad Transformer Corp.:** Transformers. **U.S. Wire & Cable Co.:** Coaxial cable.

Engineered Sales Co., Inc., 4738 N. Harlem Ave., Chicago 31, Ill., 3 (ERA)
Ballastran Corp.: Transformers. **Bogart Mfg. Corp.:** Microwave components. **Cascade Research:** Ferrite components. **Gamewell Corp.:** Potentiometers, trimmers, switches. **Globe Industries, Inc.:** Miniature motors, blowers. **Hi-G, Inc.:** Relays. **Jonathan Mfg. Corp.:** Chassis slide rails. **Lewis & Kaufman Electronics:** Power & microwave tubes. **Micro Semiconductor:** Micro-diodes. **Precision Metal Products:** Hardware. **Relcoil Products, Inc.:** Coils. **Vernitron Corp.:** Synchros & resolvers.

Engle Co., Inc. (Karl D.), 3621 W. Devon Ave., Chicago 45, Ill., 3, Tel: 312-539-1820 (ERA)
Du-Co Ceramics Co.: Ceramics. **Duramark, Inc.:** Plastic markers. **Dynamic Gear Co., Inc.:** Gears. **Hudson Tool & Die Co., Inc.:** Cans. **Industrial Devices, Inc.:** Pilot lights. **Jacobson Nut Mfg. Corp.:** Nuts. **Mitronics, Inc.:** Metallized ceramics. **Niemand Brothers, Inc.:** Paper tubes. **Zierick Mfg. Corp.:** Lugs & wire forms.

Felleisen Co. (Theodore E.), 5841 W. Montrose Ave., Chicago 34, Ill., 3, Tel: SP 7-1060 (ERA)
OEM components.

Fitzsimmons Associates, Inc., 515 N. La Salle St., Chicago 10, Ill., 3, Tel: 467-6380 (ERA)

Friedman Co. (Morton L.), 4751 N. Rockwell Ave., Chicago 25, Ill., 3, Tel: 312-LOngbeach 1-4257 (ERA)
Devon Tape Corp., Illinois Condenser Co., Keystone Electronics. Polaris Electronics Corp., Sidco, U.S. Transistor Corp., Western Semiconductors, Inc.

Gassner & Clark Co., 6644 N. Western Ave., Chicago 45, Ill., 3, Tel: 312-ROgers Park 4-6121 (ERA)
Bourns: Precision potentiometers. **Collins Radio Co., Western Div.:** Mechanical filters. **Components Corp.:** Toroidal coils, filters, magnetic amplifiers. **DuMont Div.:** CR tubes, multiplier phototubes. **International Instruments, Inc.:** Panel meters. **Knights Co. (James):** Quartz frequency crystals, filters. **Microwave Associates:** Silicon diodes, magnetrons, microwave test equip. **Montrose Products:** Insulated wire. **RF Products Div. of Amphenol-Borg Corp.:** Coaxial cable fittings, switches. **Rotron Mfg. Co.:** Cooling equip. **Vitramon, Inc.:** Capacitors.

Gebhard Co. (Harry W.), 5129 W. Devon Ave., Chicago 46, Ill., 3, Tel: 312-ROdney 3-7525 (ERA)
OEM components.

Gene F. Sales Co., 5306 W. Lawrence Ave., Chicago 30, Ill., 3, Tel: 312-KIldare 5-5562 (ERA)
Barco, Inc.: Electrolytic capacitors. **Ferranti Electric, Inc.:** Transformers. **Flite Electronic Wire & Components, Inc.:** Thermoelectric wire strippers. **General Mfg. Co.:** Terminals & handles. **Mamco Corp.:** FHP motors. **Wilco Corp.:** RF coils & peaking coils.

Gianaras Sales Co., 5435 Northwest Hwy., Chicago 30, Ill., 3, Tel: SP 4-4600 (ERA)
Components.

Gormak Co., 7001 N. Clark St., Chicago 26, Ill., 3, Tel: ROgers Park 4-6366 (ERA)
Components.

Green & Associates (Loren F.), 5218 W. Diversey Ave., Chicago 39, Ill., 3, Tel: 312-AVenue 6-6824 (ERA)
Audio Instrument Co., Inc.: Distortion analyzers. **Calibration Standards Corp.:** Potentiometric meters. **Digitronics Corp.:** Perforated tape readers. **Dressen-Barnes Corp.:** DC power supplies. **Epsco, Inc.:** Data handling systems. **Genisco, Inc.:** Environmental equip. **Industrial Test Equipment Co.:** Oscillators. **Kay Electric Co.:** Sweeping oscillators. **Kilovot Corp.:** Power supplies. **Millivac Instruments, Inc.:** Vacuum tube voltmeters. **Missimers, Inc.:** Test chambers. **Narda Microwave Corp.:** Waveguide & coaxial equip. **Polarad Electronics Corp.:** Microwave instruments. **Spencer-Kennedy Laboratories, Inc.:** Variable filters.

Grove Electronic Supply Co., 4103 W. Belmont Ave., Chicago 41, Ill., 2, Tel: AVenue 3-6160 (NEDA)

Halinton Engineering Associates, Inc. (Harry), 6646 N. Leoti Ave., Chicago 46, Ill., 3, Tel: 312-ROdney 3-2131 (ERA)
Armour Stabivolt Div.: Power supplies. **Birtcher Corp.:** Tube clamps, heat sinks. **Ceramaseal, Inc.:** Terminals. **Diamonite Products:** Alumina ceramic bodies. **Electro Products:** Power supplies. **Hysol Corp.:** Adhesives, resins. **Meller Co. (Adolf):** Sapphire windows, lenses. **Mica Corp.:** Epoxy glass laminated material. **Transistor Electronics Corp.:** Indicators, button & indicator lights. **Tronex, Inc.:** Glass-to-metal seals.

Hamilton Co. (W. F.), 5517 N. Elston Ave., Chicago 30, Ill., 3, Tel: 312-SPring 5-2288 (ERA)
Bay Electric Co.: Fractional HP motors. **Co-Engineering Co.:** Hermetically sealed shafts. **Delevan Electronics Corp.:** Choke coils, coils & coil forms. **Jettron Products:** Tube sockets, micromodule element test sockets. **Livingston Electronics Corp.:** Tube sockets, time delay relays. **Rule Screw Machine Products, Inc.:** Screw machine products.

Higgins Co. (Royal J.), 10105 S. Western Ave., Chicago 43, Ill., 3, Tel: BEverly 3-7388 (ERA)
Barker & Williamson, Inc.: Components. **Electronic Products Corp.:** Microphones. **Mark Mobile, Inc.:** Antennas. **Milwaukee Relays, Inc.:** Relays. **Oryx Co.:** Soldering irons. **Petersen Radio Co.:** Crystals. **Telephone & Electronics:** Citizen band receivers & transceivers. **Vibroplex Co., Inc.:** Transmitter keys. **Waterman Products Co.:** Scopes, CR tubes

Howard Electronic Sales, 4140 Archer Ave., Chicago 23, Ill., 2, Tel: CLiffside 4-1777 (NEDA)

Hunter Associates (Thomas B.), 4441 W. Irving Park Rd., Chicago 41, Ill., 3, Tel: 312-SPring 7-2500 (ERA)
Alliance Mfg. Co.: Fractional HP motors. **Clairex Corp.:** Photocells & photoelectric equip. **Grigsby Co., Inc.:** Lever & rotary switches. **Hi-Q Div. of Aerovox Corp.:** Ceramic capacitors, carbon resistors. **Rola Co., Inc.:** Speakers, yokes, transformers. **Stewart Stamping Co.:** Leads, terminals.

Hutmacher Associates, Inc. (Ray R.), 6668 Northwest Hwy., Chicago 31, Ill., 3, Tel: NE 1-3248 (ERA)

Indra Sales Co. (J. J.), 5117 N. Oconto Ave., Chicago 31, Ill., 3, Tel: UN 7-8524 (ERA)
Components.

Joseph, Inc. (Irving), 5959 W. Fullerton Ave., Chicago 39, Ill., 2, Tel: NAtional 2-7766 (NEDA)

Kadell Sales Associates, Inc., 6140 N. Lincoln Ave., Chicago 45, Ill., 3 (ERA)
Chemtronic Corp.: Electrolytic capacitors. **Cleveland Electronics Corp.:** Speakers. **Dechert Dynamics Corp.:** Hermetic seals. **San Fernando Electric Mfg. Co.:** Capacitors, precision potentiometers. **Sarkes Tarzian, Inc.:** Rectifiers, regulators, tuners & air trimmers.

Karet-Margolin, Inc., 1803 Belle Plaine Ave., Chicago 13, Ill., 3, Tel: WEllington 5-4642 (ERA)
Audax: Speakers. **B & K:** Test equip. **FerroDynamics:** Recording tape. **Master-Craft:** Meters. **Peerless:** Transformers. **Rek-O-Kut:** Turntables. **Sampson:** Receiving tubes. **Scott (H. H.):** Amplifiers, sound-level meters & analyzers.

Knoblock & Malone, Inc., 1603 N. Newland, Chicago 35, Ill., 3, Tel: NA 2-4005 (ERA)

Krueger Co. (Ringland M.), 4738 N. Harlem Ave., Chicago 31, Ill., 3, Tel: 312-UNderhill 7-7100 (ERA)
Airpax Electronics, Inc.: Choppers, magnetic amplifiers, transformers. **Allied Control Co., Inc.:** Relays, switches, solenoid valves. **Augat Brothers, Inc.:** Clips, clamps, hardware. **Chassis-Trak, Inc.:** Slides. **Chester Cable Corp.:** Wire, coaxial cable. **Daco Instrument Co.:** Rotary solenoids. **Rotating Components, Inc.:** AC motors & blowers. **Technical Devices Co.:** Wire strippers, lead formers. **Western Devices, Inc.:** Relay racks, chassis.

Lang, Claeson Associates, 6733 N. Olmsted Ave., Chicago 31, Ill., 3, Tel: 312-SPring 4-3610 (ERA)
Abtronics, Inc., Amco Engineering Co., Ballantine Laboratories, Inc., Burroughs Corp. Electronic Components Div., Computer Control Co., Inc., Hughey & Phillips, Inc., Keithley Instruments, Inc., Kepco, Inc., Owen Laboratories, Inc., Systron-Donner.

Leff Associates (Arnold), 1046 Wilson Ave., Chicago 40, Ill., 3, Tel: 312-LOngbeach 1-6831 (ERA)
Euphonics Corp., Illinois Condenser Co.: Capacitors.

Lightner Associates, 6322 N. Milwaukee Ave., Chicago 46, Ill., 3, Tel: SP 4-1500 (ERA)

Linz & Associates (William M.), 6322 N. Cicero Ave., Chicago 46, Ill., 3 (ERA)
Cletron, Inc., Electronic Chemical, Globe Electronics, Hy-Gain Antenna Products, Kraeuter & Co., Perma Power Co., Pomona Electronics, Sencore, Inc., Turner Co., Ward Products, Wen Products.

Lukko Sales Corp., 4900 N. Elston Ave., Chicago 30, Ill., 2, Tel: AVenue 3-4800 (NEDA)

Magnuson Associates, 3347 W. Irving Park Rd., Chicago 18, Ill., 3, Tel: 312-KEystone 9-7555 (ERA)
Columbus Electronics Inc.: Silicon rectifiers. **Helipot Div., Beckman Instruments:** Meters, servo motors. **I.E.R.C. Div., International Electronic Research Corp.:** Tube shields, heat dissipators. **Industrial Electronic Engineers:** Digital display units. **Judson-Bigelow Inc.:** Charts & recording supplies. **Mepco, Inc.:** Resistors & networks. **Planet Instrument, Inc.:** Gearheads, speed reducers.

Magnuson Co. (Edward), 3349 W. Irving Park Rd., Chicago 18, Ill., 3, Tel: 312-JUniper 8-2613 (ERA)
Automatic Process Control, Inc.: Automatic reactive liquid resin dispensing machines. **Green Instrument Co., Inc.:** Pantograph engravers. **Harrel, Inc.:** Gyro accessories, temperature controllers, amplifiers, relays. **Mechtronics Corp.:** Bellows & diaphragms. **Reeves Instrument Corp.:** Analog computers, gyroscopes, resolvers, waveguide joints, gears. **Rowe Industries, Inc.:** Motors. **Skydyne, Inc.:** Transit cases.

Markal Sales Corp., 2639 W. Peterson Ave., Chicago 45, Ill., 3, Tel: LOngbeach 1-7290 (ERA)
Components.

McCarthy Co. (L. C.), 7117 Addison St., Chicago 34, Ill., 3, Tel: KI 5-7976, (ERA)

Merquip Electronics, Inc., 5094 W. Roosevelt Rd., Chicago 50, Ill., 2, Tel: AUstin 7-6274 (NEDA)

Meter-Makers, Inc., 1101 W. Armitage Ave., Chicago 14, Ill., 4, Tel: 312-LIncoln 9-5252

Meyers Co. (Kenneth W.), 6713 N. Oliphant Ave., Chicago 31, Ill., 3, Tel: 312-SPring 4-6440 (ERA)

Nagel, Inc. (Arthur), 918-925 E. 55th St., Chicago 15, Ill., 2, Tel: BUtterfield 8-5050 (NEDA)

Nation Wide—WJ Electronics, 311 S. Western Ave., Chicago, Ill., 2, Tel: CAnal 6-2525 (NEDA)

Newark Electronics Corp., 223 W. Madison St., Chicago 6, Ill., 2, Tel: STate 2-2944 (NEDA)

Olson Radio Corp. of Chicago, 4101 Milwaukee Ave., Chicago 41, Ill., 2, Tel: KIldare 5-7336 (NEDA)

Peterson Sales (Arthur H.), 3647 W. 62nd St., Chicago 29, Ill., 3, (ERA)
McIntosh Laboratory, Inc.: Amplifiers. **Vega Electronics:** Wireless microphones. **Worner Electronic Devices:** Photocells.

Pilgrim Distributing Co., 8914 Cottage Grove Ave., Chicago 19, Ill., 2, Tel: HUdson 3-6566 (NEDA)

Pivan Engineering Co., 3542 W. Peterson, Chicago 45, Ill., 3, 4, Tel: 312-KEystone 9-4838 (ERA)
Computer Measurements Co.: Counters, digital printers. **E-H Research Labs., Inc.:** Pulse generators, electrometers. **Litton Industries, Inc.:** Precision potentiometers, automatic linearity checkers. **Offner Electronics, Inc.:** Oscillographs. **Packard-Bell Computer Corp.:** Analog-to-digital converters, digital modules. **Precision Instrument Co.:** Magnetic recorders. **Rotek Instrument Corp.:** AC-DC reference sources. **Scientific-Atlanta, Inc.:** Antenna pattern recorders, positioners & towers. **Servo Corp. of America:** Servoscopes. **Sierra Electronic Corp.:** Frequency selective voltmeters & wave analyzers. **Sorensen & Co., Inc.:** AC & DC power requirements. **Tally Register Corp.:** Tape readers, tape perforators, tape logic systems. **Vidar Corp.:** Frequency converters

Radio-Television Supply Corp., 4343 W. Armitage Ave., Chicago 39, Ill., 2, Tel: HUmboldt 9-3311 (NEDA)

Ridley Associates, 1551 N. Austin Blvd., Chicago 51, Ill., 3, Tel: TU 9-2940 (ERA)

Rose Associates (Irving W.), 4358 Montrose Ave., Chicago 41, Ill., 3, Tel: AVenue 2-6835 (ERA)
Barzilay Furniture Mfg. Co., Conrac Fleetwood, Inc., DeWald Radio Div. of United Scientific Labs., Inc., Glaser-Steers Corp., Gray High Fidelity Div., Lansing Sound, Inc. (James B.), Marantz Co., Nortronics Co., Superscope, Inc. (Sony).

Rossi Sales Co. (Charles), 2429 N. 73rd Ave., Chicago 35, Ill., 3, Tel: 312-GLadstone 6-4710 (ERA)
Central Electronic Mfrs., Div. of Nuclear Corp. of America: Special purpose tubes. **Hitemp Wires Co., Div. of Simplex Wire & Cable Co.:** Hook-up & magnet wire & cable. **JB Electronic Transformers, Inc.:** Subminiature transformers. **Western Fishing Line Co.:** Lacing tapes.

Ryan & Associates, 2503 N. Talman, Chicago 47, Ill., 3, Tel: 312-EVerglade 4-5749 (ERA)
Columbus Electric Mfg. Co.: Snap & pressure switches. **Forbes & Wagner, Inc.:** Magnetic amplifiers, pulse transformers. **K & B Electrical Products Co.:** Flexible nylon terminal blocks. **Syracuse Electronics Corp.:** Time delay relays & photocontrols. **Tech Laboratories, Inc.:** Attenuators, pots, impedance networks, rotary switches. **Universal Circuit Controls:** Telephone lever switches.

Saberson Co. (C. J.), 1791 Howard St., Chicago 26, Ill., 3, Tel: BR 4-9668 (ERA)
Impregnating & petting compounds.

Saffro & Associates, 5209 N. Kimball Ave., Chicago 25, Ill., 3, Tel: 312-JUniper 8-0905 (ERA)
Acton Laboratories, Beede Electric Instrument Co., Motorola, Inc., Perkin Electric Corp., Premier Metal Products, Sensitive Research Instrument Corp., Sterling Mfg. Co., United Mineral & Chemical Co.

Sarkis, Inc. (Henry), 5604 N. Western Ave., Chicago 45, Ill., 3, Tel: 312-ARdmore 1-3774 (ERA)
Campbell Industries, Inc.: Deposited carbon resistors. **Clarostat Mfg. Co.:** Precision potentiometers. **Eldema Corp.:** Miniature indicators & pilot lights. **Greentree Electronics:** Recording tape. **Wright Machinery Corp.:** Servo motors, motor tachometers.

Semiconductor Distributor Specialists, Inc., 5706 W. North Ave., Chicago 39, Ill., 2, Tel: 312-NAtional 2-8860
Clevite: Transistors. **Fairchild Semiconductor Corp.:** Semiconductor products. **General Electric:** Tantalytic capacitors. **Motorola:** Semiconductors. **Philco Corp.:** Transistors. **Shockley:** Transistors. **Westinghouse Electric Corp.:** Rectifiers & transistors.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Smith Co. (Oren H.), 221 W. Huron St., Chicago 10, Ill., 3, Tel: SU 7-7919 (ERA)
OEM components.

Star Electronic Distributors, Inc., 7736 S. Halsted St., Chicago 20, Ill., 2, Tel: HUdson 3-8440 (NEDA)

Stemm Co. (Royal A.), 21 E. Van Buren St., Chicago 5, Ill., 3, Tel: 312-WEbster 9-4840 (ERA)
Eldon Industries, Insl-X Products Corp., Microdot-Lerco Div., Ungar Electric Tools Div., Zophar Mills, Inc.

Stemm, Inc. (R. Edward), 5681 W. Lake St., Chicago 44, Ill., 3, Tel: 312-ESterbrook 9-2700 (ERA)
American Electronics Labs, Inc.: Microwave components. **Autotron, Inc.:** Photoelectric controls. **Axel Electronics, Inc.:** Filters, condensers. **Bell, Inc. (F. W.):** Gaussmeters, digimeters. **Communication Control Corp.:** Data processing. **Communication Measurements Lab.:** Variable frequency generators. **Data Instruments Div.:** Data processing equip. **Electronic Associates, Inc.:** Data processing instruments. **Electronic Engineering Co.:** Time code generators, tape search & control systems. **Electronic Measurements Co.:** Regulated power supplies, voltage regulating equip. **Empire Devices, Inc.:** Field strength meters. **Engineered Electronics, Inc.:** Building blocks. **Harper Electric Furnace Corp.:** Kilns. **International Resistance Co.:** Transducers, flat cable & etched circuitry. **Lavole Labs., Inc.:** Crystal ovens, oscilloscopes, spectrum analyzers. **Marconi Instruments:** Test equip., receivers. **Metal Textile Corp.:** RF shielding. **Moran Instruments Corp.:** Digital servo data printers. **Shielding Inc.:** Shielded & dust-free enclosures. **Sippican Corp.:** Welders. **Technibilt Corp.:** Instrument carriers. **Waugh Engineering Co.:** Flow sensors, frequency to DC converters.

Stolz-Wicks, Inc., 8110 S. Western Ave., Chicago 20, Ill., 2, Tel: REpublic 7-3363 (NEDA)

Stranco Products, Inc., 1534 W. Van Buren, Chicago 7, Ill., 2, Tel: 312-TAylor 9-5175
Acme Wire Co.: Flexible insulation. **Atlas Asbestos Co.:** Woven glass. **Borden Co., Chemical Div.:** Tubing. **Plymouth Rubber Co.:** Vinyl tapes. **Sequoia Wire & Cable Co.:** Tubing. **Shamban Co.:** Tubing. **Stranco Mfg., Inc.:** Wire markers. **Swedlow, Inc.:** Epoxy/glass laminates. **Tarheel Mica Co.:** Mica. **Technical Tape Corp.:** Thermosetting tapes. **Voltube Corp.:** Tubing & sleeving. **Warren Wire Co.:** Coated fiberglas. **Zippertubing Co.:** Magnetic shields

Swinke Co. (W. F.), 541 Diversey Pkwy., Chicago 14, Ill., 3, Tel: 312-BIttersweet 8-4343 (ERA)
Astron Corp.: Capacitors. **Foster Transformer Co.:** Transformers. **Hunt Corp.:** Crystals. **Milwaukee Resistor Co.:** Wirewound resistors.

Tatro & Associates (Frank B.), 6022 N. Rogers Ave., Chicago 46, Ill., 3, Tel: 312-KEystone 9-4535 (ERA)
Arber Mfg. Co.: RF shielded cans. **ETC, Inc.:** Solderless terminals. **Electrix Corp.:** Connectors. **Garron Aircraft Supply:** Hardware. **Heldor Electronics, Inc.:** Cans. **Jepson Thermoelectrics, Inc.:** Heat pumps, solid-state coolers. **Moloney Electric Co.:** Tape-wound cores. **Rembar Sales Corp.:** Refractory metals. **Stevens Mfg. Co. (George):** Coil winding machinery.

Taylor Co. (Robert F.), 308 W. Washington St., Chicago 6, Ill., 3 (ERA)
Carlton Mfg. Co.: Metalware. **Hurley Mfg. Co.:** Springs. **Palnut Co.:** Fasteners.

Twist Co. (John G.), 5222 W. Diversey Ave., Chicago 39, Ill., 3, Tel: 312-SPring 7-2250 (ERA)
Advance: Relays. **Air Controls, Inc.:** Air control devices. **Controls Co. of America:** Solenoids & silicon products. **Daven Co.:** Switches, resistors, attenuators. **Ensign Electronics:** Record changers. **Gudeman Co.:** Capacitors, pulse transformers, delay lines. **ITT:** Selenium rectifiers, tantalum capacitors. **Lake City, Inc.:** Synchronous motors. **Norden Div., Ketay Dept.:** Synchros, servos. **Norden Div., Norwalk Dept.:** Encoders. **Paktron, Div. of Illinois Tool Works:** Mylar capacitors. **Quam-Nichols Co.:** Speakers. **Sage Electronics Corp.:** Power resistors. **Scientific Radio Products, Inc.:** Crystals. **Sonotone Corp.:** Batteries. **Syncro Corp.:** Electrolytic capacitors, foil transformers. **Victor Electric Wire & Cable Corp.:** Hook-up wire.

U.S. Radio & TV Suppliers, Inc., 6346 S. Ashland Ave., Chicago 36, Ill., 2, Tel: WAlbrook 5-4111 (NEDA)

Whitmore Associates, 520 N. Michigan Ave., Chicago 11, Ill., 3, Tel: MOhawk 4-1904 (ERA)

Wiley Co. (Samuel J.), 2060 W. Birchwood Ave., Chicago 45, Ill., 3, Tel: UP 8-3313 (ERA)
Components.

Withers, Ropek & Cahill, Inc., 5439 W. Division St., Chicago 51 Ill., 3, Tel: 312-AUstin 7-7292 (ERA)

Xytan Co., 6120 W. North Ave., Chicago, Ill., 3, Tel: TU 9-4970, Main Office: Costa Mesa, Calif.

Chicago Heights
(Telephone Area Code—312)

Warner Co. (Dayton L.), 815 MacArthur St., Chicago Heights, Ill., 3, Tel: SK 4-0028 (ERA)

Danville
(Telephone Area Code—217)

Bud Electronic Supply Co., 114 E. North St., Danville, Ill., 2, Tel: HIckory 6-0925 (NEDA)

Decatur
(Telephone Area Code—217)

York Radio & TV Corp., 402 E. Prairie, Decatur, Ill., 2, Tel: 423-3484 (NEDA)

Deerfield
(Telephone Area Code—312)

Ritter Sales Co., P.O. Box 64, Deerfield, Ill., 3, Tel: 312-WIndsor 5-0151 (ERA)
Electro-Flex Heat, Inc.: Heater units, temperature controllers.

Elmhurst
Telephone Area Code—312)

Cunningham & Associates (W. L.), 435 Addison Ave., Elmhurst, Ill., 3, Tel: TE 2-0905 (ERA)
Communications & data transmission.

Glen Ellyn
(Telephone Area Code—312)

Kleker Co. (Jerome H.), 177 Sunset Ave., Glen Ellyn, Ill., 3, Tel: 312-HOpkins 9-2297
Gap Instrument Corp.: Servo systems. **ITT Distributor Div.:** Speakers. **Lowell Mfg. Co.:** Baffles. **Metalworks, Inc.:** Housings. **Microtran Co., Inc.:** Transformers. **Racon Electric Co., Inc.:** Speakers. **Radar Measurements Corp.:** Microwave components & instruments.

Rockford Controls Co., 549 Pennsylvania Ave., Box 671, Glen Ellyn, Ill., 3, Tel: HOpkins 9-6016 (ERA)
Detroit Coil Co.: Solenoids. **Duncan Electronics:** Potentiometers. **Electro-Mechanical Specialties Co., Inc.:** Relays. **Electron Arc Products Div. of Marshall Industries:** Capacitors. **Gordos Corp.:** Switches. **Licon Div. of Illinois Tool Works:** Switches. **Precision Products & Controls, Inc.:** Counters. **Tri-Tronics Co.:** Photoelectric equip. **Wheaton Engineering Div., Hurletron, Inc.:** Time delay relays.

Highland Park
(Telephone Area Code—312)

Rose & Co. (J. K.), 1116 Linden Ave., Highland Park, Ill., 3, Tel: 312-BRoadway 3-2230 (ERA)
Campro Co.: Cabinets. **Chemtronics, Inc.:** Chemicals. **Electronic Instrument Co., Inc.:** Test equip., ham gear. **Glidelite Co.:** Lamps. **Sonotone Corp.:** Cartridges. **Switchcraft, Inc.:** Plugs, jacks.

Kankakee
(Telephone Area Code—815)

Radio Doctor's Supply House, Inc., 892 W. Station St., Kankakee, Ill., 2, Tel: Wells 2-4726 (NEDA)

LaSalle
(Telephone Area Code—815)

Warren Radio Co., 437 S. First St., LaSalle, Ill., 2, Tel: CApitol 3-4028, Main Office: Toledo, Ohio

Lombard
(Telephone Area Code—312)

Bauman Sales Co. (Robert H.), 210 S. Lodge Lane, Lombard, Ill., 3, Tel: MAyfair 7-7388 (ERA)
Speakers, sockets, switches, relays.

Mattoon
(Telephone Area Code—217)

Mattoon Radio & Television Supply Co., 212 N. 20th St., Mattoon, Ill., 2, Tel: ADams 5-5457 (NEDA)

Oak Park
(Telephone Area Code—312)

Haskell Associates, 202 N. Marion, Oak Park, Ill., 3, Tel: EUclid 6-8558 (ERA)
Hamilton Hall, Inc.: Resistors. **IH Mfg. Co.:** Accessories. **Wall Mfg. Co. (P.):** Soldering irons & guns.

Hill & Gray, Inc. (Ralph M. & Gordon E.), 821 Garfield, Oak Park, Ill., 3, Tel: EUclid 3-0373 (ERA)
APM Sales Corp., Aero Instrument Co., Allies' Products Corp., Bliley Electric Co., Dialight Corp., Dialtron Corp., Garlock Electronic Products Sales, Gibson Electric Sales, Grayhill, Inc., Grayhill Moldtronics, Inc., Hardwick, Hindle, Inc., Industrial Timer Corp., Leecraft Mfg. Co., Inc., Line Electric Co., Panduit Corp., Permanent Magnet Co., Inc., Sigma Instruments, Inc., Signal Indicator Corp., Sun Electric Corp., Texas Capacitor Co., Winterburn Mfg. Co.

Marsh & Associates, Inc. (Walter F.), 244 Chicago Ave., Oak Park, Ill., 3, 4, Tel: EUclid 6-2967 (ERA)
Adage, Inc., Airborne Instrument Labs. Div. of Cutler-Hammer, American Elite, Inc., Bryant Computer Products, Burr-Brown Corp., California Technical Industries, Charles Engineering, Inc., D & R Ltd., Delta-F, Inc., Dynaco, Inc., Electric Specialty Co., Erie-Pacific, Julie Research Labs., LEL, Inc., Penn Resistor Corp., Potter Instrument Co., Sage Labs., TRG, Inc. (Technical Research Group).

Melvin Electronics, Inc., 541 Madison St., Oak Park, Ill., 2, Tel: EUclid 3-5800 (NEDA)

Rubin Co. (Ben Z.), 607 N. Grove Ave., Oak Park, Ill., 3, Tel: EUclid 3-0171, Main Office: Detroit, Mich.

Palatine
Telephone Area Code—312)

Trimble Electronics Sales, 77 E. Fairfax, Palatine, Ill., 3, Tel: FL 9-1859 (ERA)
Components.

Peoria
(Telephone Area Code—309)

Klaus Radio & Electric Co., 403 E. Lake St., Peoria, Ill., 2, Tel: 688-3401 (NEDA)

Warren Radio Co., 308 S. Oak St., Peoria, Ill., 2, Tel: 674-5998, Main Office: Toledo, Ohio

Yeoman's Distributing Co., 401 N.E. Rock Island, Peoria, Ill., 2, Tel: 685-7631 (NEDA)

River Forest
(Telephone Area Code—312)

Petitt Co., Inc. (George), 349 N. Ashland, River Forest, Ill., 3, Tel: FOrest 9-8940 (ERA)
Alliance: Rotators. **British Industries Corp:** Changers. **Chicago Miniature:** Lamps. **Harman-Kardon:** Tuners & amplifiers. **Jensen Industries:** Cartridges. **Reeves-Soundcraft:** Tapes & discs. **Stancor Electronics:** Transformers. **Triplett:** Testers & meters. **University:** Speakers & horns.

Roussey & Associates, Inc. (Ralph F.), 7803 W. Lake St., River Forest, Ill., 3, Tel: 312-FOrest 9-6523 (ERA)
Colling Co, (H. T.): Stampings. **Electronic Components Corp.:** Transformers & chokes. **Electronic Transistors Corp.:** Multi-headed transistors. **Isotronics, Inc.:** Glass-to-metal components. **Lumen, Inc.:** Magnetic amplifiers, filters, coils. **Model Engineering & Mfg., Inc.:** Precision machining, assemblies. **Raypar, Inc.:** Transformers, flybacks, coils. **Sterling Spring Corp.:** Springs. **Tricon Mfg. Co.:** Precious metal contacts.

Riverside
(Telephone Area Code—312)

McBride Sales Co. (J. J.), 328 E. Burlington St., Riverside, Ill., 3, Tel: HIckory 7-8131 (ERA)
Ampex Corp.: Magnetic recording tape. **Glaser-Steers Corp.:** Record changers. **Morrow Radio Mfg. Corp.:** Citizen's band equip. **Rauland Corp.:** Picture & receiving tubes. **Rauland-Borg Corp.:** Sound systems. **Smith, Inc. (Herman H.):** Components. **Spaulding Products Co.:** TV & ham towers. **Staver Co.:** Shielding devices.

Roselle
(Telephone Area Code—312)

Sisson Sales Co. (D. L.), P.O. Box 226, Roselle, Ill., 3, Tel: LAwrence 9-3131 (ERA)
Synchronous motors, relays, contact cleaning tools.

Skokie
(Telephone Area Code—312)

Cozzens & Cudahy, Inc., 125 Old Orchard Arcade, Skokie, Ill., 3, Tel: 312-ORchard 5-6700 (ERA)
Edison Industries: Relays, servo motors. **Emerson & Cuming, Inc.:** Plastics. **Fluke Mfg. Co. (John):** Differential voltmeters, power supplies. **Huggins Laboratories:** Traveling wave tubes. **ITT Industrial Products Div.; Measurements Corp.:** Laboratory signal generators. **Menlo Park Engineering:** Traveling wave tube amplifiers & oscillators. **Penta Laboratories, Inc.:** Tubes. **Shockley Transistor Corp.:** Transistors, diodes. **Weinschel Engineering:** RF attenuators.

Springfield
(Telephone Area Code—217)

Bruce Electronics, 1120 E. Capitol Ave., P.O. Box 115, Springfield, Ill., 2, Tel: LAkeside 8-7523 (NEDA)

Kathrinus & Co. (Norman W.), 1728 Watch Ave., Springfield, Ill., 3, Tel: LAkeside 2-7890, Main Office: St. Louis, Mo.

Suter TV Supply, Inc., 1500 Sangamon Ave., Springfield, Ill., 2, Tel: LAkeside 8-7369 (NEDA)

United Television Co., 217 E. Washington, Springfield, Ill., 2, Tel: KIngswood 4-8444 (NEDA)

Wilson Electronic Supply Co., Inc., 106 W. Jefferson St., Springfield, Ill., 2, Tel: LAkeside 7-7845 (NEDA)

West Chicago
(Telephone Area Code—312)

Relay Sales, Inc., Box 186, West Chicago, Ill., 2, Tel: 312-231-1100
Advance, American Electronics Co., Clare Co. (C. P.), Ebert Electronics, Electro-Mechanical Specialties Co., G-V Controls Co., Guardian Electric Mfg. Co., Kurman Electric Co., Leach Corp., Monitor Relay Div. Atlee Corp., Phillips Control Co., R-B-M Mfg. Co. Div. of Essex Wire Corp., Struthers-Dunn, Inc., Terado: Relays.

Westchester
(Telephone Area Code—312)

Brouillette & Associates, Inc. (W. G.), 1558 Newcastle Ave., Westchester, Ill., 3, Tel: 312-FIllmore 5-6500 (ERA)
Croven, Ltd.: Crystals. **Dage Electric Co.:** Connectors. **General Products Corp.:** Condensers & molded plastics. **LEL, Inc.:** Receiving equip. **Lakewood Controls Corp.:** Relays. **Lieco, Inc.:** Micro-waveguides. **Ovenaire, Inc.:** Ovens.

Wheaton
(Telephone Area Code—312)

Hausten Co. (Dave), 607 E. Willow Ave., Wheaton, Ill., 3, Tel: MOntrose 8-7312 (ERA)
Acromag: Magnetic amplifiers. **DeJur:** Potentiometers, meters. **Magtrol:** Clutches & dynamometers. **Pulse Engineering:** Pulse transformers. **U.S. Semiconductor:** Zener diodes. **Walkirt:** Logic circuits.

Wheeling
(Telephone Area Code—312)

Mykroy, Inc., 645 Wheeling Rd., Wheeling, Ill., 2, Tel: LEhigh 7-0280 (NEDA)

Wilmette
(Telephone Area Code—312)

Nero Electronic Sales Corp., 3516 Elmwood, Wilmette, Ill., 3, Tel: AL 6-1045 (ERA)
Components.

INDIANA

Angola
(Telephone Area Code—219)

Clancy & Co., Inc. (Joe), P.O. Box 269, Angola, Ind., 3, Tel: 793 (ERA)
Ampex Magnetic Tape Products Co.: Tape. **Antenna Designs, Inc.:** Antennas. **Calcon Mfg. Co.:** Wire. **Erie Electronics Corp.:** Tuners & amplifiers. **Fourjay Industries, Inc.:** Baffles. **GC Electronics Co.:** Hardware, chemicals, switches. **International Rectifier Corp.:** Rectifiers, diodes **Morrow Radio Mfg. Co.:** Communication equipment. **Oaktron Industries, Inc.:** Speakers. **Pacotronics Co., Inc.:** Test equipment. **Rauland Corp.:** Tubes. **Spaulding Products Co.:** Power. **V-M Corp.:** Tape recorders, record changers. **Ward Products Corp.:** Car antennas.

Southern Sales Co., 105 Lakeshore Dr., Angola, Ind., 3, Tel: 777 (ERA)
Advance: Relays. **Anodyne, Inc.:** Nameplates. **Bud Radio, Inc.:** Metal cabinets. **Continental-Wirt:** Slide switches, potentiometers. **Dialight Corp.:** Pilot light assemblies. **Garlock:** Teflon grommets. **Industrial Electronic Hardware:** Sockets, terminal strips. **Midland Mfg.:** Crystals, crystal filters. **Plastoid, Inc.:** Wire. **Sangamo Electric:** Capacitors. **Sonotone Corp.:** Nickel-cadmium batteries.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Elkhart
(Telephone Area Code—219)

Electronic Parts, Inc., 1003 S. Main St., Elkhart, Ind., 2, Tel: JAckson 2-1208 (NEDA)

Warren Radio Co., 742 S. Main, Elkhart, Ind., 2, Tel: 3-2398, Main Office: Toledo, Ohio

Evansville
(Telephone Area Code—812)

Wahl & Associates, Inc. (A. C.), 1825 Bellemeade, Evansville 14, Ind., 3, Tel: GReenleaf 7-9154, Main Office: Cincinnati, Ohio

Fort Wayne
(Telephone Area Code—219)

Bieberich & Sons (Walter W.), 2817 Plaza Dr., Ft. Wayne 5, Ind., 3, Tel: KEnmore 2928 (ERA)
Delevan Electronics Corp., Drake Mfg. Co., Illinois Condenser Co., J. F. T. Instruments, James Electronics Inc., Milwaukee Resistor Co., Shurite Meters, Triplett Electrical Instrument Co.

Ellinger Sales Corp., 5214 Forest Ave., Ft. Wayne, Ind., 3, Tel: TRinity 3-4833, Main Office: Chicago, Ill.

Hoemig Sales Co., 3405 Butler Court, Fort Wayne, Ind., 3, Tel: ANthony 2083 (ERA)
Borg Equipment Div.: Micropots, dials, motors. **Cramer Controls:** Timers. **Knights Co. (James):** Crystals, oscillators, filters. **Licon:** Snap-action switches. **Magnecraft Electric:** Relays. **Rotating Components:** Fans, blowers, motors. **Solitron Devices, Inc.:** Silicon rectifiers.

Homsher Co. (Burton F.), 4320 Dodge Ave., Fort Wayne 3, Ind., 3, Tel: TRinity 3-1348 (ERA)
Astron Sales Corp.: Capacitors, filters. **Chemtronics, Inc.:** Chemicals. **Chicago Miniature Lamp Works:** Lamps. **Columbia Wire & Supply:** Cable, wire assemblies. **Mark Mobile, Inc.:** Vehicular communication antennas. **Miller Co. (J. W.):** Filters, chokes, IF transformers. **Precision Metal Products:** Turret terminals. **Sencore, Inc.:** Test equipment. **Smith, Inc. (Herman H.):** Plugs, jacks, hardware. **Triad Transformer Corp.:** Transformers. **Utah Radio & Electronic Corp.:** Speakers, baffles.

MacNabb, Schroeder & Loomis, P.O. Box 876, Ft. Wayne, Ind., 3, Main Office: Indianapolis, Ind.

Meily Co. (William A.), 4017 S. Harrison St., Ft. Wayne, Ind., 3, Tel: KEnmore 2461 (ERA)
Components & assemblies.

Menze Sales Co., 729 W. Packard Ave., Fort Wayne, Ind., 3 (ERA)
Cherry Electrical Products Corp.: Snap-action switches. **Grayhill, Inc.:** Miniature components. **Maurey Instrument Corp.:** Precision potentiometers. **Miller Electric Co.:** Insulated wire. **Tru-Ohm Products:** Rheostats, resistors.

Midwest Electronics Supply Co., 2016 Webster St., Ft. Wayne, Ind., 2, Tel: KEnmore 5330 (NEDA)

Needler Sales Co., Sta. C, Box 2407, Ft. Wayne, Ind., 3, (ERA)
Astron Corp.: Capacitors. **Brand-Rex Div. of American Enka Corp.:** Wire, cable, sleeving, tubing. **Campbell Industries, Inc.:** Resistors. **Clarostat Mfg. Co., Inc.:** Sibley Co.: Printed circuits. **Skottie Electronics, Inc.:** **Triad Transformer Corp.:** Transformers. **Utrad Corp.**

Scott & Steffen, Inc., 200 Standard Blvd., Ft. Wayne 2, Ind. 3, Tel: EAstbrook 1586, Main Office: Cleveland, Ohio

Valentine, Inc. (Forrest C.), 511 Ft. Wayne Bank Bldg., Ft. Wayne 2, Ind., 3, Tel: ANthony 9122 (ERA)
APM Corp.: Switch & shaft seals. **Curtis Development & Mfg. Co.:** Terminal blocks, speed controls. **Dynamic Instrument Corp.:** Clutches & brakes. **Gulton Industries, Inc.:** Capacitors, thermistors, transducers, nickel-cadmium batteries. **Hoyt Electrical Instrument Works:** Panel meters. **Industrial Timer Corp.:** Timing equipment. **Iron Fireman Mfg. Co.:** Sensitive relays, gyros. **Jan Hardware Mfg. Co.:** Hardware. **Ohmite Mfg. Co.:** Resistors, rheostats, relays, tap switches, tantalum capacitors. **Panduit Corp.:** Plastic wiring ducts, cable clamps. **Wells Industries Corp.:** Precision potentiometers.

Warren Radio Co., 1716 S. Harrison, Ft. Wayne, Ind., 2, Tel: H-1232, Main Office: Toledo, Ohio

Whitesell & Associates (Robert O.), Central Bldg., Rm. 279, Ft. Wayne, Ind., 3, Tel: EAstbrook 3287, Main Office: Indianapolis, Ind.

Indianapolis
(Telephone Area Code—317)

Blind Associates, Inc., 5762 Cadillac Dr., Indianapolis 24, Ind., 3, Tel: CHapel 4-0191 (ERA)

Brown Distributing Co., Inc., 3746 College Ave., Indianapolis 5, Ind., 2, Tel: WAlnut 6-5432 (NEDA)

Central Electronics Sales Co., P.O. Box 591, Indianapolis, Ind., 3, Main Office: Detroit, Mich.

Clancy & Co., Inc. (Joe), 5750 N. Ewing St., Indianapolis 20, Ind., 3, Tel: CLifford 1-7669, Main Office: Angola, Ind.

Crossley Associates, Inc., 5420 N. College Ave., Indianapolis 20, Ind., 3, Tel: CLifford 1-9255, Main Office: Chicago, Ill.

Delta Sales, Inc., 2136 E. 52nd St., Indianapolis 5, Ind., 3, Tel: 317-CLifford 1-3564 (ERA)
Chicago Dynamic Industries, Inc.: Rotary switches, thumb-wheel switches. **Crowley Div. of A. O. Smith Corp.:** Ceramic permanent magnets, ferromagnetic cores. **Electronic Products Corp.:** Interval timers. **Filtors, Inc.:** Microminiature relays. **ITT Distributor Products Div.:** Rectifiers, semiconductors, cables **National Radio Co., Inc.:** Dials, drives, terminals. **Powertron Ultrasonics Corp.:** Ultrasonic cleaning equipment. **Premier Metal Products Co.:** Modular console systems. **Radiation Electronics Co.:** Radiation thermometers. **Seal-A-Metic, Inc.:** Glass-to-metal seals, transistor bases. **Torotel, Inc.:** Toroid coils, transformers, filters, magamps.

DeVoe Co. (Leslie M.), 4010 Washington Dr., Indianapolis 5, Ind., 3, Tel: ATwater 3-1395 (ERA)
Amphenol-Borg Electronics Corp., Centralab Div. of Globe-Union, Daven Co., Littelfuse, Inc., Sarkes Tarzian Semiconductor Div., Sigma Instruments, Superior Resistor & Electronics Corp., Virginia Electronics.

Esse Radio Co., 42 W. South St., Indianapolis 25, Ind., 1, 2, 5
Communications equipment, instrumentation components.

Fishman Associates, 1836 Nottingham Dr., Indianapolis 40, Ind., 3, Tel: VIctor 6-8221 (ERA)
Hickok Electrical Instrument Co.: Instruments & test equipment.

MacNabb, Schroeder & Loomis, 810 E. 64th St., Indianapolis 20, Ind., 3, Tel: CLifford 1-4571 (ERA)
Components

Morris-Cunningham & Associates, 6208 N. College Ave., Indianapolis 20, Ind., 3, Tel: CLifford 1-3222 (ERA)
Electronic components & equipment.

Pivan Engineering Co., 10302 N. College Ave., Indianapolis 20, Ind., 3, 4, Tel: VIctor 6-1532, Main Office: Chicago, Ill.

Scheffler Co. (Charles), 1133 Navajo Trail, Indianapolis 8, Ind., 3, Tel: CLifford 3-6337 (ERA)
Antronic Corp.: Test equipment. **Arco Electronics:** Capacitors. **Oxford Components, Inc.:** Speakers. **Parker Metal Goods:** Antenna hardware. **S&A Electronics:** Antennas. **Smith, Inc. (Herman H.):** Plugs, jacks. **Wald, Inc.:** Auto antennas. **Webster Productomatic:** Intercoms.

Schulz Co. (Edwin A.), 721 Sherwood Dr., Indianapolis 20, Ind., 3, Tel: 317-CLifford 5-1993 (ERA)
Astatic Corp.: Microphones, cartridges. **British Industries Corp.:** Solder, record changers. **Erie Resistor Corp.:** Ceramic capacitors. **Pyramid Electric Co.:** Capacitors. **Sherwood Electronic Labs.:** Amplifiers & tuners. **Sightmaster Corp.:** Fuses. **Simpson Mfg. Co. (Mark):** Sound equipment. **Tyco Semiconductor Corp.:** Semiconductors. **Warren Components Div. of El-Tronics:** Glass seals. **Workman TV Products, Inc.:** TV components.

Scott & Steffen, Inc., 915 Pennsylvania Ave., Indianapolis 4, Ind., 3, Tel: ME 5-8951, Main Office: Cleveland, Ohio

Southern Sales Co., 6216 Carrollton Ave., Indianapolis, Ind., 3, Tel: CL 3-3359, Main Office: Angola, Ind.

Thomas & Sukup, Inc., 2060 E. 54th St., Indianapolis 20, Ind., 3, Tel: 317-CLifford 1-4574 (ERA)
Advance Relay Div.: Relays. **Alpha Wire Corp.:** Wire products. **Amperex Electronic Corp.:** Tubes & semiconductors. **Hallicrafters Co.:** Communications equipment. **Hysol Corp.:** Epoxy resin compounds. **Reeves Soundcraft Corp.:** Magnetic recording products. **Simpson Electric Co.:** Panel meters & test equipment. **Switchcraft, Inc.:** Plugs, jacks, switches. **Technical Appliance Corp.:** Antennas. **Unimax Switch Co.:** Snap-action switches. **Xcelite, Inc.:** Tools.

Van Sickle Radio Supply Co., 4131 N. Keystone Ave., Indianapolis 5, Ind., 2, Tel: LI 7-3589 (NEDA)

Warren Radio Co., 732 N. Capitol, Indianapolis, Ind., 2, Tel: ME 4-5566, Main Office: Toledo, Ohio

Weber Agency (Jack L.), 9007 El Rico Rd., Indianapolis 20, Ind., 3, Tel: VIctor 6-0504
All-Rite Spring Co.; Chemtronic Corp.: Electrolytic capacitors. **Custom Components, Inc.:** Ferrite antenna rods. **Dixie Wire Corp.; Nucleonic Products Co., Inc.:** Diodes, transistors, thermistors. **Oxford Electric Corp.:** Speakers. **Supreme Transformer Corp.; United International Dynamics Corp.**

Whitesell & Associates (Robert O.), 6620 E. Washington St., Indianapolis 19, Ind., 3 (ERA)
Airtron Div. of Litton Industries, Bourns, Inc., Burroughs Electronics Div., Carling Electric Co., Electrical Industries, Globe Industries, Good-All Electric Mfg. Co., Potter & Brumfield, Inc., Syntron Co.

Jeffersonville
(Telephone Area Code—812)

Moakler Electronic Suppliers, 500 E. Chestnut St., Jeffersonville, Ind., 2, Tel: BUtler 2-4311 (NEDA)

LaFontaine
(Telephone Area Code—317)

Kirsch Sales Co., 107 Wabash Ave., LaFontaine, Ind., 3, Tel: YUkon 1-2801 (ERA)
Carter Parts Co.: Jacks, switches. **Columbus Electric Mfg. Co.:** Switches. **International Electric Industries, Inc.:** Wire harnesses, plugs. **Lectrohm, Inc.:** Wirewound resistors. **Line Electric Co.:** Relays.

Richmond
(Telephone Area Code—317)

Wahl & Associates, Inc. (A. C.), 525 W. Main St., Richmond, Ind., 3, Tel: 2-2511, Main Office: Cincinnati, Ohio

South Bend
(Telephone Area Code—219)

Scott & Steffen, Inc., 106 W. Monroe St., South Bend 1, Ind., 3, Tel: CE 2-8233, Main Office: Cleveland, Ohio

Valparaiso
(Telephone Area Code—219)

GRH Halltest Co., 157 S. Morgan Blvd., Valparaiso, Ind., 1, 3
Siemens: Hall generators.

Bowman & Associates (Jess), 253 W. Lincolnway, Valparaiso, Ind., 2, Tel: HOward 2-7933 (NEDA)

IOWA

Cedar Rapids
(Telephone Area Code—319)

Deeco, Inc., 618 First St. N.W., Cedar Rapids, Iowa, 2, Tel: EMpire 5-7551
Aerovox, Atlee, Bourns, Bud, Centralab, Chicago Transformer, Cinch-Jones, Daven, Elco, Electra, Erie-Corning, General Electric, General Instrument, Hoffman, Hughes, IRC, Industrial Timer, International Rectifier, Motorola, Ohmite, Phaostron, Potter & Brumfield, R.C.A., Sarkes Tarzian, Sealectro, Sprague, Stancor, Sylvania, Texas Instruments, Triad, Tung-Sol, UTC, Vitramon.

Engineering Services Co., 106 29th St. N.E., Cedar Rapids, Iowa, 3, Tel: EM 5-6183, Main Office: St. Louis, Mo.

Forristal-Young Sales Co., 111 10th St. N.W., Cedar Rapids, Iowa, 3, Tel: EMerson 3-9695, Main Office: Kansas City, Mo.

Inland Associates, 2120 Greenwood Dr. S.E., Cedar Rapids, Iowa, 3, Tel: EMpire 2-2031, Main Office: Mission, Kans.

Iowa Radio Supply Co., Inc., 719 Center Point Rd. N.E., Cedar Rapids, Iowa, 2, Tel: EMpire 4-6154 (NEDA)

Koenig-Myers Associates, 602 Guaranty Bldg., Cedar Rapids, Iowa, 3, Tel: EMpire 5-5201, Main Office: Kansas City, Mo.

McDowell-Redlingshafer Sales Co., 603 Guaranty Bldg., Cedar Rapids, Iowa, 3, Main Office: Kansas City, Mo.

Vrbik Co. (Jerry), 419 Third St. S.E., Cedar Rapids, Iowa, 3, Tel: EMpire 5-0461 (ERA)
Aemco: Relays. **Bliley Electric Co.:** Crystals, filters, ovens, delay lines. **Centralab:** Ceramic capacitors, potentiometers, switches. **Chemtronic Corp.:** Electrolytic capacitors **Daven Co.:** Attenuators, LC filters, resistors, switches. **Eastern Air Devices:** Blowers, motors, servos. **Electro Assemblies:** Coils, coilforms. **Johnson Co. (E. F.):** Ham Equipment, pilot lights, inductors. **Sage Electronics:** Resistors. **Spectrol Electronics:** Precision potentiometers.

Clarion
(Telephone Area Code—515)

Ellinger Sales Corp., 309 Fourth Ave. S.E., Clarion, Iowa, 3, Tel: 351-J, Main Office: Chicago, Ill.

Council Bluffs
(Telephone Area Code—712)

World Radio Laboratories, 3415 W. Broadway, Council Bluffs, Iowa, 2, Tel: 328-1851 (NEDA)

Davenport
(Telephone Area Code—319)

TCR Distributors, 1205 E. River, Davenport, Iowa, 2, Tel: 323-8051 (NEDA)

Des Moines
(Telephone Area Code—515)

Gifford-Brown, Inc., 1400 Walnut, Des Moines, Iowa 2, Tel: CHerry 3-1257 (NEDA)

Iowa Radio Corp., 1212 Grand Ave., Des Moines 9, Iowa, 2, Tel: ATlantic 2-8197 (NEDA)

Mid-State Distributing Co., 1201 Grand, Des Moines, Iowa, 2, Tel: ATlantic 8-7231 (NEDA)

Radio Trade Supply Co., 1224 Grand Ave., Des Moines 9, Iowa, 2, Tel: ATlantic 8-7237 (NEDA)

Iowa City
(Telephone Area Code—319)

Tel Rad Electronics, 17 W. College, Iowa City, Iowa, 2, Tel: 337-3726 (NEDA)

Sioux City
(Telephone Area Code—712)

Duke's Radio Co., 209 Sixth St., Sioux City 2, Iowa, 2, Tel: 5-5056 (NEDA)

Molstad Distributing Co., Inc., 701 5th St., Sioux City 1, Iowa, 2, Tel: 5-8023 (NEDA)

KANSAS

Kansas City
(Telephone Area Code—913)

Kathrinus & Co. (Norman W.), 4306 Cambridge Ave., Kansas City 3, Kans., 3, Tel: JOhnson 2-4108, Main Office: St. Louis, Mo.

Standard Products, Inc., 3041 Fairfax Rd., Kansas City, Kans., 3, Tel: DRexel 1-2266, Main Office: Wichita, Kans.

Lawrence
(Telephone Area Code—913)

Sutton & Co. (Fred E.), 928 Massachusetts Ave., Lawrence, Kans., 2, Tel: VIking 3-8500 (NEDA)

Merriam
(Telephone Area Code—913)

Zimmer Sales, Inc., 5620 Woodward, Merriam, Kans., 3, Tel: HE 2-8900 (ERA)

Mission
(Telephone Area Code—913)

Halgin Sales, 5920 Nall, Rm. 311, Mission, Kans., 3, Tel: RAndolph 2-2441
Acme Electric Corp.: Transformers. **Air-Marine Motors, Inc.:** Motors. **Clare & Co. (C. P.):** Relays. **Cubic Corp.:** Digital equipment. **Fabri-Tek Circuits, Inc.:** Printed-circuit boards. **Fast & Co. (John E.):** Capacitors. **Grayhill-Moldtronics, Inc.:** Switches. **Hitemp Wires, Inc.:** Wire. **International Resistance Co.:** Resistors. **National Coil Co.:** Coils, chokes. **National Electronics Co.:** Meters. **Reynolds Industries, Inc.:** Connectors. **U.S. Semiconductor Products:** Diodes, rectifiers.

Inland Associates, 6047 Howe Dr., Mission, Kans., 3, Tel: ENdicott 2-2366
Branson Corp., Dage Electric Co., Inc., Dunton Co. (M. W.), Dynamic Gear Co., Inc., Ferrotec, Inc., Magnetics, Inc., Micamold Div. of General Instrument Corp., Microwave Development Labs., Inc., National Semiconductor Corp., Rawco Instruments, Inc., Richco Plastic Co., Safeway Heat Elements, Inc., Stevens Mfg. Co., Inc., Technical Wire Products, Inc., Times Wire & Cable Div. of International Silver Co., Wells Labs. Corp., Western Semiconductors, Inc.

Overland Park
(Telephone Area Code—913)

Kangas Sales Co. (George), 10506 W. 89th St., Overland Park, Kans., 3, Tel: TU 8-5213 (ERA)
Instruments & components

Salina
(Telephone Area Code—913)

Radio Supply Co., Inc., 1809 S. Broadway, Salina, Kans., 2, Tel: TAylor 3-6354 (NEDA)

Topeka
(Telephone Area Code—913)

Acme Radio Supply, Inc., Box 437, Topeka, Kans., 2, Tel: CEntral 5-1363 (NEDA)

Carroll Radio & TV Supply, 1123 W. 6th St., Topeka, Kans., 2, Tel: CEntral 4-6677 (NEDA)

Signal Radio Supply, 115 Kansas Ave., Topeka, Kans., 2, Tel: FLanders 4-7353 (NEDA)

Wichita
(Telephone Area Code—316)

Bettis Co., Inc. (Maury E.), 423 N. Fountain, Wichita, Kans., 3, Tel: MUrray 5-7441, Main Office: Kansas City, Mo.

Engineering Services Co., 247 S. Pinecrest, Wichita, Kans., 3, Tel: MU 3-3751, Main Office: St. Louis, Mo.

Excel Distributors, 345 N. Water, Wichita 2, Kans., 2, Tel: HObart 4-4783 (NEDA)

Interstate Electronic Supply Corp., 230 Ida, Wichita 1, Kans., 2, Tel: HObart 4-6317 (NEDA)

Radio Supply Co., Inc., 115 Laura, Box 1220, Wichita, Kans., 2, Tel: AMherst 7-5216 (NEDA)

Roes & Co. (H. A.), 421 S. Main St., Wichita, Kans., 3, Tel: AMherst 2-1454, Main Office: Kansas City, Mo.

Standard Products, Inc., 650 E. Gilbert, Wichita 1, Kans., 2, 3, 4, 5, Tel: AMherst 2-5161
Hobbs, Parker Seal, Ray-O-Vac, Scott, Tinnerman.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

KENTUCKY

Ashland
(Telephone Area Code—606)

Ashland Radio Supply Co., 2125 Winchester Ave., Ashland, Ky., 2, Tel: 325-1511 (NEDA)

Bowling Green
(Telephone Area Code—502)

Crescent Radio Supply, 212 W. 10th St., Bowling Green, Ky., 2, Tel: VI 2-2444 (NEDA)

Hopkinsville
(Telephone Area Code—502)

Randolph & Hale, Inc., 729 E. Fourth St., Hopkinsville, Ky., 2, Tel: TUxedo 5-5357 (NEDA)

Lexington
(Telephone Area Code—606)

Radio-Electronic Equipment Co., Inc., 480 Skain Ave., P.O. Box 1212, Lexington, Ky., 2, Tel: 3-1577 (NEDA)

Tel/Rad Electronics, Inc., 1401 Delaware Ave., Lexington, Ky., 2, Tel: 5-3962 (NEDA)

Louisville
(Telephone Area Code—502)

Archy Electronics, Inc., Hancock at Gray, Louisville 2, Ky., 2, Tel: JUniper 7-8851 (NEDA)

Cobb Sales Co., 1825 Bardstown Rd., Louisville 5, Ky., 3, Tel: 502-GLendale 1-1882
Merit Coil & Transformer Corp.

Delta Sales, Inc., 1126 Broadfields Dr., Louisville 7, Ky., 3, Tel: TWinbrook 5-8301, Main Office: Indianapolis, Ind.

Peerless Electronic Equipment Co., 2210 S. Seventh St., Louisville 8, Ky., 2, Tel: MElrose 7-7678 (NEDA)

Scott & Steffen, Inc., 240 Francis Blvd., Louisville, Ky., 3, Tel: JU 3-3220, Main Office: Cleveland, Ohio

Southern Distributors, 3802 Lexington Rd., Saint Matthews, Louisville 7, Ky., 2, Tel: TWinbrook 5-4388 (NEDA)

Southern Sales Co., 212 Republic Bldg., Louisville 2, Ky., 3, Tel: 583-6902, Main Office: Angola, Ind.

Technical Service Corp., 917 S. Third St., Louisville, Ky., 2, Tel: JUniper 7-8476
Altec-Lansing Corp., Atlas Sound Corp., Belden Mfg. Co., British Industries, Inc., Davis & Co. (J. W.), DuMont Labs., Electro-Voice, Inc., General Dynamics/Electronics, Lowell Mfg. Co., Merit Coil & Transformer Corp., Shure Bros., Inc., University Loudspeakers, Inc., Webster Electric Co.

Whitesell & Associates (Robert O.), 3933 Bank St., Arcade Bldg., Louisville 12, Ky., 3, Tel: SPring 6-2024, Main Office: Indianapolis, Ind.

Paducah
(Telephone Area Code—502)

Warren Radio Co., 455 S. 31st St., Paducah, Ky., 2, Tel: 442-4367 (NEDA)

LOUISIANA

Alexandria
(Telephone Area Code—318)

Central Radio Supply Co., Inc., 601 N. Third St., Alexandria, La., 2, Tel: HIllcrest 3-4517 (NEDA)

Baton Rouge
(Telephone Area Code—504)

Electronic Supply Co., Inc., 1753 Science Hwy. (N. 21st), Baton Rouge, La., 2, Tel: DIckens 2-0517 (NEDA)

Lafayette
(Telephone Area Code—318)

Lafayette Radio Equipment, Inc., 1023 Simcoe St., Lafayette, La., 2 (NEDA)

Ralph's, 3304 Cameron St., Lafayette, La., 2, Tel: CEnter 4-4507 (NEDA)

Lake Charles
(Telephone Area Code—318)

Wholesale Radio Equipment, Inc., 1722 Common St., Lake Charles, La., 2, Tel: HE 9-9017 (NEDA)

Monroe
(Telephone Area Code—318)

Hale's, 421 Walnut St., P.O. Box 23, Monroe, La., 2, Tel: FAirfax 2-5136 (NEDA)

New Orleans
(Telephone Area Code—504)

Bell Radio Supply Co., 2625 Tulane Ave., P.O. Box 346, New Orleans 9, La., 2, Tel: TUlane 0644 (NEDA)

Cartwright & Bean, P.O. Box 12141, New Orleans 24, La., 3, Tel: 488-2264, Main Office: Memphis, Tenn.

Chapman & Co. (Cary), 213 S. Front St., New Orleans, La., 3, Tel: 524-5184, Main Office: Atlanta, Ga.

Columbia Radio & Supply Co., Inc., 3940 Third St., New Orleans 25, La., 2, Tel: 822-1570 (NEDA)

Crescent Electronic Supply, Inc., 537 S. Claiborne Ave., New Orleans, La., 2, Tel: JAckson 2-8726 (NEDA)

Crockett Sales Co., 6851 Argonne, New Orleans, La., 3, Tel: 288-2517, Main Office: Dallas, Tex.

Electronic Parts Corp., 3622 Toulouse St., New Orleans 19, La., 2, Tel: HUnter 6-3777 (NEDA)

Southern Radio Supply Co., Inc., 1909 Tulane Ave., New Orleans 16, La., 2, Tel: TUlane 2345 (NEDA)

Spivey-Cole Co., 10055 Saint Paul Ave., New Orleans 23, La., 3, Tel: 721-4194, Main Office: Dallas, Tex.

Shreveport
(Telephone Area Code—318)

Klicpera Co. (M. F.), 920 Town House, Shreveport, La., 3, Main Office: Houston, Tex.

Koelemay Sales Co., Inc., 2530 Linwood Ave., Shreveport, La., 2, Tel: 423-4256 (NEDA)

Ports Electronics Parts Co., 2423 Southern Ave., Shreveport, La., 2, Tel: 424-4459 (NEDA)

Yount Co. (Jack), 3033 Sandra Dr., Shreveport, La., 3, Tel: MElrose 1-3693 Main Office: Dallas, Tex.

MAINE

Auburn
(Telephone Area Code—207)

Radio Supply Co., Inc., 26 Cross St., Auburn, Me., 2, Tel: STerling 4-5486 (NEDA)

Augusta
(Telephone Area Code—207)

Powell Radio Supply, 337 Water St., Augusta, Me., 2, Tel: MAyfair 3-3839 (NEDA)

Bangor
(Telephone Area Code—207)

Maine Electronic Supply Corp., 494 Broadway, Bangor, Me., 2, Tel: 2-4604 (NEDA)

Portland
(Telephone Area Code—207)

Commercial Distributors, 50 Diamond St., Portland, Me., 2, Tel: SPruce 5-5644 (NEDA)

Maine Electronic Supply Corp., 148 Anderson St., Portland, Me., 2, Tel: SPruce 4-0301 (NEDA)

MARYLAND

Baltimore
(Telephone Area Code—301)

Aironic Accessory Co., Inc., 518 Virginia Ave., Baltimore 4, Md., 3, Tel: VAlley 3-3350, Main Office: Brightwaters, L.I., N.Y.

American Distributing Co. of Baltimore, Inc., 1200 N. Fulton Ave., Baltimore 17, Md., 2, Tel: LOngwood 6-8930 (NEDA)

Babcock Co. (Charles E.), 5962 Glen Falls Ave., Baltimore 6, Md., 3, Main Office: Wayne, Pa.

Bancroft & Co. (H. S.), 2 W. University Pkwy., Baltimore, Md., 3, Tel: 301-BE 5-7399, Main Office: Collingswood, N.J.
See ad on page 811

Berman Co., Inc. (Henry O.), 10-12 E. Lombard St., Baltimore 2, Md., 2, Tel: LExington 9-7002 (NEDA)

Bresson Associates (Jerry), 511 N. Charles St., Baltimore, Md., 3, Tel: MUlberry 5-0100, Main Office: Narberth, Pa.

Burlingame Associates, 3, 301-ENterprise 9-6400, Main Office, Mount Vernon, N.Y.
See ads on pages 251, 270, 293, 294, 322, 325, 333, 339, 356, 358, 359, 362, 363, 365, 366, 477, 527, 643, 659

Eastern Instrumentation, Inc., 808 Ingleside Ave., Baltimore, Md., 3, Main Office: Philadelphia, Pa.

Eberle-Schaar Co., 425 Stratford Rd., Baltimore 28, Md., 3, Tel: RIdgeway 7-3227 (ERA)

Engineering Associates, 2125 Maryland Ave., Baltimore 18, Md., 3, Tel: HOpkins 7-1966 (ERA)
Instruments.

Friedman & Associates (Martin), 1805 Hillenwood Rd., Baltimore 12, Md., 3, Tel: IDlewood 5-5872, Main Office: Bala-Cynwyd, Pa.

Jay Co., 3, Tel: ENterprise 9-6767, Main Office: Arlington, Va.

Jeffries Inc. (Samuel A.), 3, Tel: NOrthfield 8-0350, Main Office: Narberth, Pa.

Jones Co. (David K.), 31 E. 21st St., Baltimore 18, Md., 3, Tel: 301-467-3766 (ERA)
Carpenter Mfg. Co., Inc.: Wire stripping machines. **Connolly & Co. (Wallace E.):** Genalex cores. **Engineering & Electronic Devices, Inc.:** Soldering tips. **Gonset Div. of Young Spring & Wire Co.:** Amateur & communications equipment. **Magnetic Shield Div. of Perfection Mica Co.:** Magnetic shields & materials. **Master Mobile Mounts, Inc.:** Antennas. **RaeCo., Inc.:** Transformers. **Telex/Aemco Div.:** Relays & timers. **Torotel, Inc.:** Toroids, filters, magnetic amplifiers, laminated transformers.

Kann-Ellert Electronics, Inc., 2050 Rockrose Ave., Baltimore 11, Md., 2, Tel: TUxedo 9-4242 (NEDA)

Macdonald, Inc. (Samuel K.), 2016 Winford Rd., Baltimore 14, Md., 3, Main Office: Philadelphia, Pa.

Maguire & Co. (J. A.), 5716 York Rd., Baltimore, Md. 3, Tel: IDlewood 3-2613, Main Office: Camden, N.J.

Marcy Associates (F. D.), 19 E. 21st St., Baltimore 18, Md., 3, Tel: BE 5-2755 (ERA)
Components, raw materials.

McCourt & Son (Leo T.), 610 Washington Ave., Towson, Baltimore 4, Md., 3, Tel: VA 3-3455 (ERA)
Circuit-breakers, counters, indicator lights.

Radio Electric Service Co. of Baltimore, Inc., 5 N. Howard St., Baltimore 1, Md., 2, Tel: Lexington 9-3835 (NEDA)

Randall Co. (Kenneth), 1303 Midvale Ave., Baltimore 28, Md., 3, Tel: RIdgeway 7-5260, Main Office: Philadelphia, Pa.

Snow Co. (C. E.), Friendship International Airport, Terminal Bldg., Baltimore, Md., 3, Main Office: Bethesda, Md.

Spartan Co., Inc. (A. R.), 239 N. Gay St., Baltimore, Md., 2 (NEDA)

Taylor Co. (Morris F.), 9500 Buckhorn Rd., Baltimore 34, Md., 3, Tel: NOrthfield 8-9054, Main Office: Silver Spring, Md.

Whitcomb Associates, 730 Deepdene Rd., Baltimore 10, Md., 3, Tel: 301-TUxedo 9-1245 (ERA)
Advanced Measurement Instruments, Inc.: FM deviation monitors. **American Optical Co.:** Direct writing oscillographs. **Budd-Stanley Co., Inc.:** Waveguide test equip. **CES Electronic Products, Inc.:** Analog computing devices. **EMI/US:** Microwave tubes, photomultipliers. **Greibach Instruments Corp.:** Meters. **Houston Instrument Corp.:** XY plotters, amplifiers. **Iconix, Inc.:** Counters, programmable pulse generators. **Instrument Corp. of America:** Pulse generators, flying spot scanners. **PM Electronics, Inc.:** Amplifiers. **Technipower, Inc.:** Power supplies. **Universal Voltronics:** High voltage power supplies.

Wholesale Radio Parts Co., Inc., 302 W. Redwood St., Baltimore 1, Md., 2, Tel: MUlberry 5-2134 (NEDA)

Wilkinson Organization (Robert L.), 707 Stevenson Lane, Baltimore 4, Md., 3, Tel: 301-DRexel 7-7800 (ERA)
Bradley Semiconductor Corp.: Rectifiers. **Bristol Motor Div.:** Synchronous motors, timing devices. **Cannon Electric Co.:** Connectors, solenoids, crimp tools. **Dale Electronics, Inc.:** Resistors, trimmer potentiometers. **Ferroxcube Corp. of America:** Ferrite materials, potcores, memory cores & planes. **Glenair, Inc.:** Sleeve assemblies, cable clamps. **Globe Industries, Inc.:** Miniature motors, gear trains. **Rosan, Inc.:** Fasteners.

Bethesda
(Telephone Area Code—301)

Be-Esco Sales Corp., 9131 Hollyoak Dr., Bethesda, Md., 3, Tel: 301-EMpire 5-1670, Main Office: Yonkers, N.Y.
See ad on page 829

Jodon, Inc. (F. R.), 4922 Saint Elmo Ave., Bethesda 14, Md., 3, Tel: 301-OLiver 2-5110
Abrams Instrument Corp.: Counters, intervalometers. **Adams-Russell Co.:** Antennas, filters, power dividers. **Coleman Electronics:** Digitizing equip. **Dressen-Barnes Corp.:** Power supplies. **Engineered Electronics Co.:** Packaged modules. **Flow Corp.:** Anemometers & probes. **Industrial Products Div. of ITT:** Instruments, shock & vibration testing. **Instrument Corp. of Florida:** VLF receivers, phase comparators. **Magnecord Div.:** Tape recorders. **Midwestern Instruments, Inc.:** Data acquisition instruments. **Millivac Instruments, Inc.:** Measuring instruments. **Tinius Olsen Co.:** Testing machines.

Rosen & Associates, Inc. (Gene), 9501 Wadsworth Dr., Bethesda 14, Md., 3, Tel: 301-OLiver 6-6131 (ERA)
American Microphone Mfg Co., Chassis-Trak, Inc., Electro-Sonic Laboratories, JBL International, McIntosh Laboratory, Inc., Vega Electronics Corp., Viking of Minneapolis.

Snow Co. (C. E.), 8218 Wisconsin Ave., Bethesda, Md., 3, Tel: OLiver 4-7200 (ERA)
Instruments.

Bladensburg
(Telephone Area Code—301)

Lowery, Inc. (L. D.), 4508 Annapolis Rd., Bladensburg, Md., 3, Tel: UNion 4-4722, Main Office: Broomall, Pa.

Chevy Chase
(Telephone Area Code—301)

Fargo Co., 5518 Western Ave., Chevy Chase, Md., 1, 2, Tel: OLiver 4-3221, Main Office: San Francisco, Calif.

College Park
(Telephone Area Code—301)

Blumenstein Co. (Hal), 5221 Edgewood Rd., College Park, Md., 3, Tel: WE 5-0747, Main Office: Philadelphia, Pa.

Cumberland
(Telephone Area Code—301)

Zimmerman Wholesalers, 162 Bedford St., Cumberland, Md., 2, Tel: PArkview 4-1388 (NEDA)

Elliott City
(Telephone Area Code—301)

Cerf & Co. (Art), 4 W. Penfield Rd., Elliott City, Md., 3, Tel: Howard 5-5262, Main Office: Newark, N.J.

Glen Burnie
(Telephone Area Code—301)

Shulan & Co., Inc. (Wally), Box 287, Rt. 1, Glen Burnie, Md., 3, Main Office: Jersey City, N.J.

Hagerstown
(Telephone Area Code—301)

Stoddard Supply Co., Inc., 354 S. Cannon Ave., Hagerstown, Md., 2, Tel: REgent 3-3390 (NEDA)

Zimmerman Wholesalers, 114 E. Washington St., Hagerstown, Md., 2, Tel: REgent 3-0550 (NEDA)

Hyattsville
(Telephone Area Code—301)

Andco Sales-Engineering, Inc., 5132 Baltimore Ave., Hyattsville, Md., 3, Tel: UNion 4-6767, Main Office: Philadelphia, Pa.

Lanham
(Telephone Area Code—301)

Lienau Co. (Charles), 9124 8th St., Lanham, Md., 3, Tel: SP 3-3268, Main Office: Wheaton, Md.

Lutherville
(Telephone Area Code—301)

East Coast Liaison, Inc., P.O. Box 243, Lutherville, Md., 3, Tel: 301-VAlley 5-4449 (ERA)
Accuracy, Inc.: Precision potentiometers. **Cartriseal Corp.:** Rotary sealing devices. **Cedar Engineering Div.:** Motors, tachometers, resolvers, accelerometers, gyros. **Dorsett Electronics:** Telemetering components. **Fae Instrument Corp.:** Gear assemblies, clutches. **Kooltronic Fan Co.:** Fans, blowers. **Miniature Electronics Components Corp. (Minelco):** Trimming potentiometers & relays. **Pacific Resistor Co.:** Resistors.

Finlay Co. (Robert), P.O. Box 29, Lutherville, Md., 3, Tel: VAlley 3-9086, Main Office: Ridgewood, N.J.

Foley Associates (Andrew A.), 1313 Malbay Dr., Lutherville, Md., 3, Tel: VAlley 3-5976, Main Office: Moorestown, N.J.

Newson & Associates, Inc. (C. H.), 17 Croftley Rd., Lutherville, Md., 3, Tel: 301-VAlley 3-0431, Main Office: Philadelphia, Pa.
See ad on page 837

Olney
(Telephone Area Code—301)

Taylor Co. (Morris F.), 208 Queen Mary Dr., Olney, Md., 3, Tel: WAlker 4-9476, Main Office: Silver Spring, Md.

Riverdale
(Telephone Area Code—301)

Massey Associates, 6607 Riverdale Rd., Riverdale, Md., 3, Tel: APpleton 7-1023, Main Office: Narberth, Pa.

Rockville
(Telephone Area Code—301)

Rothenheber & Co., Inc., 14211 Chesterfield Rd., Rockville, Md., 3, Tel: WHitehall 6-4488, Main Office: Ardmore, Pa.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Salisbury
(Telephone Area Code—301)

Standard Electronics Supply Co., 301 Snow Hill Rd., Salisbury, Md., 2, Tel: PIoneer 9-7539 (NEDA)

Silver Spring
(Telephone Area Code—301)

Ansell Engineering Co., Richardson Bldg., Bonifant & Fenton Sts., Silver Spring, Md., 3, Tel: JUniper 8-4222 (ERA)

Electronic Distributors, Inc., 9421 Thornhill Rd., Silver Spring, Md., 1, 2, 3, 4, 5, Tel: JU 9-0732, Main Office: Wheaton, Md.

Gawler-Knoop Co., 8732 Flower Ave., Silver Spring, Md., 3, Tel: JUniper 5-7550, Main Office: Roseland, N.J.

Lienau Co. (Charles), 9427 Georgia Ave., Silver Spring, Md., 3, Tel: JUniper 7-5888 (ERA)

Schweber Electronics, 8605 Cameron St., Silver Spring, Md., 2, Tel: 301-JUniper 5-7023, Main Office: Mineola, L.I., N.Y.
See ad on page 820

Taylor Co. (Morris F.), 9431 Georgia Ave., P.O. Box 111, Silver Spring, Md., 3, Tel: 301-JUniper 9-4002 (ERA)
American Television & Radio Co., Ardwin Microlab, Inc., Cadre Industries Corp., Chicopee Mills, Inc., Guardian Electric Mfg. Co., Hunter Sales Co. (R. N.), Jensen Mfg. Co., Newcomb Audio Products, Pacotronics, Pickering & Co., Inc., Recoton Corp., Sightmaster Corp., Smith, Inc. (H. H.), Turner Co., Ungar Electric Tools, Vanguard Electric Co.

White & Co., Inc. (L. G.), 880 Bonifant St., Silver Spring, Md., 3, Tel: 301-JUniper 5-3141 (ERA)
Amco Engineering Co.: Enclosures. **Analog Controls Co.:** Potentiometers. **Burroughs Corp.:** Numerical indicators. **Computer Control Corp.:** Logic modules. **Cramer Controls Corp.:** Timing devices. **Cubic Corp.:** Digital voltmeters. **Digitronics Corp.:** Tape readers. **Embree Electronics Co.:** Amplifiers. **G-V Controls, Inc.:** Timers. **General Applied Science Laboratories:** Pulse generators. **Hart Mfg. Co.:** Relays. **James Electronics, Inc.:** Choppers. **Mepco, Inc.:** Resistors. **Merkle-Korff Gear Co.:** Motors. **Northeastern Engineering:** Counters. **Phillips Control Co.:** Relays. **Telecomputing Corp.:** Digitizers. **Unimax Switch Div.:** Switches.

Towson
(Telephone Area Code—301)

Aeron Associates, 807 Providence Rd., Towson 4, Md., 3, Tel: 301-VAlley 3-6469
Airpax Electronics, Inc.: Choppers, magnetic amplifiers, circuit breakers. **Daco Instrument Co.:** Gear heads, speed changers. **Digitrols, Inc.:** Thermoelectric cooling supplies. **Gjadny Co. (Richard):** Ultrasonic cleaners. **Harman-Kardon:** Logic modules. **Lome Electronics, Inc.:** FM sub-carrier oscillators. **Multiflex Seals, Inc.:** Panel seals. **Photoswitch Div., Electronic Corp. of America:** Photoelectric & liquid-level controls. **Rheem Electronics, Inc.:** Photo readers, shaft-to-digital converters. **Rotiform, Inc.:** Torquemeters.

Distribution

Louisiana
Maine
Maryland

Barnhill & Associates, Inc., 19 W. Penn Ave., Towson 4, Md., 3, Tel: VAlley 5-3900 (ERA)
Aladdin Electronics, Inc., General RF Fittings, Inc., Kidco, Inc., Pyramid Electric Co., Torwico Electronics, Inc., Union Switch & Signal Co., Vernitron Corp.

Brimberg Associates, Inc., 110 E. Pennsylvania Ave., Towson 4, Md., 3, Main Office: Washington, D.C.

Dickison Sales Co., Inc., 107 York Rd., Towson, Md., 3, Tel: VAlley 3-0923, Main Office: Erlton, N.J.

Gawler-Knoop Co., 807 E. Seminary Ave., Towson 4, Md., 3, Tel: ENterprise 5-3151, Main Office: Roseland, N.J.

Habco Electronics, 603 Allegheny Ave., Towson 4, Md., 3, Tel: VA 5-9637 (ERA)
Components, raw materials.

Holden Engineering Sales Co., 1133 Gypsy Lane W., Towson 4, Md., 3, Tel: 301-VAlley 3-3763 (ERA)
American Electronics Co.: Relays, switches, power supplies. **Chatham Controls Corp.:** Thermostats. **Hallett Mfg. Co.:** Shielding, harnesses. **Minco Products:** Heaters & thermal devices. **Radar Measurements Corp.:** Microwave equip. **Tansitor Electronics:** Tantalum capacitors.

J-H Electronic Sales Co., Box 6844, Towson 4, Md., 3, Tel: 301-VAlley 5-4440 (ERA)
Caswell Electronics Corp.: Ferrites, isolators & circulators. **Diamond Antenna & Microwave Corp.:** Antennas & waveguide components. **Dresser Electronics:** Transformers, chokes, filters. **Eastern Air Devices, Inc.:** Motors & blowers. **Feedback Controls, Inc.:** Servo systems, special computers. **Metcom, Inc.:** Duplexes, mixers, klystrons. **Microwave Electronics Corp.:** Traveling wave tubes, masers. **Price Electric Corp.:** Relays & controls. **Rawco Instruments, Inc.:** Choppers. **Sarkes Tarzian, Inc.:** Rectifiers. **Sliding Mechanisms, Inc.:** Slides. **Times Wire & Cable Div.:** Cable assemblies & harnesses. **United Components, Inc.:** Headers & glass-to-metal terminals. **Wright Electronics, Inc.:** Quartz crystals & ovens.

Jones Co., Inc. (William M.), 1107 Echo Ct. N., Towson 4, Md., 3, Tel: VA 3-2434 (ERA)

Lee Associates, Inc. (S. S.), 21 Pennsylvania Ave., Towson 4, Md., 3, Tel: VAlley 3-3434, Main Office: Orlando, Fla.

Naudain-Bohaker & Co., 7309 York Rd., Towson 4, Md., 3, Main Office: Philadelphia, Pa.

Newson & Associates, Inc. (C. H.), 3, Tel: 301-VAlley 3-0431, Main Office: Philadelphia, Pa.
See ad on page 837

Stemler Associates & Co., 25 W. Pennsylvania, Towson 4, Md., 3 (ERA)
Components & raw materials.

White Co., Inc. (Harry J.), 204 W. Pennsylvania Ave., Towson 4, Md., 3, Main Office: Haddonfield, N.J.

Wheaton
(Telephone Area Code—301)

Electronic Distributors, Inc., 11324 Fern St., Wheaton, Md., 1, 2, 3, 4, 5, Tel: LO 5-2262
Barker & Williamson, British Industries, Central Electronics, Dow-Key, DuMont,

Electro-Voice, General Cement, Globe, Gonset, Hallicrafters, Hammarlund Mfg. Co., Hy-Gain, Illumitronic Engineering, Mosley, Sarkes Tarzian, Ungar, Westinghouse, Yuba Consolidated Industries, Inc.: SSB Communications equipment.

Lee Associates, Inc. (S. S.), 2521 Ennalls Ave., Wheaton, Md., 3, Tel: LOckwood 5-3066, Main Office: Orlando, Fla.

Lienau Co. (Charles), 11411 Amherst Ave., Wheaton, Md., 3, Tel: 565-1714 (ERA)
British Industries Corp.: Changers, speakers, solder. **Carter Motor Co.:** FHP motors, dynamotors. **Clarostat Mfg. Co.:** Resistors, potentiometers. **Electronic Instrument Co.:** Test equip. **Fanon Electronic Sales:** Intercoms, transistors. **Ferrodynamics Corp.:** Magnetic tapes. **Fisher Radio:** Tuners, amplifiers. **GC Electronics:** Plugs, jacks, switches, chemicals, hardware. **International Rectifier Corp.:** Semiconductors, rectifiers. **Oaktron Industries:** Speakers. **Signalite, Inc.:** Glow lamps. **Sonotone Corp.:** Cartridges, microphones, receiving tubes. **Soundolier, Inc.:** Baffles.

MASSACHUSETTS

Arlington
(Telephone Area Code—617)

Instrument Associates, Inc., 30 Park Ave., Arlington 74, Mass., 3, Tel: MIssion 8-2922 (ERA)

MacArthur Co. (Robert S.), 132 Alpine Terr., Box 186, Arlington, Mass., 3, Tel: MI 3-5358 (ERA)

Auburndale
(Telephone Area Code—617)

Grossman Sales Co. (M. C.), 339 Auburn St., Auburndale, Mass., 3, Tel: LAsell 7-7753 (ERA)
American Electronics Co.: Amplifiers, tuners, turntables, arms, test equip., cartridges, speakers, cables, connectors, tape recorders. **Audax Mfg. Co.:** Speakers. **Audio Dynamics Corp., B&K Mfg. Co., Barker Products, Rek-O-Kut, Inc.:** Turntables. **Scott, Inc. (H. H.):** Amplifiers, tuners

Bedford
(Telephone Area Code—617)

Chamberlin Co. (Harold A.), Hanscom Field Air Terminal, Bedford, Mass., 3, Tel: CRestview 4-0044 (ERA)
Ampex Magnetic Tape Products, Inc., Antenna Specialists Co., Inc., Astatic Corp., Atlas Sound Corp., Quietrole Co., Sonar Radio Corp., Triex Tower Corp.

Drew Associates, Inc., P.O. Box 467, Bedford, Mass., 3, Tel: CR 4-7232 (ERA)
Industrial components.

Palioca Inc., 110 Great Rd., Bedford, Mass., 3, Tel: CR 4-9177 (ERA)
Components.

Beverly
(Telephone Area Code—617)

Kelly Co. (William T.), 77 Lovett St., Beverly, Mass., 3, Tel: WAlker 2-0065 (ERA)
Croname, Inc.: Dials, panels, printed circuits. **Duke Engraving & Machine Corp.:** Engraving. **Kurz-Kasch Co.:** Knobs.

Boston
(Telephone Area Code—617)

Anderson Sales Co., 177 State St., Boston 9, Mass., 3, Tel: CApitol 7-2980 (ERA)
Bussman Mfg. Co.: Fuses. **Conant Labs.:** Rectifiers. **Emico:** Meters. **Gudeman Co.:** Capacitors. **ITT Components Div.:** Rectifiers, capacitors. **Model Engineering:** Resistors, rheostats. **Murdock Co.:** Headphones. **Switchcraft, Inc.:** Plugs, jacks, switches.

Cramer Electronics, Inc., 811 Boylston St., Boston 16, Mass., 2, Tel: COpley 7-4700 (NEDA)

De Mambro Radio Supply Co., Inc., 1095 Commonwealth Ave., Boston 15, Mass., 2, Tel: ALgonquin 4-9000 (NEDA)

Electro Sales Co., Inc., 50-58 Eastern Ave., Boston 9, Mass., 2, 4, Tel: CApitol 7-3456
Barber-Colman: Motors. **Birnbach:** Wire & cable. **Bodine Electric:** Motors. **Bussmann Mfg. Co.:** Fuses. **Elcor:** Converters. **Fasco Industries:** Blowers & motors. **Hallicrafters:** Receivers & transmitters. **Heller:** Speed controllers. **Kester:** Solder. **Merkle-Korff:** Geared motors. **Redmond Electric:** Blowers & motors. **Ripley:** Blowers & motors. **Royal Electric:** Wire.

Electronic Components & Services, 30 Huntington Ave., Boston 16, Mass., 3, Tel: 617-KEnmore 6-8581 (ERA)
Assembly Products, Inc., Bell, Inc. (F. W.), Del Electronics, Inc., Handley Div. of Amelco, Inc., Kemtron Electron Products, Inc., Ohio Semiconductors Div. of Tecumseh Products Co.

Gerber Radio Supply Co., Inc., 1900 Columbus Ave., Boston 19, Mass., 2, Tel: GArrison 7-0411 (NEDA)

Keene Sales Co., 25 Tremont St., Boston 8, Mass., 3, Tel: 617-RIchmond 2-0466 (ERA)
American Elite, Antronic Corp., Coleman Electronics, Continental Mfg. Co., Erikson Tool Co., Jersey Specialty Co., Oaktron Industries, Recoton Corp., Seco Mfg. Co., Sound-Craft Systems, South River Metal Products, Wald, Inc., Winegard Co.

Lafayette Radio Electronics Corp., Lafayette Industrial Electronics Div., 110 Federal St., Boston 10, Mass., 2, Tel: 617-HUbbard 2-0311, Main Office: Syosset, L.I., N.Y.
See ad on page 819

Mayer Co. (A. W.), 895 Boylston St., Boston 15, Mass., 2, Tel: COpley 7-5530 (NEDA)

O'Donnell Electronics Supply Corp., 1123 Commonwealth Ave., Boston 15, Mass., 2, Tel: ALgonquin 4-2234 (NEDA)

Perron & Co., Inc. (Ray), 1870 Centre St., Boston 32, Mass., 3, (ERA)
Beede Electrical Instrument Co.: Meters. **Dormeyer Industries:** Solenoids. **Ferroxcube Corp. of America:** Ferrite cores. **Gould-National Batteries:** Batteries. **Industrial Condenser Corp.:** Instrumentation capacitors. **International Resistance Co.:** Resistors. **Kepco, Inc.:** Power supplies. **Magnecraft Electric Co.:** Relays. **Magnetic Windings:** Transformers. **Measurements Co.:** Standards. **Peschel Electronics:** High voltage test equip. **Semicon, Inc.:** Silicon rectifiers. **Victory Engineering Co.:** Thermistors.

Radio Shack Corp., 730 Commonwealth Ave., Boston 17, Mass., 2, 4, Tel: 617-REgent 4-1000

Representatives Corp., 10 High St., Boston 10, Mass., 3 (ERA)
Ark-Les Switch Co.: Switches, terminals. **Electric Autolite Co.:** Wire & cable. **Hindle Transformer Co.:** Transformers. **Stevens Mfg. Co.:** Thermostats.

Sturgeon, Inc. (Paul R.), 25 Huntington Ave., Boston 16, Mass., 3, Tel: 617-COmmonwealth 6-7705 (ERA)
Barber-Colman Co.: Shaded pole motors. **Bramco, Inc.:** Relays. **Curtiss-Wright Corp.:** Relays, digital motors, delay lines, transistor testers. **Davies Molding Co. (Harry):** Knobs. **Harco Laboratories, Inc.:** Thermocouples. **Johnson Co. (E. F.):** Components, amateur equip., citizens band receivers. **Ohmite Mfg. Co.:** Resistors, rheostats, switches, transformers, capacitors. **Potter Co.:** Capacitors, filters, power supplies. **Simpson Electric Co.:** Panel meters, test equip. **Slater Electric & Mfg. Co., Inc.:** Relays.

Tee-Vee Supply Co., 3211 Washington St., Boston 30, Mass., 2, Tel: JAmaica 2-9330 (NEDA)

Thal Plastics (Bernard), 791 Tremont St., Boston 18, Mass., 3, 4, Tel: 617-COmmonwealth 6-1236
Bolta Products: Custom molded plastics. **Crystal Thermoplastics, Inc.:** Custom molded plastics. **Holden Plastics Corp.:** Custom compression moldings.

Brighton
(Telephone Area Code—617)

Reinherz Co. (Albert N.), 45 Chestnut Hill Ave., Brighton 35, Mass., 3, Tel: STadium 2-6422 (ERA)
Antennas, audio-visual equip., capacitors, chemicals, chokes, coils, resistors, tools.

Relay Sales, Inc., 311 Washington, Brighton 35, Mass., 2, Tel: STadium 2-4130, Main Office: West Chicago, Ill.

Brockton
(Telephone Area Code—617)

Ware Radio Supply Co., 913 Centre St., Brockton 11, Mass., 2, Tel: JUniper 3-0810 (NEDA)

Brookline
(Telephone Area Code—617)

Broger Instrument Sales Co., Inc., 48 Pearl St., Brookline 47, Mass., 3, Tel: 617-BEacon 2-4804 (ERA)
Beckman/Berkeley Div.: Counting instruments, analog computers. **Epsco, Inc.:** Digital instruments. **Era:** Power supplies. **Hickok RD Instruments:** Tube & transistor testers, oscilloscopes. **Menlo Park Engineering:** TWT's. **Millivac:** VTVM's. **Pemco:** Tape recorders. **Rutherford:** Pulse generators. **Sierra:** Power instuments

Eastern Electronic Sales Co., 145 University Rd., Brookline, Mass., 3, Tel: AS 7-5675 (ERA)

Gerber Sales Co., Inc., 48 Pearl St., Brookline 47, Mass., 3, Tel: 617-BEacon 2-2425

Segel Co., Inc. (Henry P.), 386 Washington St., Brookline 47, Mass., 3, Tel: 617-BEacon 2-7525 (ERA)
Bodnar Products Corp., Britton Electronics Corp., Bud Radio Co., Campbell Industries, Clarostat Mfg. Co., Comfort Lines, Inc., Executone, Inc., Film Capacitors, Inc., Freed Transformer Co., Permadyne, Sightmaster Corp., Tenna Mfg. Co.

Burlington
(Telephone Area Code—617)

Yewell Associates, Inc., Middlesex Tnpke., Burlington, Mass., 3, Tel: BRowning 2-9000 (ERA)
Instrumentation, klystrons, power supplies, oscillographic recorders, transducers.

Cambridge
(Telephone Area Code—617)

Ealing Corp., 33 University Rd., Cambridge 38, Mass., 1, Tel: KIrkland 7-5760

Electrical Supply Corp., 205 Alewife Brook Pkwy., Cambridge 38, Mass., 2, Tel: UNiversity 4-6300 (NEDA)
Alpha Wire Corp., Amperex Electronic Corp., Amphenol-Borg Electronics Corp., Belden Mfg. Co., Bourns, Inc., Bud Radio, Inc., Burgess Battery Co., Bussman Mfg., Centralab, Cinch-Jones, Continental Carbon Co., General Electric Co., Good-All Electric Mfg. Co., Industrial Timer Corp., Marion Instrument, Micro Switch Div., Ohmite Mfg. Co., Potter & Brumfield, Raytheon Co. Tube Div., Raytheon Co. Equip. Div., Rimak, Inc., Sarkes Tarzian, Inc., Simpson Electric Co., Sola Electric Co., Spectrol Electronics Corp., Sprague Products Co., Superior Electric Co., Tensolite Insulated Wire Co., Triad Transformer Co., Triplett Electrical Instrument Co., U.S. Transistor, United Transformer Co.

Greene Organization, Inc. (Dan), P.O. Box 124, Cambridge 38, Mass., 3, Tel: UNiversity 4-2220 (ERA)
Atohm Electronics: Trimmer potentiometers. **Birtcher Corp.:** Transistor & diode heat radiators, clips, cooling devices, retainers. **Downs & Co.:** Transistor testers. **General Meters, Inc.:** Panel meters. **Globe Electrical Mfg. Co.:** Terminals, relays. **Midland Mfg. Co.:** Quartz crystals & crystal filters. **Rotax, Inc.:** Hysteresis synchronous motors. **Stopper Motors Div.:** Stepping motors, timers, synchro-positioners. **Triad Transformer Corp.:** Transformers, reactors, filters. **Utrad Corp.:** Transformers, reactors.

Hathaway Electronics, Inc. (Glenn M.), 238 Main St., Cambridge 42, Mass., 3, Tel: KIrkland 7-0380 (ERA)
Artted Co., Inc.: Coils. **Axel Electronics:** Filters, pulse-forming networks. **Berkshire Transformer Co.:** Transformers. **Burnell & Co., Inc.:** Coils, filters. **Carter Mfg. Co.:** Precision potentiometers. **Continental-Wirt Electronics, Inc.:** Resistors. **Crystalonics, Inc.:** Transistors. **Curtis Development & Mfg. Co.:** Terminal blocks. **Edal Industries, Inc.:** Rectifiers. **Edison Industries:** Relays, thermostats. **Electric Indicator Co.:** Motors. **Electrical Industries, Inc:** Seals & headers. **Electro Circuits, Inc.:** Printed circuits. **Fenwal Electronics, Inc.:** Thermistors. **Frenchtown Porcelain Co.:** Ceramics. **International Electronic Research Corp.:** Tube shields. **Marion Electrical Instrument Co.:** Panel meters, induction heaters. **Potter & Brumfield, Inc.:** Relays. **Sangamo Electric Co.:** Capacitors. **Tel-Labs, Inc.:** Resistors. **Tensolite Insulated Wire Co.:** Teflon magnet wire. **Wood Electric Co.:** Circuit breakers.

Stockwell Technical Sales Co., 44 Walker St., Cambridge, Mass., 3, Tel: TRowbridge 6-5115, Main Office: Tolland, Conn.

Chestnut Hill
(Telephone Area Code—617)

Akeroyd Co. (Arthur E.), 70 Reservoir Rd., Chestnut Hill, Mass., 3, (ERA)
Astron Corp.: Capacitors & noise filters. **Bureau of Engraving, Inc.:** Printed circuits. **Delta Coils, Inc.:** Chokes & coils. **Quick-Mount Mfg. Co., Inc.:** Antennas. **Regency Div. of I.D.E.A., Inc.:** UHF converters, citizen's band transceivers. **TT Electronics, Inc.:** Filters.

Concord
(Telephone Area Code—617)

Sales Engineering Co., Sudbury Rd., Concord, Mass., 3, Tel: EMerson 9-3943, Main Office: Newtown, Conn.

Danvers
(Telephone Area Code—617)

Equipment Sales Co., Inc., 5 Elm St., Danvers, Mass., 3, Tel: SP 4-2400, Main Office: New Haven, Conn.

East Longmeadow
(Telephone Area Code—413)

Gerber Sales Co., Inc., 6 N. Main St., East Longmeadow, Mass., 3, Tel: LAurel 5-3059, Main Office: Brookline, Mass.

Fitchburg
(Telephone Area Code—617)

Young & Young of Fitchburg, Inc., 372 Water St., Fitchburg, Mass., 2, Tel: DIamond 3-3078, Main Office: Springfield, Mass.

Greenfield
(Telephone Area Code—413)

Sydlee Electronic Supply Corp. of Greenfield, 145 Federal St., Greenfield, Mass., 2, Tel: PRescott 2-0986 (NEDA)

Hamilton
(Telephone Area Code—617)

Gysan Associates, 756 Bay Rd., Hamilton, Mass., 3, Tel: WAlker 2-5770 (ERA)
Amerac, Inc.: Microwave systems. **Burmac Electronics Co.:** Power supplies, pulse transformers, modulators. **General Magnetic Corp.:** Microwave magnets **R. F. Simmons Co.:** Tube parts.

Harvard
(Telephone Area Code—617)

Dick Associates (George), Murray Lane, Harvard, Mass., 3, Tel: COlonial 3-5882
Alcon Metal Products: Tube sockets. **Hampden Mfg. Co.:** Plastic fabrication. **Jones, Inc. (Norman):** Epoxy, urethane & silicone casting & encapsulation.

Lawrence
(Telephone Area Code—617)

Young & Young of Lawrence, Inc., 198 Broadway, Lawrence, Mass., 2, Tel: MUrdock 7-7171, Main Office: Springfield, Mass.

Lexington
(Telephone Area Code—617)

Boeing Co., Inc. (John E.), P.O. Box 235, Lexington 73, Mass., 3, Tel: 617-VOlunteer 2-2500 (ERA)
Bradley Semiconductor Corp.: Diodes. **ESC Corp.:** Delay lines, filters. **Haddam Mfg. Co.:** Wire heaters. **Hi-G, Inc.:** Relays. **Mepco, Inc.:** Resistors. **Relcoil Products Corp.:** Transient suppressors. **Skydyne, Inc.:** Instrument cases. **Torwico Electronics, Inc.:** Toroidal chokes, transformers, relays. **Vitramon, Inc.:** Porcelain & ceramic capacitors.

Cain & Co., 1644 Massachusetts Ave., Lexington, Mass., 3, Tel: VO 2-5330, Main Office: Burbank, Calif.

Palioca Inc. (Wayne B.), 1787 Massachusetts Ave., Lexington, Mass., 3, Tel: VO 2-7224 (ERA)
Components & raw materials.

Purinton, Inc. (Richard), 11 Muzzey St., Lexington 73, Mass., 3, Tel: 617-VOlunteer 2-8300 (ERA)
Amphenol-Borg Electronics Corp.: Connectors, RF products. **Billey Electric Co.:** Quartz crystals, delay lines, filters. **CTS Corp.:** Variable resistance controls. **North Electric Co.:** Relays, stepping switches, power supplies. **Oak Mfg. Co.:** Rotary wafer switches, choppers.

Littleton Common
(Telephone Area Code—617)

Reed & Riddett Co., Littleton Common, Mass., 3, Tel: HUnter 6-3932, Main Office: Englewood Cliffs, N.J.

Marblehead
(Telephone Area Code—617)

Willson Sales Co., 6 Mohawk Rd., Marblehead, Mass., 3, Tel: NEptune 1-4016 (ERA)
Concord Electronics Corp., D & R Co., Dynaco, Inc., Electrophono & Parts Corp., Harman-Kardon, Inc., Jensen Mfg. Co., Webster Mfg., Welwyn International, Inc.

Melrose
(Telephone Area Code—617)

MacInnis Co. (Robert R.), 53 Youle St., Melrose 76, Mass., 3, Tel: NO 5-0879 (ERA)

Natick
(Telephone Area Code—617)

Pettigrew & Co., Inc. (R. S.), 45 Main St., Natick, Mass., 3, Tel: OLympic 3-6480, Main Office: West Hartford, Conn.

Needham
(Telephone Area Code—617)

Abbett & Hustis, 1253 Highland Ave., Needham 92, Mass., 3, Tel: HIllcrest 4-5470 (ERA)
Chassis Trak, Inc.: Slides. **Chicago Dynamic Industries, Inc.:** Switches. **Electro Products Labs., Inc.:** Pickups, power supplies. **Garlock, Inc.:** Feedthrus & standoffs. **Hudson Lamp Co.:** Miniature lamps. **Lectrohm, Inc.:** Power resistors. **Oxford Electric Corp.:** Speakers. **Smith, Inc. (Herman H.):** Hardware. **Solitron Devices, Inc.:** Rectifiers. **Standard Electrical Products Co.:** Transformers. **Transco Products, Inc.:** Coaxial switches. **Turner Co.:** Microphones. **Western Devices, Inc.:** Cabinets.

Coldwell, Inc. (Michael S.), 41 Lancaster Rd., Needham 92, Mass., 3, Tel: HIllcrest 4-1142, Main Office: Avon, Conn.

De Veer Sales Engineering Co., Inc., 1492 Highland Ave., Needham 92, Mass., 3, Tel: HIllcrest 4-4200 (ERA)
Aladdin Electronics: Pulse transformers, inductors. **Clare & Co. (C. P.):** Relays & stepping swiches. **Fansteel Metallurgical Corp., Northern Engineering Labs., Inc.:** Crystals, ovens, frequency standards. **Slip Ring Co. of America:** Assemblies. **Unitrode Transistor Products Co.:** Silicon miniature diodes.

Harris Co. (Stanley A.), 1241 Highland Ave., Needham 92, Mass., 3, Tel: HIllcrest 4-4780 (ERA)
Centralab, JB Electric Transformers, Knights Co. (James), Par-Metal Products Corp., Quam-Nichols Co., Sams & Co., Inc. (Howard W.), Shure Brothers, Inc., Ungar Electric Tools, Inc.

Lavin Associates, Inc. (Henry), 82 Curve St., Needham, Mass., 3, Tel: HIllcrest 4-3446, Main Office: Meriden, Conn.

Mosher & Peyser Co., 945 Great Plain Ave., Needham 92, Mass., 3, Tel: HIllcrest 4-1400 (ERA)
Brew & Co. (Richard D.): Delay lines. **Columbus Electronics Corp.:** Silicon rectifiers. **GC Electronics Co.:** Hardware. **Jan Hardware Mfg. Co.:** Bezels & shields. **Pace Electrical Instrument Co.:** Meters. **Paco Electronics Co.:** Kit test equipment. **Precision Apparatus Co.:** Test equipment. **Pyramid Electric Co.:** Capacitors. **Thordarson-Meissner:** Transformers, coils.

White Sales Co., Inc., 1211 Highland Ave., Needham 92, Mass., 3, Tel: 617-HIllcrest 4-3676 (ERA)
Allies' Products Corp.: Resistors. **Autotron, Inc.:** Photoelectric controls & light sources. **Barber-Colman Co.:** Relays & DC motors. **Electronic Engineering Co. of Calif.:** Timing & data processing systems. **Engineered Electronics Co.:** Digital & computing circuits. **Farmer Electric Products Co., Inc.:** Timers, relays & controls **Hamlin, Inc.:** Switches. **Industrial Timer Corp.:** Synchronous motors, timers. **Jelliff Mfg. Corp. (C. O.):** Resistance alloys. **Line Electric Co.:** Power relays. **Resistors, Inc.:** Wirewound resistors. **Simmons Fastener Corp.:** Fasteners. **Sippican Corp.:** Welders. **Sun Electric Corp.:** Meters.

Needham Heights
(Telephone Area Code—617)

Cowperthwait & Brodhead, 570 Hillside Ave., Needham Heights 94, Mass., 3, Tel: HIllcrest 4-9410
Automatic Timing & Controls, Inc.: Timers, time delay relays. **Biddle Co. (James G.):** Insulation testers, reed relays, rheostats. **Gray Instrument Co.:** Potentiometers, bridges, voltage dividers. **Greibach Instrument Corp.:** Indicating meters. **Hughes Aircraft Co.:** Oscilloscopes. **Instruments, Inc.:** Indicating meters. **Marconi Instruments:** Signal generators, deviation meters, bridges, spectrum analyzers. **Quan-Tech Labs., Inc.:** Power supplies, amplifiers, wave analyzers, noise instruments. **Radio Frequency Labs., Inc.:** Calibration standards, magnet chargers. **Trent, Inc.:** Furnaces.

Todino Engineering Sales, Inc., 50 Kearney Rd., Needham Heights 94, Mass., 3, Tel: 617-HIllcrest 4-7925 (ERA)
Astrodyne, Inc.: Clutches & brakes. **Duncan Electronics:** Precision potentiometers. **Electron Products:** Capacitors. **G-V Controls:** Thermal time delays, thermostats, timers. **Kurman Electric:** Relays. **Radio Receptor Co.:** Selenium rectifiers. **Rotating Components:** Motors, fans, blowers, servos. **Sage Electronics:** Wirewound resistors. **Sickles Co. (F. W.):** Delay lines, magnetics. **Silicon Transistor:** Transistors, diodes.

Newton
(Telephone Area Code—617)

Greene-Shaw Co., Inc., 341 Watertown St., Newton 58, Mass., 2, Tel: WOodward 9-8900 (NEDA)

Sturdy Co., Inc. (R. H.), 103 Morse St., Newton 58, Mass., 3, Tel: 617-WAlnut 6-0808
C & K Components, Inc.: Encapsulated circuits, indicator lights. **Collins Radio Co.:** Mechanical & crystal filters. **Eburn Industrial Research Corp.:** Photoetched parts. **Pulse Engineering:** Pulse transformers, filters, toroids.

Newton Centre
(Telephone Area Code—617)

Ingber Co. (L. K.), 4 Oakwood Terr., Newton Centre 59, Mass., 3, Tel: 617-DEcatur 2-3856
Advanced Stamping Co.: Eyelets. **Algo, Inc.:** Cans. **Ceramic Seal Div. of Shaw Corp.:** Metallized ceramics. **Dakota Engineering, Inc.:** Cable clamps **Glass Beads Co.:** Glass preforms. **North Hills Electronics:** Constant current supplies, coils, transformers. **Oryx Co.:** Soldering equipment. **Richland Glass Co.:** Glass products.

Newton Highlands
(Telephone Area Code—617)

Coakley Inc. (Tom), 148 Needham St., Newton Highlands 61, Mass., 3, Tel: DEcatur 2-4800 (ERA)
Argos Products: Baffles. **Eitel-McCullough, Inc.:** Power tubes. **Elgin-Advance:** Relays. **Hallicrafters:** Communications equip. **Hy-Gain Antenna Products:** Antennas. **Petersen Radio Co.:** Crystals. **Reeves-Soundcraft:** Tape. **Webcor, Inc.:** Tape recorders.

General Measurements Co., Inc., 1108 Beacon St., Newton Highlands 61, Mass., 3, Tel: 617-WOodward 9-9150
Amplifiers, attenuators, meters, power supplies, AF signal generators

Newton Lower Falls
(Telephone Area Code—617)

Brogan Associates, Inc., 2300 Washington St., Newton Lower Falls, Mass., 3, Tel: WO 9-9560, Main Office: Mineola, L.I., N.Y.

Cole & Co. (Lawrence B.), 2300 Washington St., Newton Lower Falls 62, Mass., 3 (ERA)
Chemtronics, Inc., Columbia Wire & Supply Co., Fedtro, Finney Co., Glaser-Steers Corp., Harman-Kardon, Industries, Inc., Micamold Electronics Mfg. Corp., Radio Receptor Co., Inc., Semitronics Co., Sencore, Inc., Utah Radio & Electronic Corp., Vocaline Co. of America, Waldom Electronics, Inc.

Newton Upper Falls
(Telephone Area Code—617)

Macdonald-Wadman Co., Inc., 1213 Chestnut St., Newton Upper Falls 64, Mass., 3, Tel: WOodward 9-8980 (ERA)
Allied Control Co.: Relays. **Lewis Engineering Co.:** Multiconductor cable. **Taylor Electric, Inc.:** Plastic wiring ducts. **Techno-Components Corp.:** Potentiometers. **Vacuum Ceramics, Inc.:** Glass-to-metal seals.

Newtonville
(Telephone Area Code—617)

Edcom, Inc., 815 Washington St., Newtonville, Mass., 3, Tel: WOodward 9-9710 (ERA)
Clarostat: Precision potentiometers. **Collins Electronics Mfg. Corp.:** Choppers. **Eastern Precision Resistor Co.:** Resistors. **Equipto Electronics Corp.:** Cabinets. **Standard Rectifier Corp.:** Silicon rectifiers. **Technibilt Corp.** Instrument carriers. **Voltron Products:** Voltmeters, meter relays, recorders, transducers.

Eltron Engineering Sales, Inc., 246 Walnut St., Newtonville 60, Mass., 3, Tel: 617-DEcatur 2-6975 (ERA)
Consolidated Avionics Corp., Filtron Co., Inc., Helipot, Mincom, Shallcross Mfg. Co., Transformers, Inc., U.S. Semcor.

Hatton Associates, Inc. (Arthur), 246 Walnut St., Newtonville 60, Mass., 3, Main Office: Hartford, Conn.

Schuft Co., Inc. (Howard J.), 815 Washington St., Newtonville, Mass., 3, Tel: LAsell 7-5304 (ERA)
Ballantine Lab., Inc.: Voltmeters. **Curtiss-Wright Corp.:** Recorders. **General Applied Science Labs., Inc.:** Spectrum analyzers. **Industrial Instruments, Inc.:** Component test equip. **ITT Industrial Products Div.:** Vibration & shock equip **Non-Linear Systems, Inc.:** Digital voltmeters & ratiometers. **Oregon Electronics, Inc.:** Power supplies. **Radiation Counter Lab., Inc.:** Nuclear instruments. **Scopes Co., Inc.:** Oscilloscopes. **Technical Products Co.:** Wave analyzers. **Transistor Specialties, Inc.:** Counter-timers. **Video Instruments Co., Inc.:** Power supplies & amplifiers.

Northampton
(Telephone Area Code—413)

C & I Distributors, Inc., 228 Pleasant St., Northampton, Mass., 2, Tel: JUstice 4-4164 (NEDA)

Pittsfield
(Telephone Area Code—413)

Equipment Sales Co., Inc., 89 Nobleburst, Pittsfield, Mass., 3, Tel: HI 3-4385, Main Office: New Haven, Conn.

Welch Electronics, Inc., 111 West St., Pittsfield, Mass., 2, Tel: HIllcrest 3-9139 (NEDA)

Quincy
(Telephone Area Code—617)

Pilgrim Electronic Supply Corp., 28 School St., Quincy 69, Mass., 2, Tel: GRanite 9-8300 (NEDA)

Scituate
(Telephone Area Code—617)

Hendrickson Co. (W. A.), 291 First Parish Rd., Scituate, Mass., 3, Tel: 617-LInden 5-0652 (ERA)
Audiotex Mfg.: Accessories, antenna equip. **Blonder-Tongue Labs., Inc.:** TV cameras. **Fidelitone, Inc.:** Needles. **Miller Co. (J. W.):** Coils, chokes. **Morrow Radio Mfg. Co.:** Citizen's band equip. **Sonotone Corp.:** Cartridges, tubes, speakers, microphones, batteries. **Technical Appliance Co.:** Antennas. **V-M Corp.:** Tape recorders. **Walsco:** Hardware, chemicals.

Somerville
(Telephone Area Code—617)

New England Area Representatives, Inc. (NEAR, Inc.), 99 Highland Ave., Somerville 43, Mass., 3, Tel: 617-PRospect 6-2262 (ERA)
Amatom Electronic Hardware Co., Inc.: Hardware. **Cleveland Electronics, Inc.:** Speakers. **Filtors, Inc.:** Relays. **Glasseal Products Co., Inc.:** Glass-to-metal seals. **Mark Mobile, Inc.:** Antennas. **Rosenthal:** Deposited carbon resistors. **United Mineral & Chemical Corp.:** Mica & metals.

Springfield
(Telephone Area Code—413)

Cushing, Inc. (T. F.), 1026 Bay St., Springfield 1, Mass., 2, Tel: STate 8-7341 (NEDA)

Soundco Electronic Supply Co., Inc., 147 Dwight St., Springfield 3, Mass., 2, Tel: REpublic 0-3847 (NEDA)

Sydlee Electronic Supply Corp., 453 Worthington St., Springfield, Mass., 2, Tel: REpublic 7-3517 (NEDA)

Young & Young of Springfield, Inc., 169 Spring St., Springfield 5, Mass., 2, Tel: REpublic 4-1130
Alliance Mfg. Co., B & K, Centralab, Clarostat, Eveready, G-C Electronics Co., General Electric Co., Globe, Gramer-Halldorson, Hickok, Jerrold, Mallory, Merit, Radio Corp. of America, Sylvania Electric Products Inc., Setchell-Carlson, Sprague, Stancor Electronics, Triad Transformer Co., Walco, Weller, Wen, Winegard.

Wakefield
(Telephone Area Code—617)

Instrument Dynamics, Inc., 11 Albion St., Wakefield, Mass., 3, Tel: 617-245-5100 (ERA)
Amco Engineering Co.: Modular enclosures. **Burroughs Corp. Electronic Components Div.:** Beam switching & nixie tubes. **Computer Measurements Co.:** Counters. **Hermes Electronics Co.:** Digital timing equip. **Itek Electro-Products Co.:** Crystal filters. **Philbrick Researches, Inc. (George A.):** Analog computers. **Power Designs, Inc.:** Power supplies. **Rohde & Schwarz, Inc.:** Laboratory instruments. **Tel-Instrument Electronics Corp.:** Power supplies. **Trio Labs., Inc.:** VTVM's. **Vidar Corp.:** Frequency converters.

Kaelber & Mack, Inc., 37 Hillcrest Rd., Wakefield, Mass., 3, Tel: 617-CRystal 6-4816, Main Office: Manhasset, L.I., N.Y.

Waltham
(Telephone Area Code—617)

Burlingame Associates, 974 Main St., Waltham, Mass., 3, Tel: 617-TWinbrook 4-1955, Main Office: Mount Vernon, N.Y.
See ads on pages 251, 270, 293, 294, 322, 325, 333, 339, 356, 358, 359, 362, 363, 365, 366, 477, 527, 643, 659

Cirolia—LeBlanc Sales Co., Inc., 885 Main St., Waltham, Mass., 3, Tel: TW 4-2977 (ERA)
Components, raw materials.

Durrell Electronics, Inc., 922 Main St., Waltham 54, Mass., 2, Tel: TWinbrook 3-7020 (NEDA)

Gostenhofer & Associates, Inc. (George), 235 Bear Hill Rd., Waltham 54, Mass., 3, Tel: TWinbrook 4-9500 (ERA)
Adage, Inc.: Voltage-to-digital converters. **Alfred Electronics:** Microwave sweepers, levelers, amplifiers. **American Optical Co.:** Direct writing recorders. **Astrosystems, Inc.:** Synchros & resolvers. **B & K Instruments, Inc.:** Sound, vibration & strain analysis. **Calibration Standards Corp.:** AC & DC measurements. **Cunningham, Son & Co., Inc.:** Crossbar switches. **Di/An Controls, Inc.:** Registers, digital systems. **Goodrich Sponge Products (E. F.):** Microwave absorbers. **Julie Research Labs., Inc.:** Test equip. **Lumatron Electronics, Inc.:** Millimicrosecond test equip. **Manson Labs., Inc.:** Power supplies, modulators, oscillators. **Optimized Devices, Inc.:** Transistor testers. **PRD Electronics Co.:** Microwave test equip. **Scientific-Atlanta, Inc.:** Antenna pattern recorders. **Trygon Electronics, Inc.:** Power supplies.

Saunders & Co., 8 Prospect St., Waltham 54, Mass., 3, Tel: TWinbrook 4-6071
Ad-Yu Electronics Lab.: Phase measurements, delay lines, capacitor analyzers. **Ansley Mfg. Co. (Arthur):** Printed circuit etchings. **Arnhold Ceramics, Inc.:** Resistors. **Davenport Mfg. Co.:** Power supplies, test equip. digital readout meters. **Delta Design, Inc.:** Temperature chambers, dry boxes. **Deltronics, Inc.:** Filters. **Development Engineering Co.:** Environmental chambers, diode machines. **Dynage, Inc.:** Voltage-reference sources. **Electro-Optical Instruments:** Kerr-Cell millimicrosecond cameras, pulse generators. **General Computers, Inc.:** Diode function generators, amplifiers, card-punches. **Gyra Electronics Corp.:** Electrometers, linear amplifiers, counters. **Redford Corp.:** Counters. **Sloan Co.:** Switch-lights. **Solid State Electronics Co.:** Choppers, oscillators, telemetry transmitters. **Stereatronics, Inc.:** Transistor curve tracers, diode testers. **Teltronics, Inc.:** Scope attachments. **Thompson Industries (Brad.):** Electron-beam welding, vacuum chambers. **Vicon Corp.:** Closed-circuit television

Watertown
(Telephone Area Code—617)

P-J Engineering Sales Co., Inc., P.O. Box 212, Watertown 72, Mass., 3, Tel: WAtertown 4-5950
Ceramaseal, Inc.: Ceramic terminals. **Communication Accessories Co.:** Toroids. **Delevan Electronics Corp.:** Chokes, coils. **Microwave Associates, Inc.:** Microwave components, crystals, tubes. **Pyrofilm Resistor Co., Inc.:** Precision resistors. **Syntron Co.:** Rectifiers & diodes.

Schley Co., Inc. (L. L.), 70 Coolidge Hill Rd., Watertown 72, Mass., 3, Tel: WA 6-0235 (ERA)
Components & raw materials.

Wellesley
(Telephone Area Code—617)

Components Sales Corp., 473 Washington St., Wellesley, Mass., 3, Tel: CEdar 5-1007, Main Office: Hartsdale, N.Y.

Gray, Inc. (Robert W.), 572 Washington St., Wellesley 81, Mass., 3, Tel: 617-CEdar 5-5296
Airflow Co., Arch Gear Works, Arch Instrument Co., Inc., Associated Manufacturers Co., Inc., Dielectric Products Engineering Co., Inc., Electro Tec Corp., Electronic Devices, Inc., General Products Corp., ITT Kellogg, Ken-Tron Corp., Markel & Sons (L. Frank).

Wellesley Hills
(Telephone Area Code—617)

Neuman & Co. (George J.), P.O. Box 88, Wellesley Hills 81, Mass., 3, Tel: CE 5-5353 (ERA)
Components, instruments.

Pray Sales (W. B.), 44 Washington St., Wellesley Hills 81, Mass., 3, Tel: CE 5-3199 (ERA)
Components, sound test equipment.

Scott Co., Inc. (Michael), 336 Washington St., Wellesley Hills 81, Mass., 3, Tel: CEdar 5-0102 (ERA)
British Industries Corp.: Solder, tubes. **Corning Glass Works, Dist. Div.:** Capacitors, resistors, trimmers. **Electronic Instrument Co., Inc.:** Test instruments. **Grayhill, Inc.:** Switches, clips. **Grayhill Moldtronics, Inc.:** Molded parts. **International Rectifier Corp.:** Semiconductors, rectifiers **National Radio Co., Inc.:** Chokes, hardware. **Stancor Electronics:** Transformers, reactors. **Telex, Inc.:** Headsets. **University Loudspeakers, Inc.:** Speakers. **Viking of Minneapolis, Inc.:** Tape decks.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

West Acton
(Telephone Area Code—617)

Dick Associates (George), Box 502, West Acton, Mass., 3, Tel: COlonial 3-5882, Main Office: Harvard, Mass.

West Newton
(Telephone Area Code—617)

Schweber Electronics, 1191 Washington St., West Newton, Mass., 2, Tel: 617-DEcatur 2-8500, Main Office: Mineola, L.I., N.Y.
See ad on page 820

Weston
(Telephone Area Code—617)

Connectronics Co., 669 South Ave., Weston 93, Mass., 3, Tel: 617-CEdar 5-2165
Carpenter Mfg. Co., Inc., Contact, Inc., Design Tool Co., Engineering & Electronic Devices, Inc., Ewald Instruments, Hollis Engineering, Inc., MacDonald & Co., Reeve Electronics, Inc.

Hetherington Sales, 97 Bogle St., Weston 93, Mass., 3, Tel: CEdar 5-5323 (ERA)

Wilmington
(Telephone Area Code—617)

Milo Electronics Corp., 77 Middlesex Ave., Wilmington, Mass., 1, 2, 4, Tel: COmmonwealth 6-7400, Main Office: New York, N.Y.

Winchester
(Telephone Area Code—617)

Hooker Inc. (Samuel C.), 2 Winchester Pl., Winchester, Mass., 3, Tel: PArkview 9-2745
American-Standard Controls Div., Bulova Watch Co. Electronics Div., Cambridge Thermionic Corp., Cinema Engineering Corp., Electra Mfg. Co., Mitronics, Inc., New England Transformer Co., Schutter Microwave, Stackpole Carbon Co.

Worcester
(Telephone Area Code—617)

Radio Maintenance Supply Co., 80 Thomas St., Worcester, Mass., 2, Tel: PLeasant 6-8311 (NEDA)

MICHIGAN

Ann Arbor
(Telephone Area Code—313)

Wedemeyer Electronic Supply Co., 215 N. 4th Ave., P.O. Box 356, Ann Arbor, Mich., 2, Tel: NOrmandy 2-4457 (NEDA)

Battle Creek
(Telephone Area Code—616)

Warren Radio Co., 93 W. Bidwell, Battle Creek, Mich., 2, Tel: WOodward 2-6625 (NEDA)

Distribution

Massachusetts
Michigan

Birmingham
(Telephone Area Code—313)

Electro-Mation Associates, 4070 W. Maple Rd., Birmingham, Mich., 3, Tel: JOrdan 4-6517
Associated Research, Inc.: Ground & phase testers. **Barber-Colman Co.:** Motors, relays. **Electro-Logic Co.:** Transponders, voltmeters. **Emerson & Cuming, Inc.:** Plastics. **Lear, Inc.:** Actuators & magnetic clutches. **Standard Instrument Corp.:** Print-out recorders, counters.

Nordstrom & Co. (R. C.), 218 Briggs Bldg., Birmingham, Mich., 3, Tel: JOrdan 4-6128 (ERA, NEDA)
Amphenol Distributor Div.: Connectors. **Mucon Corp.:** Ceramic capacitors **Precision Metal Products Co.:** Terminal boards. **Pyramid Electric Co.:** Capacitors. **RF Products Div.:** Switches. **Resistance Products Co.:** Resistors. **Spectrol Electronics Corp.:** Potentiometers. **Torotel, Inc.:** Toroids. **Transistor Electronics Corp.:** Indicator lights

Cheboygan
(Telephone Area Code—616)

Straits Distributors, Inc., 412 N. Main St., Cheboygan, Mich., 2, Tel: MAdison 7-5629 (NEDA)

Dearborn
(Telephone Area Code—313)

West Side Radio TV Supply, 7521 Wyoming Ave., Dearborn, Mich., 2, Tel: WEbster 3-6972 (NEDA)

Detroit
(Telephone Area Code—313)

ABM Sales Co., 10116 Puritan, Detroit 38, Mich., 3, Tel: UN 2-1300 (ERA)
Components & raw materials.

Aironic Accessory Co., Inc., 24634 Five Mile Rd., Detroit 30, Mich., 3, Tel: KEnwood 2-5570, Main Office: Brightwaters, L.I., N.Y.

Beitel Co. (Wayne), 13209 Fenkell, Detroit 27, Mich., 3 (ERA)
Electro-Voice, Inc., Krylon, Inc., Langevin, Mosley Electronics, Inc., Quam-Nichols Co., Vocaline Co. of America.

Burcaw-Cowan & Co., 22128 Grand River, Detroit 19, Mich., 3, Tel: 313-KEnwood 3-7700 (ERA)
Audio Devices, Inc.: Tape. **CTS Corp.:** Variable resistors. **Dale Electronics, Inc.:** Resistors. **De-Jur-Amsco Corp.:** Meters, potentiometers, connectors. **North Electric Co.:** Switches, relays. **Pendar, Inc.:** Illuminated switches. **Rustrak Instrument Co.:** Chart recorders. **Victory Engineering Corp.:** Thermistors.

Butchart-Rathsburg Associates, 8735 E. Jefferson, Detroit 14, Mich., 3, Tel: VAlley 1-6621 (ERA)
Communication parts.

Central Electronics Sales Co., 19303 Fairport, Detroit 5, Mich., 3, Tel: LA 6-5841 (ERA)
American Electronics Co., Bender (L. M.), Bow Solder, Electronic Chemical Corp, Electronic Devices, Inc., Erikson Tool Co., Oneida Electronic Mfg., RMS Electronics Corp., Saxton Products Corp., Superex Corp., Swing-O-Lite, Inc.: Tap-A-Line Mfg., Vidaire Electronics.

Clark Co. (Nelson J.), 17136 E. Warren Ave., Detroit 24, Mich., 3, Tel: 313-TUxedo 5-1723
Atlas Controls: Power supplies **Brand Electronic Components, Inc.:** Capacitors, resistors, ferrites. **Brand-Rex Div. (William),**

American Enka Corp.: Wire & cable. Compton Industries, Inc.: Wire stripping services. Miller Dial & Nameplate Co.: Nameplates, electroluminescent lighting.

Dickelman Co. (L. H.), 18450 Livernois Ave., Detroit 21, Mich., 3, Tel: UNiversity 4-4376 (ERA)
Components & raw materials.

Ferguson Electronics, Inc., 2306 Puritan, Detroit 38, Mich., 2, Tel: UNiversity 1-6700 (NEDA)

Gaine Engineering, 1474 E. Outer Dr., Detroit 34, Mich., 3, Tel: FOrest 6-5353 (ERA)
Ad-Yu Electronics, Associated Testing Labs., Baird-Atomic, Inc., Ballantine Labs., Lockheed Electronics Co., Non-Linear Systems, PRD Electronics, Perkin Engineering, Wang Labs., Weinschel Engineering, Western Devices.

Glendale Electronic Supply Co., 12530 Hamilton Ave., Detroit 3, Mich., 2, Tel: TUlsa 3-1500 (NEDA)

Henschen, Jensen & Co., 2842 W. Grand Blvd., Detroit 2, Mich., 3, Tel: TRinity 1-0308 (ERA)
Cannon Electric: Plugs. Clarostat Mfg.: Controls. Eldema Corp.: Indicator lights. Good-All Electric: Capacitors. International Instruments: Meters. J-B-T Instruments: Toggle switches. Raychem: Wire & heat-shrink tubings. Sibley: Printed circuits. Speer Carbon: Resistors. Tansitor: Tantalum capacitors. Triad-Utrad: Transformers.

Hilltronics, Inc., 13720 Puritan Ave., Detroit 27, Mich., 3, Tel: BR 2-4320 (ERA)
Relays, blowers, diodes, semiconductors, variable transformers.

K. L. A. Laboratories, Inc., 7375 Woodward Ave., Detroit 2, Mich., 2, Tel: TRinity 4-1100 (NEDA)

Koehler-Pasmore Co., 11833 Hamilton Ave., Detroit 3, Mich., 3, Tel: 313-TOwnsend 8-3322 (ERA)
CTS Corp.: Volume controls. Curtis Development Mfg.: Terminal blocks. Electro Switch Corp.: Switches. Grayhill, Inc.: Miniature components. Grayhill Moldtronics: Molded parts. Honeywell Precision Meter Co.: Panel meters. Industrial Timer: Timers. International Resistance Co.: Resistors. Line Electric Co.: Relays. Vitramon, Inc.: Capacitors.

Kurtz Co. (Paul), 18212 James Couzens Hwy., Detroit 35, Mich., 3, Tel: UNiversity 4-8957 (ERA)
Fisher Radio Corp., International Electronics Sales Corp., Newtronics Corp., Perma-Power Co., Vaco Products Co.

Who's Who in *Michigan*
for
all major lines of electronic components and equipment:

RADIO SPECIALTIES CO.
12775 Lyndon Detroit 27, Michigan
BRoadway 2-4200

For details, circle #761 on Reader Service Card

Lee & Hale Co., 10432 W. McNichols, Detroit 21, Mich., 3, Tel: BR 2-0606 (ERA)

Liddle Co. (Edwin F.), 18925 Grand River Ave., Detroit 23, Mich., 3, Tel: VE 7-5310 (ERA)

Lohmann Co. (R. S.), 12730 Fenkell, Detroit 27, Mich., 3, Tel: 313-UNiversity 2-9465 (ERA)
Astron Corp.: Capacitors, filters. Custom Components, Inc.: Attenuators, terminations, loads. Daven Co.: Attenuators, resistors, power supplies, switches Hardwick Hindle, Inc.: Resistors, rheostats. Kurman Electric Co.: Relays. Permonite Mfg. Co.: Terminal boards, sockets, connectors. Skottle Electronics, Inc.: Ceramic capacitors. Solitron Devices, Inc.: Silicon rectifiers.

Merchant & Co., Inc. (R. C.), 18411 W. McNichols, Detroit 19, Mich., 3, Tel: KEnwood 5-6000 (ERA)
All Star Products, Inc.: Variable condensers. Anodyne, Inc.: Nameplates. Centralab, Inc.: Switches, controls, ceramics. General Products Corp.: Terminal strips. Illinois Condenser Co.: Condensers. ITT Distributor Products Div.: Tantalum capacitors, cables. Licon Switch Div.: Switches. Littelfuse, Inc.: Fuses. Reeves-Soundcraft Corp.: Recording tape & discs. Simpson Electric Co.: Meters & test equip. Sola Electric Co.: Constant voltage transformers. Stancor Electronics, Inc.. Transformers. Technical Appliance Corp.: Antennas.

Milo Electronics Corp., 565 E. Milwaukee, Detroit 2, Mich., 1, 2, 4, Tel: TRinity 2-7000, Main Office: New York, N.Y.

Milsk Co. (Robert), 19371 James Couzens Hwy., Detroit 35, Mich., 3, Tel: BRoadway 3-3652 (ERA)
Aerovox Corp., Astatic Corp., Atlas Sound Corp., Clarostat Mfg. Co., Gramer-Halldorson, JFD Electronics Corp., Metalworks, Inc., Sams & Co. (Howard W.), Soundoller, Inc., Ungar Electric Tools, Inc.

Moore Sales Co., 401 W. Margaret, Detroit 3, Mich., 3, Tel: 313-TUlsa 3-0218 (ERA)
DeWald Radio, InjectorAll Co., Mical Electronics, Inc., Parker Metal Goods Co., Rye Sound Corp., Universal of High Point, Inc., Wilder Engineering Products.

Norwest Electronics, 20926 Schoolcraft Ave., Detroit 23, Mich., 2, Tel: KEnwood 5-0300 (NEDA)

Odell Co. (M. P.), 10531 W. McNichols Rd., Detroit 21, Mich., 3, Tel: UNiversity 2-1573, Main Office: Westlake, Ohio

Radio Specialties Co., Inc. (RASCO), 12775 Lyndon, Detroit 27, Mich., 2, Tel: 313-BRoadway 2-4200 (NEDA)
See ad on this page
Agastat, Akro-Mils, American Beauty, Amperex, Amperite, Amphenol, Astatic, Atlas, Audio Devices, Autotron, Belden, Bogen, Bud, Burgess, Bussmann, Centralab, Chicago Transformer, Cinch-Jones, Clairex, Cletron, Conant, Dialco, Dymo, Elco, Electro-Voice, Electronic Instrument, Electrons, Federal (ITT), General Cement, General Electric, Glennite, Gonset, Grayhill, Greenlee, Guardian, Hickok, Hughes, Hurst, IRC, ITT, JBT, Johnson, Keystone, Kraueter, Krylon, Linemaster, Littelfuse, Litton (Useco), Mallory, Masco (Mark Simpson), Merit, Micro Switch, Minnesota Mining, Motorola, Mueller, National Electronics, Ohmite, Performance Measurements, Potter-Brumfield, Precision Instrument, Production Instrument, Pyramid Instrument, RCA, Sams, Shure, Simpson, Sola, Spectrol, Spemco, Sprague, Stancor, Superior, Switchcraft, Telex, Terado, Thermosen, Transitron, Trimm, Tripletl, UTC, Ungar, University, Utah, Vaco-Lynn, Vector, Waterman, Weller, Wheelco, Wheeler, Worner, Xcelite.

Radio Supply & Engineering Co., Inc., 90 Seldon Ave., Detroit 1, Mich., 2, Tel: TEmple 1-3175 (NEDA)

Rubin Co. (Ben Z.), 12838 Fenkell Ave., Detroit 27, Mich., 3, Tel: 313-UNiversity 4-4958 (ERA)
Automation, Inc., CBS Laboratories, Computer Systems, Inc., Del Electronics, Eldorado Electronics, Hamner Electronics, Hughes Aircraft Industrial Systems Div., Instruments For Industry, Kaman Aircraft Nuclear Div., Lionel Electronic Labs., Riggs Nucleonics, Semi-Elements, Inc., Technical Associates, U.S. Nuclear Corp.

Semiconductor Distributor Specialists, Inc., 9060 Auburn Rd., Detroit, Mich., 2, Tel: VE 8-2834, Main Office: Chicago, Ill.

Shaffer Co. (Grant), 14241 Fenkell Ave., Detroit 27, Mich., 3, Tel: 313-BRoadway 3-5390 (ERA)
Borg Equipment Div.: Micropots, instrument motors. Cetron Electronics Corp.: Tubes. Continental-Wirt Electronics Corp.: Resistors. Drake Mfg. Co.: Miniature lamps. Garlock, Inc.: Teflon. Hudson Lamp Co.: Miniature lamps. JB Electronic Transformers, Inc.: Transformers. Kidde Aero-Space Div.: Thermistors, power supplies. Knights Co. (James): Crystals, ovens, oscillators. Phaostron Instrument & Electronics Co.: Panel meters. Powertron Ultrasonics: Ultrasonic cleaning equip. Sage Electronics Corp.: Resistors. Sangamo Electric Co.: Capacitors. Sarkes Tarzian, Inc.: Rectifiers. U.S. Sonics Corp.: Transducers. Vernitron Corp.: Synchros, servos. Wheelock Signals, Inc.: Relays.

Sterling Co. (S.), 15310 W. McNichols, Detroit 28, Mich., 3, 4, Tel: 313-BRoadway 3-2900 (ERA)
Bomac: Magnetrons, microwave components. Boonton Radio: Signal generators, Q-meters. Dymec: Modular enclosures. Hewlett-Packard: Oscillators, signal generators, voltmeters, distortion & wave analyzers, oscilloscopes. KinTel: Closed-circuit TV. Sensitive Research Instrument Co.: Standard meters, calibrators, power supplies. Sorensen Co.: Power supplies, voltage regulators. Varian: Klystrons, microwave equip. & components.

Thorpe Co. (Jack M.), 640 Hidden Lane, Detroit 36, Mich., 3, Tel: 313-TUxedo 4-4360 (ERA)
Amperex Electronic Corp., Bud Radio, Inc., Corning Glass Works, Erie Resistor Corp., Merit Coil & Transformer Corp., Pace Electrical Instruments Co., Inc.

Tiby Co., 8701 Fenkell Ave., Detroit 38, Mich., 3, Tel: TExas 4-9211, Main Office: Cleveland, Ohio

Zaffina Co. (Lawrence F.), 7351 Graviot Ave., Detroit 13, Mich., 3

Ferndale
(Telephone Area Code—313)

Erickson's Electronic Wholesale Co., Inc., 1201 Woodward Heights, Ferndale 20, Mich., 2, Tel: LIncoln 7-9600 (NEDA)

Relay Sales, Inc., 23525 Woodward Ave., Ferndale 20, Mich., 2, Tel: LIncoln 7-4771, Main Office: West Chicago, Ill.

Shalco, Inc., 23525 Woodward Ave., Ferndale 20, Mich., 3, Tel: 313-LIncoln 7-4771 (ERA)
Aluminum foil shielding, audio equip., audio-visual training aids, cable, capacitors, delay lines, diodes, inductors, instruments, jacks, lamps, magnet wire, microphones, meters, networks, plugs, probes, Q-meters, relays, sockets, speakers, solder, tubing, vibrators, voltmeters, wire.

Warren Radio Co., 1201 Woodward Heights, Royal Oak, Ferndale 20, Mich., 2, Tel: LI 7-9600, Main Office: Toledo, Ohio

Flint
(Telephone Area Code—313)

Lifsey Distributing Co., 1409 N. Saginaw St., Flint 1, Mich., 2, Tel: CEdar 5-6657 (NEDA)

Shand Radio Specialities, Inc., 2608 Leith St., Flint 6, Mich., 2, Tel: CEdar 2-9714 (NEDA)

Grand Rapids
(Telephone Area Code—616)

Edwards Lohse & Co., 221 Graceland N.E., Grand Rapids, Mich., 3, Tel: EMpire 3-0905, Main Office: Cleveland, Ohio

Flora, Inc. (J. Malcolm), 1648 34th St., Grand Rapids 8, Mich., 3, Tel: LEnnox 2-2632, Main Office: Plymouth, Mich.

Moore Sales Co., 1868 Oak Grove N.W., Grand Rapids 4, Mich., 3, Tel: BAldwin 3-3828, Main Office: Detroit, Mich.

Radio Electronic Supply Co., 505 Jefferson Ave. S.E., Grand Rapids 3, Mich., 2, Tel: GLendale 9-4611 (NEDA)

Shalco, Inc., 700 Rosewood Ave. S.E., Grand Rapids, Mich., 3, Main Office: Detroit, Mich.

Warren Radio Co., 24 Logan St. S.W., Grand Rapids, Mich., 2, Tel: GL 6-5385, Main Office: Toledo, Ohio

Highland Park
(Telephone Area Code—313)

Morrow Sales (Jim), 13149 Hamilton Ave., Highland Park 3, Mich., 3, Tel: 313-TOwnsend 5-7600 (ERA)
Airdyte Electronics Co.: Slip rings. Burnell & Co., Inc.: Toroids, filters, delay lines. Camblock Corp.: Terminal blocks. Controls Co. of America: Switches, indicator lights, diodes, electroluminescent panels, solenoids. Fast & Co. (John E.): Capacitors. Hitemp Wires Co.: Wire & cable. Mepco, Inc.: Resistors. New England Instrument Corp.: Precision potentiometers. Rotating Components, Inc.: Motors & blowers.

Jackson
(Telephone Area Code—517)

Fulton Radio Supply Co., 1208 Greenwood Ave., Jackson, Mich., 2, Tel: STate 4-6106 (NEDA)

Kalamazoo
(Telephone Area Code—616)

Koehler-Pasmore Co., 125 W. Walnut St., Kalamazoo, Mich., 3, Tel: FIreside 9-6315, Main Office: Detroit, Mich.

Warren Radio Co., 1710 S. Westnedge Ave., Kalamazoo, Mich., 2, Tel: FI 2-5720 (NEDA)

Lansing
(Telephone Area Code—517)

Electric Products Sales Co., 427 E. Michigan Ave., Lansing 29, Mich., 2, Tel: IVanhoe 2-4123 (NEDA)

Fulton Radio Supply Co., 2710 Alpha St., Lansing, Mich., 2, Tel: IVanhoe 9-6519 (NEDA)

Offenbauer Co., 5019 W. Saginaw St., Lansing 17, Mich., 2, Tel: IVanhoe 2-9896 (NEDA)

Monroe
(Telephone Area Code—313)

Warren Radio Co., 112 Cass, Monroe, Mich., 2, Tel: CH 1-5180, Main Office: Toledo, Ohio

Mount Clemens
(Telephone Area Code—313)

F.G.S. Electronic Supply Co., Inc., 1142 S. Gratiot, Mount Clemens, Mich., 2, Tel: HOward 3-8646 (NEDA)

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Muskegon
(Telephone Area Code—616)

Beitel Co. (Wayne), 2918 Glenside Blvd., Muskegon, Mich., 3, Tel: PLaza 5-2824, Main Office: Detroit, Mich.

Western Electronic Supply Co., 1781 Fifth St., Muskegon, Mich., 2, Tel: PArkway 2-7628 (NEDA)

Niles
(Telephone Area Code—616)

Niles Radio Supply, 933 N. 5th St., Niles, Mich., 2, Tel: MUtual 4-0550 (NEDA)

Owosso
(Telephone Area Code—517)

Warren Radio Co., 111 Michigan Ave., Owosso, Mich., 2, Tel: SA 5-7129, Main Office: Toledo, Ohio

Plymouth
(Telephone Area Code—313)

Flora, Inc. (J. Malcolm), Territorial at Ridgewood, Plymouth, Mich., 3, Tel: GLenview 3-4296 (ERA)
Audio Empire: Cartridges, arms. Chemtronics: Chemicals. Columbia Wire: Wire & cable. Fanon: Intercoms. Ferrodynamics: Tape. Glaser-Steers: Record changers. Hunter Tool: Tools. Lansing International (James B.): Speakers. Kaar Engineering: Radiotelephones. Monitoradio: FM receivers. Oaktron: Speakers. Robins Industries: Tape splicers. Sencore: Test instruments. Sherwood: Tuners & amplifiers. Sony Superscope: Tape recorders.

Pontiac
(Telephone Area Code—313)

Electronic Supply Co. of Pontiac, Inc., 248 E. Pike St., Pontiac, Mich., 2, Tel: FEderal 2-8341 (NEDA)

Redford
(Telephone Area Code—313)

Radio Specialties Co. of Redford, 25351 Five Mile Rd., Redford, Mich., 2, Main Office: Detroit, Mich.
See ad on page 806

Saginaw
(Telephone Area Code—517)

Orem Distributing Co., 401 S. Franklin St., Saginaw, Mich., 2, Tel: PLeasant 5-6571 (NEDA)

Radio Parts Co., Box 808, Saginaw, Mich., 2, Tel: PL 5-5338 (NEDA)

Wyandotte
(Telephone Area Code—313)

Radio Specialties Co. of Wyandotte, 2953 Fort St., Wyandotte, Mich., 2, Main Office: Detroit, Mich.
See ad on page 806

MINNESOTA

Duluth
(Telephone Area Code—218)

Northwest Radio of Duluth, Inc., 123 E. First St., Duluth 2, Minn., 2, Tel: RAndolph 7-1565 (NEDA)

Minneapolis
(Telephone Area Code—612)

Aaron & Associates, Inc. (Irvin I.), 614 E. Grant St., Minneapolis 4, Minn., 3, Tel: FEderal 6-6659, Main Office: Milwaukee, Wis.

Anderson & Associates, 3825 York Ave. N., Minneapolis 22, Minn., 3, Tel: JUniper 8-2523 (ERA)
Air-Marine Motors Inc.: Motors, blowers. Atohm Electronics: Trimmer pots. Beede Electrical Instrument Co., Inc.: Meters. Chassis-Trak, Inc.: Chassis-slides. Delevan Electronics Corp.: Choke coils. Gorn Electric Co.: Connectors & pressure switches. Markite Corp.: Precision pots. Pennsylvania Fluorocarbon Co., Inc.: Teflon tubing & rods. Sealectro Corp.: Teflon terminals. Telex, Inc.: Acoustical accessories. Tensolite Wire Co., Inc.: Wire. Vitramon, Inc.: Capacitors. Zero Mfg. Co.: Deep drawn aluminum work.

Bartleson Co. (Bill), 330 Oak Grove, Minneapolis 3, Minn., 3, Tel: FEderal 3-6709 (ERA)
Analogue Controls, Inc.: Control systems, potentiometers. Artisan Electronics Corp.: Solenoids & relays. Components, Inc.: Capacitors. Key Resistor Corp.: Resistors. Malco Mfg. Co.: Printed circuit hardware. Sarkes Tarzian, Inc.: TV tuners. Wright Machinery Div.: Servo motors, tachometers.

Bauman Co., 3033 Lyndale Ave. S., Minneapolis 8, Minn., 2, Tel: TAylor 7-1745 (NEDA)

Clothier Co. (Stan), 12 W. 58th St., Minneapolis 19, Minn., 3, Tel: TAylor 5-1234 (ERA)
Babcock Relays, Hoffman Semiconductor, Kemet, Lerco Electronics, San Fernando Electric Mfg. Co., Scientific Components, Viking Industries.

Cullen & Associates (Howard A.), 3424 E. Lake St., Minneapolis, Minn., 3, Tel: PA 4-3988 (ERA)
Components & raw materials.

Electronic Center, Inc., 107 3rd Ave. N., Minneapolis 1, Minn., 2, Tel: FEderal 8-8678 (NEDA)

Foster Co., Inc. (Mel), 2402 Hennepin Ave., Minneapolis 5, Minn., 3, Tel: FRanklin 4-2612 (ERA)
Astatic Corp., Bell Sound Div. of TRW, Bourns, Inc., Lenz Electric, Potter Co., Simpson Electric Co., Soundolier, Inc., Switchcraft, Inc., Vocaline Co., Ward Products, Weller Electric.

Franklin Co. (Merrill), 338 E. Franklin Ave., Minneapolis 4, Minn., 3, Tel: 612-FEderal 6-2315 (ERA)

Gibb Co. (Clark R.), 2400 Hennepin Ave., Minneapolis 5, Minn., 3, Tel: 612-FEderal 7-1200 (ERA)
Amperex Electronic Corp., Atlas Sound Corp., B & K Mfg. Co., Bud Radio, Inc., Chemtronics, Inc., Fisher Berkeley Corp., Hepco, Inc., ITT Distributor Products Div., Kooltronic Fan Co., Mellotone, Inc., Miller Co. (J. W.), Milwaukee Resistor Co., Scott Inc. (H. H.) Instrument Div., Smith Inc., (Herman H.), Triad Transformer Corp., Utah Radio & Electronic Corp., Waldom Electronics.

Hagestad & Associates (E. O.), 4519 Laguna Dr., Minneapolis 24, Minn., 3
Electronic Chemical Corp.: Chemicals. Industrial Electronic Hardware: Hardware. Microtran Co., Inc.: Transformers. Sampson Co.: Tubes. Tenna Mfg. Co.: Antennas & connectors.

Hamilton & Bayle Associates, Inc., 3359 Republic Ave., Minneapolis 26, Minn., 3, Tel: WEst 9-7891
Ace Electronics Associates, Brand-Rex Div., Centralab Div., Couch Ordnance, Mepco, Inc., Mucon Corp., Pyramid Electric Co., Rotron Mfg. Co., Transistor Electronics Corp.

Heyda Co. (Bonament), 6101 Auto Club Rd., Minneapolis 20, Minn., 3, Tel: 612-TUxedo 1-9166 (ERA)
Adre: Burnishers. **Amco Engineering:** Cabinets. **Control Switch:** Switches, indicators. **DeWald:** Citizen's band amplifiers. **Hardwick Hindle:** Power resistors, rheostats. **Illumitronic Engineering:** Plastics, coils. **Injectorall:** Chemicals. **Sencore, Inc.:** Service equip. **Vectrol Engineering:** Phase shifters.

Hill Co. (Fred B.), 6110 Excelsior Blvd., Minneapolis 16, Minn., 3, Tel: WEst 9-6727 (ERA)
Components.

International Electro Exchange, 2304 Foshay Tower, Minneapolis 2, Minn., 1, Tel: FE 6-7529

Kirkeby Co. (Marvin H.), 204 Sunnyridge Lane, Minneapolis 22, Minn., 3, Tel: FRanklin 4-3239 (ERA)
International Instruments, Inc.: Panel meters. **Tech Laboratories, Inc.:** Switches, attenuators. **U.S. Semiconductor, Inc.:** Diodes, rectifiers. **Ward Leonard Electric Co.:** Resistors, rheostats, relays.

Northern States Sales Co., 1400 Park Ave., Minneapolis 4, Minn., 3, Tel: FEderal 3-2521 (ERA)
Birnbach Radio Co., Inc.: Wire, hardware. **British Industries Corp.:** Changers, speakers, solder. **Clarostat Mfg. Co., Inc.:** Controls, resistors. **General Products Corp.:** Terminal boards, connectors. **Littelfuse, Inc.:** Fuses. **Pomona Electronics Co., Inc.:** Test adapters. **Sherwood Electronic Labs., Inc.:** Amplifiers, tuners. **Talk-A-Phone Co.:** Intercoms. **Turner Co.:** Microphones. **Wheelock Signals, Inc.:** Relays.

Northwest Radio & Electronic Supply Co., 52 S. 12th St., Minneapolis 3, Minn., 2, Tel: FEderal 8-7551 (NEDA)

Oszman Co. (Elmer W.), 12 E. 25th St., Minneapolis 4, Minn., 3, Tel: 612-FEderal 9-0891 (ERA)
Blonder-Tongue Labs., Inc.: Antenna systems, UHF converters, closed-circuit TV. **Pilot Radio Corp.:** Speakers. **Rohn Mfg. Co.:** Towers & accessories. **Workman TV Products, Inc.:** Resistors, transistors, chemicals.

Richardson & Co., Inc. (H. M.), 9 E. 22nd St., Minneapolis 4, Minn., 3, Tel: FEderal 6-4078 (ERA)
Components, TV accessories, cables, cord sets, & shaded pole motors.

Ripley & Associates (Ray), 7222 James Ave. S., Minneapolis 23, Minn., 3, 4, Tel: 612-UNion 6-8682 (ERA)
Continental-Wirt, Dunton Co. (M. W.), Electronic Instrument Co., El-Rad Mfg. Co., Glaser-Steers Corp., Industro Transistor Co., J. B. Electronic Transformer Co., Phaostron Instrument & Electronic Co., Sonotone Corp., Ungar Electric Tools, Inc.

Scott Electronic Sales, 5209 W. 60th St., Minneapolis 24, Minn., 3, Tel: WE 9-2985 (ERA)
Components & raw materials.

Semiconductor Distributor Specialists, Inc., 9331 Clinton Ave. S., Minneapolis, Minn., 2, Tel: TU 8-3076, Main Office: Chicago, Ill.

Stemm, Inc. (R. Edward), 123 S. 3rd St., Rm. 1137, Minneapolis 1, Minn., 3, Tel: FEderal 5-7172, Main Office: Chicago, Ill.

Warner Co. (A. J.), 5022 29th Ave. S., Minneapolis 17, Minn., 3, Tel: 612-PArkway 9-7371 (ERA)
Clarostat Mfg. Co.: Resistors. **Dage Electric:** Coaxial connectors. **Electro-Labs.:** Power supplies. **Licon Switch Div.:** Switches. **Lowell:** Baffles. **National Radio Co.:** Ham accessories. **Potter & Brumfield:** Relays. **Radio Receptor Co.:** Selenium rectifiers.

Rochester
(Telephone Area Code—507)

Elliott & Hanson Co., 119 First Ave. N.W., Rochester, Minn., 2, Tel: ATlas 2-2778 (NEDA)

Saint Paul
(Telephone Area Code—612)

Anderson & Associates, Inc. (Burt), 560 N. Prior, Saint Paul, Minn., 3, Tel: MIdway 8-8105, Main Office: Chicago, Ill.

Crossley Associates, Inc., 842 Raymond Ave., Saint Paul 14, Minn., 3, Tel: MIdway 6-7881, Main Office: Chicago, Ill.

Electronic Distributing Co., 891 Vandalia St., Saint Paul 14, Minn., 2, Tel: MIdway 5-3911 (NEDA)

Engelbretson Co. (William), 906 Ottawa Ave., Saint Paul 18, Minn., 3, Tel: CA 2-2338 (ERA)

Magnuson Associates, 1359 W. Maynard Dr., Saint Paul, Minn., 3, Tel: MIdway 8-7943, Main Office: Chicago, Ill.

Northport Engineering, Inc., 1729 Selby Ave., Saint Paul 4, Minn., 3, Tel: MIdway 6-2621 (ERA)
Amphenol-Borg Electronics Corp., Borg Equip. Div.: Potentiometers, frequency standards. **Augat Brothers, Inc.:** Clamps, clips. **Communication Accessories Co.:** Coils, filters, transformers. **Drake Mfg. Co.:** Indicator lights. **Electro Instruments, Inc.:** Digital instruments, X-Y recorders. **Electro Tec Corp.:** Slip rings & brushes, relays. **Genesy's:** Disc memories, tape & card readers. **Gertsch Products, Inc.:** Transformers, frequency test equip. **Good-All Electric Mfg. Co.:** Capacitors. **Grayhill, Inc.:** Push-button switches, hardware. **Grayhill Moldtronics, Inc.:** Custom molding. **Harowe Servo Controls, Inc.:** Servo motors & synchros. **Indiana General Corp., General Ceramics Div.:** Memory products, ferrites. **Indiana Steel Products Div.:** Magnets. **Iron Fireman Mfg. Co.:** Relays & gyros. **Perkin Electronics Corp.:** Power supplies. **Precision Instruments, Inc.:** Magnetic tape recorders. **Voltron Products:** Voltmeters, frequency meters & wattmeters.

Wayzata
(Telephone Area Code—612)

Hoffman Engineering Corp., Wayzata, Minn., 3, Tel: MI 4-5844, Main Office: Old Greenwich, Conn.

MISSISSIPPI

Greenwood
(Telephone Area Code—601)

Massey Co. (L. R.), P.O. Box 724, Greenwood, Miss., 3, 4, Tel: GLadstone 3-3038 (ERA)
Components.

Parham Electronics Co., 300 Carrollton Ave., Greenwood, Miss., 2, Tel: GL 3-4241 (NEDA)

Gulfport
(Telephone Area Code—601)

Helwick Radio & TV Supply (E. A.), 2832 13th St., Gulfport, Miss., 2, Tel: UNiversity 3-1295 (NEDA)

Jackson
(Telephone Area Code—601)

Ellington Radio, Inc., 824 S. Gallatin St., Jackson, Miss., 2, Tel: FLeetwood 3-2769 (NEDA)

Massey Co. (L. R.), 2110 Long St., Jackson, Miss., 3, 4, Main Office: Greenwood, Miss.

May & Jackson Distributing Co., 930 Bailey Ave., Jackson, Miss., 2, Tel: FLeetwood 4-5671 (NEDA)

Swan Distributing Co., Inc., 342 N. Gallatin St., P.O. Box 2698, Jackson 7, Miss., 2, Tel: FLeetwood 2-5516 (NEDA)

Tupelo
(Telephone Area Code—601)

Pate Electronics, Inc., Hwy. 45 South, Tupelo, Miss., 2, Tel: VInewood 2-2576 (NEDA)

MISSOURI

Bridgeton
(Telephone Area Code—314)

Clemenson-Larrabee Co., Inc., 2725 Beloit Dr., Bridgeton, Mo., 3, Tel: PErshing 9-6857, Main Office: Kansas City, Mo.

Koenig-Myers Associates, 2721 Beloit Dr., Bridgeton, Mo., 3, Tel: PErshing 9-1655, Main Office: Kansas City, Mo.

Cape Girardeau
(Telephone Area Code—314)

Suedekum Electronic Supply Co., Inc., 2215 Broadway, Cape Girardeau, Mo., 2, Tel: EDgewater 5-8202 (NEDA)

Clayton
(Telephone Area Code—314)

Inland Associates, 25 S. Bemiston Ave., Clayton 5, Mo., 3, Tel: PArkview 1-4435, Main Office: Mission, Kans.

Maynard Co. (L. W.), 139 N. Central Ave., Clayton 5, Mo., 3, Tel: PA 5-3723 (ERA)

Jefferson City
(Telephone Area Code—314)

Central Missouri Distributing Co., 324 E. Capitol Ave., Jefferson City, Mo., 2, Tel: 6-3149 (NEDA)

Vignola Associates (Carmine A.), 1202 Peyton Dr., Jefferson City, Mo., 3, Tel: JEfferson City 5-1023 (ERA)
Anchor Electronic Products, Crosby Electronics, Dyna-Empire, Inc., Electronic Devices, Inc., Ferrodynamics, Illinois Condenser Corp., International Electronics, Kurman Electric Co., Oxford Components, Roberts Electronics, Robins Industries, Sonotone Corp. Electric Appliance Div.

Joplin
(Telephone Area Code—417)

Brotherson Co., Inc. (M.), 3rd & Michigan, Joplin, Mo., 2, Tel: MAyfair 3-1596 (NEDA)

Four State Radio Supply Co., Inc., 402 Wall, Joplin, Mo., 2, Tel: MAyfair 4-0368 (NEDA)

Spears Co. (Mitchell), 3, 4, Tel: SUnset 1-0333, Main Office: Fort Worth, Tex.

Kansas City
(Telephone Area Code—816)

Bettis Co., Inc. (Maury E.), 3706 Broadway, Kansas City 11, Mo., 3, Tel: LOgan 1-0772 (ERA)
ARRA, Antenna Specialists Co., Automatic Metal Products, Bliley Electric Co., Clarostat Mfg. Co., Condenser Products, Eitel-McCullough, Inc., Electron Products, International Instruments, International Rectifier Corp., Omega Electric Co., Syncro Corp., Taylor Electric Co., Torrington Mfg. Co.

Burstein-Applebee Co., 1012 McGee St., Kansas City 6, Mo., 2, Tel: BAltimore 1-1155 (NEDA)

Clemenson-Larrabee Co., 436 E. 79th St., Kansas City 31, Mo., 3, Tel: JAckson 3-3005 (ERA)
Argos Products, B & K Mfg. Co., Continental-Wirt Electronics, Luxo Lamp Corp., Perma-Power Co., Pomona Electronics, Standard-Kollsman, Thordarson-Meissner, Trimm, Inc., Waico Electronics.

Collins-Havercamp Associates, Inc., 6825 N. Baltimore, Kansas City 18, Mo., 3, Tel: GEneva 6-1680 (ERA)
Antenna Designs, Inc., Arco Electronics, Inc., Campro Products, Chemtronics, Inc., Chicopee Mills, Dutrex Industries, Inc., Erie Resistor Corp., Fanon Electric Industries, I-H Mfg. Corp., International Wire & Cable, Jersey Specialty Corp., Oaktron Industries, Radio Receptor Co., Recoton, Sencore, Sidco, Spirling Products, Stag Electronics, Vaco Products.

Elliott Co. (Arthur K.), 211 Westport Rd., Kansas City 11, Mo., 3, Tel: LOgan 1-9594 (ERA)
Two-way radios.

Engineering Services Co., 4550 Main St., Kansas City, Mo., 3, Tel: PL 3-7227, Main Office: Saint Louis, Mo.

Farris Co., Inc. (R. W.), 406 W. 34th St., Kansas City 11, Mo., 3, Tel: PLaza 3-5350 (ERA)
Power tubes, semiconductors, sheet-metal, test equip., microphones, speakers, relays, terminal boards, wire, cable, transformers, capacitors & soldering irons.

Florence & Meyer, Inc., 406 W. 34th St., Kansas City 11, Mo., 3 (ERA)
Alpha Wire Corp.: Wire, heat-shrinkable tubing. **Dresser Industries HST Div.:** Transformers. **ESC Corp.:** Delay lines. **General Electronic Controls:** Solid-state systems. **New England Laminates:** Printed circuit materials. **Penta Labs.:** Power tubes. **Standard Electrical Products:** Tranformers, switches.

Forristal-Young Sales Co., 4053 Broadway, Kansas City 11, Mo., 3, Tel: VAlentine 1-5330 (ERA)
Allied Control Co., Inc., American-Marietta Co., Fusite Corp., Giannini Controls Corp., PIC Design Corp., Resistance Products Co., Shure Brothers, Inc., WacLine. Inc.

Fry & Co., Inc. (W. E.), 406 W. 34th St., Kansas City 11, Mo., 3 (ERA)
Airtron, Inc.: Microwave accessories. **Clevite Transistor Products:** Transistors. **Collins Radio Co.:** Mechanical filters. **Fenwal Electronics, Inc.:** Thermistors. **G-V Controls, Inc.:** Thermo-alloys. **Grigsby Co., Inc.:** Switches. **Gudeman Co.:** Condensers. **Iron Fireman Mfg. Co.:** Relays & gyros. **Kings Electronics Co., Inc.:** RF Connectors. **Littelfuse, Inc.:** Fuses. **Minneapolis-Honeywell Regulator Co., Precision Meter Div.:** Meters. **Rotron Mfg. Co.:** Blowers. **Stancor Electronics, Inc.:** Transformers. **Tru-Ohm Products:** Resistors. **Winchester Electronics, Inc.:** Connectors.

Henshaw Radio Supply, 3617 Troost, Kansas City 9, Mo., 2, Tel: WEstport 1-5550 (NEDA)

Jones Electronic Sales, Inc., 3627 Main, Kansas City 11, Mo., 2, Tel: VAlentine 1-4258 (NEDA)

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Kay Electronics, Inc., 2600 Grand Ave., Kansas City 8, Mo., 3, Tel: BAltimore 1-6733
Howard Crystal Holders, Inc., Howard Moldings, Inc., Polaris Electronics Corp.: Photocells, photoelectric controls, public address systems, plastics.

Kelly-Schmitz-Winkeler Associates, 407 W. 74th Terrace, Box 8456, Kansas City 14, Mo., 3, Tel: EMerson 1-5651
Curtis Development & Mfg., Key Resistor Corp., Millen Mfg. (James), Pyramid Electric Co., Sarkes-Tarzian, Inc.

Koenig-Myers Associates, 4538 Main St., Kansas City 11, Mo., 3, Tel: JEfferson 1-7221 (ERA)
Radio & TV equip. & components, sound equip., name plates, small motors.

Leemark Associates, Inc., P.O. Box 8467, Kansas City 14, Mo., 3
Alfred Electronics Corp., Analab Instrument Corp., B & K Instruments, Beckman/Berkeley Div., Brush Instruments, Communications Measurement Labs., Holt Instruments, Julie Research Labs., NJE Corp., Scientific-Atlanta Inc., Scopes Co., Sierra Electronics, Telecomputing Corp., Tenney Engineering.

Lowell & Co. (Theodore B.), P.O. Box 5890, Kansas City 11, Mo., 3, Main Office: Saint Louis, Mo.

Manhattan Radio & Equipment, Inc., 2538 Grand Ave., Kansas City 8, Mo., 2, Tel: BAltimore 1-9797 (NEDA)

McDowell-Redlingshafer Sales Co., Suite 219, Jewell Bldg., 1103 E. Armour, Kansas City, Mo., 3, Tel: WEstport 1-5622 (ERA)
Advance Relays, Air-Control, Bourns, Inc., Chatham Controls, Cornell-Dubilier Electric, Daven Co., Smith, Inc. (H. H.), Sola Electric Co., Valor Instruments, Wall Mfg. (P.)

Roes & Co. (H. A.), 2601 Cherry, Kansas City 8, Mo., 3, Tel: BAltimore 1-0866 (ERA)
Amphenol-Borg Electronics Corp. (all divs.), Electrosolids Corp., J-B-T Instruments, Johnson Co. (E. F.), Leach Relay Co., Miller Co. (J. W.), Ohmite Mfg. Co., Pennsylvania Fluorocarbon Co., San Fernando Electric Mfg. Co., Shurite Meters, Sonotone Battery Div., Telex, Inc., Triplett Electrical Instrument Co.

Scholz Co. (Paul G.), 8402 Longview Rd., P.O. Box 9621, Kansas City 34, Mo., 3, Tel: SOuth 1-6522
Electro Products Laboratories, Jackson Electrical Instrument Co., Simpson Mfg. Co., Inc. (Mark), Turner Mfg. Co., Worner Electronic Devices.

Shaw Co. (Robert), 6010 Forest Ave., Kansas City 10, Mo., 3, Main Office: Saint Louis, Mo.

Somers & Co. (F. C.), Suite 500, Davidson Bldg., Kansas City 8, Mo., 3, Tel: GRand 1-1355 (ERA)
Burton-Rogers Co.: Panel meters. **Dialight Corp.:** Pilot lights. **Magnecraft Electric Corp.:** Relays. **Nugent Electronics Corp.:** Connectors. **Planet Mfg. Corp.:** Capacitors. **Sams & Co., Inc.:** Publications. **Victory Engineering Co.:** Thermistors.

Distribution

Minnesota
Mississippi
Missouri

Terwilliger Sales Co., 9304 High Dr., Kansas City, Mo., 3, Tel: MI 9-0188 (ERA)
Receiving tubes, TV towers, amateur equipment.

Thibau Co. (A. R.), 210 W. 8th St., Kansas City, Mo., 3, Tel: VI 2-7057 (ERA)

Walters Radio Supply, Inc., 3635 Main, Kansas City 11, Mo., 2, Tel: VAlentine 1-8058 (NEDA)

Kirkwood
(Telephone Area Code—314)

Kelly Sales Co. (Jack), 972 N. Geyer Rd., Kirkwood 22, Mo., 3, Tel: TAylor 2-1791 (ERA)
Capacitors, resistors, knobs, chemicals, speakers, paint, tools.

Poplar Bluff
(Telephone Area Code—314)

Tri-State Electronics, Inc., 536 E. Pine Blvd., Poplar Bluff, Mo., 2, Tel: SUnset 5-6461 (NEDA)

Saint Joseph
(Telephone Area Code—816)

Acme Radio Supply, Inc., 829 S. 10th St., Saint Joseph, Mo., 2, Tel: ADams 4-5448 (NEDA)

Saint Joseph Radio & Supply Co., 720 S. 9th St., Saint Joseph, Mo., 2, Tel: ADams 3-3118 (NEDA)

Saint Louis
(Telephone Area Code—314)

Ashe Radio Co. (Walter), 1125 Pine St., Saint Louis 1, Mo., 2, Tel: CHestnut 1-1125 (NEDA)

Bettis Co., Inc. (Maury E.), 8676 Kathlyn Dr., Saint Louis, Mo., 3, Tel: HArrison 9-2099, Main Office: Kansas City, Mo.

Brown Radio Co. (Tom), 3920 Washington Blvd., Saint Louis 8, Mo., 2, Tel: JEfferson 1-2259 (NEDA)

Crown Electronic Distributors, Inc., 2300 Union Blvd., Saint Louis 13, Mo., 2, Tel: FOrest 1-5300 (NEDA)

Deltronics Distributing Co., 822 Hodiamont Ave., Saint Louis 12, Mo., 2, Tel: PArkview 5-6060 (NEDA)

Ebinger Electronics, Inc., 2501 S. Jefferson, Saint Louis 4, Mo., 2, Tel: PRospect 1-2900 (NEDA)

Ellinger Sales Corp., 6427 Evergreen St., Saint Louis 21, Mo., 3, Tel: JAckson 4-1116, Main Office: Chicago, Ill.

Engineering Services Co., 6717 Vernon Ave., Saint Louis 30, Mo., 3, Tel: PArkview 6-2233 (ERA)
Ballantine Labs., Inc., DeJur-Amsco, Du-Mont, Emerson & Cuming, Equipto, Fairchild Semiconductor, Keithley Instruments, Narda Microwave Corp., Oak Mfg. Co., Pioneer-Central Div. of Bendix, Polarad Electronics, Zero Mfg. Co.

Farris Co., Inc. (R. W.), 7811 Carondelet, Saint Louis 5, Mo., 3, Tel: PArkview 6-4770, Main Office: Kansas City, Mo.

Fixman Engineering Co. (Gordon), 8160 Stanford Ave., Saint Louis 30, Mo., 3, Tel: 314-PArkview 5-5219
Instruments & components.

Forristal-Young Sales Co., 8147 Delmar, Saint Louis 30, Mo., Tel: PArkview 5-7701, Main Office: Kansas City, Mo.

Fry & Co., Inc. (W. E.), 6616 W. Florissant Ave., Saint Louis 20, Mo., 3, Tel: EVergreen 2-3500, Main Office: Kansas City, Mo.

Halgin Sales, 721 Olive St., Saint Louis 1, Mo., 3, Tel: CHestnut 1-6919, Main Office: Mission, Kans.

Interstate Supply Co., 4445 Gustine Ave., Saint Louis 16, Mo., 2, Tel: Flanders 1-7585 (NEDA)

Kathrinus & Co. (Norman W.), 4356 Duncan Ave., Saint Louis 10, Mo., 3 (ERA)
Amco Engineering Co., American Electrical Heater, Blonder-Tongue Labs., Cramer Controls Corp., Hollingsworth Co., Hunter Tool Co., Kell Engineering Products, Kepco Labs., Photoswitch Div., Simpson Electric Co., Systron-Donner Corp.

Kelly Schmitz Winkeler Associates, 2319 Hampton Ave., Saint Louis, Mo., 3, Tel: 314-STerling 1-6111 (ERA)
Columbia Wire & Supply, James Electronics, Jensen Mfg. Co., Pyramid Electric Co., Sarkes Tarzian, Inc., Sweeney Mfg. Co. (B. K.), Viking of Minneapolis.

Leemark Associates, Inc., 2001 Big Bend Blvd., Saint Louis 17, Mo., 3, Tel: MI 7-1470, Main Office: Kansas City, Mo.

Lowell & Co. (Theodore B.), P.O. Box 26, Creve Coeur Branch, Saint Louis 41, Mo., 3, Tel: MIssion 7-1111 (ERA)

McCune Co. (John N.), Box 16 (Florissant), Saint Louis, Mo., 3, Tel: TE 7-3188 (ERA)
Components.

McDowell-Redlingshafer Sales Co., Suite 1708, Continental Bldg., 3615 Olive St., Saint Louis, Mo., 3, Tel: JEfferson 3-3277, Main Office: Kansas City, Mo.

Olive Electronic Supply Corp., 6662 Olive St., Saint Louis 30, Mo., 2 (NEDA)

Radonics, 5040 Easton Ave., Saint Louis 13, Mo., 2, Tel: FOrest 1-7311 (NEDA)

Relay Sales, Inc., Box 5859, Ferguson Sta., Saint Louis 35, Mo., 2, Tel: PA 4230, Main Office: West Chicago, Ill.

Roes & Co. (H. A.), 7120 W. Florissant, Saint Louis 20, Mo., 3, Tel: COlfax 1-0055, Main Office: Kansas City, Mo.

Sebright & Co. (Russ D.), 7120 W. Florissant Rd., Saint Louis, 20, Mo., 3, Tel: COlfax 1-0055 (ERA)

Shaw Co. (Robert), 7800 Kenridge Lane, Saint Louis 19, Mo., 3, Tel: WOodland 2-7429 (ERA)
Bozak (R. T.): Speakers. **Crown International:** Tape recorders. **Dynaco:** Amplifiers. **Electronic Applications:** Microphones, instruments. **Fairchild:** Recording equip. **Koss, Inc.:** Headsets for dental audio systems. **Nortronics:** Heads. **Scott, Inc. (H. H.):** Sound level meters, amplifiers, tuners. **Tandberg:** Tape recorders.

Thomson Engineering Services, 8230 Forsyth Blvd., Saint Louis 5, Mo., 3, Tel: PArkview 7-7705, Main Office: Dallas, Tex.

Toler Radio Co. (Ralph), 4855 Easton Ave., Saint Louis 13, Mo., 2, Tel: FOrest 1-0300 (NEDA)

Van Sickle Radio Co., 1113 Pine St., Saint Louis 1, Mo., 2, Tel: CHestnut 1-2700 (NEDA)

Vignola Associates (Carmine A.), 3214 N. Dakota St., Saint Louis 11, Mo., 3, Tel: FLanders 3-0799, Main Office: Jefferson City, Mo.

Sedalia
(Telephone Area Code—816)

Radio & Television Supply, Inc., 321 E. Main St., Sedalia, Mo., 2, Tel: TAylor 6-3044 (NEDA)

Springfield
(Telephone Area Code—417)

Reed Radio & Supply Co., Inc., 805 Boonville Ave., Springfield, Mo., 2, Tel: UNiversity 4-0752 (NEDA)

MONTANA

Billings
(Telephone Area Code—406)

Parts House, Inc., 106 11th St. W., Billings, Mont., 2, Tel: ALpine 2-6646 (NEDA)

Great Falls
(Telephone Area Code—406)

Radio Electronic Supply, 110 Tenth St. S., Box 1376, Great Falls, Mont., 2, Tel: GLendale 2-6610 (NEDA)

NEBRASKA

Gering
(Telephone Area Code—308)

Corr & Johns Radio Television Supply, 925 "S" St., Gering, Nebr., 2, Tel: IDlewood 6-4510 (NEDA)

Hastings
(Telephone Area Code—402)

Central Radio Supply, Inc., 518 W. First St., Hastings, Nebr., 2, Tel: 3-1341 (NEDA)

Lincoln
(Telephone Area Code—402)

General Radio & Television Co., 322 S. 12th St., Lincoln 8, Nebr., 2, Tel: HEmlock 2-6000 (NEDA)

Hicks Radio Co., 1422 "O" St., Lincoln, Nebr., 2, Tel: HEmlock 2-7561 (NEDA)

Leuck Radio Supply, 243 S. 11th, Lincoln, Nebr., 2, Tel: HEmlock 2-2797 (NEDA)

Scott Electronics Supply Corp., 2201 "O" St., Lincoln, Nebr., 2, Tel: HEmlock 2-6558 (NEDA)

Omaha
(Telephone Area Code—402)

J B Distributing Co., 1616 Cass St., Omaha 2, Nebr., 2, Tel: 341-5525 (NEDA)

Lowell & Co. (Theodore B.), 4531 Walnut St., Omaha, Nebr., 3, Main Office: Saint Louis, Mo.

Omaha Electronics Co., 2222 Leavenworth, Omaha 2, Nebr., 2, Tel: 341-3440 (NEDA)

Radio Equipment Co., 2852 Douglas St., Omaha 31, Nebr., 2, Tel: 341-7766 (NEDA)

Sidles Co., 7302 Pacific, Omaha, Nebr., 2, Tel: 393-2233 (NEDA)

NEVADA

Las Vegas
(Telephone Area Code—702)

Metcalf's, Inc., 25 E. California St., Las Vegas, Nev., 2, Tel: DUdley 4-2151 (NEDA)

Reno
(Telephone Area Code—702)

Radio Supply Co. of Nevada, 720 Tahoe St., Reno, Nev., 2, Tel: FAirview 3-2766 (NEDA)

NEW HAMPSHIRE

Concord
(Telephone Area Code—603)

Evans Radio, Inc., Route 3A, Bow Junction, P.O. Box 312, Concord, N.H., 2, Tel: CApitol 5-3358 (NEDA)

NEW JERSEY

Asbury Park
(Telephone Area Code—201)

Robinson Co. (I. E.), 1317 Railroad Ave., Asbury Park, N.J., 3, Tel: KEllogg 1-3150, Main Office: West Conshohocken, Pa.

Atlantic City
(Telephone Area Code—609)

Kepco, 300 N. Mississippi Ave., Atlantic City, N.J., 2, Tel: ATlantic City 5-3231 (NEDA)

Atlantic Highlands
(Telephone Area Code—201)

Astronetics, Central Ave. & Hillside Ave., Atlantic Highlands, N.J., 1, 2, Tel: ATlantic Highlands 1-2700
Daystrom, Inc.: Potentiometers. **Daystrom-Weston:** Meters. **Eitel-McCullough:** Tubes. **General Instrument:** Transistors. **Raytheon Co.:** Tubes, transistors, knobs.

Belleville
(Telephone Area Code—201)

Servo Systems Co., 14 Carmer Ave., Belleville 9, N.J., 5, Tel: PLymouth 9-2875
Amplifiers, precision potentiometers, pressure transducers, servos, synchros.

Belmar
(Telephone Area Code—201)

Invengineering, Inc., P.O. Box 360, Belmar, N.J., 3, 4, Tel: 201-PRospect 5-6800
Offner Electronics, Inc.: Direct-writing recorders & amplifiers.

Berlin
(Telephone Area Code—609)

Midstate Radio Supply Co., 157 W. White Horse Pike, Berlin, N.J., 2, Tel: ROckwell 7-1605 (NEDA)

Bernardsville
(Telephone Area Code—201)

A & M Associates, Inc., 6 Sunnybrook Rd., Bernardsville, N.J., 4, Tel: BErnardsville 8-0699, Main Office: Washington, D.C.

Bloomfield
(Telephone Area Code—201)

Berger Electronics Supply, 237 Bloomfield Ave., Bloomfield, N.J., 2, Tel: PIlgrim 3-7900 (NEDA)

Brielle
(Telephone Area Code—201)

Budd Cato Associates, Brielle, N.J., 3, Tel: 201-CAstle 3-3842 (ERA)
Advance Instrument: Servo systems, data processing. **American Mica Insulation Co.:** Mica. **Diehl Mfg. Co.:** Tension controls, servo motors. **Gear Instrument:** Servo gear heads & trains. **Molecu-Wire Corp.:** Fine wire. **Raypar:** Transformers. **S. F. Metal Products:** Metal stampings, wire forms. **Swiss Precision Mfg. Co.:** Screw machine products. **Thermionic Products Co.:** Tungsten wire & strip.

Caldwell
(Telephone Area Code—201)

Garten & Associates (Louis A.), 375 Passaic Ave., Caldwell, N.J., 3, Tel: 201-CApital 6-7800 (ERA)
Airborne Instruments Lab., Inc.: All products. **American Optical Co.:** Recorders. **Atlantis Electronics Corp.:** All products. **Cubic Corp.:** Digital equipment. **Dunn Engineering Corp:** All products. **Electronic Research Associates, Inc.:** All products. **Houston-Fearless Corp.:** Meters. **Lavoie Labs., Inc.:** All products. **Rhode & Schwarz Sales Co.:** All products. **Rutherford Electronics Co.:** All products. **Sanders Associates, Inc.:** Circuitry, modules, phase comparators, attenuators. **Spencer-Kennedy Labs., Inc.:** Amplifiers, filters, pulse generators. **Sperry Microwave Electronics Co.:** Ferrite devices. **Weldmatic Div. of Unitek Corp.:** All products.

Camden
(Telephone Area Code—609)

J-H Electronics Sales Co., Box 797, Camden, N.J., 3, Tel: WO 6-0303, Main Office: Towson, Md.

Jones Co., Inc. (William M.), Camden, N.J., 3, Main Office: Towson, Md.

Maguire & Co. (J. A.), 721 Market St., Camden 2, N.J., 3, Tel: 609-WOodlawn 6-3118 (ERA)
Brand-Rex Div. (Wm.): Wire, tubing. **Cadre Industries Corp.:** Cable, harnesses, electromech. assemblies. **Davis & Hemphill, Inc.:** Screw machine parts. **Forbes & Wagner, Inc.:** Delay lines, toroids. **Foster Transformer Co.:** Transformers. **Metal Etching Corp.:** Panels, chassis, dials. **Microtech, Inc.:** Waveguides, filters. **Shielding, Inc.:** Screen rooms.

McCoy Co. (Jack), 300 Broadway, Camden 3, N.J., 3, Tel: WOodlawn 6-1800 (ERA)
Relays, motors, switches.

Radio Electric Service Co. of New Jersey, Inc., 513 Cooper St., Camden 2, N.J., 2 (NEDA)

Clifton
(Telephone Area Code—201)

Eastern Radio Corp. 312 Clifton Ave., Clifton, N.J., 2, Tel: GRegory 1-6600 (NEDA)

Collingswood
(Telephone Area Code—609)

Bancroft & Co. (H. S.), 209 Cooper St., Westmont, Collingswood 7, N.J., 3, Tel: 609-ULysses 4-8000 (ERA)
See ad on this page
Polymer Corp. of Pennsylvania: Plastics. **Semco Sales & Service:** Equipment for application of compounds. **Steward Mfg. Co. (D. M.):** Ceramics, ferrite magnets. **Taurus Corp.:** Terminals, punched card readers.

Columbia
(Telephone Area Code—201)

Columbia Distributors, Inc., Columbia Heights, Columbia, N.J., 2, Tel: HYatt 6-3500 (NEDA)

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

East Orange
(Telephone Area Code—201)

International Distributing Co., 185 Central Ave., East Orange, N.J., 2, Tel: 201-ORange 5-1927 (NEDA)

Elizabeth
(Telephone Area Code—201)

Leader Electronic Supply Corp., 72 Prince St., Elizabeth, N.J., 2, Tel: ELizabeth 4-4200 (NEDA)

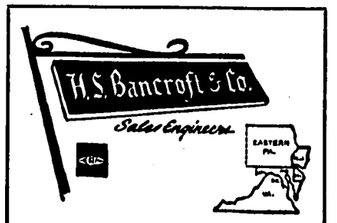
Emerson
(Telephone Area Code—201)

Stollmack Associates (M. W.), 177 Kinderkamack Rd., Emerson, N.J., 3, Tel: 201-COlfax 1-2313
Dearborn Electronic Labs., Inc.: Capacitors. **Dietz Design, Inc.:** Transformers, coils, delay lines. **IMC Magnetics Corp.:** Synchros, solenoids, step motors. **Maurey Instrument Corp.:** Precision potentiometers. **Western Transistor Corp.:** Silicon transistors.

Englewood
(Telephone Area Code—201)

Central Associates, 44 N. Dean St., Englewood, N.J., 3, Tel: LOwell 8-0808
Alfred Electronics: Microwave sweepers & amplifiers. **Boonshaft & Fuchs:** Feedback controls. **Communication Measurements Lab.:** Frequency converters. **Delta Design:** Temperature chambers. **E&M Labs.:** Ferrite components. **Elasco, Inc.:** Transistorized supplies. **Jerrold Electronics:** Sweep generators. **LEL, Inc.:** IF, RF, telemetry & parametric amplifiers. **Lumatron Electronics:** Test equipment. **RLC Electronics:** Coax components. **Semiconductor Devices, Inc.:** Parametric diodes. **Technical Appliance Corp.:** Antennas. **Trygon Electronics:** DC supplies.

Fisher Co. (D. J.), 8 Depot Square, Englewood, N.J., 3, Tel: LOwell 9-0090
Micro-Products Engineering Co.: Custom plastic molders. **Northfield Precision Instrument Corp.:** Bearings, limit stops. **Safeway Heat Elements, Inc.:** Heater blankets, rigid heaters.



209 COOPER STREET
WESTMONT, COLLINGSWOOD 7,
NEW JERSEY
ULysses 4-8000
ELECTRONIC EQUIPMENT
COMPONENTS • PLASTICS

For details, circle #762 on Reader Service Card

Heller Associates (Joseph L.), 172 Walker Lane, Englewood, N.J., 3, Tel: 201-LOwell 7-5858 (ERA)
See ad on this page
Electronic Component Importers, Inc.: Tubes. **General Meters, Inc.:** Panel meters. **Jefferson Wire & Cable Corp.:** Multi-conductors. **Ken-Tron Corp.:** Connectors, telephone plugs & jacks. **Tech-Ohm Electronics Corp.:** Wirewound resistors. **Varflex Corp.:** Sleeving & tubing.

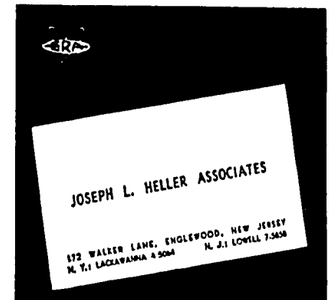
RMC Associates, 391 Grand Ave., Englewood, N.J., 3, Main Office: New York, N.Y.

Englewood Cliffs
(Telephone Area Code—201)

Reed & Riddett Co., 19 Sylvan Ave., Englewood Cliffs, N.J., 3, Tel: WIndsor 7-0100 (ERA)
American Electrical Heater Co.: Soldering equipment. **Atlee Corp.:** Hardware. **Cosmo Plastics Co.:** Nylon bobbins. **Pennsylvania Fluorocarbon Co.:** Teflon tubing. **Tensolite Insulated Wire Co.:** Teflon wire & cable. **Wesco Corp.:** Film capacitors

Erlton
(Telephone Area Code—609)

Dickison Sales Co., Inc., 302 Marlton Pike, Erlton, N.J., 3, Tel: HAzel 8-4086 (ERA)
Airtron Div. of Litton Industries: Micro-



Sales
Engineering Representatives
Serving All
Military/Commercial
Industrial/O.E.M.
in
Metropolitan New York City,
Long Island,
Westchester County,
Northern New Jersey,
for Electronic Component
Manufacturers

For details, circle #763 on Reader Service Card

wave components. **Hathaway-Denver:** Test instruments, switches, power supplies, tuning fork frequency standards. **Hill Electronics, Inc.:** Frequency sources, crystal ovens, filters. **Kidde & Co., Inc. (Walter):** Test equipment & controls, thermistors. **Litton Industries Potentiometer Div.:** Potentiometers. **Magnatron, Inc.:** Transformers, power supplies, rectifiers. **Vitro Labs.:** Data transmission systems, computer multiplexers.

McCoy Co. (Jack), 300 Marlton Pike, Erlton, N.J., 3, Tel: 609-HAzel 8-3444 (ERA)
Columbus Electric Mfg. Co.: Switches. **Heinz Mueller Engineering Co.:** Motors. **Howard Industries:** Motors. **Potter & Brumfield:** Relays. **Syracuse Electronics:** Time delay relays.

Fair Lawn
(Telephone Area Code—201)

Schwartz Co. (Mel), 39-16 Tierney Pl., Fair Lawn, N.J., 3
American Molded Products Co., Faradyne Electronics, Gorn, Magnetic Cores Corp., Mohawk Wire & Cable, Princeton Electronics, Terminal Designs, Thermal Wire of America.

Glen Rock
(Telephone Area Code—201)

Ringer Co. (R. L.), P.O. Box 114, Glen Rock, N.J., 3, Tel: GIbert 4-1434
Chassis-Trak, Inc., Industronics, Inc., Nicad Div. of Gould-National Batteries, Poxylube, Inc., Sunshine Scientific Instrument, Western Devices, Inc.

Hackensack
(Telephone Area Code—201)

Nidisco, Inc., 55 State St., Hackensack, N.J., 2, Tel: HUbbard 9-2000, Main Office: Jersey City, N.J.

Haddonfield
(Telephone Area Code—609)

Braddock Co. (Edward), P.O. Box 305, Haddonfield, N.J., 3
Austin-Craft Co.: Dry-cell holders. **Columbia Products Co.:** Whip antennas. **Continental Electronics & Sound Co.:** Reflectometers. **Cush Craft:** Antennas. **Electronic Products Corp.:** Microphones. **Kupfrian Mfg. Corp.:** Power supplies, flexible shafts. **National Radio Co.:** Receivers. **Penn Electronics Mfg. Co.:** Field-strength meters. **Pennwood Numechron Co.:** Clocks. **Tapetone, Inc.:** UHF/VHF converters. **Wind Turbine Co.:** Towers.

Cain & Co., 1107 Green Briar Rd., Haddonfield, N.J., 3, Tel: HA 8-3700, Main Office: Burbank, Calif.

Churchill Co. (Floyd W.), 50 Upland Way, Haddonfield, N.J., 3, Tel: 609-HAzel 9-7871 (ERA)
Muter Co.: Capacitors, switches, coils, resistors. **Rola Co., Inc.:** Speakers, transformers & chokes, television deflection components.

Hughes Co., Inc. (Kenneth E.), 134 Kings Hwy. E., Haddonfield, N.J., 3, Tel: 609-HAzel 8-2727, Main Office: Union City, N.J.
See ad on page 814

Keefe Electronic Sales Co., 228 E. Kings Hwy., Haddonfield, N.J., 3, Tel: HAzel 9-4650 (ERA)
Chester Cable Corp., Eldema Corp., Lamtex Industries, Inc., Lucerne Products, Inc., Pace, Inc., Pierce-Roberts Rubber Co., Sun Electric Corp., Underwriters Safety Device Co.

Moler Co. (G. W.), P.O. Box 240, Haddonfield, N.J., 3, Tel: 609-HAzel 8-2440
See ad on this page
Aero Electronics Corp., Mossman Co. (Donald P.), Ortho Industries, Inc., Struthers-Dunn Inc., Tel-Instrument Electronics Corp.

Moyer Co. (Harold A.), P.O. Box 14, Haddonfield, N.J., 3, Tel: 609-HAzel 9-7792 (ERA)
American Transformer Corp.: Transformers. **Becker Electronics Mfg. Corp.:** Speakers. **Bud Radio, Inc.:** Ham gear. **Elpa Marketing Industries:** Turntables. **Finney Co.:** Antennas, television hardware, diodes. **Grado Labs.:** Cartridges & arms. **Marantz Co., Inc.:** Amplifiers. **Quietrole Co.:** Lubricants & cleaners. **Sargent-Rayment Co.:** Amplifiers & tuners. **Superscope, Inc.:** Tape recorders & microphones.

Newson & Associates, Inc. (C. H.), 1201 Wyndmoor Rd., Haddonfield, N.J., 3, Tel: 609-HAzel 9-4678, Main Office: Philadelphia, Pa.
See ad on page 837

White Co., Inc. (Harry J.), 121 Covered Bridge Rd., Barclay Farm, Haddonfield, N.J., 3, Tel: HA 8-2304 (ERA)
Transformers, delay lines, relays, capacitors, coils.

Hawthorne
(Telephone Area Code—201)

Stemler Associates, 17 Birchwood Rd., Hawthorne, N.J., 3, Tel: SW 1-1744 (ERA)
Components & raw materials.

Hillside
(Telephone Area Code—201)

Cerf & Co. (Art), 27 Arcadia Way, Hillside, N.J., 3, Tel: EXpress 1-2039, Main Office: Newark, N.J.

Sherwood Distributors, Inc., 1255 Liberty Ave., Hillside, N.J., 2, Tel: ELizabeth 2-1126 (NEDA)

Jersey City
(Telephone Area Code—201)

Harrison Electronics Corp., 1, 2, 4, Tel: 201-DElaware 3-8780, Main Office: New York, N.Y.
See ads on pages 415, 441, 565, 575, 593, 633, 644

Nidisco-Jersey City, Inc., 713 Newark Ave., Jersey City 6, N.J., 2, Tel: OLdfield 3-2361
Amperite Co., Inc.: Relays. **Amphenol-Borg Electronics Corp.:** Connectors, sockets. **Belden:** Wire. **Cinch-Jones:** Connectors. **Cornell-Dubilier:** Capacitors. **General Electric:** Tubes, semiconductors. **Jensen Mfg. Co.:** Speakers. **Lowell Mfg. Co.:** Baffles. **Mallory Co. (P. R.):** Capacitors, switches, controls. **Ohmite Mfg. Co.:** Resistors, rheostats, relays. **Premier Metal:** Chassis. **RCA:** Tubes, test equipment, semiconductors, tape, batteries. **Shure Bros.:** Microphones. **Simpson:** Panel meters, test equipment. **Stancor:** Transformers. **Standard Electrical Products:** Transformers. **Thordarson-Meissner:** Transformers. **Ungar Electric Tools:** Soldering irons. **University Loudspeakers:** Speakers.

Schwartz Co. (Adolph), 15 Exchange Pl., Jersey City 2, N.J., 3, Tel: DElaware 3-2424 (ERA)
Controls Co. of America (Electron Div.); Felsenthal Sons, Inc. (G.): Edge-lighted panels. **Kenyon Transformer Co.; Mark Mobile, Inc.:** Antennas. **PBR, Inc.:** Scope dollies. **Petersen Radio Co.:** Quartz crystals. **Relco, Inc.:** Radiators & heat sinks. **Seton Nameplate Co.**

Shulan & Co., Inc. (Wally), 880 Bergen Ave., Jersey City 6, N.J., 3, Tel: SW 5-2220 (ERA)
Components, FHP motors, capacitors, connectors, transformers, wire-wound resistors, nameplates, tubes, piezoelectric materials.

Steinberg Sales Co. (H. A.), 880 Bergen Ave., Jersey City 6, N.J., 3, Tel: SW 5-2255 (ERA)

Livingston
(Telephone Area Code—201)

Cerf & Co. (Art), 9 Elmwood Ct., Livingston, N.J., 3, Tel: WYman 2-2528, Main Office: Newark, N.J.

Maple Shade
(Telephone Area Code—609)

Wetterhahn Co. (A.), 538 Buena Vista Ave., Maple Shade, N.J., 3, Tel: 609-NOrmandy 2-1611 (ERA)
Automation Components: Ceramic capacitors, wire-wound resistors. **Automation Electronics:** Printed-circuit connectors. **Coil Specialty Co.:** Coils, transformers, chokes. **Continental-Wirt Electronics Corp.:** Switches, resistors, potentiometers. **Electri-Cord Mfg. Co.:** Cord sets. **Electric Plastics Corp.:** Terminal boards. **Fair-Rite Products Corp.:** Ferrite parts. **Magnetic Core Corp.:** Powdered iron parts. **Nucleonic Products Co.:** Germanium diodes, photodiodes, thermistors, resistors. **Ohm Wire & Cable Co.:** Hook-up wire. **Oxford Electric Corp.:** Speakers. **Penn TV Products Co.:** Printed-circuit boards. **Supreme Transformer Corp.:** Transformers, chokes.

Marlton
(Telephone Area Code—609)

Bonn Associates, Inc., 2 Evans Lane (Old Orchard), Marlton, N.J., 3, Tel: HAzel 9-1184, Main Office: Metuchen, N.J.

Merchantville
(Telephone Area Code—609)

Trinkle Sales, Manor Bldg. W., 7675 Maple Ave., Merchantville, N.J., 3, Tel: 609-NOrmandy 3-0303 (ERA)
Miller Co. (J. W.): Coils, transformers. **Quam-Nichols Co.:** Speakers. **Switchcraft, Inc.:** Switches, jacks, plugs, cable assemblies, language lab. components. **Sprague Products Co.:** Capacitors, resistors, transistors.

Metuchen
(Telephone Area Code—201)

Bonn Associates, Inc., 57 New St., Metuchen, N.J., 3, Tel: LIberty 9-9573
Applied Electronics of N.J.: Telemetry systems. **Frequency Standards:** Microwave instrumentation. **Gladding McBean & Co.:** Ceramics. **Greibach Instruments Corp.:** Meters. **International Resistance Co.:** Multiconductor cable. **Johanson Mfg. Corp.:** Variable air capacitors. **Lionel Corp.:** Electromechanical components. **Manson Labs.:** Power supplies, modulators, communications equipment. **Microdot Inc.:** Telemetry instrumentation, transmitters, test equipment. **Sun Electric Corp.:** Ground support equipment, panel meters.

Montclair
(Telephone Area Code—201)

Brennan Co. (F. X.), 180 Glenridge Ave., Montclair, N.J., 3, Tel: PI 6-4640 (ERA)

Fields & Simon Sales Co., 109 Valley Rd., Montclair, N.J., 3, Tel: 201-PIlgrim 6-6717 (ERA)
See ad on this page
American Magnetics Corp.: Transformers. **B&K Mfg. Co.:** Test equipment. **Barker Products:** Cables. **Benjamin Electronic Sound Corp.:** Turntables, record changers. **Nortronics Co.:** Heads & amplifiers. **Oryx Co.:** Soldering irons. **Scott, Inc. (H. H.):** Amplifiers, tuners, speakers. **Wakefield Engineering Co.:** Heat-sinks.

Freeman & Associates (Lawrence C.), 363 Bloomfield Ave., Montclair, N.J., 3, Tel: 201-PIlgrim 4-4775
Community Engineering Corp., Exact Electronics, Inc., Franklin Electronics, Inc., General RF Fittings, Inc., Tensor Electric Development Co.. Thomas Electronics, Inc.

Moorestown
(Telephone Area Code—609)

Foley Associates (Andrew A.), P.O. Box 155, Moorestown, N.J., 3, Tel: NOrmandy 3-4545 (ERA)
Cox & Co.: Heaters & elements. **Elgin National Watch Co.:** Advance relays. **Resistance Products Co.:** Resistors & networks. **Rohn Mfg. Co.:** Towers. **Tru-Ohm Products:** Resistors & rheostats. **United Components, Inc.:** Silicon diodes. **Welwyn International Inc.:** Film resistors. **Western Gear Corp.:** Fans, blowers, servo motors.

Mountain Lakes
(Telephone Area Code—201)

Dearie Co. (J.P.), Mountain Lakes, N.J., 3, Tel: DE 4-4848 (ERA)
Instruments, components, raw materials.

Mountainside
(Telephone Area Code—201)

Federated Purchaser, Inc., 1021 U.S. Rt. 22, Mountainside, N.J., 2, Tel: ADams 2-8200 (NEDA)
Acro-Switch, Aerovox Corp., Akro-Mils, Inc., Allen-Bradley, Alpha Wire Corp., Amperite Co., Inc., Amphenol-Borg, Arco, Arrow-Hart & Hegeman, Astron Corp., Belden Mfg., Bourns Labs., Brady Wire Markers, Bud Radio, Inc., Burgess Battery Co., Bussman Mfg. Co., Cambridge Thermionic Co., Centralab, Chicago Tele. Supply, Cinch-Jones, Circuit Instrument, Clarostat Mfg. Co., Controls Corp., Corning Glass, Cramer Controls, Dale Products, Delevan, Dialight Co. of America, DuMont, Eitel-McCullough, Elco Corp., Electra Mfg., Electro-Snap Switch, Electrons, Inc., Erie Resistor, General Electric, Grayhill Mfg., Guardian Electric, Hetherington, Hickok Electrical Instrument, International Rectifier Corp., International Resistance Corp., ITT Components, JBT Instruments, Littelfuse, Inc., Mallory (P. R.), Microtran, Miller (J. W.), Model Engineering, Ohmite Mfg. Co., Pomona Electric Co., Potter & Brumfield, Premier Metal Products, Radio Corp. of America, Raytheon Co., Sangamo Electric, Sarkes-Tarzian, Sealectro, Simpson Electric, Sola Electric, Sprague Products, Stancor, Superior Electric, Switchcraft, Sylvania Electric, Thomas & Betts, Thordarson-Meissner, Triplett Electrical Instrument, Tung-Sol Mfg., United Transformer Co., Vector Electronics Co., Wall Mfg., Ward-Leonard, Westinghouse Electric, Weston Instruments, Winchester, Xcelite.

New Brunswick
(Telephone Area Code—201)

William Radio Supply Co., 265 Woodbridge Ave., New Brunswick, N.J., 2, Tel: CHarter 7-2500 (NEDA)

Newark
(Telephone Area Code—201)

Bragor Co., Inc. (Norman), 1060 Broad St., Newark 2, N.J., 3, Tel: MArket 3-6554
West Instrument Corp.

Cerf & Co. (Art), 744 Broad St., Newark 2, N.J., 3, Tel: MItchell 2-6734 (ERA)
B & K Mfg. Co.: Test equipment. **Bussmann Mfg. Co.:** Fuses. **Chemtronics, Inc.:** Chemical products. **Continental-Wirt Electronics Corp.:** Resistors & switches. **Electro Products Labs.:** Power supplies. **Jensen Industries, Inc.:** Cartridges. **Lowell Mfg. Co.:** Baffles. **Premier Metal Products Co.:** Racks & housings. **Pyramid Electric Co.:** Capacitors. **Terado Co.:** Converters, relays & battery chargers. **Thordarson-Meissner Mfg. Co.:** Transformers & coils. **Utah Radio Products Co., Inc.:** Speakers. **Vocaline Co. of America:** Wireless intercoms & transceivers. **Weller Electric Corp.:** Soldering guns.

Emerson Radio Associates, Inc., 414 Elizabeth Ave., Newark 12, N.J., 2, Tel: TAlbert 4-4400 (NEDA)

Federated Purchaser, Inc., 114 Hudson St., Newark, N.J., 2, Tel: MArket 4-3915, Main Office: Mountainside, N.J.

Kahant Associates, 60 Park Pl., Newark 2, N.J., 3, Tel: 201-MItchell 2-3930
Associated Research, Inc.: Resistance measuring instruments, high-voltage testers. **Columbus Electric Mfg. Co.:** Switches. **Hampden Enginering Corp.:** Switchboards. **Hartman Electric Mfg. Co.:** Aircraft reverse current cutouts & contactors. **Kelek Co.:** Switches. **Kirkland Co. (H. R.):** Indicating lights. **National Electronics:** Meter relays. **Northern Electric:** Motors. **Parker Instrument Sales Div. of Interlab, Inc.:** Panel meters. **Roller-Smith Div. of Federal Pacific Electric Co.:** Circuit breakers, instrument switches. **States Co.:** Meter testing equipment. **Struthers-Dunn, Inc.:** Relays & timers. **Uptegraff Mfg. Co. (R. E.):** Transformers.

Krich-New Jersey, Inc., 422 Elizabeth Ave., Newark 12, N.J., 2, Tel: BIgelow 8-7413 (NEDA)

Lafayette Radio Electronics Corp., Lafayette Industrial Electronics Div., 24 Central Ave., Newark 2, N.J., 2, Tel: 201-MItchell 3-6868, Main Office: Syosset, L.I., N.Y.
See ad on page 819

Lippman & Co. (Aaron), 99-107 Newark St., Newark 3, N.J., 2, Tel: MArket 3-9477 (NEDA)

Xytan Co., 80 Mulberry St., Newark, N.J., 3, Tel: MA 3-8175, Main Office: Costa Mesa, Calif.

Nutley
(Telephone Area Code—201)

Galasso Co. (David P.), 382 Franklin Ave., Nutley 10, N.J., 3, Tel: 201-NOrth 1-1300 (ERA)
Centralab: Variable resistors, capacitors, switches, circuits, ceramics.

Orange
(Telephone Area Code—201)

Simberkoff Sales Co., 175 Oakwood Ave., Orange, N.J., 3, Tel: ORange 4-4100 (ERA)
Central Coil Co.: Coils. **Dayon Mfg.:** Springs. **Electronic Research Co.:** Quartz crystals. **Flotron Industries:** Positioning jigs & fixtues. **Miller Dial & Nameplate Co.:** Panels. **Solar Systems:** Silicon photocells, readouts.

Williams Associates (Jud), 50 Main St., Orange, N.J., 3, Tel: ORange 5-7199 (ERA)
Laboratory instruments.

Palisades Park
(Telephone Area Code—201)

Repco Electronic Sales Co., Inc., 25 Broad Ave., Palisades Park, N.J., 3, Tel: WHitney 5-7511 (ERA)
Babcock Electronics Corp.: Relays. **Harowe Servo Controls, Inc.:** Servo motors & synchros. **Pesco Products Div. of Borg-Warner Corp.:** Fans, air pumps, static inverters, cooling devices. **Unimax Div., Maxson Electronics Corp.:** Switches.

Paramus
(Telephone Area Code—201)

Lafayette Radio Electronics Corp., Lafayette Industrial Electronics Div., 182 Rt. #17, Paramus, N.J., 2, Tel: 201-COlfax 1-8800, Main Office: Syosset, L.I., N.Y.
See ad on page 819

Passaic
(Telephone Area Code—201)

Nidisco, Inc., 294 Passaic St., Passaic, N.J., 2, Tel: PRescott 9-4962, Main Office: Jersey City, N.J.

Paterson
(Telephone Area Code—201)

Jersey Electronic Distributing Co., 74-86 E. 30th St., Paterson, N.J., 2, Tel: LAmbert 5-3134 (NEDA)

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Pennsauken
(Telephone Area Code—609)

Boenecke Associates, 5505 Westfield Ave., Pennsauken, N.J., 3, Tel: 609-NOrmandy 2-8650 (ERA)
Amphenol-Borg Connector Div., Amphenol-Borg RF Products, Babcock Relays, Pesco Products Div. of Borg-Warner.

Perth Amboy
(Telephone Area Code—201)

Atlas Electronics, Inc., 774 Pfeiffer Blvd., Perth Amboy, N.J., 2, Tel: HIllcrest 2-8000
Atohm, Cannon Electric, Fairchild Semiconductor, General Electric, Mallory, Sigma, Sprague Electric, Stancor, UTC, Victory Engineering.

Houser Associates, 188 Water St., Perth Amboy, N.J., 3, Tel: HIllcrest 2-3159 (ERA)
Ansley Mfg. Co. (Arthur): Circuits, modules. **Cascade Research Div.:** Ferrite devices, antenna systems. **Clough-Brengle Co.:** Test equipment. **Con-Elco Div. of Edcliff Instruments:** Trimming potentiometers. **Electro-Tec Corp.:** Slip-rings, relays switches. **Electronic Specialty Co.:** Switches, airborne antennas, microwave plumbing. **J-V-M Div. of Fidelitone Microwave, Inc.:** Cavities. **Life Instrument Co.:** Relays. **TT Electronics:** Band-pass filters. **Technical Appliance Corp.:** Antennas. **Technicraft Div. of Electronic Specialty Co.:** Microwave components.

Phillipsburg
(Telephone Area Code—201)

Williams Co. (Carl B.), 154 S. Main St., Phillipsburg, N.J., 2, Tel: GLencourt 4-8585 (NEDA)

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Datapulse Inc.
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Weinschel Engineering

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Pine Brook
(Telephone Area Code—201)

Richardt Co. (John W.), Rt. 46, Pine Brook, N.J., 3, Tel: 201-CApital 8-0600 (ERA)
Ace Electronic Associates, Inc., Acromag, Inc., Advance Relay Div. of Elgin Watch Co., Carter Parts Co., Dechert Dynamics Corp., Monitor Products Co., National Ceramic Corp., Servonic Instruments Corp.

Plainfield
(Telephone Area Code—201)

Lafayette Radio Electronics Corp., Lafayette Industrial Electronics Div., 139 W. Second St., Plainfield, N.J., 2, Tel: 201-PLainfield 6-4718, Main Office: Syosset, L.I., N.Y.
See ad on page 819

Union Television Parts Co., 800 South Ave., Plainfield, N.J., 2 (NEDA)

Princeton
(Telephone Area Code—609)

Mercer Industrial Sales Co., The 206 Center, Princeton, N.J., 3, Tel: 609-WAlnut 1-2000
Hysol Corp.: Epoxy resins. **Mica Corp.:** Copper clad laminates. **Moran Instrument:** Laminate processing, equipment. **Motion Control Machines:** Laminate processing equipment. **Warwick Products:** Instrument cases.

Sun Radio & Electronics Co., Inc., 206 Center, Rt. 206, Princeton, N.J., 2, Tel: 609-WAlnut 1-2150, Main Office: New York, N.Y.
See ad on page 825

Rahway
(Telephone Area Code—201)

Cerf & Co. (Art), P.O. Box 322, Rahway, N.J., 3, Tel: FUlton 8-1108, Main Office: Newark, N.J.

Red Bank
(Telephone Area Code—201)

Miller Electronics, 27 Mechanic St., Red Bank, N.J., 3, Tel: SH 1-9300 (ERA)

Ridgefield
(Telephone Area Code—201)

Nidisco, Inc., 484 Bergen Blvd., Ridgefield, N.J., 2, Tel: WHitney 3-0510, Main Office: Jersey City, N.J.

Ridgewood
(Telephone Area Code—201)

Ballou, Inc., 51 N. Broad St., Ridgewood, N. J., 3, Tel: GI 4-6990 (ERA)
Components & raw materials.

Engel & Associates, Inc. (G. Curtis), 210 S. Broad St., Ridgewood, N.J., 3, Tel: 201-GIlbert 4-1400 (ERA)
See ad on this page
B&K Instruments: Frequency analyzers & recorders, voltmeters. **Boesch Mfg.:** Toroidal & bobbin winders. **Computer Measurements Co.:** Tube & solid-state counters. **Edgerton, Germeshausen & Grier:** Thyratrons, pulse generators. **Electronic Associates:** Dicital voltmeters. **Fluke Mfg. (John):** Voltmeters, bridges, power supplies, potentiometers. **Gertsch Products:** Ratio transformers & standards. **Harrison Labs.:** Power supplies. **Rantec Corp.:** Ferrite components, antennas. **Sanborn Co.:** Recorders. **Vidar Corp.:** Converters, automation programmers. **Weinschel Engineering Corp.:** Microwave test equipment, attenuators.

Finlay Co. (Robert), 307 Lincoln Bldg., Ridgewood, N.J., 3, Tel: 201-OLiver 2-0088 (ERA)
Applied Components, Inc.: Miniature magnetic devices. **Argos Products Co.:** Cabinets. **Atohm Electronics:** Potentiometers. **E-Z Towers, Inc.:** Towers. **Elpac, Inc.:** Capacitors. **Globe Electrical Mfg. Co.:** Relays. **Hallicrafters Co.:** Communications equipment. **Metalworks, Inc.:** Cabinets. **Midland Mfg. Co., Inc.:** Crystal filters, quartz crystals. **Omtronics Mfg., Inc.:** Power resistors. **Triad Transformer Corp.:** Transformers. **Utrad Corp.:** Transformers **Webster Mfg.:** Antennas, direction finders.

Roseland
(Telephone Area Code—201)

Gawler-Knoop Co., 178 Eagle Rock Ave., Roseland, N.J., 3, Tel: CApital 6-4545
Analab Instrument Corp.: Oscilloscopes, recording cameras. **Ballantine Labs., Inc.:** Voltmeters. **Beckman/Berkeley Div.:** Counters, eput & time interval meters. **E-H Research Labs.:** Pulse generators. **Industrial Instruments, Inc.:** Bridges, decade boxes, megohm meters. **Moseley Co. (F. L.):** X-Y recorders. **Offner Electronics, Inc.:** Oscillographs. **Owen Labs.:** Transistor test sets. **Perkin Electronics Corp.:** Power supplies. **Precision Instrument Co.:** Tape recorder instrumentation. **Scientific-Atlanta, Inc.:** Antenna ranges. **Technical Products Co.:** Wave & vibration analyzers. **Waters Mfg. Inc.:** Precision potentiometers.

Rutherford
(Telephone Area Code—201)

Banfield Associates (Charles S.), 104 Mountain Way, Box 292, Rutherford, N.J., 3, Tel: WEbster 9-6784
Apelco Co.: Radiotelephones, depth sounders. **Engelhard Industries (Instrument & Systems Div.):** Cathodic protection against corrosion. **McCoy Electronics Co.:** Marine quartz crystals. **Seatronics, Inc.:** Battery chargers & inverters.

Rever Associates, 15 Park Ave., Rutherford, N.J., 3, Main Office: Garden City, N.Y.

Saddle Brook
(Telephone Area Code—201)

L & M Associates, 511 Victor St., Saddle Brook, N.J., 3, Tel: DIamond 3-3070
Alford Mfg. Co.: Coaxial instruments & components. **Amphenol-Borg Electronics Corp.:** Packaged circuitry. **Baird-Atomic Inc.:** Semiconductor test sets. **Christie Electric Corp.:** Power supplies. **DeMornay-Bonardi Corp.:** Microwave equipment. **Gray Instrument Co.:** Resistance measuring instruments. **Hughes Aircraft Co.:** Welding equipment. **Marconi Instruments:** Signal generators, RF bridges, spectrum analyzers. **Quan-Tech Labs.:** Power supplies, microammeters, wave analyzers. **Radio Frequency Labs., Inc.:** Calibration standards, magnet charging, gaussmeters. **Scopes Co., Inc.:** Oscilloscopes. **Wallson Associates, Inc.:** Diode-rectifier test sets.

Shrewsbury
(Telephone Area Code—201)

Federated Purchaser, Inc., 483 Broad St., Shrewsbury, N.J., 2, Tel: SHadyside 1-8811, Main Office: Mountainside, N.J.

Teaneck
(Telephone Area Code—201)

Fields & Simon Sales Co., 571 Sunderland Rd., Teaneck, N.J., 3, Tel: 201-TEaneck 6-6594, Main Office: Montclair, N.J.
See ad on page 813

Tenafly
(Telephone Area Code—201)

Border & Co. (Barrett), 121 Oak St., Tenafly, N.J., 3, Tel: LOwell 8-2354 (ERA)
Connect-Tron, Inc.: Connectors. **DI-Electric Insulation Co.:** Sleeving. **Escon, Inc.:** Connectors. **Foster Transformer Co.:** Transformers. **J. F. D. Electronics, Inc.:** Antennas, capacitors, inductors, delay lines, tuners. **Mandex Mfg. Co.:** Terminal strips, sockets, plugs. **Standard Connector:** AN-connectors.

Franklin & Andrews Sales Corp., 43 Kent Rd., Tenafly, N.J., 3, Tel: LOwell 9-8800, Main Office: Syracuse, N.Y.

Distribution

1. Export & import
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4. Sales & service
5. Surplus dealers

Gray Associates (Harold), 8-10 Highwood Ave., Tenafly, N.J., 3, Tel: LOwell 7-3585 (ERA)
Collins Radio Co.: Mechanical filters. **Communication Accessories Co.:** Toroidal products. **Dage Electric Co.:** RF connectors. **Jan Hardware Mfg. Co.:** Assemblies. **Matrix Science Corp.:** Connectors. **National Coil Co.:** Coils & transformers. **Northern Engineering Labs.:** Crystals, ovens, oscillators. **Silicon Transistor Corp.:** Diodes & transistors. **Transcool Co.:** Transistor heat radiators.

Teterboro
(Telephone Area Code—201)

Smith-Meeker Engineering Co., 333 Industrial Ave., Teterboro, N.J., 3, 4, Main Office: New York, N.Y.

Trenton
(Telephone Area Code—609)

Allen & Hurley, 23 S. Warren St., Trenton 10, N.J., 2, Tel: EX 3-0386
Ampex, Amphenol-Borg, Audio Devices, Bussmann, Cannon, Electrons, Inc., Gonset, Hallicrafters, IRC, RCA, United Transformer, Walsco.

Nidisco, Inc., 985 Princeton Ave., Trenton 8, N.J., 2, Tel: EXport 6-3505, Main Office: Jersey City, N.J.

Union
(Telephone Area Code—201)

Snyder Co., Inc. (V. A.), 2165 Morris Ave., Union, N.J., 3, Tel: MUrdock 8-6100 (ERA)
Test equip. & instrumentation.

Union City
(Telephone Area Code—201)

Bressler Associates, 4808 Bergenline Ave., Union City, N.J., 3, Tel: 201-UNion 4-9577 (ERA)
See ad on this page
Antenna Specialists: Mobile antennas. **Chicago Miniature Lamp Works:** Aircraft & panel lamps. **Erie Resistor:** Ceramic condensers. **James Electronics:** Vibrators, miniature transformers, choppers. **Littelfuse:** Fuses. **Merit Coil & Transformer:** TV replacements, audio, chokes & power transformers. **Metal Textile:** RF shielding. **Perfection Mica:** Magnetic shielding. **Regency & Monitoradio:** Police & fire alarm receivers, citizen-band transceivers. **Syntronic Instruments:** Deflection yokes, focus coils. **Subminiature Instruments:** Precision pots & trimmers. **Viking:** Relay sockets, connectors.

Dealers' Electronics Co., Inc., 817 13th St., Union City, N.J., Tel: 201-UNion 4-5700 (NEDA)

Hughes Co., Inc. (Kenneth E.), 4808 Bergenline Ave., Union City, N.J., 3, Tel: 201-UNion 7-3204 (ERA)
See ad on page 814
Barnes Development Co.: Production testing equipment. **Bourns, Inc.:** Accelerometers. **Coleman Electronics, Inc.:** Digitizers. **Consolidated Electrodynamics:** Connectors. **Croven, Ltd.:** Crystals. **Datafilter Corp.:** Filters. **Electronic Engineering Co.:** Paper tape readers, programmers, relay testers. **Emcor-Ingersoll Products (Div. of Borg-Warner):** Steel enclosures, chassis slides. **Engineered Electronics Co.:** Plug-in circuits, decade counters. **Genesy's:** Disc memories, readers, read-outs, magnetic heads.

New Jersey

Iron Fireman Mfg. Co.: Relays & gyroscopes. **McLean Engineering Labs.:** Blowers, fans. **McLean Syntorque Corp.:** Motors & generators. **Ovenaire, Inc.:** Crystal ovens. **Peerless Electrical Products (Div. of Ling-Temco-Vought):** Power supplies, transformers. **Shockley Transistor (Unit of Clevite Transistor):** Diodes. **Sippican Corp.:** High-density packaging, electrodes.

Upper Montclair
(Telephone Area Code—201)

Hinck Sales Co. (Edwin B.), 270 N. Mountain Ave., Upper Montclair, N.J., 3, Tel: 201-PIlgrim 6-2625 (ERA)
Allegheny Plastics, Inc., Cimco Wire & Cable Co., Control Products, Inc., Spaulding Products Co., Winegard Co.

West Caldwell
(Telephone Area Code—201)

Rothenheber & Co., Inc., 551 Bloomfield Ave., West Caldwell, N.J., 3, Tel: CApitol 6-5988, Main Office: Ardmore, Pa.

Westfield
(Telephone Area Code—201)

Richter, Inc. (Henry G.), 457 Hillside Ave., Westfield, N.J., 3, Tel: ADams 3-4615 (ERA)
Components.

Woodbury Heights
(Telephone Area Code—609)

Shulan & Co., Inc. (Wally), Woodbury Heights, N.J., 3, Main Office: Jersey City, N.J.

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"Distribution" listings are arranged alphabetically by states and by cities within each state.
For names and addresses of manufacturing firms, see Alphabetical Directory, pages 81-226.

NEW MEXICO

Albuquerque
(Telephone Area Code—505)

Aztec Associates, 525 San Pedro N.E., Albuquerque, N.M., 3, Tel: 505-AMherst 8-6421
Associated Testing Labs., Inc.: Environmental test equip. **Burnell & Co., Inc.:** Toroids, filters, discriminators. **Consolidated Avionics Corp.:** Power supplies. **Consolidated Controls Corp.:** Pressure transducers, switches, automation robots. **DeVar Systems, Inc.:** Strip chart recorders. **Eldorado Electronics:** Digital counters, nuclear scaling systems. **Giannini Controls Corp.:** Servo components. **Gray & Kuhn, Inc.:** Delay lines. **Industrial Test Equipment Co.:** Power oscillators, phase meters, impedance comparators. **Leonard, Inc. (Wallace O.):** Pneumatic/hydraulic components. **Marshall Labs.:** Logic modules. **Micro Gee Products, Inc.:** Flight simulation tables, DC amplifiers. **Mid-West Instrument:** Pressure gages. **Seegers Instrument Co.:** Pressure gages. **Subminiature Instruments Corp.:** Precision potentiometers. **Voltron Products, Inc.:** Expanded-scale meters & recorders.

Cain & Co., 1437 San Mateo N.E., Albuquerque, N.M., 3, Tel: 26-8-5300, Main Office: Burbank, Calif.

Cathey Co. (R. E.), 1026 Mildred N.W., Albuquerque, N.M., 3, Main Office: Denver, Colo.

Connors, Inc., 1501 Martha N.E., Albuquerque, N.M., 3, Tel: AX 9-4734, Main Office: Denver, Colo.

Electronic Components Sales, Inc., 3321 San Pedro Dr. N.E. Albuquerque, N.M., 3, Tel: AM 8-8804, Main Office: Denver, Colo.

French Co. (Gene), 7900 Zuni Rd. S.E., Albuquerque, N.M., 3, Tel: 505-Amherst 8-2478 (ERA)
Alfred Electronics: Oscillators & microwave levelers. **Dunn Engineering:** Inertial guidance & radar equip. **Edgerton, Germeshausen & Grier, Inc.:** Thyratrons & pulse generators. **Emerson & Cuming:** Microwave absorbing materials. **Erie-Pacific:** Counters, digital instruments, timers. **Fluke Mfg. Co., Inc. (John):** VTVM's, power supplies, bridges. **Invar Electronics Corp.:** Power supplies. **Narda Microwave Corp.:** Microwave components & instruments. **Offner Electronics, Inc.:** Recorders & data amplifiers. **Radiation Instrument Development Lab.:** Nuclear instrumentation. **Sensitive Research Instrument Corp.:** Measuring instruments. **Trans-Sonics, Inc.:** Pressure & temperature measuring devices. **Weinschel Engineering:** UHF-VHF components & instruments.

Gates Co. (F. Y.), 122 Harvard Dr. S.E., Albuquerque, N.M., 3, Tel: CHapel 3-8010, Main Office: Salt Lake City, Utah

Hyde Electronics Co., Inc., 5206 Constitution Ave. N.E., Albuquerque, N.M., 3, Tel: AM 8-1111, Main Office: Denver, Colo.

Hytronic Measurements, Inc., 211 Sierra S.E., P.O. Box 8394, Sta. "C," Albuquerque, N.M., 3, Tel: AL 5-0669, Main Office: Denver, Colo.

Longstreet-Smith Associates, Inc., 3332 Aztec Ct. N.E., Albuquerque, N.M., 3, Tel: AXtell 9-8013, Main Office: Denver, Colo.

Miller Co. (Edward G., Jr.), P.O. Box 8306, 210 Cagua Dr. N.E., Albuquerque, N.M., 3, Tel: 505-ALpine 6-1585
Aetna: Servo analyzers. **Allied Control:** Relays & switches. **Applied Research:** Amplifiers, filters, converters, multiplexers, attenuators. **Chemalloy:** Calorimeters, water loads. **Crown Engineering:** Noise receivers. **EMI/US Ltd.:** Klystrons, photomultipliers, corona stabilizers, vidicons. **Embree Electronics:** Servo amplifiers, modules. **General Applied Science Labs., Inc.:** Pulse generators, radar simulators, printed-circuit cards, sonic spectrum analyzers. **Halex Inc.:** Voltmeters, microammeters, Hall-effect probes, microminiature amplifiers. **James Electronics:** Choppers, relays, transformers. **Laboratory For Electronics:** Microwave oscillators, microwave components, stability testers. **Rosso Instruments:** Aircraft electrical system analyzers. **Vogue Instruments:** Potentiometers.

Neely Enterprises, 6501 Lomas Blvd. N.E., Albuquerque, N.M., 3, Tel: ALpine 5-5586, Main Office: North Hollywood, Calif.

Nelson Co., P.O. Box 938, Albuquerque, N.M., 3, Main Office: Denver, Colo.

Perlmuth Electronic Associates, Inc., 2745 San Mateo N.E., Suite "L," Albuquerque, N.M., 3, Tel: AMherst 8-6797, Main Office: Los Angeles, Calif.

Premmco, Inc., 1003 San Mateo Blvd. S.E., Albuquerque, N.M., 3, Tel: AMherst 8-5285, Main Office: Los Angeles, Calif.

Rupp Co. (V. T.), 1437 San Mateo Blvd. N.E., Albuquerque, N.M., 3, Tel: ALpine 6-0798, Main Office: Los Angeles, Calif.

Williams & Associates, Inc., 3221 Silver Ave. S.E., Albuquerque, N.M., 3, Tel: ALpine 5-9632, Main Office: Denver, Colo.

Las Cruces
(Telephone Area Code—505)

Neely Enterprises, 114 S. Water St., Las Cruces, N.M., 3, Tel: JAckson 6-2486, Main Office: North Hollywood, Calif.

Los Alamos
(Telephone Area Code—505)

Valley Engineering, Inc., 601 Cedar St., Los Alamos, N.M., 2, Tel: 2-3310 (NEDA)

NEW YORK

Albany
(Telephone Area Code—518)

Carse Electric Corp., 1044 Broadway, Albany 4, N.Y., 3, Tel: 518-HObart 2-5364 (ERA)
Fenwal Inc.: Thermoswitches, temperature controllers. **Greibach Instruments Corp.:** Panel meters. **Maxson Electronics Corp.:** Phase meters & shifters. **Potter & Brumfield:** Relays. **Radio Frequency Labs.:** Magnet chargers, gaussmeters. **Voltron Products, Inc.:** Voltage, temperature & frequency recorders. **Westmore, Inc.:** Power supplies, transistor checkers.

Fort Orange Radio Distributing Co., Inc., 904 Broadway, Albany, N.Y., 2, Tel: HEmlock 6-8411 (NEDA)

Reagan Co., Inc. (J.A.), 45 N. Lake Ave., Albany 3, N.Y., 3, Tel: 518-HEmlock 6-9649 (ERA)
Alfred Electronics: Microwave test equip. **Burroughs Corp.:** Digital counters, displays. **Daystrom Potentiometer Div.:** Potentiometers. **DeMornay-Bonardi:** Microwave components. **Ingersoll Products:** Modular enclosures. **Lavoie Labs.:** Microwave test equip. **LEL, Inc.:** Amplifiers. **McLean:** Cooling equip. **Rantec Corp.:** Ferrite devices. **Rohde & Schwarz:** Test equip. **Trio Labs.:** Panel VTVM's. **Trygon Electronics:** Power supplies.

Simberkoff Sales Co., 17 John David Lane, Albany, N.Y., 3, Tel: IVanhoe 2-5709, Main Office: Orange, N.J.

Taylor Co., Inc. (E. E.), 465 Central Ave., Albany 6, N.Y., 2, Tel: IVanhoe 2-3860 (NEDA)
Astrodyne, Inc.: Clutches & brakes. **Diamond Antenna & Microwave Corp.:** Antenna systems & microwave components. **Duncan Electronics, Inc.:** Precision potentiometers. **Electron Products:** Capacitors. **Elin Div.:** Power sources. **Filtors, Inc.:** Relays. **G-V Controls, Inc.:** Relays. **Hyperion, Inc.:** Power supplies. **I.E.R.C. Div.:** Heat dissipators. **Industrial Electronic Engineers:** Digital displays. **North Atlantic Industries:** Voltmeters, DC ratiometers. **Servo Dynamics Corp.:** Servo motors, tachometers. **Shallcross Mfg. Co.:** Resistors, switches, & test instruments. **Trio Labs.:** Panel mounts. **Unitrode Transistor Products, Inc.:** Silicon diodes.

Amsterdam
(Telephone Area Code—518)

Adirondack Radio Supply, 185 W. Main St., Amsterdam, N.Y., 2, Tel: VIctor 2-8350 (NEDA)

LeRoy & McGuire, Inc., RD 4, Amsterdam, N.Y., 3, Tel: VIctor 2-5979, Main Office: Phelps, N.Y.

Baldwin, L.I.
(Telephone Area Code—516)

Taylor Corp. (B. B.), 2270 Grand Ave., Baldwin, L.I., N.Y., 3, Tel: BAldwin 3-8000 (ERA)

Bayside
(Telephone Area Code—212)

Scientific Systems Sales Corp., P.O. Box 3, Bayside 61, N.Y., 3
Ameray Corp.: Nuclear shielding. **Anton Electronic Labs., Inc. (Lionel Corp.):** Nuclear detectors & instruments. **CBS Labs.:** Photomultiplier tubes. **Kaman Nuclear:** Neutron generators. **Radiation Instrument Development Lab., Inc.:** Nuclear instrumentation.

Snyder Electronic Distributors, Inc., 39-25 Bell Blvd., Bayside 61, L.I., N.Y., 2, Tel: BAyside 5-7440 (NEDA)

Tylinski Co. (Frank), 73-63 Bell Blvd., Bayside 64, N.Y., 3, Tel: 212-HOllis 4-8927 (ERA)
Artisan Electronics: Relays. **Giannini Controls Corp.:** Potentiometers. **Grayhill, Inc.:** Switches. **Hill Electronics:** Frequency sources. **Kidde Electronics:** Converters. **Moldtronics:** Custom molding. **National Resistance Corp.:** Resistors. **Ohio Semiconductor:** Halltrons. **Texas Capacitors, Inc.:** Capacitors.

Bellerose, L.I.
(Telephone Area Code—516)

Gem Electronics of Bellerose, Inc., 247-40 Jericho Tnpke., Bellerose, L.I., N.Y., 2, Tel: PRimrose 5-7770
Arvin Industries, Cornell-Dubilier, Electro-Voice, Inc., Fisher Radio, Garrard, General Electric Co. Tube Div., Hitachi, Ltd., Motorola, Pilot Radio, Setchell-Carlson, Sony-Superscope Corp., Sylvania Electric Products Inc., Zenith Radio Co.

Binghamton
(Telephone Area Code—607)

Naco Electronics Corp., Binghamton, N.Y., 3, Main Office: Liverpool, N.Y.

Reagan Co., Inc. (J.A.), 52B Crestmont Rd., Binghamton, N.Y., 3, Tel: RA 3-9661, Main Office: Albany, N.Y.

SBM Associates, Inc., Nowlan Rd., RD 3, Binghamton, N.Y., 3, 4, Tel: RAymond 2-2648, Main Office: Rochester, N.Y.

Stack Electronics, Inc., 45-49 Washington St., Binghamton, N.Y., 2, Tel: RAymond 3-6326 (NEDA)

Brightwaters, L.I.
(Telephone Area Code—516)

Aironic Accessory Co., Inc., 165 Orinoco Dr., Brightwaters, L.I., N.Y., 3, Tel: 516-MOhawk 6-6510 (ERA)
Advanced Electronics Corp.: RF filters, telemetry equip. **California Technical Industries:** Tape programmed automatic test equip. **Electrical Engineering & Mfg.:** Motors & actuators **Electronic Specialty Co.:** Systems & components. **Kintronic Div., Chicago Aerial Industries:** Potentiometers. **Technicraft:** Waveguide assemblies.

Brooklyn
(Telephone Area Code—212)

AMA Electronic Corp., 1041 Flatbush Ave., Brooklyn 25, N.Y., 2 (NEDA)

Bay Electronic Distributors, 3480 Nostrand Ave., Brooklyn 29, N.Y., 2, Tel: DEwey 2-7170 (NEDA)

Brown Co., Inc. (Irving), 1500 Carroll St., Brooklyn 13, N.Y., 3 (ERA)
Atlas Sound Corp., Cletron, Inc., Cousino Electronics, Holmin Corp. (William A.), International Rectifier Corp., Mellotone, Inc., Tenatronics, Ltd., Workman TV Products, Inc.

Buchman Radio Distributors (Sam), 860 Atlantic Ave., Brooklyn 38, N.Y., 2, Tel: NEvins 8-0300 (NEDA)

Fisher Sales Co. (Steve), 800 Greenwood Ave., Brooklyn 18, N.Y., 3, Tel: CH 2-5825 (ERA)
Arco Electronics, Jersey Specialty Co., Sencor, Wall Mfg. Co. (P.).

Green Tele-Radio Distributors, Inc., 472 Sutter Ave. Brooklyn 7, N.Y., 2, Tel: HYacinth 5-0200 (NEDA)

Hy-Grade Electronics, Inc., 9216 Church Ave., Brooklyn 36, N.Y., 2 (NEDA)

Laco Electronics Co., Inc., 4924 Fourth Ave., Brooklyn 20, N.Y., 2, Tel: HYacinth 2-5920 (NEDA)

National Radio Parts Distributing Co., 572 Albany Ave., Brooklyn, N.Y., 2, Tel: PResident 8-0800 (NEDA)

Quad Electronics, Inc., 1511 Coney Island Ave., Brooklyn 30, N.Y., 2, Tel: CLoverdale 8-9200 (NEDA)

Siclari Co. (Vincent), 949 51st St., Brooklyn 19, N.Y., 3, 4, Tel: GEdney 6-4567
Biomedical instruments, transducers, oscillographic & monitoring systems.

Tallen Co., Inc., 159 Carlton Ave., Brooklyn 5, N.Y., 2
Communications equipment.

Buffalo
(Telephone Area Code—716)

Allen, Inc. (Leonard D.), 1043 Walden Ave., Buffalo 11, N.Y., 3, Tel: 716-TX 5-6915, Main Office: Syracuse, N.Y.

Components for Industry, 23 Sedgemoor Ct., Buffalo 21, N.Y., 3, Tel: 716-NF 3-8900 (ERA)
Avco Research & Development, Bradford Components, Inc., Columbia Research Labs., Inc., JFD Electronics Corp., Kolk Mfg. Co., Inc., MB Electronics, Pyrofilm Resistor Co., Inc.

Dymac, Inc., 2325 Main St., Buffalo 14, N.Y., 2, Tel: TF 3-2300 (NEDA)

Farber Associates, Inc. (Maury), 215 Root Bldg., 70 W. Chippewa St., Buffalo 2, N.Y., 3, Tel: 716-TL 6-3543 (ERA)
American Electrical Heater, Cetron Electronic Corp., Dale Electronics, Inc., Electronic Research Assoc., Ideal Precision Meter Co., Network Industries, Inc., Pendar, Inc., Silicon Transistor Corp.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Genesee Radio & Parts Co., Inc., 2550 Delaware Ave., Buffalo 16, N.Y., 2, Tel: TR 3-9661 (NEDA)

Huron Electronic Supply Co., Inc., 324 N. Oak St., Buffalo 3, N.Y., 2, Tel: MOhawk 6845 (NEDA)

Jacobson Co., Inc. (Leo), 1366 Kenmore Ave., Buffalo, N.Y., 3, Tel: DElaware 0442 (ERA)
Components, raw materials.

Jackson Co. (Robert W.), 4446 Main St., Buffalo 26, N.Y., 3, Tel: MAdison 3306 (ERA)
Components.

Lamb Co. (Robert F.), 3407 Delaware Ave., Buffalo 17, N.Y., 3, Tel: 716-TR 6-3757
Agastat: Time delay relays. **Esterline Angus:** Recording instruments. **Fenwal:** Thermal controls. **Hays Corp.:** Process control instruments. **Magnetics, Inc.:** Magnetic amplifiers. **Potter & Brumfield:** Relays. **Sensitive Research Instrument Corp.:** Instruments.

Radio Electric Products, Inc., 186 Genesee St., Buffalo 3, N.Y., 2, Tel: TL 2-6454 (NEDA)

Radio Equipment Corp., 147 Genesee St., Buffalo 3, N.Y., 2, Tel: TL 6-1415 (NEDA)

Reagan Co., Inc. (J. A.), 145 Millbrook Dr., Williamsville, Buffalo, N.Y., 3, Tel: NF 2-2727, Main Office: Albany, N.Y.

Scheller Electronics Corp., 929 Kensington Ave., Buffalo 15, N.Y., 2, Tel: TF 6-2100 (NEDA)

Standard Electronics, 1501 Main St., Buffalo 9, N.Y., 2, Tel: TT 3-5000 (NEDA)

Summit Distributors, Inc., 916 Main St., Buffalo 2, N.Y., 2, Tel: TT 4-3450 (NEDA)
Bendix: Semiconductors. **CBS Labs.:** Semiconductors. **General:** Semiconductors. **Honeywell:** Semiconductors. **Hughes:** Semiconductors. **Motorola:** Semiconductors. **North American:** Semiconductors. **Philco:** Semiconductors. **Rheem:** Semiconductors. **Sarkes Tarzian:** Semiconductors. **Silicon Transistor:** Semiconductors. **Sylvania:** Semiconductors.

Wehle Electric Co., Inc., 475 Ellicott St., Buffalo 3, N.Y., 2, Tel: TL 4-3270 (NEDA)

Camillus
(Telephone Area Code—315)

Brogan Associates, Inc., 102 Forrest Way, Camillus, N.Y., 3, Tel: ORange 2-8290, Main Office: Mineola, L.I., N.Y.

Callahan Co. (W. J.), 107 Greenhedge Dr., Camillus, N.Y., 2, Tel: 315-HU 8-5518 (ERA)
Argos Products: Cabinets. **International Rectifier Corp.:** Rectifiers. **Sangamo Electric Co.:** Capacitors. **Service Instruments:** Test equip. **Superior Insulated Wire:** Twin lead. **Switchcraft, Inc.:** Plugs, jacks, switches, cable assemblies. **Vaco Products:** Tools, terminals.

Wolf Co. (O. C.), 307 Mansfield Dr., Camillus, N.Y., 3 (ERA)

Corona
(Telephone Area Code—212)

Delmonico International, 120-20 Roosevelt Ave., Corona 68, N.Y., 1, 2, 3, 4, Tel: TW 9-5959

Mannfred Electronics Corp., 102-09 Northern Blvd., Corona 68, N.Y., 2, Tel: ILlinois 7-4900 (NEDA)

DeWitt
(Telephone Area Code—315)

Wall Associates, P.O. Box 161, DeWitt, N.Y., 3 (ERA)
Components & raw materials

Wulfetange Co. (J. F., Jr.), 4505 E. Genesee St., DeWitt 14, N.Y., 3, Tel: GI 6-3330 (ERA)

Elmont, L.I.
(Telephone Area Code—516)

Director Associates (Murray), 115-62 237th St., Elmont, L.I., N.Y., 3, Tel: CUrtis 5-6823 (ERA)
Arkay International: Kits. **Finney Co.:** Germanium diodes & antennas. **Sightmaster Corp.:** Fuses. **United Electronic Mfg. Co.:** Electrolytic capacitors. **U.X.L. Corp.:** Cables & harnesses.

Endicott
(Telephone Area Code—607)

D B Associates, Inc., 16 Jefferson Ave., Endicott, N.Y., 3, Main Office: Syracuse, N.Y.

Fayetteville
(Telephone Area Code—315)

Components for Industry, 110 Woodmancy Lane, Fayetteville, N.Y., 3, Tel: NE 7-9601, Main Office: Buffalo, N.Y.

Kennedy Co., Inc. (R. P.), P.O. Box 54, Fayetteville, N.Y., 3, Main Office: Rochester, N.Y.

Flushing
(Telephone Area Code—212)

Bettan Sales Co. (Marty), 77-15 164th St., Flushing 66, N.Y., 3, Tel: 212-OLympia 7-6659 (ERA)
Bel Canto Sterophonic Recordings, Central Electronics, Equipto Electronics, Gonset Div., Hy-Gain Antenna Products, JFD Electronics, Magnecord Div., Permoflux Corp., Ward Products.

Harris, Inc. (Arthur M.), 42-34 195th St., Flushing 58, N.Y., 3, Tel: FLushing 7-7350 (ERA)
Atlantic Wire & Cable Co.: Wire. **Eby Sales Co.:** Sockets, shields, connectors. **Electro-Mechanical Instrument Co.:** Ammeters, voltmeters, voltage testers. **Electro-Products, Inc.:** Antenna adapters. **Lectrohm, Inc.:** Resistors. **Philmore Mfg. Co.:** Kits, detectors, mikes. **Planet Sales Corp.:** Condensers. **Premier Metal Products:** Housings. **Simpson Mfg. Co. (Mark):** PA amplifiers, intercoms.

Weiland Associates (George H.), 76-49 168th St., Flushing 66, N.Y., 3, Tel: OLympia 8-4061 (ERA)
Components.

Forest Hills
(Telephone Area Code—212)

Baum Co. (Sydney H.), 70-15 Fleet St., Forest Hills 75, N.Y., 3 (ERA)
Aerovox Corp.: Capacitors. **Cinema Engineering Div.:** Resistors, attenuators, switches, equalizers, toroids. **HiQ Div.:** Capacitors, resistors. **Littelfuse, Inc.:** Fuses, circuit breakers.

Miller Co. (Jack), 1 Continental Ave., Forest Hills 75, N.Y., 3, Tel: 212-BOulevard 3-4446 (ERA)
Condenser Products Co.: Capacitors & power supplies. **Constanta Co. of Canada:** Resistors. **Farmer Electric Products Co.:** Photoelectric scanners & relays, timers. **Philamon Labs., Inc.:** Tuning fork resonators. **WacLine, Inc.:** Panel meters, voltmeters. **Walkirt Co.:** Logic modules, encapsulators.

Garden City, L.I.
(Telephone Area Code—516)

Rever Associates, Suite 315, 600 Old Country Rd., Garden City, L.I., N.Y., 3, Tel: 516-PIoneer 1-3811
Acoustica Associates, American Speedlight, Arnold Magnetics Corp., Bell, Inc. (F. W.), General Communication Co., Motorola, Inc., Presin Co.

Glen Cove, L.I.
(Telephone Area Code—516)

Scott Co. (George G.), 6 Stuart Dr. W., Glen Cove, L.I., N.Y., 3, Tel: 516-ORiole 6-2088
Central Electronics, Hy-Gain Antenna Products Corp., Technical Wire Products Corp.

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Gloversville
(Telephone Area Code—518)

Fulton County Distributing Co., 16 Bleecker St., Gloversville, N.Y., 2, Tel: GLoversville 5-2515

Great Neck, L.I.
(Telephone Area Code—516)

Cain & Co., 260 Northern Blvd., Great Neck, L.I., N.Y., 3, 4, Tel: 516-HN 6-0600
Alloyd Electronics, Behlman Engineering, Clary Corp., Electrada Corp., Remanco, Inc., Royco Instruments, Trak Microwave, Tucor, Inc.

Ellis-Haber Corp., 11 Northern Blvd., Great Neck, L.I., N.Y., 3, Tel: HUnter 7-5145 (ERA)
Control Technology: Servo amplifiers. **Edcliff Instruments:** Accelerometers. **Electric Regulator Corp.:** Voltage regulators. **Electro-Mechanical Specialties:** Relays. **Gray & Kuhn:** Delay lines. **IMC Magnetics:** Heat exchangers. **Kemtron:** silicon diodes. **Planet:** Gear heads.

Joseph Associates (Ben), 43 S. Middleneck Rd., Great Neck, L.I., N.Y., 3, Tel: 516-HUnter 7-9395 (ERA)
Mueller Electric Co.: Test clips & insulators. **Saxton Products, Inc.:** Wire & cable.

Pacent Engineering Corp., 300 Northern Blvd., Great Neck, L.I., N.Y., 3, Tel: 516-HUnter 2-4678
Inso Electronic Products, Inc.: Insulated wire & cable. **Moloney Electric Co.:** Hypercores, transformers, reactors, chokes, rectifiers. **Tepro Electric Corp.:** Wire-wound resistors.

Rand Associates, P.O. Box 445 Great Neck, L.I., N.Y., 3, Tel: HUnter 7-9268
American Electronics, Inc.; Instrument Div.: Tachometers, logic-stepper controls.

Rutt Co. (William), 123 Middle Neck Rd., Great Neck, L.I., N.Y., 3, Tel: 516-HUnter 2-8160 (ERA)
Sprague Electric Co.: Capacitors, resistors, instruments, transistors, wire, filters.

Travco Associates, Inc., 45 N. Station Plaza, Great Neck, L.I., N.Y., 3, Tel: 516-HUnter 7-9666 (ERA)
See ad on this page
Arnoux Corp.: Temperature measuring equip., airborne power supplies. **Di/An Controls:** Magnetic & solid-state digital/analog systems & components. **Gerator Corp.:** 400-cycle no-brush generators, battery chargers. **Magtrol, Inc.:** Magnetic clutches, brakes, actuators, torquers, dynamometers. **Naybor Labs. (E. V.):** Time-delay relays, symbol indicators, miniature relays. **Norbatrol Electronics Corp.:** Static control devices. **Rheem Electronics:** Photocell punched tape readers, machine-tool controls. **Telemetrics, Inc.:** Telemetry test equipment, digital decoms. **Vard, Inc.:** Hydraulic vibration test.

Hartsdale
(Telephone Area Code—914)

Components Sales Corp., 218 E. Hartsdale Ave., Hartsdale, N.Y., 3, Tel: 914-SCarsdale 5-1050 (ERA)
Accurate Instrument Co.: Frequency standards, dividers, power inverters, power modules. **American Measurement & Control, Inc.:** Torque motors, flow meters, phase shifters, amplifiers. **Computer Instruments Corp.:** Potentiometers, commutators, transducers. **Digitronics Corp.:** Clutches, tape readers. **Dressen-Barnes Corp.:** Power supplies. **Dynamics Instrumentation Co.:** Amplifiers, filters, microvoltmeters. **ESC Corp.:** Delay lines, transformers. **Globe Industries, Inc.:** Motor products. **Precision Mechanisms Corp.:** Miniature mechanical components. **Schaevitz Engineering:** Transducers, recorders & indicators

Instrument Sales Corp., Hartsdale, N.Y., 3, Tel: 914-SCarsdale 5-0800 (ERA)
American Measurement & Control: Control instrumentation. **Dynamics Instrumentation:** Amplifiers. **Measurement Control Devices:** Gaging & control instrumentation. **Royal Research Corp.:** Enclosures. **Schaevitz Machine Works:** Rotary accelerators.

Zlowe Co. (Leonard), 15 N. Central Ave., Hartsdale, N.Y., 3, Tel: OW 3-2922 (ERA)
DeWald, Dyna Co., E-Z Way Towers.

Hempstead, L.I.
(Telephone Area Code—516)

Davis Electronics Corp., 204 Main St., Hempstead, L.I., N.Y., 2, Tel: IVanhoe 3-9200 (NEDA)

Harrison Electronics Corp., Industrial Sales Div. of Harrison Radio Corp., 1, 2, 4, Tel: 516-IVanhoe 6-7660, Main Office: New York, N.Y.
See ads on pages 415, 441, 565, 575, 593, 633, 644

Hempstead Electronics Corp., 414 Fulton Ave., Hempstead, L.I., N.Y., 2, Tel: IVanhoe 1-7888 (NEDA)

Kubrick & Yurman, 475 S. Franklin St., Hempstead, L.I., N.Y., 3, Tel: IVanhoe 3-7230 (ERA)
Kenwood Engineering Co.: Antenna accessories. **Lectroloid:** Wire & cable. **S & A Electronics:** Antennas. **Wald Mfg. Co.:** Auto antennas. **Wen Products:** Soldering guns, power tools.

R & S Electronic Sales Corp., P.O. Box 217, Hempstead, L.I., N.Y., 3, 4, Tel: 516-IVanhoe 5-1040
Technical Devices Co.: Wire cutters & strippers, component lead formers.

Standard Parts Corp., 277 N. Franklin St., Hempstead, L.I., N.Y., 2, Tel: IVanhoe 1-9010 (NEDA)

Hewlett, L.I.
(Telephone Area Code—516)

Kirshbaum Co. (Jerry), 1533 Peninsula Blvd., Hewlett, L.I., N.Y., 3, Tel: FRanklin 4-0111 (ERA)
Astatic Corp., Consolidated Wire & Associates Co., Micamold, Osborne, Radio Recepter Co., Inc., Rockbar Corp., Waldom, Xcelite, Inc.

Hicksville, L.I.
(Telephone Area Code—516)

Salsbury Associates, Inc., 87 Broadway, Hicksville, L.I., N.Y., 3, Tel: 516-WElls 8-1080 (ERA)
Custom Components, Inc.: Microwave absorbers & ferrites. **Ferrotec, Inc.:** Ferrite devices. **Formcraft Tool Co.:** Flanges. **Maury & Associates:** Coaxial devices. **Metavac, Inc.:** Resistors. **Microwave Development Labs.:** Waveguide components. **Strand Labs., Inc.:** Stalos.

Jackson Heights
(Telephone Area Code—212)

Associated Television Service Corp., 86-06 37th Ave., Jackson Heights 72, N.Y., 4, Tel: ILlinois 8-8800

Landis Sales Co. (Cliff), 76-11 37th Ave, Jackson Heights 72, N.Y., 3, Tel: 212-ILlinois 8-7900 (ERA)
Amplifier Corp. of America: Audio equip. **Permacel:** Tapes & adhesives. **Trimm, Inc.:** Headsets, plugs, jacks & panels.

Jamaica
(Telephone Area Code—212)

Friedman & Associates (A.), 189-19 Jamaica Ave., Jamaica 23, N.Y., 3, Tel: 212-SPruce 6-4800 (ERA)
Gurian & Co., Inc. (Edward E.), I. H. Mfg. Co., Inc., Microtran Co., Ram Electronics, Rauland Corp., Resisco Corp., Seco Electronics, Inc., Toepfer Co. (Alfred C.), Wyco Metal Products.

Harrison Electronics Corp., Industrial Sales Div. of Harrison Radio Corp., 144-24 Hillside Ave., Jamaica, N.Y., 1, 2, 4, Tel: 212-REpublic 9-4102, Main Office: New York, N.Y.
See ads on pages 415, 441, 565, 575, 593, 633, 644

Lafayette Radio Electronics Corp., Lafayette Industrial Electronics Div., Dept. PX-2, 165-08 Liberty Ave., Jamaica 33, N.Y., 2, Tel: 212-OLympia 8-5050, Main Office: Syosset, L.I., N.Y.
See ad on this page

Levison Sales Co., Inc., 172-15 Hillside Ave., Jamaica 32, N.Y., 3, Tel: 212-AXtel 1-5610 (ERA)
Bel Fuse Co.: Chemical fuses, delay lines. **Chicago Dial Co.:** Plates. **Emerald Mfg. Co.:** Panels. **Lansky Die Cutting:** Cardboard backs. **Renco Electronics:** Coils. **Standard Electrical Products:** Transformers, switches. **Staver Co.:** Tube shields. **Topic Electronics:** Electrolytic capacitors.

Norman Radio Distributors, Inc., 94-29 Merrick Rd., Jamaica 33, N.Y., 2, Tel: REpublic 9-4651 (NEDA)

Peerless Radio Distributors, Inc., 92-32 Merrick Rd., Jamaica 33, N.Y., 2, Tel: REpublic 9-6080, Main Office: Lynbrook, N.Y.

S-J Sales Engineering Co., 148-05 Archer Ave., Jamaica, N.Y., 3, Tel: AXtel 1-3232 (ERA)
CTS Corp.: Switches. **Diamond Coils, Inc.:** Coils & ferrite antennas. **Eby, Inc. (Hugh H.):** Tube sockets, posts. **Glaser-Steers Corp.:** Record changers **Greibach Instrument Co.:** Meters. **Licon Div.:** Action switches. **Merkle-Korff Gear Co.:** Gear motors. **Quality Transformer & Coil Co.:** Transformers. **Reon Resistor:** Precision resistors & pots. **Solitron Devices, Inc.:** Silicon rectifiers. **United International Dynamics:** Sockets, switches.

Jericho, L.I.
(Telephone Area Code—516)

Miller Associates (Gilbert E.), 47 Birchwood Park Dr., Jericho, L.I., N.Y., 3, Tel: 516-OVerbrook 1-6335 (ERA)
Artizens: Cabinets. **Dexter Chemical Co.:** Tone-arm lifts. **Distributors Group:** Tape cleaners. **Frazier International Electronics:** Speaker systems. **Sargent-Rayment Co.:** Stereo tuners & amplifiers. **Scott Radio Laboratories:** Consoles. **Shiro Trading Corp.:** Citizen's band equip. **Tandberg of America:** Tape recorders.

Kenmore
(Telephone Area Code—716)

Cerf & Co. (Art), 300 Highland Pkwy., Kenmore 23, N.Y., 3, Tel: TR 3-1643, Main Office: Newark, N.J.

Kingston
(Telephone Area Code—914)

Arace Electronics Distributor, 16 Van Deusen St., Kingston, N.Y., 2, Tel: FEderal 8-6622 (NEDA)

Little Neck
(Telephone Area Code—212)

Miller Co. (Ben), P.O. Box 72, Little Neck 63, N.Y., 3, Tel: 212-BAyside 9-5769 (ERA)
IMC Magnetics Corp., United Transformer Corp.

Liverpool
(Telephone Area Code—315)

Advanced Components Corp., Inc., 119 Luther Ave., Liverpool, N.Y., 3, Tel: GR 2-7886 (ERA)
Instruments.

Naco Electronics Corp., 119 Luther Ave., Liverpool, N.Y., 3, Tel: 315-GRanite 4-7481 (ERA)
Airborne Instruments Lab.; American Optical Co. Instrument Div., Analab Instrument Corp., Bogart Mfg. Corp., Communication Measurements Lab., Cubic Corp., Frequency Standards, Inc., ITT Industrial Products Div., Kepco, Inc., Microwave Electronics Corp., Polarad Electronics Corp., Rutherford Electronics Co.

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4. Sales & service
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Wadsworth Mfg. Associates, Inc., 509 Balsam St., Liverpool, N.Y., 2, 3, Tel: 315-OLdfield 2-7043 (ERA)
Components, Inc.: Tantalytic capacitors. **Diamonite Products Mfg. Co.:** Alumina ceramics. **General Electric:** Panel meters, soldering irons, leak detection equip. **National Ceramic Co.:** Steatites. **Quality Components:** Capacitors, cores. **Sagertown Glaseals, Inc.:** Glaseals, automation equip., metallized ceramics. **Warren Components Div., El-Tronics Corp.:** Plastics.

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Dalis Inc. (H. L.), 35-35 24th St., Long Island City 6, N.Y., 2, Tel: EMpire 1-1100 (NEDA)

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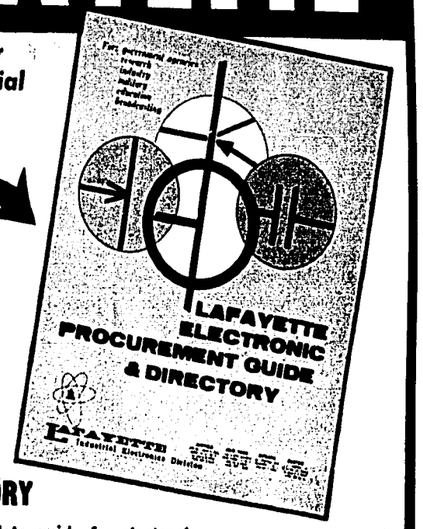

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Hardware Specialty Co., Inc., 48-75 36th St., Long Island City 1, N.Y., 2, Tel: 212-EMpire 1-9393
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Peerless Radio Distributors, Inc., 19 Wilbur St., Lynbrook, L.I., N.Y., 2, Tel: 516-LYnbrook 3-2121 (NEDA)
Amphenol-Borg: Connectors. **Centralab:** Rotary switches. **General Electric:** Semiconductors, tubes. **Minneapolis-Honeywell:** Semiconductors, switches, panel meters. **P.S.I.:** Semiconductors. **Radio Corp. of America:** Semiconductors, tubes, test equip. **Sarkes Tarzian:** Semiconductors. **Simpson Electric:** Panel meters. **Texas Instruments:** Circuit breakers.

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Wimpie Associates Inc. (S.), 510 W. Boston Post Rd., Mamaroneck, N.Y., 3, Tel: OW 8-7100 (ERA)
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Spellman Co. (Fred), 1295 Northern Blvd., Manhasset, L.I., N.Y., 3, Tel: 516-MAnhasset 7-3399 (ERA)
Central Resistor Corp.: Resistors. **Elco Corp.:** Tube shields & sockets, connectors. **Jensen Mfg. Co.:** Speakers. **Mel-Rain Corp.:** Potentiometers, rheostats, circuit breakers. **Pyramid Electric Co.:** Capacitors. **Radio Materials Co.:** Ceramic capacitors.

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Adelphi Electronics, Inc., 142 Mineola Blvd., Mineola, L.I., N.Y., 2, Tel: 516-PIoneer 7-5195 (NEDA)
See ads on pages 591, 627
Bogue: Semiconductors. **Bradley:** Semiconductors. **Dickson:** Semiconductors. **Stancor Electronics:** Transformers. **Tung-Sol:** Semiconductors. **United Transformer Corp.:** Transformers.

Arrow Electronics, Inc., 525 Jericho Tnpke., Mineola, L.I., N.Y., 2, Tel: 516-PIoneer 6-8686 (NEDA)
See ad on this page
Alpha Wire, American Phenolic, Amperex Electronic Corp., Amperite, Amphenol, Belden Mfg. Co., Bud Radio, Burgess Battery, Cannon Electric, Centralab, Cinch-Jones Mfg., Circuit Instruments, Clevite Semiconductor, Columbus Semiconductor, Continental Carbon, Cornell-Dubilier, Dialight, Drake Mfg. Co., Electric Soldering Iron, Eveready Batteries, Freed Transformer, General Electric, Good-All Electronic Mfg. Co., Grayhill, Guardian Electric, Hughes Aircraft Co., International Rectifier, International Resistance, J-B-T Instruments, JFD Electronics Corp., Kenyon Transformer, Kurman Electric Corp., Littelfuse, Inc., Mallory, Microtran, Miller Co. (J. W.), Mueller Electric, National Carbon, Ohmite Mfg. Co., Par-Metal Products, Potter & Brumfield, Premier Metal Products, Pyramid Electric Co., Radio Corp. of America, Radio Receptor Co., Raytheon Co., Rheem Semiconductor Corp., Rimak, Sangamo Electric, Sarkes Tarzian, Silicon Transistor, Simpson Electric, Smith, Inc. (Herman H.), Sola Electric, Sprague Products, Stabaline Regulators, Stancor Electronics, Superior Electric, Switchcraft, Inc., Sylvania Electric Products, Triad Transformer, Triplett Electrical Instruments, Tung-Sol, Ungar Electric Tools, United Transformer, Vector Electronics, Vemaline, Ward Leonard, Waterman, Weller, Westinghouse, Wirt Co.

Brogan Associates, Inc., 220 Jericho Tnpke., Mineola, L.I., N.Y., 3, Tel: 516-PIoneer 7-3230 (ERA)
Daytex Corp.: Encoders, data processing-logging systems. **Erie-Pacific Div.:** Digital counters, counter-timers. **Micro-Gee Products, Inc.:** Gyro testers, flight simulation tables. **North Atlantic Industries, Inc.:** Voltmeters, servo indicators, AC/DC converters. **Packard Bell Computer Corp.:** A-D &D-A converters & systems. **Photocircuits Corp.:** Photoelectric tape readers. **RMS Associates, Inc.:** Character generators, radar calibration. **Rotek Instrument Corp.:** AC/DC comparators, voltage standards. **Sangamo Electric Co.:** Magnetic tape transports. **Trans-Sonics, Inc.:** Pressure transducers.

Schweber Electronics, 60 Herricks Rd., Mineola, L.I., N.Y., 2, Tel: 516-PIoneer 6-6520
See ad on this page
Amphenol-Borg Electronics: Connectors & cables. **Bourns:** Pots. **Cannon Electric Co.:** Plugs. **Daystrom:** Potentiometers. **Elgin/Advance:** Relays. **Fairchild:** Transistors, diodes. **General Electric:** Tantalum capacitors & relays. **Ohmite Mfg. Co.:** Resistors & rheostats. **Vitramon:** Capacitors. **Westinghouse:** Semiconductors.

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Burlingame Associates, 510 S. Fulton Ave., Mount Vernon, N.Y., 3, Tel: 914-MOunt Vernon 4-7530 (ERA)
See ads on pages 251, 270, 293, 294, 322, 325, 333, 339, 356, 358, 359, 362, 363, 365, 366, 477, 527, 643, 659
Allison Labs.: Variable audio filters, octave band analyzers. **Brush Instruments:** Recording oscillographs, operations monitors. **Cimron Corp.:** Digital voltmeters, test equip. **Dynatran Electronics Corp.:** Semiconductor test equip. **Electric Specialty Co.:** Precise power systems, MG sets. **Electronic Tube Corp.:** Oscilloscopes, cameras, CR tubes. **Empire Devices, Inc.:** RF noise, field intensity, microwave equip. **Holt Instrument Labs.:** AF voltage calibration standards. **Omnitronics, Inc.:** High speed photoelectric tape readers, printers. **NJE Corp.:** Power supplies. **Narda Microwave Corp.:** Microwave test equip. & components. **Radiation at Stanford:** Transmitters, modulators, custom equip. **Rese Engineering, Inc.:** Test equipment. **Smith-Florence, Inc.:** Micro-voltmeters, cable fault finders. **Stantron:** Modular cabinets. **Systron-Donner Corp.:** Analog computers, digital systems voltmeters, counters. **Wayne Kerr Corp.:** Universal, RF, & VHF bridges, audio & video instruments.

Fischer Distributing Co., Inc., 630 S. Columbus Ave., Mount Vernon, N.Y., 2, Tel: OWens 9-9100 (NEDA)

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Diehl Co. (John F.), P.O. Box 13, Hillside Manor, New Hyde Park, L.I., N.Y., 3, Tel: 516-FL 4-3234, Main Office: New York, N.Y.

L & M Associates, P.O. Box 556, New Hyde Park, L.I., N.Y., 3, Tel: GEneral 7-1999, Main Office: Saddle Brook, N.J.

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Cannon Electric Co.: Plugs, coax connectors, DC solenoids. **Curtis Development & Mfg. Co.:** Terminal blocks. **Dresser Electronics, HST Div.:** Transformers. **Dynamic Instrument Corp.:** Clutches & brakes. **International Instruments, Inc.:** Panel meters. **Raychem Corp.:** Tubing, coax cable. **Sigma Instruments, Inc.:** Sensitive relays. **Switchcraft, Inc.:** Jacks, plugs, switches. **TruOhm Products Div.:** Resistors, rheostats. **Victory Engineering Corp.:** Thermistors, varistors.

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Adelman Co. (Leon L.), 25 Chittenden Ave., New York 33, N.Y., 3, Tel: 212-SWinburne 5-1145; 141 Broadway, Room 1801, New York 7, N.Y., 3, Tel: 212-WOrth 2-5308 (ERA)
See ad on this page
Austin-Craft: Battery holders. **Clarostat:** Controls & resistors. **Karg Labs.:** Tuners, crystal-controlled FM tuners. **L & K Mfg.:** Solderless connectors & plugs. **Lenk:** Soldering irons. **Lowell:** Baffles. **Metalworks:** Consoles. **Omega:** Transistorized amplifiers. **Partridge:** Audio transformers. **Pickering:** Magnetic pickups. **Standard Kollsman:** TV tuners. **Technical Appliance:** Antennas. **Tek-Kit:** Transistorized code-practice kits. **Telephone & Electronics:** Citizen's Band transceivers. **Wilder:** Speakers.

Adson Radio & Electronics Co., 189 Greenwich St., New York 7, N.Y., 2, Tel: 212-BArclay 7-3629 (NEDA)

American Advancement Corp., 50 Church St., New York 7, N.Y., 1, 3, Tel: 212-BArcley 7-3900

American Laubscher Corp., 250 W. 57th St., New York 19, N.Y., 3, Tel: 212-JUdson 6-7474

Arrow Electronics, Inc., 65 Cortlandt St., New York 7, N.Y., 2, Tel: 212-DIgby 9-3790, Main Office: Mineola, L.I., N.Y.
See ad on page 820

Astronetics, 1, 2, Tel: 212-WOrth 2-2699, Main Office: Atlantic Highlands, N.J.

Atlas Electronics Corp., 1317 First Ave., New York 21, N.Y., 2, Tel: Trafalgar 9-3331 (NEDA)

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Bach Sales Co., 1 E. 42nd St., New York, N.Y., 3, Tel: 212-MUrray Hill 7-1240, Main Office: Old Bethpage, L.I., N.Y.

Barry Electronics Corp., 512 Broadway, New York 12, N.Y., 1, 2, 5, Tel: 212-Walker 5-7000 (NEDA)
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Becker Co. (Irving), 635 E. 14th St., New York 9, N.Y., 3, Tel: 212-PLaza 7-6454 (ERA)
Antronic Corp., Arnhold Ceramics, IE Mfg., Radec Electrical Products, Riemer Co., (David), Rye Sound Corp., Shell Electric Mfg. Co., Wilder Engineering Products.

Bressler Associates, 3, Tel: 212-OXford 5-3727
See ad on page 815

Breuer Co., Inc. (R. E.), 10 Columbus Circle, New York 19, N.Y., 3, Tel: CO 5-0440 (ERA)

Bronx Wholesale Radio, 472 E. Fordham Rd., New York 58, N.Y., 2, Tel: FOrdham 4-4662 (NEDA)

Bruno-New York, Inc., Electronic Parts Div., 460 W. 34th St., New York 1, N.Y., 2, Tel: 212-LOngacre 4-8550
A.T.R., Aerovox, Alpha Wire, Amperite, Amphenol, Arrow-Hart & Hegeman, Birnbach, Bruno-N.Y. Industries, Burgess, Bussman, Centralab, Continental Carbon, Cornell-Dubilier, Elco, Electro Products, Electro-Voice, Elmenco, Erie, Eveready, Fanon, Genalex, General Cement, Guardian, Hammarlund, Hunter Tools, ITT, Industro, J-B-T, Johnson (E. F.), Kraeuter, Krylon, L.M.B., Littelfuse, Mallory, Miller (J. W.), Mueller, Mullard, Paco, Pomona, Precision, Pyramid, Radio Corp. of America, Simpson Electric, Smith, Inc. (H. H.), Sprague, Stancor, Ungar, United Components, University Loudspeakers, Vaco, Wall Mfg. Co. (P.), Weller Electric, Wheeler Electronics.

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Calvert Electronics, Inc., 536 Broadway New York 12, N.Y., 1, 2, 3, 5, Tel: 212-CAnal 6-7400
Tubes & semiconductors.

Camber Co. (Marty), 1700 York Ave., New York 28, N.Y., 3, Tel: 212-EXright 9-4222 (ERA)
Cryogenics, Inc.: Cryogenic instrumentation. **Micamold Div. of General Instrument:** Capacitors. **Woodward-Schumacher Electric Co.:** Chokes, transformers.

Cooper-Simon & Co., Inc., 400 E. 79th St., New York 21, N.Y., 3 (ERA)
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Coronet Electronic, Inc., 120 Liberty St., New York 6, N.Y., 2, Tel: 212-COrtlandt 7-3760
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Crane & Egert Corp., 97 Reade St., New York 13, N.Y., 3, Tel: 212-WOrth 4-0096 (ERA)
Autotron, Inc.: Photoelectric controls. **Computer Instruments Corp.:** Meters. **Flow Corp.:** Random signal & flow instrumentation. **Heinz Mueller Engineering Co., Inc.:** Motors & generators. **Philbrick Researches, Inc. (George A.):** Analog computing components. **Scott, Inc. (H. H.):** Acoustic instrumentation. **Wang Laboratories, Inc.:** Digital blocks.

Crofton Associates (T. J.), 30 Rockefeller Plaza, New York 20, N.Y., 3 (ERA)

Dale Electronics Co., 319 W. 14th St., New York 11, N.Y., 2, Tel: ALgonquin 5-3660, (NEDA)

Delsam Radio-TV, 2665 Grand Concourse, New York 68, N.Y., 4, Tel: 212-CYpress 8-3657
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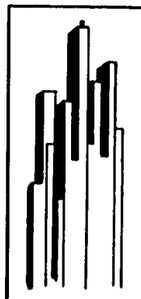

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Egert Co. (Samuel S.), 97 Reade St., New York 13, N.Y., 3, Tel: 212-WOrth 4-0996 (ERA)
Continental-Wirt Electronics Corp.: Resistors, switches. **Nucleonic Products Co., Inc.:** Germanium semiconductors, photoconductors. **Omega Electric:** Relays. **Oxford Electric Corp.:** Speakers. **Supreme Transformer Corp.:** Transformers.

Electro-Tech Equipment Co., 85 10th Ave., New York 11, N.Y., 2, Tel: ORegon 5-2400 (NEDA)

Electronic Fasteners Co., 102 Warren St., New York 7, N.Y., 2, Tel: 212-CO 7-1711
ESNA, Everlock, Palnut, Penn Engineering, Shakeproof, Tinnerman, United-Carr, Zierick.

Electronic Surplus Brokers, 148 Chambers St., New York 7, N.Y., 5, Tel: 212-REctor 2-1591

Electronic Tube Sales, Inc., 161 Washington St., New York 6, N.Y., 2, Tel: 212-BArclay 7-4141
Tubes & semiconductors.

Electronic World, Inc., 1799 First Ave., New York 28, N.Y., 2, Tel: ENright 9-3700 (NEDA)

Electronics Center, Inc., 211 W. 19th St., New York 11, N.Y., 2, Tel: ALgonquin 5-4600 (NEDA)

Emeltone Electronics Co., 71 West Broadway, New York 7, N.Y., 1, 2, 5, Tel: 212-REctor 2-1696
See ad on this page
Tubes, magnetrons, klystrons, transmitting tubes, transistors, diodes & test equipment.

Empire Electronics Co., 74 Cortlandt St., New York 7, N.Y., 5, Tel: 212-WOrth 2-5272
Controls & relays.

Engel & Associates, Inc. (G. Curtis), 3, Tel: 212-REctor 2-0001, Main Office: Ridgewood, N.J.
See ad on page 814

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Ercona Corp., Dept. P-8, 16 W. 46th St., New York 36, N.Y., 1, Tel: 212-CIrcle 5-3840
See ad on page 441
Belling & Lee, Ltd.

Federated Purchaser, Inc., Time & Life Bldg., Rockefeller Center, New York, N.Y., 2, Tel: 212-DIgby 9-3050, Main Office: Mountainside, N.J.

Fields & Simon Sales Co., 3, Tel: 212-WOrth 2-3318, Main Office: Montclair, N.J.
See ad on page 813

Fordham Radio Supply Co., 265 E. 149th St., New York 51, N.Y., 2, Tel: LUdlow 5-0330 (NEDA)

Freed & Co. (Leo), 420 Lexington Ave., New York 17, N.Y., 3, Tel: 212-LExington 2-4771 (ERA)
Electronic Components Corp.: Transformers. **Fast & Co. (John E.):** Capacitors. **Gavitt Wire & Cable Co.:** Cable. **Quincy Speaker Mfg. Corp.:** Speakers. **Solar Mfg. Corp.:** Ceramic capacitors, barium-titanate products. **United Tool & Stamping Co.:** Stampings. **William Tell Wood Products, Inc.:** Cabinets. **Wirecraft Products, Inc.:** Teflon wire.

Gancher Co. (Louis), 468 W. Broadway, New York 12, N.Y., 2, 5, Tel: 212-GRamercy 7-4755

Garron Aircraft Supply, Inc., 5 Union Sq., New York 3, N.Y., 2, 3, Tel: 212-ORegon 5-8700
Electronic hardware.

Gawler-Knoop Co., 3, Tel: 212-DIgby 4-2997, Main Office: Roseland, N.J.

Glass Associates (Ed), 250 W. 57th St., New York, N.Y., 3, Tel: JU 6-8440 (ERA)
Components & raw materials.

Goldberg Associates (Max G.), 270 Lafayette St., New York 12, N.Y., 3, Tel: 212-CAnal 6-7468 (ERA)
Amplifone Corp.: Yokes. **Micarta Fabricators:** Printed boards. **Mid-West Coil & Transformer:** Transformers & chokes. **Servwell Products:** Screw machine products.

Gray Associates (Harold), 3, Tel: 212-BRyant 9-3766, Main Office: Tenafly, N.J.

Graybar Electric Co., Inc., 420 Lexington Ave., New York 17, N.Y., 2, Tel: 212-Lexington 2-4000

Greenberg Associates (Jerry), 16 Hudson St., New York 13, N.Y., 3 (ERA)
Conrac, Federal Electronics, Glaser-Steers, Lansing Sound (James B.), Superscope, Inc.

Greenwich Sales Co., 84 Cortlandt St., New York 7, N.Y., 5

Greylock Electronics Supply Co., Inc., 550 W. 168th St., New York 32, N.Y., 2, Tel: SWinburne 5-9050 (NEDA)

Haas Electronics Co., 862 Southern Blvd., New York 59, N.Y., 2, Tel: DAyton 9-1466 (NEDA)

Harrison Electronics Corp., Industrial Sales Div. of Harrison Radio Corp., 227 Greenwich St., New York 7, N.Y., 1, 2, 4, Tel: 212-BArclay 7-7777 (NEDA)
See ads on pages 415, 441, 565, 575, 593, 633, 644
APM: Hex-seals, screws. **Acrovox:** Capacitors. **Akro-Mils:** Cabinets. **Alpha:** Wire. **American Beauty:** Soldering irons. **Amperite:** Ballast tubes, relays. **Amphenol:** Sockets, connectors, plugs, cable. **Arrow-Hart & Hegeman:** Switches. **Astatic:** Microphones. **Atlas Sound:** Stands. **Audio Devices:** Recording tape. **Barker & Williamson:** Amateur transmitters, components. **Belden:** Wire. **Beta:** Wire markers. **Birnbach:** Wire, jacks, plugs & sockets. **Bliley:** Crystals. **Bogen** P.A. systems. **Bourns:** Trimpots. **Bud:** Cabinets, capacitors. **Burgess:** Batteries. **Bussman:** Fuses. **Centralab:** Capacitors, switches, controls. **Cinch-Jones:** Terminal strips, sockets, plugs. **Clarostat:** Controls, resistors. **Collins:** Amateur equip. **Cornell-Dubilier:** Capacitors. **Cutler-Hammer:** Switches. **Dale:** Resistors. **Dialco:** Pilot-light assemblies. **Dow-Key:** Relays. **Drake:** Soldering irons. **Eby:** Plugs, sockets. **Eico:** Kits. **Elmac:** Tubes. **Electro-Voice:** Microphones. **Electrovert:** Cradle-clips. **Equipto:** Cabinets. **Erie:** Capacitors, trimmers. **Garlock:** Teflon sockets, standoffs, terminals. **General Electric:** Tubes, semiconductors, transformers. **Gonset:** Amateur equip. **Grayhill:** Switches, clips, posts. **Hallicrafters:** Amateur equip. **Hammarlund:** Capacitors, receivers. **Hickok:** Test equip. **Hoffman:** Semiconductors. **Ideal:** Strippers, thermotips, foot switches. **International Resistance Corp.:** Switches, controls, resistors. **J-B-T Instrument:** Switches, meters. **Johnson (E. F.):** Sockets, dials. **Jones Div. (M. C.):** Test equip. **Kester:** Solder. **Keystone Electronics:** Battery clips. **Krylon:** Spray paint. **Kurz-Kasch:** Knobs. **Lerco:** Lugs, terminals. **Littelfuse:** Fuse clips, fuses. **Magnecraft:** Relays. **Mallory:** Capacitance switches, controls, tantalum capacitors. **Microdot:** Connectors. **Microtran:** Transformers. **Millen:** Terminal strips, plugs, sockets, shields. **Miller (J. W.):** RF-IF coils. **Minnesota Mining & Mfg.:** Recording & electrical tape. **Mosley:** Amateur antennas. **Multicore:** Solder. **National Co.:** Amateur equip., coils, knobs, capacitors. **North Hills:** Coils. **Ohmite:** Resistors, capacitors, rheostats. **Oryx:** Soldering irons. **Par-Metal Products:** Cabinets, panels. **Penta Laboratories:** Tubes. **Potter & Brumfield:** Relays. **Precision Apparatus:** Test equip. **Premier Metal Products:** Cabinets. **Radio Corp. of America:** Tubes, semiconductors, test equip. **Sangamo:** Capacitors. **Sarkes Tarzian:** Rectifiers. **Shure:** Microphones. **Simpson:** Meters, test equip. **Smith (H. H.):** Plugs, sockets, terminal strips. **Sprague:** Tantalum capacitors. **Stancor Electronics:** Transformers. **Standard Electric:** Variable transformers. **Superior:** Powerstats. **Switchcraft:** Plugs, switches, cable assemblies. **Telrex:** Amateur antennas. **Thordarson-Meissner:** Transformers. **Trimm:** Headsets. **Triplett:** Panel meters, test equip. **Turner:** Microphones. **Ungar:** Soldering irons. **United Transformer Co.:** Transformers. **University:** Speakers. **Utica Drop Forge:** Tools. **Vaco:** Tools. **Vector:** Plugs, boards, adapters. **Wall (P.):** Soldering irons. **Walsco:** Hardware, tools. **Ward:** Antennas. **Weller Electric:** Soldering irons & guns. **Wood:** Circuit breaker/switches. **Xcelite:** Tools.

Harvey Radio Co., 103 W. 43rd St., New York 36, N.Y., 2, Tel: JUdson 2-1500 (NEDA)

Heller Associates (Joseph L.), 3, Tel: 212-LAckawanna 4-5064, Main Office: Englewood, N.J.
See ad on page 811

Hughes Co., Inc. (Kenneth E.), 3, Tel: 212-OXford 5-0082, Main Office: Union City, N.J.
See ad on page 814

Interstate Electronics, Inc., 227 Fulton St., New York 7, N.Y., OEMD, 2, Tel: 212-BEekman 3-8780
See ad on page 406
Corning Glass Works: Capacitors. **Elco Corp.:** Sockets, shields. **Erie Resistor Corp.:** Resistors. **National Co.:** Electronic hardware. **Pyramid Electric Co.:** Capacitors. **Sangamo Electric Co.:** Capacitors. Also: Resistors, connectors, wire, cable, meters, sockets, chokes, etc.

Jayso Electronics Corp., 819 E. 180th St., New York 60, N.Y., 2, Tel: SEdgwick 3-9331 (NEDA)

Kahant Associates, 3, Tel: 212-COrtlandt 7-5326, Main Office: Newark, N.J.

Kahgan Sales Corp., 1261 Broadway, New York 1, N.Y., 3, Tel: 212-MUrray Hill 4-7772 (ERA)
Amperex Electronic: Tubes & transistors. **Dickson Electronics:** Zener diodes. **Ferroxcube Corp.:** Ferrites & pot cores. **Gulton Industries:** Capacitors & thermistors. **Hopkins Engineering:** Capacitors. **International Electronic Industries:** Capacitors. **Raytheon Co.:** Components. **Rotating Components:** Blowers, motors & servos.

Knickerbocker Annunciator Co., Inc., 75 Murray St., New York 7, N.Y., 2, 3
Belden Mfg. Co.: Wire & cable.

Lafayette Radio Electronics Corp., Lafayette Industrial Electronics Div., 100 Sixth Ave., New York 13, N.Y., 2, Tel: 212-WOrth 6-5300, Main Office: Syosset, L.I., N.Y.
See ad on page 819

Lafayette Radio Electronics Corp., Lafayette Industrial Electronics Div., 542 E. Fordham Rd., New York 58, N.Y., 2, Tel: 212-FOrdham 7-8813, Main Office: Syosset, L.I., N.Y.
See ad on page 819

Landes Electronic Fasteners, 510 W. Broadway, New York 12, N.Y., 2, 5, Tel: 212-ALgonquin 4-4594
Tinnerman: Bolts, clamps, eyelets, extruded tubing, grommets, lugs, nuts, rivets, screws, spacers, springs, shock mounts, terminals, wire.

Leonard Radio, Inc., 69 Cortlandt St., New York 7, N.Y., 2, Tel: COrtlandt 7-0315 (NEDA)

Magnet Wire, Inc., 25 Walker St., New York 13, N.Y., 1, 2, 4, Tel: 212-CAnal 6-0900
Driver-Harris Co.: Resistance wire. **General Electric Co.:** Magnet wire. **Phelps Dodge Copper Products Corp.:** Bare & tinned wire, magnet wire **Technical Tape Corp.:** Pressure-sensitive tapes.

Marcy Associates (Robert J.), 1776 Broadway, New York 19, N.Y., 3, Tel: 212-CIrcle 5-3880 (ERA)
Fabricast, Inc., Halex, Inc., Harcast Co., Inc., Keystone Products Co., Langevin Mfg. Co., Power Instruments Corp.

Metropolitan Supply Corp., Div. of Metropolitan Overseas Supply Corp., Dept. ER-11, 1133 Broadway, New York 10, N.Y., 1, 2, 5, Tel: 212-CHelsea 3-1105
See ad on page 645
Amperex, Bendix, Bomac, CBS, DuMont, Eimac, General Electric, ITT, Machlett, Metrotube, National Union, RCA, Raytheon Sperry, Sylvania, Tung-Sol, Varian, Westinghouse: Semiconductor devices, voltage regulators, electron tubes, transistors, diodes, rectifiers, etc.

Micro Specialties, 1896 Walton Ave., New York 53, N.Y., 2, 5, Tel: 212-CYpress 4-1525
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Mogull Co. (A.), 17 Warren St., New York 7, N.Y., 1, 2, 5, Tel: 212-WOrth 4-0865
See ad on this page
Allen-Bradley: Potentiometers. **Cinch-Jones:** Connectors, strips, **Ohmite:** Rheostats, resistors. **Amphenol, Bendix, Cannon, Continental, USC, Winchester:** Connectors. Also all makes capacitors, mica capacitors, wirewound resistors, switches, etc.

Morse Sales (Irv), 150 Broadway, New York 38, N.Y., 3, Tel: COrtlandt 7-2913 (ERA)
Components, coils, chassis, terminal strips, wire.

National Radio Distributors Corp., 1165 Southern Blvd., New York 59, N.Y., 2, Tel: DAyton 8-8800 (NEDA)

New Yorker Electronics Co., Inc., 40 E. 21st St., New York 10, N.Y., 1, 2, Tel: 212-ORegon 4-5120
See ad on this page
Amperite, Inc.: Ballast tubes. **CBS:** Semiconductors. **Eastern Precision Resistor:** Resistors. **Electro-Motive:** Capacitors. **Gremar Mfg.:** Connectors. **Kemtron, Inc.:** Diodes. **Mullard:** Tubes. **National Radio, Inc.:** Equipment knobs. **National Union Electric:** Tubes. **Sprague Products:** Capacitors, tubes. **Telefunken:** Tubes. **Tung-Sol:** Tubes, diodes. **Westinghouse:** Tubes.

Newhope Corp., 6 E. 39th St., New York 16, N.Y., 3 (ERA)
American Television & Radio Co.: Inverters, vibrator power supplies. **Centralab:** Controls, switches, capacitors, circuits. **Duotone, Inc.:** Discs, recording tape. **Electric Soldering Co., Inc.:** Soldering irons. **Krylon, Inc.:** Protective coatings. **North American Philips Co.:** Speakers, tape recorders, microphones, record changers. **Reeves Soundcraft Corp.:** Tapes

Page Electronics, 136 Liberty St., New York 6, N.Y., 2, 5, Tel: 212-COrtlandt 7-4245
See ad on page 647
Power & industrial tubes, including backward-wave & traveling-wave types.

Progress Electronics Co., Inc., 107 Franklin St., New York 13, N.Y., 2, Tel: 212-CAnal 6-5611 (NEDA)
See ad on page 824
Amphenol-Borg Corp.: All lines. **Cannon Electric Co.:** All lines. **Dage Electric Co., Fenwal Electronics, Inc., Gremar Mfg. Co., Hughes Semiconductor, ITT (Components Div.), Industrial Products Co., Silicon Transistor Corp.**

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American Electronics: Alternator sets **Baldwin-Lima-Hamilton:** Strain gages, transducers. **Burroughs Corp.:** Beam switching, indicator tubes, pulse systems. **Dymec (Div. of Hewlett-Packard Co.):** Instrumentation systems. **Hewlett-Packard Co.:** Complete electronic instrumentation. **Kin Tel Div.:** Instruments. **Sorenson & Co., Inc.:** High voltage supplies. **Varian Associates:** Klystrons, recorders, vacuum pumps, microwave components & equipment.

RMS Electronics, Inc., 2016 Bronxdale Ave., New York 62, N.Y., 2, Tel: 212-TYrone 2-6700

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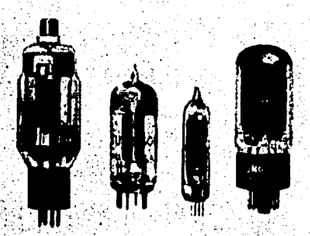
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Radio Research Instrument Co., 550 Fifth Ave., New York 36, N.Y., 5, Tel: 212-JUdson 6-4691
Radar & microwave equipment, carrier equipment, airborne transceivers, antenna pedestals.

Radiophon Corp., 509 Madison Ave., New York 22, N.Y., 1, 3, Tel: 212-ELdorado 5-5198

Reed & Riddett Co., 3, Tel: 212-PEnnsylvania 6-0665, Main Office: Englewood Cliffs, N.J.

Repco Electronic Sales Co., Inc., 3, Tel: 212-OXford 5-6980, Main Office: Palisades Park, N.J.

Resistor Wholesalers Corp., 71 Murray St., New York 7, N.Y., 2
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Rocke International Corp., 13 E. 40th St., New York 16, N.Y., 1, Tel: 212-MUrray Hill 9-0200 (ERA)

Ross Associates (Milton), 550 5th Ave., New York 36, N.Y., 3, Tel: 212-JUdson 6-0653 (ERA)
American Capacitor Corp., American Radionic Products, Automatic Metal Products, Better Coil & Transformer Corp., General Wire Products, Standard Winding Div. of Ovitron, Superior Resistor & Electronics.

Saftler Associates, Inc. (P.), 157 W. 57th St., New York 19, N.Y., 3, Tel: 212-CIrcle 7-3855 (ERA)
All Star Products: Variable capacitors. **Astatic Corp.:** Microphones & cartridges. **Britton Electronics:** Selenium & silicon rectifiers. **General Industries:** Phonograph & fractional motors. **McGregor Electronic Industries:** Speakers. **Midwec Sales Co.:** Fixed capacitors. **Sightmaster Corp.:** Fuses. **Standard Winding Div. of Ovitron, Thermatics, Inc.:** Wire. **Wells Electronics:** Coils.

Simberkoff Sales Co., 3, Tel: 212-WHitehall 3-7023, Main Office: Orange, N.J.

Slate & Co., 3960 Merritt Ave., New York 66, N.Y., 2, Tel: FAirbanks 5-5050 (NEDA)

Smith Co. (Howard F.), 259 W. 14th St., New York 11, N.Y., 3, Tel: CH 2-2398 (ERA)

Smith-Meeker Engineering Co., 157 Chambers St., New York 7, N.Y., 3, 4, Tel: 212-WOrth 4-5510
Aircraft Radio Corp., Bendix Radio, Collins Radio Co., Electro-Voice, Langevin, RCA, Sperry Gyroscope, Vega, Webster Electric Co.

Sprung Associates (Joseph), 254 W. 31st St., New York 1, N.Y., 3, Tel: 212-LO 5-1820 (ERA)
Alcon Metal Products: Tube sockets, shields. **General Products Corp.:** Terminal boards, capacitors. **ITT (Components Div.):** Selenium & silicon rectifiers, zener diodes. **Nytronics:** Chokes, delay lines, pulse transformers. **Stackpole Carbon Co.:** Potentiometers, switches, resistors, capacitors, ferrites & magnets. **Victoreen Instrument Co.:** Regulator tubes, resistors

State Labs, Inc., 215 Park Ave. S., New York 3, N.Y., 1, 2, 3, 5, Tel: 212-OREgon 7-8400
See ad on page 643
Brown-Boveri: Tubes. **Ericsson (L. M.):** Tubes.

Sun Radio & Electronics Co., Inc., 650 Sixth Ave., New York 11, N.Y., 2, Tel: 212-ORegon 5-8600 (NEDA)
See ad on this page
Aerovox: Capacitors. **Amphenol-Borg:** Connectors. **Bourns:** Trimpots **Bud:** Steel & aluminum fabrications. **Calfonex:** Chemicals for electronics. **Centralab:** Switches & capacitors. **G.E.:** Semiconductors. **General Instrument:** Semiconductors. **J-B-T:** Switches. **Ohmite:** Relays, resistors & controls. **Potter & Brumfield:** Relays. **R.C.A.:** Tubes, semiconductors, testers, batteries. **Raytheon:** Semiconductors, tubes, voltage regulators, mechanical components. **Sliton:** Semiconductors. **Simpson:** Test equipment & panel meters. **Sprague:** Capacitors. **Superior Electric:** Voltage regulators. **U.T.C.:** Transformers.

Sylvan-Wellington Co., 269 Canal St., New York 13, N.Y., 2, Tel: CAnal 6-5811 (NEDA)

Symon Associates, 550 Fifth Ave., New York 36, N.Y., 3, Tel: 212-JUdson 6-7771 (ERA)
Anders Electronics, Inc.: Power supplies. **Ferrotran Electronics Co., Inc.:** Transistorized products. **Lieco., Inc.:** Microwave components & test. **Patwin Div. (Patent Button Co.):** Indictors. **Pomona Electronics Co., Inc.:** Patch-cords, cable assemblies, sockets. **Regdon Corp.:** Solenoids

TAB, 111 Liberty St., New York 6, N.Y., 2, 5, Tel: 212-REctor 2-6248

Telectrad, 148 Chambers St., New York 7, N.Y., 1, Tel: 212-REctor 2-1591

Terminal-Hudson Electronics, Inc., 236 W. 17th St., New York 11, N.Y., 2, Tel: 212-CHelsea 3-5200 (NEDA)

Terminal Radio International, Ltd. 240 W. 17th St., New York 11, N.Y., 1, Tel: 212-CHelsea 3-5200

Time Electronic Sales, 373 Broadway, New York 13, N.Y., 1, 2, Tel: 212-BArclay 7-3922
Cannon Electric Co.

Tobias & Co., Inc. (D. F.), 30 Church St., New York 7, N.Y., 3, Tel: 212-COrtlandt 7-4349 (ERA)
J-B-T Instruments, Inc.: Switches, elapsed-time, temperature-indicating & frequency meters. **Schauer Mfg. Corp.:** Battery chargers. **Shurite Meters:** Panel meters. **Triplett Electrical Instrument Co.:** Panel meters, test equipment.

Tower Sales Engineering Co., 550 Fifth Ave., New York 36, N.Y., 3, Tel: 212-PLaza 7-6454
Design Tool Co.: Automatic machinery. **Electronic Signals:** Proximity switches. **Norcross Corp.:** Viscosity instrumentation. **Perinton Electric Products:** Welding. **Secon Metals Corp.:** Wire.

Transitube, Inc., 129 Fifth Ave., New York 3, N.Y., 2, Tel: 212-LF 3-5580
See ad on page 826
Amperex, Anton, Bendix, Bomac, Burroughs, CBS, Chatham, Continental, Delco, DuMont, Eitel-McCullough, Electrons, Fairchild, General Electric, Hughes, ITT (Federal Tel. & Kuthe), Litton, Machlett, Microwave Assoc., Motorola, National Electronics, Pacific Semiconductor, Penta, RCA, Raytheon, Sperry, Sylvania, Texas, Transitron, Tung-Sol, United Electronics, Varian, Victoreen, Western Electric, Westinghouse: Tubes & Semiconductors.

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United Research Laboratory, 681 Fifth Ave., New York 22, N.Y., 2, 3, Tel: 212-PLaza 1-4660
Altec, Presto.

United Teletronic Parts Corp., 1991 Broadway, New York 23, N.Y., 2, Tel: ENdecott 2-9695 (NEDA)

Universal Relay Corp., 42 White St., New York 13, N.Y., 2, Tel: 212-WAlker 5-9257
See ad on page 569
Circuit breakers—low voltage, high current types. Rectifiers—selenium, silicon, full wave bridge types. Relays—all types, most makes. Stepping switches, solenoids, power supplies.

Weber Associates (Jack), 63 E. 9th St., New York 3, N.Y., 3, Tel: GR 3-7813 (ERA)
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Western International Co., 45 Vesey St., New York 7, N.Y., 2, Tel: 212-DIgby 9-2275
Atlas Wire & Cable, Belden, Chester, General Cable, Royal, Tensolite.

Wilco Radio Distributors, 383 E. 138th St., New York 54, N.Y., 2, Tel: MOtt Haven 9-1654 (NEDA)

Wilgreen Industries, Inc., 100 Warren St., New York 7, N.Y., 2, Tel: 212-WOrth 4-2490
Amphenol-Borg, Bendix, Cannon, Continental, Deutsch, Winchester: Connectors.

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Richter Co. (William), 107 Dolores Terr. S., North Syracuse, N.Y., 3, Tel: GL 4-1051 (ERA)
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Sturdy Co., Inc. (R. H.) 119 Bailey Rd., North Syracuse, N.Y., 3, Tel: HA 2-4786, Main Office: Newton, Mass.

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Bach Sales Co., 26 Mahan Rd., Old Bethpage, L.I., N.Y., 3, Tel: 516-CHapel 9-1324 (ERA)
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Freed & Co. (Leo), 1967 Five Mile Line Rd., Penfield, N.Y., 3, Main Office: New York, N.Y.

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Components Sales Corp., Pittsford, N.Y., 3, Tel: DUdley 1-1510, Main Office: Hartsdale, N.Y.

Richter Co. (William), P.O. Box 158, Pittsford, N.Y., 3, Tel: LU 6-6464, Main Office: North Syracuse, N.Y.

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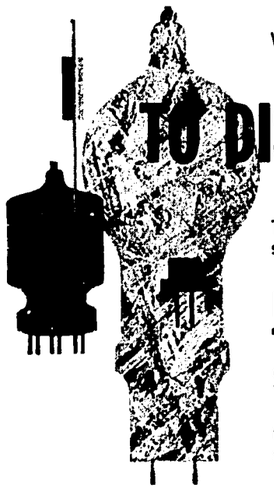
American Electronics Co.: Relays, switches. **American-Standard Controls Div.:** Switches. **Control Co. of America:** Solenoids, switches. **Electronic Research Co.:** Quartz crystals, ovens. **Good-All Electric Mfg. Co.:** Capacitors. **Mucon Corp.:** Ceramic capacitors. **Torotel, Inc.:** Toroids, filters. **Wells Industries, Inc.:** Precision potentiometers.

Carduner Sales Corp., 80 Shore Rd., Port Washington, L.I., N.Y., 3, Tel: PO 7-7700 (ERA)

Di Blasi Associates, Inc. (John), 90 Main St., Port Washington, L.I., N.Y., 3, Tel: 516-POrt Washington 7-0470 (ERA)
Airpax Electronics, Inc., Cascade Research, Federated Electronics, Inc., Millen Mfg. Co., Inc., Radio Development & Research Corp., Scientific Radio Products, Inc., Tru-Connector Corp.

O.E.M. Sales Corp., 80 Shore Rd., Port Washington, L.I., N.Y, 3, Tel: 516-POrt Washington 7-7700
See ad on this page
Agard Electronics Corp.: Printed-circuit boards. **Carter Motor Co.:** Dynamometers, converters, frequency changers. **Electro-Voice, Inc.:** Microphones, speakers, cartridges. **Guidance Controls Corp.:** Precision potentiometers. **Melcor Electronics Corp.:** Servo amplifiers. **Milwaukee Transformer Co.:** Transformers. **Rosan, Inc.:** Fasteners, inserts.



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American Electronics Supply, Inc., 480 Saint Paul St., Rochester 5, N.Y., 2, Tel: LOcust 2-3010 (NEDA)

Brown Associates (Jack), 157 Rawlinson Rd., Rochester, N.Y., 3, Tel: COngress 6-2728, Main Office: Yonkers, N.Y.

Case Electronics Supply Co., Inc., 82 Saint Paul St., Rochester 4, N.Y., 2, Tel: BAker 5-4582 (NEDA)

Electro-Rep Sales Co., 187 Culver Rd., Rochester 7, N.Y., 3, Tel: GR 3-7398 (ERA)
Amateur short-wave & SWL communications equip., sound equipment.

Hi-C Electronics, Inc., 109 State St., Rochester 14, N.Y., 2, Tel: BAker 5-8110 (NEDA)

Kennedy Co., Inc. (R. P.), 182 Mayflower Dr., Rochester 18, N.Y., 3, Tel: BRowning 1-6322 (ERA)
Associated Testing Labs., Atlee Corp., Burnell & Co., Inc., Consolidated Electrodynamics Div., Cunningham Sons & Co., Inc. (Jas.), Electric Indicator Co., Engineered Electronics Div., Filtron Corp., International Instrument, Inc., Isotronics, Inc., Kings Electronics, Monitor Products, Precision Metal Products, Precision Paper Tube Co., Robinson Technical Products, Sippican Corp., Unholtz-Dickie Corp.

Marsey Sales, Inc., 529 Merchants Rd., Rochester 9, N.Y., 3, Tel: HUbbard 2-4133 (ERA)
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Masline Electronics, Inc., 511 S. Clinton Ave., Rochester 20, N.Y., 2, Tel: HAmilton 6-0790 (NEDA)

Naco Electronics Corp., 74 Park Ave., Rochester, N.Y., 3, Tel: GReenfield 3-4169, Main Office: Liverpool, N.Y.

Ossmann & Associates (Edward A.), 830 Linden Ave., Rochester 25, N.Y., 3, Tel: LU 6-4940 (ERA)
Faradyne Electronics Corp.: Capacitors. **Semiconductor Devices, Inc.:** Diodes.

Rochester Radio Supply Co., Inc., 600 E. Main St., Rochester 5, N.Y., 2, Tel: LOcust 2-9900 (NEDA)

SBM Associates, Inc., 177 Winton Rd. N., Rochester 10, N.Y., 3, 4, Tel: OLympic 4-8440 (ERA)
Applied Microwave: Antennas, filters. **Ballantine Labs.:** Voltmeters. **Boonton Electronics:** Bridges & VTVM's. **DuMont Div.:** Oscilloscopes, cameras. **E-H Research Labs.:** Pulse generators. **Epsco Components:** Circuits, shift registers. **Harrison Labs.:** Power supplies. **Non-Linear Systems:** Digital voltmeters. **Offner Electronics:** Recorders, oscillographs. **Precision Instrument:** Tape recorders. **Shockley Transistor:** Diodes. **Sierra Electronics:** Transistor testers. **Spencer-Kennedy Labs.:** Pulse generators, amplifiers. **Technibilt Corp.:** Scope carts. **Vogue Instrument:** Potentiometers.

Saftler Associates, Inc. (P.), 1600 East Ave., Rochester 10, N.Y., 3, Main Office: New York, N.Y.

Simberkoff Sales Co., 5 Sandhurst Dr., Rochester, N.Y., 3, Tel: MUrray 8-2463, Main Office: Orange, N.J.

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Fishner Co. (Stanley), 120 Colonel Dr., P.O. Box 1012, Rome, N.Y., 3, Tel: 315-FF 7-6670
Polarad Electronics Corp.: Instrumentation. **Smith Electronics, Inc.:** Communications systems, antenna design.

Rome Electronics, Inc., 108 Spring St., Rome, N.Y., 2, Tel: FF 7-5400 (NEDA)

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Sturdy Co., Inc. (R. H.), 199 Park Ave., Roosevelt, L.I., N.Y, 3, Tel: MA 3-0423, Main Office: Newton, Mass

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Aaron & Co. (Bertram), P.O. Box 186, Roslyn, L.I., N.Y., 3, Tel: MAyfair 1-0630
Bomac Labs., Inc.: Microwave tubes. **Budd-Stanley, Inc.:** Microwave test equipment. **Chemalloy, Inc.:** Calorimeters. **DonLan, Inc.:** Switches. **Gabriel Electronics:** Microwave antennas. **Melabs, Inc.:** Ferrite components.

Hicks Co. (W. M.), 4 Spruce Dr., Roslyn, L.I., N.Y., 3, Tel: 516-MAnhasset 7-6150 (ERA)
Escon, Inc.: Hermetic connectors. **Gibson Electric Co.:** Silver contacts. **Jeffers Electronics Div. (Speer Carbon Co.):** Choke coils, capacitors. **Speer Resistor Div. (Speer Carbon Co.):** Resistors. **Standard Connector Co.:** Connectors.

Lichter Co. (William), 26 Teak Wood Lane, Roslyn, L.I., N.Y., 3, Tel: MA 1-2636 (ERA)

Roslyn Heights, L.I.
(Telephone Area Code—516)

Hecht Electronics, Inc., 31 Snapdragon Lane, Roslyn Heights, L.I., N.Y., 3, Tel: MA 1-8462 (ERA)

Schenectady
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Aeroconomy Agency, 1079 Lexington Ave., Schenectady 9, N.Y., 3, 4, Tel: 518-FRanklin 2-8426
National Ultrasonic Corp.: Ultrasonic cleaning systems.

Electric City Radio Supply, 2469 Albany St., Schenectady 4, N.Y., 2, Tel: DIckens 6-4213 (NEDA)

New York

Grimmer's Electronic Parts Supply, 41 N. Brandywine Ave., Schenectady 7, N.Y., 2, Tel: FRanklin 2-0337 (NEDA)

Schenectady Electronic Distributing Corp., 1708 Altamont Ave., Schenectady 3, N.Y., 2, Tel: ELgin 5-4840 (NEDA)

Winick Co. (Charles A.), 1445 Valencia Rd., Schenectady 9, N.Y., 3, Tel: 518-EXpress 3-2288 (ERA)
Bon-De Electronics, Inc., Calibration Standards Corp., Cryogenics, Inc., Electro Precision Corp., Electronic Measurements Co., Inc., Instruments For Industry, Jerrold Electronics Corp., Lab. For Electronics, Inc., Lumatron Electronics, Inc., Millivac Instruments, Optimized Devices, Inc., Rustrak Instruments, Inc., Transistor Specialties, Inc.

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Land-C-Air Sales Co., 18 Hawkins St., Silver Creek, N.Y., 3, Tel: YE 4-3670, Main Office: Tuckahoe, N.Y.

South Farmingdale, L.I.
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Drexler Co. (Chester), 3 Lee Dr., South Farmingdale, L.I., N.Y., 3, Tel: CH 9-8206 (ERA)

Staten Island
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AAT Service Corp., 68 Winham Ave., Staten Island 6, N.Y., 4, Tel: ELgin 1-1333
Service distributor.

B & D Distributing Co., 639 Tomkins Ave., Rose Bank, Staten Island 5, N.Y., 2, Tel: GIbralter 7-2660 (NEDA)

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Lafayette Radio Electronics Corp., Lafayette Industrial Electronics Div., 111 Jericho Tnpke., Syosset, L.I., N.Y., 2, Tel: 516-WAlnut 1-7700
See ad on page 819
A.T.R.: Converters. **Aerovox:** Capacitors. **Akro-Mils:** Cabinets. **Allen-Bradley:** Resistors. **Alpha:** Wire. **American Electrical Heater:** Soldering irons. **Amphenol-Borg:** Connectors. **Amprobe:** Testers. **Arco:** Capacitors. **Argonne:** Transformers. **Arrow-Hart-Hegeman:** Switches. **Barber-Colman:** Relays. **Barco:** Capacitors. **Barker & Williamson:** Coils. **Belden:** Wire. **Birnbach:** Wire. **Burgess:** Batteries. **Bussman:** Fuses. **Camblock:** Terminals. **Cambridge Therm.:** Terminals. **Centralab:** Capacitors. **Chicago:** Transformers. **Cinch-Jones:** Terminal strips. **Circuit Instrument:** Potentiometers. **Clairex:** Photocells. **Clarostat:** Potentiometers. **Conant Labs.:** Rectifiers. **Continental:** Connectors. **Cornell-Dubilier:** Capacitors. **Cutler-Hammer:** Switches. **Davies Molding:** Knobs. **Dialight:** Dial lights. **Dow-Key:** Coax. switches. **Drake Electric:** Soldering irons. **Drake Mfg.:** Dial lights. **Dremel:** Tools. **Ebert:** Relays. **Eby:** Sockets, connectors. **Eico:** Kits & connectors. **Equipto:** Cabinets **Erie Resistor:** Capacitors **Esico:** Soldering irons. **Eveready:** Batteries. **Federal Anti-Cap.:** Switches. **Genalex:** Tubes. **General Cement:** Parts. **General Electric:** Tubes, semiconductors, meters. **General Radio:** Variacs. **Glennite:** Thermistors. **Gonset:** Amateur equipment. **Greenlee:** Chassis punchers. **Guardian:** Relays. **Hallicrafters:** Amateur equipment. **Hammarlund:** Amateur equipment. **Hexacon:** Tools. **Hickok:** Test equipment. **Inter-Matic:** Timers. **International Resistance:** Resistors. **ITT (Federal):** Rectifiers, cable. **J-B-T:** Switches **Johnson (E. F.):** Amateur equipment. **Jones (H. B.):** Terminals, plugs. **Kester:** Solder. **Keystone:** Battery holders. **Kings:**

Connectors. **Krueger:** Tools. **Krylon:** Sprays. **Kulka:** Terminal strips. **Kupfrian:** Power supplies. **Kwikheat:** Soldering irons. **Lafayette:** Breadboards, terminals, switches, relays. **Lenk:** Solder irons. **Littelfuse:** Fuses. **Lynn-Vaco:** Tools. **Mallory:** Resistors, capacitors. **Master Mount:** Antennas. **Meissner:** Coils. **Minnesota Mining:** Tapes **Mosley Electronics:** Antennas. **Mueller:** Clips. **Mullard:** Tubes. **Multicore:** Solder. **National Carbon:** Batteries. **National Co.:** Amateur equipment. **Ohmite:** Pots. **Oryx:** Soldering irons. **Paco:** Test equipment. **Philco/Lansdale:** Semiconductors. **Potter & Brumfield:** Relays. **Precision Apparatus:** Test equipment. **Premier Metal:** Cabinets. **R.C.A.:** Tubes, semiconductors. **Raytheon:** Semiconductors. **Rodale:** Switches. **Sangamo:** Capacitors. **Sarkes-Tarzian:** Rectifiers **Schauer:** Converters. **Seco:** Test equipment. **Sencore:** Test equipment. **Shurite:** Meters. **Simpson:** Meters, test equip. **Smith (H. H.):** Terminals. **Sonar:** Communications. **Sprague:** Capacitors. **Stanco:** Variable transformers. **Stancor:** Transformers. **Std. Coil Products:** Coils. **Std. Rectifier:** Silicon rectifiers. **Stanley:** Tools. **Sterling Precision:** Gears. **Superior Instrument:** Test. **Switchcraft:** Plugs, jacks. **Sylvania:** Tubes, semiconductors. **Technitrol:** Pulse transformers. **Texas Instrument:** Semiconductors, capacitors, resistors. **Thor:** Tools. **Thordarson** Transformers. **Triplett: Meters,** test equipment. **Ungar:** Soldering tools. **Unimax:** Switches. **U.T.C.:** Transformers. **Utica:** Tools. **Vaco:** Tools. **Vector:** Breadboards, terminals. **Wall:** Soldering irons. **Weller:** Soldering guns. **Wen:** Soldering guns, tools. **Willard:** Batteries. **X-Acto:** Tools. **Xcelite:** Tools.

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Allen, Inc. (Leonard D.), P.O. Box 32, Salina Station, Syracuse, N.Y., 3, Tel: 315-GRanite 1-3108 (ERA)
A.P.M. Corp.: Seals & fasteners. **Allied Control Co.:** Relays. **Antenna Specialists Co.:** Antennas. **Beamco Associates, Inc.:** Batteries. **Campbell Industries, Inc.:** Resistors. **Carbonneau Industries, Inc.:** Speakers. **Clarostat Mfg. Co.:** Controls & resistors. **Communication Accessories Co.:** Toroids, transformers, filters. **Elco Corp.:** Connectors. **Electralab Printed Electronics Corp.:** Lubricants. **Electro-Mechanical Instrument Co.:** Meters. **Fidelitone Microwave, Inc.:** Needles. **Good-All Electric Mfg. Co.:** Capacitors. **Kulka Electric Corp.:** Terminal blocks. **Osborne Electronic Sales Corp.:** Duo-Com radios. **Reeves Soundcraft:** Tape, Discs. **Resistance Products Co.:** Resistors. **Rohn Mfg. Co.:** Towers. **Rotating Components, Inc.:** Motors, blowers. **Smith, Inc. (H. H.):** Hardware. **Sonotone:** Cartridges, tubes. **Technical Appliance Corp.:** Antennas. **Ungar Electric Tools, Inc.:** Soldering irons. **V-M Corp.:** Tape recorders. **Worner Electronic Devices:** Amplifiers. **Xcelite, Inc.:** Tools.

Bressler Associates, 1433 Court St., Syracuse, N.Y., 3, Tel: 315-GRanite 1-8650, Main Office: Union City, N.J.
See ad on page 815

Burlingame Associates, 514 University Bldg., Syracuse, N.Y., 3, Tel: 315-GRanite 4-7409, Main Office: Mount Vernon, N.Y.
See ads on pages 251, 270, 293, 294, 322, 325, 333, 339, 356, 358, 359, 362, 363, 365, 366, 477, 527, 643, 659

Carse Electric Corp., 639 S. Warren St., P.O. Box 23, Syracuse 15, N.Y., 3, Tel: 212-GRanite 1-3074, Main Office: Albany, N.Y.

D B Associates, Inc., 3307 Erie Blvd. E., P.O. Box 284, DeWitt, Syracuse, N.Y., 3, Tel: 315-GIbson 6-0220 (ERA)
Adage, Inc., B & K Instruments, Inc., Delta Design Engineers, DI/An Controls, Inc., Equipto, Ferrotec, Inc., Julie Research Labs., Inc., Krohn-Hite Corp., Manson Labs., Microwave Development Labs., PRD Electronics, Inc., Perkin Electronics Corp., Philbrick Researches (George A.), Scientific-Atlanta, Inc., Strand Labs., Inc., Technology Instrument Corp of Acton, Tucor, Inc., Washington Aluminum Co., Inc.

Franklin & Andrews Sales Corp, 2 Standish Terrace, Syracuse 3, N.Y., 3, Tel: 315-GIbson 6-1120 (ERA)
Cedar Engineering Div.: Servo motors. **Electralab Printed Electronics Corp.:** Circuit boards. **Electronic Labs. Corp.:** Crystal filters. **Industrial Electronic Hardware Corp.:** Tube sockets. **National Moldite Corp.:** Ferrites, powdered iron **Pyramid Electric Co.:** Capacitors. **Victor Electric Wire & Cable Corp.:** Hook-up wire, cord sets

Lanzendorf Co. (Oren G.), 513 Cumberland Ave., Syracuse 10, N.Y., 3, Tel: 315-GRanite 2-4195
American Electric Wire Co.: Harnesses. **Balco Capacitors:** Capacitors. **Eraser Co., Inc.:** Wire strippers. **Fairbanks Wire Co., Inc.:** Magnets, wire. **Hampden Mfg. Co., Inc.:** Insulators. **Magnetic Core Corp.:** Powdered-iron cores **Mohawk Mfg. Co.:** Stampings. **U.S. Sonics Corp.:** Ceramic transducers.

Lightstone Engineering Representatives (J. B.), 120 Westminster Ave., Syracuse 10, N.Y., 3, Tel: 315-GRanite 2-6333
AEL, Inc.: Microwave components & systems. **Applied Research, Inc.:** VHF/UHF amplifiers, filters. **B & F Instruments, Inc.:** Strain-gage input equipment. **Cascade Research Div.:** Ferrite devices. **Gruenberg Electric Co.:** Heaters, furnaces, chambers. **Hamner Electronics Co., Inc.:** Nuclear & X-Ray instrumentation. **Lewis & Kaufman Electronics:** Power & microwave tubes. **Pitlog Corp.:** Oscillators, stalo testers. **Power Designs, Inc.:** Power supplies. **Presin Co.:** Counters, photoelectric controls. **Vacuum Instrument Corp.:** Leak detectors, vacuum equipment.

Ossmann & Associates (Edward A.), 101 Pickhard Dr., Syracuse, N.Y., 3, Tel: GL 4-2461, Main Office: Rochester, N.Y.

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Reagan Co., Inc. (J. A.), 6 E. Bayberry Circle, Liverpool, Syracuse, N.Y., 3, Tel: HO 3-8301, Main Office: Albany, N.Y.

Richardt Co. (John W.), 237 E. Genesee St., Syracuse 2, N.Y., 3, Tel: HArrison 2-6797, Main Office: Pine Brook, N.J.

Roberts & O'Brien, Inc., 839 Hiawatha Blvd. W., Syracuse 3, N.Y., Tel: HArrison 2-0421 (NEDA)

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SBM Associates, Inc., 1943 W. Fayette St., Syracuse, N.Y., 3, 4, Tel: HOward 8-5041, Main Office: Rochester, N.Y.

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Tesco Associates, 114 Miles Ave., Syracuse 10, N.Y., 3, Tel: 315-GRanite 4-3291 (ERA)
Amco Engineering Co.: Modular enclosures, blowers. **Community Engineering:** Wideband & transistorized video amplifiers. **Consolidated Avionics:** Transistorized power supplies. **E & M Labs.:** Ferrite components. **Lieco, Inc.:** Waveguide components. bolometers. **Probescope Co.:** Spectrum analyzers, telemetering calibrators, oscilloscopes. **Statham Instruments:** Chambers. **Telonic Engineering:** Coaxial RF components. **Telonic Industries:** Sweep & signal generators. **Universal Mfg.:** Toroidal components

Wilbur Co. (D. L.), 572 Oakwood Ave., Syracuse 5, N.Y., 3, Tel: 315-GRanite 6-2706 (ERA)
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Winick Co. (Charles A.), 3, Tel: GRanite 1-8270, Main Office: Schenectady, N.Y.

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D B Associates, Inc., 37 Overbrooke Ave., Tonawanda, N.Y., 3, Main Office: Syracuse, N.Y.

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Trojan Electronic Supply Co., Inc., 15 Middleburg St., P.O. Box 1018, Troy, N.Y., 2, Tel: AShley 4-4481 (NEDA)

Troy Television, Inc., 85 5th Ave., Troy, N.Y., 2, Tel: BEdford 5-1521 (NEDA)

Wadsworth Mfg. Associates, Inc., 5 Willow Brook Lane, Troy, N.Y., 2, 3, Tel: OL 2-7043, Main Office: Liverpool, N.Y.

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Land-C-Air Sales Co., 76 Main St., Tuckahoe, N.Y., 3 (ERA)
Audax, Inc.: Speakers. **Blonder-Tongue Labs:.** Antenna equipment. **Hudson Lamp Co.:** Pilot lamps. **International Crystal Mfg. Co.:** Citizen-bands. **International Electronics Sales Corp.:** Tubes. **Oxford Electric:** Speakers. **Rek-O-Kut Co.:** Turntables. **Sherwood Electronic Labs., Inc.:** Amplifiers, tuners. **Talk-A-Phone Co.:** Intercoms.

Stang Sales Corp., 271 Columbus Ave., Tuckahoe, N.Y., 3, Tel: SPencer 9-6868 (ERA)
Audio Empire, Eico, Ferrodynamics Corp., Harman-Kardon, Pyramid Electric, Quam-Nichols, Recoton Corp., Robins Industries.

Uniondale, L.I
(Telephone Area Code—516)

Bonn Associates, Inc., 691 Nassau Rd., Uniondale, L.I., N.Y., 3, Tel: IVanhoe 6-5722, Main Office: Metuchen, N.J.

Utica
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Naco Electronics Corp., 261 Genesee St., Utica, N.Y., 3, Tel: REdwood 2-3151. Main Office: Liverpool, N.Y.

Reagan Co., Inc. (J. A.), 10 Humphreys Terrace, New Hartford, Utica, N.Y., 3, Tel: RE 2-3775, Main Office: Albany, N.Y.

SBM Associates, Inc., 232 Roosevelt Dr., Utica, N.Y., 3, 4, Tel: REdwood 2-4410, Main Office: Rochester, N.Y.

Sturdy Co., Inc. (R. H.), Niagara-Mohawk Bldg., Utica, N.Y., 3, Tel: RE 5-4296, Main Office: Newton, Mass.

Valley Electronics Laboratories, Inc., 1415 Oriskany St. W., Utica, N.Y., 2, Tel: RAndolph 4-5168 (NEDA)

Valley Stream. L.I.
(Telephone Area Code—516)

Bittan Co., Inc. (D. R.), 104 S. Central Ave., Valley Stream, L.I., N.Y., 3, Tel: LOcust 1-2444 (ERA)
American Microphone Mfg. Co.: Microphones, pickups. **Bourns, Inc.:** Precision potentiometers. **Bramco, Inc.:** Relays. **Elm Instrument Co.:** Clutches, gear heads. **Keystone Carbon Co.:** Thermistors. **PRL Electronics, Inc.:** Power supplies. **Spectrol Electronics Corp.:** Precision potentiometers. **Standard Rectifier Corp.:** Silicon rectifiers. **Telex, Inc.:** Acoustic devices, sub-miniaturization. **Ungar Electric Tools:** Soldering irons.

Woolf Associates (Irving W.), 104 S. Central Ave., Valley Stream, L.I., N.Y., 3, Tel: LOcust 1-0122 (ERA)
Tape recorders, CB equipment.

Vestal
(Telephone Area Code—607)

Allen, Inc. (Leonard D.), 1905 Vestal Rd., Vestal, N.Y., 3, Tel: 607-STillwell 5-5979, Main Office: Syracuse, N.Y.

Federal Electronics, Inc., Vestal Pkwy., Vestal, N.Y., 2, Tel. PIoneer 8-8211 (NEDA)

Ossmann & Associates (Edward A.), 149 Front St., Vestal, N.Y., 3, Tel: ST 5-0296, Main Office: Rochester, N.Y.

West Nyack
(Telephone Area Code—914)

Brown Associates (Jack), 67 Foxwood Rd., West Nyack, N.Y., 3, Tel: ELmwood 8-4437, Main Office: Yonkers, N.Y.

Westbury, L.I.
(Telephone Area Code—516)

Avnet Electronics Corp., 70 State St., Westbury, L.I., N.Y., 2, Tel: EDgewood 3-5800 (NEDA)

White Plains
(Telephone Area Code—914)

Benjay Associates, Inc., 15 Elmwood Rd., White Plains, N.Y., 3, Tel: WHite Plains 8-7577 (ERA)
Speakers, transformers, amplifier kits, microphones.

McGiehan Corp. (D. C.), 172 S. Broadway, White Plains, N.Y., 3, Tel: White Plains 9-0990
Ericsson (L. M.): Production recording & control systems.

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Smith-Meeker Engineering Co., Westchester County Airport, White Plains, N.Y., 3, 4, Tel: WH 8-6015, Main Office: New York, N.Y.

Sun Radio & Electronics Co., Inc., 2, Tel: 914-WHite Plains 9-7715, Main Office: New York, N.Y.
See ad on page 825

Westchester Electronic Supply Co., Inc., 602 Mamaroneck Ave., White Plains, N.Y., 2, Tel: WHite Plains 9-2400 (NEDA)

Woodside
(Telephone Area Code—212)

Boro Electronics, Inc., 69-18 Roosevelt Ave., Woodside 77, N.Y., 2, Tel: HAvemeyer 6-9718 (NEDA)

Yonkers
(Telephone Area Code—914)

Be-Esco Sales Corp., 45 S. Broadway, Yonkers, N.Y., 3, Tel: 914-Yonkers 3-0150 (ERA)
See ad on this page
Alpha Wire Corp.: Tubing, lacing cord. **Bogen-Presto:** PA amplifiers, intercoms, multiplex receivers. **Con-Elco:** Trimming potentiometers. **Dunton Co. (M. W.):** Solder. **Fourjay Industries:** Baffles. **Jerrold Electronics Corp.:** Master antenna equipment. **Triad Transformers Corp.:** Transformers. **University Loudspeakers:** Speakers, microphones. **Utrad Corp.:** Transformers.

Brown Associates (Jack), 207 Rosedale Rd., Yonkers, N.Y., 3, Tel: 914-SPencer 9-7330 (ERA)
American Elite, Inc.: Telefunken tubes. **Astron Corp.:** Capacitors. **Chicopee Mills:** Fabrics. **Columbia Wire & Supply:** Wire. **Gramer-Halldorson:** Transformers. **Smith, Inc. (H. H.):** Components. **Video Industries:** TV antennas.

Electronic Wholesalers, 356 S. Broadway, Yonkers, N.Y., 2, Tel: GReenleaf 6-7552 (NEDA)

L & M Associates, P.O. Box 51, Centuck Station, Yonkers, N.Y., 3, Tel: WOodbine 1-5566, Main Office: Saddle Brook, N.J.

Shaw Co., Inc. (S. A.), 361 Central Park Ave., Yonkers, N.Y., 3, Tel: YOnkers 3-5700 (ERA)
Alliance Mfg.: Motors. **Hillburn:** Relays. **Sonotone Corp.:** Tubes, heads, cartridges.

Yonkers Electronic Supply, Inc., 541 Nepperhan Ave., Yonkers, N.Y., 2, Tel: YOnkers 9-6044 (NEDA)

NORTH CAROLINA

Asheville
(Telephone Area Code—704)

Freck Radio & Supply Co., Inc., 38 Biltmore Ave., Asheville, N.C., 2, Tel: ALpine 3-3631 (NEDA)

Long's Distributing Co., Inc., 260-64 Biltmore Ave., Asheville, N.C., 2 (NEDA)

Distribution

New York
North Carolina

Burlington
(Telephone Area Code—919)

Hayden Associates (Paul), 423 W. 5th St., Burlington, N.C., 3, Tel: CAnal 7-3479, Main Office: East Point, Ga.

Charlotte
(Telephone Area Code—704)

Adair Co. (Clark), 1051 Dooley Dr., Charlotte 5, N.C., 3, Tel: 537-6208, Main Office: Decatur, Ga.

Cartwright & Beans, 625 Harwyn Dr., Charlotte 5, N.C., 3, Tel: 333-2506, Main Office: Memphis, Tenn.

Duckett Sales Co. (Grady), P.O. Box 11402, Charlotte 9, N.C., 3, Main Office: Atlanta, Ga.

Henry Associates (Bill), P.O. Box 6073, Charlotte 7, N.C., 3, Tel: 704-375-3832 (ERA)
Automatic Metal Products, Inc.: Relays, switches. **Boston Insulated Wire & Cable Co.:** Cable, wire. **DeJur-Amsco Corp.:** Meters, potentiometers, transducers. **Invar Electronics, Inc.:** Power supplies. **Jonathan Mfg. Co.:** Slides. **Marshall Labs.:** Logic modules. **Scott, Inc. (H. H.):** Sonic instrumentation. **Solid State Products, Inc.:** Silicon-controlled rectifiers.

Highsmith & Co. (James L.), 3733 Monroe Rd., Charlotte 5, N.C., 3, Tel: 704-FRanklin 7-2546 (ERA)
Airpax Electronics, Inc., Associated Testing Labs., Boonton Electronics, Communications Control Corp., Daytronic Corp., Dielectric Products Engineering Co., Electronic Tube

For details, circle #781 on Reader Service Card

Corp., Emerson & Cuming, Franklin Electronics, Gray Instrument Co., Grayhill, Inc., Houston Instrument Corp., Lindberg Engineering Co., Rese Engineering, Sensitive Research Instrument Co., Sorensen & Co., Transistor Specialties, Inc., West Instrument Corp.

Hollingsworth & Still, Inc., 4837 Gilmore Dr., Charlotte, N.C., 3, Tel: JA 3-2966, Main Office: Atlanta, Ga.

Millar Associates (James), 4023 Arbor Way, Charlotte, N.C., 3, Tel: EMerson 6-2061, Main Office: Atlanta, Ga.

Murphy & Cota, 221 Latta Arcade, Charlotte, N.C., 2, 3, Tel: FRanklin 5-2317, Main Office: Winston-Salem, N.C.

Nickerson Co. (Frank C.), 2334 Orton St., Charlotte, N.C., 3, Tel: EXpress 9-3673, Main Office: Decatur, Ga.

Radiotronic Distributors, Inc., 1015 N. Seigle Ave., Charlotte 5, N.C., 2, Tel: EDison 2-1258 (NEDA)

Smith, Inc. (Maitland K.), 1605 Chatham Ave., Charlotte 5, N.C., 3, Tel: 376-5951 (ERA)
Chassis-Trak, Inc., Comar Electric Co., Electro-Voice, Knights Co. (James K.), Langevin, Magnecord, Inc., Rauland Corp., Sprague Products Co., Superior Cable Corp., Thordarson-Meissner Mfg. Co., Wyco Metal Products.

Taylor Co. (Morris F.), 1224 Dresden Dr. W., Charlotte 5, N.C., 3, Tel: KEystone 7-4878, Main Office: Silver Spring, Md.

Wallace Associates, Inc. (Stanley K.), 5621 Murray Hill Rd., P.O. Box 11377, Charlotte 3, N.C., 3, Tel: JAckson 523-6109 (ERA)
Controls Co. of America: Rectifiers, diodes. **Curtiss-Wright:** Relays, graph recorders. **Eraser Co.:** Wire strippers. **Garlock Electronics, Inc.:** Insulators. **Langevin Div., W. L. Maxson Corp.:** Amplifiers, power supplies, transformers. **Lenz Electric Co.:** Insulated wire & cable. **Ohmite Mfg. Co.:** Resistors, rheostats.

Concord
(Telephone Area Code—704)

Mac-Victor Electronic Supply, Inc., P.O. Box 3236, Concord, N.C., 2, Tel: STate 2-4175 (NEDA)

Gastonia
(Telephone Area Code—704)

Diethert Co., Inc. (Russ), Box 510, Gastonia, N.C., 3, Main Office: Chicago, Ill.

Greensboro
(Telephone Area Code—919)

Atcheson & Adams, 601 N. Elm St., Greensboro, N.C., 3, Tel: 919-272-6838 (ERA)
Amphenol: Cable, sockets, connectors. **Colman Electronic Products, Inc.:** Knobs. **Corning Glass Works:** Capacitors, resistors. **Eby Sales Co.:** Radio-TV accessories. **Erie Resistor Corp.:** Ceramic capacitors. **International Rectifier Corp.:** Silicon & selenium rectifiers & diodes. **Lectrohm, Inc.:** Resistors. **Perma-Power Co.:** Brighteners. **Phalo Plastics Corp.:** Wire & cable. **Planet Sales Corp.:** Capacitors. **Premier Metal Products Co.:** Panels, enclosures. **RF Products Div.:** Cable, connectors. **Standard Kollsman Industries:** TV tuners. **Technical Appliance Corp.:** Antennas. **Tyco Semiconductor Corp.:** Semiconductors. **Utah Radio & Electronic Corp.:** Speakers, enclosures. **Wells Industries Corp.:** Precision potentiometers.

Brown & Co. (K. O.), Dixie Bldg., P.O. Box 1791, Greensboro, N.C., 3, Tel: 919-BRoadway 3-5973 (ERA)

Chapman & Co. (Cary), 1009 S. Elm St., Greensboro, N.C., 3, Tel: BR 3-9473, Main Office: Atlanta, Ga.

Schiffer & Co. (G. F.), P.O. Box 6365, Greensboro, N.C., 3, Tel: 919-ORange 4-5783 (ERA)
Allegri-Tech, Inc., Ampco Mfg. Co., Ampex Corp., Electro Mechanical Instrument Co., Electrovert, Inc., Kings Electronics Co., Inc., Stantron, Workman TV, Inc.

Raleigh
(Telephone Area Code—919)

Southeastern Radio Supply Co., Inc., 414 Hillsboro St., Raleigh, N.C., 2, Tel: VAnce 8-2311 (NEDA)

Wilmington
(Telephone Area Code—919)

Buthan, Inc., 4924 Oleander Dr., Wilmington, N.C., 3, Tel: RO 2-5749 (ERA)

Winston-Salem
(Telephone Area Code—919)

Brown & Associates (W. A.), 1707 Princeton St. S.W., Winston-Salem, N.C., 3, Tel: PArk 5-5384, Main Office: Alexandria, Va.

Dalton-Hege, Inc., 938 Burke St., Winston-Salem, N.C., 2 (NEDA)

Electronic Distributors, Inc., 823 S. Marshall St., Winston-Salem, N.C., 2, Tel: PArk 4-0541 (NEDA)

Hilker Co., 660 Veda Dr., Box 5211, Winston-Salem, N.C., 3, Tel: PArk 5-8588 (ERA)
Boonton Molding Co.: Custom molding. **Davis Co. (J. W.):** Baffles. **Dearborn Electronic Labs.:** Capacitors. **Magnetics, Inc.:** Cores. **New England Instrument Co.:** Potentiometers. **Reon Resistor Co.:** Resistors.

Lee Associates, Inc. (S. S.), P.O. Box 906, Winston-Salem, N.C., 3, Tel: STate 8-0431, Main Office: Orlando, Fla.

Murphy & Cota, 1106 Burke St., Winston-Salem, N.C., 2, 3, Tel: 919-PArk 4-0750, Main Office: Atlanta, Ga. (ERA)
Berkeley Div., Beckman Instruments: Counters. **Bradley Semiconductor Lab.:** Diodes, rectifiers. **Communications Measurements Lab.:** Power generators. **Daven Co.:** Resistors, switches, filters. **Dressen-Barnes Corp.:** Power supplies. **DuMont Div.:** Oscilloscopes. **Filtron Co.:** Filters, pulse networks, capacitors. **General Communications Co.:** Radar beacons, coax switches & relays. **General Products Co.:** Terminal strips. **Good-All Electric Co.:** Capacitors. **Gulton Industries:** Capacitors, transducers. **Ling Electronics Div.:** Vibration testing systems. **Litton Industries:** Precision potentiometers. **North Atlantic Industries:** AC instrumentation. **Offner Electronics:** Recorders. **Polarad Electronics:** Microwave instruments. **Simpson:** Panel meters, multi-meters. **Stackpole Carbon Co.:** Ferrites, resistors. **Theta Instrument Corp.:** Servo testers. **Triad Transformer Co.:** Transformers. **Waveline, Inc.:** Waveguide instruments. **Zero Mfg. Co.:** Cans, cabinets.

White & Co., Inc. (L. G.), 2080 Beach St., Winston-Salem, N.C., 3, Tel: PArk 5-3612, Main Office: Silver Spring, Md.

NORTH DAKOTA

Fargo
(Telephone Area Code—701)

Bristol Distributing Co., 1345 Main Ave., Fargo, N.D., 2, Tel: ADams 2-7493 (NEDA)

Radio Equipment Co., 1418 1st Ave. N., Fargo, N.D., 2 (NEDA)

OHIO

Akron
(Telephone Area Code—216)

Akron Electronic Supply Co., 107 S. Arlington St., Akron 6, Ohio, 2, Tel: POrtage 2-8818 (NEDA)

Clancy & Co., Inc. (Joe), 789 Orlando Ave., Akron 20, Ohio, 3, Tel: UNiversity 4-0848, Main Office: Angola, Ind.

Olson Radio Corp., 260 S. Forge St., Akron 8, Ohio, 2, Tel: JEfferson 5-9191 (NEDA)

Sun Radio Co., 110 E. Market St., Akron 8, Ohio, 2, Tel: HEmlock 4-2171 (NEDA)

Warren Radio Co., 71 S. Broadway, Akron 8, Ohio, 2, Tel: HEmlock 4-6668 (NEDA)

Ashtabula
(Telephone Area Code—216)

Morrison's Radio Supply, 331 Center St., Ashtabula, Ohio, 2, Tel: WYman 7-6161 (NEDA)

Batavia
(Telephone Area Code—513)

Anderson & Associates, Inc. (Burt), Monterrey R.R. 3, Batavia, Ohio, 3, Tel: REgent 4-6353, Main Office: Chicago, Ill.

Brecksville
(Telephone Area Code—216)

Nace Co., Inc. (Allen), Box 153, Brecksville 41, Ohio, 3, Tel: 216-JAckson 6-4323 (ERA)
Allied Control Co.: Relays, toggle switches. **Augat Brothers, Inc.:** Components, cradles, heat sinks. **Centralab:** Switches, controls, capacitors. **Daven Co.:** Switches, resistors. **Dearborn Electronics:** Film capacitors. **Inso Products:** Insulated wire **Phaostron:** Meters, meter-relays. **Stevens-Arnold, Inc.** Choppers, capacitors. **Tepro Electric Corp.:** Silicone resistors. **Thomas & Skinner:** Magnets, wound cores. **Transistor Electronics:** Computer indicators.

Canton
(Telephone Area Code—216)

Burroughs Radio, Inc., 2705 Fulton Rd. N.W., Canton 8, Ohio, 2, Tel: GLendale 5-0271 (NEDA)

Chagrin Falls
(Telephone Area Code—216)

Technical Associates, Inc., 4475 Lander Rd., Chagrin Falls, Ohio, 3, Tel: TErrace 1-9884 (ERA)
Airpax Electronics, Inc.: Choppers, magnetic amplifiers, transformers. **Eitel-McCullough, Inc.:** Power tubes. **G-V Controls, Inc.:** Time delay relays. **Globe Industries, Inc.:** Motors. **Sigma Instruments, Inc.:** Relays. **Solid State Products, Inc.:** Transistorized & silicon controlled rectifiers. **Unimax Switch:** Switches.

Chesterland
(Telephone Area Code—216)

Seay Co. (H. H), 105 Manchester Dr., Chesterland, Ohio, 3, Tel: PArk 9-7485, Main Office: Columbus, Ohio

Cincinnati
(Telephone Area Code—513)

Aironic Accessory Co., Inc., 4 Eswin St., Cincinnati 18, Ohio, 3, Tel: WEbster 1-0930, Main Office: Brightwaters, L.I., N.Y.

Baehr, Greenleaf Associates Inc., 7960 Mitchell Farm Lane, Cincinnati 42, Ohio 3, Tel: TWeed 1-3827, Main Office: Cleveland, Ohio

Callaghan Bach, Inc., 2209 Losantiville Rd., Cincinnati 13, Ohio, 3, Tel: REdwood 1-8660 (ERA)
Electro-Mechanical components.

Engineering Specialties, 8113-15 Camargo Rd., Cincinnati 43, Ohio, 3
Advanced Instruments, Inc.: Flame photometers, power supplies. **Associated Research, Inc.:** Insulation testers, megohmmeters. **Chatillon & Sons (John):** Weighing devices, torque testers. **Fiske Associates, Inc.:** Cryoscopes, osmometers. **Radiation Counter Labs.:** Nuclear instruments, multi-channel analyzers. **Radiation Products, Inc.:** Shielded rooms, nuclear containers. **Tel-A-Dial Co.:** Weighing devices. **West Instrument Corp.:** Temperature controls & recorders.

Herrlinger Distributing Co., 112 E. Liberty St., Cincinnati 10, Ohio, 2, Tel: Garfield 1-5282 (NEDA)

Holub & Hogg Co., 1400 Sycamore St., Cincinnati 10, Ohio, 2, Tel: CHerry 1-7974 (NEDA)

Kilfoil Co. (John), 9415 Montgomery Rd., P.O. Box 95, Cincinnati 42, Ohio, 3, Tel: SYcamore 1-6510 (ERA)
Components & raw materials.

Murray & Associates, Inc. (James W.), 3985 Race Rd., Cincinnati 11, Ohio, 3, Tel: 513-MOntana 2-1616 (ERA)
ADC, Inc., Autotron, Inc., Computer Instrument Corp., Hamlin, Inc., JFD Electronics, PIC Div. of General Controls Co., Quality Name-Plate, Sigma Instruments, Inc., Technical Wire Products, Inc

Mytronic Co., 2145 Florence Ave., Cincinnati 6, Ohio, 2, Tel: WOodburn 1-4600 (NEDA)

Olsen Co. (John O.), 4016 Diehl Ave., Cincinnati 36, Ohio, 3, Tel: SYcamore 1-1297, Main Office: CLeveland, Ohio

Scott & Steffen Inc., 9505 Montgomery Rd., Cincinnati 42, Ohio, 3, Tel-SY 1-2513, Main Office: Cleveland, Ohio

Sheridan Associates, Inc., Roselawn Center Bldg., Cincinnati 37, Ohio 3, Tel: 513-MElrose 1-2460 (ERA)
Bowmar Instrument Corp.: Gear-train & counting devices. **Burnell & Co., Inc.:** Toroids, filters, equalizers. **Consolidated Avionics Corp.:** Power supplies. **Electric Regulator Corp.:** Regulators & transducers. **Filtors, Inc.:** Military relays. **Hellpot Div., Beckman Instruments:** Precision potentiometers, servo motors. **Knights Co. (James):** Ovens, quartz crystals, frequency standards. **Mepco, Inc.:** Resistors, networks. **Shockley Transistor Corp.:** Semiconductor devices. **Tensolite Insulated Wire Co.:** Hook-up wire. **Vitramon, Inc.:** Capacitors.

Steinberg's Inc., 633 Walnut St., Cincinnati 2, Ohio, 2, Tel: CHerry 1-1880 (NEDA)

United Radio, Inc., 1314 Vine St., Cincinnati 10, Ohio, 2, Tel: CHerry 1-6530 (NEDA)

Wahl & Associates, Inc. (A. C.), 315 Reading Rd., Reading, Cincinnati 15, Ohio, 3, Tel: VAlley 1-3270 (ERA)
Components.

Warren Radio Co., 1669 Central Pkwy., Cincinnati, Ohio, 2, Tel: MAin 1-7616 (NEDA)

Whitesell & Associates (Robert O.), P.O. Box 2717, Cincinnati 37, Ohio, 3, Tel: ME 1-9210, Main Office: Indianapolis, Ind.

Cleveland
(Telephone Area Code—216)

Baehr, Greenleaf Associates, Inc., 14700 Detroit Ave., Cleveland 7, Ohio, 3, Tel: 216-ACademy 1-9030 (ERA)
Acme Electric Corp.: Transformers, power supplies. **CTS, Inc.:** Resistors, selector switches. **Clare & Co. (C. P.):** Relays, stepping switches. **Elco Corp.:** Tube sockets, connectors. **International Resistance Co.:** Resistors, transducers. **Quam-Nicholas Co.:** Speakers. **Raychem Corp.:** Shrinkable tubing, coaxial cable. **Simpson Electric Co.:** Meters, test equip. **Ungar Electric Tools:** Soldering irons.

Baier Co. (Arthur H.), 18236 S. Miles Pkwy., Cleveland 28, Ohio, 3, Tel: GReenwood 5-3080
Cambridge Thermionic Corp.: Terminals, hardware. **Cannon Electric Co.:** Connectors, solenoids. **Glenair, Inc.:** Connector accessories. **Grayhill, Inc.:** Rotary & push-button switches. **ITT Components Div.:** Semiconductors, capacitors. **Sanders Associates:** Flexible cable. **Triad:** Transformers. **Tru-Ohm:** Resistors & rheostats.

Brauer & Associates, Inc. (Walter J.), 15631 Lakewood Heights Blvd., Cleveland 7, Ohio, 3, Tel: 216-LAkewood 1-7268 (ERA, NEDA).
Berkshire Electric Cable Co.: Wire. **Comar Electric Co.:** Relays & solenoids. **Curtiss-Wright Corp.:** Thermal relays & instruments. **Electrical Utilities Co.:** Capacitors. **Electro-Capacitors Co.:** Capacitors. **Hermetite Corp.:** Glass-to-metal seals. **Molon Motor & Coils Corp.:** FHP motors. **Penn Resister Corp.:** Resistors. **RaeCo., Inc.:** Transformers. **Resistors, Inc.:** Wire-wound resistors. **Sage Electronics Corp.:** Power resistors. **Tru-Connector Corp.:** Coaxial connectors. **U.S. Components, Inc.:** Connectors. **Vocaline Co. of America:** Two-way radio systems.

Daugherty Co. (F. A.), 6025 Mayfield Rd., Cleveland 24, Ohio, 3, Tel: 216-HIllcrest 9-1122 (ERA)
Centralab, Inc., Electra International, Fisher Radio Corp., I.D.E.A., Inc., JBL International, Pacotronics, Reeves Soundcraft Corp., Sarkes-Tarzian, Inc., Superscope, Inc., Utah Radio, Walco Electronics, Wen Products.

Deunk & Associates (Robert K.), 10005 Chippewa Rd., Cleveland 41, Ohio 3, Tel: 216-JAckson 6-4317, (ERA)
Barber-Colman Co.: Sub-fractional HP motors. **Birtcher Corp.:** Cooling & retaining devices, thermoelectric cooling. **Bud Radio, Inc.:** Hardware. **Devco, Inc.:** Filters, feed-throughs. **Inertia Switch, Inc.:** Switches, impact counters **Minneapolis-Honeywell, Meter Div.:** Panel meters, aircraft instruments.

Dolfuss & Co. (Charles H., Jr.), 2108 Payne Ave., Cleveland 7, Ohio, 3, Tel: PRospect 1-1270 (ERA)
Aerovox Corp.: Condensers & resistors. **J-B-T Instruments, Inc.:** Meters, temperature testers, pyrometers, switches. **Sarkes-Tarzian, Inc.:** Selenium & silicon rectifiers. **Shurite Meters:** Meters. **Triplett Electrical Instrument Co.:** Meters & testers.

Edwards-Lohse & Co., 2123 E. 9th St., Cleveland 15, Ohio, 3, Tel: 216-TOwer 1-5753 (ERA)
Ackerman-Gould Co.: Marking machines. **Carpenter Mfg. Co.:** Wire stripping machinery. **Cinema Engineering Div.:** Resistors, switches, attenuators. **Contact, Inc.:** Thermal wire strippers. **Engineering & Electronic Devices, Inc.:** Soldering tips & wrenches. **Hollis Engineering:** Solder equip. **James Electronics:** Choppers, transformers, relays. **MacDonald & Co.:** Sleeving cutters. **Pomona Electronics:** Patch-cords, adapters. **Sunshine Scientific:** Test equip. **Technical Devices Co.:** Component lead-formers. **Thermal Wire:** Teflon products.

Gaine Engineering, 29603 Bruce Dr., Cleveland, Ohio, 3, Tel: WHitney 3-3731, Main Office: Detroit, Mich.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Distribution

North Carolina
North Dakota
Ohio

Goory Sales Co., 19555 Henry Rd., Cleveland 26, Ohio, 3, Tel: 216-EDison 1-1500 (ERA)
Drake Mfg. Co.: Jewel lights. **Eraser Co.:** Wire stripping machines. **Hudson Wire Co.:** Magnet & bare wire. **Mayer Co. (George J.):** Nameplates. **University Circuit Controls:** Switches.

Landfear Co., Inc. (J. M.), 12429 Cedar Rd., Cleveland 6, Ohio, 3, Tel: 216-FAirmount 1-4533 (ERA)
Columbia Wire & Supply Co.: Wire. **Dow-Key Co.:** Coaxial relays. **Easy-Up:** Antenna hardware. **Electrolube.** Cleaners & lubricants. **Hickok Electrical Instrument Co.:** Test equip. & meters. **I-H Mfg.:** TV accessories. **North American Philips Co.:** Tape recorders. **T.V. Development Corp.:** Knobs. **Winegard Co.:** TV antennas, distribution amplifiers.

Levin & Associates (Sid), 6252 Mayfield Rd., Cleveland 24, Ohio, 3, Tel: 216-HIllcrest 2-1000 (ERA)
Amperex, Antenna Specialists, Barco, Ferranti Electric, Miratel, Rohn Mfg. Co., Workman TV Products.

Lowry Dietrich Co., 316 Marion Bldg., Cleveland 13, Ohio, 3, Tel: SU 1-1855, Main Office: Pittsburgh, Pa.

Michaelson Co. (Bernard L.), 1400 W. 65th St., Rm., 247, Cleveland 2, Ohio, 3, Main Office: Xenia, Ohio

Midwest Sales Co., 3219 W. 117th St., Cleveland 11, Ohio, 3, Tel: Winton 1-2700 (ERA)

Morrow Co. (Les A.), 3123 W. 117th St., Cleveland 11, Ohio, 3, Tel: 216-CLearwater 1-5700 (ERA)
Acousti-Craft: Cabinets. **American Concertone, Inc.:** Recorders. **American Electronics Co.:** Electronic equip. **Crosby Electronics:** Amplifiers. **Dynaco, Inc.:** Amplifier kits. **E-Z Way Towers:** Towers. **Electro-Products Labs.:** Power packs. **Glaser-Steers Corp.:** Changers. **National Radio Co.:** Short-wave receivers. **Petersen Radio Co.:** Crystals. **Pickering & Co.:** Cartridges. **Plymouth Rubber Co.:** Tape. **Talk-A-Phone Co.:** Intercoms. **Turner Co.:** Microphones. **University Loudspeakers, Inc.:** Speakers. **Webster Mfg.:** Marine equip.

Olsen Co. (John O.), 16201 Shaker Blvd., Cleveland 20, Ohio, 3, Tel: 216-SKyline 2-5444 (ERA)
Anti-Corrosive Metal Products Co.: Fastenings. **Cannon Electric Co.:** Disconnect plugs. **Clarostat Mfg. Co., Inc.:** Controls, potentiometers, resistors. **Krylon, Inc.:** Paints. **Lowell Mfg. Co.:** Metal baffles. **Microtran Co.:** Miniature transformers. **PIC Design Corp.:** Gears. **Premier Metal Products Co.:** Metal goods. **Sonotone Corp.:** Cartridges, microphones, batteries, tubes. **Technical Appliance Corp.:** Antennas. **Xcelite, Inc.:** Hand tools.

Peters Co. (Robert W.), 350 E. 215th St., Cleveland 23, Ohio, 3, Tel: ANdrews 1-2330 (ERA)
Anchor Products, Dyna-Empire, Inc., Necco, Sherwood Electronic Labs., Stag Electronics, United Audio, Ward Products.

Pioneer Electronic Supply Co., 2115 Prospect Ave., Cleveland 15, Ohio, 2, Tel: SUperior 1-9410 (NEDA)

Podolny Co. (James H.), 2138 Lee Rd., Rm. 18, Cleveland, Ohio, 3, Tel: PRospect 1-1270 (ERA), Main Office: Pittsburgh, Pa.

Radio & Electronic Parts Corp., 3235 Prospect Ave., Cleveland 15, Ohio, 2, Tel: Utah 1-6060 (NEDA)

Rauer Co. (Frank W.), 4144 Marvin Ave., Cleveland 9, Ohio, 3, Tel: 216-MElrose 1-8350 (ERA)

Roth Sales Co. (Mike), 13947 Cedar Rd., Cleveland 18, Ohio, 3, Tel: 216-YEllowstone 2-4262 (ERA)
Astatic Corp.: Microphones, cartridges, tape. **Kidco, Inc.:** Resistors. **Kurman Electric:** Relays. **Microsemiconductor Corp.:** Semiconductors. **Miller Co. (J. W.):** Coils. **Pyramid Electric:** Capacitors. **Resistron:** Resistors. **Solitron Devices:** Silicon rectifiers. **Sterling Mfg. Co.:** Indicating meters. **United Transformer Corp.:** Transformers, reactors, filters.

Schroeder Sales Co., 2254 Euclid Ave., Cleveland 15, Ohio, 3, Tel: 216-MAin 1-5074 (ERA)
Bozak Sales Co. (R.T.), Distributors Group, Grado Labs., Inc., Koss, Inc., McIntosh Labs., Thorres Co., Vega Electronics Corp., Viking of Minneapolis.

Scott & Steffen, Inc., 1836 Euclid Ave., Cleveland 15, Ohio, 3, Tel: 216-TOwer 1-2626 (ERA)
Conant Labs.: Rectifiers. **Cryogenics, Inc.:** Low temperature devices. **Dale Electronics:** Resistors, potentiometers. **Freed Transformer Co.:** Transformers. **Howard Industries, Inc.:** Fractional HP motors. **Industrial Condensers, Inc.:** Capacitors. **Micromodular Components, Inc.:** Modular components. **Pendar, Inc.:** Switches. **Potter & Brumfield, Inc.:** Relays. **Radio Receptor Div.:** Selenium rectifiers. **Rustrak Instrument Co., Inc.:** Chart recorders. **U.S. Gear Corp.:** Gears. **Useco Div., Litton Industries:** Printed-circuit boards & terminals. **Victory Engineering Co.:** Thermistors, varistors. **Wood Electric Co., Inc.:** Circuit breakers.

Seaway Electronic Supply Co., Inc., 10014 Carnegie, Cleveland 6, Ohio, 2, Tel: SWeetbriar 1-5300 (NEDA)

Sheridan Associates, Inc., 6333 York Rd., P.O. Box 7486, Cleveland 30, Ohio, 3, Tel: TUxedo 4-2001, Main Office: Cincinnati, Ohio

Sterling Co. (S), 5827 Mayfield, Cleveland, Ohio, 3, 4, Tel: HI 2-8080, Main Office: Detroit, Mich.

Stranco Products, Inc., 7016 Euclid Ave., Cleveland 3, Ohio, 2, Tel: 391-3166, Main Office: Chicago, Ill.

Tiby Co., 2245 Warrensville Center Rd., Cleveland 18, Ohio, 3, Tel: 216-ERieview 1-5335
Anders Electronics, Inc.: Power supplies. **Applied Microwave Electronics:** Loads, filters. **B & F Instruments, Inc.:** Strain calibration equip. **California Technical Industries:** Automatic circuit checkers. **Donner Scientific Co.:** Analog computers. **E-H Research Labs.:** Fast-pulse generators. **Hexem, Inc.:** E-I-R meters. **Manson Labs.:** Frequency standards, power supplies. **McDowell Electronics:** Induction heaters. **Micro-Systems, Inc.:** Strain gages. **Scientific-Atlanta:** Antenna patterns, ranges. **Systron-Donner Corp.:** Counters, digital voltmeters. **Wayne Kerr Corp.:** Bridges, impedance comparators.

Waren Radio Co., 5000 Prospect Ave., Cleveland, Ohio, 2, Tel: Utah 1-4777 (NEDA)

Weller-Rahe Co., 11816 McCracken Dr., Cleveland 25, Ohio, 3, Tel: 216-LUdlow 1-1748, Main Office: Worthington, Ohio

Whitesell & Associates (Robert O.), 21139 Lorain Ave., Cleveland 26, Ohio, 3, Tel: ED 3-2585, Main Office: Indianapolis, Ind.

Cleveland Heights
(Telephone Area Code—216)

Valentine, Inc. (Forrest C.), 12417 Cedar Rd., Cleveland Heights 6, Ohio, 3, Tel: Fairmount 1-0266, Main Office: Fort Wayne, Ind.

Columbus
(Telephone Area Code—614)

Buckeye Electronics Distributor, 242 E. Long St., Columbus 15, Ohio, 2, Tel: CApital 8-3264 (NEDA)

Electronic Supply Corp., 814 W. Third Ave., Columbus 12, Ohio, 2, Tel: AXminster 4-5171 (NEDA)

Hughes-Peters Inc., 481 E. 11th Ave., Columbus 11, Ohio, 2, Tel: AXminster 4-5351 (NEDA)

Lehner Co. (J. W.), 367 Brynhild Rd., Columbus 2, Ohio, 3, Tel: 614-AMherst 8-5260 (ERA)
Consolidated Wire & Associated Co's.: Wire. **Corning Glass Works:** Capacitors & resistors. **Erie Resistor Corp.:** Ceramic capacitors. **Gramer Halldorson Transformer Corp.:** Transformers & coils. **Perma-Power Co.:** Radio controls. **Sencore, Inc.:** Test instruments. **Tenna Mfg. Co.:** Coaxial connectors.

McFadden Sales Co., 150 E. Broad St., Columbus 15, Ohio 3, Tel: 404-221-3363 (ERA)
Bliley Electric Co.: Quartz crystals, filters. **Jensen Mfg. Co.:** Speakers. **Johnson Co. (E. F.):** Pilot lights, jacks, sockets. **Lenz Electric Mfg. Co.:** Cable & wire. **Planet Mfg. Co.:** Capacitors. **Sealectro Corp.:** Teflon terminals, connectors. **Shure Brothers, Inc.:** Microphones. **Telefunken:** Tubes. **U.S. Semiconducor Products, Inc.:** Silicon diodes & rectifiers.

Pugh Co. (C. L.), 2144 Riverside Dr., Columbus 21, Ohio, 3, Tel: 614-HUdson 8-4855 (ERA)
Ampex Audio Co.: Recorders. **Ampex Magnetic Tape Products:** Tape. **Bussman Mfg. Co.:** Fuses. **Electro-Voice, Inc.:** All products. **ITT Distributor Products Div.:** Rectifiers, cable, semiconductors. **Mellotone, Inc.:** Cloth. **Merit Coil & Transformer Corp.:** Coils & transformers. **Sams Co. (Howard W.):** Service data. **Sprague Products Co.:** Capacitors & resistors. **Tenatronics, Ltd.:** Car antennas. **Waldom Electronics, Inc.:** Hardware.

Roth Sales Co. (Mike), 908 Grandon Ave., Columbus 9, Ohio, 3, Main Office: Cleveland, Ohio

Scott & Steffen, Inc., 79 E. State St., Columbus 15, Ohio, 3, Tel: CA 8-2313, Main Office: Cleveland, Ohio

Seay Co. (H. H.), 3850 Fairlington Dr., Columbus 21, Ohio, 3, Tel: 614-HUdson 8-9994 (ERA)
Astron Corp.: Capacitors. **Britton Electronics Corp.:** Converters, power supplies, semiconductors. **Cleveland Electronics, Inc.:** Speakers. **Electrical Windings, Inc.:** Transformers. **Hamilton-Hall Resistor Corp.:** Resistors. **International Electronics Corp.:** Tubes. **Pacific Resistor Co.:** Wire-wound resistors. **Shoup Circuits, Inc.:** Printed circuits. **Slater Electric & Mfg. Co.:** Silicon rectifiers.

Whitehead Radio Co., 124 N. Grant Ave., Columbus 15, Ohio, 2, Tel: CApital 4-6131 (NEDA)

Dayton
(Telephone Area Code—513)

Allied Supply Co., Inc., 1100 E. Monument Ave., Dayton 2, Ohio, 2, Tel: BAldwin 2-9833 (NEDA)

Baier Co. (Arthur H.), 384 W. First St., Dayton 2, Ohio, 3, Tel: BAldwin 8-5493, Main Office: Cleveland, Ohio

Clancy & Co., Inc. (Joe), 805 Rockhill Ave., Dayton 29, Ohio, 3, Tel: AXminster 8-3052, Main Office: Angola, Ind.

Crossley Associates, Inc., 2801 Far Hills Ave., Dayton 19, Ohio, 3, Tel: AXminster 9-3594, Main Office: Chicago, Ill.

Dolfuss & Co. (Charles H. Jr.), 713 Mapleside Dr., Dayton, Ohio, 3, Tel: TEmple 7-1406, Main Office: Cleveland, Ohio

Engineering Associates, 434 Patterson Rd., Dayton 19, Ohio, 5, Tel: AX 3-1662

Lake Co. (Harry G.), 384 W. First St., Dayton 2, Ohio, 3, Tel: BAldwin 4-3122
Accurate Specialties Co., Inc., Como Plastics, Inc., Diamonite Products Mfg. Co., Graphite Specialties Corp., Gulow Transformer Co., Inc., Metalizing Industries, Inc., Moxness Products, Inc., National Beryllia Corp.

Levin & Associates (Sid), 111 Galewood, New Carlisle, Dayton, Ohio, 3, Tel: VIctor 5-8132, Main Office: Cleveland, Ohio

Lowry Dietrich Co., 333 W. First St., Dayton 2, Ohio, 3, Tel: BA 3-6042, Main Office: Pittsburgh, Pa.

Michaelson Co. (Bernard L.), 1320 Third National Bank Bldg., Dayton, Ohio, 3, Main Office: Xenia, Ohio

Nace Co., Inc. (Allen), Box 93, Riverdale Station, Dayton 5, Ohio, 3, Tel: CRestview 7-8215, Main Office: Brecksville, Ohio

Odell Co. (M. P.), 2676 Salem Ave., Dayton 6, Ohio, 3, Tel: CRestview 7-4441, Main Office: Westlake, Ohio

Podolny Co. (James H.), P.O. Box 722, Dayton, Ohio, 3, Tel: BAldwin 4-7011, Main Office: Pittsburgh, Pa.

Scott & Steffen, Inc., 517 Hulman Bldg., Dayton 2, Ohio, 3, Tel: BA 3-2652, Main Office: Cleveland, Ohio

Sheridan Associates, Inc., 4217 N. Main St., P.O. Box 37, Riverdale Station, Dayton 5, Ohio, 3, Tel: CRestview 7-7212, Main Office: Cincinnati, Ohio

Srepco, Inc., 314 Leo St., Dayton 4, Ohio, 2, Tel: BAldwin 4-3871 (NEDA)

Sterling Co. (S.), 3300 S. Dixie Dr., Dayton, Ohio, 3, 4, Tel: AX 8-7573, Main Office: Detroit, Mich.

Stotts-Friedman Co., 108 N. Jefferson St., Dayton 2, Ohio, 2, Tel: BAldwin 4-1111 (NEDA)

Technical Associates, Inc., 1724 Hillwood Dr., Dayton 39, Ohio, 3, Tel: 299-5374, Main Office: Chagrin Falls, Ohio

Tiby Co., 645 Salem Ave., Dayton, Ohio, 3, Tel: CR 7-3822, Main Office: Cleveland, Ohio

Wahl & Associates, Inc. (A. C.), 4055 Ark Ave., Dayton, Ohio, 3, Tel: CRestview 7-1230, Main Office: Cincinnati, Ohio

Whitesell & Associates (Robert O.), 2600 Far Hills Bdlg., Dayton 19, Ohio, 3, Tel: AX 8-4261, Main Office: Indianapolis, Ind.

Delaware
(Telephone Area Code—614)

Schrader-Stelzer Co., 249 Lake St., Delaware, Ohio, 3, Tel: 363-7332, Main Office: Trafford, Pa.

Lima
(Telephone Area Code—419)

Fair Radio Sales Co., 2133 Elida Rd., Lima, Ohio, 5, Tel: CApital 6-6716
Government surplus.

Lima Radio Parts Co., 600 N. Main St., Lima, Ohio, 2, Tel: CApitol 3-5075 (NEDA)

Warren Radio Co., 539 W. Market St., Lima, Ohio, 2, Tel: CA 6-2721, Main Office: Toledo, Ohio

Mansfield
(Telephone Area Code—419)

Burroughs Radio, Inc., 218 E. Second St., Mansfield, Ohio, 2 (NEDA)

Marietta
(Telephone Area Code—614)

Marietta Radio & TV Supply, Inc., 1028 E. Greene St., Marietta, Ohio, 2, Tel: FRontier 3-4987 (NEDA)

New Bremen
(Telephone Area Code—419)

Shelby & Co. (Thomas), 101 W. Monroe, New Bremen, Ohio, 3, Tel: 6511 (ERA)
Alliance Mfg. Co.: Rotors. **Chicago Miniature Lamp Works:** Lamps. **Glidelite Co.:** Bench lights. **Hunter Tools:** Hand tools. **Sidco:** Soldering irons

South Euclid
(Telephone Area Code—216)

Rosenwasser Sales (Fred A.), 13781 Cedar Rd., South Euclid 18, Ohio, 3, Tel: Fairmount 1-0463 (ERA)
Anderson Electronics: Crystals. **Atlantic Wire & Cable Co.:** Wire & cable. **Barker Sales Co.:** Cossor tubes. **Dutrex Industries:** Tubes. **Gray Mfg. Co.:** All products. **Illinois Condenser Co.:** Capacitors. **Kraeuter Tool Co.:** Tools. **Luxo Lamp Corp.:** Lamps, magnifiers. **Shell Electronics Corp., Telephone Dynamics, Upson Tools, Wald, Inc.**

Springfield
(Telephone Area Code—513)

Rubin Co. (Ben Z.), 515 E. Grand Ave., Springfield, Ohio, 3, Tel: FAirfax 2-5893, Main Office: Detroit, Mich.

Steubenville
(Telephone Area Code—614)

Hausfeld Electronics Supply Co., 116 N. 3rd St., Steubenville, Ohio, 2, Tel: ATlantic 2-4391 (NEDA)

Stow
(Telephone Area Code—216)

Blocki Associates (Bill), 2280 Liberty Rd., Stow, Ohio, 3, Tel: OV 8-4277 (ERA)

Natalino Associates (Augey), P.O. Box 644, Stow, Ohio, 3, Tel: OVerdale 8-3930 (ERA)

Toledo
(Telephone Area Code—419)

Chilcote Sales Co., 636 Nesslewood Ave., Toledo 10, Ohio, 3, Tel: CHerry 8-2356 (ERA)

Howard's Electronic Supply, Inc., 131 17th St., Toledo 2, Ohio, 2, Tel: CHerry 3-2277 (NEDA)

Lifetime Electronics, Inc., 1501 Adams St., Toledo 2, Ohio, 2, Tel: CHerry 1-5643 (NEDA)

Warren Radio Co., 1002 Adams St., Toledo 1, Ohio, 2, Tel: CHerry 8-3364 (NEDA)

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Trotwood
(Telephone Area Code—513)

Atkind & Associates (Irving), 821 Burman Ave., Trotwood 26, Ohio, 3, Tel: 513-TEmple 7-4750
Astron Corp.: Capacitors, filters. **Delta Coils, Inc.:** Coils. **Microtran Co., Inc.:** Transformers.

West Richfield
(Telephone Area Code—216)

Bear Corp. (Neal), 3435 Streetsboro Rd., West Richfield, Ohio, 3, Tel: 216-OLiver 9-3331 (ERA)
Advance-Elgin Relay, Alpha Wire, Anodyne, Inc., Argos Products, Audio Devices, Bourns Lab. Trimpot Div., International Rectifier Corp., Littelfuse, Inc., Precision Metal Products, Smith, Inc. (Herman H.), Switchcraft, Inc., Welwyn International.

Westlake
(Telephone Area Code—216)

Odel Co. (M. P.), 26614 Center Ridge Rd., Westlake, Ohio, 3, Tel: 216-TRinity 1-8000 (ERA)
Amco Engineering Co.: Enclosures. **Boesch Mfg. Div.:** Coil winders. **Dressen-Barnes Corp.:** Power supplies. **Dynamics Instrumentation Co.:** DC amplifiers & VTVM's. **Electronic Engineering Co. of California:** Digital systems. **Engineered Electronics Co.:** Digital circuits. **Ferrotec, Inc.:** Ferrite components. **Fluke Mfg. Co., Inc. (John):** Voltmeters, power supplies **Microwave Development Labs.:** Microwave components. **Midwestern Instruments, Inc.:** Oscillographs. **Narda Microwave Corp.:** Microwave instrumentation. **Philbrick Researches, Inc. (George A.):** Analog computer components. **Radio Frequency Labs., Inc.:** Meter calibrators, magnet chargers, gaussmeters. **Strand Labs., Inc.:** Microwave generators. **Technibilt Corp.:** Oscilloscope carriers. **Trans-Sonics, Inc.:** Pressure transducers. **Trio Labs., Inc.:** VTVM's, voltmeters. **Weldmatic Div.:** Welders.

Rockford Controls Co., 2628 N. Glen Rd., Westlake, Ohio, 3, Main Office: Glen Ellyn, Ill.

Worthington
(Telephone Area Code—614)

Weller-Rahe Co., P.O. Box 212, Worthington, Ohio, 3, Tel: 614-TUxedo 5-7819 (ERA)
Arco Electronics: Capacitors. **Birnbach Radio Co.:** Hardware, wire. **Blonder-Tongue Labs.:** TV cameras, antenna distribution equip. **Electronic Devices, Inc.:** Rectifiers. **Elpac, Inc.:** Capacitors. **Ideal Precision Meter Co.:** Pane meters. **Mosley Electronics:** Ham beams. **Oxford Electric Corp.:** Speakers. **Polytronics Lab., Inc.:** CB transceivers. **South River Metal Products:** Antenna hardware. **Supreme Transformer Corp.:** Transformers. **Weller Electric Corp.:** Soldering tools.

Xenia
(Telephone Area Code—513)

Baehr, Greenleaf Associates Inc., 3350 Maplewood Dr., Xenia, Ohio, 3, Tel: CHapel 4-5485, Main Office: Cleveland, Ohio

Michaelson Co. (Bernard L.), 315 N. Monroe St., Xenia, Ohio, 3, Tel: DR 2-5496 (ERA)
Components, test instruments.

Distribution

Ohio
Oklahoma

Yellow Springs
(Telephone Area Code—513)

Cain & Co., P.O. Box 184, Yellow Springs, Ohio, 3, Tel: RO 7-8661, Main Office: Burbank, Calif.

Youngstown
(Telephone Area Code—216)

Armie's Electronics, 320 W. Federal St., Youngstown 3, Ohio, 2, Tel: RIverside 6-7028 (NEDA)

Ronci Electronic Supply Co., 3627 South Ave., Youngstown, Ohio, 2, Tel: STerling 2-8075 (NEDA)

Zanesville
(Telephone Area Code—614)

Thompson Radio Suppliers, 110 S. Sixth St., Zanesville, Ohio, 2, Tel: GLadstone 2-8473 (NEDA)

OKLAHOMA

Oklahoma City
(Telephone Area Code—405)

Dulaney's, 100 N.W. 44th St., Oklahoma City, Okla., 2, Tel: JAckson 4-9572 (NEDA)

Electronic Supply Co., 212 N.W. 10th, Oklahoma City, Okla., 2, Tel: CEntral 2-5215 (NEDA)

Johnson Wholesale Electronics, 927 N.W., First, Oklahoma City, Okla., 2, Tel: CEntral 5-6387 (NEDA)

Trice Wholesale Electronics, 800 N. Hudson, Oklahoma City, Okla., 2, Tel: CEntral 2-9291 (NEDA)

Tulsa
(Telephone Area Code—918)

Barnes Co. (Arnold), P.O. Box 5417, Tulsa, Okla., 3, Tel: NAtional 7-1515, Main Office: Dallas, Texas

Elder Co. (John W.), Box 3395, Tulsa, Okla., 3, Tel: LU 3-9149 (ERA)
Components & raw materials.

Electro-Mechanical Associates, Inc., 1538 S. Louisville, Tulsa, Okla., 3, Tel: WEbster 6-0669, Main Office: Dallas, Texas

Green Co. (John A.), Box 911, Tulsa 1, Okla., 3, Tel: RIverside 2-4657, Main Office: Dallas, Texas

Klicpera Co. (M. F.), P.O. Box 2094, Tulsa, Okla., 3, Main Office: Houston, Texas

Oil Capitol Electronics Corp., 708 S. Sheridan, Tulsa 16, Okla., 2, Tel: TEmple 6-2541 (NEDA)

Packard Associates, Drawer 980, Tulsa 1, Okla., 3, Main Office: Dallas, Tex.

Peck Co. (Gordon V.), P.O. Box 15671, Tulsa, Okla., 3, Tel: TEmple 5-5484, Main Office: Dallas, Tex.

Ray Co. (T. J.), 8514 E. 31st Pl., Tulsa 45, Okla., 3, Tel: 918-NAtional 7-1515
ADC, Inc.: Transformers. **Anderson Controls, Inc.:** Solenoids. **Edcliff Instruments, ConElco Div.:** Potentiometers. **Electric Indicator Co.:** Motors. **Elgin National Watch Co.:** Relays. **Gudeman Co.:** Capacitors. **Lerco Div., Microdot Corp.:** Hardware. **Pic Design Corp:** Gears. **Shallcross Mfg. Co.:** Resistors, switches. **Spectrol Electronics Corp.:** Potentiometers.

Standard Products, Inc., 2208 N. Sheridan Rd., Tulsa, Okla., 3, Tel: TEmple 8-3371, Main Office: Wichita, Kan.

First Class
Permit No. 57217
New York, N.Y.

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No Postage Stamp Necessary If Mailed in the United States

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NEW YORK 36, N.Y.

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Permit No. 57217
New York, N.Y.

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Postage Will Be Paid by Addressee
1962 IRE DIRECTORY
Inquiry Services Dept.
72 W. 45th St.
NEW YORK 36, N.Y.

Butler
(Telephone Area Code—412)

Barron Radio Supply, Inc., 368 E. Jefferson St., Butler, Pa., 2, Tel: BUtler 5-4155 (NEDA)

Electronic & Electrical Supply, Inc., 413 W. Jefferson St., Butler, Pa., 2 (NEDA)

Camp Hill
(Telephone Area Code—717)

Robinson Co. (I. E.), Park Place Office Bldg., P.O. Box 187, Camp Hill, Pa., 3, Tel: REgent 7-6791, Main Office: West Conshohocken, Pa.

Canonsburg
(Telephone Area Code—412)

Daugherty Co. (F. A.), 112 Oakwood Dr., Canonsburg, Pa., 3, Tel: WI 1-6473, Main Office: Cleveland, Ohio

Cheltenham
(Telephone Area Code—215)

Scholes Co (William R.), P.O. Box 104, Cheltenham, Pa., 3, Tel: PIlgrim 5-2765 (ERA)
Balco Labs., Capacitor Div.: Capacitors. **Electro Wire Corp.:** Magnetic wire. **General Resistance, Inc.:** Wire-wound resistors. **Haddam Mfg. Co.:** Flexible heaters. **Magnetec Corp.:** Magnetic clutches. **Patwin Div.:** Indicators.

Clifton Heights
(Telephone Area Code—215)

Delaware Valley Electronic Supply Corp., 224 W. Baltimore Pike, Clifton Heights, Pa., 2, Tel: MAdison 2-0510 (NEDA)

Devon
(Telephone Area Code—215)

ell Co. (P. F.), Anro Bldg., Devon, Pa., 3, Tel: MUrray 8-5011

Donora
(Telephone Area Code—412)

rke Co. (Al), Box 576, Donora, Pa., 3, Tel: FR 9-4353 (ERA)

Drexel Hill
(Telephone Area Code—215)

obbart (Arthur J.), 56-14 Revere Rd., Drexel Hill, Pa., 3, Tel: 215-CLearbrook 9-3881 (ERA)

Easton
(Telephone Area Code—215)

f & Co. (Art), 4302 Embur Terr., Bethlehem Twp., Easton, Pa., 3, Tel: Blackburn 2-6373, Main Office: Newark, N.J.

erated Purchaser, Inc., 925 Northmpton St., Easton, Pa., 2, Tel: Blackburn 3-4259, Main Office: Mountainside, N.J.

Elkins Park
(Telephone Area Code—215)

G. Radio Parts Co., 939 Township ine, Elkins Park 17, Pa., 2, Tel: Urner 6-5100 (NEDA)

Erie
(Telephone Area Code—814)

combe Co. (J. V.), 902 Parade St., rie, Pa., 2, Tel: GLendale 4-5278 NEDA)

an Electronic Co., 1130 German St., rie, Pa., 2, Tel: GLendale 6-2983 NEDA)

e Electronics, 24th & French, Erie, 2, Tel: GLendale 4-0164 (NEDA)

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Warren Radio, Inc., 1315 Peach St., Erie 1, Pa., 2, Tel: GLendale 4-5285 (NEDA)

Fort Washington
(Telephone Area Code—215)

Beemer Engineering Co., Industrial Park, Fort Washington, Pa., 3
Aeroduct, Halogen, Oilite, Parker Seal.

Gardenville
(Telephone Area Code—215)

Biggs & Co., Inc. (J. Alan), Bucks County, Gardenville, Pa., 3, Tel: 215-FIllmore 8-9457 (ERA)
Aemco Div. of Telex, Inc., Bassett Div., Chassis Trak, Inc., Connolly & Co. (Wallace E.), Vent-Rak, Inc.

Glenside
(Telephone Area Code—215)

Brown-Frederick & Associates, Inc., 231 S. Easton Rd., P.O. Box 235, Glenside, Pa., 3, Tel: TUrner 7-1325 (ERA)
Good-All Electric Mfg. Co.: Capacitors. **Stackpole Carbon Co.:** Resistors, switches, ferrite cores. **Standard Rectifier Corp.:** Silicon rectifiers. **Torotel, Inc.:** Toroids, filters, amplifiers, power supplies, transformers. **Victory Engineering Corp.:** Thermistors, varistors, temperature sensors.

Shelps Co. (George A.), P.O. Box 254, Glenside, Pa., 2, 3, Tel: TUrner 7-2294 (ERA)
American Electric Cable Co.: Wire. **American Molded Products Co.:** Bobbins. **Hudson Lamp Co.:** Miniature lamps. **Kanthal Corp.:** Resistance alloys. **Robco Products Co.:** Geared motors. **Saxonburg Ceramics, Inc.:** Ceramics. **Stevens Mfg. Co., Inc. (George):** Coil winding equipment.

Wilkinson Organization (Robert L.), P.O. Box 215, Glenside, Pa., 3, Tel: HAncock 4-8400, Main Office: Baltimore, Md.

Harrisburg
(Telephone Area Code—717)

D & H Distributing Co., Inc., 2525 N. 7th St., Harrisburg, Pa., 2, Tel: CE 6-8001 (NEDA)

Electronic Wholesalers, Inc., 1922 Paxton St., Harrisburg, Pa., 2, Tel: CEdar 8-8194 (NEDA)

Radio Distributing Co., 915 S. 13th St., Harrisburg, Pa., 2, Tel: CEdar 6-5945 (NEDA)

Hatboro
(Telephone Area Code—215)

Mount Co. (Warren), 133 Byberry Ave., Hatboro, Pa., 3, Tel: OSborne 2-2221, Main Office: Washington, D.C.

Havertown
(Telephone Area Code—215)

Fairbanks Co. (H. J.), Waybar Bldg., 1615 Darby Rd., Havertown, Pa., 3, Tel: GRanite 2-2467 (ERA)
Carter Motor Co.: Fractional H/P converters, dynamotors. **Endicott Coil Co.:** Solenoid & relay coils. **Filtech Corp.:** Crystal filters. **Hermetite Corp.:** Seals. **Michigan Magnetics, Inc.:** Heads. **Pyramid Electric Co.:** Capacitors. **Stanwyck Coil Co. (E.):** Printed-circuit coils.

Kass Electronics Distributors, West Chester Pike & Darby Rd., Havertown, Pa., 2, Tel: HIlltop 9-2300 (NEDA)

Mustico Co. (John), 312 Bewley Rd., Havertown, Pa., 3, Tel: HI 6-1961 (ERA)
Components.

Satterthwaite Co. (W. F.), P.O. Box 664, Havertown, Pa., 3, Tel: 215-SUnset 9-9600 (ERA)
Amco Engineering Co.: Cabinets. **Chicago Thrift-Etching Corp.:** Name-plates, dials. **Diamonite Products Mfg. Co.:** Ceramic components. **Gyra Electronics Corp.:** Nuclear test equipment. **Halex, Inc.:** Thin-film circuitry, test equipment. **Hamlin, Inc.:** Switches, electrolytic potentiometers. **Mutual Designers, Inc.:** Printed-circuit boards, packaging.

Hellertown
(Telephone Area Code—215)

Taylor Co. (Morris F.), 534 Ellen St., Hellertown, Pa., 3, Tel: TErrace 8-8503, Main Office: Silver Spring, Md.

Holland
(Telephone Area Code—215)

Park Co. (E. L.), Patricia & Beverly Rds., Holland, Pa., 3, Tel: 215-ELmwood 7-7805 (ERA)
Eby Sales Co., Mosley Electronics, Inc., Planet Sales Corp., R.M.S., Inc., Seco Electronics, Inc., Superior Insulated Wire Co., TV Development Corp., Utica Communications Corp.

Homestead
(Telephone Area Code—412)

Leff Radio Parts Co. (M.), 247 W. Eighth Ave., Homestead, Pa., 2, Tel: HOmestead 2-2700 (NEDA)

Jenkintown
(Telephone Area Code—215)

Garten Associates (Louis A.), 730 Washington Lane, Jenkintown, Pa., 3, Tel: WAverly 7-1200, Main Office: Caldwell, N.J.

Laird Equipment Co., 204 Wyncote Rd., Jenkintown, Pa., 3, Tel: 215-TUrner 4-8198
Hermes-Sonic: Ultrasonic cleaning equipment. **New Hermes:** Engraving machines. **Wynn Mfg.:** Wiremarking equipment.

Kane
(Telephone Area Code—814)

Wadsworth Mfg. Associates, Inc., 312 Pine Ave., Kane, Pa., 2, 3, Tel: 1661, Main Office: Liverpool, N.Y.

Lansdowne
(Telephone Area Code—215)

Holdsworth & Co., P.O. Box 71, Lansdowne, Pa., 3, Tel: 215-MAdison 6-8300
Applied Research, Inc.: Amplifiers, filters, attenuators. **Calibration Standards:** Volt-amp meters. **Electronic Measurements Co., Inc.:** Power supplies, voltage regulators. **Erie-Pacific Div.:** Counters & timers. **Jerrold Electronics Corp.:** Sweep frequency generators, attenuators. **Julie Research Labs., Inc.:** Voltage dividers, resistors. **Lab. For Electronics, Inc.:** Microwave oscillators. **Lumatron Electronics, Inc.:** Oscilloscopes, pulse generators. **Millivac Instruments, Inc.:** VTVM's. **Optimized Devices, Inc.:** Voltage comparators, transistor & diode test sets. **Rust Industrial Co., Inc.:** Recorders.

OREGON

Eugene
(Telephone Area Code—503)

Hay & Carman, Inc., 768 Lincoln St., Eugene, Ore., 2, Tel: DIamond 2-1241 (NEDA)

Medford
(Telephone Area Code—503)

Walker Co. (Verl G.), 205 W. Jackson, P.O. Box 1586, Medford, Ore., 2, Tel: SPring 3-7557 (NEDA)

Portland
(Telephone Area Code—503)

Arva, Inc., 1238 N.W. Glisan St., Portland 9, Ore., 3, Tel: CA 2-7337, Main Office: Seattle, Wash.

Burcham Co. (Don H.), P.O. Box 4098, Portland 8, Ore., 3, Tel: CApitol 6-4148 (ERA)
Amphenol-Borg Electronics, Antenna Specialists, Inc., Bud Radio, Inc., Chicago Standard Transformer Corp., Filtron Co., General Precision Labs. Jerrold Electronics, Mallory Battery Co., Mallory & Co. (P. R.), Raytheon Co., Simpson Electric Co.

Central Distributors, 1331 N.W. Couch St., Portland 9, Ore., 2, Tel: CApital 8-0146 (NEDA)

JaMac Products Co., 8845 N.E. Sandy Blvd., Portland 20, Ore., 2, Tel: ALpine 2-2929

LeBrun Co. (G. O. "Jud"), 1906 N.E. 57th Ave., Portland 13, Ore., 3, Tel: ATlantic 8-3142 (ERA)
Components.

Lee Co., Inc. (Dave M.), 3527 N.E. Union Ave., Portland 12, Ore., 3, Tel: 503-ATlantic 8-5796 (ERA)
Alliance Mfg. Co., Columbia Wire & Supply Co., Corning Glass Works, Erie Resistor Corp., Jensen Industries, Johnson Co. (E. F.), Kurman Electric Co., Littelfuse, Inc., Lowell Mfg. Co., Midwestern Instrument Co., Quam-Nichols Co, Rauland Corp., Sams & Co. (Howard W.), Standard Rectifier Corp., Trimm, Inc., Tyco Semiconductor. Ward Products, Waters Conley Co.

Legg Co. (Richard), 1633 N.W. 21st Ave., Portland 9, Ore., 3, Tel: CApitol 2-1353 (ERA)
Components.

McMillan Electronics, 10111 S.W. 62nd Ave., Portland 19, Ore., 3, Tel: 503-CHerry 4-7830 (ERA, NEDA)
Audio Cord Co., Injectorall Co., Mark Mobile, Inc., Minneapolis Speaker Co., Mohawk Business Machine Corp., Trutone Electronics, Inc., Vocaline Co. of America, Inc., Webster Productomatic.

Merritt Co. (Ron), 1238 N.W. Glisan St., Portland 9, Ore., 3, Tel: CA 2-7337, Main Office: Seattle, Wash.

Minthorne Co. (Roger M.), 0673 S.W. Taylor's Ferry Rd., Portland 19, Ore., 3, Tel: CHerry 6-4556 (ERA)
Akro-Mils, Birnbach Radio Co., Continental-Wirt Mfg. Co., Eby, Inc. (H. H.), Peerless-Altec, Spectra-Strip Wire & Cable, Waldom Electronics.

Porter, Inc. (Burt), 1937 N.E. Multnomah Ave., P.O. Box 7854, Portland 12, Ore., 3, Tel: ATlantic 4-1718, Main Office: Seattle, Wash.

Portland Radio Supply Co., 1234 S.W. Stark St., Portland 5, Ore., 2, Tel: CApitol 8-8647 (NEDA)

Saelen's Radio Co., Inc., 1605 N.W. Everett, Portland 9, Ohio, 2, Tel: CApitol 8-6395 (NEDA)

Stroum Co., Inc. (Samuel N.), 3, Tel: COmmerce 9640, Main Office: Seattle, Wash.

Television & Radio Supply Co., 1327 S.E. Grand Ave., Portland 14, Ore., 2, Tel: BElmont 2-1104, (NEDA)

Weber Co. (Dale G.), 8 S.E. Clay St., Portland 14, Ore., 3, Tel: BElmont 4-7671 (ERA)
Astatic Corp.: Cartridges, microphones. **Bel Canto Stereophonic Recordings:** Tape. **Bell Sound Div.:** Amplifiers, tuners. **Davis & Co. (J. W.):** Baffles. **Delevan Electronics Corp.:** Choke coils, inductors. **Dunton Co. (M. W.):** Solder. **Electrical Industries:** Hermetic seals & headers. **Elpa Marketing Industries, Inc.:** Turntables. **JFD Electronics Corp.:** Antennas. **James Electronics, Inc.:** Vibrators, choppers, transformers. **KLH Research & Development Corp.:** Speakers. **Merit Coil & Transformer Corp.:** Coils & transformers. **Phaio Plastics Corp.:** Wire. **Racon Electric Co.:** Outdoor speakers. **Sprague Products Co.:** Capacitors, resistors, transistors. **Thomas Electronics:** CR tubes. **Waico Electronics Co., Inc.:** CB transceivers, phono accessories.

Salem
(Telephone Area Code—503)

Willamette Radio Supply, Inc., 2450 State St., Salem, Ore., 2, Tel: EMpire 2-0463 (NEDA)

PENNSYLVANIA

Abington
(Telephone Area Code—215)

Pearson Sales Co. (R. T.), 1125 York Rd., Abington, Pa., 3, Tel: 215-TUrner 7-0186 (ERA)
Condenser Products: Capacitors. **Decco, Inc.:** Military transformers. **Electronic Products Corp.:** Timers. **Mel-Rain Corp.:** Sensitivity controls & circuit breakers. **Quincy Speaker Mfg. Corp.:** Speakers. **Victor Electric Wire & Cable Corp.:** Wire. **Waterbury Companies, Inc.:** Molding. **Woodward Schumacher Corp.:** Transformers.

Allentown
(Telephone Area Code—215)

Beil & Whitaker, Inc., 1303 N. Troxell St., Allentown, Pa., 3, Tel: HEmlock 4-5220, Main Office: Reading, Pa.

Federated Purchaser, Inc., 1115 Hamilton St., Allentown, Pa., 2, Tel: HEmlock 7-4481, Main Office: Mountainside, N.J.

Peters, Inc. (A. A.), 231 N. 7th St., Allentown, Pa., 2, Tel: HEmlock 4-5238 (NEDA)

Radio Electric Service Co. of Lehigh Valley, Inc., 1313 Linden St., Allentown, Pa., 2, Tel: HEmlock 5-6743 (NEDA)

Allison Park
(Telephone Area Code—412)

Automated Equipment & Engineering, Inc., 9401 Northgate Dr., Allison Park, Pa., 3, Tel: WEllington 1-7616

Altoona
(Telephone Area Code—814)

Altoona TV Supply, Inc., 1720 Union Ave., Altoona, Pa., 2, Tel: WIndsor 4-0827 (NEDA)

Ambler
(Telephone Area Code—215)

Pacent Engineering Corp., 119 E. Butler Ave., Ambler, Pa., 3, Tel: MItchell 6-0405, Main Office: Great Neck, L.I., N.Y.

Quinlan Co. (D. G.), National Bank Bldg., Ambler, Pa., 3, Tel: MI 6-7250 (ERA)

Ardmore
(Telephone Area Code—215)

Land-C-Air Sales Co., 32 Rittenhouse Rd., Ardmore, Pa., 3, Tel: GR 7-2725, Main Office: Tuckahoe, N.Y.

Rothenheber & Co., Inc., 53 Cricket Ave., Ardmore, Pa., 3, Tel: 215-MIdway 2-6911 (ERA)
Bristol Spring Mfg. Co.: Springs, wire forms. **Dearborn Electronic Labs.:** Film capacitors. **Eby Co. (Hugh H.):** Sockets, connectors. **Electra Mfg. Co.:** Resistors. **Electromagnetic Industries, Inc.:** Magnetic components. **Enflo Corp.:** Teflon. **General Thermoelectric Corp.:** Heating & cooling devices, frigistors. **Kato Engineering Co.:** Generators, motor generator sets. **New York Coil Co.:** Transformers. **Quality Components, Inc.:** Coil forms, cores, capacitors. **Skinner Electric Valve Div.:** Solenoid valves. **Stevens Mfg. Co.:** Thermostatic controls. **Trans-Sil Corp.:** Silicon rectifiers.

Bala Cynwyd
(Telephone Area Code—215)

Friedman & Associates (Martin), 7 Heather Rd., Bala Cynwyd, Pa., 3, Tel: TRinity 7-3450 (ERA)
Bel Fuse, Diodes, Inc., IEI—Subsid. of SPS, Industrial Electronic Hardware, Telex, Inc.

Bethlehem
(Telephone Area Code—215)

Beil & Whitaker, Inc., 504 Hickory St., Bethlehem, Pa., 3, Tel: UNiversity 6-4424, Main Office: Reading, Pa.

Buss Radio Electric Supply, 431 W. Broad St., Bethlehem, Pa., 2, Tel: UNiversity 6-0634 (NEDA)

Braddock
(Telephone Area Code—412)

Mark's Parts Co., 903 Braddock Ave., Braddock, Pa., 2, Tel: ELectric 1-1314 (NEDA)

Bristol
(Telephone Area Code—215)

Powell Electronics, 457 Mill St., Bristol, Pa., 2, Tel: STillwell 8-9226 (NEDA)

Broomall
(Telephone Area Code—215)

Lowery, Inc. (L. D.), 2801 W. Chester Pike, Broomall, Pa., 3 (ERA)
Dialight Corp.: Pilot lights. **Epoxy Products, Inc.:** Epoxy molding compounds. **General Products Corp.:** Terminal boards, solderless connectors. **Haydon Co. (A. W.):** Timing devices, test equip. **Industrial Condenser Corp.:** Capacitors. **International Tel. & Tel.:** Silicon & selenium rectifiers. **Millen Mfg. Co. (James):** Hardware. **United Transformer Corp.:** Transformers.

Bryn Mawr
(Telephone Area Code—215)

Humes Sales (David), 124 Lee Circle, Bryn Mawr, Pa., 3, Tel: 215-LAwrence 5-6469 (ERA)
Glasseal Products Co.: Glass-to-metal seals, terminations. **Hood Sponge Rubber Co.:** Rubber parts. **Komak, Inc.:** Printed circuits. **Peerless Molded Plastics:** Molded plastics. **Plastex Co.:** Extruded plastics. **Syracuse Electronics Corp.:** Time delay relays, temperature controllers. **Wabash Magnetics Corp.:** Coils, power packs.

Butler
(Telephone Area Code—412)

Barron Radio Supply, Inc., 368 E. Jefferson St., Butler, Pa., 2, Tel: BUtler 5-4155 (NEDA)

Electronic & Electrical Supply, Inc., 413 W. Jefferson St., Butler, Pa., 2 (NEDA)

Camp Hill
(Telephone Area Code—717)

Robinson Co. (I. E.), Park Place Office Bldg., P.O. Box 187, Camp Hill, Pa., 3, Tel: REgent 7-6791, Main Office: West Conshohocken, Pa.

Canonsburg
(Telephone Area Code—412)

Daugherty Co. (F. A.), 112 Oakwood Dr., Canonsburg, Pa., 3, Tel: WI 1-6473, Main Office: Cleveland, Ohio

Cheltenham
(Telephone Area Code—215)

Scholes Co (William R.), P.O. Box 104, Cheltenham, Pa., 3, Tel: PIlgrim 5-2765 (ERA)
Balco Labs., Capacitor Div.: Capacitors. **Electro Wire Corp.:** Magnetic wire. **General Resistance, Inc.:** Wire-wound resistors. **Haddam Mfg. Co.:** Flexible heaters. **Magnetec Corp.:** Magnetic clutches. **Patwin Div.:** Indicators.

Clifton Heights
(Telephone Area Code—215)

Delaware Valley Electronic Supply Corp., 224 W. Baltimore Pike, Clifton Heights, Pa., 2, Tel: MAdison 2-0510 (NEDA)

Devon
(Telephone Area Code—215)

Bell Co. (P. F.), Anro Bldg., Devon, Pa., 3, Tel: MUrray 8-5011

Donora
(Telephone Area Code—412)

Burke Co. (Al), Box 576, Donora, Pa., 3, Tel: FR 9-4353 (ERA)

Drexel Hill
(Telephone Area Code—215)

Stobbart (Arthur J.), 56-14 Revere Rd., Drexel Hill, Pa., 3, Tel: 215-CLearbrook 9-3881 (ERA)

Easton
(Telephone Area Code—215)

Cerf & Co. (Art), 4302 Embur Terr., Bethlehem Twp., Easton, Pa., 3, Tel: Blackburn 2-6373, Main Office: Newark, N.J.

Federated Purchaser, Inc., 925 Northampton St., Easton, Pa., 2, Tel: BLackburn 3-4259, Main Office: Mountainside, N.J.

Elkins Park
(Telephone Area Code—215)

A. G. Radio Parts Co., 939 Township Line, Elkins Park 17, Pa., 2, Tel: TUrner 6-5100 (NEDA)

Erie
(Telephone Area Code—814)

Duncombe Co. (J. V.), 902 Parade St., Erie, Pa., 2, Tel: GLendale 4-5278 (NEDA)

Jordan Electronic Co., 1130 German St., Erie, Pa., 2, Tel: GLendale 6-2983 (NEDA)

Mace Electronics, 24th & French, Erie, Pa., 2, Tel: GLendale 4-0164 (NEDA)

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Warren Radio, Inc., 1315 Peach St., Erie 1, Pa., 2, Tel: GLendale 4-5285 (NEDA)

Fort Washington
(Telephone Area Code—215)

Beemer Engineering Co., Industrial Park, Fort Washington, Pa., 3
Aereduct, Halogen, Oilite, Parker Seal.

Gardenville
(Telephone Area Code—215)

Biggs & Co., Inc. (J. Alan), Bucks County, Gardenville, Pa., 3, Tel: 215-FIllmore 8-9457 (ERA)
Aemco Div. of Telex, Inc., Bassett Div., Chassis Trak, Inc., Connolly & Co. (Wallace E.), Vent-Rak, Inc.

Glenside
(Telephone Area Code—215)

Brown-Frederick & Associates, Inc., 231 S. Easton Rd., P.O. Box 235, Glenside, Pa., 3, Tel: TUrner 7-1325 (ERA)
Good-All Electric Mfg. Co.: Capacitors. **Stackpole Carbon Co.:** Resistors, switches, ferrite cores. **Standard Rectifier Corp.:** Silicon rectifiers. **Terotel, Inc.:** Toroids, filters, amplifiers, power supplies, transformers. **Victory Engineering Corp.:** Thermistors, varistors, temperature sensors.

Shelps Co. (George A.), P.O. Box 254, Glenside, Pa., 2, 3, Tel: TUrner 7-2294 (ERA)
American Electric Cable Co.: Wire. **American Molded Products Co.:** Bobbins. **Hudson Lamp Co.:** Miniature lamps. **Kanthal Corp.:** Resistance alloys. **Robco Products Co.:** Geared motors. **Saxonburg Ceramics, Inc.:** Ceramics. **Stevens Mfg. Co., Inc. (George):** Coil winding equipment.

Wilkinson Organization (Robert L.), P.O. Box 215, Glenside, Pa., 3, Tel: HAncock 4-8400, Main Office: Baltimore, Md.

Harrisburg
(Telephone Area Code—717)

D & H Distributing Co., Inc., 2525 N. 7th St., Harrisburg, Pa., 2, Tel: CE 6-8001 (NEDA)

Electronic Wholesalers, Inc., 1922 Paxton St., Harrisburg, Pa., 2, Tel: CEdar 8-8194 (NEDA)

Radio Distributing Co., 915 S. 13th St., Harrisburg, Pa., 2, Tel: CEdar 6-5945 (NEDA)

Hatboro
(Telephone Area Code—215)

Mount Co. (Warren), 133 Byberry Ave., Hatboro, Pa., 3, Tel: OSborne 2-2221, Main Office: Washington, D.C.

Havertown
(Telephone Area Code—215)

Fairbanks Co. (H. J.), Waybar Bldg., 1615 Darby Rd., Havertown, Pa., 3, Tel: GRanite 2-2467 (ERA)
Carter Motor Co.: Fractional H/P converters, dynamotors. **Endicott Coil Co.:** Solenoid & relay coils. **Filtech Corp.:** Crystal filters. **Hermetite Corp.:** Seals. **Michigan Magnetics, Inc.:** Heads. **Pyramid Electric Co.:** Capacitors. **Stanwyck Coil Co. (E.):** Printed-circuit coils.

Kass Electronics Distributors, West Chester Pike & Darby Rd., Havertown, Pa., 2, Tel: HIlltop 9-2300 (NEDA)

Mustico Co. (John), 312 Bewley Rd., Havertown, Pa., 3, Tel: HI 6-1961 (ERA)
Components.

Satterthwaite Co. (W. F.), P.O. Box 664, Havertown, Pa., 3, Tel: 215-SUnset 9-9600 (ERA)
Amco Engineering Co.: Cabinets. **Chicago Thrift-Etching Corp.:** Name-plates, dials. **Diamonite Products Mfg. Co.:** Ceramic components. **Gyra Electronics Corp.:** Nuclear test equipment. **Halex, Inc.:** Thin-film circuitry, test equipment. **Hamlin, Inc.:** Switches, electrolytic potentiometers. **Mutual Designers, Inc.:** Printed-circuit boards, packaging.

Hellertown
(Telephone Area Code—215)

Taylor Co. (Morris F.), 534 Ellen St., Hellertown, Pa., 3, Tel: TErrace 8-8503, Main Office: Silver Spring, Md.

Holland
(Telephone Area Code—215)

Park Co. (E. L.), Patricia & Beverly Rds., Holland, Pa., 3, Tel: 215-ELmwood 7-7805 (ERA)
Eby Sales Co., Mosley Electronics, Inc., Planet Sales Corp., R.M.S., Inc., Seco Electronics, Inc., Superior Insulated Wire Co., TV Development Corp., Utica Communications Corp.

Homestead
(Telephone Area Code—412)

Leff Radio Parts Co. (M.), 247 W. Eighth Ave., Homestead, Pa., 2, Tel: HOmestead 2-2700 (NEDA)

Jenkintown
(Telephone Area Code—215)

Garten Associates (Louis A.), 730 Washington Lane, Jenkintown, Pa., 3, Tel: WAverly 7-1200, Main Office: Caldwell, N.J.

Laird Equipment Co., 204 Wyncote Rd., Jenkintown, Pa., 3, Tel: 215-TUrner 4-8198
Hermes-Sonic: Ultrasonic cleaning equipment. **New Hermes:** Engraving machines. **Wynn Mfg.:** Wiremarking equipment.

Kane
(Telephone Area Code—814)

Wadsworth Mfg. Associates, Inc., 312 Pine Ave., Kane, Pa., 2, 3, Tel: 1661, Main Office: Liverpool, N.Y.

Lansdowne
(Telephone Area Code—215)

Holdsworth & Co., P.O. Box 71, Lansdowne, Pa., 3, Tel: 215-MAdison 6-8300
Applied Research, Inc.: Amplifiers, filters, attenuators. **Calibration Standards:** Voltamp meters. **Electronic Measurements Co., Inc.:** Power supplies, voltage regulators. **Erie-Pacific Div.:** Counters & timers. **Jerrold Electronics Corp.:** Sweep frequency generators, attenuators. **Julie Research Labs., Inc.:** Voltage dividers, resistors. **Lab. For Electronics, Inc.:** Microwave oscillators. **Lumatron Electronics, Inc.:** Oscilloscopes, pulse generators. **Millivac Instruments, Inc.:** VTVM's. **Optimized Devices, Inc.:** Voltage comparators, transistor & diode test sets. **Rust Industrial Co., Inc.:** Recorders.

Pennsylvania

Taylor Co. (Morris F.), 275 Bryn Mawr Ave Lansdowne, Pa., 3, Tel: MAdison 2-0383, Main Office: Silver Springs, Md.
Components.

Lewisberry
(Telephone Area Code—717)

Eberle-Schaar Co., R.D. #1, Lewisberry, Pa., 3, Main Office: Baltimore, Md.

McKeesport
(Telephon Area Code—412)

Barno Radio Co., 927 Walnut St., McKeesport, Pa., 2, Tel: NO 4-9391 (NEDA)

McKeesport Electronics, Inc., 1661 Fifth Ave., McKeesport, Pa., 2, Tel: Orchard 8-5111 (NEDA)

Mechanicsburg
(Telephone Area Code—717)

Lienau Co. (Charles), 5217 Windsor Blvd., Mechanicsburg, Pa., 3, Tel: 717-PO 6-7322, Main Office: Wheaton, Md.

Monroeville
(Telephone Area Code—412)

Bear Corp. (Neal), 1974 Gregory Ave., Monroeville, Pa., 3 (ERA)

Narberth
(Telephone Area Code—215)

Bresson Associates (Jerry), 246 Haverford Ave., Narberth, Pa., 3, Tel: GReenwood 7-3800 (ERA)
Centralab: Switches, controls, circuits. **Illinois Condenser Co.:** Capacitors. **Phaostron Instrument & Electronic Co.:** Relays. **Solitron Devices, Inc.:** Silicon rectifiers. **United International Dynamics Corp.:** Slide switches.

Jeffries Inc. (Samuel A.), 105 Forest Ave., Narberth, Pa., 3, Tel: MOhawk 4-8500 (ERA)

Lienau Co. (Charles), 1148 Greentree Lane, Narberth, Pa., 3, Main Office: Silver Spring, Md.

Massey Associates, 529 Brookhurst Ave., Narberth, Pa., 3, Tel: MOhawk 4-4200 (ERA)
Arco Electronics, Atlee Corp., Burnell & Co., Columbus Electronics, Computer Diode Corp., Gorn Electronics, Gray & Kuhn. J.B.T. Instrument, Pennsylvania Fluorocarbon Co., Shurite Meters, Standard Electrical Products, Syntronic Instrument, Tensolite Insulated Wire Co., Triplett Electrical Instrument Co.

Stinson-Platt Associates, 227 Haverford Ave., Narberth, Pa., 3, Tel: MOhawk 4-5511
Ampex Tape Div.: Tape. **Antenna Specialists Co.:** Antennas. **Cornell-Dubilier:** Capacitors. **Gramer-Halldorson:** Transformers. **Magnecord:** Recording equipment.

White & Co., Inc. (L. G.), 108 Forest Ave., Narberth, Pa., 3, Tel: MOhawk 4-6505, Main Office: Silver Spring, Md.

New Brighton
(Telephone Area Code—412)

Television Parts Co., Inc., 518 Fifth Ave., New Brighton, Pa., 2, Tel: TIlden 6-3000 (NEDA)

Norristown
(Telephone Area Code—215)

Brown-Frederick & Associates, Inc., 800 W. Washington St., Norristown, Pa., 3, Tel: BRoadway 9-7560; Main Office: GLenside, Pa.

Paoli
(Telephone Area Code—215)

Cuesta Co. (J. E.), Wedge Bldg., Box 925, Paoli, Pa., 3, Tel: NIagra 4-6020
Acro Products Corp., Data Filter Corp., Electrosolids Corp., Fifth Dimension, Inc., Mid-Eastern Electronics, Optron Corp., Packard-Bell Computer Corp., Pendar, Inc., Sangamo Electric, Taber Instrument Corp., United Electrodynamics, Waugh Engineering Co.: Components & instrumentation.

Philadelphia
(Telephone Area Code—215)

A. C. Radio Supply Co., 1539 W. Passyunk Ave., Philadelphia 45, Pa., 2, Tel: HOward 2-9379 (NEDA)

Allied Electric Appliance Parts, Inc., 1320 W. Erie Ave., Philadelphia 40, Pa., 2, Tel: BAldwin 9-8800 (NEDA)

Almo Radio Co., 913 Arch St., Philadelphia 7, Pa., 2, Tel: WAlnut 2-5918 (NEDA)

Andco Sales-Engineering, Inc., 5823 Greene St., Philadelphia 44, Pa., 3, Tel VIctor 4-9100 (ERA)
Duramark, Inc.: Wire markers. **Emerson & Cuming, Inc.:** Resins, dielectric materials. **Executone, Inc.:** Relays. **Litton Industries (U.S. Engineering Co., Div.):** Hardware, printed circuits. **Lumen, Inc. (Div. of Telex):** Magnetic amplifiers, magnetometers. **Royal Electric Corp.:** Wire & cable. **Wood Electric Corp.:** Circuit breakers, RF connectors.

Bancroft & Co. (H. S.), 1827 Faunce St., Philadelphia, Pa., 3, Tel: 215-PIlgrim 2-9222, Main Office: Collingswood, N.J.
See ad on page 811

Barnett Brothers Radio Co., 622 Arch St., Philadelphia 6, Pa., 2, Tel: WAlnut 5-9780 (NEDA)

Baron Associates, The Presidential A-710, Philadelphia 31, Pa., 3, Tel: TR 7-4605
Waveguide & microwave products.

Be-Esco Sales Corp., 1122 E. Cliveden St., Philadelphia, Pa., 3, Tel: 215-LIvingston 9-1122, Main Office: Yonkers, N.Y.
See ad on page 829

Blumenstein Co. (Hal), 123 Crosshill Rd., Philadelphia 51, Pa., 3, Tel: MIdway 9-9523 (ERA)
CBC Electronics: Hook-up cable. **Dexter Chemical:** Chemicals. **Dynaco, Inc.:** Transformers, cartridges, microphones. **Harman-Kardon, Inc.:** Amplifiers, tuners. **Webcor, Inc.:** Record changers. **Webster Productomatic, Inc.:** Intercoms, light controls.

Boenecke Associates, 3, Tel: WAlnut 5-3518, Main Office: Pennsauken, N.J.

Burlingame Associates, 3, Tel: 215-SHerwood 7-9080, Main Office: Mount Vernon, N.Y.
See ads on pages 251, 270, 293, 294, 322, 325, 333, 339, 356, 358, 359, 362, 363, 365, 366, 477, 527, 643, 659

Cerf & Co. (Art), 3, Tel: LOcust 4-0663, Main Office: Newark, N.J.

Cordray Sales Co., The Barclay Bldg., Philadelphia, Pa., 3 (ERA)

Crane & Egert Corp., 3, Tel: PEnnypacker 5-3520, Main Office: New York, N.Y.

Duncan & Associates, Inc. (William I.), 5452 Charles St., Philadelphia 24, Pa., 3, Tel: CUmberland 9-7525
Cherry Electrical Products Corp.: Snap action switches. **Daystrom Pacific Corp.:** Potentiometers. **Hopkins Engineering Co.:** Capacitors. **Iron Fireman Mfg. Co., Inc.:** Relays. **JFD Electronics Corp.:** Capacitors, delay lines, tuners. **Vitramon, Inc.:** Capacitors.

Eastern Instrumentation, Inc., 613 Cheltenham Ave., Philadelphia 26, Pa., 3, Tel: WA 7-6269 (ERA)
Components & raw materials.

Engel & Associates, Inc. (G. Curtis), 3, Tel: 215-WAlnut 2-3270, Main Office: Ridgewood, N.J.
See ad on page 814

Erdman Co. (Kenneth B.), 7908 High School Rd., Elkins Park, Philadelphia 17, Pa., 3 (ERA)
Albany Products Co., Inc.: Fasteners. **Cambridge Thermionic Corp.:** Components, computer modules. **Conductorlab, Inc.:** Printed circuit boards. **Pic Design Corp.:** Gears, speed reducers.

Estersohn Co. (Harry), 5727 Wister St., Philadelphia 38, Pa., 3 (ERA)
American Concertone: Tape recorders. **Audio Dynamics Corp.:** Pickups. **Chicago Miniature Lamp Works:** Lamps. **Jerrold Electronics:** TV accessories. **Scott, Inc. (H. H.):** Audio equipment.

Hautenschild Co. (George), 949 E. Godfrey Ave., Philadelphia 24, Pa., 3
Barco, Inc.: Lectrolytics. **Barker & Williamson:** Electronic equipment. **Lerco Electronics:** Hardware. **Milwaukee Resistor Co.:** Resistors. **Quincy Products Co.:** Speakers.

Herbach & Rademan, Inc., 1204 Arch St., Philadelphia 7, Pa., 2, Tel: LOcust 7-4309 (NEDA)
Batteries, blowers, cabinets, capacitors, circuit breakers, coils, connectors, converters, counters, dials, diodes, filters, fuses, hardware, heaters, lamps, magnets, mikes, motors, photoelectric, pots, power supplies, recorders, rectifiers, relays, resistors, sockets, switches, test instruments, timers, transformers, transistors, tools, tubes, wire & cable.

Jem Electronics Distributors, Inc., 1022 W. Girard Ave., Philadelphia 23, Pa., 2, Tel: POplar 3-5100 (NEDA)

Keefe Electronic Sales Co., 3, Tel: MArket 7-3454, Main Office: Haddonfield, N.J.

L & M Associates, 488 Clapier St., Philadelphia, Pa., 3, Tel: GErmantown 8-5666, Main Office: Saddle Brook, N.J.

Lazar Radio Co. (Nat), 4231 Lancaster Ave., Philadelphia 31, Pa., 2, Tel: BAring 2-5604 (NEDA)

Leban Associates (Albert D.), 218 Lloyd Ave., Philadelphia 51, Pa., 3, Tel: 215-MIdway 2-9047 (ERA)
Arco Electronics, Inc.: Capacitors. **Clarostat Mfg. Co.:** Resistors. **Continental Electronics Corp.:** Tubes. **RMS Electronics:** Intercoms.

Lectronic Distributors, Inc., 727 Arch St., Philadelphia, Pa., 2, Tel: MArket 7-3999 (NEDA)

Lectronic Research Laboratories, Inc., 715 Arch St., Philadelphia 6, Pa., 2, 5, Tel: MArket 7-6771 (NEDA)

Lee Electronics, 7759 Frankford Ave., Philadelphia 36, Pa., 2, Tel: DEvonshire 2-9700 (NEDA)

Lewis Co. (Herman), 1622 68th Ave., Philadelphia 26, Pa., 3, Tel: LIvingston 8-1281 (ERA)
CBS Electronic Sales: Cartridges, diodes. **Clear Beam Antennas.** Antennas. **Consolidated Wire:** Al wire. **Dunton Co. (M. W.):** Solder. **Dynavox Corp.:** Phonos. **Federal Electronics:** Transistor outdoor speakers. **Great Eastern Mfg. Co.:** Transistors, diodes. **Mercury Electric:** CRT reactivators. **Saratoga Industries:** Semiconductors. **Swing-O-Lite:** Industrial lamps. **Wall Mfg. Co. (P.):** Soldering irons.

Lienau Co. (Charles), 7703 Cottage St., Philadelphia, Pa., 3, Tel: MA 4-0350, Main Office: Wheaton, Md.

Macdonald, Inc. (Samuel K.), 1531 Spruce St., Philadelphia 2, Pa., 3, Tel: 215-KIngsley 5-1205 (ERA)
Bramco, Inc.: Relays. **Centralab:** Attenuators, capacitors, controls, potentiometers. **Cinch Mfg. Co.:** Fuse mountings, plugs, sockets. **Cinch-Jones:** Terminals, strips. **Electro-Glass Lab.:** Mounting strips. **Johnson Co. (E. F.):** Ceramic capacitors, ceramic tubes, coils. **Midwee Sales Co.:** Mylar capacitors. **Ohmite Mfg. Co.:** Resistors, switches, potentiometers. **Premax Products Co.:** Antennas. **Raychem Corp.:** Coaxial cables. **Rayclad Tubes, Inc.:** Tubing & sleeving. **Sargent Electric Control Corp.:** Toggle & trigger switches. **Shure Bros., Inc.:** Microphones, pick-ups. **Simpson Electric Co.:** Meters, test equipment. **Spectrol Electronics Corp.:** Precision potentiometers.

Naudain-Bohaker & Co., 1032 Suburban Sta. Bldg., Philadelphia 3, Pa., 3, Tel: 215-LOcust 4-3194 (ERA)

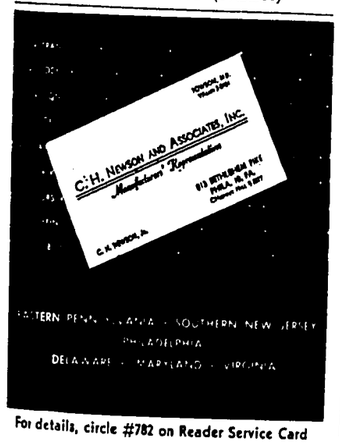
Newson & Associates, Inc. (C. H.), 813 Bethlehem Pike, Philadelphia 18, Pa., 3, Tel: 215-CHestnut Hill 8-3377 (ERA)
See ad on this page
Delevan Electronics Corp.: Coils & chokes. **Kings Electronics Co., Inc.:** Connectors. **Markel:** Wire & sleeving. **National Semiconductor Corp.:** Transistors. **U.S. Components, Inc.:** Connectors.

Nolan & Associates (John J.), 314 W. Sparks St., Olney, Philadelphia 20, Pa., 3
Algo, Inc.: Fabrication. **Allies' Products Corp.:** Resistors. **Bradford Resistors:** Wirewound. **Compo Shoe Machine Co.:** Soldering machinery. **Cosmo Plastics:** Bobbins. **Electrical Windings:** Coils & transformers. **Franklin Co. (Bernard):** Shelving: **Javex Electronics; Mohawk Wire & Cable; Oryx Co.; Seeger-Williams:** Cords, plugs. **United Engineering Co.:** Ground rods.

O'Hara Co. (Brendan C.), 4952 Wynnefield Ave., Philadelphia 31, Pa., 3, Tel: 215-GReenwood 3-3654 (ERA)
Bennett Labs.: Intercoms. **Bozak Sales Co. (R. T.):** Speakers: **DeWald:** Amplifiers. **Fisher-Berkeley Corp.:** Intercoms. **Glaser-Steers Corp.:** Record changers. **Koss, Inc.:** Headphones. **Midwest Audio Corp.:** Lecterns

Paragon Sales Co., 111 S. 22nd St., Philadelphia 3, Pa., 3, Tel: LOcust 3-7060 (ERA)
Communications equipment

Penn Electronic Parts Co., 5303 Frankford Ave., Philadelphia 24, Pa., 2, Tel: JEfferson 5-1533 (NEDA)



For details, circle #782 on Reader Service Card

Powell Co. (Harold H.), 2102 Market St., Philadelphia 3, Pa., 2, Tel: 215-LOcust 4-1440 (NEDA)
Bendix-Scintilla: Connectors. **Dage:** Connectors. **Elco:** Connectors, tube sockets. **Grayhill:** Switches, clips, binding posts. **Kemet:** Capacitors. **Microdot:** Connectors. **Minneapolis-Honeywell:** Meters. **Sealectro:** Connectors. **Switchcraft:** Plugs, jacks, switches. **Tensolite:** Wire. **Useco:** Terminals, hardware. **Vector:** Terminal boards. **Winchester:** Connectors. **Wood Electric:** Circuit boards.

Radio Electric Service Co. of Pa., Div. of Astrex, Inc., 701 Arch St., Philadelphia 6, Pa., 2, Tel: WAlnut 5-5840 (NEDA)
Amphenol-Borg, Bud, Channel Master, Cinch-Jones, Daystrom, Hughes, Potter & Brumfield, R.C.A., Sprague, Superior, Sylvania, Transitron, U.T.C.

Radio Electric Shop, 631 S. 60th St., Philadelphia 43, Pa., 4, Tel: GRanite 6-8125
Photo & medical electronic equipment, radio & TV tubes, transistors & batteries.

Randall Co. (Kenneth), 121 N. Broad St., Philadelphia 7, Pa., 3, Tel: LOcust 4-2151 (ERA)
Barry Controls Div.: Shock mounts. **Churchill Lighting Corp.:** Chassis. **Hammarlund Mfg. Co., Inc.:** Variable capacitors. **Kelvin Electric Co.:** Wire-wound resistors. **Minneapolis-Honeywell:** Aircraft instruments, meters. **Stepper Motors Div.:** Motors, relays. **Switchcraft:** Plugs, jacks, switches, cable. **Transformer Technicians, Inc.:** Transformers, reactors.

Rosen & Co., Inc. (Raymond), 51st & Parkside Ave., Philadelphia 31, Pa., 2, Tel: TRinity 8-2200 (NEDA)

Simberkoff Sales Co., 1900 Sally Ave., Philadelphia, Pa., 3, Tel: PIoneer 2-5476, Main Office: Orange, N.J.

Pennsylvania

Snow Co. (C. E.), 6131 Cheltenham Ave., Philadelphia, Pa., 3, Main Office: Bethesda, Md.

Snyder Co., Inc. (V. A.), 1424 Race St., Philadelphia, Pa., 3, Main Office: Union, N.J.

Steinberg & Co. (Albert), 2520 N. Broad St., Philadelphia 32, Pa., 2, Tel: BAldwin 3-9400 (NEDA)

Stratton Co. (C. H.), 514 E. Wadsworth St., Philadelphia 19, Pa., 3 (ERA)
Mamco Corp.: Motors & blower wheels. **Schauer Mfg. Corp.:** Battery chargers, rectifiers. **Xcelite, Inc.:** Hand tools.

Wadsworth Mfg. Associates, Inc., 5923 Larchwood Ave., Philadelphia, Pa., 2, 3, Tel: SH 7-8048, Main Office: Liverpool, N.Y.

Wagner Electronic Supply (Sidney), 4632 N. 5th St., Philadelphia 40, Pa., 2, Tel: GLadstone 5-3912 (NEDA)

Wetterhahn Co. (A.), 3, Tel: MArket 7-1535, Main Office: Maple Shade, N.J.

Pittsburgh
(Telephone Area Code—412)

Cameradio Co., 1121 Penn Ave., Pittsburgh 22, Pa., 2, Tel: 412-EXpress 1-4000 (NEDA)
See ad on this page
ATR, Acro, Advance Relays, Aerovox, Agastat, Akro-Mils, Alliance, Alpha Wire, Altec-Lansing, Amateur Call Book, American Beauty, American Electronics, Amperite, Amphenol-Borg, Arco, Arrow H & H, Astatic, Astron, Audio Devices, Barber-Colman, Beam, Belden, Birnbach, Bliley, Bogen, Bourns, British Industries, Brush, Bud, Burgess, Bussman, Cambridge Thermi-

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A SUPPLIER OF
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"Distribution" listings are arranged alphabetically by states and by cities within each state. For names and addresses of manufacturing firms, see Alphabetical Directory, pages 81-226.

1962 IRE DIRECTORY READER SERVICE CARD

Use these cards to obtain additional information on advertisements in this issue. Each ad has a number listed beneath it.

TO: IRE Directory (Inquiry Services Dept.)
72 W. 45th St.,
New York 36, N.Y.

Please have advertiser send more information on the following item(s) advertised in the 1962 IRE Directory:

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72 W. 45th St.,
New York 36, N.Y.

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| | | |

onic, Cannon, Carter Motor, Chatham, Chicago Tel. Supply, Cinch-Jones, Clark, Clarostat, Collins, Conant, Condenser Products, Copperweld, Cornell-Dubilier, Dale, Dialco, Dow-Key, Drake, DuMont, Eby, Eico, Elmac, Elco, Electro Products, Electro-Voice, Electrons, Erie, Federal Switch, General Cement, General Electric, General Hardware, Globe, Grayhill, Greenlee, Guardian, Hallicrafters, Hammarlund, Hexagon, Hickok, Hoffman, Hunter, Hy-Gain, IRC, Industrial Timer, International Rectifier, IT&T, JBT, JFD, Jackson, Jensen, Johnson (E. F.), Keil, Kennedy, Kester, Klein, Krueter, Krylon, Kwikheat, Leecraft, Linemaster, Littelfuse, Livingston, Lowell, Mallory, Master Mobile, McIntosh, Micro-Switch, Millen, Miller (J. W.), Miller Tool, Milli-Switch, Minnesota Mining, Monitoradio, Mosley, Mueller, National Co., National Union, Ohmite, Oryx, Par-Metal, Perma-Power, Petersen, Phaostron, Philmore, Pomona, Potter & Brumfield, Precision Apparatus, Premax, Pyramid, Quam-Nichols, Quietrole, R.C.A., Radio Receptor, Raytheon, Robins, Shure, Shurite, Simpson, Smith (H. H.), Sola, Sonar, Sonotone, Sprague, Stancor, Stevens-Walden, Struthers-Dunn, Superex, Superior Electric, Superior Instruments, Switchcraft, Sylvania, Talk-A-Phone, Technical Appliance, Telex, Tenna, Terado, Thordarson, Triad, Trimm, Triplett, Turner, UTC, Ungar, Unimax, University, Van Nostrand, Vector, Vibroplex, Waldom, Wall, Walsco, Waterman, Webcor, Webster, Weller, Wen, Westinghouse, Weston, Wheeler, X-Acto, Xcelite.

Covert Associates (Jack), 320 Jonquil Pl., Pittsburgh 34, Pa., 3, Tel: 412-LEhigh 1-4471 (ERA)
CTS Corp., Cambridge Thermionic, Carling Electric Co., Hoyt Meters, International Resistance, Ken-Tron, North Electric, Syntron Co.

Jeffries Inc. (Samuel A.), 3, Tel: TUxedo 2-9163, Main Office: Narberth, Pa.

Levine Co. (Albert), 11 Jonquil Pl., Pittsburgh 34, Pa., 3, Tel: 412-LOcust 1-7027 (ERA)
Jersey Specialty Co., Inc.: TV antenna wire. **Parker Metal Goods Co.:** TV masts. **Workman TV, Inc.:** Dummy loads, resistors.

Lowry Dietrich Co., 703 Clairton Blvd., Pittsburgh 36, Pa., 3, Tel: 412-TUxedo 1-2228 (ERA)
American Machine & Foundry Co., Columbia Research Labs., Consolidated Controls Corp., Hughes Aircraft Co. (Vacuum Tube Products Div.), Industrial Acoustics Co., Inc., MB Electronics.

Macdonald, Inc. (Samuel K.), 10519 Frankstown Rd., Pittsburgh 35, Pa., 3, Main Office: Philadelphia, Pa.

Mates Associates (Hy), 5510 Hobart St., Pittsburgh 17, Pa., 3, Tel: HAzel 1-8998
Calcon Mfg. Co., I. H. Mfg. Co., Ramelectronic.

Morrow Co. (Les A.), 530 Sixth Ave., Pittsburgh 19, Pa., 3, Tel: EXpress 1-1120, Main Office: Cleveland, Ohio

Odell Co. (M. P.), Box 10595, Pittsburgh 35, Pa., 3, Tel: FRemont 1-1231, Main Office: Westlake, Ohio

Olsen Co. (John O.), 104 Elatan Dr., Pittsburgh 16, Pa., 3, Tel: BRowning 9-2550, Main Office: Cleveland, Ohio

Podolny Co. (James H.), 5912 Penn Ave., Pittsburgh 6, Pa., 3, Tel: HIland 1-0800 (ERA)
Astron Sales Corp.: Capacitors. **Audio Dynamics Corp.:** Cartridges. **British Industries Corp.:** Speakers. **Commercial Plastics:** Clamps. **Continental Electronics & Sound:** Amateur accessories. **Don Bosco Electronics:** Transistorized signal injectors. **Drake Mfg. Co.:** Pilot lights. **Electro Products Labs.:** Power supplies. **Ferrodynamics Corp.:** Tape. **Hallicrafters Co.:** Amateur equipment. **Handicraft Tools:** Tools. **Harman-Kardon, Inc.:** Amplifiers & tuners. **International Wire & Cable:** Wire. **Jackson Electrical Instrument:** Tube testers. **Magnecord Div.:** Recording equipment. **Peerless Electrical Products:** Transformers. **Quam-Nichols Co.:** Speakers. **Robins Industries:** Accessories. **Telerex, Inc.:** Antennas. **Turner Co.:** Microphones. **Wall Mfg. Co. (P.):** Soldering irons. **Waters Conley Co.:** Phonographs.

Radio Parts Co., Inc., 6401 Penn Ave., Pittsburgh 6, Pa., 2, Tel: EMerson 2-6620 (NEDA)

Root & Co. (Gene S.), 733 Vallevista Ave., Pittsburgh 34, Pa., 3, Tel: 412-LOcust 1-4125 (ERA)
Aerovox Corp., General Products Corp., J-B-T Instruments, Inc., Sarkes Tarzian, Inc., Shurite Meters, Tenna Mfg. Co., Triad Transformer Corp., Triplett Electrical Instrument Co., Tru-Ohm Products.

Scott & Steffen, Inc., 313 Empire Blvd., Pittsburgh 22, Pa., 3, Tel: GR 1-5223, Main Office: Cleveland, Ohio

Sterling Co. (S.), GBU Bldg., 4232 Brownsville, Pittsburgh, Pa., 3, 4, Tel: TU 4-5515, Main Office: Detroit, Mich.

Tanner Co. (George O.), 720 Gypsy Lane, Pittsburgh 34, Pa., 3, Tel: FIeldbrook 1-5263 (ERA)
Approved Products Mfg. Co.: Baffles. **Bliley Electric Co.:** Quartz crystals. **Continental-Wirt Electronics Corp.:** Resistors. **Electrend Products Corp.:** Antenna loading coils. **Fidelity Electronic Corp.:** Record players. **Keil Engineering Products, Inc.:** Printed circuit boards. **Kings Electronics Co., Inc.:** RF connectors. **Lenz Electric Mfg. Co.:** Wire & cable. **Spaulding Products Co.:** Towers. **Trimm, Inc.:** Head-phones, jacks. **United Scientific Labs., Inc.:** CB transmitters. **Webster Productomatic Corp.:** Intercoms.

Taylor Co. (Morris F.), 362 Princeton Dr., Pittsburgh 35, Pa., 3, Tel: ELectric 1-0185, Main Office: Silver Spring, Md.

Tydings Co., 933 Liberty Ave., Pittsburgh 22, Pa., 2, Tel: ATlantic 1-6640 (NEDA)

Yarussi Co. (F. P.), 312 Spring Valley Rd., Pittsburgh 16, Pa., 3, Tel: 412-CAnal 1-4676 (ERA)
American Elite: Telefunken tubes. **Bogen-Presto:** Sound. **Fenwal Electronics:** Thermistors. **Gudeman:** Capacitors. **ITT (Components Div.):** Semiconductors. **Pomona Electronics:** Sockets.

Plymouth Meeting
(Telephone Area Code—215)

Cerf & Co. (Art), 123 Shasta Rd., Plymouth Meeting, Pa., 3, Tel: TAylor 8-5147, Main Office: Newark, N.J.

Radnor
(Telephone Area Code—215)

Hoffman Engineering Corp., Radnor, Pa., 3, Tel: MU 8-0151, Main Office: Old Greenwich, Conn.

Reading
(Telephone Area Code—215)

Barbey & Co. (Carl W.), 333 N. 4th St., Reading, Pa., 2, Tel: FRanklin 6-7451 (NEDA)

Beil & Witaker, Inc., 3623 Jacksonwald Ave., Reading, Pa., 3, Tel: FRanklin 5-6837 (ERA)
Alpha Wire Corp.: Wire products. **Amperex Electronics:** Industrial tubes, semiconductors. **Ampex Magnetic Tape Products:** Tape. **Arco Electronics:** Capacitors. **Clarostat Mfg. Co.:** Precision pots, resistors. **JFD Electronics:** TV antennas. **Jerrold Electronics:** TV distribution equipment. **Komak, Inc.:** Printed-circuit boards. **Potter & Brumfield, Inc.:** Relays.

Land-C-Air Sales Co., 610 Washington St., Reading, Pa., 3, Tel: FR 4-5117, Main Office: Tuckahoe, N.Y.

Saint Marys
(Telephone Area Code—814)

B. & R. Electric Co., 26 Railroad St., Saint Marys, Pa., 2, Tel: TErminal 4-2814 (NEDA)

Scranton
(Telephone Area Code—717)

General Radio & Refrigeration Co., 1129 Wyoming Ave., Scranton 9, Pa., 2, Tel: DIamond 7-5033 (NEDA)

Jeffries Inc. (Samuel A.), 3, Tel: JUniper 6-0241, Main Office: Narberth, Pa.

O'Hara Co. (Brendan C.), 520 Lincoln Bldg., Scranton 3, Pa., 3, Tel: DIamond 3-1259, Main Office: Philadelphia, Pa.

Pursell Co. (Fred P.), 1221 N. Washington Ave., Scranton 9, Pa., 2, Tel: DIamond 6-2011 (NEDA)

Sharon
(Telephone Area Code—412)

Sharon Electronics Supply, 1336 E. State St., Sharon, Pa., 2, Tel: DIamond 6-3014 (NEDA)

State College
(Telephone Area Code—814)

Penn Industrial Electronics Co., P.O. Box 661, State College, Pa., 2, 4, Tel: ADams 7-2202
Control equipment, systems design.

Tarentum
(Telephone Area Code—412)

Huston Television Parts, 200 E. 5th Ave., Tarentum, Pa., 2, Tel: ACademy 4-1135 (NEDA)

Trafford
(Telephone Area Code—412)

Schrader-Stelzer Co., Box 61, Trafford & Larimer Rd., Trafford, Pa., 3, Tel: DR 2-0700 (ERA)

Uniontown
(Telephone Area Code—412)

Zimmerman Wholesalers, 104 W. Peter St., Uniontown, Pa., 2, Tel: GEneva 7-6110 (NEDA)

Upper Darby
(Telephone Area Code—215)

Burlingame Associates, 222 Long Lane, Upper Darby, Pa., 3, Tel: 215-SHerwood 7-9080, Main Office: Mount Vernon, N.Y.
See ads on pages 251, 270, 293, 294, 322, 325, 333, 339, 356, 358, 359, 362, 363, 365, 366, 477, 527, 643, 659

Mustico Co. (John), 1726-28 S. State Rd., Upper Darby, Pa., 3, Tel 215-SHerwood 8-1062 (ERA)
Antennas, condensers, resistors, speakers, tubes, vibrators.

Wayne
(Telephone Area Code—215)

Babcock Co. (Charles E.), 430 Huntington Dr., Wayne, Pa., 3, Tel: MUrray 8-8288 (ERA)
OEM components.

Bartlett & Co. (Fred F.), 18 West Ave., Wayne, Pa., 3, 4, Tel: MUrray 8-7325 (ERA)
Abacus, Inc.: Digital modules, digital/analog converters. **Arnoux Corp.:** Decommutators, temperature transducers. **Cunningham Son & Co., Inc. (James):** Crossbar switches **Eitel-McCullough, Inc.:** Tubes, klystrons, rectifiers. **Granger Associates:** Antenna, pulse transmitters. **Kin-Tel:** Power supplies, meter calibrators, amplifiers. **Maxson Corp. (W. L.):** Oscillators, phasemeters. **North Atlantic Industries, Inc.:** Phase angle voltmeters. **Sierra Electronic Corp. (Div. of Philco):** Voltmeters, transistor testers, filters. **Telemetrics, Inc.:** Signal simulators.

West Conshohocken
(Telephone Area Code—215)

Robinson Co. (I. E.), 144 Elizabeth St., West Conshohocken, Pa., 3, Tel: TAylor 8-6200 (ERA)
Baldwin-Lima-Hamilton, Bomac Labs, Inc., Develop-Amatic Engineering, Dymec, Hewlett-Packard Co., Sanborn Co., Sensitive Research Instrument Corp., Sorensen & Co., Inc., Varian Associates.

Wilkes-Barre
(Telephone Area Code—717)

General Radio & Electronic Co., 396-402 S. Main St., Wilkes-Barre, Pa., 2, Tel: VAlley 4-7881 (NEDA)

Willow Grove
(Telephone Area Code-215)

Lewis Co. (Herman), 210 Red Barn Rd., Willow Grove, Pa., 3, Tel: OLdfield 9-0904, Main Office: Philadelphia, Pa.

Radio Electric Service Co. of Pa., Div. of Astrex, Inc., 29 Old York Rd., Willow Grove, Pa., Tel: OLdfield 9-4440, Main Office: Philadelphia, Pa.

Wyncote
(Telephone Area Code—215)

Gawler-Knoop Co., 835 Glenside Ave., Wyncote, Pa., 3, Tel: WAverly 7-1820, Main Office: Roseland, N.J.

Wynnewood
(Telephone Area Code—215)

Graham Associates (Wilfred), 610 Latham Dr., Wynnewood, Pa., 3 (ERA)
Accurate Instrument Corp.: Test equipment. **Artizans of New England:** Cabinets. **Barker Sales Corp.:** Vacuo-junction tubes, Cossor tubes. **Electrophono & Parts Corp.:** Record changers. **Fairchild Recording & Equipment Co.:** Turntables, cartridges. **Jayell Mfg. Co.:** Baffles. **Shriro Trading Corp.:** Microphones, switches, batteries.

Kane & Co. (J. V.), 1004 Cloverhill Rd., Wynnewood, Pa., 3, 5, Tel: 215-MIdway 2-2856
Hoffman Labs., Inc.: Low temperature research vessels. **Neuberger, Joseph (Munich):** Measuring instruments, tube analyzers.

York
(Telephone Area Code—717)

Babcock Co. (Charles E.), 1850 Church Rd., York, Pa., 3, Main Office: Wayne, Pa.

Newson & Associates, Inc. (C. H.), 1850 Church Rd., York, Pa., 3, Tel: 46-3261, Main Office: Philadelphia, Pa.
See ad on page 837

Radio Electric Service Co. of Pa., Div. of Astrex, Inc., 114 Roosevelt Ext., York, Pa., 2, Tel: 46-1134, Main Office: Philadelphia, Pa.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

RHODE ISLAND

Lincoln
(Telephone Area Code—401)

Adams-McGregor Associates, 66 Lakeview Rd., Lincoln, R.I., 3, Tel: 401-PAwtucket 6-1300 (ERA)
Electronic Products Corp., J-B-T Instruments, Inc., R-M-E Div. Electro-Voice, Schauer Mfg. Co., Shurite Meters, Trimm, Inc., Triplett Electrical Instrument Co., Whitso, Inc., Worner Electronic Devices.

Pawtucket
(Telephone Area Code—401)

Jabbour Electronic Supplies, 20 Woodbine St., Pawtucket, R.I., 2, Tel: PAwtucket 2-3241 (NEDA)

SOUTH CAROLINA

Charleston
(Telephone Area Code—803)

Wholesale Radio Supply Co., 515 E. Bay St., Charleston, S.C., 2, Tel: RAymond 2-2634 (NEDA)

Columbia
(Telephone Area Code—803)

Dixie Radio Supply Co., Inc., 1900 Barnwell St., Columbia, S.C., 2, Tel: ALpine 3-5333 (NEDA)

Horlacher & Barrett, 1740 Blanding St., Columbia 1, S.C., 2, Tel: ALpine 6-9962 (NEDA)

Florence
(Telephone Area Code—803)

Southern Electronics, Inc., 359 N. Irby St., P.O. Box 1440, Florence, S.C., 2, Tel: MOhawk 2-1445 (NEDA)

Greenwood
(Telephone Area Code—803)

Fausett & Co. (Floyd), Stony Point Highway, Greenwood, S.C., 3, Main Office: ATlanta, Ga.

Rock Hill
(Telephone Area Code—803)

Joyner & Associates, Inc. (J. E.), Rock Hill, S.C., 3, Main Office: ATlanta, Ga.

Spartanburg
(Telephone Area Code—803)

Hemcor, Inc., 481 Union St., Spartanburg, S.C., 2, Tel: 803-582-6308 (NEDA)

SOUTH DAKOTA

Sioux Falls
(Telephone Area Code—605)

McKenzie Distributors, Inc., 800 N. Main Ave., Sioux Falls, S.D., 2, Tel: EDison 4-4077 (NEDA)

Watertown
(Telephone Area Code—605)

Burghardt Radio Supply, Inc., 621 4th St. S.E., Watertown, S.D., 2, Tel: TUrner 6-5749 (NEDA)

TENNESSEE

Bristol
(Telephone Area Code—615)

Roden Electrical Supply Co., 104 E. State St., Bristol, Tenn., 2 (NEDA)

Chattanooga
(Telephone Area Code—615)

Curle Radio Supply Co., 439 Broad St., Chattanooga 2, Tenn., 2, Tel: AMhurst 6-4729 (NEDA)

Johnson Co. (Jesse P.), 403 Dome Bldg., Chattanooga 2, Tenn., 3, Tel: 615-AMherst 6-1610 (ERA)
Blonder-Tongue Labs.: TV antennas, closed-circuit cameras. **Fourjay Industries:** Baffles. **North American Philips Co., Inc.:** Tape recorders, speakers **U.S. Wire & Cable Co.:** Wire.

Columbia
(Telephone Area Code—615)

Randolph & Williams, Inc., 208 W. 4th St., Columbia, Tenn., 2, Tel: EVergreen 8-7566 (NEDA)

Cookeville
(Telephone Area Code—615)

Randolph & Parks, 2nd & Oak Sts., Cookeville, Tenn., 2, Tel: JAckson 6-6184 (NEDA)

Dyersburg
(Telephone Area Code—901)

Warren Radio Co., Hwy. 51 North, Dyersburg, Tenn., 2, Tel: ATwater 5-3850 (NEDA)

Jackson
(Telephone Area Code—901)

Rush Co., Inc. (L. K.), 425-429 N. Royal St., Jackson, Tenn., 2, Tel: 2-6533 (NEDA)

Kingsport
(Telephone Area Code—615)

Radio Electric Supply Co., 961 E. Sullivan St., Kingsport, Tenn., 2 (NEDA)

Knoxville
(Telephone Area Code—615)

Chemcity Radio & Electric Co., 2211 Dutch Valley Rd., P.O. Box 5026, Knoxville, Tenn., 2, Tel: MUtual 7-3530 (NEDA)

Engelman Co. (Al), Maloney Rd., Rt. 3, Knoxville, Tenn., 3, Main Office: Memphis, Tenn.

Rodea Electrical Supply Co., 708 N. Central St., Knoxville 17, Tenn., 2, Tel: 524-9851 (NEDA)

Smith Electronic Supply Co., Inc., 301 Magnolia Ave. N.E., Knoxville 17, Tenn., 2, Tel: 524-1488 (NEDA)

Madison
(Telephone Area Code—615)

Dixie Electronic Associates, Inc., 608 N. Gallatin Rd., Madison, Tenn., 3, Tel: AL 5-1344 (ERA)

Memphis
(Telephone Area Code—901)

Bluff City Distributing Co., 234 East St., Memphis 1, Tenn., 2, Tel: BRoadway 6-4501 (NEDA)

Cartwright & Bean, 560 S. Cooper St., Memphis 4, Tenn., 3, Tel: 901-BRoadway 6-4442 (ERA)
Astatic Corp.: Cartridges. **Audio Devices, Inc.:** Tape. **Bell Sound Div.:** Amplifiers. **Bud Radio, Inc.:** Cabinets. **Chicago Miniature Lamp Works:** Lamps **Cinch-Jones:** Connectors, sockets, shields. **Dage Electric Co.:** RF connectors. **Dialight Co. of America:** Panel lamp assemblies. **Hallicrafters Co.:** Receivers & transmitters **Oak Mfg. Co.:** Switches & vibrators. **Ohmite Mfg. Co.:** Resistors & rheostats. **Potter & Brumfield:** Relays. **Quam-Nichols Co.:** Speakers. **Sangamo Electric Co.:** Capacitors. **Simpson Electric Co.:** Panel meters & test equip. **Stancor Electronics, Inc.:** Transformers. **Switchcraft, Inc.:** Switches, jacks, plugs. **University Loudspeakers, Inc.:** Speakers. **Victory Engineering Co.:** Thermistors & varistors.

Crockett Sales Co., 1451 Old Hickory Rd., Memphis, Tenn., 3, Tel: EXpress 8-3598, Main Office: Dallas, Tex.

Engelman Co. (Al), 3205 Crump Ave., Memphis 12, Tenn., 3, Tel: 901-GLendale 8-6263 (ERA)
Atlee, Centralab, Jensen Mfg., Line Electric, Littelfuse, Inc., Milwaukee Resistor, Precision Electronics, Pyramid Electric, Rauland Corp., Turner Co., Xcelite, Inc.

Massey Co. (L. R.), 5263 Seneca St., Memphis, Tenn., 3, 4, Main Office: Greenwood, Miss.

Texport Co., 584 Clower, Memphis 9, Tenn., 3, Tel: EXpress 8-3719, Main Office: Dallas, Tex.

Uffer & Co. (Frank G.), 1318 Madison Ave., Memphis 4, Tenn., 2, Tel: BRoadway 6-4555 (NEDA)

Warren Radio Co., 2122 Madison, Memphis, Tenn., 2, Tel: BRoadway 4-2460, Main Office: Toledo, Ohio

Nashville
(Telephone Area Code—615)

Atcheson & Adams, P.O. Box 157, Nashville, Tenn., 3, Tel: TUcker 3-2429, Main Office: Greensboro, N.C.

Electra Distributing Co., 1914 West End Ave., Nashville 4, Tenn., 2, Tel: ALpine 5-8444 (NEDA)

Nickerson Co. (Frank C.), 2853 McGavock Pike, Nashville, Tenn., 3, Tel: TUcker 3-6602, Main Office: Decatur, Ga.

Randolph & Rice, 1213 McGavock St., Nashville, Tenn., 2, Tel: ALpine 5-5601 (NEDA)

Wallace Associates, Inc. (Stanley K.), 638 Rochelle Dr., Nashville, Tenn., 3, Tel: VErnon 2-0794, Main Office: Charlotte, N.C.

Tullahoma
(Telephone Area Code—615)

Randolph & Holt, Inc., 304 S. Atlantic St., Tullahoma, Tenn., 2, Tel: GLendale 5-4531 (NEDA)

TEXAS

Abilene
(Telephone Area Code—915)

R & R Electronic Co., 1441 Butternut, Abilene, Texas, 2, Tel: ORchard 2-8453 (NEDA)

Amarillo
(Telephone Area Code—806)

Alltronic Supply, Inc., 1401 W. 7th, Amarillo, Texas, 2, Tel: DRake 6-5548 (NEDA)

R & R Electronic Co., 707 Adams, Amarillo 1, Texas, 2, Tel: DRake 2-3255 (NEDA)

West Texas Electronics Co., Inc., 1601 W. 3rd St., Amarillo, Texas, 2, Tel: DRake 6-6251 (NEDA)

Austin
(Telephone Area Code—512)

Electronic Headquarters, 310 Willow St., P.O. Box 343, Austin 1, Texas, 2, Tel: GReenwood 6-6818 (NEDA)

Hargis-Austin, Inc., 410 Baylor St., Austin, Texas, 2, Tel: GReenwood 8-6618 (NEDA)

Beaumont
(Telephone Area Code—713)

Montague Radio Distributing Co., 760 Laurel, P.O. Box 3045, Beaumont, Texas, 2, Tel: TErminal 8-4771 (NEDA)

Sterling Electronics of Beaumont, Inc., 1160 Laurel St., Beaumont, Texas, 2 (NEDA)

Brownsville
(Telephone Area Code—512)

Electronic Equipment & Engineering Co., 12th & Madison, Brownsville, Texas, 2, Tel: LIncoln 6-1611, Main Office: Corpus Christi, Texas

Corpus Christi
(Telephone Area Code—512)

Electronic Equipment & Engineering Co., 805 S. Staples St., Corpus Christi, Texas, 2, Tel: TUlip 3-9271 (NEDA)
Collins Radio Co.: Amateur equip. **General Electric Co.:** Tubes & transistors. **Hickok Electrical Instrument Co.:** Test equip. **International Resistor Corp.:** Resistors. **Mallory Co. (P. R.):** Capacitors. **Ohmite Mfg. Co.:** Resistors. **Raytheon Co.:** Tubes & industrial items. **Sprague Products:** Capacitors. **Stancor Electronics:** Transformers. **Sylvania Electric Products Inc.:** Tubes & transistors. **Triplett Electrical Instrument Co.:** Test equip & panel meters. **Union Carbide Consumer Products:** Batteries.

Leader Electronic Supply, Inc., 1701 Morgan Ave., Corpus Christi, Texas, 2 (NEDA)

Wicks Radio Equipment Co., 513-515 S. Staples St., Corpus Christi, Texas, 2, Tel: 512-TUlip 4-8285 (NEDA)
Amphenol: Connectors & cable. **Astatic:** Cartridges. **Barker & Williamson:** Amateur. **Belden:** Wire & cable. **Bogen-Presto:** Amplifiers, intercoms. **Centralab:** Controls, switches. **Cornell-Dubilier:** Capacitors. **Eby:** Sockets, adapters. **Eico:** Kits. **Electro-Voice:** Microphones, speakers. **Finco & Tenna:** TV antennas. **G. C. Electronics:** Chemicals. **Garrard:** Turntables, changers. **General Electric:** Tubes, semiconductors, cartridges. **Hallicrafters, Hammarlund:** Receivers, transmitters. **Johnson (E. F.):** Amateur. **Merit Coil & Transformer:** Transformers. **Miller (J. W.):** Coils. **Mosley:** Antennas. **Precision:** Test equip. **Quam-Nichols:** Speakers. **Shure:** Microphones. **Simpson:** Test equip. **Triad Transformer:** Transformers. **Triplett:** Test equip. **Turner:** Microphones. **Union Carbide:** Batteries, miniature lamps. **University:** Speakers. **Viking:** Tape recorders.

Dallas
(Telephone Area Code—214)

Airep Engineering Co., P.O. Box 9555, Dallas 14, Texas, 3, Tel: TAylor 4-3800
Electronic Research Associates: Power supplies, static inverters. **Frequency Standards, Inc.:** Microwave frequency measurements, filters. **Gray Instrument Co.:** Laboratory standards, potentiometers, bridges. **Holt Instrument Labs.:** AC instrumentation, audio oscillators. **Huggins Labs., Inc.:** TWT's, BWO's. **Jerrold Electronics Corp.:** Sweep generators, attenuators. **Menlo Park Engineering:** Microwave instrumentation, TWT amplifiers. **Wayne Kerr Corp.:** Impedance measurements, waveform analyzers. **Weinschel Engineering Co., Inc.:** Laboratory standards, RF sources.

All-State Electronics, Inc., 2411 Ross Ave., Dallas 1, Texas, 2, Tel: RIverside 1-1295 (NEDA)

Allied Components Inc., 2517 Converse St., Dallas 7, Texas, 3, Tel: RIverside 2-2830 (ERA)
Acoustica Associates, Inc.: Ultrasonic cleaning equip. **Aviel Electronics, Inc.:** Connectors. **Booker & Wallestad:** Bobbins. **California Plasteck, Inc.:** Edgelighted panels. **Collins Electronics:** Choppers. **Eicor, Inc.:** DC motors, converters, dynamometers. **Filtors, Inc.:** Relays. **General Ceramics:** Ferrites & memory cores. **Magnetic Metals Co.:** Transformer laminations, cores. **Moog Servocontrols, Inc.:** Servo valves. **Seal-A-Metic:** Glass-to-metal seals. **Sun Electric Corp.:** Ground support equip. **Tel-Instrument Electronics Corp.:** Voltage regulators, frequency converters. **Transicoil Div.:** Synchros, motor generators. **Unimax Switch Div.:** Switches. **Viking Industries, Inc.:** Connectors, voltage reference standards.

Antle-Smith-Delzell Sales, 2721 Brookfield Ave., Dallas 35, Texas, 3 (ERA)
Burton-Rogers Co., Chemtronics, Inc., Clear Beam Antenna Corp., Dearborn Electronics, Hamilton-Hall, Inc., Licon Div., National Radio Co., New England Instrument Co., North American Philips Co., Philmore Mfg. Co., Servo Dynamics Corp., Sightmaster Corp., Slater Electric, Specialties Mfg. Co., Webster Mfg.

Associated Electronics, Inc., 6115 Denton Dr., Dallas 35, Texas, 3, Tel: FL 2-3389 (ERA)

Athans Sales Co., 516 S. Central Expwy., Dallas 1, Texas, 3, Tel: RIverside 2-4450 (ERA)
Mark Mobile, Inc.: Antennas. **Plastold Corp.:** Coaxial cables. **Rohn Mfg. Co.:** Towers. **Standard Rectifier Corp.:** Silicon rectifiers. **Trio Mfg. Co.:** Television antennas. **Utah Radio & Electronic Corp.:** Speakers & baffles. **Westinghouse Electric Corp.:** Receiving, CR & power tubes.

Aymond Co. (Edward F.), 3915 Lemmon Ave., Dallas 19, Texas, 3, Tel: LAkeside 6-5233 (ERA)
Cannon Electric Co.: Connectors. **Dale Electronics, Inc.:** Resistors. **Globe Industries, Inc.:** Motors. **Good-All Electric Mfg. Co.:** Capacitors. **North Electric Co.:** Relays. **Sonotone Corp.:** Batteries. **Tansitor Electronics, Inc.:** Capacitors. **Victory Engineering Co.:** Thermistors.

Barnes Co. (Arnold), 3603 Lemmon Ave., Dallas 19, Texas, 3, Tel: LAkeside 6-8735 (ERA)
Burroughs Corp.: Switching tubes, counters, thin-film memories. **Chassis-Trak, Inc.:** Chassis slides. **Kepco, Inc.:** Power supplies. **KinTel:** Digital voltmeters, DC amplifiers, power supplies, closed-circut TV. **Massa:** Recorders, amplifiers **Narda Microwave Corp.:** Klystron power supplies, VSWR amplifiers. **Sensitive Research Instrument Corp.:** Meters, laboratory standards. **Statham Development Corp.:** Temperature chambers, transducer calibration. **Systron Corp.:** Frequency counters, time interval meters. **Technibilt Corp.:** Instrument carriers. **Temptron, Inc.:** Thermocouples, thermocouple wire. **Western Devices, Inc.:** Cabinets, racks

Berthold Sales Co., 4411 Maple Ave., Dallas 19, Texas, 3, Tel: LAkeside 6-8329 (ERA)
American Television & Radio Co.: Vibrators, battery chargers. **Arco Electronics, Inc.:** Capacitors. **Fanon Electronic Sales Corp.:** Intercoms, amplifiers. **Fedtro, Inc.:** Earphones, soldering irons, batteries. **General Industries Co.:** Phono motors. **Luxo Lamp Corp.:** Lamps. **Osborne Electronic Sales Corp.:** Mobile radios. **Perma-Power Co.:** Voltage regulators, remote radio controls. **Quincy Products Co.:** Replacement speakers. **Semitronics Co.:** Silicon rectifiers, germanium crystal diodes. **Setchell-Carlson, Inc.:** TV monitors. **Tenatronics, Ltd.:** Antennas. **Textron Electronics, Inc.:** General Cement, Telco, Walsco products.

Blackburn Associates, Box 13073, Dallas 20, Texas, 3, Tel: FLeetwood 1-0230
Electro Physics Lab.: Coaxial connectors. **Globe Electronics Div.; Grand Transformers, Inc.:** Transformers. **Microsecond Electronics, Inc.:** Delay lines. **Pacific Resistor Co.:** Silicon resistors. **Sheffco Corp.:** Stampings. **Tensolite Insulated Wire Co.:** Wire.

Branum Sales., Inc., 2334 Havenhurst, Dallas 34, Texas, 3 (ERA)
Chicago Dynamic Industries, Inc.: Switches. **Corning Glass Electronic Products:** Capacitors & resistors. **Standard Coil Products Co.:** TV tuners. **Switchcraft, Inc.:** Switches, jacks, cable assemblies, transformers. **Triad Transformer Corp.:** Transformers. **Tung-Sol Electronics, Inc.:** Tubes, semiconductors, rectifiers, lamps.

Brown & Co. (K. O.), Dallas 25, Texas, 3, Main Office: Greensboro, N.C.

Campion Sales Co., 9002 Chancellor Row, Dallas 7, Texas, 3, Tel: FLeetwood 7-4095 (ERA)

Central Electronics, Div. of A. D. Martin Properties, Inc., 4117 Maple Ave., Dallas 19, Texas, 2, Tel: LAkeside 6-8675 (NEDA)

Corry Co., Inc. (Hal F.), 6315 Hillcrest Ave., Dallas 5, Texas, 3, Tel: LAkeside 8-9172 (ERA)
Astro Dynamics: Heat sinks **Britton Electronics:** Rectifiers. **California Resistor Co.:** Power resistors. **IMC Magnetics:** Solenoids. **Northern Engineering Labs.:** Crystals. **Tempo Instrument:** Timers. **Texas Capacitor Co.:** Mylar capacitors. **Vacuum Research Co.:** Vacuum valves.

Crabtree's Wholesale Electronics, 2608 Ross Ave., Dallas 1, Tex., 2, Tel: RIverside 8-5361 (NEDA)

Crockett Sales Co., 2204 Griffin, Dallas 2, Tex., 3, Tel: RIverside 8-8209 (ERA)
Davis & Co. (J. W.), Littelfuse, Inc., Merit Coil & Transformer Corp., Sprague Products Co., Tenna Mfg. Co., Triplett Electrical Instrument Co.

Dannemiller-Smith, Inc., 2712 W. Mockingbird Lane, Dallas, Texas, 3, Tel: FLeetwood 7-8249, Main Office: Houston, Texas

Electro-Mechanical Associates Inc., 6115 Denton Dr., Dallas 35, Texas, 3, Tel: FLeetwood 2-3389 (ERA)
American Avionics, Inc.: Power supplies. **Astrotex, Inc.:** Assemblies. **Communication Electronics, Inc.:** VHF-UHF receivers & monitors. **I.D.E.A., Inc.:** Amplifiers. **Johnson Co. (K. W.):** Shock mounts. **Lytle Corp.:** Logistics. **Systems Engineering Electronics, Inc.:** Development & systems integration.

Green Co. (John A.), 7118 Envoy Court, Dallas 7, Texas, 3, Tel: FLeetwood 1-9947
ADC, Inc.: Transformers & filters. **Aemco, Inc.:** Relays. **Bently, Harris Mfg. Co.:** Sleeving, tubing, **CTS Corp.:** Potentiometers, switches. **Daven Co.:** Attenuators, switches, resistors. **Dielectric Products Engineering, Inc.:** Coaxial lines, antenna assemblies. **DuMont Labs.:** Oscilloscopes. **Dynatran Electronics Corp.:** Transistor test equip. **Electro Assemblies, Inc.:** RF & IF components. **Ingersoll Products Div.:** Enclosures. **Jan Hardware Mfg. Co., Inc.:** Hardware, shock testers. **Knights Co. (James):** Quartz crystals, filters. **Magnatron, Inc.:** Transformers, reactors. **McLean Engineering Labs.:** Fans & blowers. **Minneapolis-Honeywell:** Panel meters. **Serve Corp. of America:** Servosystem analyzers. **Sperry Microwave Electronics Co.:** Test instruments. **Stevens-Arnold, Inc.:** Relays, AC-DC choppers. **Technology Instrument Corp.:** Precision potentiometers, phase measuring equip. **Thomas & Skinner, Inc.:** Magnetics.

Gross & Co. (Fred), 2651 Brenner Dr., P.O. Box 1926, Dallas 22, Texas, 3, Tel: FLeetwood 1-1837 (ERA)
ARRA: Attenuators. **Delta Coils, Inc.:** Chokes toroids, filters. **Dunn Engineering Corp.:** Radome & antenna test systems. **Eraser Co.:** Wire strippers. **Film Capacitors, Inc.:** Capacitors. **Hermetic Seal Corp.:** Connectors, multi-headers, terminals **Lenk Mfg. Co.:** Soldering irons **Lewis & Kaufman Electronics, Inc.:** Tubes. **Resistron, Inc.:** Resistors. **Sterling Transformer Corp.:** Transformers. **United Electronic Mfg. Corp.:** Capacitors. **Vickers Div.:** Rectifiers, photoelectric cells. **Ward Products Corp.:** Antenna equip.

Guenther Co. (John B.), 4533 N. Central Expwy., Dallas 5, Texas, 3, Tel: LAkeside 8-6286 (ERA)
Blonder-Tongue Labs., Inc.: Closed-circuit TV. **Consolidated Wire & Associated Co's.:** Wire. **Fusite Corp.:** Glass-to-metal terminals. **Hammarlund Mfg.:** Receivers, transmitters, capacitors. **Hardwick, Hindle, Inc.:** Resistors, rheostats. **Hurst Mfg. Corp.:** Motors. **International Instruments, Inc.:** Miniature meter movements. **Jeffers Electronics Div.:** Ceramics, circuits. **Planet Mfg. Corp.:** Capacitors. **Potter & Brumfield, Inc.:** Relays. **Quietrole Co.:** Cleaners. **Sarkes Tarzian, Inc.:** Rectifiers, voltage regulators, tape, TV tuners. **Speer Carbon Co.:** Resistors, coil forms. **Technical Appliance Corp.:** Antennas.

Hays Co. (W. R.), 3416 Rosedale, Dallas 5, Texas, 3, Tel: EMerson 3-2021 (ERA)
Akro-Mils: Cabinets. **Ampex Magnetic Tape Products:** Tape. **Calcon Mfg. Co.:** Wire. **Dynaco, Inc.:** Kits. **Hickok Electrical Instrument Co.:** Test equip. **Sidco:** Soldering pencils.

Kantenberger Co., 711 Reverchon Dr., Dallas, Texas, 3, Tel: FEderal 7-5363
Associated Research, Inc., Control Corp., Greibach Instruments Corp., Jordan Electronics, Standard Instrument Corp., Superior Switchboard & Devices Co.

Kemp Engineering Co., 2618 Manana Dr., P.O. Box 13251, Dallas 20, Texas, 3, Tel: FL 7-6663 (ERA)
Components & instruments.

Klicpera Co. (M. F.), P.O. Box 4117, Dallas 8, Texas, 3, Tel: RIverside 2-2515, Main Office: Houston, Texas

Koch Engineering & Sales Co., 309 Meadows Bldg., Dallas 6, Texas, 3, Tel: EMerson 1-1765 (ERA)
Autronics Corp.: Time delay relays, frequency sensors. **Bristol Motors Div.:** Motors, time indicators. **Communication Measurements Lab.:** Power generators, stroboscopes. **Community Engineering Corp.:** Amplifiers. **Dormeyer Industries:** Solenoids, transformers. **Electrical Industries:** Compression seals, terminals. **Fairchild Controls Corp.:** Precision potentiometers, transducers. **G. B. Components, Inc.:** Resistors, networks. **General Industries:** FHP motors. **International Tel. & Tel., Components Div.:** Rectifiers, diodes, capacitors. **Ledex, Inc.:** Solenoids, rectifiers. **Mid-South Electronics, Inc.:** Harnesses, connectors. **Phaostron Instrument & Electronics Co.:** Panel meters, frequency meters, relays. **Scientific Components Div. of Intellux, Inc.:** Circuitry, commutators & slip rings.

Distribution

Tennessee
Texas

Lawrence Sales Co., P.O. Box 13026, Dallas 20, Texas, 3, Tel: FLeetwood 2-7484
Cedar Engineering: Instrumen: Motors. **Dresser Electronics:** Transformers, power supplies. **Dynamic Gear Co.:** Gears. **Emerson & Cuming:** Plastics. **Magnetics, Inc.:** Tape cores. **U.S. Semcor:** Silicon diodes. **Waters Mfg. Co.:** Precision potentiometers.

Lieberman & Associates, Inc. (Hank), P.O. Box 12262, 6170 Sherry Lane, Dallas 25, Texas, 3 (ERA)
Aerovox Corp., Columbia Wire & Supply, Gramer-Halldorson Co., Pace Meters, Pacotronics, Precision Apparatus Corp., Silicon Transistor Corp., Smith Co. (Herman H.), Solitron Devices, Inc., Twin Lock, Inc.

Lucas Sales Co. (Charles), P.O. Box 8506, Dallas 16, Texas, 3, Tel: 214-WHitehall 2-5958 (ERA)
Apparatus Development Co., Inc.: Antennas. **Barker Products Co.:** Audio cables & adapters. **Bozak Sales Co. (R. T.):** Speakers. **Capps & Co., Inc.:** Microphones. **Electronic Applications, Inc.:** Headphones & microphones. **Elpa Marketing Industries, Inc.:** Turntables. **Glaser-Steers Corp.:** Record changers. **Grado Labs., Inc.:** Cartridges. **Hill-Craft Mfg. Co.:** Cabinets. **McIntosh Lab., Inc.:** Amplifiers & tuners. **Vega Electronics Corp.:** Wireless microphones. **Viking of Minneapolis:** Tape recorders.

Lund & Co., 2215 N. Olive St., Dallas 1, Texas, 3, Tel: RIverside 8-8839 (ERA)
Radio & TV parts.

Maynard Sales Co., 2013 Cedar Springs, Dallas 1, Texas, 3, Tel: RI 2-2027 (ERA)
Components.

McKinney Sales Co. (Jack F.), 1303 Chemical St., Dallas 7, Texas, 3, Tel: RIverside 1-1368 (ERA)
Acousti-Craft: Cabinetry. **Airtron, Inc.:** Waveguides. **American Electric Heater:** Soldering irons. **Amphenol-Borg:** Connectors. **Bomac Labs., Inc.:** Microwave tubes & components. **British Industries Corp.:** Record changers. **Felsenthal & Sons (G.):** Edgelit panels. **Gavitt Wire & Cable Co.:** Wire. **Guardian Electric Mfg. Co.:** Relays, solenoids, steppers. **Hallicrafters Co.:** Receivers & transmitters. **International Resistance Co.:** Potentiometers, transducers. **Litton Industries:** Precision potentiometers. **Modern-Aire Mfg. Co.:** Antenna mounts. **Oak Mfg. Co.:** Switches, solenoids, choppers. **Pickering & Co.:** Cartridges. **Pecision Electronics, Inc.:** Amplifiers, PA equip. **Robinson Technical Products:** Vibration mounts. **Sampson Co.:** Tubes. **Semicon, Inc.:** Silicon diodes & rectifiers. **U.S. Engineering Co.:** Terminals. **Virginia Electronics Co., Inc.:** Programming systems.

Nesbitt Co. (Robert E.), 1925 Cedar Springs, Dallas, 1, Texas, 3, Tel: RIverside 7-5824 (ERA)

Packard Associates, Love Field Terminal Bldg., Dallas 35, Texas, 3, Tel: FLeetwood 7-5713 (ERA)
Beede Electrical Instrument Co.: Panel meters. **Gremar Mfg. Co., Inc.:** RF coaxial connectors. **Plastic Capacitors, Inc.:** Capacitors. **Premier Metal Products Co.:** Consoles, racks. **Resistance Products Co.:** Resistors. **U.S. Components, Inc.:** Multi-pin connectors.

Peck Co. (Gordon V.), 130 Casa Linda Plaza, Dallas 18, Texas, 3, Tel: DAvis 1-6579 (ERA)
Acme Model Engineering: Battery holders. **Amatom Electronic Hardware:** Hardware. **CFI:** Ceramics. **Columbus Electronics:** Rectifiers. **Conhex:** Connectors. **Deltime, Inc.:** Delay lines. **Electronic Components Corp.:** Transformers. **Fast & Co. (John E.):** Capacitors. **Glennite Batteries:** Nickel-cadmium batteries. **Hassall, Inc. (John):** Header

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

parts. **Kerley Engineering, Inc.:** Shock mounts. **Kulka Electric Corp.:** Terminal blocks. **Kurman Electric Co.:** Relays. **Mallory:** Batteries, capacitors, controls, switches, resistors, alloys, electrodes. **Mel-Rain Corp.:** Sensitivity controls. **Milli-Switch Corp.:** Switches. **Moxness Products:** Silicone parts. **Radio Materials Corp.:** Capacitors. **San Fernando Electric Corp.:** Capacitors, filters. **Sealectro Corp.:** Terminals. **Thermatics, Inc.:** Hi-Temp wire. **Torotel, Inc.:** Coils, magnetic amplifiers. **Wall Mfg. Co. (P.):** Soldering guns.

Schoonmaker Co., Inc. (J. Y.), 5328 Redfield, Box 35266, Dallas 35, Texas, 3, Tel: LAkeside 6-7238 (ERA)

Astron Corp.: Capacitors. **Clarostat Mfg. Co., Inc.:** Potentiometers, rheostats, resistors. **Consolidated Avionics Corp.:** Power supplies. **Cubic Corp.:** Digital voltmeters, amplifiers. **Digital Equipment Corp.:** Digital modules. **Garlock Electronic Products:** Insulators, connectors. **Judson-Bigelow Sales Co.:** Chart paper. **Microdot, Inc.:** Coaxial connectors. **Philbrick Researches, Inc. (George A.):** Amplifiers. **Radio Frequency Labs., Inc.:** Instrument calibration standards. **Rhodes, Inc. (M. H.):** Timers. **Rustrack Instrument Co.:** Recorders, amplifiers. **Simpson Electric Co.:** Panel meters, test equip. **Struthers-Dunn, Inc.:** Relays. **Taber Instrument Corp.:** Amplifiers. **United Transformer Corp.:** Filters, coils, magnetic amplifiers, reactors, transformers.

Smith Co. (J. Earl), 6211 Denton Dr., Dallas 35, Texas, 3, Tel: FLeetwood 7-1727 (ERA)

Components, meters.

Southwest Electronic Industries, Inc., 273 Meadows Bldg., Dallas 6, Texas, 3, Tel: EMerson 3-1671 (ERA)

Antlab, Inc.: Antenna instrumentation. **Arnold Engineering Co.:** Magnets, cores. **Bourns, Inc.:** Potentiometers. **Bowmar Instrument Corp.:** Counters, electro-mechanical assemblies. **Dage Electric Co.:** RF connectors. **Dressen-Barnes Corp.:** Power supplies. **Eby Co. (Hugh H.):** Sockets, plugs, tube shields. **Electro Development Co.:** Slip-ring assemblies. **Electronic Associates, Inc.:** Desk-top analog computers. **Fenwal Electronics, Inc.:** Thermistors & probes. **General Instrument Corp.:** Transformers, silicon rectifiers. **Harvey-Wells:** Digital modules. **ITT Industrial Products Div.:** Oscilloscopes & test equip. **Micamold Electronics:** Capacitors. **Offner Electronics, Inc.:** Recorders, data amplifiers. **Price Electric Corp.:** Relays. **Radio Receptor Co.:** Germanium & silicon diodes. **S.I.E.:** Test equip. **Schaevitz Engineering Co.:** Transformers, transducers. **Sickles Co. (F. W.):** Coils, tuners. **Technical Products, Inc.:** Wave analyzers. **Telemeter Magnetics, Inc. (Ampex):** Ferrite core products. **Vector Mfg. Co.:** Cable. **Victoreen Instrument Co.:** Tubes, resistors, bio-medical instruments. **Voak Engineering Co.:** Precision potentiometers.

Spears Co. (Mitchell), 3, 4, Tel: TAylor 3-3013, Main Office: Fort Worth, Texas

Texport Co., 2147 Farrington St., Dallas 7, Texas, 3, Tel: RIverside 8-6458 (ERA)

Air-Marine Motors, Inc., Alpha Wire Corp., Audio Devices, Inc., Electra Mfg. Co., Fanon Transistors, Hillburn Relays, International Rectifier Corp., JFD Electronics Corp., Sonotone Corp., Telex, Inc.

Thomson Engineering Services, 2520 Oak Lawn, Dallas 19, Texas, 3, Tel: LAkeside 6-8741 (ERA)

Astromics Div., Mitchell Camera Corp.: Pressure transducers. **Cascade Research Div.:** Ferrite components. **Deeco Instruments, Inc.:** Toroidal components. **Duncan Electronics, Inc.:** Potentiometers. **Electro Engineering Works, Inc.:** Transformers, chokes, reactors. **Elotec Corp.:** Switches, terminal strips. **IERC Div.:** Tube shields, dissipators. **Jettron Products, Inc.:** Sockets, connectors. **Kinetic Instruments Corp.:** Motors, gearheads. **Lewis & Kaufman Electronics Corp.:** Tubes. **McMillan Labs., Inc.:** Microwave absorbers & radomes. **Pyrofilm Resistor Co., Inc.:** Resistors. **Roberts Sales Corp. (R. O.):** Microwave assemblies, heat exchangers. **Sealtron Corp.:** Glass seals. **Ultronix, Inc.:** Resistors. **Wells Electronics Co.:** IF transformers, chokes.

Wholesale Electronic Supply, 2809 Ross Ave., Dallas 1, Texas, 2, Tel: TAylor 4-3001 (NEDA)

Wilkinson Brothers Co., 2406 Ross Ave., Dallas 1, Texas, 2, Tel: RIverside 7-1571 (NEDA)

Wilks Co. (Ernest L.), 1212 Camp St., Dallas 2, Texas, 3, Tel: RIverside 7-2637 (ERA)

Barker & Williamson, C-B-C Electronics, Campro Products, Chicago Miniature Lamp Works, Colman Electronic Products, Component Specialists, Conant, E.M.C., Gray Mfg., Jerrold Electronics, Oerlich, Penn Resistors, Premax Products, Quam-Nichols, Resistors, Inc., Sherwood, Sonar Radio Corp., Turner.

Wyborny Sales Co., P.O. Box 17070, Dallas 17, Texas, 3, Tel: EVergreen 1-4645 (ERA)

American Magnetics Corp.: Transformers. **Carter Parts Co.:** Wire-wound controls, circuit breakers. **Fourjay Industries:** Baffles. **Jensen Mfg. Co.:** Speakers. **Kupfrian Mfg. Corp.:** Power supplies, inverters, harnesses. **Metalworks, Inc.:** Chassis. **Miratel, Inc.:** TV monitors, video tuners. **Morrow Radio Mfg. Co.:** Portable radiophones. **Radio Receptor Co., Inc.:** Selenium & silicon rectifiers. **Waltham Precision Instrument:** Aircraft clocks, elapsed time indicators, gyros.

Yount Co. (Jack), 1431 Pleasant Dr., P.O. Box 17270, Dallas 17, Texas, 3, Tel: EXpress 1-1631 (ERA)

Bel Canto: Pre-recorded tapes. **Bell Sound Div.:** Speakers, amplifiers, tuners. **Electro-Voice, Inc.:** Microphones, speakers. **Electro Zone, Inc.:** Picture tubes. **Ferrodynamics Corp.:** Recording tape. **Hudson Lamp Co.:** Lamps. **Jackson Electrical Instrument Co.:** Test equip. **Lance Antenna Corp.:** Antennas. **Langevin:** Audio equip. **Lowell Mfg. Co.:** Baffles. **Master Mobile Mounts, Inc.:** CB antennas. **Millen Mfg. Co. (James):** Components. **Newcomb Audio Products Co.:** Public address equip., tape recorders. **Oxford Components, Inc.:** Speakers & transformers. **Penta Labs., Inc.:** Power tubes. **Scott, Inc. (H. H.):** Components, laboratory & industrial instruments. **Supreme Transformer Corp.:** Transformers. **Texas Crystals:** Crystals. **Vocaline Co. of America:** CB equip.

Denison
(Telephone Area Code—214)

Denison Radio Supply, 310 W. Woodard St., Denison, Texas, 2, Tel: HOmestead 5-2336 (NEDA)

Denton
(Telephone Area Code—817)

Spivey-Cole Co., Box 504, Denton, Texas, 3, Tel: 382-6017 (ERA)

Alco Electronics: Switches & Meters. **Eby Sales Co.:** Sockets, plugs. **Electra International:** Transceivers. **Ken-Tron Corp.:** RF connectors. **Keystone Electronics:** Battery holders. **Mosley Electronics:** Antennas. **Polytronics Lab., Inc.:** Communications equip. **Sencore, Inc.:** Test equip.

El Paso
(Telephone Area Code—915)

McNicol Inc., 811 E. Estrella, El Paso, Texas, 2, Tel: LOgan 6-2936 (NEDA)

R & R Supply Co., Inc., 2531 E. Yandell, Box 3037, El Paso, Texas, 2 (NEDA)

Fort Worth
(Telephone Area Code—817)

Ecklund Electronic Sales Co., P.O. Box 12151, Fort Worth, Texas, 3, Tel: 817-PErshing 8-9773

B & K Instruments, Inc.: Measuring equip. **General Applied Science Labs., Inc.:** Pulse generators, logic modules. **Harrison Labs., Inc.:** Power supplies. **Hughes Aircraft Co.:** Power supplies, welding heads. **Keithley Instruments, Inc.:** Voltmeters, electrometers, megohmmeters. **Model Engineering & Mfg. Co., Inc.:** Electro-mechanical assemblies. **Motorola Communications & Electronics, Inc.:** Voltmeters, multimeters, analog-to-digital converters. **Photron Instrument Co.:** Oscillographs & galvanometers. **Radiation Instrument Development Lab., Inc.:** Nuclear instrumentation. **Riggs Nucleonics Corp.:** Monitoring equip. **Theta Instrument Corp.:** Dial assemblies, phase generators. **Warwick Products Co.:** Instrument cases.

Engineering & Equipment Co., P.O. Box 13311, Fort Worth 18, Texas, 3, Tel: 817-336-3855

Computer Engineering Associates: Strain gage instrumentation. **Curtiss-Wright Corp.:** Instruments. **Electric Regulator Co.:** Voltage regulators, transducers. **Electronic Measurements Corp.:** Power supplies. **Electronic Tube Corp.:** CRT's, oscilloscopes. **Holtzer-Cabot Div.:** Instrument motors. **Ten Bosch, Inc. (M.):** Servo amplifiers, guidance systems.

Scooter's Radio Supply Co., S. Expressway at E. Vickery, Fort Worth, Texas, 2, Tel: ED 6-7448 (NEDA)

Spears Co. (Mitchell), 4944 James Ave., Fort Worth 15, Texas, 3, 4, Tel: 817-WAlnut 3-4657

Ballantine Labs.: Voltmeters. **Brush Instruments:** Recorders. **DeMornay-Bonardi:** Microwave components. **Donner Scientific:** Analog computers. **Empire Devices:** Noise & field intensity meters. **Lavoie Labs.:** Spectrum analyzers. **Microdot, Inc.:** UHF telemetering. **Non-Linear Systems:** Digital voltmeters. **Nuclear Data:** Multichannel analyzers. **Rotek:** Voltage standards. **Shielding, Inc.:** RF shielded enclosures. **Tally Register:** Punched paper tape data handling.

Swieco, Inc., 1518 E. Lancaster, P.O. Box 670, Fort Worth, Texas, 2, Tel: EDison 2-7157 (NEDA)

Harlingen
(Telephone Area Code—512)

Electronic Equipment & Engineering Co., 817 W. Tyler, Harlingen, Texas, 2, Tel: GArfield 3-5424, Main Office: Corpus Christi, Texas

Henderson
(Telephone Area Code—214)

Miller Co. (Edward G. Jr.), P.O. Box 929, Henderson, Texas, 3, Tel: 5049, Main Office: Albuquerque, N.M.

Houston
(Telephone Area Code—713)

Angie Radio & Television Supply Co., 2005 Crawford St., Houston 2, Texas, 2, Tel: CApitol 2-6386 (NEDA)

Aymond Co. (Edward F.), P.O. Box 35023, Houston 35, Texas, 3, Main Office: Dallas, Texas

Corry Co., Inc. (Hal F.), 2305 Branard St., Houston, Texas, 3, Tel: JA 9-2085, Main Office: Dallas, Texas

Dannemiller-Smith, Inc., 6218-B Westheimer Rd., Houston 27, Texas, 3, Tel: 713-SUnset 2-7350

American Optical Co.: Direct-writing recording. **Analab Instrument Corp.:** Oscilloscopes. **Barnes Engineering Co.:** Infrared instruments. **Beckman/Berkeley Div.:** Counters, timers, frequency meters. **Bytrex Corp.:** Strain gage instruments. **E-H Research Labs., Inc.:** Pulse generators. **Electro Instruments, Inc.:** Digital voltmeters, X-Y plotters. **Flow Corp.:** Random signal equip., anemometers. **Gertsch Products, Inc.:** Frequency meters, transformers. **Hathaway Instruments, Inc.:** Test instruments. **Leach Corp.:** Tape recorders. **Precision Instrument Co.:** Tape recorders. **Quan-Tech Labs., Inc.:** Power supplies, noise analyzers. **Wiancko Engineering Co.:** Pressure & force measuring equip.

Electro-Mechanical Associates, Inc., P.O. Box 35142, Houston, Texas, 3, Tel: MAdison 3-8664, Main Office: Dallas, Texas

Green Co. (John A.), 3400 Montrose, Houston 6, Texas, 3, Tel: JAckson 6-2959, Main Office: Dallas, Texas

Hall, Inc. (R. C. & L. F.), 1901 Chenevert, Houston 2, Texas, 2, Tel: CApitol 2-9731 (NEDA)

Kantenberger Co., 9711 Riddlewood, Rm. 6, Houston, Texas, 3, Tel: MO 5-8943, Main Office: Dallas, Texas

Klicpera Co. (M. F.), P.O. Box 3113, Houston 1, Texas, 3, Tel: RIverside 7-3868 (ERA)

Carter Motor Co.: Dynamometers, converters. **Clevite:** Semiconductors. **Continental-Wirt Electronics:** Resistors, controls. **Grayhill Co.:** Switches. **Petersen Radio Co.:** Crystals. **Phalo Plastics Corp.:** Wire. **Photocircuits Corp.:** PC boards. **Sun Electric Co.:** Panel meters, VTVM's. **Talk-A-Phone Co.:** Intercoms. **Ungar Electric Tools:** Soldering irons. **Waldom Electronics:** Hardware. **Waterman Products Co.:** Oscilloscopes. **Wen Products Co.:** Soldering guns. **Wheelock Signals:** Relays. **Wyco Metal Products Co.:** Metal goods.

Koch Engineering & Sales Co., 1607 Jefferson Ave., Houston, Texas, 3, Tel: FAirfax 3-7051, Main Office: Dallas, Texas

McKinney Sales Co. (Jack F.), P.O. Box 3126, Houston, Texas, 3, Tel: MOhawk 5-3653, Main Office: Dallas, Texas

Nesbitt Co. (Robert E.), 4810 Hazard, Houston 6, Texas, 3, Tel: JAckson 8-3811, Main Office: Dallas, Texas

Packard Associates, Box 111, Houston 1, Texas, 3, Main Office: Dallas, Texas

Peck Co. (Gordon V.), 4007 Bellaire Blvd., Houston 25, Texas, 3, Tel: MOhawk 4-1435, Main Office: Dallas, Texas

Schoonmaker Co., Inc. (J. Y.), P.O. Box 12392, Houston 34, Texas, 3, Tel: HU 6-4611, Main Office: Dallas, Texas

Smith Co. (J. Earl), 1401 Wyndale St., Houston, Texas, 3, Main Office: Dallas, Texas

Southwest Electronic Industries, Inc., 3815 Richmond Ave., Houston, Texas, 3, Tel: MAdison 3-5775, Main Office: Dallas, Texas

Spears Co. (Mitchell), 3, 4, Tel: MAdison 3-4112, Main Office: Fort Worth, Texas

Spivey-Cole Co., Box 12321, Houston, Texas, 3, Tel: MI 9-1221, Main Office: Dallas, Texas

Sterling Electronics, Inc., P.O. Box 1229, Houston 1, Texas, 2, Tel: CApitol 5-1321 (NEDA)

Texport Co., 12910 Tosca Lane, Houston 24, Texas, 3, Tel: HOmestead 5-0734, Main Office: Dallas, Texas

Wofford Electronics Co., 1423 Holman St., Houston 4, Texas, 2, Tel: JAckson 6-4369 (NEDA)

Irving
(Telephone Area Code—214)

Cain & Co., 203 Linda Lane, Irving, Texas, 3, Tel: BL 5-2050, Main Office: Burbank, Calif.

Lubbock
(Telephone Area Code—806)

B & L Radio & Television Supply, 2424 Texas Ave., Lubbock, Texas, 2, Tel: POrter 5-6352 (NEDA)

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

R & R Supply Co., Inc., 1607 Ave. "G", P.O. Box 1360, Lubbock, Texas, 2, Tel: POrter 5-5737 (NEDA)

McAllen
(Telephone Area Code—512)

Rio Radio Supply, Inc., 608 S. Broadway, McAllen, Texas, 2, Tel: MUrray 6-8622 (NEDA)

Port Arthur
(Telephone Area Code—713)

Diehl Radio & Television Supply, 2120 7th St., Port Arthur, Texas, 2, Tel: YU 2-6311 (NEDA)

Richardson
(Telephone Area Code—214)

Semiconductor Distributor Specialists, Inc., 306 Lois Lane, Richardson, Texas, 2, Tel: AD 5-5175, Main Office: Chicago, Ill.

San Antonio
(Telephone Area Code—512)

Gross & Co. (Fred), 114 Pelham St., San Antonio, Texas, 3, Main Office: Dallas, Texas

Kantenberger Co., 1502 W. Gramercy, San Antonio, Texas, 3, Tel: PE 2-2151, Main Office: Dallas, Texas

Radio & Television Parts Co., 1828 N. Saint Mary's St., San Antonio 2, Texas, 2, Tel: CApitol 6-5329 (NEDA)

Schoonmaker Co., Inc. (J. Y.), 107 Winnetka Rd., San Antonio 29, Texas, 3, Tel: DI 4-4295, Main Office: Dallas, Texas

Sherman Electronics Supply, Inc., 722 San Pedro, San Antonio 12, Texas, 2, Tel: CApitol 6-5402 (NEDA)

South Texas Radio Supply Co., Inc., 647 S. Presa St., San Antonio 3, Texas, 2, Tel: CApitol 6-0291 (NEDA)

Texarkana
(Telephone Area Code—214)

McCulloch Wholesale Television Supply, 1222 Main St., P.O. Box 1291, Texarkana, Texas, 2, Tel: 32-6923 (NEDA)

Victoria
(Telephone Area Code—512)

Electronic Equipment & Engineering Co., 1007 N. Williams, Victoria, Texas, 2, Tel: HIllcrest 3-6356, Main Office: Corpus Christi, Texas

Waco
(Telephone Area Code—817)

Hargis Co., Inc., 1205 Washington Ave., Waco, Texas, 2, Tel: PLaza 4-5667 (NEDA)

L & M Sales Co., 1307 Austin Ave., Waco, Texas, 2, Tel: PLaza 4-4644 (NEDA)

Distribution

Texas
Utah

Wichita Falls
(Telephone Area Code—817)

Gose Radio Supply, 1003 Baylor, Wichita Falls, Texas, 2, Tel: 322-9202 (NEDA)

UTAH

Ogden
(Telephone Area Code—801)

Ballard Supply Co., Inc., 3109 Washington Blvd., Ogden, Utah, 2, Tel: EXport 4-5541 (NEDA)

Premmco, Inc., P.O. Box 611, Ogden, Utah, 3, Tel: EXport 3-5301, Main Office: Los Angeles, Calif.

Tri-State Electronic Supply, 2724 Pierce Ave., P.O. Box 1616, Ogden, Utah, 2, Tel: EXport 4-3438 (NEDA)

Salt Lake City
(Telephone Area Code—801)

Avnet Corp., 816 S. Main St., Salt Lake City, Utah, 2, 3, Tel: DA 8-0245, Main Office: Los Angeles, Calif.

Bowen Co., Inc. (R. G.), 463 E. Third S. St., Salt Lake City, Utah, 3, Tel: EMpire 3-4528, Main Office: Denver, Colo.

Cathey Co. (R. E.), 4874 Andlor Dr., Salt Lake City, Utah, 3, Main Office: Denver, Colo.

French Co. (Gene), 138 S. Second E. St., Salt Lake City, Utah, 3, Tel: EMpire 4-3057, Main Office: Albuquerque, N.M.

Gates Co. (F. Y.), 200 S. Main St., Rm. 822, Salt Lake City 1, Utah, 3, Tel: ELgin 9-1101 (ERA)

Hyde Electronics Co., Inc., 445 E. Second S. St., Salt Lake City 11, Utah, 3, Tel: ELgin 9-1661, Main Office: Denver, Colo.

Hytronic Measurements, Inc., 2022 S. Main St., Salt Lake City, Utah, 3, Tel: Ingersoll 6-4924, Main Office: Denver, Colo.

Lahana & Co., 1482 Major St., Salt Lake City 15, Utah, 3, 4, Tel: HUnter 6-8166 Main Office: Denver, Colo.

McCloud & Raymond Co., P.O. Box FG-146, Salt Lake City 16, Utah, 3, Tel: 801-Am 6-5002, Main Office: Denver, Colo.

Moss Electronics, Inc. (Gordon), 1502 Preston St., P.O. Box 8022, Salt Lake City 8, Utah, 3, Tel: 801-Hunter 5-2870, Main Office: Greeley, Colo.

Nelson Co., P.O. Box 1871, Salt Lake City, Utah, 3, Main Office: Denver, Colo.

O'Loughlin's Radio Supply, 113 E. Third S. St., Salt Lake City 11, Utah, 2, Tel: EMpire 4-5051 (NEDA)

Standard Supply Co., 225 E. Sixth S. St., P.O. Box 1047, Salt Lake City 10, Utah, 2, Tel: ELgin 5-2971 (NEDA)

Stevenson Co. (Ralph S.), 2045 Walker Lane, Salt Lake City 17, Utah, 3, Tel: 801-CRestwood 7-2515 (ERA)

Bogen-Presto Co., Dexter Chemical Corp., Electronic Products Corp., Fourjay Indus-

tries, Glennite Battery, Industrial Electrical Works, Jerrold Electronics Corp., New-Tronics, North Electric, Premier Metal Products Co., Shure Brothers, Inc., University Loudspeakers, Wall Mfg. Co. (P.).

Williams & Associates, Inc., 320 E. Fourth S. St., Salt Lake City, Utah, 3, Tel: EMpire 4-6844, Main Office: Denver, Colo.

Sandy
(Telephone Area Code—801)

Connors Inc., 10198 Hosta Lane, Sandy, Utah, 3, Tel: HA 9-1561, Main Office: Denver, Colo.

VERMONT

Bennington
(Telephone Area Code—802)

North Radio Co., 500 Hicks Ave., Bennington, Vt., 2, Tel: BEnnington 6605 (NEDA)

Vergennes
(Telephone Area Code—802)

Hathaway Electronics, Inc. (Glenn M.), 77 School St., Vergennes, Vt., 3, Main Office: Cambridge, Mass.

VIRGINIA

Alexandria
(Telephone Area Code—703)

Brown & Associates (W. A.), 3610 Mount Vernon Ave., Alexandria, Va., 3, Tel: TEmple 6-1800
Amphenol-Borg: Circuitry. **Barnes Engineering Co.:** Radiation sources, radiometers, cameras. **Bethlehem Foundry & Machine Co.:** Space simulation chambers. **Boesch Mfg. Co., Inc.:** Coil winders. **Brush Instruments:** Oscillographs. **Computer Engineering Associates, Inc.:** Power supplies. **DeMornay-Bonardi:** Microwave equip. **Dunn Engineering Associates, Inc.:** Gyro test turntables. **G-L Electronics:** Cores. **Harrison Labs., Inc.:** Transistorized supplies. **Hathaway Instruments, Inc.:** Tuning forks, DC supplies. **Ingersoll Products Div.:** Cabinet frames. **Julie Research Labs., Inc.:** Voltage dividers. **McLean Engineering Labs.:** Blowers. **Micro Gee Products, Inc.:** Flight simulation tables. **Microdot:** Nacimco products, temperature transducers. **Microlab:** Coaxial components, attenuators. **Mnemotron:** Analog tape recorder systems. **Non-Linear Systems, Inc.:** Digital volt-ohm ratiometers. **Philbrick Researches, Inc. (George A.):** Analog computing equip. **Radio Frequency Labs., Inc.:** Calibration standards, gaussmeters. **Rohde & Schwarz Sales Co.:** Frequency meters, voltmeters. **Rustrak Instruments Co.:** Recorders. **Subminiature Instruments Corp.:** Precision potentiometers. **Unholtz-Dickie Corp.:** Vibration testing systems. **Wave Particle Div.:** Power supplies, microwave signal sources. **Weldmatic Div.:** Welders, probes.

Continental Electronics & Engineering Co., 5705 Colfax Ave., Alexandria, Va., 3, Tel: CL 6-5845 (ERA)

O'Hara Co. (Brendan C.), 1203 Trinity Dr., Alexandria, Va., 3, Tel: KIng 9-0107, Main Office: Philadelphia, Pa.

Annandale
(Telephone Area Code—703)

Land-C-Air Sales Co., 201 Epsilon Pl., Annandale, Va., 3, Tel: JEfferson 3-7310, Main Office: Tuckahoe, N.Y.

Arlington
(Telephone Area Code—703)

Jay Co., 2420 Wilson Blvd., Arlington 1, Va., 3, Tel: 703-JAckson 4-6767
Applied Development Corp.: Computer elements, instruments. **Applied Research, Inc.:** RF amplifiers, filters. **Bon-De Electronic Labs., Inc.:** High vacuum equip. **Calibration Standards Corp.:** Portable meters. **Cryogenics, Inc.:** Low temperature measurements. **Electro-Rack, Inc.:** Cabinets. **Electronic Measurements Co.:** Power supplies. **Jerrold Electronics Corp.:** RF test equip. **Laboratory For Electronics:** Stalos, testers. **Optimized Devices, Inc.:** Go/no-go testers. **Radiation Instrument Development Lab.:** Nuclear measurements. **Scott, Inc. (H. H.):** Amplifiers, noise generators. **Vogue Instruments Corp.:** Potentiometers.

Key Electronics Division, 100 S. Wayne St., Arlington 4, Va., 2, Tel: JAckson 4-5422 (NEDA)

Rucker Electronic Products Co., Inc., 1213 Wilson Blvd., Arlington 9, Va., 2, Tel: JAckson 5-2100 (NEDA)

Simberkoff Sales Co., 724 W. Arlington Towers, Arlington, Va., 3, Tel: JAckson 5-5898, Main Office: Orange, N.J.

Charlottesville
(Telephone Area Code—703)

Virginia Radio Supply Co., Inc., 715 Henry Ave., P.O. Box 1189, Charlottesville, Va., 2, Tel: 2-4124 (NEDA)

Danville
(Telephone Area Code—703)

Womack Radio Supply Co., 513 Wilson St., Danville, Va., 2, Tel: SWift 3-5131 (NEDA)

Falls Church
(Telephone Area Code—703)

Wilkinson Organization (Robert L.), P.O. Box 218, Falls Church, Va., 3, Tel: Jefferson 2-6076, Main Office: Baltimore, Md.

McLean
(Telephone Area Code—703)

Naudain-Bohaker & Co., P.O. Box 276, McLean, Va., 3, Main Office: Philadelphia, Pa.

Norfolk
(Telephone Area Code—703)

Cain Electronics Co., Inc., 14th & Monticello Ave., Norfolk 10, Va., 2, Tel: Madison 7-5474 (NEDA)

Priest Electronics, Inc., 6431 Tidewater Dr., Norfolk 9, Va., 2, Tel: MAdison 7-4534 (NEDA)

Radio Parts Distributing Co., 128 W. Olney Rd., Norfolk 10, Va., 2, Tel: MAdison 2-5711 (NEDA)

Radio Supply Co., Inc., 711 Granby St., Norfolk 10, Va., 2, Tel: MAdison 7-9211 (NEDA)

Richmond
(Telephone Area Code—703)

Banner Electronics, Inc., 2224 Chamberlayne Pkwy., Richmond 22, Va., 2, Tel: ELgin 9-5755 (NEDA)

Highsmith & Co. (James L.), P.O. Box 536, Richmond, Va., 3, Tel: ELgin 9-1411, Main Office: Charlotte, N.C.

Holsten, Inc. (E. A.), 1420 E. Main St., Richmond, Va., 2, Tel: MIlton 8-9058 (NEDA)

Industrial Electronics Tube Corp., 26 S. 12th St., Richmond 19, Va., 2, Tel: MIlton 3-6776 (NEDA)

Johnston-Gasser Co., Inc., 3023 W. Marshall St., Richmond 30, Va., 2, Tel: ELgin 8-9405 (NEDA)

Lienau Co. (Charles), 8532 Waxford Rd., Richmond, Va., 3, Tel: AT 2-2829, Main Office: Silver Spring, Md.

Meridian Electronics, Inc., 1001 W. Broad St., Richmond 20, Va., 2, Tel: ELgin 5-2834 (NEDA)

Radio Supply Co., Inc., 3302 W. Broad St., Richmond, Va., 2, Tel: ELgin 9-6071 (NEDA)

Richmond Electronic Supply Co., 800 W. Cary St., Richmond 20, Va., 2, Tel: MIlton 3-6735 (NEDA)

Roanoke
(Telephone Area Code—703)

McKnight Electronics, Inc., 405 Shenandoah Ave., N.W., Roanoke, Va., 2, Tel: 703-DIamond 3-9338 (NEDA)
Channel Master Corp., I.D.E.A., International Resistance Co., Merit Coil & Transformer Co., Radio Corp. of America, Sprague Products Co., Tung-Sol Sales Corp.

People's Radio & Television Supply Co., Inc., 1015 Moorman Rd., Roanoke, Va., 2, Tel: DIamond 2-8933 (NEDA)

Radio Supply Co., Inc., 2009 Williamson Rd., Roanoke, Va., 2, Tel: DIamond 4-6288 (NEDA)

Staunton
(Telephone Area Code—703)

Southern Electric Corp., 818 Greenville Ave., Staunton, Va., 2, Tel: TUxedo 6-6218 (NEDA)

Virginia Beach
(Telephone Area Code—703)

Cerf & Co. (Art), 600½ 20th St., Virginia Beach, Va., 3, Tel: GArden 8-5840, Main Office: Newark, N.J.

WASHINGTON

Bellevue
(Telephone Area Code—206)

Avnet Corp., 11240 Main St., Bellevue, Wash., 2, 3, Tel: GL 4-4911, Main Office: Los Angeles, Calif.

Hall Engineering Co., 1430 130th N.E., Bellevue, Wash., 3, Tel: 206-GLencourt 4-9511
Airborne Accessories Corp.: Filters & capacitors. **Verco, Inc.:** Measuring & monitoring equip.

Ellensburg
(Telephone Area Code—509)

Geiger Radio (W. A.), 1101 Columbia, P.O. Box 660, Ellensburg, Wash., 2, Tel: Woodland 2-7701 (NEDA)

Everett
(Telephone Area Code—206)

Pringle Radio Wholesale Co., 2101 Colby Ave., Everett, Wash., 2, Tel: ALpine 2-2212 (NEDA)

Seattle
(Telephone Area Code—206)

Arva, Inc., 1320 Prospect St., Seattle 9, Wash., 3, Tel: 206-MAin 2-0177 (ERA)
Airtron: Microwave components. **Allison Labs., Inc.:** Filters & analyzing instruments. **Baldwin-Lima-Hamilton Corp.:** Strain gages, transducers. **Boonton Radio Corp.:** Q-meters, signal generators. **Daytronic Corp.:** Transformers, transducers, indicators. **Dymec:** Digital data systems, RF systems. **Hewlett-Packard Co.:** Oscilloscopes, oscillators, AF & RF signal generators, counters, standards. **Kintel:** Digital instruments, power supplies, TV cameras.

Mnemotron Corp.: Recorder systems. **Moseley Co. (F. L.):** Recorders, data reduction systems. **Pacific Electro Magnetics Co.:** Tape recorders. **Rustrak Instrument Co.:** Recorders. **Sanborn Co.:** Oscillographic recorders. **Sensitive Research Instrument Corp.:** Instruments, standards. **Sierra Electronic Corp.:** Voltmeters, line fault analyzers. **Sorensen & Co., Inc.:** Regulators, power supplies. **Space Instrumentation Corp.:** Flowmeters, tachometers. **Stantron:** Cabinets. **Varian Associates:** Recorders, klystrons, pumps. **Victoreen Instrument Co.:** Nuclear equip.

Backer Co. (James J.), 221 W. Galer St., Seattle 99, Wash., 3 (ERA)
Cannon Electric Co., Centralab, Hallicrafters, Triplett Electrical Instrument Co., Ungar Electric Tools.

Burcham Co. (Don H.), 2517 Second Ave., Seattle 1, Wash., 3, Main Office: Portland, Ore.

Cain & Co., 7736 33rd N.E., Seattle 15, Wash., 3, Tel: MA 3-3303, Main Office: Burbank, Calif.

Champlin Co. (Dave), 12528 22nd Ave. N.E., Seattle 55, Wash., 3, Tel: 206-EMerson 2-0401 (ERA)
Distributor's Group: Chemicals. **Dynaco, Inc.:** Cartridges. **Fisher Radio Corp.:** Components. **International Electronics:** Mullard tubes. **JBL International:** Speakers. **Kord Co.:** Japanese imports. **Nortronics Co., Inc.:** Heads.

Dooley Co., Inc. (J. K.), 3215 Western Ave., Seattle 1, Wash., 3, Tel: ATwater 4-8313 (ERA)
Instrumentation & components.

Drake Associates, Inc. (Rush S.), 1817 S. Norman St., Seattle 44, Wash., 3, 4, Tel: 206-EAst 3-8545 (ERA)
Alfred Electronics: Microwave sources, power supplies. **Amco Engineering Co.:** Enclosures. **Beckman/Berkeley Div.:** Counters & analog instruments. **Digital Equipment Corp.:** Building blocks. **Dressen-Barnes Corp.:** Power supplies. **DuMont Div.:** Oscilloscopes. **Eitel-McCullough, Inc.:** Power tubes, klystrons, TWT's. **Fluke Mfg. Co. (John):** Voltmeters, power supplies, bridges. **Gertsch Products, Inc.:** Bridges, frequency meters. **Keithley Instruments, Inc.:** Ammeters, electrometers. **Narda Microwave Corp.:** Microwave test equip. **Nuclear Data, Inc.:** Pulse height analyzers. **Offner Electronics, Inc.:** Recorders, amplifiers. **Precision Instrument Co.:** Instrumentation, tape recorders. **Stoddart Aircraft Radio, Inc.:** Radio interference measuring equip.

Farwest Electronics, Inc., 209 First Ave. S., Seattle 4, Wash., 2, 3, Tel: 206-MAin 4-5656 (NEDA)
Accessories Products Co.: Valves. **Aircraft Bolt Co.:** Bolts. **Amphenol-Borg Electronics Co.:** Connectors & plugs. **Archer Machine Co.:** Welding. **Arrow-Hart & Hegeman:** Switches. **Cal-Doran Co.:** Alloys. **Carter Engineering:** Headphones. **Cutler-Hammer:** Switches. **Deutsch Fastner Corp.:** Rivets. **Electra Mfg. Co.:** Resistors. **Electro Chem-Etch:** Marking equip. **Farwest Mfg. Div., Inc.:** Assemblies. **Guardian Electric:** Relays. **Kings Electronics:** Connectors. **Licon:** Switches. **Midwec Sales Co.:** Capacitors. **PRL Electronics, Inc.:** Power supplies. **Pacific Laminates:** Fiberglas. **Solitron Devices, Inc.:** Rectifiers. **Switchcraft, Inc.:** Jacks & plugs. **Tensolite Insulated Wire Co.:** Teflon wire. **Tung-Sol:** Tubes & transistors. **Waters Mfg., Inc.:** Potentiometers.

Garretson Radio Supply, Inc., 2414 Second Ave., Seattle 1, Wash., 2, Tel: Mutual 2-4380 (NEDA)

Gillett & Associates (G. M.), 4621 7th Ave. S, Seattle 8, Wash., 3, Tel: MA 3-5755 (ERA)

Haight Co. (Fred H.), 3212 Eastlake Ave. E., Seattle 2, Wash., 3 (ERA)
Components, test equipment.

Hughes Co., Inc. (R. S.), 1107 S. Bailey St., Seattle 8, Wash., 2, Tel: PArkway 5-5750, Main Office: Los Angeles, Calif.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Johnston Co., Inc. (Ray), 1011 E. 69th St., Seattle 15, Wash., 3 (ERA)

Lanphear Co. (William R.), 3215 Western Ave., Seattle 1, Wash., 3, Tel: 206-ATwater 4-8150 (ERA)
British Industries Corp., Electro-Voice, Inc., Ferrodynamics Corp., Harman-Kardon, Inc., Hollingsworth Co., Langevin, Sidco, Sightmaster Corp., Smith, Inc. (Herman H.), Viking of Minneapolis, Inc., Workman TV, Inc.

Legg Co. (Richard), 1565 Sixth Ave. S., Seattle 4, Wash., 3, Tel: MUtual 2-7763, Main Office: POrtland, Ore.

Levinson Co. (Harry), 1211 E. Denny Way, Seattle 22, Wash., 2, 3, Tel: 206-EAst 3-5100 (ERA)

Marsh Agencies, Inc., 2601 First Ave., Seattle 1, Wash., 3, Tel: MA 2-8761 (ERA)
Components, sound systems, test equipment, technical publications.

Merritt Co. (Ron), 1320 Prospect St., Seattle 9, Wash., 3, Tel: 206-MUtual 2-7337 (ERA)
Audio-Empire, B & K Mfg. Co., Electra International Co., Entron, Inc., Glaser-Steers Corp., International Resistance Co., Krylon, Inc., Marantz Co., Inc., Mosley Electronics, Inc., Recoton Corp., Reeves Soundcraft Corp., Seco Electronics, Inc., Sony Superscope, Inc., Standard Kollsman Industries, Inc., Stephens Trusonic, Inc., Switchcraft, Inc., Telex, Inc., Transistronics, Inc., Tung-Sol Electric, Inc.

Miller Sales Co. (Dave), 2323 N. 45th, Seattle 3, Wash., 3, Tel: MElrose 2-7070 (ERA)
Components, test equipment.

Northwestern Agencies, Inc., 4130 First Ave. S., Seattle 4, Wash., 3, Tel: MAin 3-8882 (ERA)
Atlas Sound Equipment: Microphone stands. **Bogen Co. (David):** Amplifiers, intercoms. **Carter Motor Co.:** Power supplies, converters. **Cornell-Dubilier Electric Co.:** Capacitors, vibrators, relays, filters. **Electric Cord & Supply Co.:** Harnesses. **Heinemann Electric Co.:** Circuit breakers, relays. **Oxford Electric Co.:** Speakers, panel lamps. **Presto Recording Co.:** Recording & playback equip. **Pyramid Instrument Co.:** Ammeters & voltmeters. **Royal Electric Co.:** Cables, fuses. **Shure Brothers Co.:** Acoustic devices, microphones. **Sola Electric Co.:** Transformers. **United Transformer Corp.:** Transformers. **Ward Leonard Electric Co.:** Resistors, relays. **Weller Electric Corp.:** Soldering guns.

Pacific Electronics Sales Co., Inc., 1209 First Ave., Seattle 1, Wash., 2, Tel: MUtual 2-5390 (NEDA)

Paratech, 9210 28th N.W., Seattle, Wash., 3, Tel: SU 4-6447 (ERA)

Parsons & Co. (C. B.), 5319 Fourth Ave. S., Seattle 8, Wash., 3, Tel: PArkway 5-9700 (ERA)
Acro Div., Autotron, Inc., Cambridge Thermionic Corp., Clare & Co. (C. P.), Curtis Development & Mfg. Co., Detroit Coil Co., Industrial Timer Corp., International Instruments, Inc., Line Electric Co., Patwin Div., Pic Automation Controls Div., Shallcross Mfg. Co., Simplatrol Products Corp.

Peninsula Associates, 3, Tel: ZEnith 9-9987, Main Office: Redwood City, Calif.

Porter, Inc. (Burt), 1209 Poplar Pl. S., Seattle 44, Wash., 3, Tel: 206-EAst 3-8330 (ERA)
Aero Research Instrument Co.: Thermocouples, probes. **Bourns Labs.:** Potentiometers. **Librascope, Inc.:** Plotters, analog-to-digital converters. **Massa Div.:** Recording systems. **Non-Linear Systems, Inc.:** Digital voltmeters, ohmmeters. **Raychem Corp.:** Heat-shrinking tubing. **Stackpole Carbon Co.:** Resistors. **Westinghouse Electric Corp.:** Tubes.

Remco, 2745 Mount Saint Helen's, Seattle 44, Wash., 3, Tel: PA 3-3400 (ERA)
Components, raw materials.

Schultz Co. (N. R.), 4227 Airport Way, Seattle 8, Wash., 3, Tel: MA 4-8650 (ERA)

Seatronics, Inc., 1817 S. Norman St., Seattle 44, Wash., 3, Tel: 206-EAst 3-8545 (ERA)
Diodes, Inc.: Silicon rectifiers. **Elastic Stop Nut Corp. of America:** Relays. **Fenwal Electronics, Inc.:** Thermistors, probes. **Fenwal, Inc.:** Temperature controls. **Frebank Co.:** Pressure switches. **Genistron, Inc.:** Filters. **Goodrich Sponge Products (B. F.):** Microwave absorbers. **Hoffman Electronics Corp.:** Transistors, diodes. **Iron Fireman Mfg. Co.:** Gyros. **Johnson & Co. (K. W.):** Vibration mounts. **Lerco Div.:** Hardware. **Magnetic Shield Div.:** Shielding. **Metal Textile Corp.:** Gasketing. **Micro Systems, Inc.:** Systems. **Ohio Semiconductors, Inc.:** Hall-effect devices. **Sage Electronics Corp.:** Resistors. **Sarton, Inc.:** Transformers. **Servomechanisms, Inc.:** Motors. **Spectrol Electronics Corp.:** Precision potentiometers. **Standard Controls, Inc.:** Transducers. **Viking Industries, Inc.:** Connectors. **Voltron Products:** Expanded scale meters. **Warren Wire Co.:** Wire. **Wire Co. of America:** Wire.

Seattle Radio Supply, Inc., 2117 Second Ave., Seattle 1, Wash., 2, Tel: MAin 4-2341 (NEDA)

Smith Sales Co. (Don), 2320 N. 45th, Seattle 3, Wash., 3, Tel: MElrose 3-3160 (ERA)

Stroum Co., Inc. (Samuel N.), 621 S. Michigan St., Seattle 8, Wash., 3, Tel: PArkway 3-7310 (ERA)
Alpha Wire Corp., Clarostat Mfg. Co., Elco Corp., Globe Industries, Helipot Div., ITT-DPD, Litton Useco Div., Precision Apparatus Co., Premier Metal Products, Vaco Products Co., Zero Mfg. Co.

Stulgis Co., Inc. (W. J.), 608 W. Crockett, Seattle 99, Wash., 3, Tel: ATwater 2-7870 (ERA)
Components.

Thorson Co., 1767 15th Ave. S., Seattle 44, Wash., 3, Tel: EAst 5-5000, MAin Office: Los Angeles, Calif.

Western Electronic Co., 717 Dexter Ave., Seattle 9, Wash., 2, 4, Tel: 206-ATwater 4-0200 (NEDA)
Ampex: Tape recorders. **Belden:** Wire. **Bud:** Metalware. **Burgess:** Batteries. **Channel Master:** Antennas. **Cornell-Dubilier:** Capacitors. **Ohmite:** Resistors. **Radio Corp. of America:** Tubes. **Raytheon:** Tubes. **Simpson:** Meters. **Stancor Electronics:** Transformers. **Superior:** Powerstats.

Widdekind Co. (M. K.), 222 First Ave. N., Seattle 9, Wash., 3, Tel: 206-ATwater 4-8020 (ERA)
Aemco, Inc.: Relays. **Altec Lansing Corp.:** Audio systems. **Anton Electronic Labs.:** Connectors, potentiometers, voltage regulator tubes. **Arco Capacitors, Inc.:** Capacitors. **Atlee Corp.:** Component holders. **Autotronics, Inc.:** Clutches. **Blonder-Tongue Labs.,**

Inc.: Closed-circuit TV. **Douglas Microwave Co., Inc.:** Waveguide components. **Freed Transformer Co., Inc.:** Toroids. **General Meters, Inc.:** Indicating instruments. **Metal Cabinet & Fixture Co., Inc.:** Consoles. **Millivac Instruments, Inc.:** Laboratory instruments. **Oak Mfg. Co.:** Switches. **Sarkes-Tarzian, Inc.:** Rectifiers. **Scientific Radio Products, Inc.:** Quartz crystals.

Spokane
(Telephone Area Code—509)

Alltronic Distributors, Inc., 204 E. Augusta Ave., P.O. Box 1077, Spokane 10, Wash., 2, Tel: FAirfax 8-2020 (NEDA)

Arva, Inc., E. 127 August Ave., Spokane 10, Wash., 3, Tel: FA 5-2557, Main Office: Seattle, Wash.

Columbia Electric, E. 3420 Ferry, Spokane 10, Wash., 2, Tel: KEystone 4-0611 (NEDA)

Merritt Co. (Ron), E. 127 Augusta Ave., Spokane 10, Wash., 3, Tel: FA 5-2557, Main Office: Seattle, Wash.

Northwest Electronics, Inc., E. 730 First Ave., Spokane 3, Wash., 2, Tel: KEystone 4-2644 (NEDA)

Smith Sales Co. (Don), W. 2404 Dalton, Spokane 13, Wash., 3, Tel: FAirfax 5-4022, Main Office: Seattle, Wash.

Tel-Electric Distributors, Inc., N. 734 Division, Spokane 2, Wash., 2, Tel: FA 7-4421 (NEDA)

Tacoma
(Telephone Area Code—206)

C & G Electronics Co., 2502 Jefferson Ave., Tacoma 2, Wash., 2, Tel: Broadway 2-3181 (NEDA)

Wible Radio Supply, Inc., 2360 S. Fawcett Ave., P.O. Box 1163, Tacoma 1, Wash., 2, Tel: BRoadway 2-8395 (NEDA)

Vancouver
(Telephone Area Code—206)

Palmer, Inc. (M. V.), 4108 N.W. Fruit Valley Rd., Vancouver, Wash., 3, Tel: 206-OX 3-0590
Palmer Electric: Intercoms, switchboards.

Wenatchee
(Telephone Area Code—509)

Midstate Radio Supply, Inc., 611 N. Wenatchee Ave., Wenatchee, Wash., 2, Tel: NOrmandy 2-8103 (NEDA)

WEST VIRGINIA

Bluefield
(Telephone Area Code—304)

Meyers Electronics, Inc., 924 Bland St., P.O. Box 1300, Bluefield, W.Va., 2, Tel: DAvenport 5-9151 (NEDA)

Charleston
(Telephone Area Code—304)

Chemcity Electronics, 1637 Fourth Ave., P.O. Box 2066, Charleston 27, W.Va., Tel: DIckens 2-8151 (NEDA)

Mountain Electronics Co., 708 Bigley Ave., Charleston, W.Va., 2, Tel: DIckens 4-3411 (NEDA)

Huntington
(Telephone Area Code—304)

Electronic Supply, Inc., 422 11th St., Huntington 1, W.Va., 2, Tel: JAckson 5-8779 (NEDA)

Warren Radio Co., 800 8th St., Huntington, W.Va., 2, Tel: 529-2493, Main Office: Toledo, Ohio

Wheeling
(Telephone Area Code—304)

General Electronics Distributors, Inc., 735 Main St., Wheeling, W.Va., 2, Tel: CEdar 2-7650 (NEDA)

WISCONSIN

Appleton
(Telephone Area Code—414)

Valley Radio Distributors, 518 N. Appleton St., Box 975, Appleton, Wis., 2, Tel: REgent 3-6012 (NEDA)

Eau Claire
(Telephone Area Code—715)

Bushland Radio Specialties, 1728 Loring St., Eau Claire, Wis., 2, Tel: TE 2-0425 (NEDA)

Fond du Lac
(Telephone Area Code—414)

Fond du Lac Distributing Co., 152 S. Macy St., Fond du Lac, Wis., 2, Tel: WAlnut 2-6490 (NEDA)

Harris Radio Corp., 289 N. Main St., Fond du Lac, Wis., 2, Tel: WAlnut 2-4670 (NEDA)

Green Bay
(Telephone Area Code—414)

Neslo, Inc., 715 14th Ave., Green Bay, Wis., 2, Tel: HEmlock 7-5496 (NEDA)

Northern Radio & Television Co., 1858 Main St., Green Bay, Wis., 2, Tel: HEmlock 5-3789 (NEDA)

La Crosse
(Telephone Area Code—608)

Stark Electronic Supply, 131 S. Sixth St., La Crosse, Wis., 2, Tel: 2-3186 (NEDA)

Madison
(Telephone Area Code—608)

Radio Distributors, 418 Oak St., Madison 4, Wis., 2, Tel: CHerry 9-9227 (NEDA)

Satterfield Electronics, Inc., 1900 S. Park St., Madison 5, Wis., 2, Tel: ALpine 7-4801 (NEDA)

Milwaukee
(Telephone Area Code—414)

Aaron & Associates, Inc. (Irvin I.), 829 N. Marshall St., Milwaukee 2, Wis., 3, Tel: 414-BRoadway 6-8515
Allen-Bradley Co., B-W Controller Corp., Davis Electric Co., Equipto Electronics, Inc., Trans-Sil Corp.

Ackermann Radio Sales, 3861 N. 35th St., Milwaukee, Wis., 2, Tel: HIlltop 5-1860 (NEDA)

Allied Radio of Wisconsin, 2461 W. Center St., Milwaukee, Wis., 2, Tel: 414-HIlltop 4-8320, Main Office: Chicago, Ill.
See ad on page 793

Anderson & Associates, Inc. (Burt), 7328 Burdick, Milwaukee 19, Wis., 3, Tel: LIncoln 3-3469, Main Office: Chicago, Ill.

Bruning Co. (A. H.), 7110 W. Chambers St., Milwaukee 10, Wis., 3, Tel: HIlltop 4-8701, Main Office: Chicago, Ill.

Central Radio Parts Co., 7123 W. Fond du Lac Ave., Milwaukee 5, Wis., 2, Tel: WEst 3-2982 (NEDA)

Cumming & Associates, Inc. (Bruce), 4852 N. 24th St., Milwaukee 9, Wis., 3, Tel: UPtown 3-1381, Main Office: Chicago, Ill.

Dickinson & Associates (E. A.), 4117 N. Green Bay Ave., Milwaukee 9, Wis., 3, Tel: 414-COncord 4-1080 (ERA)
American Solenoid Co., Inc.: Rotary switches. **Bradley Semiconductor Corp.:** Rectifiers. **General Products Corp.:** Terminal blocks. **Good-All Electric Mfg. Co.:** Capacitors. **Heinemann Electric Co.:** Circuit breakers. **Ledex, Inc.:** Rotary solenoids. **Potter & Brumfield, Inc.:** Relays. **Simpson Electric Co.:** Meters. **Tru-Ohm Products Co.:** Resistors. **Unimax Switch Div.:** Snap switches.

Diethert Co., Inc. (Russ), 1324 W. Wisconsin Ave., Milwaukee, Wis., 3, Main Office: Chicago, Ill.

Dolin Sales Co. (D.), 5219 N. Hopkins St., Milwaukee 9, Wis., 3, Tel: HOpkins 3-7410, Main Office: Chicago, Ill.

Radio Parts Co., Inc., 1314 N. 7th St., Milwaukee 5, Wis., 5, Tel: BRoadway 6-4160 (NEDA)

Stranco Products, Inc., 8610 N. 52nd St., Milwaukee 23, Wis., 2, Tel: FLagstone 5-5231, Main Office: Chicago, Ill.

Taylor Electric Co., 4080 N. Port Washington Rd., Milwaukee 12, Wis., 2, Tel: WOodruff 4-4321 (NEDA)

Racine
(Telephone Area Code—414)

Darnold Co. (D. Hale), 914 Kentucky St., P.O. Box 987, Racine, Wis., 3, Tel: 414-MElrose 2-9644 (ERA)
Anchor Metal Co.: Solders & alloys. **Oxford Electric Corp.:** Speakers. **Columbia Products Co., Inc.:** Components. **Supreme Transformer Corp.:** Transformers. **Talk-A-Phone Co.:** Intercoms. **Workman TV Products, Inc.:** Components.

Standard Radio Parts Co., 1244 State St., Racine, Wis., 2, Tel: MElrose 4-3634 (NEDA)

West Allis
(Telephone Area Code—414)

Marsh Radio Supply Co., 6047 W. Beloit Rd., West Allis 19, Wis., 2, Tel: EVergreen 3-2590 (NEDA)

CANADA

British Columbia: North Vancouver
(Telephone Area Code—604)

Champlin Co. (Dave), 1156 Beechwood Crescent, North Vancouver, B.C., Canada, 3, Tel: YUkon 7-5565, Main Office: Seattle, Wash.

Short Co. (Emerson), 1156 Beechwood Crescent, North Vancouver, B.C., Canada, 3, Tel: YU 7-5565 (ERA)

Thompson, Ltd. (Charles L.), 3115 Lonsdale Ave., North Vancouver, B.C., Canada, 3, Tel: 604-YUkon 7-9388 (ERA)
A.T.R.: Vibrators & inverters. **Aerovox:** Capacitors. **Astatic:** Microphones. **Balfour-Guthrie:** Wire. **Belden:** Wire & cable. **Bogen-Presto Co.:** Amplifiers. **C.T.S. of Canada Ltd.:** Volume controls. **Cerl-Dalohm Ltd.:** Resistors. **Hammarlund:** Receivers, capacitors. **Hurst Tool & Mfg. Co.:** Timing motors. **Katolight Corp.:** Generators, converters. **Moran:** TV rotators. **Potter & Brumfield Canada Ltd.:** Relays. **Presto:** Recorders. **Raytheon Canada Ltd.:** Tubes & semiconductors. **Standard Transformer:** Transformers, chokes. **Tenatronics Ltd.:** Antennas. **Tri-Ex Tower Corp.:** Towers. **University Loudspeakers, Inc.:** Speakers. **Utah Radio & Electronic Corp.:** Speakers. **White Radio Ltd.:** Air trimmers.

British Columbia: South Burnaby
(Telephone Area Code—604)

Astral Electric Co., Electronics Div. of Eldon Industries of Canada, Ltd., 7130 Sperling Ave., South Burnaby, B.C., Canada, Tel: LA 1-0948, Main Office: Scarborough, Ontario, Canada

British Columbia: Vancouver
(Telephone Area Code—604)

Armstrong, Ltd. (A. T. R.), 2810 Victoria Dr., Vancouver 12, B.C., Canada, 3, Tel: TR 2-1709, Main Office: Toronto, Ont., Canada

Arva, Inc., G-7 Marine Bldg., Vancouver 1, B.C., Canada, 3, Tel: MU 2-4323, Main Office: Seattle, Wash.

Atlas Radio Corp., Ltd., 106-525 Seymour St., Vancouver, B.C., Canada, 3, Main Office: Toronto, Ont., Canada

Gould Sales Co., Ltd. (E. S.), 2150 W. Fourth St., Vancouver, B.C., Canada, 3, Tel: REgent 8-9230, Main Office: Montreal, Qubec, Canada

McLennan, Ltd. (D. Eldon), 1624 W. Third Ave., Vancouver 9, B.C., Canada, 1, 3, Tel: REgent 6-9251 (ERA)
Accurate Instrument Corp., Clevite Electronic Components, Electro-Voice, Inc., Fisher Berkeley, Inc., G. C. Electronics, Quam-Nichols Co., Sangamo Electric Co., Soundolier, Inc., Triad Transformer Corp., Walco Electronics Corp.

Merritt Co. (Ron), G-7 Marine Bldg., Vancouver 1, B.C., Canada, 3, Tel: MU 2-4323, Main Office: Seattle, Wash.

Nicholas, Ltd. (R. H.), #624 Vancouver-Block, 736 Granville St., Vancouver, B.C., Canada, 1, 3, Tel: MUtual 3-0019, Main Office: Toronto, Ont., Canada

Manitoba: Winnipeg
(Telephone Area Code—204)

Atlas Radio Corp., Ltd., 306 McDermott, Winnipeg, Manitoba, Canada, 3, Main Office: Toronto, Ont., Canada

Thompson, Ltd. (Charles L.), 1440 Erin St., Winnipeg 3, Manitoba, Canada, 3, Tel: 204-SUnset 3-0848, Main Office: North Vancouver, B.C., Canada

Ontario: Ajax
(Telephone Area Code—416)

Bayly Engineering Ltd., Hunt St., Ajax, Ontario, Canada, 3, 4, Tel: WHitehall 2-1020
Arnold Engineering Co.: Cores, magnets. **Ballantine Labs., Inc.:** VTVM's. **Boesch Mfg. Div.:** Toroidal winders. **Boonton Radio Corp.:** Test equip. **Brush Instruments:** Recording equip. & oscillographs. **Carpenter Mfg. Co., Inc.:** Wire strippers. **DeMornay-Bonardi Corp.:** Microwave equip. **DuMont Div.:** Oscilloscopes, cameras, tubes. **Sorensen & Co., Inc.:** Power supplies. **Technibilt Corp.:** Oscilloscope carriers.

Stark Electronic Sales Co., Stark Bldg., Ajax, Ontario, Canada, 1, 3, 4, Tel: 416-WHitehall 2-2120
Anton Electronics Labs. (Lionel Corp.), Hickok Electrical Instrument Co., Lionel Corp., Peschel Electronic Labs., Science Electronics, Inc., Shielding, Inc.

Distribution

1. Export & import
2. Jobbers & wholesalers
3. Manufacturers representatives
4. Sales & service
5. Surplus dealers

Ontario: Don Mills
(Telephone Area Code—416)

Canadian Research Institute, 85 Curlew Dr., Don Mills, Ontario, Canada, 1, 3, 4, Tel: 416-447-5561
Acker Co. (R.): Moisture meters. **Baird-Atomic, Inc.:** Laboratory instruments. **Buckley's (Uvral) Ltd.:** High tension test equip. **Dynage, Inc.:** Test equip. **Emel Establishments:** Cameras. **Fisher Research Lab., Inc.:** Geophysical instruments. **Gossen & Co. (P.):** Meters & instruments. **Hitachi, Ltd.:** Insulation testers. **Micro Instrument Co.:** Engravers. **Microsprings:** Springs. **Moran Instrument Corp.:** Test equip. **Parker Electrical Instrument Corp.:** Meters. **Photovolt Corp.:** Photoelectric instruments. **Pixburg & Co.:** Wire. **Precision Radiation Instruments, Inc.:** Radiation counters. **Precision Tubing Co.:** Tubing. **Staub & Co.:** Recording meters.

Ontario: Ottawa
(Telephone Area Code—613)

Bayly Engineering, Ltd., 80 Argyle Ave., Ottawa, Ontario, Canada, 3, 4, Tel: CEntral 2-9821, Main Office: Ajax, Ontario, Canada

Computing Devices of Canada, Ltd., P.O. Box 508, Ottawa 4, Ontario, Canada, 3, 4, Tel: TAlbot 8-2711
Bendix Corp. Cincinnati Div., Bendix Corp. Computer Div., Bendix Corp. Pacific Div., Bendix Corp. Radio Div., Bendix Corp. Red Bank Div., Benson-Lehner Corp., Cinematograph Export Ltd., Clary Corp., Coleman Electronics, Inc., Electro-Logic Corp., Epsco, Inc. Systems Div., Epsylon Industries Ltd., Flight Research, Inc., Hermes Electronics Co., Hulcher Co., Inc. (Charles A.), Monitor Systems, Inc., O.M.I. Corp. of America, Offner Electronics, Inc., Telford Products Ltd., Traid Corp., Wollensak Optical Co.

Electrodesign, Ltd., 428 Rideau St., Suite 100A, Ottawa 2, Ontario, Canada, 3, Tel: 613-SH 9-6837, Main Office: Montreal, Quebec, Canada
See ad on this page

Ontario: Rexdale
(Telephone Area Code—416)

Pointon, Ltd. (Charles W.), 66 Racine Rd., Rexdale, Ontario, Canada, 3, Tel: 416-CHerry 7-8777 (ERA)
Astron Sales Corp.: Capacitors. **Carter Motor Co.:** Dynamometers. **Don Bosco Electronics Co.:** Transistorized signal injectors. **Duotone Co., Inc.:** Dises. **GC Electronics Co.:** Hardware & chemicals. **Garrard Engineering & Mfg. Co. Ltd.:** Record changers. **General Industries Co.:** Phonograph motors. **Harman-Kardon, Inc.:** Amplifiers, tuners. **Multicore Solder Ltd.:** Solder, wire. **Pickering & Co., Inc.:** Audio components. **RJ Audio Products:** Enclosures. **Thordarson-Meissner:** Transformers, coils. **Trimm, Inc.:** Headsets. **Xcelite, Inc.:** Pliers.

Ontario: Scarborough
(Telephone Area Code—416)

Astral Electric Co., Electronics Div. of Eldon Industries of Canada, Ltd., 44 Danforth Rd., Scarborough, Ontario, Canada, 1, Tel: 416-698-2547
Belling & Lee Ltd.: Components. **British Ferrograph Recorder Co., Ltd.:** Recorders. **Dubilier Condenser Co. Ltd.:** Capacitors. **Fairchild Recording Equipment Ltd.:** Cartridges. **Ficord Ltd.:** Recorders. **Grampian Ltd.:** Microphones. **Jones Stroud Co. Ltd.:** Sleeving. **Leak & Co. Ltd. (H. J.):** Tuners. **Nordisk Antenne Fabrik:** Antennas. **Pye Ltd.:** Amplifiers. **Reproducers & Amplifiers Ltd.:** Speakers. **Sugden (Engineers) Ltd.:** Turntables. **Ungar Electric Tool Co. of Canada:** Soldering irons. **Vitavox Ltd.:** Speakers.

Distribution

Washington
West Virginia
Wisconsin
Foreign

Ontario: Toronto
(Telephone Area Code—416)

Armstrong, Ltd. (A. T. R.), 700 Weston Rd., P.O. Box Sta. D, Toronto 9, Ont., Canada, 3, Tel: ROgers 2-7535 (ERA)
Bud Radio, Inc.: Cabinetry. **Essex Nytronics Canada Ltd.:** Inductors. **Gordos Corp.:** Switches. **Gotham Audio Corp.:** Microphones. **International Electronic Industries, Inc.:** Capacitors. **Potter & Brumfield:** Relays. **Reeves Soundcraft Corp.:** Tape products. **Sarkes Tarzian, Inc.:** Rectifiers & zeners. **Silicon Transistor Corp.:** Silicon diodes. **Tru-Ohm Products:** Resistors & rheostats.

Atlas Radio Corp., Ltd., 50 Wingold Ave., Toronto 19, Ontario, Canada, 3, Tel: RUssell 1-6174 (ERA)
Audio test equipment.

Desser E-E Ltd., 77 York St., Toronto, Ont., Canada, 3, Main Office: Montreal, Ont., Canada (ERA)

Electro Sonic Supply Co., Ltd., 543 Yonge St., Toronto 5, Ontario, Canada, 2, Tel: WAlnut 4-9301 (NEDA)

Electrodesign, Ltd., 35 Mulholland St., Toronto 19, Ont., Canada, 3, Tel: 416-RU 7-0991, Main Office: Montreal, Quebec, Canada
See ad on this page

Engineered Sound Systems, Ltd., 169 Kipling Ave. S., Toronto 18, Ontario, Canada, 1, 2, 3, 4, Tel: 416-BElmont 3-2155
Gylling & Co. (A. B.): Intercom systems. **Instructomatic, Inc.:** Language labs. **P & H Electronics, Inc.:** Amateur. **Tandberg of America, Inc.:** Recorders. **Warren, Inc. (Jay L.):** Microphones.

Gould Sales Co., Ltd. (E. S.), 4 Little Rock Dr., Toronto, Ont., Canada, 3, Tel: WAlnut 4-0651, Main Office: Montreal, Quebec, Canada

Hackbusch Electronics, Ltd., 23 Primrose Ave., Toronto 4, Ontario, Canada, 3, Tel: LE 1-2453 (ERA)
Components & raw materials.

Metal & Wood Fastening Devices Co., 301 King St. E., Toronto 2, Ont., Canada, 2, 3, Tel: EM 4-1916, Main Office: Montreal, Quebec, Canada

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Distribution

Foreign

Nichols, Ltd. (R. H.), 4544 Dufferin St., Toronto, Ont., Canada, 1, 3, Tel: Melrose 3-8190
Avo Ltd.: Multi-meters, tube testers. **Cambridge Instrument Co. Ltd.:** Medical instruments. **Control Corp.:** Battery chargers, telemetering. **Electrical Regulator Corp.:** Voltage regulators. **Evershed & Vignoles Ltd.:** Insulation testers & ohmmeters. **Jaquet, S.A. (James):** Tachometers, chronometers. **Kipp & Zonen (P. J.):** Physical & chemical laboratory instruments. **Record Electrical Co., Ltd.:** Recorders, tachometers. **Turner Electrical Instruments, Ltd. (Ernest):** Panel meters. **Westinghouse Brake & Signal Co., Ltd.:** Rectifier stacks, power supplies.

Precision Electronic Components, Ltd., 50 Wingold Ave., Toronto 19, Ont., Canada, 3, Tel: RUssell 1-6174
Atohm Electronics

Ontario: Willowdale
(Telephone Area Code—416)

Crawford Associates, Ltd. (Allan), 5590 Yonge St., Willowdale, Ontario, Canada, 3, Tel: BA 5-7391 (ERA)
Abtronics, Inc., Dytronics Co., E-H Research Labs., Edgerton, Germeshausen & Grier, Inc., Electronic Associates, Inc., Elin Div., Exact Electronics, Inc., Guildline Instruments, Ltd., Fluke Mfg. Co., Inc. (John), Rantec Corp., Riggs Nucleonics Corp., Technical Measurement Corp., Weinschel Engineering.

Quebec: Montreal
(Telephone Area Code—514)

Armstrong, Ltd. (A. T. R.), 1434 Saint Catherine's St. W., Montreal 25, Quebec, Canada, 3, Tel: UN 1-6676, Main Office: Toronto, Ont., Canada

Astral Electric Co., Electronics Div. of Eldon Industries of Canada, Ltd., 4833 Westhill Ave., Montreal 29, Quebec, Canada, 1, Tel: HUnter 4-9488, Main Office: Scarborough, Ont., Canada

Atlas Radio Corp., Ltd., 3333 Cavendish Blvd., Montreal, Quebec, Canada, 3, Main Office: Toronto, Ont., Canada

Desser E-E, Ltd., 441 Saint Francois Xavier St., Montreal, Quebec, Canada, 3, Tel: VIctor 2-5295 (ERA)
Components.

Electrodesign, Ltd., 9124 Saint Lawrence Blvd., Montreal 11, Quebec, Canada, 3, Tel: 514-DU Pont 9-5914
See ad on page 847
Alfred, Alvar, Bogart, Circo, Electro-Flex, Hamlin, Mason, Metrawatt, Waters Corp.

Electroline Television Equipment, Inc., 5757 DeCelles Ave., Montreal 26, Quebec, Canada, 3, Tel: RE 8-9095 (ERA)
Components & raw materials.

Gould Sales Co., Ltd. (E. S.), 19 LeRoyer St. W., Montreal 1, Quebec, Canada, 3, Tel: 514-AVenue 8-5225 (ERA)
Augat Brothers, Inc.: Hardware. **Automation Electronics:** Connectors. **Crown Controls Co., Inc.:** Rotators. **Dalyn Industries:** Arms. **Dynaco, Inc.:** Amplifiers, tuners. **Epoxy Products, Inc.:** Epoxy products. **Ferrodynamics Corp.:** Tapes, meters. **Hallicrafters Co.:** Transmitters, receivers. **Hy-Gain Antenna Products:** Teflon hardware. **Kemode Mfg. Co.:** Soldering irons. **Microtran Co., Ltd.:** Transformers. **Network Industries:** Switches. **Robins Industries, Inc.:** Recorders & phono accessories. **San Fernando Electric & Mfg. Co.:** Capacitors & potentiometers. **Slip Ring Co. of America:** Assemblies. **Spectra-Strip Wire & Cable Corp.:** Cable. **Transis-Tronics:** Amplifiers & tuners. **U.S. Semiconductor Products:** Semiconductors. **Workman TV, Inc.:** TV parts.

Metal & Wood Fastening Devices Co., 6302 Papineau Ave., Montreal 35, Quebec, Canada, 2, 3, Tel: CRescent 4-9434
Groov-Pin Corp., South Chester Corp.

Smyth Electronic Components, Ltd., 1877 Saint Antoine St., Montreal 3, Quebec, Canada, 3, Tel: WE 5-6304 (ERA)
Components & raw materials

BELGIUM

Ad. Auriema, Inc., 172A rue Brogniez, Brussells 7, Belgium, 1, Tel: 114785, Main Office: New York, N.Y.

FRANCE

Radiophon (ETS), 148 Ave. Malakoff, Paris 16, France, 1, 3, Man Office: New York, N.Y.

GERMANY

Telco GmbH, Baldham, Muenchen, Germany, 1, Tel: 0-8106 (Zorneding)-8392, Main Office: Rocke International Corp., New York, N.Y.

GREAT BRITAIN

Direct T/V Replacements, Ltd., 138 Lewisham Way, New Cross, London, S.E. 14, England, 2, Tel: TJdeway 6666
Television cameras (closed-circuit), television components, test equipment.

Systems Engineering Services, Ltd., London, W. C. 1, England, 1, Tel: LAngham 5654, Main Office: Rocke International Corp., New York, N.Y.

MEXICO

Consultores Technicos S.A. (COTESA), Apartado 2250, Mexico City 1, Mexico, 1, 2, 3, 4, Tel: 46-44-21
Alcon Metal Products: Tube sockets. **Bendix International:** Airborne radar. **Fenwal:** Temperature controls. **General Magnetics Corp.:** Magnets. **IRC:** Resistors. **Nelson Electronics Mfg.:** Power controls. **Shure Brothers:** Microphones. **Tektronix:** Oscilloscopes.

Ingenieria Internacional de Mexico, S.A., Mexico D.F., Mexico, 1, Tel: 25-50-24, Main Office: Rocke International Corp., New York, N.Y.

Robin, Melvin A., Anatole, France #13, Mexico 5, D.F., Tel: 20-12-19 (ERA)

JAPAN

Technical Factors, Ltd., No. 92-2 Imazatocho, Shirogane, Shiba, Minato-ku, C.P.O. Box 1288, Tokyo, Japan, 1, 3, Tel: 441-1742 (ERA), Main Office: Honolulu, Hawaii
Ampere Industries: Infrared heaters. **Analogue Controls:** Precision potentiometers. **Anchor Metals:** Alloys, solders. **Combustion Instruments:** Plastic combustion analyzers. **Courter Products:** Digital converters. **Derivation & Tabulation Associates:** Data lists. **Electronic Control Corp.:** Smoke detectors. **Emerson & Cuming:** Plastics. **Gremar Mfg.:** Coaxial connectors. **Kinevox:** Tape & film recorders. **Mesa Plastics Co.:** Daillylphthalate plastics. **Racal Engineering:** Receivers. **Racal Instruments.** Digital counters, test equip. **Radiation Research Corp.:** Nuclear batteries. **Ram Chemicals:** Mold release. **Semi-Elements, Inc.:** Single crystals. **Technical Wire Products:** RF shielding. **Technique Associates:** Pyrometer testers. **Telectro:** Tape recorders. **United Hydraulics, Inc.:** Hydraulic-electronic equipment.

THAILAND

Diethelm & Co., Ltd., Bangkok, Thialand, 1, 3, Main Office: Gordon Enterprises, North Hollywood, Calif.

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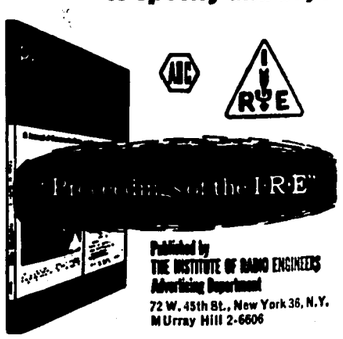


TRADE-NAME INDEX

On the following pages is a list of registered and "coined" trade names submitted to IRE by manufacturers.

2—Sprague Electric Co.
2K—Sterling Transformer Corp.
3C-Bloc—Computer Control Co., Inc.
3C-Pac—Computer Control Co., Inc.
3M—Minnesota Mining & Mfg. Co.
25-I—Bendix Corp.
260—Simpson Electric Co.
2000—Philco Corp.

—A—

ABC—Porter Co., Inc., H. K.
ADI—Applied Dynamics, Inc.
ADI—Southwestern Industrial Electronics Div., Dresser Industries
AEL—American Electronic Labs., Inc.
AEL—Automation Engineering Lab., Inc.
AGF—American Gas Furnace Co.
AH—Arrow-Hart & Hegeman Elec. Co.
ALI—Acton Labs., Inc.
A-Lum-O-Aire—Carey Electronic Eng. Co.
AMF—American Machine & Foundry Co.
A-P—Controls Co. of America
API—Assembly Products, Inc.
ARA—Advanced Research Assoc., Inc.
ARRA—Antenna & Radome Research Assoc.
ATC—Audiotronics Corp.
ATR—American Television & Radio Co.
A.V.C.—Rockbestos Wire & Cable Co.
A.V.R.—Perma-Power Co.
A-Z—Plastic Wire & Cable Corp.
Abco—Abbott & Co.
Able Nasarr—Autonetics Div.
Aboglas—Natvar Corp.
Absolute—Cambridge Filter Corp.
Accudata—Minneapolis-Honeywell Regulator Co.
Accutron—Sheffield Corp.
Accuvac—Green Rectifier Co.
Accwire—AAA Wire Works
Aceohm—Ace Electronics Assoc. Inc.
Acepot—Ace Electonics Assoc. Inc.
Aceset—Ace Electronics Assoc. Inc.
Acetrim—Ace Electronics Assoc. Inc.
Achiever—AC Spark Plug Div.
Acilliscope—AC Spark Plug Div.
Acme—Trimm, Inc.
Acme—United States Steel Corp.
Acme-Mold—Acme Wire Co.
Acou-Stack—Industrial Acoustics Co., Inc.
Acousti-Screen—Rek-O-Kut Inc.
Acoustic Baton—University Loudspeakers, Inc.
Acoustic Gate—Altec Lansing Div.
Acoustigraph—Reed Research Inc.
Acoustiscreen—Audax Inc.
Acrasplit—Entron Inc.
Acro-Bevel—Acromark Co.
Acro-Bulletin—Acromark Co.
Acro-Cast—Acromark Co.
Acro-Etch—Acromark Co.
Acro-Ink—Acromark Co.
Acro-Match—Communications Co., Inc.
Acro-Mu—Acro Div.
Acro-Silasteel—Acromark Co.
Acroboss—Acromark Co.
Acrobronze—Acromark Co.
Acrocel—Acromark Co.
Acrocut—Acromark Co.
Acrodie—Acromark Co.
Acrofibe—Acromark Co.
Acrograve—Acromark Co.
Acrohex—Acromark Co.
Acrojet—Acromark Co.
Acroleaf—Acromark Co.
Acrolite—Acro Div.
Acrolite—Acromark Co.
Acroll—Acromark Co.
Acroloy—Acromark Co.
Acromarker—Acromark Co.
Acroname—Acromark Co.
Acroplac—Acromark Co.
Acroprene—Acromark Co.
Acroprint—Acromark Co.
Acroprinter—Acromark Co.
Acrosign—Acromark Co.
Acrostamp—Acromark Co.
Acrotag—Acromark Co.
Acrotool—Acromark Co.
Acrotype—Acromark Co.
Acrylon—Borden Chemical Co.
Actionator—Minneapolis-Honeywell Regulator Co.
Ad-A Switch—Clarostat Mfg. Co., Inc.
Adac—Kearfott Div.
Adashaft—Centralab Electronics
Add-A-Shelf—Alpha Wire Corp.
Add-A-Unit—Blonder-Tongue Labs. Inc.
Addaplug—Associated Engineering Corp.
Adec—American Development Electronics Co.
Adelco—Advance Electronics Co.
Adept 400—Ortronix, Inc.
Adit—Daystrom Inc.
Adjust-A-Cone—Quam-Nichols Co.
Adjust-A-Volt—Standard Electrical Products Co.
Adjustohm—Ward Leonard Electric Co.
Adjustoroid—Burnell & Co., Inc.
Adlake—Adams & Westlake Co.
Adrac—Computer Systems, Inc.
Advance—Driver-Harris Co.
Advinco—Advanced Instrument Corp.
Aeco—American Electric Cable Co.
Aehco—Amatom Electronic Hardware Co., Inc.
Aero-Magnette—Heinemann Electric Co.
Aero-Seal—Breeze Corps., Inc.
Aerocen—Aerovox Corp.
Aerocom—Aeronautical Communications Equip., Inc.
Aerofilm—Aerovox Corp.
Aeroflex—Anchor Plastics Co., Inc.
Aerohead—Giannini Controls Corp.
Aerolene—Aerovox Corp.
Aerolite—Aerovox Corp.
Aeropak—Aero Research Instrument Co., Inc.
Aeroseal—Aero Research Instrument Co., Inc.
Aerosolve—Cambridge Filter Corp.
Aerotape—Packard-Bell Electronics Corp.
Aerotron—Aeronautical Electronics, Inc.
Aerovane—Bendix Corp.
Agaswitch—Elastic Stop Nut Corp. of America
Aico—American Insulator Corp.
Air-Core—Amphenol-Borg Electronics Corp.
Air Dux—Illumitronic Engineering
Air-Meters—Hastings-Raydist, Inc.
Airetest—Sheffield Corp.
Airinductor—Barker & Williamson, Inc.
Airloc—Monadnock Mills
Airpot—Electric Regulator Corp.
Akra Ohm—Shallcross Mfg. Co.
Al—Arrow Radio Co.
Al-Cab—LMB-Heeger, Inc.
Alchrome—Driver Co., Wilbur B.
Alclad—Driver Co., Wilbur B.
Alcoa—Aluminum Co. of America
Alcuplate—Texas Instruments Inc.
Alectral—General Cable Corp.
Algco—Auburn Mfg. Co.
Aliron—Texas Instruments Inc.
Aljak—Amphenol-Borg Electronics Corp.
Alkrothal—Kanthal Corp.
Alloyist—Porter Co., Inc., H. K.
Almag—Alpha Wire Corp.
Alnico—Crucible Steel Co. of America
Alnico—General Electric Co.
Alnico—General Magnetic Corp.
Alnico 5CB—Thomas & Skinner, Inc.
Alnifer—Texas Instruments Inc.
Alpha—Electrovert, Inc.
Alphadyne—Skiatron Electronics & Television Corp.
Alphatron—NRC Equipment Corp.
Alphlex—Alpha Wire Corp.
Alsimag—American Lava Corp.
Alsiplate—Texas Instruments Inc.
Altemp—Alpha Wire Corp.
Alti-Temp—Wincharger Corp.
Altimatic—Air-Marine Motors, Inc.
Altivar—Rotron Mfg. Co., Inc.
Alumalytic—General Electric Co.
Alumaweld—Johnson Mfg. Co., Inc.
Alumel—Hoskins Mfg. Co.
Alundum—Norton Co.
Alusol—Wright Metalcoaters, Inc.
Alv-Flex—Auburn Mfg. Co.
Alvo-Pak—Alvo Nut & Bolt Co., Inc.
Amaircell—American Electric Cable Co.
Amarine—United States Steel Corp.
Amax—American Metal Climax, Inc.
Amberly—Vaco Products Co.
Amberox—Technicraft Co.
Ambirite—Micamold Electronics Mfg. Corp.
Ambraze—American Brasing Alloys Corp.
Amci—Alford Mfg. Co.
Amco—American Metal Climax, Inc.
Amco—Applied Magnetics Corp.
Ameco—American Electronics Co.
Amepco—Borden Chemical Co.
Amer-Construction—United States Steel Corp.

Amer-Dial—Amerac, Inc.
Amer-Ground—United States Steel Corp.
Amer-Led—United States Steel Corp.
Amerap—American Electric Cable Co.
Amerbestos—United States Steel Corp.
Amerclad—United States Steel Corp.
Amercord—United States Steel Corp.
Amerfine—United States Steel Corp.
Amerglass—United States Steel Corp.
Amerhead—United States Steel Corp.
American Beauty—American Electrical Heater Co.
American Connector—Automation Electronics, Inc.
Americore—United States Steel Corp.
Amerite—American Tower Co.
Amerite—United States Steel Corp.
Amerloy—United States Steel Corp.
Amerlum—United States Steel Corp.
Ameroxide—United States Steel Corp.
Amerplastic—American Electric Cable Co.
Amerprene—United States Steel Corp.
Amershield—American Electric Cable Co.
Amersteel—United States Steel Corp.
Amertel—United States Steel Corp.
Amerzone—United States Steel Corp.
Amficon—American Machine & Foundry Co.
Aminco—American Instrument Co., Inc.
Ampec—Centralab Electronics
Amperox—United States Steel Corp.
Ampisolver—American Electronics, Inc.
Amplet—Consolidated Controls Corp.
Amplet—Devol Research Corp.
Ampli-Speed—Electric Machinery Mfg. Co.
Ampli-TUBE—Texas Instruments Inc.
Ampolene—United States Steel Corp.
Amprobe—Pyramid Instrument Corp.
Ampyroe—United States Steel Corp.
Amstat—American Electronics, Inc.
Amvar—United States Steel Corp.
Anastimat—Ilex Optical Co.
Anchor—Townsend Co.
Ancorene—Anchor Plastics Co., Inc.
Anestheton—Invengineering, Inc.
Anesthograph—Epsco Worcester
Anglgear—Airborne Accessories Corp.
Anhydrator—Fisher Co., Inc., Oscar
Antalon—Green Rectifier Co.
Antioch Process—Bean & Co., Morris
Apco—Commercial Plastics Co.
Apcor—Geartronics Corp.
Apelco—Applied Electronics Co.
Appco—Atlas Precision Products Co.
Aqua-Sound—Wintronics
Aquameter—Beckman Instruments, Inc.
Aquapeutic—Coil Co. of America, Inc.
Aquaseal—General Cable Corp.
Aquathene—General Cable Corp.
Aquavox—Winston Electronics
Araldite—Ciba Products Corp.
Arbeit D-V-A—Industrial Development Labs., Inc.
Arco—Rosenberg Bros. & Co.
Aritemp—Aries Labs., Inc.
Ark-Trol—Crouse-Hinds Co.
Arktite—Crouse-Hinds Co.
Armag—Sprague Electric Co.
Armakote—Hatfield Wire & Cable
Armcorp—American Research & Mfg. Corp.
Armite—Spaulding Fibre Co., Inc.
Armo-Lok—Phelps Dodge Copper Products Corp.
Armofoam—Armour Alliance Industries
Armorlokt—United States Steel Corp.
Aroclor—Monsanto Chemical Co.
Arulab—Arenberg Ultrasonic Lab., Inc.
Asco—Automatic Switch Co.
Asenco—Associated Engineering & Mfg. Corp.
Associated—Associated Testing Labs., Inc.
Astra—Lear, Inc.
Atcotrol—Automatic Timing & Controls, Inc.
Atcotronic—Automatic Timing & Controls, Inc.
Atomichron—National Co., Inc.
Atoms—Sprague Electric Co.
Atran—Goodyear Aircraft Corp.
Atronics—Atronic Products, Inc.
Atronics—General Atronics Corp.
Aubestun—Auburn Mfg. Co.
Aud-O-Gril—Parkway Specialties Co.
Audet—Centralab Electronics
Audio Baton—Blonder-Tongue Labs., Inc.
Audiodiscs—Audio Devices, Inc.
Audiofilm—Audio Devices, Inc.
Audiolator—Kay Electric Co.
Audiom—Goodman's Industries, Ltd.
Audiotape—Audio Devices, Inc.
Audiotronix—Audio Electronic Corp.
Auditection—Minneapolis-Honeywell Regulator Co.
Auditorium—Jensen Mfg. Co.
Audograph—Gray Mfg. Co.
Auricon—Bach Auricon, Inc.
Autex—Flight Research, Inc.
Auto Bell—Schulmerich Carillons, Inc.
Auto-Bender—Design Tool Corp.
Auto-Board—Design Tool Corp.
Auto-Bridge—Industrial Instruments, Inc.
Auto-Former—Design Tool Corp.
Auto Pilot—Mitchell Industries, Inc.
Auto-Set-31—Borden Chemical Co.
Auto-Solder—Design Tool Corp.
Auto-Straightener—Design Tool Corp.
Auto-Vox—Kay Electric Co.
Autocomp—Technique Associates
Autocon—Sprague Electric Co.
Autofax—Franklin Electronics, Inc.
Autograf—Moseley Co., F. L.
Autolite—Electric Autolite Co.
Autollizer—North Electric Co.
Automatic Radio—Automatic Radio Mfg. Co., Inc.
Autopositioner—Collins Radio Co.
Autopot—Daystrom-Pacific
AutoRef—Thermo Electric Co., Inc.
Autoreg—C & D Batteries
Autosonic—Powertron Ultrasonics Corp.
Autotune—Collins Radio Co.
Autowell—Southwest Products, Inc.
Autrastat—Ward-Leonard Electric Co.
Avcoat—Avco Corp.
Avcoite—Avco Corp.
Avocet—Avo Limited
Avometer—Avo Limited
Axiette—Goodman's Industries, Ltd.
Aximax—Rotron Mfg. Co., Inc.
Axiohm—Ward-Leonard Electric Co.
Ariom—Goodman's Industries, Ltd.
Axivane—Joy Mfg. Co.

—B—

B-Beads—Pilot Chemicals, Inc.
BD—Beede Electrical Instrument Co., Inc.
BFC—Franklin Co., Inc., Bernard
B-G Wipe—Barta-Griffin Co.
BH—Bentley-Harris Mfg. Co.
BPW—Bradford Components, Inc.
BT—Borden Chemical Co.
BT—Illinois Condenser Co.
BTC—Berkshire Transformer Corp.
BTR—Lord Mfg. Co.
Babycom—Fanon Electronic Industries, Inc.
Bace—Autonetics Div.
Balcap—Balco Research Labs., Inc.
Ballast—Driver Co., Wilbur B.
Ballerina—Newcomb Audio Products Co.
Banc-Lok—Boots Aircraft Nut Corp.
Bandspanner—Webster Mfg.
Bantam—Burndy Corp.
Bantam—Radex Corp.
Bantam—Small Motors, Inc.
Bantom—Aerovox Corp.
Bar-Co—Barium & Chemicals, Inc.
Barex—King Labs., Inc.
Barodyne—U.S. Science Corp.
Barohm—Ward-Leonard Electric Co.
Barratron—Litton Industries
Baseball Antenna—Antenna Specialists Co.
Bass-Superflex—Jensen Mfg. Co.
Bass-Ultraflex—Jensen Mfg. Co.
Batchmaster—Howe Scale Co.
Batchplug—Howe Scale Co.
Battery Scope—Christie Electric Co.
Bauer & Black—Kendall Co.
Beacotron—Tucor, Inc.
Beam-X—Burroughs Corp.
Beamatron—High Vacuum Equipment Corp.
Beamed Power Arrays—Telrex Labs.
Beau-Myte—Bomyte Co.
Beeco—Beemer Engineering Co.
Bel—Bel Fuse, Inc.
Belcap—Sprague Electric Co.
Belco—Radio Development & Research Corp.
Belcon—Radio Development & Research Corp.
Belimiter—Bel Fuse, Inc.
Bemac—Electric Machinery Mfg. Co.
Ben-Har—Bentley-Harris Mfg. Co.
Benchpac—Specific Products
Bend-Amatic—Schmit Engineering Co.
Benflex—Bendix Corp.
Benseal—Bendix Corp.
Beraloy—Driver Co., Wilbur B.
Berylco—Beryllium Corp.
Berylometer—Isotopes Specialties Co.
Beta—Electrovert, Inc.
Betapot—Electro Radiation, Inc.
Bexco—Burke Electric & X-Ray Co., Ltd.
Beyschlag—Wells Co., Inc., Gary
Bi-Seal Self-Bonding—Bishop Mfg. Corp.
Biflex—Altec Lansing Div.
Big Bertha Tri-Band—Telrex Labs.
Big Jack—Kay-Townes Antenna Co.
Biluxor—Par Products Corp.
Biraco—Birnbach Radio Co., Inc.
Birflene—Birnbach Radio Co., Inc.
Birflon—Birnbach Radio Co., Inc.
Birntex—Birnbach Radio Co., Inc.
Black Beauty—Sprague Electric Co.
Blak Ray—Ultra Violet Products, Inc.
Blastaire—Revcor, Inc.
Blastcorder—Geotechnical Corp.
Blu-Cap—Fansteel Metallurgical Corp.
Blu-Ohm—Bradford Components, Inc.
Blu-Red—Associated American Winding Machinery, Inc.
Blue Diamond—Pioneer Gen-E-Motor Corp.

TRADE-NAME INDEX

Blue Jacket—Sprague Electric Co.
Blue Point—Astron Corp.
Blue Ribbon—Amphenol-Borg Electronics Corp.
Blue Ribbon—Hardwick, Hindle, Inc.
Boltaflex—Bolta Products
Boltaron—Bolta Products
Bondcheck—Magnaflux Corp.
Bondeze—Phelps Dodge Copper Products Corp.
Bondmaster—Rubber & Asbestos Corp.
Bondwich—Texas Instruments Inc.
Bonnytape—Bonny Mfg. Corp.
Borofilm—Aerovox Corp.
Boscar—Benson-Lehner Corp.
Boy-Mar—Electrical Service Co.
Brad-Ohm—Bradford Components, Inc.
Brady-Cal—Brady Co., W. H.
Brainiae—Berkeley Enterprises, Inc.
Bralog—Brainin Corp., C. S.
Brand Five—Ferrodynamics Corp.
Brandes—Cannon Co., C. F.
Brazaloy—All-State Welding Alloys Co., Inc.
Brazeclad—American Silver Co., Inc.
Brice-Phoenix—Phoenix Precision Instrument Co., Inc.
Britecarb—Driver Co., Wilbur B.
Broaband—Topatron, Inc.
Bronco—Texas Instruments Inc.
Brown Devil—Ohmite Mfg. Co.
Bull Eyes—Kirkland Co., H. R.
Bulplate—Sprague Electric Co.
Bushend—Buchanan Electrical Products Corp.
Buss—Bussmann Mfg. Div.
Butarone—General Cable Corp.
Button—Erie Resistor Corp.
Button-Tite—Erie Resistor Corp.

—C—

C-8—G-V Controls, Inc.
CAE—Canadian Aviation Electronics, Ltd.
C-B—Caddell-Burns Mfg. Co., Inc.
CBS-Ronette—CBS Electronics
CDM—Curtis Development & Mfg. Co.
CEC—Control Electronics Co., Inc.
C-H—Cutler-Hammer, Inc.
CIC—Connecticut Instrument Corp.
CK—Farmer Electric Products Co., Inc.
C-Lab—Clark Electronic Labs.
C Line—Clarostat Mfg. Co., Inc.
CM8—Chicago Miniature Lamp Works
CRL—Centralab Electronics
CTL—Di/An Controls, Inc.
CTR—Di/An Controls, Inc.
C'trol—Waters Mfg., Inc.
Cable-Loc—Monadnock Mills
Cablemate—Dielectric Products Engineering Co., Inc.
Cadreline—Cadre Industries Corp.
Caemco—Controlled Atmosphere Enclosures Mfg. Co., Inc.
Cal-Cord—Electric Cords & Supply Corp.
Cal Matic—North Shore Nameplate
Calculaide—American Hydromath Corp.
Caltrol—Caltron Products Co.
Cambion—Cambridge Thermionic Corp.
Camera-Sync—Chadwick-Helmuth Co.
Canari—Wilcox Electric Co., Inc.
Candohms—Muter Div.
Candu 11—Franklin Electronics, Inc.
Cannon Ball—Cannon Co., C. F.
Canseals—Cannon Electric Co.
Capadyne—Mullenbach Div.
Capaswitch—Mullenbach Div.
Capsil—General Instrument Corp.
Caralease—Ram Chemicals, Inc.
Carbofilm—Aerovox Corp.
Carbomite—Continental-Wirt Electronics Corp.
Carbomould—Aerovox Corp.
Carbon-Istors—Kidco, Inc.
Card-O-Timer—Taylor-Emmett Controls, Inc.
Cartrij-Dry—Pyramid Electric Co.
Cary—Applied Physics Corp.
Cascader—Jerrold Electronics Corp.
Cascamite—Borden Chemical Co.
Casco—Borden Chemical Co.
Castorgraf—Grafo Colloids Corp.
Cat—Caterpillar Tractor Co.
Cath-O-Phase—Mured, Inc.
Cathaloy—Superior Tube Co.
Cathedral Series—Cletron, Inc.
Cavitometer—Poole Instruments, Inc.
CeCell—Victoreen Instrument Co.
Ceco—Community Engineering Corp.
Ceco—Continental Electric Co., Inc.
Cedac—Barber-Colman Co.
Ceg-Ohm—Bradford Components, Inc.
Celab—Clark Electronic Labs.
Celoron—Continental-Diamond Fibre Corp.
Cemco—Columbus Electric Mfg. Co.
Cen-Tri-Core—Alpha Metals, Inc.
Cenco—Central Scientific Co.
Centerfind—Sheffield Corp.
Centilator—Kay Electric Co.
Centricores—Magnetic Metals Co.
Cer-Ohm—Bradford Components, Inc.
Cera-Lytic—Sprague Electric Co.
Cera-Mite—Sprague Electric Co.
CerAlloy—Ronson Metals Corp.
Ceramag—Stackpole Carbon Co.
Ceramagnet—Stackpole Carbon Co.
Ceramelex—Erie Resistor Corp.
Ceramic B—Clevite Electronic Components
Ceramicaps—Muter Div.
Ceramicon—Erie Resistor Corp.
Ceramikits—Sprague Electric Co.
CeramiKouple—Smith Mfg. Co., Inc., E. C.
Ceramistor—Gulton Industries, Inc.
Ceramo—Thermo Electric Co., Inc.
Ceratrols—CTS Corp.
Ceroc—Sprague Electric Co.
Cerod—Sprague Electric Co.
Ceron—Sprague Electric Co.
Certain Curtain—Hayes, Inc., C. I.
Cervac—Vacuum Ceramics, Inc.
Challenger—Bogen-Presto Co.
Challenger—Rek-O-Kut, Inc.
Champion—Channel Master Corp.
Change-A-Volt—Carter Motor Co.
Change-Out—Joy Mfg. Co.
Charactron—General Dynamics Electronics
Chem-Blank—United States Chemical Milling Corp.
Chemelec—Garlock Electronic Products
Chemiflex—Technicraft Co.
Chemiglas—Technicraft Co.
Cheminax—Raychem Corp.
Chemipipe—Ethylene Corp.
Chemrod—Chemfab Corp.
Chemtube—Chemfab Corp.
Chi-Tran—Chicago Standard Transformer Corp.
Chief—Plectron Corp.
Chilco—Chicago Miniature Lamp Works
ChimeAtron—Schulmerich Carillons, Inc.
Chopperette—Victory Engineering Corp.
Chromabar—Kay Electric Co.
Chromadot—Kay Electric Co.
Chromapix—Litton Industries
Chromax—Driver-Harris Co.
Chromel—Hoskins Mfg. Co.
Chromomax—Leeds & Northrup Co.
Chronistor—Bergen Labs., Inc.
Chronohm—Bendix Corp.
Chronotron—Bendix Corp.
Cinaxial—Cinaudagraph, Inc.
Cintel—Rank Cintel, Ltd.
Cir-Pak—Instant Circuits Div.
Circle B—Bristol Motors Div.
Circle Ess—Stewart Mfg. Co., F. W.
Circon—Universal Circuit Controls
Circontrol—Universal Circuit Controls
Circosonic—Circo Ultrasonic Corp.
Circuit-Pak—Raytheon Co.
Circuitester—Ultraudio Products
Circuitrace—Sams & Co., Inc., Howard W.
Circutrols—Kollsman Motor Corp.
Citi-Fone—Multi Products Co.
Citizens Broadcaster—Globe Electronics
Clamp Lock—Simmons Fastener Corp.
Clareed—Clare & Co., C. P.
Clarkstan—Pacific Tranducer Corp.
Claro—Clarostat Mfg. Co., Inc.
Classic—Carter Motor Co.
Classic—Newcomb Audio Products Co.
Classmaster—Nuclear-Chicago Corp.
Clear-Lite—Stocker & Yale, Inc.
Clearflex—Columbia Wire & Supply Co.
Clevelite—Cleveland Container Co.
Climaster—Clegg Labs.
Climatite—Triad Transformer Corp.
Clipper—Sage Electronics Corp.
Clipper—Sterling Transformer Corp.
Clorinol—Sprague Electric Co.
Co-Netic—Perfection Mica Co.
Coax-E-Ette—Topic, Inc.
Coax-O-Matic—Tennalab
Coaxitube—Precision Tube Co., Inc.
Coaxwitch—Bird Electronic Corp.
Cobanic—Driver Co., Wilbur B.
Cobenium—Driver Co., Wilbur B.
Cobreflex—University Loudspeakers, Inc.
Cobrid—Sage Labs., Inc.
Cohrlastic—Connecticut Hard Rubber Co.
Coiltenna—Electrend Products Corp.
Coldite—Stackpole Carbon Co.
Color King—Channel Master Corp.

Color-Eye—Instrument Development Labs., Inc.
Color-Plast—General Gaskets, Inc.
Colorama—Radio Corp. of America
Coloratura—Newcomb Audio Products Co.
Colorbar Monitor—Century Electronics & Instruments, Inc.
Colorbeam—Tennalab
Columbia CD—CBS Electronics
Com-Pak—Lambda Electronics Corp.
Cominco—Consolidated Mining & Smelting Co. of Canada, Ltd.
Commaire—Vocaline Co. of America, Inc.
Commander—Sensitive Research Instrument Corp.
Commercial—Trimm, Inc.
Communicator—SoundScriber Corp.
Compack—General Cable Corp.
Compacto—Dialight Corp.
Compactrol—Victory Engineering Corp.
Compentrol—Centralab Electronics
Compo—Muter Div.
Composipix—Litton Industries
Compregnite—Borden Chemical Co.
Compulytic—Sprague Electric Co.
Computer Control—Packard-Bell Electronics Corp.
Computer Dial—Packard-Bell Electronics Corp.
Comtel—Radio Frequency Labs., Inc.
Comvor—Radio Frequency Labs., Inc.
Con-Tro-All—Barta-Griffin Co.
Conax—Fairchild Recording Equipment Corp.
Concert—Jensen Mfg. Co.
Concerto—Jensen Mfg. Co.
Condec—Consolidated Diesel Electric Corp.
Condulet—Crouse-Hinds Co.
Conflex—Texas Instruments Inc.
Conhex—Sealectro Corp.
Connectronics—Gremar Mfg. Co., Inc.
Conolite—Continental Can Co.
Conseco—Connector Seals Corp.
Constant K—Magnatran, Inc.
Constavac—Green Rectifier Co.
Contak—Chart-Pak, Inc.
Contelco—Continental Electric Co., Inc.
Contemporary—Jensen Mfg. Co.
Controflex—Tapeswitch Corp. of America
Control-A-Matic—Rockwell Engineering Co.
Controlead—Marathon Electric Mfg. Corp.
Controlette—Ward Leonard Electric Co.
Controlite—Ward Leonard Electric Co.
Controlomag—Research Industrial Lab. of Electronics
Convectron—Bendix Corp.
Coolanol—Monsanto Chemical Co.
Copaco—Cottrell Paper Co., Inc.
Copalam—Cottrell Paper Co., Inc.
Coparet—Cottrell Paper Co., Inc.
Copel—Hoskins Mfg. Co.
Copperply—Reynolds Wire Div.
Cordex—Mosinee Paper Mills Co.
Core-Lock—Felker Mfg. Co.
Cormag—Daystrom, Inc.
Cornwall—Klipsch & Assoc., Inc.
Corotron—Victoreen Instrument Co.
Corrib—Ohmite Mfg. Co.
Corvel—Polymer Corp. of Pennsylvania
Coto—Coto-Coil Co., Inc.
Cottonite—Acme Wire Co.
Couplate—Centralab Electronics
Course Director—Aircraft Radio Corp.
Coweco—Coil Winding Equipment Co.
Cox & Stevens—Revere Corp. of America
Craftscope—Waterman Products Co., Inc.
Cramolin—Caig Labs.
Crescent—Waldes Kohinoor, Inc.
Crestbrite—Crest Transformer Corp.
Crestran—Crest Transformer Corp.
Crestrol—Crest Transformer Corp.
Crimcut—Vaco Products Co.
Crimpee—Cannon Electric Co.
Crintex—American Latex Fibre Corp.
Cro-Xt—Croname, Inc.
Croart—Croname, Inc.
Croflex—Croname, Inc.
Crolite—Crowley Div.
Croloy—Crowley Div.
Cromag—Crowley Div.
Cromesh—Croname, Inc.
Cropp—Warren Components Div.
Croroto—Croname, Inc.
Crovalon—Croname, Inc.
Croweave—Croname, Inc.
Croweld—Croname, Inc.
Crushtrue—Sheffield Corp.
Crystalab—Crystal Research Labs., Inc.
Crystolon—Norton Co.
Cuclad—Mico Insulator Div.
Cuemaster—Rheem Califone Corp.
Cuflex—Mica Insulator Div.
Cujak—Amphenol-Borg Electronics Corp.
Cuposit—Shipley Co., Inc.
Cuprochrome—Driver Co., Wilbur B.
Cupron—Driver Co., Wilbur B.
Cuprothal—Kanthal Corp.
Cuprovac—Crucible Steel Co. of America
Cure-Set—Borden Chemical Co.
Current Governor—North Hills Electronics Co., Inc.
Curtain of Light—Electronic Control Corp.
CustoMixer—Ultraudio Products
Customode—Jensen Mfg. Co.
Cy-An-In—Indium Corp. of America
Cycl Check—Gemco Electric Co.
Cyclemag—Acromag, Inc.
Cyclonome—Sigma Instruments, Inc.

—D—

DAP—Bendix Corp.
DFI-Cleveland—Designers for Industry, Inc.
DI-T—United Transformer Corp.
DK—Amphenol-Borg
DO-T—United Transformer Corp.
DP Alnico 5—Jensen Mfg. Co.
D Phone—Kaar Engineering Corp.
DR—Daystrom, Inc.
D-T-Vee—Allen Electric & Equipment Co.
DV—Beckman Instruments, Inc.
Daglas—Acme Wire Co.
Daglas—Phelps Dodge Copper Products Corp.
Daisy—Huck Mfg. Co.
Daka-Ware—Davies Molding Co., Harry
Dapon—FMC Corp.
Daponite—FMC Corp.
Dark-O-Matic—Ray Proof Corp.
Data—Derivation & Tabulation Assoc., Inc.
Data-Cable—Times Wire & Cable Co.
Data-Liner—Hanson-Gorrill-Brian, Inc.
Data/Log—Monroe Calculating Machine Co., Inc.
Data-Master—Hanson-Gorrill-Brian, Inc.
Data Matrix—Dialight Corp.
Data Strip—Dialight Corp.
Datalites—Dialight Corp.
Dataplotter—Electronic Assoc., Inc.
Datatel—Lenkurt Electric Co., Inc.
Datatrak—Research, Inc.
Davohm—Daven Co.
DeArmond—Rowe Industries
Decadial—Kilo Engineering Co.
Deci—Dwyer Engineering Co., Inc.
Decision—Librascope Div.
Deco—Developmental Engineering Corp.
Deeceeducer—Solid State Electronics Co.
Deemajet—Crystal Research Labs., Inc.
Deeminite—Crystal Research Labs., Inc.
Deeminizer—Crystal Research Labs., Inc.
Deep-Kut—Krengel Mfg. Co.
Dekabox—Electro Scientific Industries
Dekadial—Electro Scientific Industries
Dekapacitor—Electro Scientific Industries
Dekapot—Electro Scientific Industries
Dekastat—Electro Scientific Industries
Dekatran—Electro Scientific Industries
Dekatron—Baird-Atomic, Inc.
Dekavider—Electro Scientific Industries
Delay-Line Flats—Columbia Technical Corp.
Deleform—Delevan Electronics Corp.
Deltamax—Arnold Engineering Co.
Deltaply—Dearborn Electronic Labs., Inc.
Demisters—York Co., Inc., Otto H.
Densi-Color—Lektra Labs.
Densi-Lux—Lektra Labs.
Densi-Meter—Lektra Labs.
Densichron—Welch Scientific Co., W. M.
Densomike—Poole Instruments, Inc.
Depco—Dayton Electronic Products Co.
Desicote—Beckman Instruments, Inc.
Desk-Fax—Western Union Telegraph Co.
Detectolab—Borg-Warner Controls
Determohm—Ohmite Mfg. Co.
Develco—Development Engineering Co., Inc.
Develco—Developmental Electronics Corp.
Develocorder—Geotechnical Corp.
Develop-Amatic—Schmit Engineering Co.
Di-Clad—Continental-Diamond Fibre Corp.
Di-Lock—Felker Mfg. Co.
Di-Met—Felker Mfg. Co.
Dia-Cone—Altec Lansing Div.
Diagnostix—Comet Ltd.
Dial-A-Gain—Unholtz-Dickie Corp.
Dial-A-Volt—Smith-Florence, Inc.
Dial-Lock—Electro-Pack, Inc.
Dial Saw—Erwood, Inc.
Dialco—Dialight Corp.
Dialglo—Ackerman Engravers, Inc.
Diall—Mesa Plastics Co.
Dialog—Link Div.
Diamacontrol—National Standard Electronics, Inc.
Dico—Diamond Antenna & Microwave Corp.
Dictabelt—Dictaphone Corp.
Dictacord—Dictaphone Corp.

TRADE-NAME INDEX

Dictalog—Dictaphone Corp.
Dictatape—Dictaphone Corp.
Dictet—Dictaphone Corp.
Dieflex—Insulation Mfrs. Corp.
Dielectrometer—Central Research Labs., Inc.
Diffaxial—University Loudspeakers, Inc.
Diffusicone—University Loudspeakers, Inc.
Difilm—Sprague Electric Co.
Digi-Chron—Delta-F, Inc.
Digi-Pak—Ampex Corp.
Digicon—Digitran Co.
Digidial—Helipot Div.
Digilog—Librascope Div.
Digimatic—General Dynamics Electronics
Digimotor—Ledex, Inc.
Digipac—Dynamic Controls Co.
Digipot—Digitran Co.
Digiscan—Quantametric Devices, Inc.
Digiswitch—Digitran Co.
Digisyn—Wayne-George Corp.
Digitally—Digitran Co.
Digitape—Benson-Lehner Corp.
Digitizer—Coleman Electronics, Inc.
Digitometer—Electro-Mec Lab., Inc.
Digitote—Digitran Co.
Digitron—Baird-Atomic, Inc.
Digitron—Marquardt Corp.
Dilecto—Continental-Diamond Fibre Corp.
Dimensifones—Permoflux Products Co.
Dip-Pak—Fidelity Chemical Products Corp.
Directron—Miller Co., Sanford
Disc-Cap—Design Tool Corp.
Discaps—Mallory & Co., Inc., P. R.
Discohm—Ward Leonard Electric Co.
Disontegrator—Ultrasonic Industries, Inc.
Dispens-A-Rack—Alpha Wire Corp.
Distance Detector—Bently Scientific Co.
Distributron—Allen Electric & Equipment Co.
Divatel—Westrex Corp.
Divco—Division Lead Co.
Dividohm—Ohmite Mfg. Co.
Doc Alloys Kit—All-State Welding Alloys Co., Inc.
Domepak—Sprague Electric Co.
Domino—Sprague Electric Co.
Dorst—Arnhold Ceramics, Inc.
Dot—Alpha Metals, Inc.
Douglas—Avo Limited
Dri-Film—General Electric Co.
Dri-Tran—Land-Air, Inc.
Drill-Amatic—Schmit Engineering Co.
Drive-Pak—Ampex Corp.
Drivmatic—General-Electro Mechanical Corp.
Dry—Pyramid Electric Co.
Dual Lock—Simmons Fastener Corp.
Dual Relays—Curtiss-Wright Corp.
Dualstat—Valverde Labs.
Duax—Jensen Mfg. Co.
Ductrak—Western Devices, Inc.
Duette—Jensen Mfg. Co.
Dunco—Struthers-Dunn, Inc.
Duo-Charger—Multi Products Co.
Duo-Sonic—Arkay Products Mfg. Co.
Duo Mount—South River Metal Products Co., Inc.
Duo Seal—Welch Scientific Co., W. M.
Duocarb—Driver Co., Wilbur B.
Duodial—Helipot Div.
Duogasket—Technical Wire Products, Inc.
Duolastic—Technical Wire Products, Inc.
Duostrip—Technical Wire Products, Inc.
Duotech—Land-Air, Inc.
Duplex—Altec Lansing Div.
Duplican—Canadian Radium & Uranium Corp.
Dura-Clad—Aladdin Electronics
Dura-Twist—Borden Chemical Co.
Duradiant—Selas Corp. of America
Duraflex—Co-Operative Industries, Inc.
Duralar—Duralith Corp.
Durameg—Sprague Electric Co.
Duranyl—Duralith Corp.
Duratrak—General Radio Co.
Durite—Borden Chemical Co.
Duro-Vac Process—Glasseal Products Co., Inc.
Durock—Technical Industries Corp.
Duroglass—Chicago Dial Co.
Durotherm—Hexacon Electric Co.
Dustronic—Radex Corp.
Dutch Boy—National Lead Co.
Dychroverter—Dychro Corp.
Dykor—Digitronics Corp.
Dymo Mite—Dymo Corp.
Dyna-Mag—Dyna Magnetic Devices, Inc.
Dyna-Mite—Control Dynamics Corp.
Dyna Path—Bendix Corp.
Dyna Point—Bendix Corp.
Dyna-Q—K-W Engineering Works
Dyna-Tone—Arkay Products Mfg. Co.
Dynachrome—Whitney Blake Co.
Dynaco—Dynamic Gear Co., Inc.
Dynacon—Nuclear-Chicago Corp.
Dynacor—Applied Dynamics Corp.
Dynacounter—Dynapar Corp.
Dynafax—Beckman & Whitley, Inc.
Dynafocal—Lord Mfg. Co.
Dynagage—Photocon Research Products
Dynamag—Dynapar Corp.
Dynamaster—Bristol Co.
Dynamatic—Vapor Recovery Systems Co.
Dynamax—Comet Ltd.
Dynamic—Jackson Electrical Instrument Co.
Dynamitron—Radiation Dynamics, Inc.
Dynaprene—Whitney Blake Co.
Dynasert—United Shoe Machinery Corp.
Dynashock—Lord Mfg. Co.
Dynastat—Consolidated Controls Corp.
Dynastat—Devol Research Corp.
Dynaural—Scott, Inc., H. H.
Dynavar—Hamilton Watch Co.
Dynaverter—Aircraft Radio Corp.
Dynetics—Applied Dynamics Corp.
Dynistor—Westinghouse Electric Corp.
Dynograph—Offner Electronics, Inc.
Dystac—Computer Systems, Inc.

—E—

EAC—Electronic Assistance Corp.
EAD—Eastern Air Devices, Inc.
E-Bond—Kerrco
E-Case—Epoxy Products Div.
E/D—Fairchild Recording Equip. Corp.
EDI Midjet—Electro Devices, Inc.
EED—I.D.E.A., Inc.
E-Form—Epoxy Products Div.
E-I—Electrical Industries Div.
EMC—American-Marietta Co.
ENM—International Eastern Co.
EP—Electronic Products Co.
E-Pak—Epoxy Products Div.
EPD Chemical—Electronic Production & Development, Inc.
ERA—Solartron Electronic Group, Ltd.
ERX—JEM Electronics Corp.
ESD—Electronic Systems Development Corp.
ESL—Electro-Sonic Labs., Inc.
ESM—Mandrel Industries, Inc.
ETL—Mandrel Industries, Inc.
E-Z—Ideal Industries, Inc.
E-Z—Richco Plastic Co.
E-Z-Code—Westline Products Div.
E-Z-Strip—Saxton Products, Inc.
E-Z-Trim—Bourns, Inc.
Eagalok—Eagle Electric Mfg. Co., Inc.
Ease—Beckman Instruments, Inc.
Easy-Flo—Handy & Harman
Easymatch—Alford Mfg. Co.
Eccobild—Emerson & Cuming, Inc.
Eccobond—Emerson & Cuming, Inc.
Eccoceram—Emerson & Cuming, Inc.
Eccocoat—Emerson & Cuming, Inc.
Eccofoam—Emerson & Cuming, Inc.
Eccomold—Emerson & Cuming, Inc.
Eccoseal—Emerson & Cuming, Inc.
Eccoshield—Emerson & Cuming, Inc.
Eccosorb—Emerson & Cuming, Inc.
Eccospheres—Emerson & Cuming, Inc.
Echo-Vox—Kay Electric Co.
Ecliptic—Carter Motor Co.
Ectron—Artronic Instrument Co.
Edge-On—Burndy Corp.
Edgeohm—Ward Leonard Electric Co.
Edgetron—Intercontinental Dynamics Corp.
Eeco—Engineered Electronics Co.
Eico—Electronic Instrument Co., Inc.
Eimac—Eitel-McCullough, Inc.
Ekotape—Webster Electric Co.
Ektacon—Fisher Berkeley Corp.
Ektanon—Eastman Kodak Co.
Ektar—Eastman Kodak Co.
Ektron—Eastman Kodak Co.
El Tubes—Electrons, Inc.
Elad—Brocker Labs.
Elelad—Elpac, Inc.
Eldec—Electro Development Co.
Electenna—Electrend Products Corp.
Electone—Electron Enterprises, Inc.
Electr-O-Seal—Parker Seal Co.
Electrace—Nashua Corp.
Electrical-Porcelain—Ceramic Specialties Co., Inc.
Electriduct—Ideas, Inc.
ElectriK Tel-O-Set—Minneapolis-Honeywell Regulator Co.

Electro Caliper—Technical Industries Corp.
Electro-Chemograph—Leeds & Northrup Co.
Electro Clear—Electronic Engineers, Inc.
Electro-Dry—Republic Foil, Inc.
Electro-Graphic—Precise Measurements Co.
Electro-Micrometer—Technical Industries Corp.
Electro Probe—Erwood, Inc.
Electro Seal—Electro Engineering Works
Electro-Sheave—Warner Electric Brake & Clutch Co.
Electro/Sl .n—Bendix-Pacific Div.
Electro-Tech—Mandrel Industries, Inc.
Electro-Thin—Electro-Flex Heat, Inc.
Electro-Transmitter—Taylor-Emmett Controls, Inc.
Electrobond—Cavitron Electron Oscillator Co.
Electroc—Sprague Electric Co.
Electrocom—General Devices, Inc.
Electrocut—Black & Webster, Inc.
Electroform—Electro Assemblies, Inc.
Electrograph—Century Electronics & Instruments, Inc.
Electrohome—Dominion Electrohome Industries, Ltd.
Electrojet—Sheffield Corp.
Electroloy—Molecu-Wire Corp.
Electrolube—Electrofilm, Inc.
Electromax—Leeds & Northrup Co.
Electromesh—Electrofilm, Inc.
Electromite—Illinois Condenser Co.
Electronamic—Precision Apparatus Co., Inc.
Electronic Receptionist—Worner Electronic Devices
Electronic Messenger—Electronic Communications, Inc.
Electropack—Santa Anita Engineering Co.
Electroplexer—ASCOP Div.
Electropunch—Black & Webster, Inc.
Electroset—Black & Webster, Inc.
Electrostake—Black & Webster, Inc.
Electrostore—Image Instruments, Inc.
Electrotable—Black & Webster, Inc.
Electroverters—Hastings-Raydist, Inc.
Electrox—Schauer Mfg. Corp.
Elektro-Serv—Applied Technology Corp.
Elimag—American Time Products, Inc.
Elinco—Electric Indicator Co., Inc.
Elinvar Extra—Hamilton Watch Co.
Elite—Tandberg of America, Inc.
Elkoloy—Mallory & Co., Inc., P. R.
Elkonite—Mallory & Co., Inc., P. R.
Elkonium—Mallory & Co., Inc., P. R.
Elmenco—Electro-Motive Mfg. Co., Inc.
Elpac—Erie Resistor Corp.
Elphco—Electro-Physics Co.
Emcor—Emcor-Ingersoll Products Div.
Emelux—Emeloid Co., Inc.
Emico—Electro-Mechanical Instrument Co.
Emidec—E.M.I. Electronics, Ltd.
Emirad—E.M.I. Electronics, Ltd.
Enamel G—General Cable Corp.
Enamelite—Acme Wire Co.
Encapsulet—Electronet Div.
Endurance—General Insulated Wire Works
Enflon—Enflo Corp.
Engineered Economy—Radio Cores, Inc.
Engravograph—Hermes Plastics, Inc.
Enrad 11—Enflo Corp.
Enterite—General Cable Corp.
Epibond—Furane Plastics, Inc.
Epic—Electrical & Physical Instrument Corp.
Epinate—American Printed Circuits Co.
Epiphen—Borden Chemical Co.
Eplab—Eppley Lab., Inc.
Epocast—Furane Plastics, Inc.
Epolac—Lawrence Adhesive & Chemical Co.
Epotuf—Reichhold Chemicals, Inc.
Epoxy Alloy—Lawrence Adhesive & Chemical Co.
Epseal—Electro Engineering Works
Eput—Beckman Instruments, Inc.
Equaline—Entron, Inc.
Equatrol—Entron, Inc.
Equi-Torque—Radio Cores, Inc.
Equibar—Trans-Sonics, Inc.
Equiphase—Trans-Sonics, Inc.
Erectronic—General Electronic Labs., Inc.
Erico—Ehrick Co., The Fred
Ericofon—North Electric Co.
Ersa Minitype—Caig Labs.
Ervco—Vinson Co., E. R.
Esaki—Sony Corp.
Esco—Electric Specialty Co.
Esiac—Electro Scientific Industries
Esico Luger—Electric Soldering Iron Co., Inc.
Estar—Sprague Electric Co.
Etco—Electric Terminal Corp.
Etco—Electronic Transformer Co., Inc.
Etco—Electronic Transistors Corp.
Etho-Loc—Weckesser Co.
Eucrates—Solartron Electronic Group, Ltd.
Eureka—Morse Co., Frank W.
Evabrite—Bache & Co., Semon
Evalast—Bache & Co., Semon
Evanohm—Driver Co., Wilbur B.
Eveready—Union Carbide Corp.
Everlock—Thompson-Bremer & Co.
Exactmatch—Blonder-Tongue Labs., Inc.
Executive—International Crystal Mfg. Co., Inc.
Exflex—Lewis Engineering Co.
Exicon—Philco Corp.
Exploroformer—Geotronic Labs., Inc.
Extralanth—Ronson Metals Corp.

—F—

F-C-I—Film Capacitors, Inc.
FF-Switches—Switchcraft, Inc.
FM, Jr.—Hastings Products
FXC—Ferroxcube Corp. of America
Fabmika—Sprague Electric Co.
Fabri-Loc—Monadnock Mills
Fadac—Autonetics Div.
Fanfare—Fanon Electronic Industries, Inc.
Faratron—Luhrs & Co., C. H.
Farco—Farwest Mfg. Div., Inc.
Farlite—Farley & Loetscher Mfg. Co.
Farode—Ovitron Corp.
Fastatch—Centralab Electronics
Fastee—Entron, Inc.
Fat Phoebe—Waber Electronics, Inc.
Fault-Finders—Smith-Florence, Inc.
Fax-Ray—Fisher Co., Inc., Oscar
Fax Writer—Westrex Corp.
Faxtape—Ampex Corp.
Feathertouch—Sheffield Corp.
Featherweight—Trimm, Inc.
Felco—Forest Electric Co.
Fepco—Federal Electronic Prods., Inc.
Feraloy—Crouse-Hinds Co.
Fermont—International Fermont Machinery Co.
Ferrac—Airpax Electronics, Inc.
Ferramac—General Ceramics Div.
Ferricode—Consolidated Controls Corp.
Ferroline—Airtron, Inc.
Ferromag—Crucible Steel Co. of America
Ferrotron—Polymer Corp. of Pennsylvania
Ferrovac—Crucible Steel Co. of America
Ferroxdure—Ferroxcube Corp. of America
Fidelitrend—Electrend Products Corp.
Field Monitor—Millipore Filter Corp.
Fil-Cap—Filtron Co., Inc.
Fil-Therm—Filtron Co., Inc.
Filmagnetic—Bach Auricon, Inc.
Filmistor—Sprague Electric Co.
Filmite—Sprague Electric Co.
Filmpot—Fairchild Controls Corp.
Filt-A-Cor—Magnetic Core Corp.
Filterol—Sprague Electric Co.
Filtoroids—Magnetic Metals Co.
Fingor—Fidelity Instrument Corp.
Fireban—Taylor Fibre Co.
Firefite—United States Steel Corp.
Fireware—Rockbestos Wire & Cable Co.
Firezone—Rockbestos Wire & Cable Co.
Fitgo—Beckman Systems Div.
Fixtohm—Clarostat Mfg. Co., Inc.
Flair Line—Jensen Mfg. Co.
Flame Stop—Phelps Dodge Copper Products Corp.
Flameguard—Minneapolis-Honeywell Regulator Co.
Flash-Flow—Ewald Instruments
Flatpot—Painton & Co., Ltd.
Flawmaster—Biggs Co., Inc., Carl H.
Fleetcom—Communications Co., Inc.
Flex'ator—Hunter Spring Co.
Flex-Pak—Bogen-Presto Co.
Flex-Weave—Inso Electronic Products, Inc.
Flexacon—Hatfield Wire & Cable
Flexaguide—Airtron, Inc.
Flexair—Jensen Mfg. Co.
FlexAll—Rome Cable Div.
Flexarm—Flexo International Corp.
Flexbolt—Lord Mfg. Co.
Flexchron—Standard Electric Time Co.
Flexducer—Gulton Industries, Inc.
Flexfoam—Columbia Wire & Supply Co.
Flexiformer—Superior Electric Co.
FlexiKouple—Smith Mfg. Co., Inc., E. C.
Flexite—Markel & Sons, L. Frank
Flexlab—Standard Electric Time Co.
Flexlead—Markel & Sons, L. Frank
Flexlife—Columbia Wire & Supply Co.
Flexloc—Standard Pressed Steel Co.
Flexograin—Porter Co., Inc., H. K.
Flexohm—Clarostat Mfg. Co., Inc.
Flexolon—Tensolite Insulated Wire Co., Inc.
Flexon—Flexonics Corp.
Flexotemp—Hayes, Inc., C. I.
Flexpak—Hinde & Dauch Div.
Flexprint—Sanders Associates, Inc.
Flexshield—American Electric Cable Co.
Flightcom—Communications Co., Inc.
Flip Seal—Rodale Mfg. Co., Inc.
Flo Level—Flo-Tronics, Inc.
Flo-Motion—Flo-Tronics, Inc.
Flo-Seal—Flo-Tronics, Inc.

TRADE-NAME INDEX

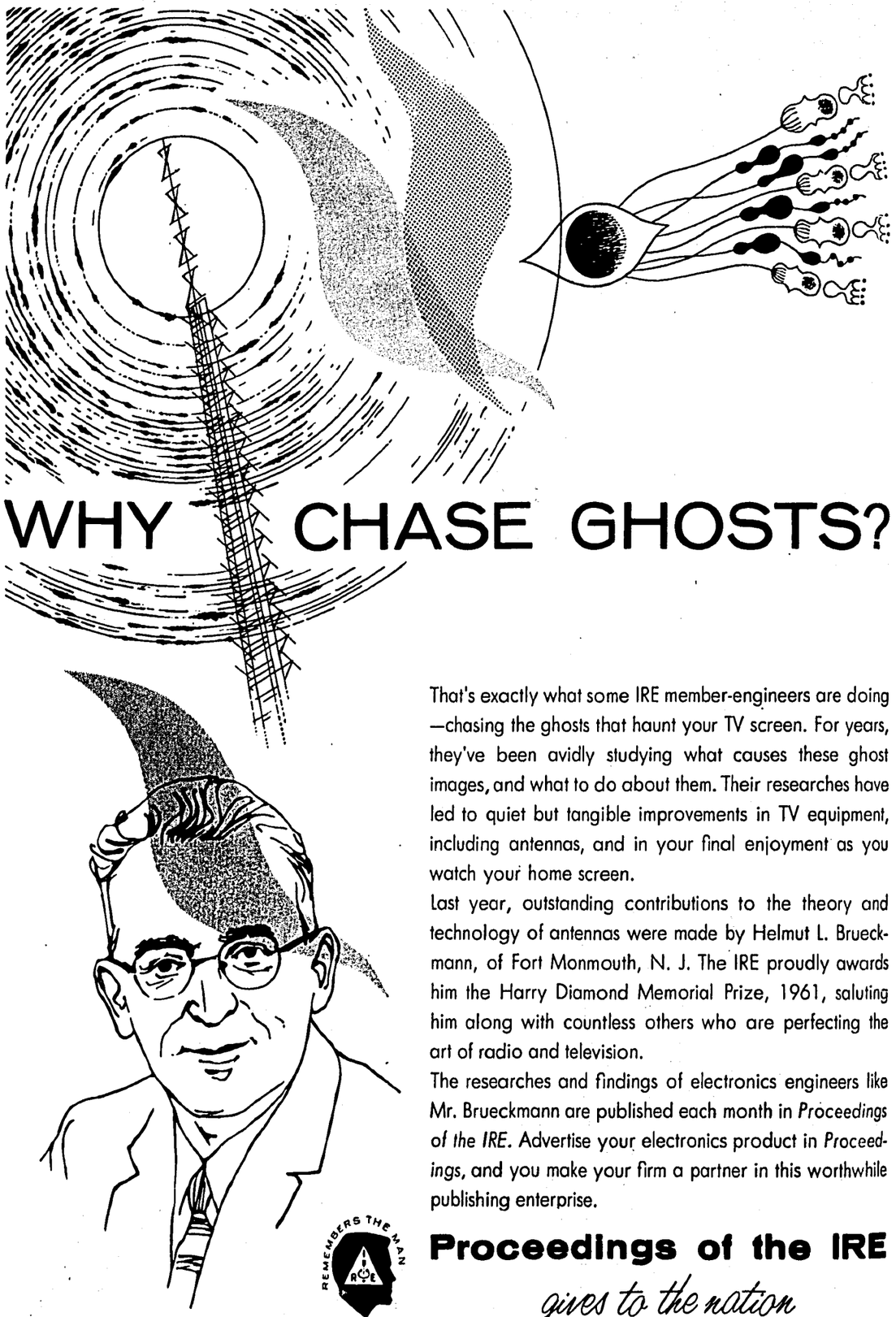
Flocon—Beckman Systems Div.
Flowrator—Fischer & Porter Co.
Flowsolder—Electrovert, Inc.
Fluopak—Chemo Products, Inc.
Fluorel—Minnesota Mining & Mfg. Co.
Fluoretor—Menlo Research Lab.
Fluoroclad—Fluorocarbon Co.
Fluorocoating—Fluorocarbon Co.
Fluorofilm—Fluorulon Labs., Inc.
Fluoroglas—Fluorulon Labs., Inc.
Fluoromat—Fluorulon Labs., Inc.
Fluorosint—Polymer Corp. of Pennsylvania
Fluorotron—Beattie-Coleman, Inc.
Flushlites—Drake Mfg. Co.
Flux-Link—Reed Research, Inc.
Fluxamp—Sprague Electric Co.
Fluxvalve—Pickering & Co., Inc.
Foamax—Royal Electric Corp.
Foamflex—Phelps Dodge Copper Products Corp.
Foamline—Plastoid Corp.
Foamtube—Plastoid Corp.
Focalmatic—Reed Research, Inc.
Foilcal—Eastern Foilcal Nameplate Corp.
Foilcal—Miller Dial & Name Plate Co.
Fonex—Transelectric Mfg. Co.
Fonograf—Webcor, Inc.
Footrol—General Control Co.
Forma-Temp—Forma Scientific, Inc.
Formbond—Acme Wire Co.
Formeze—General Cable Corp.
Formlon—General Cable Corp.
Formvar—Acme Wire Co.
Foto-Ducer—Clark Electronic Labs.
Foto-Pot—Clark Electronic Labs.
Fotocal—Eastern Foilcal Nameplate Corp.
Fotoceram—Corning Glass Works
Fotocon—Mechanical Engraving Co., Inc.
Fotofoil—Eastern Foilcal Nameplate Corp.
Fotofoil—Miller Dial & Name Plate Co.
Fotolectric—Worner Electronic Devices
Foxglove—Starling Corp.
Frahm—Biddle Co., James G.
Frako—Wells Co., Inc., Gary
Frame Fax—Sams & Co., Inc., Howard W.
Frameloc—Vector Electronic Co., Inc.
Fre-Lock—Felker Mfg. Co.
Freas—Precision Scientific Co.
Free-Vane—Bristol Co.
Freeloader—Whitso, Inc.
Frigidflex—Hatfield Wire & Cable Div.
Fringecount—Link Div.
Fultrol—Robertshaw-Fulton Controls Co.
Fultromatic—Robertshaw-Fulton Controls Co.
Funelet—Circon Component Corp.
Fuse-Flex—Inso Electronic Products, Inc.
Fuseking—Monarch Electric Corp.
Fusetron—Bussmann Mfg. Div.
Fusionbrazed—Avon Tube Div.
Fusionweld—Avon Tube Div.
Futura—Chart-Pak, Inc.
Fuzohm—Clarostat Mfg. Co., Inc.
Fuzz Button—Technical Wire Products, Inc.
Fyberoid—Wilmington Fibre Specialty Co.
Fybrglass—Eraser Co., Inc.
Fyr-Sniffer—Applegate & Co., C. J.

—G—

G—Grigsby Co., Inc.
G-15—Bendix Corp.
GAC—General Automatic Corp.
GAF—Antara Chemicals Div.
GASL—General Applied Science Labs., Inc.
GC—Technical Sales Corp.
GCP—General Coil Products Corp.
GEC—General Electrodynamics Corp.
GEL—General Electronic Labs., Inc.
G-H—Girard-Hopkins
G.I.—General Industries Co.
GKI—General Kinetics, Inc.
G-Line—Surface Conduction, Inc.
G-Rater—Gyrex Corp.
GRC—Gries Reproducer Corp.
G.R.I.—Greenray Industries
GSI—Texas Instruments Inc.
GSM—Grand Sliding Mechanisms, Inc.
Gain-Set—Kay Electric Co.
Galaxy—Jensen Mfg. Co.
Galvover—All-State Welding Alloys Co., Inc.
Gambricoid—American Electric Cable Co.
Gap-Mounted—Clevite Electronic Components
Gap/R—Philbrick Researches, Inc., George A.
Garceau—Electro-Medical Lab., Inc.
Garnet Abrasives—Barton Mines Corp.
Garsman—West Instrument Corp.
Gas K-O-Seal—Parker Seal Co.
Gearmotor—Motoresearch Co.
Geco—Gruenberg Electric Co., Inc.
Geda—Goodyear Aircraft Corp.
Gem—Dunton Co., M. W.
Gem—Mallory & Co., Inc., P. R.
Gemco—Great Eastern Mfg. Co.
Gemcor—General-Electro Mechanical Corp.
Gen-Pro—General Products Corp.
Gen-Ral—Muter Div.
Genalex—Connolly & Co., Wallace E.
Genalex—General Electric Co. Ltd. of England
Gencalloy-A—General Cable Corp.
Gencaseal—General Cable Corp.
Gencathene—General Cable Corp.
Gencatrol—General Cable Corp.
Gencorone—General Cable Corp.
Genemotor—Carter Motor Co.
Geneva-Loc—Bendix-Pacific Div.
Genox—General Magnetic Corp.
GenRes—General Resistance, Inc.
Geoformers—Triad Transformer Corp.
Giant—Benson-Lehner Corp.
Gibsalloy—Gibson Electric Co.
Gibsiloy—Gibson Electric Co.
Gibson Girl—Robins Industries Corp.
Gil-Lab—Instruments of New England
Glasohm—Clarostat Mfg. Co., Inc.
Glassbro—Mechanical Engraving Co., Inc.
Glasseal—Pyramid Electric Co.
Glassmike—Condenser Products Co.
Glaswitch—Revere Corp. of America
Glennite—Gulton Industries, Inc.
Glide-Slides—Electro-Pack, Inc.
Glo-Dot—Industrial Devices, Inc.
Glo-Melt—Wassco Electric Products Corp.
Glo-Plug—Industrial Devices, Inc.
Gloescent—Eastern Foilcal Nameplate Corp.
Gnome Controls—Carter Parts Co.
Gold-Cap—Fansteel Metallurgical Corp.
Gold Crown—Pioneer Gen-E-Motor Corp.
Gold Cup—Carbonneau Industries, Inc.
Gold Line—American Geloso Electronics, Inc.
Gold Lion—General Electric Co. Ltd. of England
Golden-D—Cannon Electric Co.
Golden G—Filtors, Inc.
Gradiation—Selas Corp. of America
Grafolux—Grafo Colloids Corp.
Grain-Oriented—Vickers, Inc.
GraLab—Dimco-Gray Co.
Graphilm—Pettinos Graphite Corp., Charles
Grauel—International Eastern Co.
Gravoflex—Hermes Plastics, Inc.
Gray Line—Hardwick, Hindle, Inc.
Greenohm—Clarostat Mfg. Co., Inc.
Greg—Gregory Research Eng. Group
Gridaloy P—Molecu-Wire Corp.
Gridalopm—Molecu-Wire Corp.
Grimaco—Reeves Soundcraft Corp.
Gripere—Phelps Dodge Copper Products Corp.
Groundulet—Crouse-Hinds Co.
Guardian—General Cable Corp.
Gude-Nylace—Gudebrod Bros. Silk Co., Inc.
Gudeglass—Gudebrod Bros. Silk Co., Inc.
Gudelace—Gudebrod Bros. Silk Co., Inc.
Guideline—Airtron, Inc.
Guideline—Minnesota Rubber Co.
Gulco—Ulanet Co., George
Gunchoke—Electric Soldering Iron Co., Inc.
Gyrofin—Sperry Piedmont Co.
Gyromechanisms—United Aircraft Corp.
Gyropilot—Sperry Piedmont Co.
Gyropoise—Pickering & Co., Inc.

—H—

HCX—Sprague Electric Co.
HEC—Hoffman Engineering Corp.
H & H—Arrow-Hart & Hegeman Elec. Co.
HI—Rolub Industries, Inc.
H-Lab—Harrison Labs., Inc.
H-Series—Fairmount Chemical Co., Inc.
HTL—Texas Instruments Inc.



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TRADE-NAME INDEX

Habir—Phelps Dodge Copper Products Corp.
Hairflex—Armour Alliance Industries
Half-X—Turbo Machine Co.
Hallowell—Standard Pressed Steel Co.
Halltrons—Ohio Semiconductors, Inc.
Hamband—Mallory & Co., Inc., P. R.
Handi-Toroid—North Hills Electronics Co., Inc.
Handie-Talkie—Motorola, Inc.
Handiscope—Simpson Electric Co.
Handivolt—Nutron Mfg. Co., Inc.
Handy Flux—Handy & Harman
Harmony—CBS Electronics
Harmony—Continental Mfg., Inc.
Hatemp—Hatfield Wire & Cable
Hatex—Hatfield Wire & Cable
Hatflex—Hatfield Wire & Cable
Hatseal—Hatfield Wire & Cable
Hatvinol—Hatfield Wire & Cable
Havar—Hamilton Watch Co.
Havelex—Haveg Industries, Inc.
Hawlex—Hawley Products Co.
Heat-Les—Trinity Equipment Corp.
Heathkit—Heath Co.
Heatrace—Nashua Corp.
Heatran—Power Designs, Inc.
Heatzone—Rockbestos Wire & Cable Co.
Heemco—Hill Electronics, Inc.
Heet-X—Hatfield Wire & Cable
Helco—Hoover Electric Co.
Helecon—United States Radium Corp.
Heliax—Andrew Corp.
Helicorder—Geotechnical Corp.
Helicore—BTU Engineering Corp.
Helidel—Helipot Div.
Helitrim—Helipot Div.
Heliwhip—Mark Products Co.
Helix—Biggs Co., Inc., Carl H.
Hercite—Hercon Electronics Corp.
Hercules—Acromark Co.
Herculoy—Revere Copper & Brass, Inc.
Herlec—Sprague Electric Co.
Hermeflex—Kearfott Div.
Hermeteze—Phelps Dodge Copper Products Corp.
Hex-Lok—Boots Aircraft Nut Corp.
Hexclad—Hexacon Electric Co.
Hexseals—A.P.M. Corp.
Heyco—Heyman Mfg. Co.
Hi-60—Britton Electronics Corp.
Hi-D—United Aircraft Products, Inc.
Hi-Dens—Kulite Tungsten Co.
Hi-Flex—Electro-Flex Heat, Inc.
Hi-G—General Controls Co.
Hi-K—Erie Resistor Corp.
Hi-Kaps—Centralab Electronics
Hi Lab—Holt Instrument Labs.
Hi-Lo—Industrial Devices, Inc.
Hi-Reli—Armel Electronics, Inc.
Hi-Rez—GPL Div.
Hi-Stab—Erie Resistor Corp.
Hi-Temp—Rockbestos Wire & Cable Co.
Hi-Thred—Parker-Kalon Div.
Hi-Vo-Kaps—Centralab Electronics
Hi-Volt—Condenser Products Co.
Hi-Volt—Industrial Devices, Inc.
Hi-Way-I—Electronics Corp. of America
Hickory—Superior Cable Corp.
High Tork—Electro-Mechanical Instrument Co.
Hilite—Mico Instrument Co.
Hingelock—Simmons Fastener Corp.
Hipermag—Westinghouse Electric Corp.
Hipermalloy—United Transformer Corp.
Hipersil—Westinghouse Electric Corp.
Hitrim—Bourns, Inc.
Hitronic—Bliss Electronic Corp.
Hiwrap—Hitemp Wires, Inc.
Ho—Phelps Dodge Copper Products Corp.
Holtite—Continental Screw Co.
Hook Lock—Simmons Fastener Corp.
Hornet—New York Transformer Co., Inc.
Hot Tip—Air-O-Tronics Engineering Co.
Hotip—Contact, Inc.
Hotpack—Electric Hotpack Co., Inc.
Hotron—Hooker Chemical Corp.
House of Resistors—Clarostat Mfg. Co., Inc.
Hpex—Jensen Mfg. Co.
Hubloc—Andrew Corp.
Huckbolt—Huck Mfg. Co.
Hudco—Hudson Wire Co.
Hudpak—Hudson Wire Co.
Humdinger—Clarostat Mfg. Co., Inc.
Humi-Gard—Quam-Nichols Co.
Humidaire—Dominion Electrohome Industries, Ltd.
Humidolain—Star Porcelain Co.
Humiseal—Columbia Technical Corp.
Humpback—Hayes, Inc., C. I.
Hunter—Ray-O-Vac Co.
Husky—Berkshire Electric Cable Co.
Husky—Price Electric Corp.
Hy-A-Sil—Miller Co., Sanford
Hy-Flex—U. S. Burke Machine Tool Co.
Hy-G—Bendix Corp.
Hy-Met—Astron Corp.
Hy-Therm—Hopkins Engineering Co.
Hy-Trak—KTV Tower & Communication Equipment Co.
Hy-Tuf—Crucible Steel Co. of America
Hybridge—Alford Mfg. Co.
Hydensel—Mosinee Paper Mills Co.
Hydent—Burndy Corp.
Hydi—Jelliff Mfg. Corp., C. O.
Hydrakote—Hatfield Wire & Cable
Hydrashaker—Wyle Mfg. Corp.
Hydratemp—Hatfield Wire & Cable
Hydro-Blast—Guardite Co.
Hydro-Fluid—National Cine Equipment, Inc.
Hydrocure—Borden Chemical Co.
Hydrofeed—Components Corp.
Hydrograf—Grafo Colloids Corp.
Hydrolly—National Cine Equipment, Inc.
Hydrovoid—Air-Shields, Inc.
Hyfen—Burndy Corp.
Hyfilm—Acme Wire Co.
Hygrade—Markel & Sons, L. Frank
Hygropak—Photo-Crystals, Inc.
Hypac—Electronic Research Assoc., Inc.
Hypalox—American Feldmuehle Corp.
Hypass—Sprague Electric Co.
Hyper-Pure—Alloys Unlimited, Inc.
Hypercon—Sprague Electric Co.
HyperCore—Moloney Electric Co.
Hypervac—Central Scientific Co.
Hypot—Associated Research, Inc.
Hypress—Burndy Corp.
Hyrad—Sequoia Wire & Cable Co.
Hyrel—Sprague Electric Co.
Hyshrink—Sequoia Wire & Cable Co.
Hysterset—Ward Leonard Electric Co.
Hytool—Burndy Corp.
Hyvac—Central Scientific Co.

—I—

IA—Industrial Accessories, Inc.
ICI—Industrial Components, Inc.
I.D.L.—Isotope Developments, Ltd.
IDL—Instrument Development Labs., Inc.
IFI—Instruments For Industry, Inc.
IHC—Illinois Condenser Co.
IHT—Illinois Condenser Co.
IMC—Insulation Mfrs. Corp.
IRC—International Resistance Co.
IRD—International Research & Development Corp.
ITI—Industrial Tectonics, Inc.
ITT—International Telephone & Telegraph Corp.
Iatron—International Telephone & Telegraph Corp.
Iconic—Altec Lansing Div.
Iconorama—Ling-Temco-Vought, Inc., F F & M Div.
Ilexpo—Ilex Optical Co.
Illco Matic—Illinois Water Treatment Co.
Illco-Way—Illinois Water Treatment Co.
Imcor—Insulation Mfrs. Corp.
Imp—Kaar Engineering Corp.
Imp—Pyramid Electric Co.
Imp Molded—Carter Parts Co.
Imperial—Jensen Mfg. Co.
Imperial—Rek-O-Kut, Inc.
Impervohm—Sage Electronics Corp.
Impressor—Barber-Colman Co.
Improv-A-Lite—General Electric Co.
Impulse Sequence—Bristol Co.
In-A-Grip—Stevens Walden, Inc.
In-Res-Co—Instrument Resistors Co.
Inca—Phelps Dodge Copper Products Corp.
Incaloid—American Products Mfg. Co.
Inco—International Nickel Co., Inc.
Increductor—CGS Labs., Inc.
Incremag—General Time Corp.
Indalloy—Indiana Steel Products Div.
Indalloy—Indium Corp. of America
Indeeco—Industrial Engineering & Equipment Co.
Inditron—National Union Electric Corp.
Indox—Indiana Steel Products Div.
Inductrode—Daystrom, Inc.
Industaner—Mallory & Co., Inc., P. R.
Infrabeam—Cramer Controls Corp.
Infraton—Biophysical Electronics, Inc.
Infratron—Infrared Industries, Inc.

Inline—Amphenol-Borg Electronics Corp.
Inlite—Plasteck, Inc.
Inmanco—Insulation Mfrs. Corp.
Inmanco—Macallen Co., Inc.
Insa-Lute—Sauereisen Cements Co.
Inserto—Rosan, Inc.
Insolorip—Borden Chemical Co.
Instapak—Onan & Sons, Inc., D. W.
Insul-Film—Electrofilm, Inc.
Insul-Mate—Air-O-Tronics Engineering Co.
Insul-Ment—Perfection Mica Co.
Insulcon—Carborundum Co.
Insuloid—Electrovert, Inc.
Insulpak—Hinde & Dauch Div.
Insulug—Burndy Corp.
Insurok—Richardson Co.
Intec—Intercontinental Electronics Corp.
Integrity—General Dynamics Electronics
Inter-8—Perfection Mica Co.
Interlok—Di/An Controls, Inc.
Intermatic—International Register Co.
Interverter—Interelectronics Corp.
Intrafax—Western Union Telegraph Co.
Intrelab—Interference Testing & Research Lab., Inc.
Intrex—Interelectronics Corp.
Invercone—Daystrom, Inc.
Invertron—Behlman Engineering Co.
Ione—Instruments of New England
Ionostat—United States Radium Corp.
Ionotron—United States Radium Corp.
IonXchange—Illinois Water Treatment Co.
Irn—Williams & Co., C. K.
Irtran—Eastman Kodak Co.
Isis—Philbrick Researches, Inc., George A.
Iso-Silicone—Isolantite Mfg. Corp.
Isobestos—Natvar Corp.
Isofarad—Sprague Electric Co.
Isoformer—Elcor, Inc.
Isoglas—Natvar Corp.
Isolastane—Natvar Corp.
Isolite—United States Radium Corp.
Isoloy—Porter Co., Inc., H. K.
Isolume—Sun Dial Corp.
Isomica—Mica Insulator Div.
Isomite—Elcor, Inc.
Isomode—MB Electronics Div.
Isonel—Acme Wire Co.
Isophase—Pickering & Co., Inc.
Isophon—Arnhold Ceramics, Inc.
Isoplex—Natvar Corp.
Isoply—Elcor, Inc.
Iteco—Industrial Test Equipment Co.
Itvac—Industro Transistor Corp.
Ivo Bone—Columbian Carbon Co.

—J—

J.B.L.—Lansing Sound, Inc., James B.
JE—Star Precision Devices
J-Jacks—Jerrold Electronics Corp.
Jack Nuts—Molly Corp.
Jackson—Vulcan Electric Co.
Jaico—Jaidinger Mfg. Co., Inc.
Jalenco—Enjaco Corp.
Jaxco—Jacksonville Metal & Plastics Co.
Jefflex—Jefferson Wire & Cable Corp.
Jet Flux—All-State Welding Alloys Co., Inc.
Jet-Lok—Boots Aircraft Nut Corp.
Jet Mixer—Fisher Co., Inc., Oscar
Jet-Setter—Parker-Kalon Div.
Jetair—Breeze Corps., Inc.
Jewelite—Mico Instrument Co.
Jiffy—Campro Products, Inc.
Jiffy Push-Pull—Eagle Electric Mfg. Co., Inc.
Jolta—Jan Hardware Mfg. Co., Inc.

—K—

KCA—TV Development Corp.
KE—Kurman Electric Co.
KIC—Kemet Co.
K-Loc—Erie Resistor Corp.
KSR—General Electric Co.
KVO—Sprague Electric Co.
Kairkit—Waber Electronics, Inc.
Kalotron—Thermosen, Inc.
Kapac—Kaiser Electronics, Inc.
Kapseal—Minnesota Rubber Co.
Karadio—American Television & Radio Co.
Karak—Ohio Carbon Co.
Karma—Driver-Harris Co.
Kavlico—Vinson Mfg. Co., Inc.
Kel-F—Minnesota Mining & Mfg. Co.
Kemetal—Radio Industries, Inc.
Kemfuze—Bel Fuse, Inc.
Kennett—National Vulcanized Fibre Co.
Kepro—Keil Engineering Products, Inc.
Keps—Shakeproof Div.
Keramite—Ceramic Specialties Co., Inc.
Kernel—Burnell & Co., Inc.
KEY-municator—General Dynamics Electronics
KeyNoter—Gray Mfg. Co.
Kilo-Q—Kay Electric Co.
Kilo-Sweep—Kay Electric Co.
Kilopak—Wesco Electrical Co., Inc.
Kimberley—Felker Mfg. Co.
Kineplex—Collins Radio Co.
Kleener—McKenna Labs.
Kleer-Pak—Sprague Electric Co.
Klip-Pac—Wrought Washer Mfg. Co.
Klixon—Texas Instruments Inc.
Kold-Pak—Tenney Engineering, Inc.
Koolohm—Sprague Electric Co.
Koolpak—Sprague Electric Co.
Koroseal—Goodrich Industrial Products Co., B. F.
Kotacoil—Induction Heating Corp.
Kovar—Carborundum Co.
Kreco—Kreckman Co., Herb
Kromover—All-State Welding Alloys Co., Inc.
Kuax—Kuhnke, H.
Kum-Kleen—Avery Label Co.
Kurelco—Kurtston Electronics
Kurmelec—Kurman Electric Co.
Kwik-Kall—Loge Electronics, Inc.
Kwik Klip—South River Metal Products Co., Inc.
Kwik-Term—Cannon Electric Co.
Kwikie—Kwikheat Mfg. Co.
Kwikits—University Loudspeakers, Inc.
Kwikwork—Kwikheat Mfg. Co.

—L—

L-C—JFD Electronics Corp.
L.D.T.—Minatron Corp.
LF-Jax—Switchcraft, Inc.
LFE—Laboratory For Electronics, Inc.
LGP-30—Librascope Div.
L.I.F.E.—Lear, Inc.
LN—Illinois Condenser Co.
L & N—Leeds & Northrup Co.
LOH—Brush-Beryllium Co.
LT—Lambda Electronics Corp.
L-T—Lab-Tronics, Inc.
L.T.T.—Lignes Telegraphiques et Telephoniques
Lab-Volt—Buck Engineering Co., Inc.
Labelkwik—Reeves Soundcraft Corp.
Labitron—Nuclear-Chicago Corp.
Lablite—Mico Instrument Co.
Labri-Seal—Marlin-Rockwell Corp.
Lackon—Sun Dial Corp.
Ladder Line—Illumitronic Engineering
Lami-Form—Kerrco
Lamicoid—Mica Insulator Div.
Laminum—Laminated Shim Co., Inc.
Lamitab—Laminated Shim Co., Inc.
Lamitex—Franklin Fibre-Lamitex Corp.
Lampanel—Miller Dial & Name Plate Co.
Lansing—Altec Lansing Div.
Laqua—Fidelity Chemical Products Corp.
Larc—Remington Rand Univac
Lavite—Steward Mfg. Co., D. M.
Lavolain—Star Porcelain Co.
Lectric-Aire—Radex Corp.
Lectrofilm-B—General Electric Co.
Lectronic Sentry—Joy Mfg. Co.
Lectronoscope—Hamlin, Inc.
Lektromesh—Jelliff Mfg. Corp., C. O.
Lemasize—Borden Chemical Co.
Lemoflex—Borden Chemical Co.
Lenite—Lab-Tronics, Inc.
Lenscreen—Polacoat, Inc.
Lev-R—Switchcraft, Inc.
Level-Log—Robertshaw-Fulton Controls Co.
Level-Set—Robertshaw-Fulton Controls Co.
Level-Tek—Robertshaw-Fulton Controls Co.
Levell—Scopes Co., Inc.
Levolier—McGill Mfg. Co., Inc.
Lewis Vertical—Universal Products Engineering
Liberty—American Communications Corp.
Libratrac—Librascope Div.
Libratrol—Librascope Div.
Lico—Life Instrument Co., Inc.
Life Lite—Gulton Industries, Inc.
Life-Lok—Boots Aircraft Nut Corp.
Lifetime—Reeves Soundcraft Corp.
Ligna-Sweep—Kay Electric Co.
Limpander—Electronic Systems Engineering Co.
Lindor—Horlick Co., Inc., William I.
Line-O-Life—Carter Motor Co.
Line-Out—Jerrold Electronics Corp.
Linear Amplifier—Westrex Corp.
Linear Standard—United Transformer Corp.
Lineator—Airborne Accessories Corp.
Linguatrainer—General Electronic Labs., Inc.
Link Lock—Simmons Fastener Corp.
Linvar—Muirhead & Co., Ltd.
Lion—Southco Div.
Lip-Loc—Vector Electronic Co., Inc.
Lipstik—Altec Lansing Div.
Liquiflow—Liquid Carbonic Div.
Liquispenser—REF Dynamics Corp.
Lissascope—North Atlantic Industries, Inc.
Lite-Gage—Photocon Research Products
Lite-Mite—Stocker & Yale, Inc.
Litemaster—Flexo International Corp.
Litestrip—Circon Component Corp.
Lithafrax—Carborundum Co.
Litho-Plate—Brady Co., W. H.

TRADE-NAME INDEX

Littel—Switchcraft, Inc.
Littel-Jax—Switchcraft, Inc.
Littl-Lytic—Sprague Electric Co.
Little Champ—Arkay Products Mfg. Co.
Little Devil—Ohmite Mfg. Co.
Little Gem—Great Eastern Mfg. Co.
Little Giant—Freeman Co.
Little Jem—Jansen Electronics Mfg., Inc.
Little Jewel—Argonne Electronics Mfg. Corp.
Little Joe—MacDonald & Co.
Little Mac—Telkor, Inc.
Little Wonder—Trans-Lux Corp.
Lloyds—Johnson Mfg. Co., Inc.
Lo-Volt—Industrial Devices, Inc.
Loc-Fit—Litton Industries
Loc-Jaw—LMB-Heeger, Inc.
Lock-GriPlier—Handicraft Tools, Inc.
Lock-O-Seal—Parker Seal Co.
Lock-On—Eagle Electric Mfg. Co., Inc.
Lockbolts—Townsend Co.
Locolite—Black & Webster, Inc.
Locquic—American Sealants Co.
Loctite—American Sealants Co.
Lokuts—Shakeproof Div.
Long Life—International Wire & Cable Co.
Loopohm—Ward Leonard Electric Co.
Lotemp—Mico Instrument Co.
Lox Grade—Fluorocarbon Co.
Lube-Lok—Electrofilm, Inc.
Lubri-Bomb—Electrofilm, Inc.
Lubri-Bond—Electrofilm, Inc.
Lubri-Stat—Fidelitone, Inc.
Lugpot—Bourns, Inc.
Lumaray—Canadian Westinghouse Co., Ltd.
Lumatrol—Micro Balancing, Inc.
Lusterized—American Electric Cable Co.
Lusterlac—American Electric Cable Co.
Luxolene—Wabash Magnetics, Inc.
Luxtrol—Superior Electric Co.
Lyn-A-Syn—Mintron Corp.
Lynn Lighting—Vaco Products Co.

—M—

MADT—Philco Corp.
MAT—Philco Corp.
M.D.L.—Microwave Development Labs., Inc.
MEC—Milgo Electronic Corp.
MI—Midwestern Instruments, Inc.
M.I.G.—Minatron Corp.
M-Jax—Switchcraft, Inc.
MP—Murray Mfg. Corp.
MPB—Miniature Precision Bearings, Inc.
M-Pac—Computer Control Co., Inc.
M.P.R.G.—Manhattan Physical Research Group, Inc.
M/R Board—Hinde & Dauch Div.
MRC—Marlin-Rockwell Corp.
M-Scope—Fisher Research Lab., Inc.
MT-Jax—Switchcraft, Inc.
Macadie—Avo Limited
MacKir—McIntosh Lab., Inc.
Maco—Maury & Associates
Macrowave—Douglas Microwave Co., Inc.
Mag-A-Trol—Ward Leonard Electric Co.
Mag-Mod—General Magnetics, Inc.
Magdelay—Automation, Inc.
Magi-Mix—Technical Appliance Corp.
Magic Circle—A.R.F. Products, Inc.
Magic-Tip—Hunter Tool Co.
Magicores—Crowley Div.
Magitran—Electronic Research Assoc., Inc.
Magmeter—Airpax Electronics, Inc.
Magmotor—Carter Motor Co.
Magna-Phone—Kay-Townes Antenna Co.
Magna-See—Reeves Soundcraft Corp.
Magna-Sweep—Kay Electric Co.
Magnadure—Ferroxcube Corp. of America
Magnaglo—Magnaflux Corp.
Magnalog—Hoffman Electronics Corp.
Magnaphonic—Magnasync Corp.
Magnaplotter—Electronic Assoc., Inc.
Magnatest—Magnaflux Corp.
Magnatorc—Hansen Mfg. Co., Inc.
Magnatrol—Dynamic Controls Co.
Magne-Pag—Magnetic Controls Co.
Magne-Plexer—San Diego Scientific Corp.
Magne Pulse—Gemco Electric Co.
Magne-Speed—Magnetic Amplifiers Div.
Magnecorder—Midwestern Instruments, Inc.
MagneDISC—Texas Instruments Inc.
Magneline—Patwin Div.
Magneloop—Amplifier Corp. of America
Magnematic—Amplifier Corp. of America
Magnemite—Amplifier Corp. of America
Magnepaint—Micro-Circuits Co.
Magneraser—Amplifier Corp. of America
Magnesyn—Bendix Corp.
Magnetoresistors—Ohio Semiconductors, Inc.
Magnetreater—Radio Frequency Labs., Inc.
Magnette—Heinemann Electric Co.
Magni-Whirl—Blue M Electric Co.
Magnifax—Beckman & Whitley, Inc.
Magnilite—Stocker & Yale, Inc.
Magniphase—Continental Electronics Mfg. Co.
Magnocarb—Driver Co., Wilbur B.
Magnorite—Norton Co.
Magohm—Electric Regulator Corp.
Magsense—Daystrom, Inc.
Magswitch—Ovitron Corp.
Mallard—Electrend Products Corp.
Maltese—Bache & Co., Semon
Manganin—Driver Co., Wilbur B.
Mangrid—Driver Co., Wilbur B.
Marc—Moore Assoc., Inc.
Marco—Rowe Industries
Mark II—Brush Instruments Div.
Mark II—Electro Tec Corp.
Mark II—Technical Devices Co.
Mark 1635—Fisher Co., Inc., Oscar
Mark IV-VRC—Par Products Corp.
Mark V—Technical Devices Co.
Mark-Time—Rhodes Inc., M. H.
Markanic—Acromark Co.
Marks-Sweep—Kay Electric Co.
Marksman—West Instrument Corp.
Marlin—Kaar Engineering Corp.
Mars—Lear, Inc.
Masco—Simpson Mfg. Co., Inc., Mark
Massachusetts—Geartronics Corp.
Master III—Daystrom, Inc.
Master-Cal—Master Etching Corp.
Master Recorders—Scully, Inc.
Masterline—Blonder-Tongue Labs., Inc.
Masterrecorder—Taylor-Emmett Controls, Inc.
Mastertrol—Taylor-Emmett Controls, Inc.
Mate—Marquardt Corp.
Matripix—Litton Industries
Max-C—JFD Electronics Corp.
Max-El—Crucible Steel Co. of America
Max-Min—Daystrom, Inc.
Maxicon—Painton & Co. Ltd.
Maxigraph—Landis & Gyr, Inc.
Maxiprint—Landis & Gyr, Inc.
McMartin—Continental Mfg., Inc.
Measuray—Sheffield Corp.
Mecap—Micamold Electronics Mfg. Div.
Mecatorn—Torngren Co., Inc., C. W.
Mechanoprint—Howe Scale Co.
Meco—Mechanical Engraving Co., Inc.
Medalist—Land-Air, Inc.
Medalist—Minneapolis-Honeywell Precision Meter Div.
Meg-A-Life—Motorola Semiconductor Products, Inc.
Meg'ator—Hunter Spring Co.
Meg-Meter—Winslow Co. Inc.
Meg-O-Max—Sprague Electric Co.
Mega-Chart—Kay Electric Co.
Mega-Marker—Kay Electric Co.
Mega-Match—Kay Electric Co.
Mega-Node—Kay Electric Co.
Mega-Pix—Kay Electric Co.
Mega-Pulser—Kay Electric Co.
Mega-Rel—Gudeman Co.
Mega-Sweep—Kay Electric Co.
Megalator—Kay Electric Co.
Megaligner—Kay Electric Co.
Megalume—Nems-Clarke Div., Vitro Corp.
Megalyzer—Kay Electric Co.
Megasorber—Continental Electronics Mfg. Co.
Megatrometer—Mid-Eastern Electronics, Inc.
Megavac—Central Scientific Co.
Megger—Biddle Co., James G.
Megohmer—Sticht Co., Inc., Herman H.
Mek-A-Punch—American Electronics, Inc.
Meleor—Materials Electronic Products Corp.
Melodist—Altec Lansing Div.
Memo-Lite—Transistor Electronics Corp.
Messrcope—Hughes Aircraft Co.
Metrotron—Hughes Aircraft Co.
Menlolab—Menlo Research Lab.
Merc-O-Seal—Mercury Contacts, Inc.
Mercury—Vulcan Electric Co.

Meritrol—Taylor-Emmett Controls, Inc.
Message Repeater—Mohawk Business Machines Corp.
Met-A-Caps—Chicago Condenser Corp.
Met-L-Flex—Robinson Technical Products, Inc.
Met-L-Strut—Unistrut Products Co.
Met-O-Seal—Parker Seal Co.
Metal-Cell—Topatron, Inc.
Metal-Istors—Kidco, Inc.
Metal Locator—Berman Labs.
Metalastic—Metal Textile Corp.
Metalite—Astron Corp.
Metallure—Poly-Kote, Inc.
Metcom—Microwave Electronic Tube Co., Inc.
Meteor—Associated American Winding Machinery, Inc.
Meteor—Astron Corp.
Meterite—Massa Div.
Meterlytic—Micamold Electronics Mfg. Div.
Metex—Metal Textile Corp.
Methac—Borden Chemical Co.
Metlbond—Narmco Materials Div.
Metox—Welwyn International, Inc.
Metroscope—Photocon Research Products
Metrotype—Bailey Meter Co.
Mi-T-Mag—National Moldite Co., Inc.
Micabond—Continental-Diamond Fibre Corp.
Micanite—Mica Insulator Div.
Micap—Micamold Electronics Mfg. Div.
Micaply—Mica Corp.
Micolite—Mico Instrument Co.
Micradjust—Fairchild Recording Equipment Corp.
Micrelay—Ebert Electronics Corp.
Micretain—Cambridge Filter Corp.
Micro-7—Fairchild Recording Equipment Corp.
Micro-Brand—Staver Co., Inc.
Micro-Dist—Cubic Corp.
Micro-Ducer—Clark Electronic Labs.
Micro-Form—Sheffield Corp.
Micro Min—Amphenol-Borg Electronics Corp.
Micro-Motor—Redmond, Inc.
Micro-Namic—Micro Balancing, Inc.
Micro-Node—Kay Electric Co.
Micro-Poise—Rek-O-Kut, Inc.
Micro Power—United States Motors Corp.
Micro-Pulser—Kay Electric Co.
Micro Ribbon—Amphenol-Borg Electronics Corp.
Micro Scatter—Canadian Westinghouse Co., Ltd.
Micro-Stat—Pulse Engineering, Inc.
Micro Strip—Automation Electronics, Inc.
Micro-Sweeper—Teltronics, Inc.
Microcast—Austenal Co.
Microchopper—Solid State Electronics Co.
Microclutch—Magtrol, Inc.
Microcon—Painton & Co., Ltd.
Microdial—Borg Equipment Div.
Microfeed—American Machine & Foundry Co.
Microflash—Dawe Instruments, Ltd.
Microfuse—Littelfuse, Inc.
Microid—Burnell & Co., Inc.
Microjuster—Servo Development Corp.
Microkeep—Burmac Electronics Co., Inc.
MicroleveL—Stevens-Arnold, Inc.
Microline—Sperry Microwave Electronics Co.
Microlter—Kay Electric Co.
MicroMatch—Jones Electronics Co., M. C.
Micrometer—Lampkin Labs., Inc.
Microoscillograph—Central Research Labs., Inc.
Micropaint—Micro-Circuits Co.
Micropix—Litton Industries
Micropositioner—Barber-Colman Co.
Micropot—Borg Equipment Div.
Micropulse—Barber-Colman Co.
Microsonic—Craig Electronics
Microstack—General Ceramics Div.
Microsyn—Minneapolis-Honeywell Regulator Co.
Microtel—Lenkurt Electric Co., Inc.
Microtorque—Giannini Controls Corp.
Microtrim—Bourns, Inc.
Microtwintacts—Daystrom, Inc.
Microvac—Stokes Corp., F. J.
Microvoid—Air-Shields, Inc.
Microweb—Millipore Filter Corp.
Mid-Rip—General Cable Corp.
Midget—Sprague Electric Co.
Midgetape—Mohawk Business Machines Corp.
Midgetester—Simpson Electric Co.
Midgetrol—Mallory & Co., Inc., P. R.
Mike-O-Meter—Sprague Electric Co.
Mil-Carb—Wrought Washer Mfg. Co.
Mil-E-Trim—Bourns, Inc.
Mil-Pac Twins—Wrought Washer Mfg. Co.
Mil-Stak—Ampex Corp.
Mil-Wrot—Wrought Washer Mfg. Co.
Miller-Re-Coil—Miller Co., L. C.
Milli-Mike—Edgerton, Germeshausen & Grier, Inc.
Millisec—Stevens-Arnold, Inc.
Milwaukee Wrot—Wrought Washer Mfg. Co.
Min-Amp—EO Electronics, Inc.
Minelco—Miniature Electronic Components Corp.
Mineon—Drake Mfg. Co.
Mineralight—Ultra Violet Products, Inc.
Mini-Breaker—Mechanical Products, Inc.
Mini-Cator—Industrial Devices, Inc.
Mini-Con—Switchcraft, Inc.
Mini-Cordex—Telecomputing Corp.
Mini-Flex—Hamner Electronics Co., Inc.
Mini-Gator—Mueller Electric Co.
Mini-Joints—Falcon Div.
Mini-Lite—Transistor Electronics Corp.
Mini-Load—Bogart Mfg. Co.
Mini-Lytics—Pyramid Electric Co.
Mini-Markers—Westline Products Div.
Mini-Mix—Switchcraft, Inc.
Mini-Mods—Cleveland Metal Specialties Co.
Mini-Module—Ansley Mfg. Co., Arthur
Mini-Noise—Microdot, Inc.
Mini-Ohm—Sprague Electric Co.
Mini-Shields—Staver Co., Inc.
Mini-Spot—Pesco Products Div.
Mini-Springs—Staver Co., Inc.
Mini-Thin—Thermax Wire Corp.
Mini-Trak—Western Devices, Inc.
Mini-Typers—Shepard Labs., Inc.
Mini-Volt—Industrial Devices, Inc.
Minibox—Bud Radio, Inc.
Minichron—Jordan Electronics
Minicom—General Devices, Inc.
Minicube—Sanders Associates, Inc.
Minidine—Aerolab Development Co.
Miniductors—United Transformer Corp.
Minifan—Garrett Corp.
Minifilters—United Transformer Corp.
Minikeep—Burmac Electronics Co., Inc.
Minilines—Columbia Technical Corp.
Minimite—Astron Corp.
MiniMite—Thermo Electric Co., Inc.
Minipak—Radio Specialty Mfg. Co.
Miniplate—Gulton Industries, Inc.
Miniplexer—ASCOP Div.
Minirad—Victoreen Instrument Co.
Minirelay—Ebert Electronics Corp.
Minisel—Electronic Devices, Inc.
Minisig—Engineered Electronics Co.
Minislides—Bud Radio, Inc.
Minisource—Electronic Assembly Co., Inc.
Ministrip—Ward Leonard Electric Co.
Minitape—Stancil-Hoffman Corp.
Minitel—Westrex Corp.
Minitorque—Giannini Controls Corp.
Miniweld—Engineered Electronics Co.
Minni Buzzer—Line Electric Co.
Minnie—Amphenol-Borg Electronics Corp.
Missile Module—Ansley Mfg. Co., Arthur
Missilites—Marco Industries Co.
Missilmite—Micamold Electronics Mfg. Div.
Mix-Amp—Switchcraft, Inc.
Mobilfone—Mobil Electronics, Inc.
Mobilmatic—Mobil Electronics, Inc.
Mobiltel—Lenkurt Electric Co., Inc.
Mobiltone—Mobil Electronics, Inc.
Modelec—Modelectric Products Corp.
Modernlab—Modern Lab. Equipment Co.
Modified Hilo—Driver Co., Wilbur B.
Modu-Rak—Premier Metal Products Co.
Modu-Wave—Sciaky Bros., Inc.
Moducell—Topatron, Inc.
Moduflow—Minneapolis-Honeywell Regulator Co.
Modulaire—Sheffield Corp.
Moduline—Sprague Electric Co.
Moduliner—Maurey Instrument Corp.
Modulite—Bach Auricon, Inc.
Modulite—Marco Industries Co.
Modulok—Burndy Corp.
Modupulser—ESC Corp.
Modutrol—Minneapolis-Honeywell Regulator Co.
Moistemp—Rockbestos Wire & Cable Co.
Moisture Gage—Parks Lab., Henry Francis
Moisture Monitor—Strandberg Engineering Labs., Inc.
Molecu-Dryer—Hayes, Inc., C. I.
Molecule Squeezer—Robinette Co., W. C.
Moleculoy—Molecu-Wire Corp.
Molscope—Electro Radiation, Inc.
Molyspray—North American Philips Co., Inc.
Mon-O-Lag—Monarch Electric Corp.
Monarch—Birmingham Sound Reproducers, Ltd.
Monatel—Westrex Corp.
Monicon—Cathodeon, Ltd.
Monitor—SoundScriber Corp.
Monitor Scope—Essential Electronics Corp.
Monitoradio—I.D.E.A., Inc.
Monitron—Moore Assoc., Inc.
Mono-Tet—Gore & Assoc, Inc., W. L.
Monobloc—Winchester Electronics, Inc.
Monolythic—Sprague Electric Co.

TRADE-NAME INDEX

Monomotor—Redmond, Inc.
Monrobot—Monroe Calculating Machine Co., Inc.
Morad—Kassel Industries, Inc.
Morpho—Cannon Electric Co.
Moto-Mite—Globe Industries, Inc.
Motor-Mike—Electro-Capacitors Co.
Motork—Magnetic Metals Co.
Motorlarm—Panellit Div.
Motorlite—Ward Leonard Electric Co.
Motoroid—Daco Instrument Co.
Motrac—Motorola, Inc.
Motron—Robinette Co., W. C.
Mox-Tape—Moxness Products, Inc.
Mu Beta—Spectralab Instruments
Mufax—Muirhead & Co., Ltd.
Muffin—Rotron Mfg. Co., Inc.
Multi-Comp—Sprague Electric Co.
Multi-Elmac—Multi Products Co.
Multi-Flex—Joy Mfg. Co.
Multi-Lite—Gould-National Batteries, Inc.
Multi-Millers—U. S. Tool Co., Inc.
Multi-Pulser—Kay Electric Co.
Multi-Roll—U. S. Tool Co., Inc.
Multi-Slides—U. S. Tool Co, Inc.
Multi-Stacks—Consolidated Resistance Co. of America
Multi-Swage—Bead Chain Mfg. Co.
MULTI-Switches—Switchcraft, Inc.
Multi-Tet—Gore & Assoc., Inc., W. L.
Multicon—Painton & Co., Ltd.
Multicycle—Horlick Co., Inc., William I.
Multidata—Flight Research, Inc.
Multilok—Robertshaw-Fulton Controls Co.
Multimeters—Rawson Electrical Instrument Co., Inc.
Multiphase—Central Electronics, Inc.
Multipot—Daystrom Pacific Div.
Multisistor—Electronic Transistors Corp.
Multitech—Land-Air, Inc.
Multitracer—Hughes Aircraft Co.
MultiTrak—Minneapolis - Honeywell Regulator Co.
Multiverter—Packard-Bell Electronics Corp.
Multiwave—Narmco Materials Div.
MUR—Sorensen & Co., Inc.
Musi-Talk—Fanon Electronic Industries, Inc.
Muvar—Hamilton Watch Co.
Mykroy—Electronic Mechanics, Inc.
Mylar—Du Pont de Nemours & Co., Inc., E. I.

—N—

NEC—Nippon Electric Co., Ltd.
NF—Switchcraft, Inc.
NLS—Non-Linear Systems, Inc.
NPC—Nucleonic Products Co., Inc.
NRD—Nuclear Corp. of America
NSL—National Scientific Labs., Inc.
NSL—National Semiconductor, Ltd.
NTT—National Tel-Tronics Corp.
NWL—Nothelfer Winding Labs., Inc.
Na-Ald—Alden Products Co.
Nadar—Autonetics Div.
Narco—National Aeronautical Corp.
Narcoil—NRC Equipment Corp.
Narescoil—NRC Equipment Corp.
National—Valco Mfg. Co.
National Tel—National Tel-Tronics Corp.
Natite—National Ceramic Co.
Navcor—Navigation Computer Corp.
Navigaide—American Hydromath Corp.
Ne-O-Lite—G-C Electronics Co.
Neasbestus—Porter Co., Inc., H. K.
Nelclad—New England Laminates Co. Inc.
Nelco—New England Laminates Co.
Neoproof—United States Steel Corp.
Neotel—General Cable Corp.
Nepco-Lok—Porter Co., Inc., H. K.
Nepconol—Porter Co., Inc., H. K.
Netic—Perfection Mica Co.
Neu-Curk—Auburn Mfg. Co.
Neuron—Telecomputing Corp.
Neutro—Dunton Co., M. W.
Neutroloy—Molecu-Wire Corp.
Nevaco—Nelson Vacuum Pump Co.
Nevermold—Mosinee Paper Mills Co.
New Duty—Hinde & Dauch Div.
Newdicon—Newton Co.
Neyoro—Ney Co., J. M.
Niafrax—Carborundum Co.
Nibscrews—Shakeproof Div.
Nichrome—Driver-Harris Co.
Nickelply—Reynolds Wire Div.
Nifer—Texas Instruments Inc.
Nifte—Autonetics Div.
Nikrothal—Kanthal Corp.
Nilstain—Driver Co., Wilbur B.
Nilvar—Driver-Harris Co.
Niromet—Driver Co., Wilbur B.
Niron—Driver Co., Wilbur B.
Nite-Eye—Q.O.S. Corp.
Nitelighter—Fisher-Pierce Co.
Nitro-Gen—Hayes, Inc., C. I.
Nivac—Crucible Steel Co. of America
Nixie—Burroughs Corp.
No Noise Tuner-Tonic—Electronic Chemical Corp.
Nobatron—Sorensen & Co., Inc.
Nobl-Ohm—Fairchild Controls Corp.
Nobleloy—Continental-Wirt Electronics Corp.
Noblette—Continental-Wirt Electronics Corp.
Noblewest—Noble & Westbrook Mfg. Co.
Noiselock—Industrial Acoustics Co., Inc.
Noiseraser—Librascope Div.
Noishield—Industrial Acoustics Co., Inc.
Nokorode—Dunton Co., M. W.
Nomad—Magansync Corp.
Norbide—Norton Co.
Norelco—Philips Electronic Instruments Div.
Norplex—Northern Plastics Corp.
Nu-Blac—Star Porcelain Co.
Nu-Die—Crucible Steel Co. of America
NUclean—National Ultrasonic Corp.
Nuclibadge—Nuclear-Chicago Corp.
Nucor—Nuclear Corp. of America
Nude Ion—Vactronic Lab. Equipment, Inc.
Numill—Autonetics Div.
Nuray—Direct T/V Replacements Ltd.
Ny-Grip—Weckesser Co.
Nyco—New York Coil Co.
Nylaflow—Polymer Corp. of Pennsylvania
Nylasint—Polymer Corp. of Pennsylvania
Nylatint—Polymer Corp. of Pennsylvania
Nylatron—Polymer Corp. of Pennsylvania
Nylaweld—Polymer Corp. of Pennsylvania
Nyleze—Phelps Dodge Copper Products Corp.
Nylo-Fast—Anti-Corrosive Metal Products Co., Inc.
Nytran—New York Transformer Co., Inc.
Nytronic—New York Transformer Co, Inc.
Nyvar—Acme Wire Co.

—O—

OFC—Ortho Filter Corp.
O.K.—General Cable Corp.
O-Pac—Opad Electric Co.
O-Rings—United Aircraft Products, Inc.
Obround—Crouse-Hinds Co.
Observer—Blonder-Tongue Labs., Inc.
Ohiohm—Ohio Carbon Co.
Ohmoid—Wilmington Fibre Specialty Co.
OhmSpun—States Co.
Okolite—Okonite Co.
Okoseal—Okonite Co.
Omni-Glow—Industrial Devices, Inc.
Omniguard—Edison Industries, Thomas A.
Omnitenna—Tennalab
One-Piece—Buchanan Electrical Products Corp.
Operator 25—Western Union Telegraph Co.
Optisyn—Dynamics Research Corp.
Optitherm—Barnes Engineering Co.
Orange Drop—Sprague Electric Co.
Orosene—Technic Inc.
Orotherm—Technic Inc.
Ortholog—Gulton Industries, Inc.
Orthonull—General Radio Co.
Orthosill—Thomas & Skinner, Inc.
Oscar—Berger-Lehner Corp.
Osciducers—Solid State Electronics Co.
Oscillotron—Beattie-Coleman Inc.
Ouncer—United Transformer Corp.
Ovaltube—Plastoid Corp.

—P—

PAP-Code—Pacific Automation Products, Inc.
PD-X—Phelps Dodge Copper Products Corp.
PE—Illinois Condenser Co.
P.E.—Precision Electronics, Inc.
PEM—Penn Engineering & Mfg. Corp.

P.I.E.—Palmer Instruments
PL-100—Nortronics Co., Inc.
P.M.C.—Pacific Magnetic Corp.
P.N.R.—Rockbestos Wire & Cable Co.
PR—Petersen Radio Co., Inc.
PRC—Pacific Resistor Co.
PRI—Pacific Relays, Inc.
PRP—Photocon Research Products
P-S—Poly-Scientific Corp.
P.T.C.—Prototype Transformer Corp.
PVZ—General Electric Co.
PWC—Plastic Wire & Cable Corp.
PZT—Clevite Electronic Components
Pac—Erie Resistor Corp.
Pac—Jeffers Electronics Div.
Pace—Electronic Assoc., Inc.
Pacemaker—PRD Electronics, Inc.
Pacer—Sprague Electric Co.
Pacitron—Simmonds Precision Products, Inc.
Packettes—Plastic Associates
Packmaster—Radio Specialty Mfg. Co.
Pacor—Fairchild-Stratos Corp.
Padar—Fairchild-Stratos Corp.
Paeco—Hewlett-Packard Co.
Pagemaster—General Dynamics Electronics
Paliney—Ney Co., J. M.
Pals—Palnut Co.
Panacoustic—U. S. Recording Co.
Panalarm—Panellit Div.
Panalog—Panellit Div.
Panalytor—Panoramic Radio Products, Inc.
Panascan—Panellit Div.
Panastat—Panellit Div.
Panclimatic—Welwyn International, Inc.
Pandux—Pacific Transducer Corp.
Panel-Chanel—Stahlin Bros., Inc.
Panelgraph—Panellit Div.
Panelscope—Waterman Products Co., Inc.
Paniltrim—Bourns, Inc.
Panoramix—Comet Ltd.
Panto-Sert—Design Tool Corp.
Paperite—Acme Wire Co.
Paprene—Pacific Automation Products, Inc.
Paradaptor—Panoramic Electronics, Inc.
Paraflector—Scala Radio Co.
Paraflex—Audax Inc.
Paraflex—Rek-O-Kut Inc.
Paraformed—Paramount Paper Tube Corp.
Paragon—Ilex Optical Co.
Parami—Parsons Co., Ralph M.
Parbak—Parker Seal Co.
Parset—Parsons Co., Ralph M.
Partek—Magnaflux Corp.
Pathfinder—Newcomb Audio Products Co.
Patrol—Plectron Corp.
Peco—Pomona Electronics Co., Inc.
Pedaline—Line Electric Co.
Pee-Wee—Mueller Electric Co.
Peerless—General Cable Corp.
Pen Ray—Ultra Violet Products, Inc.
Pencil of Light—Electronic Control Corp.
Penco—Pacific Electro-Nuclear Corp.
Pengraf—Grafo Colloids Corp.
Penn-Tran—Penn-Transformer Corp.
Penntube—Pennsylvania Fluorocarbon Co., Inc.
Pensi-Timer—Lektra Labs.
Pentrex—Magnaflux Corp.
Pepco—Peerless Electrical Products Div.
Perco—Linell Engineering Corp.
Perfograph—Advanced Instrument Corp.
Perm-A-Caps—Chicago Condenser Corp.
Perma-Blend—Borden Chemical Co.
Perma-Brand—Krengel Mfg. Co.
Perma-Brush—General Devices, Inc.
Perma-Code—Brady Co., W. H.
Perma-Dry—Phelps Dodge Copper Products Corp.
Perma-Dure—Phelps Dodge Copper Products Corp.
Perma-Flex—Borden Chemical Co.
Perma-Grip—Avery Label Co.
Perma-Grip—Krengel Mfg. Co.
Perma-Mat—Borden Chemical Co.
Perma-Nuts—Tubular Rivet & Stud Co.
Perma-Plate—Borden Chemical Co.
Perma-Seal—Borden Chemical Co.
Perma-Torq—Cambridge Thermionic Corp.
Permacoat—Miller Dial & Name Plate Co.
Permadyne—Melody Master Mfg. Co.
Permafoam—Columbia Wire & Supply Co.
Permagrid—Driver Co., Wilbur B.
PermaKouple—Smith Mfg. Co., Inc., E. C.
Permaline—Columbia Wire & Supply Co.
Permalloy—Arnold Engineering Co.
Permanite—Texas Instruments Inc.
Permapaper—Sanborn Co.
Permaprene—Hatfield Wire & Cable Div.
Permascope—Skiatron Electronics & Television Corp.
Permaseal—Guardian Electric Mfg. Co.
Permaseal—Sprague Electric Co.
Permavolt—Grand Transformers, Inc.
Permi-Cal—Topflight Corp.
Permo Points—Fidelitone, Inc.
Permocarb—Driver Co., Wilbur B.
Permopivots—Fidelitone, Inc.
Petro-Dure—Phelps Dodge Copper Products Corp.
Phalene—Phalo Plastics Corp.
Phalon—Phalo Plastics Corp.
Phaseometer—Wintronics
Phazor—Industrial Test Equipment Co.
Phenolite—National Vulcanized Fibre Co.
Phil-Trol—Phillips Control Corp.
Phonola—Waters Conley Co., Inc.
Phostube—All-State Welding Alloys Co., Inc.
Photicon—Cathodeon Ltd.
Photo-Tape—Bach Auricon Inc.
Photocount—Dynapar Corp.
Photopot—Giannini Controls Corp.
Photoprobe—Electro-Physics Co.
Photoscan—CBS Labs.
Photosync—Automation Inc.
Phototron—Thomas Electronics, Inc.
Photronic—Daystrom, Inc.
Pi-Caps—Chicago Condenser Corp.
Pic—Polyphase Instrument Co.
Pic Sync—Fairchild Recording Equipment Corp.
Pick-A-Shaft—Clarostat Mfg. Co., Inc.
Pick-Off—Topflight Corp.
Pied Piper—Schulmerich Carillons, Inc.
Piezite—Endevco Corp.
Pig-Tailor—Bruno-N.Y. Industries Corp.
Pigmi—Benson-Lehner Corp.
Pin-Saver—Air-O-Tronics Engineering Co.
Pincor—Pioneer Gen-E-Motor Corp.
Pinhead—Sprague Electric Co.
Pinpoint—Goodyear Aircraft Corp.
Pinpot—Bourns, Inc.
Pisto-Grip—Wall Mfg. Co., P.
Pitlog—Pitometer Log Corp.
Planet Gear—Haydon Instrument Co.
Planofax—Westrex Corp.
Plaqohm—Ward Leonard Electric Co.
Plascene—Chester Cable Corp.
Plasma Gun—Avco Corp.
Plasti-Flex—Auburn Mfg. Co.
Plastical—C & D Batteries
Plasticell—C & D Batteries
Plasticon—Condenser Products Co.
Plasticord—Chester Cable Corp.
Plasticote—Chester Cable Corp.
Plastilease—Ram Chemicals, Inc.
Plastine—Sillcocks-Miller Co.
Plastips—Tri-Point Plastics, Inc.
Plastisel—Electronic Devices, Inc.
Plastometer—Fischer & Porter Co.
Plasturbo—Mamco Corp.
Plate-Lok—Boots Aircraft Nut Corp.
Plexicon—Erie Resistor Corp.
Plexitel—Westrex Corp.
Plug-N-Probe—Air-O-Tronics Engineering Co.
Plug-Pak—Gemco Electric Co.
Plug Stat—Control Products, Inc.
Plugbord—Vector Electronic Co., Inc.
Plunjet—Sheffield Corp.
Plus-50—Reeves Soundcraft Corp.
Plus-100—Reeves Soundcraft Corp.
Plus-100X—Reeves Soundcraft Corp.
Plus Module—Ansley Mfg. Co., Arthur
Ply Pak—Hinde & Dauch Div.
Plymaster—Rubber & Asbestos Corp.
Plyo-Duct—Methode Mfg. Corp.
Plyophen—Reichhold Chemicals, Inc.
Plytubular—Tennalab
Pocketape—Broadcast Equipment Specialties Corp.
Pocketscope—Waterman Products Co., Inc.
Poke Home—Amphenol-Borg Electronics Corp.
Polaritrol—Century Electronics & Instruments, Inc.
Policarb—Driver Co., Wilbur B.
Polidrive—Eletronica Industrial Ltda.
Poliprint—Eletronica Industrial Ltda.
Poliseal—Eletronica Industrial Ltda.
Politron—Eletronica Industrial Ltda.
Pollar—Precision Paper Tube Co.
Poly-Pedance—Chicago Standard Transformer Corp.
Poly-Plate—Brady Co., W. H.
Poly-Savers—Poly-Scientific Corp.
Poly-Sonic—McKenna Labs.
Poly-Varicon—Argonne Electronics Mfg. Corp.
Poly-Vironmental—Rototest Labs., Inc.
Polyco—Borden Chemical Co.
Polycoupler—CGS Labs., Inc.
Polyfoam—Amphenol-Borg Electronics Corp.
Polyiron—Crowley Div.
Polylite—Reichhold Chemicals, Inc.
Polymet—Cosmic Condenser Co.
Polyranger—Sensitive Research Instrument Corp.
Polyvar—Acme Wire Co.
Port-A-Phone—Feiler Eng. & Mfg. Co.
Porta-Bell—Packard-Bell Electronics Corp.
Porta-Kall—Loge Electronics, Inc.
Portovent—Flexaust Co.

TRADE-NAME INDEX

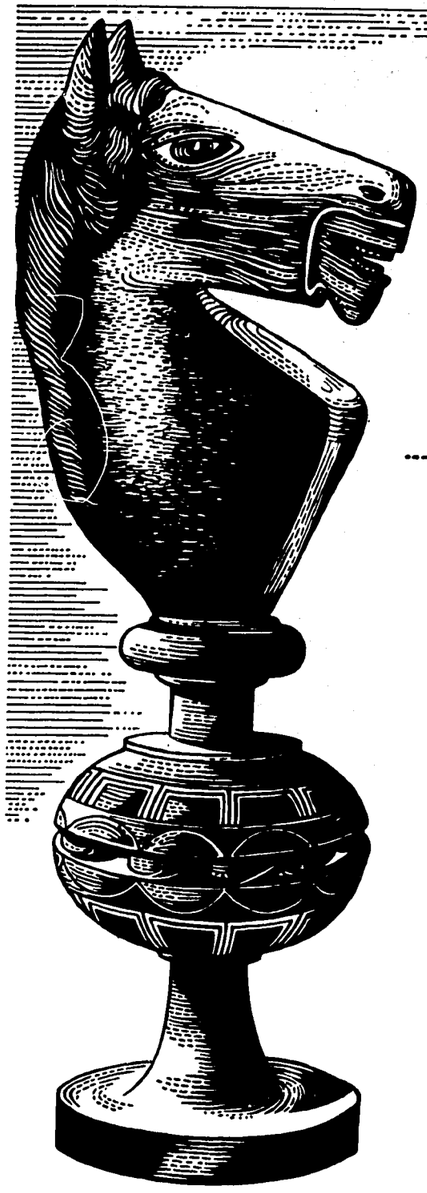
Portronic—Beattie-Coleman Inc.
Positive Lok—Grand Sliding Mechanisms, Inc.
Postlites—Drake Mfg. Co.
Pot Hook—Waters Mfg., Inc.
Potpot—Clarostat Mfg. Co., Inc.
Pottermeter—Potter Aeronautical Corp.
Power-O-Matic—Blue M Electric Co.
Power Streak—American Electric Cable Co.
Power Unit—Model Rectifier Corp.
Powerloid—Guardian Electric Mfg. Co.
Powerlytic—Sprague Electric Co.
Powermaster—JEM Electronics Corp.
Powersel—Electronic Devices, Inc.
Powerstat—Superior Electric Co.
Powerthon—Marathon Electric Mfg. Corp.
Powertron—Industrial Test Equipment Co.
Powr-Rib—Ohmite Mfg. Co.
Powrmite—Filtors, Inc.
Powrpage—University Loudspeakers, Inc.
Practi-Call—Standard Electric Time Co.
Pre-Lode—Parker-Kalon Div.
Preac—Airpax Electronics, Inc.
Precise-Ohm—Precision, Inc.
Precision-Pak—Sheffield Corp.
Precision-Rol—Sheffield Corp.
Precisionaire—Sheffield Corp.
Prekorder—Research, Inc.
Prem-O-Rak—Premier Metal Products Co.
Prema Braze—Handy & Harman
Premalloy—Handy & Harman
Pres-Sure-Buchanan Electrical Products Corp.
Pres-Tite—Wind Turbine Co.
Press Fit—Sealectro Corp.
Pressure-Lock—General Electric Co.
Pressurmite—Bendix Corp.
Pressweld—Pressteel Co.
Prestest—Cutler-Hammer Inc.
Prestige—Bud Radio, Inc.
Prestrace—Nashua Corp.
Princir—Amphenol-Borg Electronics Corp.
Print-Lok—Sprague Electric Co.
Print-Stix—Topflight Corp.
Printapix—Litton Industries
Printate—American Printed Circuits Co.
Printohm—Sprague Electric Co.
Printometer—Electro-Physics Co.
Private Eye—Television Utilities Corp.
Privatel—North Electric Co.
Prob-A-Larm—Weighing & Controls, Inc.
Prob-A-Level—Weighing & Controls, Inc.
Probostrobe—Nichols Ltd., R. H.
Process Engraving—Ackerman Engravers, Inc.
Processall—Fisher Co., Inc., Oscar
Professional—Components Corp.
Professional—Reeves Soundcraft Corp.
Programation—Guardian Electric Mfg. Co.
Prokar—Sprague Electric Co.
Prolene—Phalo Plastics Corp.
Promatic—General Control Co.
Prong-Lock—Waldes Kohinoor, Inc.
Propellon—LMB-Heeger, Inc.
Propimax—Rotron Mfg. Co., Inc.
Protecto-Seal—Phelps Dodge Copper Products Corp.
Protectorelay—Minneapolis-Honeywell Regulator Co.
Protectostat—Minneapolis-Honeywell Regulator Co.
Protectox—Technic Inc.
Protoloy—Molecu-Wire Corp.
Protovac—Borden Chemical Co.
Prox-A-Pickup—Minatron Corp.
Psychron—Bendix Corp.
Pulsatron—Kaman Nuclear Div.
Pulsescope—Waterman Products Co., Inc.
Pulsignal—A.R.F. Products, Inc.
Pulsite—Airpax Electronics, Inc.
Pulsolite—Electronic Control Corp.
Pultec—Pulse Techniques, Inc.
Pultrator—Packard-Bell Electronics Corp.
Push-In-Zip—Vector Electronic Co., Inc.
Push-Latch—Joy Mfg. Co.
Push-Lock—Joy Mfg. Co.
Push-Lok—Sprague Electric Co.
Pushlock—Whitso, Inc.
Pushnut—Palnut Co.
Pygmy—Bendix Corp.
Pyramid—Fidelitone, Inc.
Pyranol—General Electric Co.
Pyrex—Corning Glass Works
Pyro—Pyrometer Instrument Co., Inc.
Pyro Seal—Pyrofilm Resistor Co., Inc.
Pyroceram—Corning Glass Works
Pyromark—Tempil Corp.
Pyroply—Skydyne, Inc.
Pyrostat—Minneapolis-Honeywell Regulator Co.
Pyrotel—Mason Instrument Co.
PyroTemp—Electronic Control Corp.
Pyrotest—Technique Associates
Pyrotrol—Mason Instrument Co.
Pyrotron—Bailey Meter Co.
Pyrox—Pyro-Electric, Inc.
Pyroxid—Technicraft Co.

—Q—

Q-Bestun—Auburn Mfg. Co.
Q-Lines—Columbia Technical Corp.
QMV—Brush Beryllium Co.
Quad—Acoustical Mfg. Co. Ltd.
Quad Ring—Minnesota Rubber Co.
Quadradar—Gilfillan Bros., Inc.
Qualicount—American Hydromath Corp.
Qualitrol—American Hydromath Corp.
Quantascan—Quantametric Devices, Inc.
Quantatherm—Research, Inc.
Quantizer—Austin Electronics
Quartector—Trans-Sonics, Inc.
Quartet—U. S. Burke Machine Tool Co.
QuelArc—Pyle-National Co.
Quick-Crimp—Amphenol-Borg Electronics Corp.
Quicklock—Simmons Fastener Corp.
Quiet Ducts—Industrial Acoustics Co., Inc.
Quik-Keg—Hinde & Dauch Div.
Quik-Label—Brady Co., W. H.
Quik-Loc—Joy Mfg. Co.
Quik-Mask—Brady Co., W. H.
Quik-Plate—Brady Co., W. H.
QuiKouple—Smith Mfg. Co., Inc., E. C.

—R—

RA-100—Nortronics Co., Inc.
R/C—Radio Condenser Co.
R.C.E. Solution—Hunt Co., Philip A.
RDC—Rotary Devices Corp.
REL—Radio Engineering Labs., Inc.
RIDL—Radiation Instrument Development Lab., Inc.
RMB—Roulements Miniatures S. A.
R.M.C. Discaps—Radio Materials Co.
R-P—Electronet Div.
RPC—Resistance Products Co.
RS—Switchcraft, Inc.
R-Stacks—Consolidated Resistance Co. of America
RTT—Micro Systems, Inc.
RTV—Clarostat Mfg. Co., Inc.
RW-300—Thompson-Ramo Wooldridge Inc.
RX—Instru-Lec Corp.
Race—Sperry Microwave Electronics Co.
Racer—Pearce-Simpson, Inc.
Rackvolt—Nutron Mfg. Co., Inc.
Rad-A-Cor—Magnetic Core Corp.
Rada-Node—Kay Electric Co.
Rada-Pulser—Kay Electric Co.
Rada-Sweep—Kay Electric Co.
Radaligner—Kay Electric Co.
Radamic—Radar Design Corp.
Radan—GPL Div.
Radar-Eye—Chapin Electronics Inc.
Radcell—Victoreen Instrument Co.
Radector—Victoreen Instrument Co.
Radgun—Victoreen Instrument Co.
Radi-Matic—Mosler Research Products, Inc.
Radiac—Arnhold Ceramics Inc.
Radiastat—Ward Leonard Electric Co.
Radiflo—American Electronics, Inc.
Radio Alloys—Driver Co., Wilbur B.
Radiocarb—Driver Co., Wilbur B.
Radiocrafter—Technicraft Co.
Radiodyne—Western Coil & Electrical Co.
Radiohm—Centralab Electronics Div.
Radiotron—Radio Corp. of America
Radite—Radar Design Corp.
Rafax—HRB-Singer, Inc.
Rainbow—Channel Master Corp.
Rakscope—Waterman Products Co., Inc.
Raloc—Pickard & Burns, Inc.
Rand-O-Matic—Ling Electronics Div.
Randac—Mitchell-Rand Mfg. Corp.
Rapid—Rapid Electroplating Process Inc.
Rapid—Rapid Specialties Co.
Ratio Digital—Technical Industries Corp.
RatioTran—Gertsch Products, Inc.



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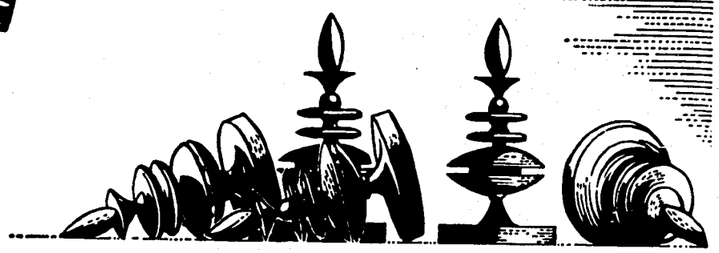

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Raychronix—Nuclear Corp. of America
Raydist—Hastings-Raydist, Inc.
Rayolin—Raychem Corp.
Rayonic—Waterman Products Co., Inc.
Rayotube—Leeds & Northrup Co.
Rayspan—Raytheon Co.
Raz-A-Dapta—Todd Electric Co., Inc.
Re-Cirk-It—Heinemann Electric Co.
Reac—Reeves Instrument Corp.
Readall—Union Switch & Signal Div.
Realite—Borden Chemical Co.
ReaPak—Rea Magnet Wire Co., Inc.
Rear-Guard—Kay-Townes Antenna Co.
Receptor—Jerrold Electronics Corp.
Recomp—Autonetics Div.
Reconofax—HRB-Singer, Inc.
Record-Flo—Watson Mfg. Co., Inc.
Record-Life—Librascope Div.
RecordAbell—Schulmerich Carillons, Inc.
Recti-Pulse—Hanson-Gorrill-Brian, Inc.
Recti/Rite—Texas Instruments Inc.
Recti/Riter—Texas Instruments Inc.
Rectiformer—Daystrom Inc.
Rectisel—Electronic Devices Inc.
Rectodyne—Christie Electric Co.
Rectopower—Mallory & Co. Inc., P. R.
Red Cap—Vaco Products Co.
Red Diamond—Liquid Carbonic Div.
Red Diamond—Reeves Soundcraft Corp.
Red Line—G-V Controls Inc.
Redhead—Clevite Electronic Components Div.
Redisol—Jelliff Mfg. Corp. C. O.
Redtop—Bradley Semiconductor Corp.
Reevelec—Reeve Electronics Inc.
Refrasil—Thompson Fibre Glass Co., H. I.
Refrax—Carborundum Co.
Refvolt—Consolidated Controls Corp.
Regal-Corporal—Gilfillan Bros. Inc.
Regatran—Electronic Measurements Co., Inc.
Regatron—Electronic Measurements Co., Inc.
Regency—I.D.E.A., Inc.
Regohm—Electric Regulator Corp.
Regular—Paramount Paper Tube Corp.
Regulinear—Continental Electronics Mfg. Co.
Regulite—Ward Leonard Electric Co.
Rekrd—Waber Electronics Inc.
Reli-Acon—Methode Mfg. Corp.
Reliancap—Micamold Electronics Mfg. Corp.
Reliance—United States Steel Corp.
Reliant—Radio Engineering Labs., Inc.
Relo—Railroad Electronic Labs. of Omaha, Inc.
Reloid—Guardian Electric Mfg. Co.
REM—Resin Consultants & Mfg. Co., Inc.
Rembrandt—All Channel Products Corp.
Remcon—Pyramid Instrument Corp.
Remotomike—Poole Instruments Inc.
Repicon—General Products Corp.
Res-Q-Pak—Muter Div.
Resilith—Borden Chemical Co.
Resistrim—Bourns, Inc.
Resistrim—Technology Instrument Corp.
Resmetal—Borden Chemical Co.
Restrictor—North Electric Co.
Retrolar—Precision Paper Tube Co.
Rev-O-Matic—Applied Technology Corp.
Revalon—Revere Copper & Brass Inc.
Revalum—Revere Copper & Brass Inc.
Revmaster—Opad Electric Co.
Rex—Crucible Steel Co. of America
Rex Dependable—Trimm, Inc.
Rex-Tube—Flexonics Corp.
Rex-Weld—Flexonics Corp.
Rexalloy—Crucible Steel Co. of America
Rexflex—Flexonics Corp.
Rezseal—Sprague Electric Co.
Rhythmaster—Rek-O-Kut Inc.
Ri-Cap—Radio Industries, Inc.
Ri-Lon—Radio Industries, Inc.
Ri-Sel—Radio Industries, Inc.
Ri-Tran—Radio Industries, Inc.
Ribbon Heat Aeronautical—Cox & Co. Inc.
Ribflex—Ward Leonard Electric Co.
Ribohm—Ward Leonard Electric Co.
Richmond—Lowell Mfg. Co.
Rigid 800—Prodelin, Inc.
Rigidamp—Barry-Wright Corp.
Rimguard—Parker-Kalon Div.
Rimlock—Felker Mfg. Co.
Ring-Jet—Stokes Corp., F. J.
Ring Ding—Delevan Electronics Corp.
Ripflex—Hatfield Wire & Cable Div.
Riteohm—Ohmite Mfg. Co.
Robot—Miller-Harris Instrument Co.
Robotec—Power Designs Inc.
Robotemp—Ulanet Co., George
Robotesters—Lavoie Labs., Inc.
Robotron—Taylor-Emmett Controls Inc.
Robotug—E.M.I. Electronics Ltd.
Rocket—Sylvania Electric Products Inc.
Rocketon—Haveg Industries, Inc.
Rockette—Cutler-Hammer Inc.
Rodar—Driver Co., Wilbur B.
Roflex—Rome Cable Div.
Rol-Dex—Watson Mfg. Co., Inc.
Rol-Pak—Waldes Kohinoor, Inc.
Rol-Top—Boots Aircraft Nut Corp.
Rol-Tronic—Watson Mfg. Co., Inc.
Rolene—Rome Cable Div.
Roll Matrix—All-State Welding Alloys Co., Inc.
Rollpin—Elastic Stop Nut Corp. of America
Rolon—Rome Cable Div.
Romarine—Rome Cable Div.
Rome 60—Rome Cable Div.
Romex—General Cable Corp.
Rondine—Rek-O-Kut Inc.
Roprene—Rome Cable Div.
Rosco—Rosenberg Bros. & Co.
Roseal—Rome Cable Div.
Rosin X—Dunton Co., The M. W.
Rotalyzer—Kay Electric Co.
Rotary Piston—Beach-Russ Co.
Roto-Jet—Electric Regulator Corp.
Roto-Lock—Simmons Fastener Corp.
Roto-Marker—Acromark Co.
Roto-Push—Cutler-Hammer Inc.
Roto-Tork—Haydon Co., The A. W.
Rotocon—Rototest Labs., Inc.
Rotocon—Unistrut Products Co.
Rotoflex—Technology Instrument Corp.
Rotopulser—Dynapar Corp.
Rotorac—Airborne Accessories Corp.
Rotorelay—Corona Engineering Service
Rotorette—Airborne Accessories Corp.
Rototimer—Farmer Electric Products Co., Inc.
Rowex—Rowe Engravers
Royal Blue—Permoflux Products Co.
Rozone—Rome Cable Div.
Rubbon—All-State Welding Alloys Co., Inc.
Rubr-Hair—American Latex Fibre Corp.
Rubrglas—A.P.M. Corp.
Rulon—Dixon Corp.
Ruralay—General Cable Corp.
Rush—Eraser Co., Inc.
Rustrak—Rust Industrial Co., Inc.
Ryanav—Ryan Electronics Div.
Rycom—Railway Communications Inc.

—S—

SADT—Philco Corp.
S.Al—Tru-Ohm Products Div.
SAT—Philco Corp.
SBRC—Hughes Aircraft Co.
SBT—Philco Corp.
SC—Stromberg-Carlson Div.
SCA—Safe Flight Instrument Corp.
S.C.E. Solution—Hunt Co., Philip A.
SF2—Standard Controls, Inc.
SF Jax—Switchcraft, Inc.
SI—Epsey Mfg. Co., Inc.
SIE—Southwestern Industrial Electronics Co.
SKL—Spencer-Kennedy Labs., Inc.
SLM—Kistler Instrument Corp.
SMC—Saint Marys Carbon Co.
SMT—Illinois Condenser Co.
S.N.—Schirmer National Alarm Co.
SP2—Standard Controls, Inc.
SR-4—Baldwin-Lima-Hamilton Corp.
SRA—Di/An Controls, Inc.
SSPI—Solid State Products Inc.
SVE—GB Electronics
S.W.— Stevens Walden Inc.
SWTL—Surface Conduction, Inc.
SAECO—Santa Anita Engineering Co.
Saf-Loc—Aeroquip Corp.
Safcorde—Kenru Co.
Safe-T-Klip—Industrial Devices, Inc.
Safe-T-Ray—American Machine & Foundry Co.
Safety M.I.—General Cable Corp.
Sali—Solartron Electronic Group Ltd.
Sal-Met—LMR-Heeger, Inc.
Sarah—Simmonds Precision Products, Inc.
Satellite—Soundscriber Corp.
Sator—Wells Co., Inc., Gary
Saucer—Patron Mfg. Co., Inc.
Savbar—Multicore Sales Corp.
Scamp—Neff Instrument Corp.
Scana-Graph—Television Utilities Corp.
Scanoscope—Grimson Color, Inc.

Scientific—Scientific Radio Products, Inc.
Scope Dolly—P. B. R. Mfg. Co.
Scotch—Minnesota Mining & Mfg. Co.
Scotsman—Scott, Inc., H. H.
Scottie—Remler Co.
Screw-Lock—Heli-Coil Corp.
Screw Thread—Heli-Coil Corp.
Scrimtex—Mosinee Paper Mills Co.
Scynograph—Allen Electric & Equipment Co.
Sea-Deep—Multi Products Co.
Sea-Fume—Multi Products Co.
Sea-Rad—Multi Products Co.
Sea Slave—Sturrup, Inc.
Sealcap—JFD Electronics Corp.
Sealmet—Allegheny Ludlum Steel Corp.
Sealnut—Radio Frequency Labs., Inc.
SealVac—Ultek Corp.
Seam-It—Borden Chemical Co.
Sector—Jensen Mfg. Co.
Secure—Instruments of New England
Sedac—Magnaflux Corp.
See-Thru—Krengel Mfg. Co.
Seelbolts—A. P. M. Corp.
Seelfastners—A. P. M. Corp.
Seelrivits—A. P. M. Corp.
Seelskrews—A. P. M. Corp.
Seepomike—Poole Instruments Inc.
Seezak—Rimak, Inc.
SeisMAC—Texas Instruments Inc.
Seismation—Texas Instruments Inc.
Sel-Lok—Standard Pressed Steel Co.
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Selectionaire—Sheffield Corp.
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Selenta—Associated American Winding Machinery, Inc.
Seletron—Radio Receptor Co., Inc.
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Selmor—Hinde & Dauch Div.
Semcor—U.S. Semiconductor Products
Semi-Heat—Semicon, Inc.
Semi-Lite—Semicon, Inc.
Semicap—International Rectifier Corp.
Semiconductor Calculator—Northern Electronic & Vacuum Industries
Sensistor—Texas Instruments Inc.
Sensitrol—Daystrom Inc.
Sensitron—Daystrom Inc.
Sensory—Sturtevant Co., P. A.
Sentinel—Mosler Research Products, Inc.
Sentri-Seals—New Departure Div.
Sentry—Plectron Corp.
Sequentialite—Kemlite Labs., Inc.
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Servoflight—Servo Corp. of America
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Shockproof—Monarch Electric Corp.
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Shortstop—Underwood Electrical & Mfg. Co., Inc.
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Shur-Code—Westline Products Div.
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Sico—Superior Instruments Co.
Sieco—Sherman Industrial Electronics Co.
Siemarc—Southwestern Industrial Electronics Co.
SiFeMag—Thomas & Skinner, Inc.
Sigalarm—Wintronics
Sightmaster—Flexo International Corp.
Sigmatron—Intercontinental Dynamics Corp.
Signa-Glow—Industrial Development Labs., Inc.
Signet—Stromberg-Carlson Div.
Signico—Signal Indicator Corp.
Sil-Fos—Handy & Harman
Sil-Rap—Minnesota Rubber Co.
Silastic—Dow Corning Corp.
Silcad—Yardney Electric Corp.
Si-lectron—Arnold Engineering Co.
Silertex—Erie Resistor Corp.
Silic-O-Netic—Heinemann Electric Co.
Silicohm—Sage Electronics Corp.
Silicol—Electro Engineering Works
Silicontrol—Vectrol Eng. Inc.
Silkenite—Acme Wire Co.
Siltemp—Haveg Industries, Inc.
Siltube—All-State Welding Alloys Co., Inc.
Silv-A—Plastic Wire & Cable Corp.
Silverama—Radio Corp. of America
Silvercel—Yardney Electric Corp.
Silvercote—Little Falls Alloys, Inc.
Silvertone—Warwick Mfg. Corp.
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Sineverter—Power Sources, Inc.
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Skinny Marie—Waber Electronics Inc.
Skinny Milton—Waber Electronics Inc.
Sky Chief—GB Electronics
Sky-Hi—Thomas Mold & Die Co.
Sky-Streak—American Electric Cable Co.
Skygalley—REF Mfg. Corp.
Skylark—Channel Master Corp.
Sleepatron—Gardiner Electronics Co.
Slektr—Waber Electronics Inc.
Slideaire—U.S. Tool Co., Inc.
Slight Bow—Paramount Paper Tube Corp.
Slikwynd—Republic Foil Inc.
Slim Jim—American Geloso Electronics, Inc.
Slim-Tran—Electronic Research Assoc., Inc.
Slimsert—Rosan, Inc.
Slip-Drive—Clarostat Mfg. Co., Inc.
Slip-Sync—Chadwick-Helmuth Co.
Slo Bel—Bel Fuse Inc.
Slo Blo—Littelfuse, Inc.
Slo-Lag—Eagle Electric Mfg. Co., Inc.
Slo-Syn—Superior Electric Co.
Slug-Retriever—Hunter Tool Co.
Slyver-Clad—C & D Batteries
Smith-Baldwin—Cinaudagraph, Inc.
Smith Switch—Chicago Telephone of Calif., Inc.
Smog-Free—Radex Corp.
Smoke Monitor—Electronic Control Corp.
Snaco—Schirmer National Alarm Co.
Snap Action—Buchanan Electrical Products Corp.
Snap-Loc—Monadnock Mills
Snap-Tite—Centralab Electronics Div.
Snapper—Curtiss-Wright Corp.
Snow-Cap—Gudeman Co.
Sodereze—Phelps Dodge Copper Products Corp.
Sola-Jet—Temperature Engineering Corp.
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Solar Sentry—Solar Systems, Inc.
Solar-Trol—Solar Systems, Inc.
Solarcheck—Solartron Electronic Group Ltd.
Solarscope—Solartron Electronic Group Ltd.
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Solderux—Mico Instrument Co.
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Solidpaks—Solitron Devices Inc.
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Sona-Graph—Kay Electric Co.
Sona-Stretcher—Kay Electric Co.
Sona-Sweep—Kay Electric Co.
Sonagram—Kay Electric Co.
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Soniclean—Dawe Instruments Ltd.
Sonitzer—Ultrasonic Industries, Inc.
Sonizon—Magnaflux Corp.
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Sono-Sentry—Minneapolis-Honeywell Regulator Co.
Sonobraze—Aeroprojects, Inc.
Sonogen—Branson Ultrasonic Corp.
Sonoramic—Ferrodynamics Corp.
Sonosolder—Aeroprojects, Inc.
Sonoweld—Aeroprojects, Inc.
Sound Barrier—Ray-O-Vac Co.
Sound-D-Tect—Mosler Research Products, Inc.
Soundcraft—Reeves Soundcraft Corp.
Sovereign—Land-Air, Inc.
Space—Brooks Research, Inc.
Space Age Ceramics—Coors Porcelain Co.
Spascore—Staples-Hoppmann, Inc.
Spauldite—Spaulding Fibre Co., Inc.
Spauldo—Spaulding Fibre Co., Inc.
Spec—Computer Control Co., Inc.
Spec-Metalcraft—Spec-Tronics
Spec-Plating—Spec-Tronics
Spec-Switch—Spec-Tronics
Speech Master—Jensen Mfg. Co.
Speed Chassis—Specific Products
Speed Clamps—Tinnerman Products, Inc.
Speed Clips—Tinnerman Products, Inc.
Speed-Coat—Micro-Circuits Co. Inc.
Speed Control—Safe Flight Instrument Corp.
Speed Grips—Tinnerman Products, Inc.
Speed Nuts—Tinnerman Products, Inc.
Speedex—G-C Electronics Co.
Speedivac—Edwards High Vacuum (Can.) Ltd.
Speedminder—Glaser-Steers Corp.
Speedomax—Leeds & Northrup Co.
Speedy Cal—North Shore Nameplate
Speedy Mark—North Shore Nameplate
Spellerized—United States Steel Corp.
Spin-Pin—Bruno-N.Y. Industries Corp.
Spincasting—Kennedy & Co., D. S.
Spinlab—Special Instruments Lab., Inc.
Spintite—Stevens Walden, Inc.
Spir'ator—Hunter Spring Co.
Spir-O-Line—Prodelin, Inc.
Spir-O-Lok—Prodelin, Inc.

TRADE-NAME INDEX

Spirafil—Phelps Dodge Copper Products Corp.
Spiraflex—General Insulated Wire Works
Spiral Cam—Dzus Fastener Co., Inc.
Spiralpot—Giannini Controls Corp.
Spiralray—Telrex Labs.
Spirameg—Sprague Electric Co.
Spirashield—Muter Div.
Splic-It—Borden Chemical Co.
Splice Caps—Buchanan Electrical Products Corp.
Spokesman—Winston Electronics
Sportsman—Ray-O-Vac Co.
Spot-Lite—Line Electric Co.
Spotcheck—Magnaflux Corp.
Springlock—Simmons Fastener Corp.
Square—Di/An Controls, Inc.
Squaretrim—Daystrom Pacific Div.
Squire—Kay-Townes Antenna Co.
Squitch—Raymond Engineering Lab., Inc.
Sta-Kon—Thomas & Betts Co., Inc.
Sta-Loc—Mallory & Co., Inc., P. R.
Stabil-Therm—Blue M Electric Co.
Stabilcap—Elpac, Inc.
Stabilidisc—Steafix
Stabiline—Superior Electric Co.
Stabilogauge—American Hydromath Corp.
Stackmaster—Union Steel Chest Corp.
Stackohm—Sprague Electric Co.
Staco—Standard Electrical Products Co.
Stafcal—Stafford Mfg. Co., Inc.
Stafco—Stafford Mfg. Co., Inc.
Staley—Bernco Engineering Corp.
Stancoil—Standard Coil Products (Canada) Ltd.
Stancor—Chicago Standard Transformer Corp.
Standard—Standard Electric Time Co.
Standard-50—Reeves Soundcraft Corp.
Standard Tuner—Standard Kollsman Industries, Inc.
Standco—Sticht Co., Inc., Herman H.
Standee—Clarostat Mfg. Co., Inc.
Staneon—General Cable Corp.
Star-Line—Pyle-National Co.
Star-Lok—Boots Aircraft Nut Corp.
Starline—Electro-Mechanical Instrument Co.
Stat-O-Seal—Parker Seal Co.
Stat-Tran—Pulse Engineering, Inc.
States—States Co.
Statex—Columbian Carbon Co.
Staticon—Cathodeon Ltd.
Statiflux—Magnaflux Corp.
Stavolt—Christie Electric Co.
Sted-Tab—Steel Heddle Mfg. Co.
Stemag—Arnhold Ceramics Inc.
Stemco—Stevens Mfg. Co., Inc.
Stenafax—Westrex Corp.
Stenotape—American Geloso Electronics, Inc.
Stenotron—Autron Engineering Inc.
Step Servo—Bergen Labs., Inc.
Step-Trol—Control Corp.
Step-Up Kits—Jensen Mfg. Co.
Stereo Director—Jensen Mfg. Co.
Stereo Magic—Waber Electronics, Inc.
Stereo Table—Rek-O-Kut Inc.
Stereoflex—University Loudspeakers, Inc.
Stereomaster—Scott, Inc., H. H.
Stereomat—Benson-Lehner Corp.
Stereomatic—Waber Electronics, Inc.
Stereophones—Permoflux Products Co.
STERIEO—Erie Resistor Corp.
Stentor—PAM Associates, Inc.
Stibnalon—Green Rectifier Co.
Stikon—Ruge Associates, Inc., Arthur C.
Stingo—Southwest Products, Inc.
Storatron—Du Mont Labs., Inc., Allen B.
Straightaway—Clark Co., Inc., David
Strainistor—Century Electronics & Instruments, Inc.
Straplock—Whitso, Inc.
Strat-O-Lite—Strat-O-Seal Mfg. Co.
Strate-Line—Pyle-National Co.
Strato—Spaulding Products Co.
Stresscoat—Magnaflux Corp.
String-A-Lite—Joy Mfg. Co.
Stripmaster—Ideal Industries, Inc.
Stripohm—Ward Leonard Electric Co.
Strippit—Wales Strippit, Inc.
Strobeacon—Kemlite Labs., Inc.
Strobeselecto—Rheem Califone Corp.
Stroboflash—Dawe Instrument, Ltd.
Stroboflood—Dawe Instruments, Ltd.
Strobolux—General Radio Co.
Strobominor—Dawe Instruments, Ltd.
Strobotac—General Radio Co.
Strobotorch—Dawe Instruments, Ltd.
Strut—Unistrut Products Co.
Stur-D-Lace—Gudebrod Bros. Silk Co., Inc.
Stycast—Emerson & Cuming, Inc.
Styracon—Sprague Electric Co.
Styroflex—Natvar Corp.
Su-Pr-Circuits—Cleveland Metal Specialties Co.
Sub-Arctic—Tenney Engineering, Inc.
Sub-Subouncer—United Transformer Corp.
Subminax—Amphenol-Borg Electronics Corp.
Subouncer—United Transformer Corp.
Sugar—United States Steel Corp.
Super Fan—Channel Master Corp.
Super Katy—Kay-Townes Antenna Co.
Super Service—General Cable Corp.
Super Steel—Union Steel Chest Corp.
Super-Trol—Control Corp.
Supercap—United Electronic Mfg. Corp.
Supercon—Computer Instruments Corp.
Supercon—Superior Electric Co.
Superior 5-Way—Superior Electric Co.
Superkore—United States Steel Corp.
Supermalloy—Arnold Engineering Co.
Supermendur—Arnold Engineering Co.
Supersheath—General Cable Corp.
Supersonic—Dzus Fastener Co., Inc.
Supertel—General Cable Corp.
Supertenna—Tennalab
Supertuf—General Cable Corp.
Supervac—Central Scientific Co.
Supramica—Mycalex Corp. of America
Supro—Valco Mfg. Co.
Sure Flux—New York Solder Co., Inc.
Surebraze—Dalweld Co., Inc.
Surestrip—Carpenter Mfg. Co., Inc.
Surfindicator—Brush Instruments Div.
Surgelite—Kemlite Labs., Inc.
Surgistor—Wuerth Products Corp.
Sweep-Flo—Flo-Tronics, Inc.
Sweep-Sync—Chadwick-Helmuth Co.
Swiftol—Southwest Products, Inc.
Swingrig—Video Industries Co.
Switcheroo—Waber Electronics, Inc.
Swivltop—Moody Machine Products Co., Inc.
Sylgard—Dow Corning Corp.
Sylphon—Robertshaw-Fulton Controls Co.
Sylvaloy—Driver Co., Wilbur B.
Symbltak—Chart-Pak, Inc.
Symmetra-Peak—Kahn Research Labs., Inc.
Syncap—Wesco Electrical Co., Inc.
Synchron—Hansen Mfg. Co., Inc.
Syncroll—Fairchild Recording Equipment Corp.
Syncroverter—Bristol Co.
Synkote—Plastoid Corp.
Synthamica—Mycalex Corp. of America
Synthe-Seal—Marlin-Rockwell Corp.
Synthinol—Rome Cable Div.
Synthographic—Synthane Corp.
Systemat—Waterman Products Co., Inc.

—T—

T-Bloc—Computer Control Co., Inc.
T.C.C.—Telegraph Condenser Co., Ltd.
TCI—Technical Communications, Inc.
TEC—Transistor Electronics Corp.
TI—Texas Instruments, Inc.
T-Jax—Switchcraft, Inc.
TLA—Nortronics Co., Inc.
TLB—Nortronics Co., Inc.
T-Line—Times Wire & Cable Co.
TM—General RF Fittings, Inc.
TMC—Technical Measurement Corp.
TNC—General RF Fittings, Inc.
T-Pac—Computer Control Co., Inc.
T-Power—Motorola Inc.
TR—Industro Transistor Corp.
T-S-I—Tri-Point Plastics, Inc.
T-Switcheo—Switchcraft, Inc.
TV-Duette—Jensen Mfg. Co.
TV-Luxchrome—Trans-Lux Corp.
TVD—TV Development Corp.
TW—Channel Master Corp.
Ta'Pot—Howell Instrument Co.
Table Top Dryer—Fisher Co., Inc., Oscar
Tach-Pak—Airpax Electronics, Inc.
Tackmaster—Rubber & Asbestos Corp.
Taco—Technical Appliance Corp.
Tadanac—Consolidated Mining & Smelting Co. of Canada, Ltd.
Tan-O-Mite—Ohmite Mfg. Co.
Tan-TI-Cap—Texas Instruments, Inc.
Tanatherm—Trans-Sonics, Inc.

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Tantalex—Sprague Electric Co.
Tantalytic—General Electric Co.
Tantapak—Sprague Electric Co.
Tantumcap—Micamold Electronics Mfg. Corp.
Tap Welder—Ewald Instruments
Tapak—Broadcast Equipment Specialties Corp.
Tapco—Tech-Art Plastics Co.
Tape Index—Reeves Soundcraft Corp.
Tape Strobe—Scott Instrument Labs., Inc.
Tappee—Saxton Products, Inc.
Target—S & A Electronics, Inc.
Taylor—Cetron Electronic Corp.
Taylorite—Taylor Fibre Co.
Tayprglass—Eraser Co., Inc.
Technite—Librascope Div.
Tecknit—Technical Wire Products, Inc.
Teckstrip—Technical Wire Products, Inc.
Tef-O-Bond—Cable Designs, Inc.
Teflon—Du Pont de Nemours & Co., E. I.
Tek-File—Rider Publisher, Inc., John F.
Tel-A-Cor—Magnetic Core Corp.
Tel-Ohmike—Sprague Electric Co.
Tele-Flex—Telerad Mfg. Corp.
Tele-Form—Telerad Mfg. Corp.
Tele-Guide—Telerad Mfg. Corp.
Tele-Trol—Jerrold Electronics Corp.
Tele-Twist—Telerad Mfg. Corp.
Telecap—Sprague Electric Co.
Telecardio—Taber Instrument Corp.
Teleceph—Taber Instrument Corp.
Telecord—Dictaphone Corp.
Telecordex—Telecomputing Corp.
Telecrane—Union Switch & Signal Div.
Teledeltos—Western Union Telegraph Co.
Teleducer—Telecomputing Corp.
Teledyne—Taber Instrument Corp.
Teleflight—Taber Instrument Corp.
Telejector—Gray Mfg. Co.
TeleKaster—Packard Bell Electronics
Telemet—Allegheny-Ludlum Steel Corp.
Telepak—Telecomputing Corp.
Telequipment—Scopes Co., Inc.
Telereader—Telecomputing Corp.
Telereadex—Telecomputing Corp.
Telering—Telkor, Inc.
Telescan—Electro Radiation, Inc.
Teleshow—Staples-Hoppmann, Inc.
Telespectrometer/PEAC—Barnes Engineering Co.
Teletalk—Webster Electric Co.
Teletape—Sodeco
Teletemp—Sheffield Corp.
Teletorques—Kollsman Motor Corp.
Teletronic—Edgerton, Germeshausen & Grier, Inc.
Televolt—Sola Electric Co.
Tellite—Master Specialties Co.
Temp-Alarm—Tempil Corp.
Temp-Lace—Gudebrod Bros. Silk Co., Inc.
Temp-R-Tape—Connecticut Hard Rubber Co.
Tempbraid—Hitemp Wires, Inc.
Tempcor—Tempel Steel Co.
Tempcor—Temperature Engineering Corp.
Temprene—Hitemp Wires, Inc.
Temprex—Hitemp Wires, Inc.
Temprite—Hitemp Wires, Inc.
Temproof—Lord Mfg. Co.
Tennakits—Tennalab
Tensilok—General Cable Corp.
Tensolex—Tensolite Insulated Wire Co., Inc.
Tensolon—Tensolite Insulated Wire Co., Inc.
Teraglas—Natvar Corp.
Termaline—Bird Electronic Corp.
Termend—Buchanan Electrical Products Corp.
Teslar PVF—Du Pont de Nemours & Co., E. I.
Test-Amatic—Schmit Engineering Co.
Test Master—Precision Apparatus Co., Inc.
Test-Ur-Own—American Scientific Dev. Co.
Testometer—Maxson Corp., W. L.
Tetgraf—Grafo Colloids Corp.
Tetra-Etch—Gore & Assoc., Inc., W. L.
Tetra-Seal—Gore & Assoc., Inc., W. L.
Tetra-Tubes—Gore & Assoc., Inc., W. L.
Tetroc—Sprague Electric Co.
Tex-Cap—Texas Capacitor Co.
Texins—Texas Instruments, Inc.
Texlite—Goodrich Co., B. F.
Textet—Borden Chemical Co.
Textolite—General Electric Co.
Thelco—Precision Scientific Co.
Ther-Monic—Induction Heating Corp.
Therlo—Driver-Harris Co.
Therma Cal—North Shore Nameplate
Therma Mark—North Shore Nameplate
Therma-Node—Kay Electric Co.
Thermac—Research, Inc.
Thermal-Indicator—Minco Products, Inc.
Thermal-Ribbon—Minco Products, Inc.
Thermal-Set—Robertshaw-Fulton Controls Co.
Thermaleze—Phelps Dodge Copper Products Corp.
ThermaLine—International Radiant Corp.
Thermalon—Hitemp Wires, Inc.
Thermaltite—Borden Chemical Co.
Thermatool—New Rochelle Thermatool Corp.
Thermatrol—Hatfield Wire & Cable Div.
Thermax—General Cable Corp.
Thermica—Electronic Mechanics, Inc.
Thermion—Rescon Electronics Corp.
Thermistemp—Yellow Springs Instrument Co.
Thermo-Cable—Thermo Electric Co., Inc.
Thermo-Cousti—Thompson Fibre Glass Co., H. I.
Thermo-Grip—Ideal Industries, Inc.
Thermo-Snap—Texas Instruments, Inc.
Thermo-Tip—Ideal Industries, Inc.
Thermocal—Radiation Electronics Co.
Thermocells—Ohio Semiconductors, Inc.
Thermodot—Radiation Electronics Co.
Thermodyne—Modern Lab. Equipment Co.
ThermoElectronic—Thermo Electric Co., Inc.
Thermofit—Raychem Corp.
Thermoflex—Cavitron Electron Oscillator Co.
Thermogun—Raychem Corp.
Thermohm—Leeds & Northrup Co.
Thermolain—Star Porcelain Co.
Thermolastic—Cox & Co., Inc.
Thermopatch—Cox & Co., Inc.
Thermosheet—Cox & Co., Inc.
Thermostatic Brain—Wall Mfg. Co., P.
Thermotek—Radiation Electronics Co.
Thermotest—Technique Associates
Thermoverter—Bristol Co.
Thermowire—Cox & Co., Inc.
Thinplates—Park Nameplate Co., Inc.
Thor—Borden Chemical Co.
Thorblack—Thordarson-Meissner
Thormica—Mykroy, Inc.
Thorseal—Thordarson-Meissner
Three-Phase—Sciaky Bros., Inc.
Three-Vu—Staples-Hoppmann, Inc.
Thru-Pass—Sprague Electric Co.
Thruline—Bird Electronic Corp.
Thunderbird—ITI Electronics, Inc.
Thyac—Victoreen Instrument Co.
Thyra-Line—Hanson-Gorrill-Brian, Inc.
Thyra-Pulse—Hanson-Gorrill-Brian, Inc.
Thyracontrol—Vectrol Eng., Inc.
Thyrite—General Electric Co.
Thyrode—International Rectifier Corp.
Ti-Co—Thomas Instrument Co.
Tie-Amatic—Schmit Engineering Co.
Tiger—United States Steel Corp.
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Time-Master—Dictaphone Corp.
Time-O-Lite—Industrial Timer Corp.
Time Switches—International Register Co.
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Timm—General Electric Co.
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Tini-Jax—Switchcraft, Inc.
Tini-Plugs—Switchcraft, Inc.
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Tinybeam—Tennalab
Tinylites—Drake Mfg. Co.
Tinymag—Torwico Electronics, Inc.
Tinymax—Torwico Electronics, Inc.
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Tinytenna—Tennalab
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Titebilt—Phelps Dodge Copper Products Corp.
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Toridal—Communication Accessories Co.
Tornado—Stokes Corp., F. J.
Toroiductors—Forbes & Wagner, Inc.
Toroyd—Universal Mfg. Co., Inc.
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Touch-A-Matic—Felker Mfg. Co.
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TRADE-NAME INDEX

Transheat—BTU Engineering Corp.
Transi-Lytic—Sprague Electric Co.
Transi-Mag—Magnetic Amplifiers Div.
Transidyne—Spectrol Electronics Corp.
Transifier—Kay Electric Co.
Transimulator—Sprague Electric Co.
Transiply—Kay Electric Co.
Transiprobe—Kay Electric Co.
Transist-O-Check—Transistor Specialties, Inc.
Transist-O-Count—Transistor Specialties, Inc.
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Transvar—Sperry Microwave Electronics Co.
Trap-Ease—Jerrold Electronics Corp.
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Tri-Ind-X—Sperry Products Co.
Tri-Lok—Boots Aircraft Nut Corp.
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Triax—Jensen Mfg. Co.
Triaxial—Jensen Mfg. Co.
Triaxiom—Goodmans Industries, Ltd.
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Trig Towers—Rostan Corp.
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Trim Trol—Airborne Accessories Corp.
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Trimistor—Bourns, Inc.
Trimit—Bourns, Inc.
Trimline—Rome Cable Div.
Trimm—Bourns, Inc.
Trimquate—Subminiature Instruments Corp.
Trimr—Bourns, Inc.
Trinistor—Westinghouse Electric Corp.
Trinox—Trinity Equipment Corp.
Trinseel—Tri-Point Plastics, Inc.
Triple A—Acromark Co.
Triploc—Pyle-National Co.
Trixie—Burroughs Corp.
Trojan—Hexacon Electric Co.
Trop-Arctic—Guardite Co.
Tropicap—Micamold Electronics Mfg. Corp.
Tru-Match—Quam-Nichols Co.
Tru-Rib—Tru-Ohm Products Div.
Tru-Trak—Western Coil & Electrical Co.
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Truflex—Texas Instruments, Inc.
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Trulite—Republic Aviation Corp.
Truon—Berg Mfg. Corp.
Trusonic—Stephens Trusonic, Inc.
Tryhigh—Trygon Electronics, Inc.
Trylat—Trygon Electronics, Inc.
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Tube-R-Cap—Centralab Electronics Div.
Tuck—Technical Tape Corp.
Tuf-Plate—Photocircuits Corp.
Tuff Tite—Townsend Co.
Tufflon—Tensolite Insulated Wire Co., Inc.
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Turbolene—Brand-Rex Div., William
Turbolex—Brand-Rex Div., William
Turbopower—Tur-Bo Jet Products Co., Inc.
Turbosil—Brand-Rex Div., William
Turbotemp—Brand-Rex Div., William
Turbotherm—Brand-Rex Div., William
Turbotrans—Brand-Rex Div., William
Turbozone—Brand-Rex Div., William
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Twist-Mount—Pyramid Electric Co.
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Tyme Styke—Schulmerich Carillons, Inc.
Tynee—Pyramid Electric Co.
Typotron—Hughes Aircraft Co.

—U—

UED—United Electrodynamics, Inc.
UHP—Alpha Metals, Inc.
UHR—Mid-Eastern Electronics, Inc.
U-Line—Illumitronic Engineering
UMC—Illinois Condenser Co.
UMP—Illinois Condenser Co.
USD—United States Dynamics, Inc.
USE—United States Electronics Corp.
Uacte—Pacific Automation Products, Inc.
UFlex—Hatfield Wire & Cable Div.
UlteVac—Ultek Corp.
Ultra-Compact—United Transformer Corp.
Ultra-Kap—Centralab Electronics Div.
Ultra-Min-Elec—Argonne Electronics Mfg. Corp.
Ultra-Pix—Kay Electric Co.
Ultra-Sweep—Kay Electric Co.
Ultra-Vision—Minneapolis-Honeywell Regulator Co.
Ultraflex—Cutler-Hammer, Inc.
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Ultramicrowave—DeMornay-Bonardi
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Unecap—United Electronic Mfg. Corp.
Unelco—Underwood Electrical & Mfg. Co., Inc.
Unex—Nichols & Clark, Inc.
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Uni-Tuner—Allen Electric & Equipment Co.
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Unimode—MB Electronics Div.
Unipak—Sprague Electric Co.
Uniplug—Applegate & Co., C. J.
Unipoise—Pickering & Co., Inc.
Unipole—Andrew Corp.
Uniprene—General Cable Corp.
Uniring—Burndy Corp.
Uniservo—Remington Rand Univac
Unison—Bendix Corp.
Unistac—International Rectifier Corp.
Unistruc—Skydyne, Inc.
Unitape—Remington Rand Univac
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U. S. Millrite—U. S. Burke Machine Tool Co.
Uniterm—Information for Industry, Inc.
Unitized—Magnatran, Inc.
Unitrol—Cutler-Hammer, Inc.
Univac—Remington Rand Univac
Univamp—Jerrold Electronics Corp.
Universal—Dzus Fastener Co., Inc.
Universal—K-W Engineering Works
Universal—Mueller Electric Co.
Universal—Shielding, Inc.
Useco—Litton Industries
Utilator—Kay Electric Co.
Utilco—Union Steel Chest Corp.
Utilevap—Diamond Power Specialty Corp.
Utilimount—Diamond Power Specialty Corp.
Utiliscope—Diamond Power Specialty Corp.

—V—

V-70VIRS—Par Products Corp.
VAW Meter—Fluke Mfg. Co., Inc., John
V-Dot—Inertia Switch, Inc.
VX—Vitramon, Inc.
VO—Gulton Industries, Inc.
VP—Texas Instruments, Inc.
V.T.—Ohmite Mfg. Co.
Vac-Tite—Hermetic Seal Corp.
Vacu-Master—Hayes, Inc., C. I.
Vadac—Kearfott Div.
Val—Tru-Ohm Products Div.
Val 90—Valverde Labs.
ValuLine—International Radiant Corp.
Vamistor—Daystrom, Inc.
Vamp—Antenna & Radome Research Assoc.

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Vaneaxial—Garrett Corp.
Vantron—Van Norman Industries, Inc.
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Vapor-Temp—Blue M Electric Co.
Vapormaster—Crouse-Hinds Co.
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Varelay-Power—Fisher-Pierce Co.
Varelectric—Vapor Recovery Systems Co.
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Vari-Kap—Wesco Electrical Co., Inc.
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Verni Dial—Howell Instrument Co.
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Vernistop—Perkin-Elmer Corp.
Vernitel—Hoover Electronics Co.
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Versatrol—Assembly Products, Inc.
Versilube—General Electric Co.
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Verti-Lytic—Sprague Electric Co.
Verti-Ohm—Tru-Ohm Products Div.
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Vibra-Tine—Gyrex Corp.
Vibrachopper—Solid State Electronics Co.
Vibralyzer—Kay Electric Co.
Vibrapack—Mallory & Co., Inc., P. R.
Vibraplane—Allied Research Assoc., Inc.
Vibrapool—Coil Co. of America, Inc.
Vibrasonic—Bendix-Pacific Div.
Vibraswitch—Robertshaw-Fulton Controls Co.
Vibro-Flo—Armstrong Products Co.
Vibro-Fluidizer—Armstrong Products Co.
Vibroground—Associated Research, Inc.
Vibrotest—Associated Research, Inc.
Vibrotron—Borg-Warner Controls

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Vico—Video Industries Co.
Victor—RCA Victor Co., Ltd.
Vidaligner—Kay Electric Co.
Video Telegauge—Grimson Color, Inc.
Videotape—Ampex Corp.
Vidiac—CBS Labs.
Viking—Jensen Mfg. Co.
Vilite—Mico Instrument Co.
Vinylac—Borden Chemical Co.
ViP—Texas Instrument, Inc.
Viscor—Daystrom, Inc.
Visette—Sanborn Co.
Visi-Mag—Magnecessories
Visigauge—Dawe Instruments, Ltd.
Visionear—Nichols & Clark, Inc.
Viso-Cardiette—Sanborn Co.
Visoton—Biophysical Electronics, Inc.
Visualarm—Crouse-Hinds Co.
Vitamin Q—Sprague Electric Co.
Vitreosil—Thermal American Fused Quartz Co.
Vitrohm—Ward Leonard Electric Co.
Vitrolain—Star Porcelain Co.
Vitronic Eye—Minneapolis-Honeywell Regulator Co.
Vitrox—Vitro Chemical Co.
Vocameter—Cubic Corp.
Vocatron—Vocaline Co. of America, Inc.
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Voiceplex—Kahn Research Labs, Inc.
Voicewriter—Edison Industries Thomas A.
Voicon—Radio Frequency Labs., Inc.
Voldicon—Adage, Inc.
Volmac—Librascope Div.
Volt-Ohmatic—Bergen Labs., Inc.
Voltabloc—Gulton Industries, Inc.
Voltbox—Superior Electric Co.
Voltmaster—Pioneer Gen-E-Motor Corp.
Voltohmyst—Radio Corp. of America
Voltran—Power Designs, Inc.
Voycall—Lake Mfg. Co.
Vulcoid—Continental-Diamond Fibre Corp.
Vycor—Corning Glass Works

—W—

W & C—Weighing & Controls, Inc.
W/Point—Parker-Kalon Div.
Waco—Washington Aluminum Co., Inc.
WacTac—WacLine, Inc.
Wahlquist—Nilsson Electrical Lab., Inc.
Walden—Instruments of New England
Warlite—Warwick Products Co.
Warrenex—Warren Wire Co.
Warrenite—Warren Wire Co.
Watch Dog—General Electric Co.
Watchmaster—American Time Products, Inc.
Water-Seal—Joy Mfg. Co.
Weather Master—Jensen Mfg. Co.
Weatherfax—Westrex Corp.
Weatherman—Bendix Corp.
Web-Wip—Webster Mfg.
Webmaster—Cutler-Hammer, Inc.
Wedgie—Insulation Mfrs. Corp.
Wedgtite—Crouse-Hinds Co.
Wee-Ductors—Essex Electronics Div.
Wee Pot—Handley, Inc.
Wee Trim—Handley, Inc.
Weecoil—Wells Electronics Co.
Weepak—Wells Electronics Co.
Weightograph—Howe Scale Co.
Welderette—Transformer Design, Inc. of Milwaukee
Weldpak—Raytheon Co.
Weldrawn—Superior Tube Co.
Welmeg—Welwyn International Inc.
Welmet—Welwyn International Inc.
Wempy—Westfield Metal Products Co., Inc.
Wesgo—Western Gold & Platinum Co.
West-Cap—San Fernando Electric Mfg. Co.
Westmold—Microdot, Inc.
Whirlpool—RCA Victor Co., Ltd.
Whirlwind—REF Mfg. Corp.
Whitney-Jensen—Whitney Metal Tool Co.
Wickett—Dimick Mfg. Co.
Widco—Mandrel Industries, Inc.
Wilbro—Wildberg Bros. Smelting & Refining Co.
Williamsgrip—Garrett Corp.
Willson—Ray-O-Vac Co.
Winco—Hudson Wire Co.
Winco—Wincharger Corp.
Wintronix—Winston Electronics Div.
Wire-Wrap—Gardner-Denver Co.
Wirewatt—Ohmite Mfg. Co.
Wobbulator—Canoga Div.
Wonderflux—American Silver Co., Inc.
Wonderod—Columbia Products Co.
Wood Welder—Cavitron Electron Oscillator Co.
World-Wide—Todd Electric Co., Inc.

—X—

XL—Essex Electronics Div.
XLX—Excellex Electronics, Inc.
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XY—Stromberg-Carlson Div.
Xela—Klein & Sons, Inc., Mathias
Xeristat—Advanced Instrument Corp.
Xerox—Haloid Xerox, Inc.
Xtradur—Hexacon Electric Co.

—Y—

Y—Switchcraft, Inc.
Yardmaster—Reeves Instrument Corp.
Yellow Jacket—Sprague Electric Co.
YorkMesh—York Co., Inc., Otto H.

—Z—

Zeniac—International Rectifier Corp.
Zerobeat—Bailey, Inc., P. A.
Zeromatic—Beckman Instruments, Inc.
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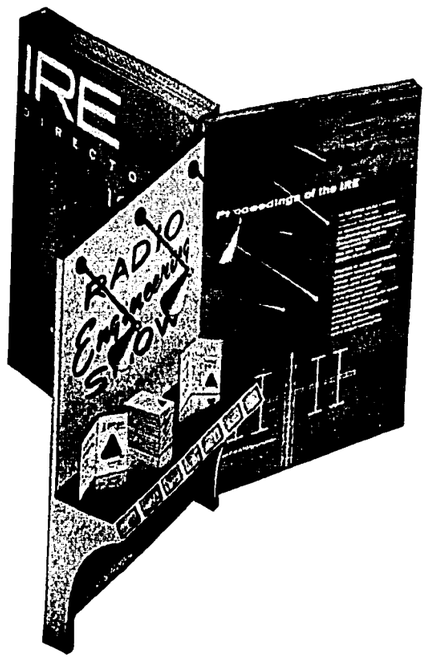

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Annual fee: $3.

The application of electronics to operation and traffic control of aircraft and to navigation of all craft.

Mr. George M. Kirkpatrick, Chairman, General Electric Co., Syracuse, N.Y.

40 Transactions, *6, & *9, Vol. 1, No. 3; Vol. 2, No. 1-3; Vol 4, No. 1, 2, 3; Vol, 5, No. 2, 3, 4; Vol. 6, No. 1, 2, 4; Vol. 7, No. 1, 2, 3, 4; Vol. 8, No. 1, 2.

Antennas and Propagation

Annual fee: $6.

Technical advances in antennas and wave propagation theory and the utilization of techniques or products of this field.

Dr. Harry Fine, Chairman, Applied Propagation Branch FCC, Washington, D.C.

38 Transactions, *Vol. AP-2, No. 2; AP-4, No. 4; AP-5, No. 1-4; AP-6, No. 1, 2, 3, 4; AP-7, No. 1, 2, 3, 4; AP-8, No. 1, 2, 3, 4, 5, 6; AP-9, No. 1, 2, 3, 4, 5.

Audio

Annual fee: $2.

Technology of communication at audio frequencies and of the audio portion of radio frequency systems, including acoustic terminations, recording and reproduction.

Prof. Cyril M. Harris, Chairman, Columbia University, 632 W. 125 St., New York 27, N.Y.

60 Transactions, *Vol. AU-1, No. 6; *Vol. AU-2, No. 4; Vol. AU-3, No. 1, 3, 5; Vol. AU-4, No. 1, 5-6; Vol. AU-5, No. 1, 2, 3, 4, 5, 6; AU-6, No. 1, 2, 3, 4, 5, 6; AU-7, No. 1, 2, 3, 4, 5, 6; AU-8, No. 1, 2, 3, 4, 5, 6; AU-9, No. 1, 2, 3, 4.

Automatic Control

Annual fee: $3.

The theory and application of automatic control techniques including feedback control systems.

Mr. John M. Salzer, Chairman, 909 Berkeley St., Santa Monica, Calif.

14 Transactions, PGAC-3-4-5-6, AC-4, No. 1, 2, 3; AC-5, No. 1, 2, 4; AC-6, No. 1, 2, 3.

Bio-Medical Electronics

Annual fee: $3.

The use of electronic theory and techniques in problems of medicine and biology.

Mr. George N. Webb, Chairman, Dept. of Med. Biophysical Div., Johns Hopkins Hospital, Baltimore 5, Md.

21 Transactions, 8, 9, 11, 12; ME-6, No. 1, 2, 3, 4; ME-7, No. 2, 3, 4; BME-8, No. 1, 2, 3.

Broadcast & Television Receivers

Annual fee: $4.

The design and manufacture of broadcast and television receivers and components and activities related thereto.

Mr. Robert R. Thalner, Chairman, Sylvania Home Electronics, Batavia, N.Y.

29 Transactions, *7, 8; BTR-1, No. 1-3, BTR-2, No. 1-2-3; BTR-3, No. 1-2; BTR-4, No. 2, 3-4; BTR-5, No. 1, 2; BTR-6, No. 1, 2, 3; BTR-7, No. 1, 2.

Broadcasting

Annual fee: $2.

Broadcast transmission systems engineering, including the design and utilization of broadcast equipment.

Mr. Raymond F. Guy, Chairman, 264 Franklin St., Haworth, N.J.

20 Transactions, No. 10, 11, 12, 13, 14; BC-6, No. 1, 2, 3,; BC-7, No. 1, 2, 3

Circuit Theory

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Dr. James H. Mulligan, Jr., Chairman, College of Eng., New York University, New York 53, N.Y.

31 Transactions, CT-4, No 3-4; CT-5, No. 1, 2, 3, 4; CT-6, No. 1, 2, 3, 4; CT-7, No. 2, 3, 4; CT-8, No. 1, 2.

Communications Systems

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Mr. Ralph L. Marks, Chairman, Rome Air Dev. Center, Griffiss AFB, N.Y.

22 Transactions, CS-5, No. 2, 3; CS-6, No. 1, 2; CS-7, No. 1, 3, 4; CS-8, No. 1, 2, 3, 4; CS-9, No. 1, 2.

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Mr. Floyd E. Wenger, Chairman, Headquarters ARDC, Andrews AFB, Washington 25, D.C.

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14 Transactions, Vol. E-1, No. 3, 4; E-2, No. 1, 2, 3, 4; E-3, No. 1, 2, 3, 4; E-4, No. 1, 2.

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Mr. T. W. Jarmie, Chairman, Engineered Electronics, 1441 East Chestnut Ave., Santa Ana, Calif.

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John M. Kinn, Jr., Chairman, IBM Journal, 545 Madison Ave., New York, N.Y.

9 Transactions, Vol. EWS-1, No. 2; EWS-2, No. 1, 2, 3; EWS-3, No. 1; EWS-4, No. 1, 2.

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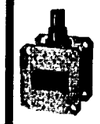

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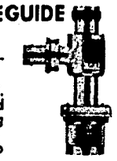

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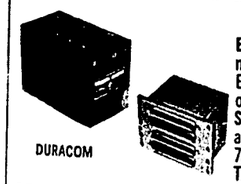

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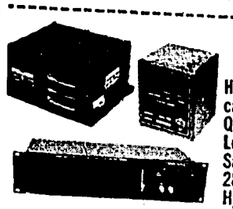

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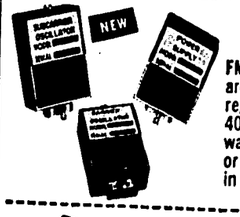

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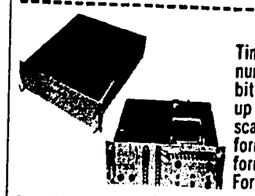

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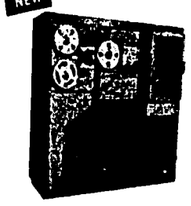

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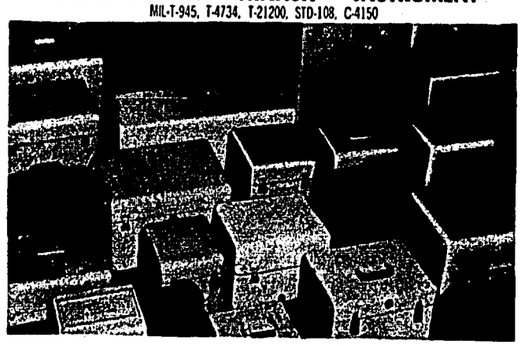

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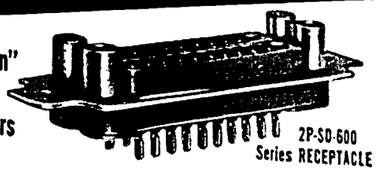
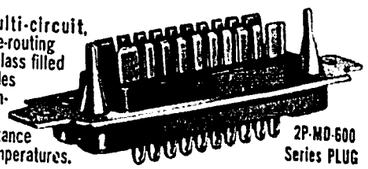
CONNECTORS

For RACK and PANEL Applications

"Reli-Acon" Paired Connectors



2P-SD-600 Series RECEPTACLE



2P-MD-600 Series PLUG

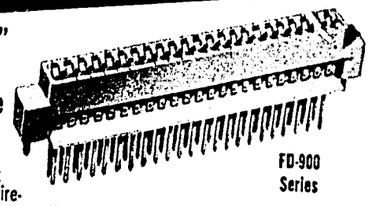
Ideal for multi-circuit, switching or re-routing applications. Glass filled "DIALL" provides excellent dimensional stability and high resistance at elevated temperatures.

Female contacts designed to provide low millivolt drop after repeated insertions and assure positive contact under extreme vibration. Contacts are of spring tempered phosphor bronze, gold-plated which will not tarnish or corrode and provide good solderability for an indefinite period.

Mounting plates are cadmium plated steel to meet the most extreme environmental conditions. Optional floating mounting grommets allow for misalignment during mating. Polarizing pins provide positive mating.

For WIRE WRAP APPLICATIONS

"Reli-Acon" Card Receptacle



FD-900 Series

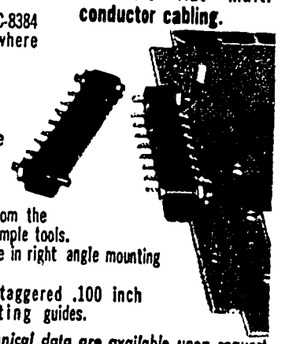
These printed circuit card receptacles meet most rigid requirements of military applications. Can be used with single or double-sided printed circuit boards. Contact terminals of the preferred wire wrap type spaced on .200 grid centers provide rapid, dependable mechanical connections through use of individual wrapping gun or programmed automatic wiring.

TWO PART PRINTED CIRCUIT CONNECTOR

Series MD-1100 and SD-1100.

Designed for aircraft, radar, and missile applications. Especially suitable for use with printed circuit boards or, Plyo-Duct, Methode's flat multi-conductor cabling.

Exceed requirements of MIL-C-8384 and NAS 713, 714, 715 where applicable.



Methode Multiple Contact Connectors are designed to alleviate difficulties which are usually common with this type of connector, using closed entry sockets which may be inserted into and removed from the connector after wiring with simple tools.
The male connector is available in right angle mounting or upright style.
Available with contacts on staggered .100 inch centers with polarized mating guides.

Illustrated literature and technical data are available upon request.

We invite your inquiry.

Methode Electronics, Inc.

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Chicago 31, Illinois

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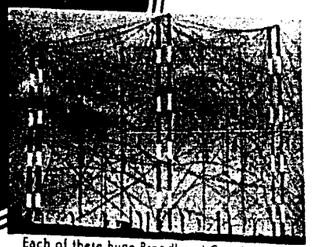

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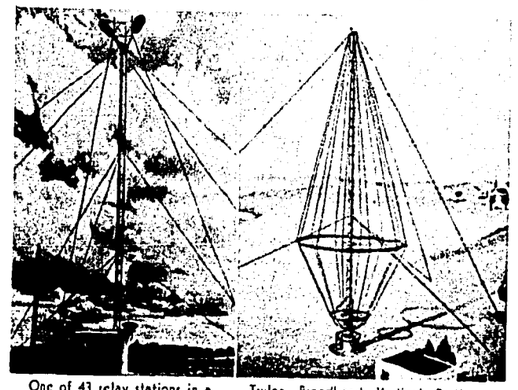
VHF: DIPOLE, DIPOLE ARRAYS, BROADSIDE, CORNER REFLECTOR, BEDSPRING, LOG PERIODIC, CIRCULARLY POLARIZED, RHOMBIC, TRYLON-LAPORT RHOMBIC.

UHF: CIRCULARLY POLARIZED, DIPOLE, LOG PERIODIC.



One of 43 relay stations in a 1100 mile microwave link. The 100 ft. Trylon 2400 H Tower supports two reflectors. Parabolic antennas are on the equipment building.

Trylon Broadband Vertical Radiators offer extremely constant input impedance without requiring matching equipment, have power handling capacity to 150 Kw or more and excellent radiation performance. For 2-6 mc., 4.5—13.5 or similar ranges.

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Structural and tubular steel, stainless steel, and aluminum, guy and self-supporting towers.

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Model antenna investigations, high voltage insulator tests and associated tower tests • ANTENNA AND TOWER RESEARCH AND DEVELOPMENT.

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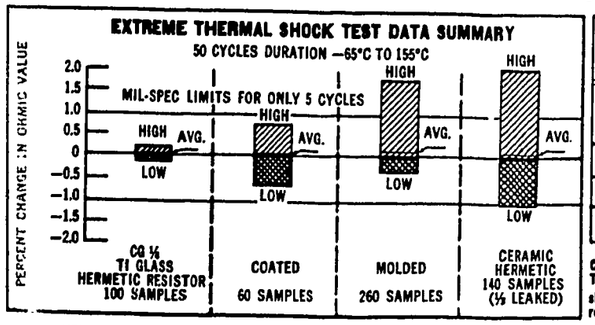
Make this dramatic test yourself and discover why Texas Instruments *hard glass* encapsulated carbon film resistors outperform those of any other construction. First torture the resistor by immersing it in molten solder at 350°C — then quickly dip it in water. Now, test the device for electrical stability and mechanical intactness and you'll find as we have that these precision hermetic resistors are completely unaffected by violent thermal shock. Such performance is possible ONLY because TI type CG ⅛ and CG ¼ resistors are protected by a *hard* glass encapsulant and entirely *solderless* construction. These same features virtually eliminate possible damage to the resistors during installation in your assemblies.

The extreme thermal shock test is only one of many tests that have proven over the past two years that TI type CG ⅛ and CG ¼ resistors are virtually indestructible. Over eleven million unit hours of test data have been compiled on moisture resistance, thermal shock, extended overload, and load life to *prove* that TI hard glass encapsulated resistors give you reliable performance under *all* environments and operating conditions. When you specify TI CG ⅛ and CG ¼ hermetic resistors, you can be assured of getting the most rugged, reliable, precision resistors available ... at prices you would pay for *ordinary* resistors!

Take advantage of the *proven* reliability of TI hard glass resistors ... order them *today* through your nearby TI Sales Office or authorized TI Distributor.



SPECIFICATIONS CG 4 ACTUAL SIZE

TI type number	wattage rating	MIL designation	standard resistance ranges	maximum recommended voltage
—	watts	—	—	volts
CG⅛	⅛	RN60B	24.9Ω to 1 megΩ	350
CG¼	¼	None	10Ω to 100k	250

Call or write today for complete specifications on TI's CG ⅛ and CG¼ resistors, or any of TI's complete line of semiconductors and components: silicon and germanium transistors, diodes and rectifiers, precision resistors, sensistor® silicon resistors, ion-Ti-cap® tantalum capacitors.

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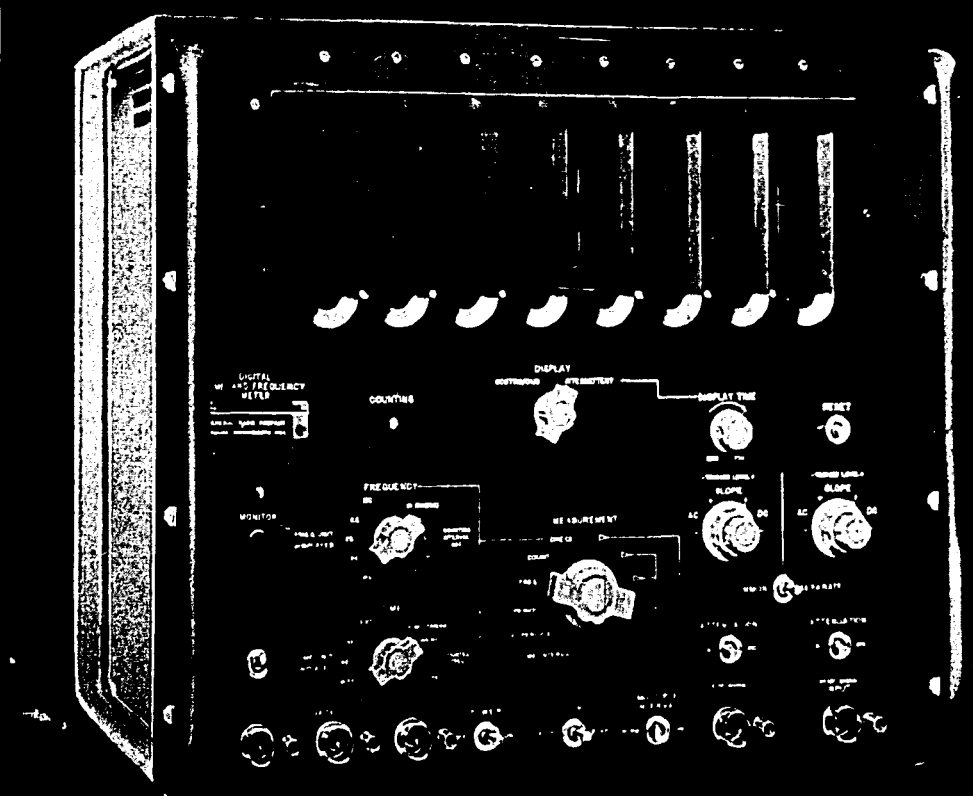

the Counter with a Memory

Continuous Readout to 10 Megacycles

The "memory" in this Counter constitutes an important new operating aid. Four of the instrument's eight decades are used for storage and continuous display, while the remaining four decades count continuously. At the end of each counting interval, the total accumulated by the counting decades is transferred automatically and quickly (only 100 μsec) to the storage and display decades. Continuous counting offers many advantages: information is sampled more often, frequency adjustments become easy, analog recording is greatly simplified, and operator eye fatigue induced by the dancing lights of intermittent displays is eliminated.

The Type 1130-A Digital Time and Frequency Meter is not just another counter. It embodies a number of new engineering contributions that are of fundamental importance.

This instrument is designed like a digital computer — to achieve a uniform level of high reliability throughout. "Down time", the bugaboo that robs the user of his full investment, is at a minimum.

Such improved reliability is achieved by:

1. New decade codes and high-speed counting circuits, *unlike those in other counters*, that make this instrument inherently reliable.
2. Circuits designed to operate properly under the worst combination of *cumulative* tolerances imposed by tubes, component values, and voltage levels. Counter *performs properly even with tubes approaching the half-dead state.*
3. Use of proven "hard-bottoming" multivibrator dividers that make for exceptional stability — eliminate need for periodic adjustments of time-base circuits.
4. Elimination of critical voltages. Neither plate nor filament supplies are, or need be, regulated.

RANGES:
Frequency: dc to 10 Mc
Period: 10 μsec to 10^7 sec
Time Interval: 1 μsec to 10^7 sec
Also measures 10 periods, frequency ratios, phase shifts, pulse characteristics, and counts random events.

SENSITIVITY:
0.25v rms

DISPLAY
4 digits continuous; 8 digits for sequential counting and display, with display-time variable from 0.1 to 10 sec.

ACCURACY:
±1 count ± time-base oscillator stability

AVAILABLE WITH SEVERAL PLUG-IN TIME-BASE OSCILLATORS

Buy the Time-Base Stability You Need

	Complete Instrument Type • Price	Short-Term Stability Better Than	Long-Term Stability Better Than
Completely Self-Contained	1130-A4, $2,950.	1 part in 10^9 per min.	5 parts in 10^8 per week
	1130-A3, $2,670.	1 part in 10^8 per min.	2 parts in 10^7 per week
For Use from External Standards	1130-A2, $2,750.	---- Same as 1130-A3 ---- Also operates from external 100-kc, 1-Mc, and 5-Mc inputs.	
	1130-A1, $2,585.	Requires 5-Mc driving signal; G-R 1113-A 5-Mc Standard Frequency Oscillator provides stability of 1 part in 10^{10} per min, 2 parts in 10^9 per week.	

For Digital Recording
1132-A Data Printer . . . $1450.
Records 8 digits from counter plus 4 digits from clock or other source, at speeds to 3 prints per sec . . . no modification of counter is required

For Graphic Recording
1134-A Digital-to-Analog Converter . . . $595
Makes possible low-cost, ALL-ELECTRONIC graphic strip-chart recording (no data printer needed) . . . high accuracy of 0.1%

For Measurements to 500 Mc
Frequency conversion units are under development

Write for Complete Information

GENERAL RADIO COMPANY

WEST CONCORD, MASSACHUSETTS

All G-R Products are covered by a 2-Year Warranty

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